

Severn Estuary Shoreline Management Plan Review

Appendix F: Policy Development and Appraisal





Severn Estuary Shoreline Management Plan Review (SMP2)

Appendix F: Policy Development and Appraisal

December 2010

Notice

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Supporting Appendices

Information required to support the Severn Estuary Shoreline Management Plan Review (SMP2) is provided in the following appendices. These supporting documents offer transparency to the decision making process that is undertaken, leading to explanations and reasoning for the promoted policies.

A: SMP2 Development	The history, structure and development of the SMP are detailed in this report. The investigation and decision making process are explained more fully to outline the procedure to setting policy.
B: Stakeholder Engagement and Consultation	Stakeholder communication is continuous through the SMP2 process, comments on the progress of the management plan are recorded within Appendix B.
C: Baseline Process Understanding	This report includes detail of coastal dynamics, defence data and shoreline scenario assessments of NAI (natural shoreline evolution) and With Present Management (WPM) i.e.: SMP1 Policy.
D: Theme Review	The identification and evaluation of the natural landscape and conservation, the historic environment and present and future land use of the shoreline.
E: Issues, Features and Objectives	The features of the shoreline are listed within this report. A series of strategic objectives are then set along with commentary on the relative importance of each feature identified.
F: Policy Development and Appraisal	Presents the consideration of generic policy options for each frontage identifying possible acceptable policies for testing. Appendix F Also presents the appraisal of impacts upon shoreline evolution and the appraisal of objective achievement.
G: Preferred Policy Scenario Testing	Presents the policy assessment of 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 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. This includes work to help towards a Habitat Regulatory Assessment (HRA).
J: Water Framework Assessment Report	Provides a retrospective assessment of the policies defined under the Severn Estuary SMP2 highlighting future issues for consideration at policy implementation stage.
K: Bibliographic Database	All supporting information used to develop the SMP is referenced for future examination and retrieval.

The information presented in each appendix is supported and guided by other appendices; the broad relationships between the appendices are illustrated overleaf.

Acronyms and Abbreviations

Term	Definition
AA	Appropriate Assessment.
АВР	Association of British Ports
AONB	Area of Outstanding Natural Beauty.
ASERA	Association of Severn Estuary Relevant Authorities
ATL	Advance the Line
BAP	Biodiversity Action Plans
ВССРА	Bristol Channel Counter Pollution Association
BMIF	British Marine Federation
CAPE	Community Adaptation Planning and Engagement
CCW	Countryside Council for Wales
CD	Chart Datum.
CFMP	Catchment Flood Management Plan
CHaMP	Coastal Habitat Management Plan
CPSE	Coast Protection Survey England
CSG	Client Steering Group, principal decision-making body for the Shoreline Management Plan = Severn Estuary Coastal Group (SECG)
CV	Capital Value. The actual value of costs or benefits.
DCLG	Department of Communities and Local Government
DECC	Department of Energy and Climate Change
Defra	Department for Food, Environment and Rural Affairs.
EA	Environment Agency, may also be referred to as 'The Agency'
EH	English Heritage
EiP	Examination in Public
EMF	Elected Members Forum (SMP2), comprising an Elected Member from each of the Local Authorities
FCA	Flood Consequence Assessment
FCDPAG3	Flood and Coastal Defences Project Appraisal Guidance
FCS	Favourable Conservation Status
GCR	Geological Conservation Review site

Term	Definition
GES	Good Ecological Status
GHT	Gloucester Harbour Trustees
GIS	Geographic Information System
НАТ	Highest Astronomical Tide
HER	Historic Environment Record
HLT	High Level Target
HMWB	Heavily Modified Water Bodies
HRA	Habitats Regulations Assessment
HTL	Hold the Line
ICZM	Integrated Coastal Zone Management
IFCA	Integrated Flood Consequence Assessment
IROPI	Imperative Reasons of Over-riding Public Interest
JAC	Joint Advisory Committee (of the Severn Estuary Partnership)
KSG	Key Stakeholder Group, which acts as a focal point for discussion and consultation through development of the SMP
KWS	Key Wildlife Sites
LAT	Lowest Astronomical Tide
LDP	Local Development Plan
LPA	Local Planning Authority
MAFF	Ministry of Agriculture Fisheries and Food (now DEFRA)
MCZ	Marine Conservation Zone
MHWN	Mean High Water Neap tide
MHWS	Mean High Water Spring tide
MLWN	Mean Low Water Neap tide
MLWS	Mean Low Water Spring tide
ММО	Marine Management Organisation
MoD	Ministry of Defence
MR	Managed Realignment
MSL	Mean Sea Level
MU	Management Unit

Term	Definition	
NAI	No Active Intervention	
NE	Natural England	
NEDS	National Economic Development Strategy	
NFDCC	National Flood and Coastal Defence Database	
NMR	National Monuments Record	
NNR	National Nature Reserve	
NT	National Trust	
ODPM	Office of the Deputy Prime Minister	
РСРА	Planning and Compulsory Purchase Act	
PMG	Project Management Group	
PPG	Planning Policy Guidance	
PPS	Planning Policy Statement	
PSA	Public Service Agreement	
PU	Policy Unit	
PWW	Planning Policy Wales	
QRG	Quality Review Group	
RBMP	River Basin Management Plan	
RCZAS	Rapid Coastal Zone Assessment Survey	
RDP	Rural Development Plan	
RSS	Regional Spatial Strategy	
RYA	Royal Yachting Association	
SAC	Special Area of Conservation	
SAM	Scheduled Ancient Monument	
SDAP	Sustainable Development Action Plan	
SDS	Sustainable Development Schemes	
SEA	Strategic Environmental Assessment	
SECG	Severn Estuary Coastal Group = Client Steering Group (CSG)	
SEFRMS	Severn Estuary Flood Risk Management Strategy	
SEP	Severn Estuary Partnership	

Term	Definition
SESMP2	Severn Estuary Shoreline Management Plan Review
SFC	Sea Fisheries Committee
SFRA	Strategic flood risk assessment
SMP	Shoreline Management Plan
SMP1	A first-round Shoreline Management Plan
SMP2	A second-round Shoreline Management Plan
SMR	Sites and Monuments Record
SoP	Standard of Protection
SPA	Special Protection Area
SRS	Single Regional Strategy
SSSI	Site of Special Scientific Interest
SuDs	Sustainable Urban Drainage System
TAN	Technical Advice Note
UKCiP	United Kingdom Climate Impacts Programme
UKCP	UK Climate Projections
WAG	Welsh Assembly Government
WFD	Water Framework Directive
WPM	With Present Management
WSP	Wales Spatial Plan

Glossary of Terms and Definitions

Term	Definition
Accretion	Accumulation of sand or other beach material due to the natural action of waves, currents and wind
Coastal Squeeze	The reduction in habitat area which can arise if the natural landward migration of a habitat under sea level rise is prevented by a fixation of the high water mark.
Feature (also referred to as Issue)	Something tangible that provides a service to society in one form or another, or more simply, benefits certain aspects of society by its very existence. This will be of a specific geographical location and specific to the SMP.
Foreshore	Zone between high and low water marks
Groyne	Shore protection structure built perpendicular to the shore, designed to trap sediment
Objective	An objective is set, through consultation with key parties, to encourage the resolution of an issue or range of issues. It is a desired state to be achieved in the future
Policy	In this context, 'policy' refers to the generic shoreline management options based on the Defra guidance
Policy Scenario	The combinations of policies selected against the various feature / benefit objectives for the SMP frontage
Policy Unit	Sections of coastline for which a certain coastal defence management policy has been defined.

Compliance to the SMP2 Quality Review Group (QRG) Terms of Reference

This Appendix of the SMP 2 seeks to meet the following requirements set out by the Terms of Reference (ToR) of the Quality Review Group:

- Impacts of policies on both coastal processes and coastal features (as identified by the Theme Review) are adequately addressed in both the plan summary in the main document and the supporting appendices
- The impacts of different policy scenarios have been clearly analysed and compared, e.g. NAI against with present management
- The justification (or rejection) of policies is clearly defined in terms of processes, environment, social and economics parameters, both in the short and long-term
- The SMP challenges with coastal management options, particularly in the longer term epoch
- The decision process is logical and there is a clear audit trail for decisions
- The long-term plan does not appear to be driven by any short-term policy options
- Where social reasons override the environmental or economic factors to support the preferred policy option, the decision process and any impacts are clearly set out

This Appendix is divided into two separate Parts:

PART A - Initial SMP2 Policy Appraisal;

PART B – Policy Assessment against Objectives.

1. PART A: INITIAL SMP2 POLICY APPRAISAL

1.1 Aim

The Initial Policy Assessment aims to consider appropriate potential SMP2 policies based on the understanding of local features as set out in the Theme Review (*Appendix D*), their significance and whether they can be replaced (*Appendix E*).

This Appendix outlines the key steps undertaken in the development and definition of policies. Policy Scenarios (referred to in this SMP2 as "Management Approaches" have then been taken forward and appraised and the results of this appraisal are presented in Appendix G.

The recommended approach (Defra Guidance) for development of a sustainable plan is through the assessment of Policy Scenarios to take account of the way lengths of shoreline interact with each other, rather than considering locations in isolation. The aim of this stage has therefore been to identify the appropriate combinations of policies to be appraised for the whole SMP frontage. This has involved the following activities:

- Identification of Key Policy Drivers
- Identification of potential policy options through a broad-level appraisal of the four generic policy choices
- Development of Policy Scenarios for assessment

It should be noted that the first two tasks have looked at individual locations in relative isolation, but wider-scale impacts of policies have been assessed during the Policy Scenario appraisal stage which has looked at the likely shoreline response and evolution both locally and along the SMP shoreline as a whole.

1.2 Approach

1.2.1 Policy Unit Development

In the following initial assessment of appropriate policy, each existing **Theme Area** is divided into a series of **Policy Units**. Policy Units were determined by land use, flood and / or erosion risk along the shoreline. Where flood / erosion risk and / or land use is common across a Theme Area boundary, the Policy Unit will cross Theme Area to form a more appropriate Policy Unit. The segmentation of Oldbury and Berkeley Power Stations are examples of how land-use at the shoreline has driven individual Policy Units - the small stretches of shoreline are separate Policy Units due to the different land use and level of risk associated with each site. Extensive flood risk on the Caldicot and Wentlooge Levels has led to the development of large Policy Units here.

The tables presented in this report (*Identification of Potential Policy*) identify those indicative Policy Units and initial policy options that have been reviewed in more detail subsequently. Land use and flood and/or erosion risk along the shoreline are important considerations in the assessment of probable appropriate policy. Different features along the shoreline have conflicting objectives, and therefore multiple policy options are selected through the following assessment for later appraisal over the 3 epochs considered by the SMP2: 0 -20 years, 20 -50 and 50 to 100 years.

Policy Unit titles are related to the Theme Area originally identified to help the reader and for consistency and transparency (e.g. PEN = Penarth).

1.2.2 Policy Options

An initial brief review of all four generic Defra policy options was undertaken to determine which policies could be appropriate, considering not only the defined objectives but also their technical feasibility, and likely economic justification. Details on how these options were communicated to Key Stakeholders (as part of the Policy Development approach undertaken in June 2009 is set out in *Appendix B*).

In order to determine the likely economic justification, a broad assessment was made of assets potentially at risk under the baseline scenario **No Active Intervention (NAI)**. This used the mapping produced as part of the baseline scenario assessment (see **Appendix C**). The possible benefits and opportunities arising from each policy option in relation to the objectives for a frontage were identified, for each of the three epochs. This process allowed identification of which policy options were viable for a particular feature and were therefore taken forward for further scrutiny.

The definitions for this SMP2 as consulted with the Coastal Group are set out below:

Hold the Line (HTL) by maintaining or changing the standard of protection. The standard of
protection could increase or decrease.

The intent of this policy is to maintain the current position of the shoreline. This does not necessarily mean that the existing defences would be maintained in exactly the same form as they are at present. There may be a need to adjust the local alignment in the future or to replace or add to structures e.g. constructing cross shore or shore-linked structures, such as groynes or breakwaters, may be one approach adopted under this policy in specific cases. The policy sets the intent to maintain the current position of the coast in an appropriate manner, which will differ depending on the specific local issues. The standard of protection could increase, decrease or stay the same.

 Advance the Line (ATL) by building new defences on the seaward side of the original defences, the advancement of the existing defence line assumes land reclamation and increased standard of protection from flooding and erosion to the current assets. Using this policy should be limited to those Policy Units where significant land reclamation is considered.

This scenario has been appraised over the whole life cycle of the SMP2 (i.e. 100-years). Within the tables the 3 epochs have been merged to indicate that advancing the line would have an impact, but should not be considered in each epoch, (i.e. the line would not be advanced in all 3 epochs, it would be advanced once, and then held in that position.) The timing of the process of advancing the line will need to be further appraised in future studies.

 Managed Realignment (MR) by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).

Managed realignment is used where there is a need for continued intervention to achieve a specific outcome. It may arise from a series of different circumstances. The overall aim is that management of the shoreline would be improved by either allowing or creating the conditions for the coast to realign.

One example of this is moving a linear flood defence back from the active coastal zone, providing a more secure position for defences, while also allowing the shoreline to adjust. In other cases the coast may be allowed to retreat before intervention is undertaken, which may create the opportunity to retain a beach in front of a set back hard defence. Managed

realignment should also take account of how adjacent Policy Units function together. For example, it may be that in one Policy Unit the policy is to hold the line and in doing so; the coast in an adjacent unit is allowed to function more naturally.

This scenario has been appraised over the whole life cycle of the SMP2 (i.e. 100-years). Within the tables the 3 epochs have been merged to indicate that realigning the line would have an impact, but should not be considered in each epoch, (i.e. the line would not be a realigned in all 3 epochs, it would be moved once, and then held in that position.) The timing of the process of realigning the line will need to be further appraised in future studies.

 No Active Intervention (NAI), where there is no investment in coastal defences or operations.

A No Active Intervention policy arises from two distinct sets of circumstances.

1 – The coast needs to be allowed to develop naturally. Typically, it may be that erosion of a frontage is providing sediment to other sections of the coast. It may, therefore, be important that the coast is allowed to continue to erode if sustainable intervention is to be achieved elsewhere.

2 – Where it is unlikely that operating authorities would provide funding for defence. In such cases, privately funded works may still be permissible but there may be conditions associated with this to ensure that private works do not result in negative impacts on other interests.

In setting policy there will be important caveats. There is undoubtedly uncertainty associated with behaviour of the estuary, in particular in relation to the ability to maintain defences in relation to the estuary's response to sea level rise. In addition to the above there are potential impacts on the important natural conservation interests that need to be considered. While the proposed management plan is realistic set against anticipated change this will need to be monitored and reviewed.

1.2.3 Key Policy Drivers

Key Policy Drivers are features that are so important that they can influence the choice of policy option at a large scale, in more than one stretch of shoreline (Policy Unit) and possible across the whole SMP2. Keeping or improving the benefits people get from these features may be a requirement at a regional, national or international level e.g. protecting EU conservation sites is an international commitment. Key Policy Drivers point towards the choice of possible policies. Impacts on Key Policy Drivers have been assessed as major impacts.

Features that are not Key Policy Drivers are not ignored. They are considered in choosing the policy option in the Policy Unit where they are located, but they do not influence the choice of policy beyond their immediate location. Key Policy Drivers can influence the choice of policy option in more than one Policy Unit (i.e.: across a far broader strategic area).

Below sets out how different types of feature have been assessed and whether they are considered to be Key Policy Drivers.

Examples of a key driver may include:

- a power station which must be maintained, due to its national significance, (possibly only for a certain period of time if the facility is to be closed/decommissioned, or:
- an internationally important habitat which relies on constant sediment feed, driving policy for the up-drift shoreline.

The Issues and Features exercise (see *Appendix E*) was used to initially identify key policy drivers for the Estuary. The Key Stakeholders and Elected Members were invited to review and comment at the June 2009 workshop and forum.

2. Identification of Potential Policy Drivers and Options

2.1 Overview to the Section

This section summarises for each Theme Area a series of proposed Policy Units, each containing a broad, high-level appraisal of the policies undertaken to assess potential benefits of implementing a policy. It has been produced to help identify where more detailed policy appraisal work was undertaken (see *Appendix G*). It outlines current SMP1 policy, the key factors within each Policy Unit (including possible Key Policy Drivers for later consideration), whether any Catchment Flood Management Plan (CFMP) policy is assigned within the Policy Unit boundary and the position of the Policy Unit boundary lines, which are an important consideration in later analysis.

At some locations, a change in policy to Managed Realignment (MR) or No Active Intervention (NAI), in the long-term, may potentially offer technical and/or environmental benefits, however its implementation could involve the loss of important environmental or anthropogenic assets. In these locations consideration of the long-term policy is presented for the 50- 100 year time period. This reflects its consideration as a possible long-term goal, and also the barriers to promoting such an approach within the current legislative framework whist properties remain occupied and environmental site losses require compensation. This does not preclude the earlier implementation of the long-term policy if favourable conditions are achieved sooner.

Stakeholders were consulted for their views regarding the appropriateness of the proposed policy options during the consultation events held in June 2009 (see *Appendix B*).

2.2 Post-consultation amendments

It should be noted that the policy options assessed in this part are those undertaken to prepare the draft SMP2 prior to the public consultation in 2009. Following the analysis of the consultation results, policy options may be changed, based on the feedback and comments received during the consultation. The policies presented in the final SMP2 document could, therefore, differ from those assessed or presented in this Appendix. Comments received and amendments made as a result of the public consultation are set out in Appendix B – Stakeholder Involvement.

2.3 Penarth Theme Area (PEN)

Penarth – South of Forest Road (PEN 1)						
Summary description:	Summary description: Mainly residential – more rural at the southern end.					
Possible Key Policy D	rivers - Coastal path, Nature	Conserva	tion sites, Resident	ial areas		
Position of 'the line': T	oe of cliff					
Policy	Policy Years 0 –20(2025) Years 20–50(2055) Years 50–100(2105)					
Hold the Line	To be appraised – No defences exist – minimal benefits, highly costly.					
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	nment Not feasible – no defences to manage, technically difficult and costly – low erosion, no risk of flooding					
No Active Intervention	No Active Intervention To be appraised – Low rate of erosion, no risk of flooding – preferred option					
	SMP1 Management Unit		Short Term Policy			
Current SMP1 Policy	Lavernock Point to Penarth Esplanade		Do Nothing			

Penarth – Forest Road	Penarth – Forest Road to Penarth Head (PEN 2)					
Summary description:	Mainly residential and small s	cale commercial, hotels, B&E	Bs			
Possible Key Policy De properties	rivers - Coastal path, Nature (Conservation sites, Pier, Lifeb	ooat station, Residential			
Position of 'the line': T	oe of cliff					
Policy	Years 0 – 20 (2025)	Years 20 – 50 (2055)	Years 50-100 (2105)			
Hold the Line	Some defences – sea wall a appraised	nd groynes. Low erosion, flo	od risk to esplanade – to be			
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Not feasible					
No Active Intervention	Low rate of erosion, no risk of	of flooding – to be appraised				
	SMP1 Management Unit	Short Term Policy				
Current SMP1 Policy	Lavernock Point to Penarth Esplanade Do Nothing					
Current Shir I Folicy	Penarth Esplanade	e Hold the Line				
	Penarth Head Hold the Line or Retreat the Line (by cliff control)					

2.4 Cardiff Theme Area (CAR)

Cardiff – Cardiff Bay (CAR 1)						
Summary description:	Residential, commercial, hote	els, offices				
Possible Key Policy D	r ivers – Coastal path (along E	Barrage), Cardif	f Barrage & Ba	ıy		
Position of 'the line': B	arrage					
Policy	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)					
Hold the Line	To be appraised – Defences – Cardiff Barrage 1,000 year SoP					
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	ealignment Not feasible					
No Active Intervention	Not feasible – Barrage must be maintained					
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy		
	Cardiff Bay Barrage		Hold the Line			

Cardiff – Barrage to Ri	Cardiff – Barrage to River Rhymney, Rover Way				
(CAR 2)	(CAR 2)				
Summary description:	Mainly industrial and commer	cial, some res	sidential		
Possible Key Policy D	r ivers - Coastal path, Nature (Conservation s	sites, Pier, dock	S	
Position of 'the line': c	rest of existing defences / ma	de ground or d	current line of high	gh ground	
Policy	Years 0 – 20 (2025)	Years 20 - 5	50 (2055)	Years 50 - 100 (2105)	
	Some defences – made grou	und with intern	nittent rock armo	ouring.	
Hold the Line	Some flood risk in Tremorfa	in 20-50 yrs.			
	Will protect residential and ir	ndustrial asset	s – to be apprai	sed	
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	Not feasible – would require residential properties	relocation of I	arge area of ind	ustrial, commercial and	
No Active Intervention Low rate of erosion, low flood risk in short term – to be appraised				praised	
	SMP1 Management Unit Short Term Policy				
Current SMP1 Policy	Cardiff Bay Barrage		Hold the Line		
	North of Cardiff Flats to Peng	gam Moor	Hold the Line		
	River Rhymney		Hold the Line		

Cardiff – River Rhymney to Lamby Way landfill site drain / sewer outfall				
(CAR 3)				
· /	Mainly commercial and reside	ential		
	rivers - Coastal path, Nature		tes, Commerc	ial, Residential, Landfill site
	crest of existing defences / ma			· · · · · · · · · · · · · · · · · · ·
bank	, i i i i i i i i i i i i i i i i i i i	U	· · · ·	C .
Policy	Years 0 – 20 (2025)	Years 20 – 50) (2055)	Years 50 - 100 (2105)
	Some defences – earth emb	ankments		
Hold the Line	Some flood risk in Tremorfa	in 20-50 yrs.		
	Will protect residential and in	ndustrial assets	– to be appra	ised – consider CFMP policy
Advance the Line	No benefits, and potential environmental impacts			
Managed Realignment	Not feasible – would require residential properties	relocation of la	rge area of inc	lustrial, commercial and
No Active Intervention	Low rate of erosion, low floo policy	d risk in short to	erm – to be ap	praised – consider CFMP
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy
	River Rhymney		Hold the Line	
	CFMP Unit Policy			
CFMP Policy	River Rhymney PU7	River Rhymney PU7		actions to maintain flood t level (accepting that flood ase over time)

2.5 Wentlooge Theme Area (WEN)

Wentlooge – Lamby Way Landfill site drain / sewer outfall to Sluice House Farm / Tarwick Rhyne (WEN 1)				
Summary description:	mainly residential, commercia	al, becon	ning agricultural towa	ds northern end
	rivers - Nature Conservation s Iscape; electricity transmissior		•	
Position of 'the line':	grass embankment			
Policy	Years 0 – 20 (2025)	Years 2	20 – 50 (2055)	Years 50 - 100 (2105)
	Defences – grass embankm	ent fronte	ed by rock armour wit	h foreshore polders
Hold the Line	Long term erosion, flood risk	if defen	ces fail	
	Will protect residential and ir	ndustrial	assets – to be apprai	sed
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.			
Managed Realignment	Not feasible in short / medium term. Long term – to be appraised			
No Active Intervention	Not feasible in short / medium term. Long term – to be appraised			
Current SMD1 Dollar	SMP1 Management Unit		Short Term Policy	
Current SMP1 Policy	Rumney Great Wharf		Hold the Line or Re	treat the Line

Wentlooge – Sluice Ho bridge (WEN 2)	ouse Farm / Tarwick Rhyne t	o west bank o	of River Ebbw	at Maesglas railway		
Summary description:	mainly agricultural and reside	ential				
	rivers - Nature Conservation	sites, railway lir	ne, heritage lar	dscape, electricity		
transmission network, s						
Position of 'the line':						
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)		
	Defences – grass embankm	ent fronted by	rock armour			
Hold the Line	Flood risk if defences fail					
	Will protect agricultural asse	ts – to be appr	aised – conside	er CFMP policy		
Advance the Line	No benefits, and potential er movement of the line.	nvironmental in	npacts, would r	esult from seaward		
Managed Realignment	Not feasible in short / mediu policy	m term. Long	term – to be ap	praised - consider CFMP		
No Active Intervention	Not feasible – large area at i	risk				
	SMP1 Management Unit		Short Term I	Policy		
Current SMP1 Policy	Peterstone Great Wharf		Hold the Line			
Current Sivie Folicy	Peterstone Gout to East of C	Dutfall Lane	Hold the Line			
	East of Outfall Lane to New	East of Outfall Lane to New Gout Hold the Line				
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 7 (Ebbw)		risk at current	actions to maintain flood t level (accepting that flood ase over time)		

2.6 Newport and Usk Theme Area (NEW)

Newport – East bank of River Ebbw at Maesglas railway bridge to west bank Usk at transporter bridge (NEW 1)				
Summary description:	Newport docks			
	rivers - Nature Conservation			
Position of 'the line':	crest of river bank or defences	;		
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
	To be appraised			
Hold the Line	Defences – earth embankme in medium term	ent ; Flood risk	– minimal in sł	nort term, increased flooding
	Will protect docks – to be ap	praised - consi	ider CFMP poli	су
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.			
Managed Realignment	Not feasible – would require	relocation of d	ocks	
No Active Intervention	Not feasible beyond short te	rm – to be app	raised - conside	er CFMP policy
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Ebbw River to the Transport	er Bridge	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 7 (Ebbw)			actions to maintain flood level (accepting that flood ase over time)

Newport – west bank of Usk at transporter bridge to west bank of Usk at M4 crossing						
(NEW 2)	(NEW 2)					
Summary description: ma	ainly industrial and residentia	ıl				
Possible Key Policy Driv	ers - Nature Conservation sit	es, industrial a	ssets			
Position of 'the line': cre	st of river bank or defences					
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)		
	Defences – earth embankn	nent and masor	nry walls			
Hold the Line	Flood risk – risk of flooding	if defences fail				
	Will protect industrial / resid	dential assets -	- to be apprais	ed - consider CFMP policy		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Not feasible – would requir	e large scale re	elocation of ind	dustry		
No Active Intervention	Not feasible beyond short t	erm – to be ap	praised - cons	ider CFMP policy		
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy		
	Transporter Bridge to the N	//4	Hold the Line)		
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 7 (Usk)		Policy 5 - tak flood risk	e further action to reduce		

Newport – Usk (both banks) at M4 crossing to Newbridge on Usk (NEW 3)					
Summary description: appro	x 50% residential, 50% cour	ntryside/agricu	ltural		
Possible Key Policy Drivers (Caerleon), M4	- Nature Conservation sites,	residential pr	operties, histo	oric environment	
Position of 'the line': crest o	f river bank or defences				
Policy	Years 0 – 20 (2025)	Years 20 - 5	50 (2055)	Years 50 - 100 (2105)	
Hold the Line	Defences – earth embank fail		,	J	
	Will protect residential / ag policy	gricultural asse	ets – to be ap	praised - consider CFMP	
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	To be appraised for potential long term technical and environmental benefits – consider CFMP policy				
No Active Intervention	No Active Intervention To be appraised for potential long term technical and environmental benefits – consider CFMP policy				
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy	
	The M4 to Caerleon (both banks) Hold the Line				
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 7 (Usk)		Policy 5 - tal flood risk	ke further action to reduce	

Newport – east bank of Usk at M4 crossing to Spytty Pill, north of A48 crossing (NEW 4)						
Summary description: mainly	Summary description: mainly residential, some industrial at southern end of unit					
Possible Key Policy Drivers - Nature Conservation sites, residential properties, M4						
	Position of 'the line': crest of river bank or defences					
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (2105)					
	Defences – earth embank	ment with rein	forced concre	ete walls		
Hold the Line	Risk of flooding if defence	s fail				
	Will protect residential ass consider links with adjace			sider CFMP policy –		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Not feasible – would requi properties	re large scale	relocation of	numerous residential		
No Active Intervention	Not feasible – would resul properties	t in large scale	e inundation o	f numerous residential		
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy		
	M4 to Spytty Pill Hold the Line					
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 7 (Usk)		Policy 5 - tak flood risk	ke further action to reduce		

Newport – Spytty Pill, north	Newport – Spytty Pill, north of A48 crossing to Uskmouth Power station point (NEW 5)					
Summary description: mainly	Summary description: mainly industrial					
Possible Key Policy Drivers - Nature Conservation sites, residential properties, Uskmouth Power Station						
Position of 'the line': crest of river bank or defences						
Policy	Years 0 – 20 (2025)	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)				
Hold the Line	Defences – earth embank fail	ment and mas	onry walls	s risk of flooding if defences		
	Will protect industrial asse consider links with adjace			onsider CFMP policy –		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Not feasible – would requi properties and power stati		relocation	of numerous industrial		
No Active Intervention	No Active Intervention Not feasible – would result in large scale inundation of industrial properties and power station					
Current SMD1 Policy	SMP1 Management Unit		Short Te	erm Policy		
Current SMP1 Policy	Spytty Pill to Uskmouth Power Station Hold the Line					
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 7 (Usk)		Policy 5 flood risk	- take further action to reduce		

2.7 Caldicot Levels Theme Area (CALD)

Caldicot – Uskmouth	Power Station point to Sudb	rook Point, nor	th of M4 Sev	vern Crossing (CALD 1)			
Summary description	: mainly agricultural / countrysi	de, some indust	trial / waste s	ites near Newport ; Nash			
waste water treatment							
	Drivers – Llanwern Steelworks,						
	ailway, M4, electricity transmis crest of embankment defences		ewerage infra	structure.			
Policy		S Years 20 – 50	(2055)	Years 50 - 100 (2105)			
	Defences – earth embankme			· · ·			
	Significant risk of flooding if d		g ,				
Hold the Line	с С						
	Will protect agricultural / indu adjacent Policy Units	strial assets – to	be appraise	d – consider links with			
	No benefits, and potential en	vironmental imp	acts would r	esult from seaward			
Advance the Line	movement of the line.						
Managed							
Realignment	Not feasible in short / mediun	n term. Long ter	rm – to be ap	praised			
	Would result in large scale ur	acontrolled in un	dation of agri	cultural assets and industry			
No Active Intervention	assets (Llanwern) and infrast		•				
	SMP1 Management Unit	:	Short Term	Policy			
	Uskmouth Power Station to S	Saltmarsh	Hold the Line	2			
	Farm						
Current SMP1 Policy	Saltmarsh Farm to Gold Cliff		Hold the Line	e (or locally retreat the line)			
	Gold Cliff to Cold Harbour Pil	I	Hold the Line)			
	Cold Harbour Pill to West Pill		Hold the Line)			
		West Pill to West of Sudbrook Point Hold the Line					

Caldicot – Sudbrook Point, north of M4 Severn Crossing to Black Rock at Black Rock Road (CALD 2)				
Summary description:	mainly agricultural / countrysi	de, some resid	lential	
	rivers – electricity transmissio	n network, heri	itage landscape	e, Nature Conservation
sites, isolated residentia				
	crest of embankment defences		0 (0055)	
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 - 100 (2105)
	Defences – rock armouring a	and groynes		
Hold the Line	No erosion or flood risk – hig	gher ground		
	Will protect agricultural / resi adjacent Policy Units	dential assets	 to be apprais 	ed – consider links with
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.			
Managed Realignment	Not feasible – no defences to manage, technically difficult and costly – low erosion, no risk of flooding			
No Active Intervention	Active Intervention Low rate of erosion, no risk of flooding – preferred option			
	SMP1 Management Unit		Short Term I	Policy
Current SMP1 Policy	Sudbrook Point to Black Roo	:k	Do Nothing, le Retreat the Li	ocally Hold the Line or ne.

Caldicot – Black Rock at Black Rock Road to west bank of River Wye at Park Redding, Thornwell (CALD 3)

(CALD 3)						
Summary description: mainly agricultural / countryside, some industrial near mouth of River Wye						
	Possible Key Policy Drivers – electricity transmission network, railway, A48, heritage landscape, Nature					
Conservation sites, isolated residential properties						
Position of 'the line': crest of emb						
Policy	Years 0 - 20 Years 20 - 50 (2055) Years 50 - 100 (2105)					
	(2025)					
	Defences – earth	n embankment with r	ock armo	uring		
Hold the Line	Significant risk of	f flooding if defences	fail			
		ultural assets, electri onsider links with adj		ransport infrastructure – to licy Units		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	To be appraised for medium / long terms					
No Active Intervention	No Active Intervention To be appraised for short term					
	SMP1 Management Unit Short Term Policy					
Current SMP1 Policy	Sudbrook Point t	o Black Rock		ing, locally Hold the Line or the Line		

2.8 Wye and Chepstow Theme Area (WYE)

Wye – west bank Wye at Park Redding, Thornwell to west bank River Wye at Alcove Wood, Chepstow (WYE 1)						
Summary description: mainly residential, some industrial						
Possible Key Policy Drivers – electricity transmission network, railway, A48, heritage sites, Nature Conservation sites						
Position of 'the lin	ne': crest of defences / river bank					
Policy	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)					
	Hard defences					
Hold the Line	Limited erosion and flood risk					
	Will protect residential assets, transport infrastructure – to be appraised – consider links with adjacent Policy Units					
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Not feasible – would require large scale relocation of numerous residential and industrial assets					
No Active Intervention	Not feasible – limited process benefit, inundation of residential assets					
Current SMP1	SMP1 Management Unit		Short Term Po	licy		
Policy	Chepstow from Thornwell to Alco	ve Wood	Do Nothing, loc	ally Hold the Line		

Wye – west bank River W Bigsweir Bridge to Bridge	•	-	eir Bridge + e	east bank River Wye at	
Summary description: ma			ntial		
Possible Key Policy Drive		sites, historic env	vironment as	sets	
Position of 'the line': crest of river bank					
Policy	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)				
	No defences				
Hold the Line	Very limited erosion and	l flood risk			
	No benefit – limited risk				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	No process benefits				
No Active Intervention	Potential process benefits – to be appraised – preferred option				
	SMP1 Management Unit Short		Short Tern	erm Policy	
Current SMP1 Policy	Alcove Wood to Tintern Abbey to Chapel House			, locally Hold the Line	
	CFMP Unit	Policy			
CFMP Policy	Policy Unit 1 (Wye)		Policy 4 - Take further action to sustain current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change, and climate change).		
	Policy Unit 4 (Wye location reduction reductio		store water locations th reduction o	Policy 6 Take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits, locally or elsewhere in the catchment	

Wye – east bank River W	/ye at Bridge Street br	idge, Sedbury to S	Sedbu	ry STW (WYE 3)	
Summary description: m	ainly residential				
Possible Key Policy Driv		tion sites, railway lin	e, A48	3	
Position of 'the line': crest of river bank					
Policy	Years 0 – 20 (2025)	Years 20 – 50 (205	55)	Years 50 – 100 (2105)	
Hold the Line	No defences Very limited erosion and flood risk No benefit – limited risk				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	No process benefits				
No Active Intervention	To be appraised - Pot	ential process benef	its – te	b be appraised – preferred option	
	SMP1 Management Unit		Short Term Policy		
Current SMP1 Policy	Alcove Wood to Tintern Abbey, Tintern Abbey to Chapel House Wood		Do Nothing, locally Hold the Line		
	Chapel House Wood to Sedbury Sewage Works		Do Nothing		
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 1 (Wye)		curre pote urba	cy 4 - Take further action to sustain ent flood risk (responding to the ntial increases in flood risk from n development, land use change, climate change).	
	Policy Unit 4 (Wye)		wate prov envii	cy 6 Take action with others to store or or manage run-off in locations that ide overall flood risk reduction or ronmental benefits, locally or where in the catchment	

Wye – east bank River W	/ye at Sedbury STW to End of	Beachley I	Road, Beachley	/ Point (WYE 4)	
Summary description: a	gricultural / countryside, MOD sit	e			
	vers – Nature Conservation sites	, railway lin	ne, A48		
Position of 'the line': crest of river bank / cliff					
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (27)			Years 50 - 100 (2105)	
Hold the Line	No defences				
Advance the Line	Very limited erosion and flood risk No benefit – limited risk No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	No process benefits				
No Active Intervention	To be appraised - Potential process benefits – to be appraised – preferred option				
	SMP1 Management Unit		Short Term Policy		
Current SMP1 Policy	Sedbury Sewage Works to north Beachley		Do Nothing		
	Beachley Point		Do Nothing		
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 1 (Wye)		Policy 4 - Take further action to sustain current flood risk (responding to the potential increases in flood risk from urban development, land use change, and climate change).		
	Policy Unit 4 (Wye)		Policy 6 Take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits, locally or elsewhere in the catchment		

2.9 Tidenham and Surrounding Villages Theme Area (TID)

Tidenham and other villages – End of Beachley Road, Beachley Point to Guscar Rocks (TID 1)					
Summary description: agricultural / countryside					
Possible Key Policy Drivers – Nature Conservation sites, railway line					
Position of 'the line'	crest of river bank / cliff				
Policy	Years 0 – 20 (2025)	Years 20 – 50 (2055) Years 50 – 100 (2105)			
No defences – railway embankment					
Hold the Line	Limited erosion, some long ter	m flood risk			
	No benefit – limited risk	No benefit – limited risk			
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	May have Nature Conservation benefits in long term – to be appraised				
No Active Intervention	To be appraised - Potential process benefits – to be appraised – preferred option				
	SMP1 Management Unit		Short Term Po	olicy	
Current SMP1 Policy	Beachley to Sedbury Cliffs		Do Nothing		
	Sedbury Cliffs		Do Nothing		
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 2 (Severn Vale – S Tributaries)	vern Tidal Policy 3 – Continue with existing or alternative actions to manage flood ris the current level		ons to manage flood risk at	

Tidenham and other villages – Guscar Rocks to Lydney Harbour (TID 2)					
Summary description: agricultural / countryside					
Possible Key Policy Drivers – Nature Conservation sites, railway line					
Position of 'the line': cre	Position of 'the line': crest of river bank / cliff				
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (2105)				
	Rock armour revetment				
Hold the Line	Limited erosion, flood risk if defence fails – links to Lydney				
	Will protect railway, agricu	ultural assets, Ly	dney - to be a	appraised	
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	May have Nature Conservation benefits in long term – to be appraised				
No Active Intervention	No process benefits				
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy	
	Guscar Rocks to Lydney I	y Harbour Mouth Hold the Line		e	
	CFMP Unit Policy				
CFMP Policy	Policy Unit 2 (Severn Vale Tidal Tributaries)	e – Severn		ontinue with existing or ctions to manage flood risk nt level	

2.10 Lydney Theme Area (LYD)

Lydney – Lydney Harbour basin (LYD 1)					
Summary description: agricultural / countryside					
Possible Key Policy Driv	vers – Nature Conservation sit	tes, railway lin	e, harbour are	a	
Position of 'the line': to	p of harbour basin bank				
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (2105)				
	No defences – railway emba	ankment			
Hold the Line	Limited erosion, some long	term flood risk			
	Will protect railway, agricult	ural assets, Ly	dney - to be a	opraised	
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	Not feasible – would require	relocation of	harbour		
No Active Intervention	Potential uncontrolled inund	ation of harbo	ur and Lydney		
Current SMP1 Policy	SMP1 Management Unit		Short Term	Policy	
	Guscar Rocks to Lydney Ha	rbour Mouth	Hold the Line)	
	CFMP Unit Policy				
CFMP Policy	Policy Unit 8 Lydney – Seve Tributaries	ern Tidal		ontinue with existing or ctions to manage flood risk t level	

2.11 Lydney to Gloucester Theme Area (GLO)

Lydney to Gloucester – Lyd	Lydney to Gloucester – Lydney Harbour to Brims Pill (GLO 1)				
Summary description: agric	cultural / countryside, isolate	d residential			
Possible Key Policy Driver	s – Nature Conservation site	es, railway line	e, agricultural a	ssets	
Position of 'the line': top river bank					
Policy	Years 0 – 20 (2025)	Years 20 –	50 (2055)	Years 50 – 100 (2105)	
Hold the Line	No defences Limited erosid	on and flood r	isk No benefit -	 limited risk 	
Advance the Line	No benefits, and potential movement of the line.	environmenta	l impacts, woul	d result from seaward	
Managed Realignment	No benefits				
No Active Intervention	To be appraised – limited risk – preferred option				
	SMP1 Management Unit		Short Term I	Policy	
	Lydney Harbour to Cliff Fa	rm	Do Nothing		
Current SMP1 Policy	Cliff Farm to Wellhouse Rock Hold the Line		1		
	Wellhouse Rock to Poulton	n Court	Hold the Line	1	
	Poulton Court to Whitescourt, Awre Do Nothing				
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 2 (Severn Vale Tidal Tributaries)	– Severn		ntinue with existing or tions to manage flood ris level	۶k

Lydney to Gloucester – Brims Pill to Northington Farm (GLO 2)						
Summary description: agricultural / countryside, residential (Awre)						
Possible Key Policy Drivers – Nature Conservation sites, line, agricultural assets, electricity transmission						
network						
Position of 'the line': top	river bank					
Policy	Years 0 – 20 (2025)	Years 20 – 5	60 (2055)	Years 50 – 100 (2105)		
Hold the Line	No defences – except raily	way embankm	ent	•		
	Limited erosion and flood	risk Economic	ally non-viable	e		
Advance the Line	No benefits, and potential movement of the line.	environmental	impacts, wou	Id result from seaward		
Managed Realignment	May have Nature Conserv	May have Nature Conservation benefits – to be appraised				
No Active Intervention	May have Nature Conserv	ation benefits	– to be apprai	ised		
	SMP1 Management Unit		Short Term	Policy		
Current SMP1 Policy	Whitescourt to Hayward		Hold the Line	e or Retreat the Line		
	Hayward to Northington Fa	Hayward to Northington Farm Hold the Line or Retreat the Line				
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 2 (Severn Vale Tidal Tributaries)	– Severn	Policy 3 – Continue with existing alternative actions to manage floo at the current level			

Lydney to Gloucester – No	Lydney to Gloucester – Northington Farm to Newnham Church (GLO 3)				
Summary description: agri	Summary description: agricultural / countryside, residential (Newnham)				
Possible Key Policy Driver	rs – Nature Conservation site	es, railway line	e, agricultural a	issets, A48	
Position of 'the line': top r	iver bank				
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (2105)				
Hold the Line	Defences – high ground / e	earth embankr	nents		
	Limited erosion and flood r	isk Economica	ally non-viable		
Advance the Line	No benefits, and potential movement of the line.	environmental	impacts, woul	d result from seaward	
Managed Realignment	No Nature Conservation / I	nabitat creatio	n options		
No Active Intervention	To be appraised – preferred option – limited risk				
	SMP1 Management Unit	Short Term		Policy	
Current SMP1 Policy	Northington Farm to Portlands Nab Do Nothing (generally) or Hold (locally)			generally) or Hold the Line	
	Portlands Nab to the down boundary of Newnham	stream	Do Nothing (the Line	generally) or Hold/Retreat	
	CFMP Unit		Policy		
CFMP Policy Policy Unit 2 (Severn Vale – Severn Tidal Tributaries) Policy 3 – Continue with exalternative actions to mana at the current level				ctions to manage flood risk	

Lydney to Gloucester – Newnham Church to Farm north of Broadoak (GLO 4)					
Summary description: ag	ricultural / countryside, reside	ntial (Newnhar	m, Broadoak)		
	ers – Nature Conservation site	es, railway line	, residential a	ssets, A48	
Position of 'the line': top	river bank				
Policy	Years 0 – 20 (2025)	Years 20 – 5	50 (2055)	Years 50 – 100 (2105)	
	To be appraised				
Hold the Line	Defences – earth embanki risk Will protect residentia			imited erosion, some flood ture	
Advance the Line	No benefits, and potential movement of the line.	environmental	impacts, wou	ld result from seaward	
Managed Realignment	No Nature Conservation /	No Nature Conservation / habitat creation options			
No Active Intervention	Would result in uncontrolle infrastructure	ed inundation c	of residential p	roperties and transport	
Current SMD1 Deliev	SMP1 Management Unit		Short Term	Policy	
Current SMP1 Policy	Newnham and Broadoak		Hold the Lin	e	
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 2 (Severn Vale Tidal Tributaries)	– Severn		ontinue with existing or ctions to manage flood risk nt level	

Lydney to Gloucester – Fa	rm to north of Broadoak to	Hill Farm, Ro	odley (GLO 5)	
Summary description: agri	cultural / countryside, isolate	d residential		
Possible Key Policy Driver	s – Nature Conservation site	s, residential	assets	
Position of 'the line': toe of	f cliff, top of embankment			
Policy	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)			
Hold the Line	Defences – earth embankr	nents, natural	low cliffs	
	Limited erosion, flood risk t	o agricultural	land Economi	cally non-viable
Advance the Line	No benefits, and potential of movement of the line.			
Managed Realignment	May be Nature Conservation / habitat creation benefits in medium / long term – to be appraised			
No Active Intervention	To be appraised – preferred option – limited risk			
	SMP1 Management Unit		Short Term	Policy
Current SMP1 Policy	Broadoak to the upstream Garden Cliff	end of	Hold the Line	e, locally Do Nothing
	The Dumballs Hold		Hold the Line	
	Rodley to Bollow		Do Nothing	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale Tidal Tributaries)	– Severn		ontinue with existing or ctions to manage flood risk t level

Lydney to Gloucester – west bank at Hill Farm, Rodley to west bank at Goose Lane farm (GLO 6)					
Summary description: agricultural / countryside, isolated residential					
Possible Key Policy D	rivers - Nature Conservation s	sites, residentia	al / agricultural a	assets	
Position of 'the line': t	op of river bank				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	No defences – natural high g No benefit – limited risk	pround Limited	l erosion and fl	ood risk	
Advance the Line	No benefits, and potential er movement of the line.	vironmental im	npacts, would re	esult from seaward	
Managed Realignment	No Nature Conservation / ha	bitat creation o	options		
No Active Intervention	To be appraised – preferred	option – limited	d risk		
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy	
	Rodley to Bollow		Hold the Line		
	CFMP Unit Policy				
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at /el	

Lydney to Gloucester – west bank at Goose Lane farm to west bank at Ley Road (GLO 7)						
Summary description: agricultural / countryside, isolated residential						
	Possible Key Policy Drivers – Nature Conservation sites, residential / agricultural assets, A48					
Position of 'the line': top of river bank						
Policy	Years 0 – 20 (2025)	Years 2	20 – 50 (2055)	Years 50 – 100 (2105)		
	Defences – earth embankme	Defences – earth embankment				
Hold the Line	Limited erosion, some flood	Limited erosion, some flood risk				
	Will protect residential / trans	sport ass	ets – to be appraised	1		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Possible Nature Conservation transport links / residential as			would require relocation of		
No Active Intervention	May be process benefits – w assets – to be appraised	ould res	ult in inundation of tra	ansport links / residential		
Current SMP1 Policy	SMP1 Management Unit		Short Term Policy			
	Bollow to Hartland's Hill		Hold the Line			
	CFMP Unit		Policy			
CFMP Policy	Policy Unit 2 (Severn Vale – Severn Tidal Tributaries)			with existing or alternative lood risk at the current level		

Lydney to Gloucester – Ley Road to Drain from Long Brook (GLO 8)				
Summary description:	agricultural / countryside, isol	ated residentia	I	
	rivers – Nature Conservation	sites, residentia	al / agricultural	assets, A48, railway
Position of 'the line': t	op of river bank			
Policy	Years 0 - 20 (2025) Years 20 - 50 (2055) Years 50 - 100 (2105)			
	Defences – earth embankme	ent, natural hig	h ground	
Hold the Line	Limited erosion, some flood	risk		
	Will protect residential / trans	sport assets – t	o be appraised	
Advance the Line	No benefits, and potential er movement of the line.	vironmental im	pacts, would re	esult from seaward
Managed Realignment	nent Possible Nature Conservation / habitat creation options – would require relocation of transport links / residential assets – to be appraised			
No Active Intervention	May be process benefits – w assets – to be appraised	ould result in i	nundation of tra	ansport links / residential
	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	Hartland's Hill to Denny Hill		Hold the Line	
	Denny Hill to Minsterworthar	n	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel

2.12 Gloucester to Haw Bridge Theme Area (MAI)

Gloucester to Maisemore – West bank at Drain from Long Brook to west bank at railway / A40 bridge (MAI 1)						
Summary description:	Summary description: agricultural / countryside, some residential (Minsterworth)					
Possible Key Policy D	rivers – Nature Conservation	sites, residentia	al / agricultural	assets, A48, A40, railway		
Position of 'the line': t	op of river bank					
Policy	Years 0 – 20 (2025)	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)				
	Defences – earth embankme	ent Limited erc	sion, extensive	e flood risk		
Hold the Line	Will protect residential assets	s – to be appra	ised			
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	Possible Nature Conservation benefits – but would improve			areas – No tidal process		
No Active Intervention	Would result in uncontrolled risk of uncontrolled nature	inundation of la	arge flood risk a	areas – not preferred due to		
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy		
Current SMP1 Policy	Lower Parting to Maisemore	Weir	Hold the Line			
	CFMP Unit Policy					
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries CFMP)	Severn Tidal		ntinue with existing or tions to manage flood risk at /el		

Gloucester to Maisemore – West bank from Railway / A40 bridge to west bank at Haw Bridge, including River Leadon (MAI 2)					
Summary description: agricultural cultural / countryside, some residential (Maisemore)					
Possible Key Policy D	rivers – Nature Conservation	sites, residenti	al / agricultural	assets, A417, railway	
Position of 'the line': t	Position of 'the line': top of river bank				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	Defences – earth embankme Will protect residential assets		,	d risk	
Advance the Line	No benefits, and potential er line.	vironmental in	npacts, would re	esult from movement of the	
Managed Realignment	No process benefits				
No Active Intervention	Floodplain develops naturall interventions – to be apprais		ent of flood risk	by non-engineering	
Current SMP1 Policy	SMP1 Management Unit	it Short Term Policy		Policy	
Current Sivir 1 Policy	No policy set		No policy set		
	CFMP Unit		Policy		
	Policy Unit 10 (Lower Sever Severn CFMP)	n Corridor –	management	duce existing flood risk actions (accepting that increase over time)	
CFMP Policy	Policy Unit 18 (Leadon – Se	licy Unit 18 (Leadon – Severn CFMP)		duce existing flood risk actions (accepting that increase over time)	
	Policy Unit 2 (Severn Vale – Tributaries CFMP)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel	

Gloucester to Maisemore – East bank at Haw Bridge (B4213) to Upper Parting (MAI 3)					
Summary description:	Summary description: agricultural cultural / countryside, some residential				
Possible Key Policy D	rivers – Nature Conservation	sites, residenti	al / agricultural	cultural assets	
Position of 'the line': t	op of river bank				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	Defences – earth embankme			d risk	
Advance the Line	Will protect residential assets No benefits, and potential er movement of the line.			esult from seaward	
Managed Realignment	No tidal process benefits – b	ut would impro	ove flood flow		
No Active Intervention	Shoreline develops naturally interventions – to be apprais		nt of flood risk b	by non-engineering	
Current SMP1 Policy	SMP1 Management Unit		Short Term I	Policy	
	No policy set		No policy set		
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 2 (Severn Vale – CFMP)	Severn	risk at current	e actions to maintain flood t level (accepting that flood ase over time)	
	Policy Unit 3 (Gloucester Str Severn CFMP)	eams –	Policy 5 – tak flood risk	e further action to reduce	

Gloucester to Maiseme	ore –Upper Parting to Lower	Parting (left l	bank of partin	g) (MAI 4)	
· ·	Residential developments at the	Gloucester, inf	rastructure net	work to support the city and	
heritage features					
	rivers – mainly residential / ag	ricultural cultu	ral assets othe	r infrastructure (roads)	
Position of 'the line':					
Policy	Years 0 – 20 (2025)	Years 20 – 5	. ,	Years 50 - 100 (2105)	
	Defences – earth embankment and Sea wall at Quay				
Hold the Line	Limited erosion, isolated free	uent flood risk	C		
	Will protect residential assets	s – to be appra	aised against C	FMP	
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	No process benefits				
No Active Intervention	Not feasible				
	SMP1 Management Unit		Short Term	Policy	
Current SMP1 Policy	Llanthony Weir to Lower Par	ting	Hold the Line)	
	CFMP Unit		Policy		
	Policy Unit 3 (Gloucester Str Severn Tidal Tributaries CFN			ke further action to reduce	
CFMP Policy	Policy Unit 10 (Lower Severr Severn CFMP)	n Corridor –	management	educe existing flood risk actions (accepting that increase over time)	
	Policy Unit 17 (Cheltenham & Gloucester – Severn CFMP)	& NE	Policy 5 – Ta flood risk	ke further action to reduce	

Gloucester to Maiseme	Gloucester to Maisemore – Alney Island (MAI 5)				
Summary description:	Summary description: agricultural cultural / countryside				
	rivers – Nature Conservation	sites, agricultu	ral cultural ass	ets main access roads (A40	
and A417)	an af river bank				
Position of 'the line': top of river bank					
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
	Defences – high ground and	flood walls			
Hold the Line	Limited erosion, some flood	risk			
	to be appraised				
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.				
Managed Realignment	To be appraised				
No Active Intervention	Management of flood risk by	non-engineeri	ing intervention	s – to be appraised	
	SMP1 Management Unit		Short Term	Policy	
Current SMP1 Policy	Lower Parting to Maisemore channel)	Weir (west	Hold the Line		
	Llathony Weir to the Lower Parting (east channel) Hold the Line				
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 3 (Gloucester Str Severn Tidal Tributaries CFN		Policy 5 – Ta flood risk	ke further action to reduce	

Gloucester to Maisemore – Lower Parting to Severn Farm (MAI 6)				
Summary description:	Summary description: agricultural cultural / countryside residential			
	rivers – STW, residential, mor	nk meadow ind	lustrial, A38, Gl	oucester to Sharpness
canal Resition of 'the line's	crest of defence/top of bank			
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 - 100 (2105)
Folicy	Defences – high ground and		. ,	Teals 30 - 100 (2103)
Hold the Line	•••		>	
	Limited erosion, some flood	risk		
	to be appraised			
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.			
Managed Realignment	No benefits would result from movement of the line. Consider locally			
No Active Intervention	To be appraised – consider	economic drive	ers	
	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	Lower parting to Rea		Hold the Line	
Current Sivil 11 Olicy	Rea to Windmill Hill		Hold the Line (locally Do Nothing)	
	Windmill Hill to east end of Elmore Hold the Line			
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 3 (Gloucester Str Severn Tidal Tributaries CF		Policy 5 – Tal flood risk	ke further action to reduce

2.13 Gloucester to Sharpness Theme Area (SHAR)

Gloucester to Sharpness –Severn Farm to Wicks Green (SHA 1)					
	Summary description: agricultural / countryside residential				
bore)	Possible Key Policy Drivers – long term habitat creation, mainly agricultural some residential, tourism (tidal bore)				
Position of 'the line':	crest of defence				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
	Defences – high ground and embankments				
Hold the Line	Limited erosion, extensive flo	ood risk should	defences fail		
	to be appraised				
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.				
Managed Realignment	Long term appraisal				
No Active Intervention	To be appraised – consider	economic drive	ers		
	SMP1 Management Unit		Short Term F	Policy	
Current SMP1 Policy	Elmore		Hold the Line		
	West end of Elmore to Wicks	sgreen	Hold the Line		
	CFMP Unit		Policy		
CFMP Policy	Policy Unit 3 (Gloucester Str Severn Tidal Tributaries CFN Policy Unit 2 (Severn Vale –	ЛР)	flood risk	ke further action to reduce	
	Tributaries)			tions to manage flood risk at	

Gloucester to Sharpne	Gloucester to Sharpness – Wicks Green to Longley Green (SHA 2)			
Summary description:	agricultural / countryside resid	dential		
	rivers - long term habitat cre	ation mainly ag	ricultural some	residential
Consider adjacent units				
Position of 'the line':	crest of defence			
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)
	Defences – high ground and	embankments	;	
Hold the Line	Limited erosion, extensive flo	ood risk should	defences fail	
	to be appraised			
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.			
Managed Realignment	Long term appraisal			
No Active Intervention	To be appraised – consider	economic drive	ers	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Wicksgreen to Longley Crib		Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel

Gloucester to Sharpness – Longley Green to Overton Lane (SHA 3)				
Summary description: agricultural / countryside residential				
	r ivers – mainly agricultural so	me residential	settlements (Fr	ramilode and Priding)
Position of 'the line': t	op of bank / crest of defence			
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
	to be appraised			
Hold the Line	Defences – high ground and embankments			
	Limited erosion, extensive flo	ood risk from fa	ailure of defenc	e, leaving Arlingham as a
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.			
Managed Realignment	No benefits, would result from	n movement o	f the line	
No Active Intervention	To be appraised – consider o	economic drive	ers	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Longley Crib to Priding Wick		Hold the Line	
<u> </u>	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)			ntinue with existing or tions to manage flood risk at vel
	Policy Unit 5 (Frome – Seve Tributaries)	rn Tidal		ke further action to sustain vel of risk into the future

Gloucester to Sharpne	ess – Overton Lane to upstre	am of Hock C	liff (SHA 4)	
Summary description:	agricultural / countryside resid	dential		
	rivers – Nature Conservation	Sites, mainly a	gricultural som	e residential settlements
Position of 'the line': t	op of bank / crest of defence			
Policy	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)			
	to be appraised			
Hold the Line	Defences – high ground and	embankments	6	
	Limited erosion, extensive fle	ood risk from fa	ailure of defence	e, leaving Arlingham as a
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.			
Managed Realignment	To be appraised – long term	habitat creatio	'n	
No Active Intervention	To be appraised – consider	economic drive	ers and geologic	cal and ecological features
Current SMD1 Delieu	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	Priding Wick court to Longm	arsh Pill	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel

Gloucester to Sharpness – Hock Cliff (SHA 5)				
Summary description:	hard geology cliff face			
Possible Key Policy D	rivers – Nature Conservation	site (Hock Cliff)	
Position of 'the line':	Toe of cliff			
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)
Hold the Line	high ground			
	Limited erosion and flood ris	k to be apprais	sed	
Advance the Line	No benefits, potential environmental impacts, would result from movement of the line.			
Managed Realignment	Not appropriate			
No Active Intervention	To be appraised – consider	geological featu	ures and possil	ble coastal process benefit
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Long Marsh Pill to Hock Ditc	h	Do Nothing	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal	Al Policy 3 – Continue with existing or alternative actions to manage flood the current level	

Gloucester to Sharpness – downstream of Hock Cliff to Frampton Pill (SHA 6)				
Summary description:	mainly agricultural some isola	ted residential		
Possible Key Policy D	rivers – sharpness to Glouces	ster canal, agric	cultural some re	esidential
Position of 'the line':	crest of defence (defence follo	,		
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - conveyar	ce of water to	adjacent Policy	[,] Units
	Flood risk to adjacent Policy	Units via the C	Canal?	
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.			
Managed Realignment	Not appropriate			
No Active Intervention	To be appraised needs to co	nsider econom	nic drivers and	and loss
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Hock Cliff to Frampton Breal	water	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel
	Policy Unit 5 (Frome – Seve Tributaries)	rn Tidal		ke further action to sustain vel of risk into the future

Gloucester to Sharpne	Gloucester to Sharpness – Frampton Pill to Royal Drift outfall (SHA 7)			
Summary description:	Summary description:			
Possible Key Policy D	rivers – sharpness to Glouces	ster canal, agri	cultural some re	esidential
Position of 'the line':	crest of defence (earth emban	kment)		
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - Flood risk environmental designations			
Advance the Line	No benefits, and potential er line.	vironmental in	npacts, would r	esult from movement of the
Managed Realignment	To be appraised - This is a potential habitat creation site in the short term, so MR is very possible.			
No Active Intervention	To be appraised			
	SMP1 Management Unit		Short Term	Policy
Current SMP1 Policy	Frampton Breakwater to The	e Dumbles	Hold the line	or Retreat the Line
	The Royal Drift		Hold the Line	
	CFMP Unit		Policy	
	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel
CFMP Policy	Policy Unit 5 (Frome – Seve Tributaries)	rn Tidal		ke further action to sustain vel of risk into the future
	Policy Unit 6 (Little Avon and Severn Tidal Tributaries)	l Cam –		ntinue with existing or tions to manage flood risk at vel

Gloucester to Sharpne	Gloucester to Sharpness – Royal Drift outfall to Sharpness Docks (SHA 8)			
Summary description:	hard geology cliff with rock of	utcrops, predor	ninant tidal pro	cess
	r ivers – sharpness to Glouces	ster canal, agri	cultural some re	esidential, docks and related
industry				
Position of 'the line': of	crest of defence/toe of cliff, Na			
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - limited flo	od risk and ero	sion	
Advance the Line	No benefits, and potential er line.	nvironmental in	npacts, would re	esult from movement of the
Managed Realignment	Not appropriate			
No Active Intervention	To be appraised			
	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	Tites Point to South Ridge Sand		Hold the Line	
	Sharpness (north)		Hold the Line	
	Sharpness (west) Hold the Line (locally)			
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel

2.14 Sharpness to Severn Crossings Theme Area (SEV)

Sharpness to Severn C	Sharpness to Severn Crossings –Sharpness docks to Bull Rock (SEV 1)			
Summary description:	earth embankments and mud	ldy foreshore		
	r ivers – STW, some residentia	al and agricultu	iral, Docks and	related infrastructure,
Nature Conservation site				
Position of 'the line':				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - limited floo (extensive flooding)	od risk and ero	sion, flood cell	links to adjacent unit
Advance the Line	No benefits, and potential er line.	nvironmental im	npacts, would r	esult from movement of the
Managed Realignment	To be appraised in light of impact on Berkley and Oldbury power station, could create island			
No Active Intervention	To be appraised in light of in island	npact on Berkle	ey and Oldbury	power station, could create
	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	Sharpness (west)		Hold the Line	(locally)
	South of Sharpness Docks to	o Berkley Pill	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel
	Policy Unit 6 (Little Avon and Severn Tidal Tributaries)	d Cam –		ntinue with existing or tions to manage flood risk at vel

Sharpness to Severn Crossings –Bull Rock to southern boundary of Berkley power station (SEV 2)				
Summary description:	higher ground with Berkley Po	ower Station		
Possible Key Policy D	rivers - Berkley power station	and associated	d infrastructure	, Nature Conservation sites
Position of 'the line':	crest of defence			
Policy	Years 0 – 20 (2025)	Years 20 - 5	0 (2055)	Years 50 - 100 (2105)
Hold the Line	To be appraised - limited floo (extensive flooding)	od risk and ero	sion, flood cell	links to adjacent unit
Advance the Line	No benefits, and potential er line.	vironmental im	npacts, would re	esult from movement of the
Managed Realignment	No benefits - detrimental imp	bact on power s	station	
No Active Intervention	No benefits - detrimental imp	pact on power s	station	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Berkley Power Station		Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Severn Tidal Tributaries) Policy 3 – Continue with existing of alternative actions to manage flood the current level			tions to manage flood risk at
	Policy Unit 6 (Little Avon and Severn Tidal Tributaries)	I Cam –		ntinue with existing or tions to manage flood risk at vel

Sharpness to Severn Crossings –southern boundary of Berkley power station to Oldbury Power station (SEV 3)				
Summary description:	low lying and extensive flood	risk		
Possible Key Policy D	r ivers – agricultural Nature Co	onservation site	es, impact on a	djacent cells
Position of 'the line':	crest of defence			
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - limited erc unit (extensive flooding)	sion and exter	nsive flood risk,	flood cell links to adjacent
Advance the Line	No benefits, and potential er line.	vironmental im	npacts, would re	esult from movement of the
Managed Realignment	To be appraised in light of im island	npact on Berkle	ey and Oldbury	power station, could create
No Active Intervention	To be appraised in light of im island	npact on Berkle	ey and Oldbury	power station, could create
	SMP1 Management Unit		Short Term F	Policy
Current SMP1 Policy	South of Berkley Power Stat House	ion to Chapel	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Severn Tidal Tributaries)			ntinue with existing or tions to manage flood risk at vel
	Policy Unit 6 (Little Avon and Severn Tidal Tributaries)	l Cam –		ntinue with existing or tions to manage flood risk at vel

Sharpness to Severn Crossings –Oldbury power station (SEV 4)				
Summary description:	higher ground with Oldbury B	erkley Power S	Station	
Possible Key Policy Di Conservation sites	rivers – Oldbury power station	n, agricultural to	o hinterland, tid	lal reservoir, Nature
Position of 'the line': t	oe of cliff			
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)
Hold the Line	To be appraised - limited flo (extensive flooding)	od risk and er	osion, flood cell	links to adjacent unit
Advance the Line	No benefits, and potential er line.	nvironmental im	npacts, would re	esult from movement of the
Managed Realignment	No benefits - detrimental imp	pact on power s	station	
No Active Intervention	No benefits - detrimental imp	pact on power s	station	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
	Chapel House to Oldbury Po	ower Station	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy CFMP Policy		Severn Tidal	Policy 3 – Continue with existing or alternative actions to manage flood ri the current level	
	Policy Unit 6 (Little Avon and Severn Tidal Tributaries)	d Cam –		ntinue with existing or tions to manage flood risk at vel

Sharpness to Severn Crossings – Oldbury power station to Littleton Warth (SEV 5)					
Summary description:	Summary description: muddy foreshore, possibly accreting. Mainly agricultural				
Possible Key Policy Dr (Oldbury on Severn)	rivers – agricultural, Nature Co	onservation sit	es, heritage, in	dustrial, small residential	
Position of 'the line':	crest of defence				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)	
Hold the Line	To be appraised - some floor (extensive flooding) Earth er		ion, flood cell li	nks to adjacent unit	
Advance the Line	No benefits, and potential environmental impacts, would result from movement of the line.				
Managed Realignment	To be appraised – consider e	economic drive	ers		
No Active Intervention	To be appraised – consider e	economic drive	ers and impact of	on adjacent units	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy	
	Oldbury to Littleton Hold the Line				
	CFMP Unit Policy				
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at /el	

Sharpness to Severn Crossings – Littleton Warth to Aust Ferry (SEV 6)					
Summary description:	hard geology cliff face, mainly	y agricultural in	hinterland		
Possible Key Policy D	rivers – agricultural, Nature C	onservation sit	es, M48 road c	rossing and services, power	
line crossing and pier, s	mall residential developments	, power substat	tion, Geologica	I SSSI	
Position of 'the line': t	oe of cliff				
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 - 100 (2105)	
Hold the Line	To be appraised long term?	- limited flood	risk and erosio	n	
Advance the Line	No benefits would result from	n forward move	ement of the lin	е.	
Managed Realignment	Not appropriate				
No Active Intervention	To be appraised – consider	geological feat	ures longer terr	n consider economic assets	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy	
	Aust Cliff to Old Passage		Do Nothing (Id	ocally Hold the Line)	
	CFMP Unit Policy				
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at vel	

2.15 Bristol and Severnside Theme Area (BRIS)

Bristol and Severnside	Bristol and Severnside – Aust Ferry (site of) to New Passage (BRIS 1)			
Summary description:	mainly agricultural, some in	nfrastructure		
residential settlements,	rivers – power line crossing, N agricultural land; habitat creat			
Position of 'the line':				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - undefend	ed with localise	ed earth embar	kments
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.			
Managed Realignment	To be appraised - earth embankments for potential habitat creation			
No Active Intervention	To be appraised - largely ur	ndefended at p	resent	
NO ACTIVE INTERVENTION	limited erosion and flood risk	ζ		
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy
Current Own 11 Oncy	Old Passage to new Passag	е	Hold the Line	
	CFMP Unit		Policy	
CFMP Policy	Policy Unit 2 (Severn Vale – Tributaries)	Severn Tidal		ntinue with existing or tions to manage flood risk at /el
	Policy Unit 7 (Avonmouth / S Severn Tidal Tributaries)	Severnside –		te further action to sustain vel of risk into the future

Bristol and Severnside	Bristol and Severnside – New Passage to north extent of Severnside Works (BRIS 2)				
Summary description:	some agricultural and key i	nfrastructure			
	r ivers – Severn Beach resider				
	49, Severn tunnels other road ritime importance, waste tips,				
Position of 'the line': e	arth embankment				
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	To be appraised - significan	t flood risk to a	djacent Policy	Units	
	Earth embankments and sea	a wall			
Advance the Line	No benefits, and potential er	vironmental in	npacts, would re	esult from seaward	
	movement of the line.				
Managed Realignment	No benefits would result from	n landward mo	vement of the I	ine.	
No Active Intervention	Not appropriate				
				Dellev	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy	
	New Passage to N of Sever	nside Works	Hold the Line		
	CFMP Unit		Policy		
	Policy Unit 2 (Severn Vale –	Severn Tidal		ntinue with existing or	
CFMP Policy	Tributaries)		the current lev	tions to manage flood risk at vel	
	Policy Unit 7 (Avonmouth / S	Severnside –		ke further action to sustain	
	Severn Tidal Tributaries)		the current lev	vel of risk into the future	

Bristol and Severnside - North extent of Severnside Works to Avonmouth Pier (BRIS 3)				
· · · · ·	Avonmouth docks and related	d infrastructure		
	r ivers – Low lying shoreline, A ets, railway line (defences), he re Conservation Sites		• •	-
Position of 'the line':	crest of existing private defend	es		
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)
Hold the Line	To be appraised - significan	t flood risk to a	djacent Policy	Units
Advance the Line	To be appraised - significan	t private devel	opment and ow	nership issues
Managed Realignment	Not appropriate – large area	of economic ir	nportance	
No Active Intervention	Not appropriate – large area	of economic ir	nportance	
	SMP1 Management Unit		Short Term I	Policy
Current SMP1 Policy	Severnside Works to Mitche Rhine	ll's Salt	Hold the Line	
	Mitchell's Salt Rhine to Avonmouth Pier Hold the Line			
CFMP Unit Policy				
CFMP Policy	Policy Unit 7 (Avonmouth / S Severn Tidal Tributaries)	Severnside –		ke further action to sustain vel of risk into the future

Bristol and Severnside – M5 Crossing (Avon, Right Bank) to Netham Weir (BRIS 4)

	(BRIS 4)				
Summary description:	River Avon flowing through B	ristol			
	Possible Key Policy Drivers – port related industries, power line crossing, residential developments, flood risk to M4 and M49, industrial assets, mixture of defences with limited coastal flooding, heritage maritime				
		with limited co	astal flooding,	neritage maritime	
importance, regeneratio					
	crest of existing defences		(
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	To be appraised – significant flood risk to adjacent Policy Units. Some spring tides can overtop the weir. Will need to cross refer to the CFMP policy area.				
Advance the Line	To be appraised – significan	t private develo	opment and ow	nership issues	
Managed Realignment	Not appropriate – large area	of economic ir	nportance		
No Active Intervention	To be appraised – very limite	ed risk from tida	al flooding or e	rosion. Review CFMP	
Current SMP1 Policy	SMP1 Management Unit		Short Term F	Policy	
Current Similar Policy	River Avon (Right Bank)		Hold the Line		
	CFMP Unit Policy				
	Bristol Avon CFMP Sub Are		Policy Option		
CFMP Policy	Markham Brook and Avonm	outh)		e flood risk effectively,	
				eed to take further pace with climate	
			change.	proce with chillate	

Bristol and Severnside - Netham Weir to Avon road (Eastern In Gordando) (BRIS 5)

Summary description: mixed geology (alluvium and glacial), nature interests Devonian and carboniferous agricultural and residential developments

Possible Key Policy Drivers –Industrial and residential developments (Bristol and Eastern In Gordando), small marina, recreational open ground, infrastructure, Nature Conservation Sites.

Position of 'the line': crest of existing defences/ embankments and quay walls					
Policy	Years 0 – 20 (2025)	Years 20 -	· 50 (2055)	Years 50 - 100 (2105)	
Hold the Line	To be appraised - significant flood risk if defences fail Review CFMP Mixture of defences – hard walls and embankments quay walls				
Advance the Line	Not appropriate	Not appropriate			
Managed Realignment	Locally to be appraised - Re	view CFMP			
No Active Intervention	Locally to be appraised - Review CFMP				
	SMP1 Management Unit		Short Term Policy		
Current SMP1 Policy	Netham Weir to South of Bu	rgh Walls	Hold the Line		
	Burgh Walls to Chapel Pill		Do Nothing		
	Chapel Pill to Portbury Pier	apel Pill to Portbury Pier Hold the			
	CFMP Unit		Policy		
CFMP Policy	Bristol Avon CFMP Sub Are Markham Brook and Avonm		but we may n	4 - Already e flood risk effectively, eed to take further ep pace with climate	

Bristol and Severnside- Avon road (Eastern In Gordando) to Portishead Pier						
(BRIS 6)						
Summary description:	west bank of docks, dock rela	ated industry ar	nd infrastructur	e		
Possible Key Policy D	rivers – residential, dock relat	ed industry and	d related infras	tructure, electricity		
substation, Nature Cons	ervation sites					
Position of 'the line':	crest of existing defences/ em	bankments and	l quay walls			
Policy	Years 0 – 20 (2025)	Years 0 – 20 (2025) Years 20 – 50 (2055) Years 50 – 100 (2105)				
Hold the Line	To be appraised - significant flood risk if defences fail					
Advance the Line	No Benefits					
Managed Realignment	Not appropriate – large area	of economic in	nportance			
No Active Intervention Not appropriate – large area of economic importance						
Current SMP1 Policy	SMP1 Management Unit Short Term Policy					
	Chapel Pill to Portbury Pier		Hold the Line)		

2.16 Portishead and Clevedon Theme Area (PORT)

Portishead and Clevedon - Portishead Pier to swimming pool (PORT 1)					
Summary description:	Summary description: Hard geology, cliff face, wave cut platform, residential and industrial				
developments (woodland	Possible Key Policy Drivers – Portbury Docks, Nature Conservation sites, lighthouse, small residential developments (woodlands Road), large number of Heritage features				
Position of 'the line': t	oe of cliff				
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)	
Hold the Line	To be appraised – limited er	osion and flood	l risk		
Advance the Line	No benefits, and potential er movement of the line.	vironmental in	npacts, would r	result from seaward	
Managed Realignment	No process benefits				
No Active Intervention	To be appraised – limited er	osion and flood	l risk		
	SMP1 Management Unit Short Term Policy				
Current SMP1 Policy	Old Pier to Portishead Point		Do Nothing		

Portishead and Clevedon - swimming pool to southern extent of esplanade road (PORT 2)						
Summary description:	Summary description: low lying, rocking shoreline with saltmarsh. Boating lake					
Possible Key Policy D	rivers – recreational asse	ts, Nature Conserva	ation si	tes		
Position of 'the line': t	op of wall					
Policy	Years 0 – 20 (2025)	Years 20 – 50 (20	55)	Years 50 – 100 (2105)		
Hold the Line	To be appraised current flood risk (1 property at a		wall – I	imited erosion and small area of		
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	To be appraised to landward side of the lake – need to consider additional flood created (esplanade road needs to be appraised)					
No Active Intervention	ⁿ To be appraised – limited erosion and small area of flood risk					
Current SMD4 Dollar	SMP1 Management Un	SMP1 Management Unit Short Term Policy				
Current SMP1 Policy	Woodhill Bay		Hold t	he Line		

Portishead and Clevedon - southern extent of Esplanade Road to Ladye Point (PORT 3)							
Summary description:	hard cliff geology with cliff top	developments	s including resid	dential, agricultural and			
tourism areas							
Possible Key Policy D	rivers – Golf Course, resident	ial, agricultural	Nature Conser	vation sites			
Position of 'the line': t	oe of cliff						
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)			
Hold the Line	To be appraised - largely un limited erosion and flood risk		localised coast	tal protection defences			
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.						
Managed Realignment	No process benefits						
No Active Intervention	tervention To be appraised – limited erosion and small area of flood risk						
	SMP1 Management Unit Short Term Policy						
Current SMP1 Policy	Kilkenny Bay to Redcliff Bay Do Nothing (locally Retreat the Line)						
	Redcliff Bay to Ladye Point		Redcliff Bay to Ladye Point Do Nothing				

Portishead and Clevedon - Ladye Point to Old Church Road (PORT 4)						
Summary description:	wave cut platform, hard cliff g	eology with clif	f top developm	ents mainly residential, with		
pockets of recreational a	and tourism areas					
Possible Key Policy D	r ivers – residential and other i	infrastructure ir	ncluding petrol	storage depot		
Position of 'the line':	crest of defence/ toe of cliff					
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)		
	To be appraised - defence r	mainly along be	each road			
Hold the Line	limited erosion and flood risk	ζ.				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	To be appraised – need to consider residential and depot at risk					
No Active Intervention	Active Intervention To be appraised - limited erosion and flood risk					
SMP1 Management Unit Short Term Policy						
Current SMP1 Policy	Clevedon		Hold the Line Do Nothing)	(locally Retreat the Line or		

2.17 Kingston Seymour to Sand Bay Theme Area (KIN)

Kingston Seymour to Sand Bay - Old Church Road to St Thomas' Head (KIN 1)						
Summary description: agricultural and saltmarsh, small residential areas						
	rivers – M5, Nature Conserva	tion sites, agrid	cultural and res	idential. Congresbury Yeo		
is potential future strateg						
	crest of embankment/defence		. (
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 – 100 (2105)		
	To be appraised					
Hold the Line	Defences – earth embankme	ent and hard de	efences			
	Flood risk – risk of extensive	e flooding if def	ences fail (to W	/estern SM)		
	Will protect agricultural / resi	dential assets				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	To be appraised for Congresbury Yeo (potential habitat creation site)					
No Active Intervention	Not feasible – would result in large scale inundation of large area and residential properties					
Current SMD1 Doliny	SMP1 Management Unit		Short Term I	Policy		
Current SMP1 Policy	Wains Hill to St Thomas's Head Hold the Line					
	CFMP Unit		Policy			
CFMP Policy	River Yeo (Congresbury Yeo L/B Policy Unit 8 Weston-Su	per-Mere	Policy 5 take further action top reduce flood risk			
	River Yeo (Congresbury Yeo)Policy 3 – take actions to maintain floR/B Policy Unit 5 Puxton, Kenn and Tickenhamrisk at current level (accepting that flo					

Kingston Seymour to Sand Bay - St Thomas' Head to Middle Hope car park (Sand point) (KIN 2)						
Summary description:	steep cliffs, hard headland					
Possible Key Policy De dwellings	rivers – Nature Conservation	sites, agricultu	ral and open co	ountryside, scattered		
Position of 'the line': t	oe of cliff					
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)		
Hold the Line	No process benefits – no de	fences				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	No process benefits					
No Active Intervention To be appraised – limited erosion and flood risk, could be island depending on adjacent units Nature Conservation importance of maintaining geological features						
	SMP1 Management Unit Short Term Policy					
Current SMP1 Policy	St Thomas's Head to Sand Point Do Nothing					
	Sand Point to Middle Hope (Sand Point to Middle Hope Car Park Do Nothing				

Kingston Seymour to Sand Bay - Middle Hope car park to southern extent of Beach Road (KIN 3)						
Summary description:	agricultural (inland) and saltr	marsh/ Dunes, s	small residentia	al and tourist areas (inc		
caravan parks)						
Possible Key Policy Dr commercial and tourism	rivers – Nature Conservation	sites, agricultu	ral and residen	tial (beach road)		
Position of 'the line': f	ore-dune					
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)		
	To be appraised					
Hold the Line	Defences – managed sand o	dunes				
	Flood risk – risk of extensive flooding if defences fail (to Western S-M)					
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	To be Appraised – limited benefit					
No Active Intervention	Not feasible – would result in large scale inundation of large area and residential properties					
Ourse at CMD4 Dalla	SMP1 Management Unit		Short Term I	Policy		
Current SMP1 Policy	Middle Hope Car Park to South Kewstoke Hold the Line					

Kingston Seymour to Sand Bay - southern extent of Beach Road to Birnbeck Island (KIN 4)						
· /	Hard rock headland, mainly u	indeveloped, sr	mall residential	areas		
Possible Key Policy Dr opportunity (Birnbeck Isl	rivers – Nature Conservation and), residential areas	sites, roads, Li	feboat station a	and pier future develop		
Position of 'the line': t	oe of cliff					
Policy	Years 0 – 20 (2025)	Years 20 – 5	0 (2055)	Years 50 - 100 (2105)		
Hold the Line	To be appraised – limited er	osion and flood	l risk			
Advance the Line	No benefits, and potential er movement of the line.	No benefits, and potential environmental impacts, would result from seaward movement of the line.				
Managed Realignment	No process benefits	No process benefits				
No Active Intervention	To be appraised – limited erosion and flood risk, Nature Conservation importance of maintaining geological features					
Ourses CMD4 Delieu	SMP1 Management Unit Short Term Policy					
Current SMP1 Policy	South Kewstoke to Birnbeck Island		Do Nothing (locally Hold the Line)			

2.18 The Holms Theme Area (HOL)

The Holms – Flat Holm (HOL 1)						
Summary description:	Semi natural open countrysic	le Hard geology	/			
Possible Key Policy D	rivers – Nature Conservation	sites, Military ir	nstallations, lis	ted buildings lighthouse and		
Position of 'the line': t	oe of cliff					
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)		
	Defences – none					
Hold the Line	Limited erosion and flood ris	k				
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.					
Managed Realignment	No process benefits					
No Active Intervention	Shoreline develops naturally, no long term flooding issue					
Current SMP1 Policy	SMP1 Management Unit S		Short Term Policy			
	Flat Holm Do Nothing					

The Holms – Step Holm (HOL 2)								
Summary description:	Summary description: Semi natural open countryside Hard geology							
Possible Key Policy Dr	rivers – Nature Conservation	sites, Military ir	nstallations					
Position of 'the line': t	oe of cliff							
Policy	Years 0 – 20 (2025)	Years 20 – 50	0 (2055)	Years 50 – 100 (2105)				
Hold the Line	Defences – none Limited erosion and flood risk							
Advance the Line	No benefits, and potential environmental impacts, would result from seaward movement of the line.							
Managed Realignment	No process benefits							
No Active Intervention	Shoreline develops naturally, no long term flooding issue							
Current SMP1 Policy	SMP1 Management Unit Short Term Policy							
	Steep Holm Do Nothing							

3. PART B: POLICY ASSESSMENT AGAINST OBJECTIVES

3.1 Aim

This Part shows how well each of the policy options achieves the objectives for each of the features identified around the shoreline as set out in *Appendix E*. It also determines the *Key Policy Drivers* for each Policy Unit. These have been derived from the initial list produced for each Policy Unit in Part A.

Strategic Environmental Assessment (SEA) related objectives are also included in this exercise to ensure that environmental issues have been taken into account in the decision making process. The full SEA assessment of the SMP2 options is presented in *Appendix I*.

3.2 Approach

The recommended approach in the Defra Guidance (Defra, 2006) for development of a sustainable plan is through the assessment of policy options for linked Policy Units, rather than considering locations in isolation. The aim of this stage has therefore been to assess the appropriateness (spatially and temporally) of policy options for each Policy Unit, so that when units are combined to form Policy Scenarios, the interaction of policy options can be seen.

Link with SEA Objectives

Many of the objectives identified in *Appendix E* overlap with or are the same as objectives identified as part of the Strategic Environmental Assessment (SEA), which considers the impacts of policies on specific 'receptors'. There are seven receptor types against which policies must be assessed when undertaking an SEA:

- Population and Human Health;
- Land Use, Geology and Soils, including Geomorphology and Contaminated Land;
- Biodiversity, Flora and Fauna;
- Historic Environment;
- Water;
- Air and Climate;
- Landscape.

For feature objective, the relevant SEA receptor is shown in brackets below. Some SEA objectives do not overlap with feature objectives and these have been added to the appraisal of other objectives for each Policy Unit. By fully integrating the SEA appraisal into the SMP2 objective appraisal, it is clear to see how environmental issues have been assessed and how this has been taken account of in the decision making process.

The following general objectives, associated with the features in the SMP2 area have been identified:

 Reduce the significance of the impact associated with flooding and erosion to people and property.

(Population and Human Health)

- Reduce the significance of the impact associated with flooding and erosion to key community, recreational and amenity facilities.
 (Population and Human Health)
- Reduce the significance of the impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)
- Reduce the significance of the impact associated with policies on marine operations and activities (Population and Human Health)
- Reduce the significance of the impact associated with flooding and erosion to critical infrastructure (Population and Human Health)
- Reduce the significance of the impact associated with flooding and erosion on maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils, including Geomorphology and Contaminated Land)
- Reduce the significance of the impact associated with flooding and erosion on maintaining the integrity of internationally designated sites and the favourable condition of their features. (Biodiversity, Flora and Fauna)
- Reduce the significance of the impact associated with flooding and erosion on managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)
- Reduce the significance of the impact associated with flooding and erosion on scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.

(Historic Environment)

- Avoid / minimise environmental impacts that may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)
- Avoid / minimise impacts on water resources (Water)
- Avoid / minimise impacts to water quality (Water)
- Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)
- Avoid / minimise impacts to landscape character. (Landscape)

Assessment

The significance of potential impacts has been evaluated by taking account of the status and level of <u>importance of receptors</u> and the <u>magnitude of any impacts</u>.

Importance is defined in relation to the scale of the impacts:

- International (at a scale greater than the UK)
- National (England or Wales or UK);
- Regional (Local Authority, groups of Local Authorities, Severn Estuary SMP2 study area);
- Local (Individual towns, villages or parishes or smaller).

Magnitude is determined on the basis of vulnerability, sensitivity, spatial and temporal incidence of any impacts and ability of receptors to recover. In determining the significance of an impact experience and professional judgement has been used to derive an assessment of major/minor positive, major/minor negative or neutral impact (where it has been determined that no change from the current situation will occur). The **Project Management Group (PMG)** has been consulted on the determination of impacts and agreed the assessment.

Each policy option has been appraised against the most appropriate *Key Policy Drivers*, Theme Area High Level Objectives, individual feature objectives in each Policy Unit (see Part A and *Appendix E* for identification of features, issues and objectives) and SEA objective. In most instances, consideration of whether an objective is met is based on the predicted position (e.g. the extent of retreat), form (e.g. existence of a beach) of the estuary shoreline or extent of flood risk from tidal inundation.

The assessment has, therefore, been carried out in three parts:

- The impact of the policy option on the appropriate *Key Policy Drivers* in the Policy Unit. This considers the economic, environmental and social impacts on the selected Key Policy Drivers.
- 2. The impact of the policy option on the achievement of the objectives for each feature in the Policy Unit. This does not differentiate between objectives of differing importance and is used to appraise and record of the impacts of predicted shoreline evolution and flooding on local objectives.
- 3. The impact of the policy option on the achievement of the Strategic Environmental Assessment (SEA) objectives. This part of the assessment ensures that the wider environmental impacts are assessed for each objective.

3.3 Assumptions

In developing the SMP2, a number of assumptions have had to be made about what particular phrases (as defined within the Defra Procedural Guidance - see Section 2.3.2) actually mean in the context of this SMP2. These are set out below with the reasons for decisions made and the consequences of those decisions. It should be re-emphasised that this SMP2 is unique in terms of it being totally included within a European conservation designated area, it represents the only totally estuarine SMP, has flooding (not erosion) as the dominant management risk and straddles two countries. For these reasons, the Guidance has needed to be clarified in places to accommodate this.

An example is linked to the definition of "With Present Management" or what was considered to be a Key Policy Driver (see Part A and Appendix E for initial assessment).

Property, Land Use & Human Health

The SMP2 considers the impacts on people, human health and land use over a large area and long time. Key Policy Drivers are those areas containing a large number of people. In this SMP2, a large number of people is defined as being *more than 10,000 in one area*. With this criterion in mind, the following settlement areas are defined as *a Key Policy Driver:*

Table 3.1 - Main SMP2 residential areas

•	Penarth	•	Caldicot / Port Skewett	•	Bristol
•	Cardiff	•	Lydney / Allaston/ Chepstow	•	Portishead
•	St. Mellons	•	Gloucester	•	Clevedon

- Newport Quedgely
 - Yatton / Congresbury

Quedgely and Yatton / Congresbury are only partly within the SMP2 area, but as they contain more than 10,000 people, they are included as Key Policy Driver towns to the list presented above.

Critical Infrastructure

Critical infrastructure is the transportation, communication and service features that are vitally important for the region and potentially difficult and costly to relocate. They include motorways, railways, large electricity power stations, major electrical substations and large water treatment works. In some more rural areas where there is only one access road into / out of a location, this is also considered to be critical infrastructure, as there is no alternative route available (critical for emergency access and community well being etc). Critical infrastructure is therefore a Key Policy Driver.

Agricultural Land

A large area of the SMP2 is agricultural land. Its importance at a local, regional and national level is recognised (see Section 4.5). There is no national policy or guidance on how important agricultural land is in making decisions about managing the risk of coastal flooding and erosion. Based on the lack of such guidance or policy, this SMP2 does not consider it to be a Key Policy Driver. It has been valued based on agricultural land valuation only (see Section 5.6).

Nature Conservation

There are many designated nature conservation sites in the SMP2 area of local, national and international importance (see **Section 5.4**). The SMP2 considers **international conservation sites** <u>are</u> **Key Policy Drivers**. This includes SACs, SPAs and Ramsar sites.

National and local conservation sites are <u>not</u> considered to be Key Policy Drivers. This includes SSSIs, NNRs, Key Wildlife Sites (KWS) and LNRs.

Landscape Character & Visual Amenity

Designated and non-designated landscape sites are not considered to be Key Policy Drivers.

Historic Environment

The historic environment of the Severn Estuary is important. There is no clear guidance on how the historic environment should be prioritised when considering coastal flooding and erosion (see **Section 4.4**). This SMP2 does <u>not consider it to be a Key Policy Driver</u>.

Amenity & Recreation

The *All-Wales Coastal Path* and the intention to create a *coastal path in England <u>are</u> Key Policy Drivers.* This is because national government in England and Wales has a clear policy in place in relation to these features. This shows that national government considers these recreational features to be particularly important in the management of the coast. Other recreational features are <u>not Key Policy Drivers</u>.

Water Quality and Resources

The Severn River basin district relies on groundwater and rivers for drinking water. The main responsibility for implementing actions that secure sustainable use and availability of water falls on a number of different sectors, including the water industry, agriculture and consumers.

Flooding and coastal erosion are very important issues, and have a separate planning process alongside the new European Floods Directive. Because defences and control structures impact on ecology, the River Basin Management Plan and all actions proposed need to take account of the need for and the impact of flood and coastal erosion risk management. Catchment Flood Management Plans and Shoreline Management Plans will take into account the objectives of the Water Framework Directive.

3.4 Other Assumptions

Cardiff Bay Barrage

The SMP2 assumes that the Cardiff Bay Barrage remains operational throughout the entire SMP2 period (100 years) and operates as it was designed to. It does not consider risks associated with the failure of the barrage or its infrastructure. These assumptions are consistent with those made in the Taff and Ely Catchment Flood Management Plan (CFMP). This means that even under No Active Intervention (NAI), the Cardiff Bay Barrage prevents coastal flooding along its length during all three SMP2 epochs.

3.5 Water Framework Directive (WFD)

A separate assessment of the compliance of the SMP2 policies with the *Water Framework Directive (WFD)* environmental objectives has been undertaken by the Environment Agency and the results of this assessment can be found in *Appendix J*.

3.6 Post-consultation amendments

It should be noted that the policy options assessed in this part are those undertaken to prepare the draft SMP2 prior to the public consultation in 2009. Following the analysis of the consultation results, policy options may be changed, based on the feedback and comments received during the consultation. The policies presented in the final SMP2 document could, therefore, differ from those assessed in this Appendix. Comments received and amendments made as a result of the public consultation are set out in Appendix B – Stakeholder Involvement.

4. Objectives Appraisal and Policy Scenario Development

Key

Table 3.1 – Key to symbols in the assessment tables

	Major positive impact (of significance to the SMP2 area)
•	Minor positive impact (of significance to the SMP2 area)
	Minor negative impact (of significance to the SMP2 area)
	Major negative impact (of significance to the SMP2 area)
N/A	Not applicable on grounds of technical feasibility (e.g. man managed realignment of cliff face)
-	No impact, or change to existing situation
	SEA objective

4.1 Penarth Theme Area (PEN)

The 'With Present Management' policy (set by SMP1) for <u>**PEN1 – Lavernock Point to south of Forest</u>** <u>**Road**</u> – is:</u>

SMP1 Management Unit	0-20	20-50	50 - 100
Lavernock Point to Penarth	Do nothing (No Active	Do Nothing (No Active	Do Nothing (No Active
Esplanade	Intervention)	Intervention)	Intervention)

The impact on the agreed objectives of continuing with present management policy at the Lavernock Point to south of Forest Road shoreline can be compared with alternative management policies through the following table:

	Policy	Unit - So	uth of For	est Road (I	PEN1)																												
	Advan	ce the Lir	1e	Hold the	Line		No Active I	nterventi	on	Manage	ed Realigr	nment																					
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100																					
Key Policy Drivers																																	
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			Due to high ground / hard geology ATL is not technically appropriate,			Due to high ground / hard geology ATL is not technically appropriate,			Due to high ground / hard geology ATL is not technically appropriate,			Due to high ground / hard geology ATL is not technically appropriate,			geology ATL is not technically appropriate,			Due to high ground / hard geology ATL is not technically appropriate,			Due to high ground / hard geology ATL is not technically appropriate,			-			NAI will allow roll back of		C of	N/A High ground / hard geology precludes physical retreat of the lin option not considered		
internationally designated sites and the favourable condition of their features				coastal so internation	ueeze imp		habitats and and feature geology/top this	d maintain s, howeve	habitats r																								
Residential: Lower Penarth developments Reduce significance of impact associated with	geolog technic	high grou y ATL is n ally appro not consid	ot priate,	-	-	-	-	-		geology physical	ound / hard precludes retreat of ot conside	the line,																					
flooding and erosion to people and property					ties at risk ow or in th		No propertie flooding nov																										
Theme Area High Level Objectives																																	
Recreational Sites: coastal path, Cosmeston Lakes and Country Park Lavernock Point	geolog technic	high grou y ATL is n ally appro not consid	ot priate,	-	-	-	-	-	-	geology physical	ound / hard precludes retreat of ot conside	the line,																					
facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)					at risk of ow or in th		No assets a flooding not																										
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	geolog technic		ot priate,	-	-		-	-		geology physical	ound / hard precludes retreat of ot conside	the line,																					
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	technically appropriate, option not considered			Pier potentially at risk			Increased risk of flooding to pier and impacts on seafront and coastal footpath																										

	Policy	Unit - So	uth of For	est Road (PEN1)							
	Advan	ce the Li	ne	Hold the	Line		No Active	Interventi	on	Manag	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
National nature designations: Severn Estuary and Penarth Coast SSSI Reduce significance of impact associated with	geolog technic	high grou y ATL is r ally appro not consid	ind / hard iot opriate,	-			-	-	•	N/A		
managing adverse impacts on nationally or locally designated conservation sites. SSSIs (Biodiversity, Flora and Fauna)					ine will res queeze im SSI		Rate of hat be limited of					
	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			-			-	-	-	geology physica	ound / har v preclude l retreat o not consid	s f the line,
environment sites and their setting. (Historic Environment)				same or is	SoP remains increase	d,	Limited curr erosion or f impact					
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	geolog technic	high grou y ATL is r ally appro not consid	ot priate,	-			-	_	•	N/A High ground / hard geology precludes physical retreat of t option not consider		s f the line,
				Intertidal habitats will be lost to coastal squeeze			Rate of hab		ck			
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with	geolog technic	high grou y ATL is r ally appro not consid	ot priate,	-	-	-	-	-	-	geology physica	ound / har v preclude l retreat o not consid	s f the line,
flood and erosion risk) (Population and Human Health)					SoP remains increase ot change		No assets a flooding not					
Water resources are protected (Water)	geolog technic	high grou y ATL is r ally appro not consid	ot opriate,	N/A	N/A	N/A	N/A	N/A	N/A	geology physica	ound / har preclude l retreat o not consid	s f the line,
				No assets	s at risk		No assets a	at risk				
No detriment to water quality (Water)	geolog technic	high grou y ATL is r ally appro not consid	ot priate,	N/A	N/A	N/A	N/A	N/A	N/A	geology physica	ound / har / preclude l retreat o not consid	s f the line,
				No water	bodies at	risk	No water be	odies at ris	risk			
dapt to or ccommodate climate hange trends.	geolog technic	high grou y ATL is r ally appro not consid	opriate,				-	-	-	geology physica option r	ound / har preclude l retreat o not conside	s f the line,
				Can not raise the height of the defences indefinitely.			Natural evo will accomm change: po people and	nate				

	Policy Unit - South of Forest Road (PEN1)											
	Advance	e the Lin	ie	Hold the	Line		No Active Intervention			Managed Realignment		
	0-20 2	A -			20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Avoid detrimental effects to landscape character (Landscape)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			-	-	-	_	_	-	geology physical	ound / hai preclude retreat o ot consid	s f the line,
		f c r			Limited current or future flood risk so raising of defences unlikely to be required; limited change to current landscape/views			Due to geology existing landscape likely to remain; no major change				

Penarth Cliff line from Lavernock Point to South Forest Road is included in the Severn Estuary international Ramsar, SAC and SPA designations; it is in the interests of the international community to a adapt shoreline management policy scenario to meet the objectives, or have a positive impact, on these Key Policy Drivers. From Lavernock Point to Forest Road there are no defences currently in place, the coastline is in an entirely natural state which is favourable for the maintenance of the international nature conservation designations. A natural shoreline has positive implications for the governmental objective to adapt our shoreline or to accommodate climate change trends.

Erosion rates calculated for this frontage are not deemed to be significant over the 100 yr SMP2 timescale (~10m per 100 years), al though erosion cliff slumps are evident in the area. Over the 50 to 100 year epoch there remains uncertainty in the rate of cliff erosion and further study in cliff stability and shoreline processes is recommended. As a result, the societal assets at Penarth, including Key Policy Drivers of residential properties and the coastal path, are considered only potentially at risk within the 50 to 100 year epoch.

The 'With Present Management' policy (set by SMP1) for PEN2 - Forest Road to Penarth Head - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Penarth Esplanade	Hold the Line	Hold the Line	Hold the Line
Penarth Head	Hold the Line	Hold the Line or retreat the line (by cliff control)	Hold the Line or retreat the line (by cliff control)

The impact on the agreed objectives of continuing with present management policy at the Forest Road to Penarth Head shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Fore	st Road	to Penarth	Head (PE	EN2)							
	Advance	e the Line		Hold th	e Line		No Acti	ve Interve	ention	Manage	d Realign	ment	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Key Policy Drivers													
Critical Infrastructure: Lifeboat Station Reduce significance of impact associated with flooding and erosion to	geology technica	igh grounc ATL is not lly appropr ot consider	iate,										
critical infrastructure.				Lifeboat station protected				station po by coasta		Realign: lifeboat	ment could station	l affect	
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of	geology technica	igh grounc ATL is not lly appropr ot consider	iate,	-			-	-		•			
internationally designated sites and the favourable condition of their features				Hold the line will result in coastal squeeze impacting international sites			operatin habitats some pl restricte	processes g; roll bac will occur aces rates d by hard sting devel	k of , but in ; will be geology	restricte by hard	ment will b d in some geology ar developm	places nd	
Residential Properties: Penarth Head Developments including Bradford Place	geology technica	igh grounc ATL is not lly appropr ot consider	iate,	-	-	-	-	-	-				
Reduce significance of impact associated with flooding and erosion to people and property				No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			No properties at current of future risk of tidal flooding retreating the line may affect some properties			
Theme Area High Level Objectives													
Recreational Sites: coastal path; pier Esplanade, Gallery and marine recreation Reduce significance of	geology technica	igh grounc ATL is not lly appropr ot consider	iate,				-						
impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)					ng SoP ma ased, feati ected			sk will incr bastal feat		features	bastal recr in their cu I be lost e.	rrent	
nd Human Health) ndustrial, commercial nd economic assets: .ocal commercial ssets Reduce significance of	geology technica	igh grounc ATL is not Ily appropr ot consider	iate,								·		
impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural),				Existing economic assets maintained			Some economic assets will be lost; tourism affected			Some economic assets will be lost; tourism affected			

and activities (including tourism) (Population and Human Health)							
Reduce significance of impact associated with policies on marine operations and activities (Population and	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		_	-	-	-	-
Human Health)		No known activities		No knowr	n activities	5	No known activities
National nature designations: Severn Estuary SSSI Reduce significance of impact associated with	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-		-	-	\bigcirc	
managing adverse impacts on nationally or locally designated conservation sites SSSIs (Biodiversity, Flora and Fauna)		Hold the line will rest coastal squeeze imp Severn SSSI		Natural properting habitats v will be res geology a developm	; roll back vill occur, stricted by and existin	but rates hard	Realignment will be restricted in some places by hard geology and existing development
Scheduled Monument: Penarth Churchyard Cross. Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		-	_	-	-	
nationally important cultural historic environment sites and their setting. (Historic Environment)		No onshore features current or future risk flooding		No onsho current or flooding	ore feature future ris		Some features along coast may be lost
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-		-	-		
		Coastal squeeze lea loss of intertidal habi		Roll back of habitats will occur and maintain intertidal habitats, but rates will be restricted by hard geology and existing development			Managed realignment will ensure intertidal habitat maintained
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		-	-	-	-	
flood and erosion risk) (Population and Human Health)		No properties at curr future risk of tidal floo		No prope future risk			Realignment may adversely affect properties
Water resources are protected (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		-	-	-	-	-
		No known resources		No knowr	n resource	es	No known resources
No detriment to water quality (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		-	-	-	-	-
		No known assets at	risk	No knowr	n assets a	t risk	No known assets at risk
Policy is designed to adapt to or accommodate climate	N/A Due to high ground / hard geology ATL is not			-	-	-	

change trends. (Air and Climate)	technically appropriate, option not considered							
			raise the h nces indefi		coast wil climate c	evolution of l accomm hange: po people a	odate ossible	Managed realignment will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	
		Limited current or future flood risk so raising of defences unlikely to be required; limited change to current landscape/views			eology ex e is likely		Managed realignment will alter the townscape and views	

Forest Road at Penarth, to and including Penarth Head includes the shoreline Esplanade of Penarth; a residential area and the tourism and recreational hub of the town. The area of low lying land is at erosion and flood risk (0.1% AEP), to hold the existing line is considered to be beneficial for the societal assets located at the Esplanade.

Erosion rates calculated for this frontage (Penarth Head cliffs) are not deemed to be significant over the 100 yr SMP2 (10m in 100 years) timescale, although erosion cliff slumps are evident in the area. Over the 50 to 100 year epoch there remains uncertainty in the rate of cliff erosion and further study in cliff stability and shoreline processes (in connection with Cardiff Barrage impacts) is recommended here. As a result, the societal assets at Penarth, including Key Policy Drivers of residential properties and the coastal path, are considered only potentially at risk within the 50 to 100 year epoch.

4.2 Cardiff Theme Area (CAR)

The 'With Present Management' policy (set by SMP1) for CAR1 - Cardiff Bay - is:

SMP1 Management Unit	0-20	20-50	50 - 100
	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Cardiff Bay shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – C	Cardiff E	ay (CAR1)								
	Advan	ce the L	ine	Hold the	Line		No Active Inte	ervention		Manag Realig	ged Inment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA			1	-			-			-	1	•
Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)	protect	on tionally ed sites		loss of in	squeeze will tertidal habi	tats	Barrage and d rate of roll bac squeeze likely	k of habitats; c to result	oastal	will allo habitat mainta require the Ba	ined – wo the remo rrage (not ered a fea	dal ould oval of t
Residential:	-			-	-	-	-	-	-	-		
Cardiff Bay residential developments Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	current	perties a t or futur flooding	e risk		rties at curr k of tidal flo		No properties of tidal flooding		ture risk	affect i proper require the Ba	ting the li residentia ties – wou the remo rrage (not ered a fea)	l uld oval of t
Industrial, commercial and economic assets:	0			-	-		-	-		-		
Cardiff Bay developments Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	risk of protect	area of c erosion; ed unde		assets pre-	d other ecc		Future risk of e	erosion		remova (not co feasibl	require th al of the E onsidered e choice)	Barrage a
Critical Infrastructure: Cardiff Bay Barrage, local road and path	-			-	-	-	-	-	-	-	-	
network within Cardiff Bay Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)		astructu t or futur sk			tructure at cal flood risk		No infrastructu tidal flood risk		r future	– woul remova (not co	ructure af d require al of the E onsidered e choice)	the Barrage a
Theme Area High Level Objectives												

	Policy Unit – Cardiff E	Bay (CAR [,]	1)							
	Advance the Line	Hold th			No Active In	tervention		Mana		
	0-20 20- 50-	0-20	20-50	50 -	0-20	20-50	50 -	Realig	gnment 20-	50 -
	50 100	0 20	20 00	100	0 20		100	0 20	50	100
Recreational Sites: Coastal path, Cardiff Bay	-	-	-	-	-	-		-		
recreational attractions Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	No features at risk now or in future from tidal flooding		res at risk r		NAI will affec in longer terr	t recreational n	use of bay	will af use of requir the Ba	ating defe fect recre bay – w e the rem arrage (ne dered a fe	eational ould noval of ot
Marine Operations: Access to Cardiff Bay and subsequent docks		-	-	-	-			-		
Reduce significance of impact associated with policies on marine operations and activities (Population and Human Health)	Access to and operation of Cardiff Bay potentially affected	No cha	nge		Sea level rise the Bay	will affect ac	tivities in	activit would remov (not c	inment w ies in the require t al of the onsidered le choice	Bay – he Barrage d a
National nature designations: Severn Estuary SSSI Reduce significance of					-			-		
impact associated with maintaining the integrity of nationally and locally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)	Advance the line will impact on the protected site		squeeze wi		presence of	ack not possi bay and barra eze will result	restric habita would remov (not c	opment v it the amo t roll bac require t val of the onsidered le choice	ount of k – he Barrage d a	
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment	-	-	-	-	-	-	-	-		
sites and their setting. (Historic Environment)	No known assets at risk	No kno	wn assets at	risk	No known as	sets at risk		remov (not c	d require al of the onsidered le choice	Barrage d a
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing		-			-			-		
targets/plans	Advance the line will reduce extent of intertidal habitats		squeeze wil of intertidal h		Developmen ability of hab squeeze will	t and barrage itat to roll bac occur	will restrict k; coastal	could interti- would remov (not c	ged realig promote dal habita require t val of the onsidered le choice	at – he Barrage d a
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	- No properties at risk of tidal flooding now or in the future		erties at risk now or in th		- No properties now or in the	s at risk of tida future	al flooding	adver prope requir	nment co sely affeo rties – wo e the rem arrage (no	ct ould noval of
flood and erosion risk) (Population and Human Health)									dered a fe	

	Policy	Unit – (Cardiff E	ay (CAR1))							
	Advan	ce the l	_ine	Hold the	e Line		No Active Inte	ervention		Manag Realig	jed nment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Water resources are	-			-	-	-	-	-	-	-		
protected (Water)		ets at ris oding n uture		No assets at risk of tidal flooding now or in the future			No assets at risk of tidal flooding now or in the future			remova (not co	require th al of the B Insidered e choice)	Barrage
N 17. 77 7	-			-	-	-	-	-	-	-		
No detriment to water quality (Water)	risk of	own asse tidal floc in the fu	ding	No known assets at risk of tidal flooding now or in the future			No known assets at risk of tidal flooding now or in the future			Would require the removal of the Barrag (not considered a feasible choice)		
Policy is designed to adapt to or				-	-	-	-	-	-	0		
accommodate climate change trends. (Air and Climate)		ot raise t of the de itely.		the defended the	raise the he nces indefini adequate p provided fo	itely; rotection	Natural evoluti accommodate possible impac property.	ge:	Managed realignment will accommodate climate change – would require the removal of the Barrage (not considered a feasible choice)			
Avoid detrimental effects to landscape				-	-	-	-	-	-			
character (Landscape)	limited defenc require	isk mini raising e es likely d. Limite on local ape-	of to be	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape			Due to limited presence of ba landscape like unchanged	Managed realignment will alter the townscape and views – would require the removal of the Barrage (not considered a feasible choice)				

The Bay is afforded protection from flooding and erosion by the Barrage. Behind the barrage is a significant amount of important economic assets including residential properties, commercial and industrial sites and well as civil infrastructure. For the purpose of this assessment it has been assumed that under NAI, the barrage will remain in place for the duration of the SMP2 timeframe. It will begin to deteriorate in the 50 to 100 year epoch but remain operational for the entire 100 year SMP2 period.

The 'With Present Management' policy (set by SMP1) for CAR2 – Barrage to River Rhymney, Rover Way – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Cardiff Flats	Hold the Line	Hold the Line	Hold the Line
North of Cardiff Flats to Pengam Moor	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Barrage to River Rhymney, Rover Way shoreline can be compared with alternative management policies through the following table:

	Polic	cy Unit -	Barrage	to River	Rhymney, R	over Way	(CAR2)					
	Adva	ance the	Line	Hold th	e Line		No Acti	ve Interve	ention	Manag	ed Realig	nment
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Recreational Sites: Coastal Path Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.		•		•	•		-					
	Asse erosi		ted from	Assets protected from erosion		Assets a	at risk from	n erosion	Assets by retre	adversely eat	affected	
International Nature Conservation sites:				-			-					
Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				squeeze wil		Habitats	s will roll ba	ack	Realignment will allow intertidal habitats to roll back			
Critical Infrastructure: Docks –Queen Alexandra and Roath and access including railway Reduce significance of impact associated with flooding and erosion to critical infrastructure.												
	prote	s will ren ected from ling and	n		will remain pr oding and er		Docks a erosion	it risk prim	arily from		ment may peration	affect
Theme Area High Level Objectives												
Residential: Small scale residential developments Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)				•			-	-				
	prope at ris prote	properties currently at risk and therefore			Limited number of properties currently at risk and therefore protected under this option			number of es currentl flooding/e is option	y at risk	Realignment may adversely affect some properties		

				1
Industrial, commercial and economic assets: Dockland industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)				
	Limited number of assets currently at risk and therefore protected under this option	Limited number of assets currently at risk and therefore protected under this option	Limited assets at risk of future flooding/erosion under this option	Realignment may adversely affect local industry operation
Marine Operations: Docks – Queen Alexandra Reduce significance of impact associated with policies on marine operations and activities (Population and Human Health)				
	Advancing the line may affect dock access/operation	Dock operations protected from flood and erosion risk	Dock operations at risk from future flooding and erosion	Realignment may adversely affect dock operation
National nature designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				
	Advance the line will result in loss of intertidal habitats	Coastal squeeze will impact on the protected site	Roll back of habitats will occur	Realignment will maintain intertidal habitats
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-			
	Terrestrial site protected; marine sites potentially adversely affected	Sites protected	Sites at risk from increased flooding/erosion	Sites potentially affected by retreat term
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-		
	Advance the line will result in loss of intertidal habitats	Coastal squeeze will impact on habitats and species	Roll back of habitats will occur	Realignment will maintain intertidal habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and			· · ·	

anxiety associated with flood and erosion risk) (Population and Human Health)								
	Limited number of properties currently at risk and therefore protected under this option	Limited number of properties currently at risk and therefore protected under this option			propertie of future	number of es currentl flooding/e is option		Realignment may adversely affect some properties
Water resources are protected (Water)	-	-	\bigcirc	\bigcirc	-			-
	No resources known to be present	No reso present	ources known	to be	No reso present	urces know	wn to be	No resources known to be present
No detriment to water quality (Water)	-	-	-		-	-	-	-
	No assets known to be at risk	No asse risk	ets known to	be at	No asse risk	ts known t	o be at	No assets known to be at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	_	_	•
	Can not raise the height of the defences indefinitely.		t raise the he ences indefini	0	coast wi	evolution o Il accomm change: po o people a	odate ossible	Managed realignment will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	-	-	-	-	-	-	-	-
	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape	raising be requ	sk minimal so of defences li ired. Limited ndscape	kely to	coastline landscap change	osion of the may occu be unlikely significant al human tion	ur, but to	Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact

This unit is largely dominated by large areas of heavy industrial processes and Alexandra Dock located directly behind the shoreline.

The Queen Alexandra and Roath Docks are in close proximity to the CAR2 shoreline and subsequent erosion risk. The integrity of the defence preventing degradation of the docks is at risk in the 2nd epoch (20 to 50 years).

The 'With Present Management' policy (set by SMP1) for <u>CAR3 – River Rhymney to Lamby Way landfill</u> <u>site drain/sewer outfall</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
River Rhymney	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the River Rhymney to Lamby Way landfill site drain/sewer outfall shoreline can be compared with alternative management policies through the following table:

	Policy L (CAR3)	Jnit – Riv	er Rhymr	ney to Lar	nby Way∣	landfill si	te drain / s	sewer out	fall			
		e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	ed Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	consider unsuitab tributarie Estuary, in-chann and wate potential greater f also trigg	im		-			-					
					squeeze v n the prote		however	will roll ba space is l eas due to ment	limited in		ment will a to roll bac	
Residential: Residential developments aside River Rhymney Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
				propertie	number of es at curre sk from tida erosion		propertie	in flood ri es; limited om curren erosion	number		ment may operties	affect
Recreational Sites: Coastal path and local open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i red to be a le policy fr so to the S as it woul hel flood st ly leading looding. I ger erosion uce it	n evern d reduce orage ent, to to	-								
					onal sites d, althougl <		at an inc	onal sites reased ris although ble sites.	k of	alignme limited s	will depend nt line: how space in re be an adve	vever ach; so

	N1/A							
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		nfrastructu		Limited	nfrastructu		Retreating the line may
		risk	nirastructu	ire al	risk	nirastructu	ire al	adversely affect existing infrastructure
Theme Area High Level Objectives								
National and local nature designations: Severn Estuary, Penyland Quarry, Rhymney River Section and Rumney Quarry SSSIs, and Howardian LNR Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-			
sites. (Biodiversity, Flora and Fauna)			squeeze w n the prote		occur, al	k of habita though sp some loc	ace is	Retreating the line will allow roll back of habitats
Industrial, commercial and economic assets: Commercial development aside River Rhymney Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	•	•				
		Limited a risk/prote	assets at ected		Limited a	assets at ri	sk	Limited assets at risk , realignment could affect assets
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-						
Mointoin and ant and			assets at ri	sk	Limited a	assets at i	isk	Retreating the line may affect existing features
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-						

		Coastal sque impact on the habitats and s	protected		of habita hough sp		Retreating the line will allow roll back of habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-					
		Limited numb properties at flooding			in flood ri s; limited		Realignment may affect some properties
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	-	-
		No known res risk.	ources at	No know risk.	n resource	es at	No known resources at risk.
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-		-	
		Current and c sites present; at current/futu flood risk	however not	sites pres	and old lar sent; howe t/future er	ever not	Retreating line may put theses sites at increased flood risk with implications for water quality.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	
		Can not raise the defences		coast will climate c	evolution c accomm hange: pc people a	odate ssible	Managed realignment will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to		-	-	-	-	-

greater flooding. It could also trigger erosion, rather than reduce it							
	limited ra	k minimal aising of de be require effect on lo be	efences d.	change s	pe unlikely significantl Idditional I ion	y	Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact

The banks of the River Rhymney where there is tidal influence are characterised by industrial and residential developments. A significant feature of the shoreline with the Policy Unit is the Lamby Landfill Site, the flooding and/or erosion of which will have a negative impact on sites of nature conservation and water quality of the estuary.

4.3 Wentlooge Theme Area (WEN)

The 'With Present Management' policy (set by SMP1) for WEN1 – Lamby Way Landfill site drain / sewer outfall to Sluice House Farm / Tarwick Rhyne – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Rumney Great Wharf	Hold the line	Hold the Line or retreat the line	Hold the Line or retreat the line

The impact on the agreed objectives of continuing with present management policy at the Lamby Way Landfill site drain / sewer outfall to Sluice House Farm / Tarwick Rhyne shoreline can be compared with alternative management policies through the following table:

	Policy (WEN ²		Lamby	Way Landfill	site drain	/ sewer o	outfall to	Sluice Ho	use Farm /	/ Tarwicł	k Rhyne	
	Advan	ice the L	.ine	Hold the L	ine		No Ac	tive Interv	rention	Manag Realig	jed nment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: Severn Estuary		•		-			-					
Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features		ill impact	on the	Coastal squeeze will impact on the protected sites				ts will roll t lal habitats ined.		Intertidal habitats will roll back and be maintained		
Critical infrastructure: Railway Line Electricity substations, Reduce significance of impact associated with flooding and erosion to critical infrastructure.	Infrastructure protected.			- Infrastructure protected.				ructure at a sed risk of		Impact will depend or alignment line. The assets are at least 800m inland so it is likely they will be protected and not adversely impacted.		
Residential: Outskirts of Cardiff, Newton and	\bigcirc			•			-			-		
Llanrhymney Reduce significance of impact associated with flooding and erosion to people and property	proper risk fro Reside	d no. of ties in Ca om tidal fl ential pro protecte	ooding. perties	Limited no. Cardiff at ris flooding. Re properties v	sk from tida esidential	al		ential prope an increase g.		the alig is not e proper	will dep gnment li expected ties will l ely affec	ine. It I that De
Theme Area High Level Objectives												
Industrial, commercial and economic assets:	0					0	-					
Commercial developments of Newton andLlanrhymney , Agricultural landscape, Reduce significance of impact associated with flooding and erosion to industrial, commercial	Assets	protecte	ed	Assets prot	ected		Assets floodin	at increas g	ed risk of	depend alignm not exp develo impact is likely advers	pact will d on the ent line. bected th pments ed on bu y to be a e impact tural land	It is nat the will be ut there n t on the

Severn Estuary SMP Review

and economic assets								
(including agricultural), and activities								
(including tourism)								
Recreational Sites:	\bigcirc	\bigcirc	\bigcirc		-			
Coastal path and						_	_	
local open space Reduce significance of								
impact associated with								
flooding and erosion to								
key community,								
recreational and amenity facilities.								
(Population and								
Human Health)	• •							
	Access route along the coast will be	Access rout will be prote		e coast		s route alor vill be at ris		Impact depends on the realignment of the
	protected.	in bo prote				ed flooding		coast. The current
								access route is likely
								to be adversely affected but it could
								be repositioned.
Heritage Landscape:		-	\bigcirc		-			
Scheduled Monuments:								
Relict Seawall on	Limited number of	Structures a	and Histori	C	Structu	res will be	at an	Structures and
Rumney Great Wharf	features. Structures	landscape v				ed risk of f		Historic landscape
Listed Buildings and non-designated sites	will be protected.	although ind				the historic		may be adversely
of historic interest	Historic landscape will be altered	defences co impact withi			landsc	ape		affected by realignment
Reduce significance of		Levels Histo						realignment
impact to scheduled		Area						
and locally, regionally and nationally								
important cultural								
historic environment								
sites and their setting					_			
National and local nature designations:					-			
National and local nature designations: Reduce significance of	Earl and based sites	Compare Lovel	Rumpov	and Pote	-			
National and local nature designations: Reduce significance of impact associated with	For Land based sites – (-					
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally	The Gwent Levels	The Gwent	Levels Ru	umney	There	will be an a		There will be an adverse impact on the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated		The Gwent and Peters	Levels Ru tone SSSI	umney	There	will be an a on the site		There will be an adverse impact on the site due to the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites.	The Gwent Levels Rumney and	The Gwent	Levels Ru tone SSSI	umney	There impact	will be an a on the site		adverse impact on the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated	The Gwent Levels Rumney and Peterstone SSSI site	The Gwent and Peters be protected	Levels Ru tone SSSI	umney	There impact	will be an a on the site		adverse impact on the site due to the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site	The Gwent and Peters	Levels Ru tone SSSI	umney	There impact	will be an a on the site		adverse impact on the site due to the realignment of the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site	The Gwent and Peters be protected	Levels Ru tone SSSI	umney	There impact	will be an a on the site		adverse impact on the site due to the realignment of the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site	The Gwent and Peters be protected	Levels Ru tone SSSI	umney site will	There impact	will be an a on the site		adverse impact on the site due to the realignment of the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site will be protected	The Gwent and Peters be protected	Levels Ru tone SSSI	umney site will	There impact erosior	will be an a on the site	due to	adverse impact on the site due to the realignment of the
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site will be protected	The Gwent and Peters be protected - - Severn Est	Levels Ru tone SSSI d uary SSSI	umney site will	There impact erosior - Habita intertid	will be an a on the site the site the site the site the s	due to	adverse impact on the site due to the realignment of the coast
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote	Levels Ru tone SSSI d uary SSSI	umney site will	There impact erosior - Habita intertid mainta	will be an a on the site the site the site the site the s	due to	adverse impact on the site due to the realignment of the coast
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ?	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ?	Levels Ru tone SSSI d uary SSSI ueeze will in ected site	mpact	There impact erosior - Habita intertid mainta ?	will be an a on the site the site site site site site site site site	ack,	adverse impact on the site due to the realignment of the coast
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how	Levels Ru tone SSSI d uary SSSI ueeze will in ected site	umney site will	There impact erosior - Habita intertid mainta ? Unclea	will be an a on the site the site site site site site site site site	ack,	adverse impact on the site due to the realignment of the coast
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ?	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ?	Levels Ru tone SSSI d uary SSSI ueeze will in ected site	umney site will mpact	There impact erosion - Habita intertid mainta ? Unclea terresti	will be an a on the site the site site site site site site site site	ack,	adverse impact on the site due to the realignment of the coast
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial ar and species possible ne	Levels Ru tone SSSI d uary SSSI ueeze will in ected site	Imney site will mpact of habitats fected – utral or	There impact erosion - Habita intertid mainta ? Unclea terrest habitat be affe	will be an a on the site the site site the site the site the site the site the site	ack, nix of rine ies will sible	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial at and species possible ne positive out	Levels Ru tone SSSI d uary SSSI neeze will in ected site will be aff gative, neu comes. M	Imney site will mpact of habitats fected – utral or ore	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ	will be an a on the site the site site the site the site the site	ack, nix of rine ies will sible or	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial ar and species possible ne	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M sessment a	Imney site will mpact of habitats fected – utral or ore	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ positiv	will be an a on the site the site site the site the site the site the site the site	ack, mix of rine ies will sible or s. More	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial at and species possible ne positive out detailed ass	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M sessment a	Imney site will mpact of habitats fected – utral or ore	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ positivu detaile	ts will roll b al habitats ined r how the r rial and ma s and spec cted – pos re, neutral e outcomes	ack, mix of rine ies will sible or s. More ent at	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial at and species possible ne positive out detailed ass	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M sessment a	Imney site will mpact of habitats fected – utral or ore	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ positivu detaile	ts will roll b al habitats ined r how the r rial and ma s and spece ccted – pos- re, neutral e outcomes d assessm	ack, mix of rine ies will sible or s. More ent at	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial at and species possible ne positive out detailed ass	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M sessment a	Imney site will mpact of habitats fected – utral or ore	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ positivu detaile	ts will roll b al habitats ined r how the r rial and ma s and spece ccted – pos- re, neutral e outcomes d assessm	ack, mix of rine ies will sible or s. More ent at	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna) Avoid/minimise environmental impacts	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial as and species possible ne positive out detailed ass level require	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M eessment a ed.	of habitats fected – utral or ore at lower	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ detaile lower li	ts will roll b al habitats ined r how the r rial and ma s and spec ccted – posa /e, neutral e outcomes d assessm evel require	ack, mix of rine ies will sible or s. More ent at ed.	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna) Avoid/minimise environmental impacts which may have long	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial at and species possible ne positive out detailed ass	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M eessment a ed.	of habitats fected – utral or ore at lower	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ detaile lower l - Reside	ts will roll b al habitats ined r how the r rial and ma s and spece ccted – pos- re, neutral e outcomes d assessm	ack, mix of rine ies will sible or s. More ent at ed. rties will	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna) Avoid/minimise environmental impacts which may have long term health impacts	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial as and species possible ne positive out detailed ass level require Residential	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M ressment a ed.	of habitats fected – utral or ore at lower	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ detaile lower l - Reside	will be an a on the site on the site on the site on the site on the site of th	ack, mix of rine ies will sible or s. More ent at ed. rties will	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna) Avoid/minimise environmental impacts which may have long	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial as and species possible ne positive out detailed ass level require Residential	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M ressment a ed.	of habitats fected – utral or ore at lower	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ detaile lower li - Reside be at a	will be an a on the site on the site on the site on the site on the site of th	ack, mix of rine ies will sible or s. More ent at ed. rties will	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties
National and local nature designations: Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna) Avoid/minimise environmental impacts which may have long term health impacts (including stress and	The Gwent Levels Rumney and Peterstone SSSI site will be protected For marine based sites - ATL will impact on the protected site ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties	The Gwent and Peters be protected - - Severn Est Coastal squ on the prote ? Unclear how terrestrial as and species possible ne positive out detailed ass level require Residential	Levels Ru tone SSSI d uary SSSI receze will in ected site will be aff gative, neu comes. M ressment a ed.	of habitats fected – utral or ore at lower	There impact erosior - Habita intertid mainta ? Unclea terrest habitat be affe negativ detaile lower li - Reside be at a	will be an a on the site on the site on the site on the site on the site of th	ack, mix of rine ies will sible or s. More ent at ed. rties will	adverse impact on the site due to the realignment of the coast Intertidal habitats will roll back and be maintained ? Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required. Residential properties

(Population and Human Health)								
	-	-	-	-	-	-	-	
No detriment to water quality (Water) Historic landfill sites	Historic landfill sites are present in the flood risk zone but are not expected to pose a risk to water quality.	Historic land present in the but are not risk to wate	ne flood ris expected to	k zone	preser zone b	c landfill sit at in the floo out are not e a risk to v	od risk expected	Retreating the line could affect landfill sites and water quality
Water resources are	-	-			-			-
protected (Water)	No known impact to water resources.	No known ii resources.	mpact to w	ater	No kno resour	own impact ces.	to water	No known impact to water resources.
Policy is designed to					-	-	-	
adapt to or accommodate climate change trends. (Air and Climate)	Can not raise the height of the defences indefinitely.	Can not rais defences in		ht of the	coast climate	l evolution will accomr change: p to people ty.	nodate	Managed retreat will accommodate climate change.
					-	-	-	-
Avoid detrimental effects to landscape character (Landscape)	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.		Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.			Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	

The shoreline from Lamby Way Landfill site drain / sewer outfall to Sluice House Farm / Tarwick Rhyne are defended by Rumney Great Wharf earth embankments and rock armouring with a residual life of 20 - 50 years.

Flood risk is extensive with a large portion of the area at risk in the first epoch (0 - 20 years); however, many of the critical assets recognised under the Key Policy Drivers are at risk in the final epoch considered by the SMP2 (50 – 100 years).

The 'With Present Management' policy (set by SMP1) for <u>WEN2 – Sluice House Farm / Tarwick Rhyne to</u> west bank of River Ebbw at Maesglas railway bridge – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Peterstone Great Wharf	Hold the line	Hold the Line	Hold the Line or retreat the line
Peterstone Gout to East of Outfall Lane	Hold the line	Hold the Line	Hold the Line or retreat the line
East of Outfall Lane to New Gout	Hold the line	Hold the Line	Hold the Line or retreat the line

The impact on the agreed objectives of continuing with present management policy at the Sluice House Farm / Tarwick Rhyne to west bank of River Ebbw at Maesglas railway bridge shoreline can be compared with alternative management policies through the following table:

	(WEN2)					hyne to v	-			aesglas ra		
	Advanc	e the Line	e	Hold the	e Line		No Acti	ve Interve	ntion	Manage	ed Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Critical infrastructure: Railway Line, Electricity substations	\bigcirc			-		\bigcirc	-			•		
Reduce significance of mpact associated with looding and erosion to critical infrastructure.	Infrastru	icture prot	ected.	Infrastru	icture prote	ected.		icture at ar ed risk of fl		alignme are at le they will	vill depend nt line. Th ast 2km ir be protec ersely impa	ne asse nland so ted and
International Nature Conservation sites: Severn Estuary Ramsar,				-			-					
SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	ATL will protecte	impact or d site	i the		squeeze v on the prot			will roll ba habitats hed.	ack,		l habitats d be main	
Theme Area High Level Objectives												
Residential: Peterstone, Marshfield, St. Brides and isolated properties. Reduce significance of mpact associated with flooding and erosion to people and property					•		-					
Recreational Sites: Local open space and acilities Reduce significance of mpact associated with looding and erosion to key community, recreational and amenity facilities. Population and Human Health)				•	•		-			-		
		route alon ill be prote	0		route alon Il be prote		coast w	route along ill be at risl ed flooding	k from	realignn The cur is likely	depends o nent of the ent acces to be adve but it coul oned.	coast. s route ersely

Industrial, commercial and economic assets:	•	0	•	\bigcirc	-			
Agricultural landscape Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	Assets protected.	Assets	protected.		Assets a risk of flo	at and incre boding.	eased	The impact will depend on the alignment line. It is not expected that the developments will be impacted on but there is likely to be an adverse impact on the agricultural land.
National nature designations: Reduce significance of		-			-			
impact associated with	For Land based sites – Gwe	nt Levels	s – St. Brid	es SSSI				
managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and	The Gwent Levels –St BridesSSSI site will be protected		vent Levels SSSI site v ed.		impact c	ill be an a on the site astal erosio	resulting	There will be an adverse impact on the site due to the realignment of the coast.
Fauna)		-						
	For marine based sites – Se	vern Estu	uary SSSI	<u> </u>				<u> </u>
	ATL will impact on the protected site		squeeze v on the prot			will roll ba I habitats ned.	ack,	Intertidal habitats will roll back and be maintained.
	?	?			?			?
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.	terrestri habitats affected negative positive detailed	how the m al and mar and speci d – possible e, neutral c outcomes d assessme evel require	ine es will be e r . More ent at	terrestria habitats affected negative outcome	how the m al and mar and speci – possible a, neutral c as. More c nent at low	ine es will be or positive detailed	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.
Heritage Sites: Scheduled Monuments: St. Mary's Churchyard Cross at Marshfield And Listed Buildings Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting		-			-			
	Terrestrial structures will be protected. Gwent Levels Historic Landscape may be adversely affected	of the d Historic will be p height if	es on landw efences an Landscape protected. I f defences cal adverse	d e Area ncreased could	Landsca	es and His ape Area w ased risk o	/ill be ay	Structures likely to be protected as located over 2.5km inland; Historic landscape area could be adversely affected
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		•			-			
	Residential properties will be protected.	Resider be prote	ntial proper ected.	ties will		tial proper increased		Isolated residential properties may be adversely impacted by the realignment. There would be loss of agricultural land in the area.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be present.	No reso present	ources know	vn to be	No reso present.	urces knov	wn to be	No resources known to be present.

No detriment to water quality (Water) 3 Active landfill sites			-	
	Landfill sites protected from flooding.	Landfill sites protected from flooding.	Landfill sites are at an increased risk of flooding.	Impact depends on the realignment of the coast. One of the sites is on the coast and another within 500m so it is likely that they would be adversely affected.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)				
	Can not raise the height of the defences indefinitely.	Can not raise the height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)		-		-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.

This unit is dominated by agricultural landscape with a large extent of flooding under the NAI policy. Flood risk is extensive when defences fail in the 3rd epoch (50 to 100 years); many of the critical assets recognised under the Key Policy Drivers are at risk.

4.4 Newport and the River Usk Theme Area (NEW)

The 'With Present Management' policy (set by SMP1) for <u>NEW1 – East bank of River Ebbw at Maesglas</u> railway bridge to west bank Usk at transporter bridge – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Ebbw River (right bank) to the Transporter Bridge	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the East bank of River Ebbw at Maesglas railway bridge to west bank Usk at transporter bridge shoreline can be compared with alternative management policies through the following table:

					-							
	Policy (1)	Unit – Ea	ast bank	of River	Ebbw at N	laesglas r	ailway br	ridge to west	: bank Usk a	t transpo	rter bridge	e (NEW
	Advanc	e the Lin	е	Hold t	he Line		No Acti	ve Interventi	ion	Manag	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: River Usk SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	y Estuary, as it would reduce in-channel flood storage and water			- signated fo			DII back of hat	•		will dependent line: ho		
				migrat	ory fish ; no SAC likely	o impact		e niver contact		very lin reach:	nited space potential to <u>e habitat fo</u>	e in
Critical infrastructure: Docks Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure.	Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would		an for Severn Ild I flood r tially also				-					
	than rec			Assets	protected.		Assets v risk of fl	will be at an ir ooding.	ncreased	alignme limited	will depend ent line: ho space in re likely to be d.	wever each so
Theme Area High Level Objectives												
Residential Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human	conside unsuital tributari Estuary reduce	e the Line red to be ole policy es to the S , as it wou in-channe and wate	an for Severn Ild I flood		•							

Health)	movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Residential proper protected.	rties		tial properties d risk of flood		Impact will depend on alignment line : however limited space in reach so likely to be an adverse
				L		.	impact.
Industrial, commercial and economic assets: Dock related and supporting industry and commercial developments Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-			
tourism) (Population and Human Health)		Assets protected.		Assets w risk of flo	vill be at an ir ooding.	creased	Impact will depend on the alignment line: however limited space in reach assets likely to be affected.
National Nature conservation: Severn Estuary and River Usk, Gwent Levels St. Brides SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-		-			-
		Coastal squeeze of impact on the Sev SSSI. River Usk and Gw Levels unaffected	vent	In theory and inter maintain develope limited. habitats Gwent Lu	processes will habitats will tidal habitats ed. Howeve ed so scope f In addition te will be affecte evels unaffect for habitat ment	roll back will be r reach or rollback rrestrial ed.	Severn : Impact will depend on alignment line: possibility to maintain intertidal habitats however very limited space in reach: Gwent Levels potentially affected by realignment Usk potential for habitat enhancement
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-▲	-
		Loss of intertidal h due to coastal squ		because Also ther	squeeze likel reach is dev re is a potent Il habitats.	eloped.	Impact will depend on alignment line: however very limited space in reach: terrestrial habitats likely to be affected.
Listed buildings and non-designated sites of historic interest including Transporter Bridge	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn		0				

Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	llistoi						
		protect	cal assets ted.			al assets at ris ed flooding.	SK OF	Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Assets	will be pro	tected.	Assets v risk of fl	will be at an ir ooding.	ncreased	Some local adverse affects within retreated areas. Assets behind protected. Scope for retreat limited by docks.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No res at risk.	ources kno	wn to be	No reso risk.	urces known	to be at	No resources known to be at risk.
No detriment to water quality (Water) Docks Way active landfill site and several historic landfill sites.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Assets	protected.			at an increase , with implica uality.		Assets all border coast so assets are likely to be impacted by the managed realignment with adverse implications for water quality.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially	-	-		-	-	-	

	leading to greater flooding. It could also trigger erosion, rather than reduce it		ot raise the defences itely.	height	accomm	evolution of th nodate climate impact to pe	e change:	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		risk wit presen so limit defenc require	d erosion ar hin the unit t and in the ed raising es likely to ed. Limited indscape.	t both at future of be	frequence the local positive percepti change increase	sed increase cy of flooding I landscape (v or negative d on). May be to townscape ed flooding an s and use of t	may alter whether lepends on a local due to id effect on	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

The immediate shoreline East bank of River Ebbw at Maesglas railway bridge to west bank Usk at transporter bridge is occupied by the Newport Docks and associated infrastructure.

Flood risk is limited, but the residual life of the defences in place currently is <20 years, the failure of the defence would have implications for the maintained integrity of the docks and continued operation of associated industry surrounding them.

The 'With Present Management' policy (set by SMP1) for <u>NEW2 – west bank of Usk at transporter bridge</u> to west bank of Usk at M4 crossing – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Transporter Bridge to the M4 (right bank)	Hold the Line	Hold the Line	Hold the Line or retreat the line

The impact on the agreed objectives of continuing with present management policy at the west bank of Usk at transporter bridge to west bank of Usk at M4 crossing shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – _\	Nest ban	k of Usk	at transp	orter brid	ge to wes	st bank of l	Jsk at M4 cr	ossing (N	IEW 2)	
	Advan	ce the Li	ne	Hold th	e Line		No Acti	ve Interver	ntion	Manag	ed Reali	gnment
	0-20	20- 50	50 - 100	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers		50	100		50	100					50	100
International Nature Conservation Sites: River Usk SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	•				
		U ri m		Usk SAC designated for river habitat, otter and migratory fish; no impacts likely under HTL				I to increase and enhance		river co	al to incr prridor an ce the site	d
Industrial, commercial and economic assets: Dock related industry and commercial developments Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		idered to be an itable policy for aries to the Severn ary, as it would ce in-channel flood ige and water ement, potentially ng to greater ing. It could also er erosion, rather									
				Assets	Assets will be protected		Assets are at an increased risk of flooding		creased risk	Impact will depend or the alignment line: however limited spac in reach of assets like to be affected		ne: space
Critical infrastructure: Roads – Usk road crossings Electricity substations Railway line Reduce significance of impact associated with flooding and erosion to critical infrastructure.	conside unsuita tributari Estuary reduce storage movem leading flooding trigger	the time tend to be ble policy ies to the v, as it wo in-chann e and wat ent, pote to greate g. It coul- erosion, i duce it	e an y for e Severn buld el flood er entially er d also	•		•						
	than reduce it			Assets	protected	I	Assets a of floodi		creased risk	the alig	will depe Inment lir er limited	ne:

								in reach assets likely to be affected
Theme Area High Level Objectives								
Residential: Pilgwenlly and Baneswell residential developments and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		protect	ntial prop ed.	erties		tial propertion		Impact will depend on alignment line : however limited space in reach so likely to be an adverse impact.
Recreational Sites: Local open space and facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Recrea protect	tional site ed.	es will be		ional sites weed risk of floo		Impact will depend on the alignment line: however limited space in reach; so likely to be an adverse impact.
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
National Nature conservation designations: Lower River Usk SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		habitate	signated s, otter ar ory fish ; r		dominat undevel	processes v e, however oped space on of river c	limited to allow	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for

								otter.
Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•						
		Historic protecte	al assets ed.			I assets at d flooding.	risk of	Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							▲-
		due to s	intertidal sea level astal sque			ntertidal ha because re ed.		Impact will depend on alignment line: however very limited space in reach
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
			assets at will be pro	,	Assets w risk of flo	vill be at an oding.	increased	Some local adverse affects within retreated areas. Assets behind protected. Scope for retreat limited by development.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No reso be at ris	ources kno sk.	own to	No resou risk.	urces knowi	n to be at	No resources known to be at risk.
No detriment to water quality (Water) STW Outfalls and	N/A Advance the Line is considered to be an	0	0	0				•

treatment works	unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Limited	assets pr	esent	Assets a	t an increas	ed risk of	Asset protected
		asset pr	•	ooont,		potential fc		because it is assumed that managed retreat will not impact on the docks or the sewage outfalls.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
		Can not of the de indefinit		height	will acco change:	evolution of mmodate c possible im nd property	limate pact to	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		height o may affe landsca characte presenc landsca impact v	reasing t f the defe ect local pe in tern er (increa re in the pe): also with defer ng views.	ence ns of sing a visual	of floodir landscap negative perception change t increase	d increase i ng may alte be (whether depends o on). May be to townscap d flooding a ngs and us	positive or n e a local e due to ind effect	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

This unit is dominated by residential properties with a limited flood extent under the NAI policy, however, with key societal assets in close proximity to the shoreline, the implications of flooding are substantial, with residential, commercial properties and associated infrastructure at risk.

The 'With Present Management' policy (set by SMP1) for <u>NEW3 – River Usk (both banks) at M4 crossing</u> to Newbridge on Usk – is:

SMP1 Management Unit	0-20	20-50	50 - 100
The M4 to Caerleon (both banks)	Hold the Line	Hold the Line	Hold the Line or retreat the line

The impact on the agreed objectives of continuing with present management policy at the River Usk (both banks) at M4 crossing to Newbridge on Usk shoreline can be compared with alternative management policies through the following table:

	Policy	Policy Unit River Usk (both Banks) at M4 crossing to Newbridge on Usk (NEW 3)										
	Advan	ce the Liı	ne	Hold the	Line		No Activ	e Interventio	on	Manag	ged Inment	
	0-20	20-50	50 - 100	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Usk SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	conside unsuita tributar Estuary reduce storage mover leading floodin trigger	dvance the Line is onsidered to be an isuitable policy for ibutaries to the Severn stuary, as it would educe in-channel flood torage and water novement, potentially eading to greater ooding. It could also igger erosion, rather nan reduce it		nsidered to be an suitable policy for butaries to the Severn tuary, as it would duce in-channel flood orage and water ovement, potentially iding to greater boding. It could also gger erosion, rather an reduce it								
					designat tat, otter fish; no i er HTL	and		to increase r and enhance		Potential to increase river corridor and enhance the site		
Theme Area High Level Objectives												
Residential: Caerleon, Llanhennock, Newbridge on Usk and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	conside unsuita tributar Estuary reduce storage mover leading floodin trigger	ce the Lind ered to be able policy ries to the y, as it wo in-channe e and wate for a state to greate g. It could erosion, r duce it	an for Severn uld el flood er ntially er	-	-	-	-	-	-	-		
		han reduce it		Residenti not at risł			Residential properties are risk of tidal flooding.		are not at	ot at Impact will alignment l adequate s select aligr unlikely to adverse im		ce to ent so an
Historic Environment Scheduled Monuments, Listed Buildings and non- designated sites of historic interest including concentration at Caerleon Reduce	conside unsuita tributar Estuary reduce storage mover leading floodin	ce the Lind ered to be able policy ies to the y, as it wo in-channe e and wate and wate for greate g. It could erosion, r	an for Severn uld el flood er ntially er	-	-	-	-	-	-	-		

significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	than reduce it	Historic a	ssate are	tected	Historia	ssets potenti	ally at rick	Impact will depend on
		from tidal			from tidal		alignment line however adequate space to select alignment so unlikely to be an adverse impact.	
Recreational sites: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		Recreatic risk of tid			Recreation tidal flood	nal assets n ling.	ot at risk of	Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact.
Industrial, commercial and economic assets: Agriculture and local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		•				A -	
economic assets (including agricultural), and activities (including tourism) (Population and Human Health)		Agricultur from tida			Agricultur flooding.	al land at ris	k of tidal	Impact will depend on alignment line. Potential loss of agricultural land
Local Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		Assets no flooding.	ot at risk (of tidal	Assets no flooding.	ot at risk of tio	dal	Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact.
National nature conservation:	N/A Advance the Line is	-	-	-	-	-	-	-

Lower River Usk SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Usk desig habitats, fish ; no ii	otter and	migratory	however	rocesses will limited undev allow expans	/eloped	Impact will depend on alignment line: however very limited space in reach:
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood	?	?	?	?	?	?	potential to increase habitat for otter. ?
(Biodiversity, Flora and Fauna)	storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Unclear h	ow the n	nix of	Unclear h	now the mix c	fterrestrial	Unclear how the mix of
		terrestrial habitats a	and mar and speci possible positive s. More c	ine es will be e negative, detailed	and marin will be aff negative, outcomes	fected – post neutral or po s. More deta ent at lower l	nd species ible ositive iled	terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		Limited p from tidal			Limited p tidal flood	roperties at r ling.	isk from	Impact will depend on alignment line; effects unlikely.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
No detriment to	N/A	No resou at risk.	rces know	wn to be	No resou risk.	rces known t	o be at	No resources known to be at risk.
water quality (Water)	Advance the Line is considered to be an							

Ponthir STW, active and historic landfill sites	unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	STW and other features	Asset at increased ris		Impact will depend on alignment line however
					adequate space to select alignment so unlikely to be an adverse impact on STW.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			_	•
		Can not raise the heigh the defences indefinitel		e change:	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-
		Ever increasing the hei the defence will affect lo landscape in terms of character (increasing presence in the landsca also a visual impact wit defences disrupting vie	(whether positive or r depends on perception a local change to tow to increased flooding	ndscape degative a non). May be de nscape due a and effect de of the area.	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

The shoreline of the River Usk (both banks) at M4 crossing to Newbridge on Usk is primarily used as agricultural land with associated small residential developments and the larger developments of Caerleon, Llanhennock and Newbridge on Usk. Caerleon is recognised by numerous national designations for the historic environment preserved there, many of the recognised sites are on high ground and not at flood risk.

The River Wye is recognised as an SAC, an international nature conservation designation.

The 'With Present Management' policy (set by SMP1) for <u>NEW4 – east bank of Usk at M4 crossing to</u> <u>Spytty Pill, north of A48 crossing</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
M4 to Spytty Pill (left bank)	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the east bank of Usk at M4 crossing to Spytty Pill, north of A48 crossing shoreline can be compared with alternative management policies through the following table:

	Policy U	Init – Ea	st Bank o	f Usk at M	l4 crossin	g to Spyt	tty Pill, No	orth of A48	crossin	g (NEW 4)			
	Advance	e the Line	;	Hold the	e Line		No Acti	ve Interve	ntion	Manage	ed Realigr	nment	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Key Policy Drivers													
Critical infrastructure: Usk crossings including M4, Railway Electricity substations Gwent Police station Reduce significance of impact associated with flooding and erosion to critical infrastructure.	ssings including wayAdvance the Line is considered to be an unsuitable policy for tributaries to the SevernPolice station significance of ssociated with and erosion toAdvance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduct in-channel flood storage and water movement,		n or evern d reduce orage ent, to t could										
					Infrastructure protected.			are at an in ooding.	creased	alignme limited s	will depend ent line: ho space in re ikely to be	wever each so	
International Nature Conservation Sites: Usk SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	and water movement,			-	-	-	-	•					
				river hat migrator	Usk SAC designated for river habitat, otter and migratory fish; no impacts likely under HTL			Potential to increase river corridor and enhance the site			Potential to increase river corridor and enhance the site		
Theme Area High Level Objectives													
Residential: St. Julian's, Barnardtown and Somerton Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i ed to be a le policy fu s to the S as it woul el flood st er moveme ly leading looding. I ger erosion uce it	in or evern d reduce orage ent, to t could										
					Residential properties protected.			ntial proper n flooding.	ties at	Impact will depend on alignment line; however very limited space in the southern section of the reach so properties likely			

								to be impacted.
Recreational Sites: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Local ree be prote	creational cted.	sites will		onal sites reased ris		Impact will depend on the alignment line. Space in the reach is limited so there is likely to be an adverse impact.
Industrial, commercial and economic assets: Local commercial developments and industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•						
		Assets will be protected.			Assets will be at an increased risk of flooding.			Impact will depend on the alignment line. Space in the reach is limited so there is likely to be an adverse impact.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
National nature conservation: Lower Usk SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		habitats,	ignated for , otter and y fish ; no		dominate undevelo	processes e, however oped spac pansion of	r limited e to	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for otter.
Listed Buildings and non-designated sites of historic interest Reduce significance of impact to scheduled and	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn	\bigcirc						

locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Historica	I assets pi	rotected.		l assets a d flooding		Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	?	?	?	?	?	?	?
		terrestria habitats be affect negative positive detailed	how the m al and mari and specie ed – poss , neutral o outcomes. assessme /el required	ne es will ible r More nt at	terrestria habitats be affect negative positive detailed	how the m al and mar and speci ed – poss , neutral c outcomes assessme vel require	ne es will ible r More nt at	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•						
		Assets p	rotected.		Assets a of floodir	it an increang.	ased risk	Impact will depend on alignment line however very limited space in reach: assets likely to be affected.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resou at risk.	urces knov	vn to be	No resou at risk.	urces know	vn to be	No resources known to be at risk.
No detriment to water quality (Water) Sewage treatment outfall Historic landfill site	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather							

	than reduce it							
		Assets p	rotected.			t an increa ng, potenti		Asset protected because it is assumed that managed retreat will not impact on the sewage outfall or historic landfill site.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
		Can not raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		Increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			flooding landscap positive of depends May be a townscap increase	d frequent may alter be (whether or negative on percept a local char be due to d flooding buildings ea.	the local er otion). ange to and	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

The 'With Present Management' policy (set by SMP1) for <u>NEW5 – Spytty Pill, north of A48 crossing to</u> <u>Uskmouth Power station</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Spytty Pill to Uskmouth Power Station (left bank)	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Spytty Pill, north of A48 crossing to Uskmouth Power station point shoreline can be compared with alternative management policies through the following table:

	Policy L	Jnit – Sp	ytty Pill, r	orth of U	skmouth	Power sta	tion point	t (NEW 5)				
	Advanc	e the Line	<u>}</u>	Hold the	e Line		No Activ	ve Interve	ntion	Manage	ed Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA, Usk SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	evern Estuary Ramsar, AC and SPA, Usk SAC educe significance of pact associated with aintaining the integrity of ernationally designated es and the favourable end to be an unsuitable policy for tributaries to the Seve Estuary, as it would re in-channel flood stora and water movement, potentially leading to greater flooding. It co		an or evern d reduce orage ent, to t could	-			-	-	-	-		
				Severn N3K site outside policy unit – possible impacts resulting from HTL in this unit Usk SAC – some loss of intertidal habitats as a result of sea level rise however this is considered unlike to affect the SAC						Impact will depend on alignment line: however very limited space in reach likely to be affected.		
Industrial, commercial and economic assets: Industrial developments Usk power station Surrounding industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	Advance the Line isconsidered to be anunsuitable policy fortributaries to the SevernEstuary, as it would reducein-channel flood storageand water movement,potentially leading togreater flooding. It could		-			-						
	Inarrea			Industria protecte	ı l assets w d.	rill be		l assets w ased risk (alignme the read therefor	will depend nt line: spa h is limited e there ma impact.	ace in d
Critical infrastructure: Uskmouth Power Station and associated infrastructure Electricity substations Nash STW Reduce significance of impact associated with flooding and erosion to critical infrastructure.	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line red to be a le policy f so to the S as it woul hel flood st er movem ly leading looding. I ger erosiou uce it	an or evern d reduce orage ent, to t could	-			-					

Theme Area High Level Objectives Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	consider unsuitabl tributarie Estuary, in-chann and wate potential	the Line is ed to be a le policy fo s to the So as it would el flood sto r moveme y leading	n or evern d reduce orage ent, to	Assets p	rotected.	•	Assets a of floodir -	t an increa	ased risk	alignment the reac	vill depend tt line: spa h is limited a there ma impact.	ace in 1
		ooding. It jer erosior uce it		Resident	tial proper d.	ties		tial proper reased ris		alignment the react therefore	vill depend nt line: spa h is limited there ma	ace in 1
Recreational site: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	consider unsuitabl tributarie Estuary, in-chann and wate potentiall greater fl	the Line is ed to be a le policy fo as it would el flood stu- r moveme y leading ooding. It jer erosior uce it	n evern d reduce orage ent, to t could				-			adverse	impact.	
				Recreation protected	onal sites d.	will be		onal sites reased ris		alignment the reac	vill depend nt line: spa h is limited there ma impact.	ace in 1
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	consider unsuitabl tributarie Estuary, in-chann and wate potentiall greater fl	the Line is ed to be a le policy for s to the Se as it would el flood sta r moveme ly leading looding. It ger erosior uce it	n or evern d reduce orage ent, to to	-	-		-	-				
National nature conservation: Lower Usk SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	consider unsuitabl tributarie Estuary, in-chann and wate potentiall greater fl	the Line is ed to be a le policy for s to the Se el flood studies y leading ooding. It ger erosior uce it	n or evern d reduce orage ent, to to	-			-					
				Coastal s occur.	squeeze v	vill	back and will be m However so scope limited.	v habitats v d intertidal naintained. r reach de for rollba In addition al habitats	habitats veloped ck	alignmer very limi reach: te	vill depend ht line: how ted space errestrial h be affected	wever in abitats

			affected.	
Listed Buildings and non-designated sites of historic interest including Transporter Bridge Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Historical assets protected.	Historical assets at risk of increased flooding.	Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Loss of intertidal habitat due to coastal squeeze.	Coastal squeeze likely to occur because reach is developed. Also there is a potential loss of terrestrial habitats.	Impact will depend on alignment line: however very limited space in reach: terrestrial habitats likely to be affected.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-		
		Residential properties are protected.	Residential properties are at risk from flooding.	Impact will depend on the alignment line; however very limited space in reach, so likely to be an adverse impact.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.
No detriment to water quality (Water) Nash STW 3 active landfill sites.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage	-	-	

	and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	STW and protected		tes	an increa flooding, risk of po	d landfill si ased risk c with incre bllution.	of	Impact will depend on the alignment line; however very limited space in reach, so may be an adverse impact because of proximity of sites.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
		Can not raise the height of the defences indefinitely.		coast wil climate c	evolution of l accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.		Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.			Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.	

Uskmouth Power Station is a Key Policy Driver within the Policy Unit. The base of the Transport Bridge is also located within the Unit, its heritage and landscape value within the city of Newport mean to preserve it from flooding and erosion would be positive.

4.5 Caldicot Levels Theme Area (CALD)

The 'With Present Management' policy (set by SMP1) for <u>CALD1 – Uskmouth Power Station point to</u> <u>Sudbrook Point, north of M4 Severn Crossing</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Uskmouth Power Station to Saltmarsh Farm	Hold the Line (locally retreat)	Hold the Line	Hold the Line or retreat the line
Saltmarsh Farm to Gold Cliff	Hold the Line	Hold the Line (or locally retreat the line)	Hold the Line or retreat the line
Gold Cliff to Cold Harbour Pill	Hold the Line	Hold the Line	Hold the Line or retreat the line
Cold Harbour Pill to West Pill	Hold the Line	Hold the Line	Hold the Line or retreat the line
West Pill to West of Sudbrook Point	Hold the Line	Hold the Line	Hold the Line or retreat the line

The impact on the agreed objectives of continuing with present management policy at the Uskmouth Power Station point to Sudbrook Point, north of M4 Severn Crossing shoreline can be compared with alternative management policies through the following table:

	Polio	cy Unit -	- Uskn	nouth P	ower Sta	tion point	to Si	udbroo	k Point, north	of M4 Sev	vern Crossin	g (CALD ′	1)	
	Adva	ance the	e Line	Hold t	he Line		No	Active	Intervention			Manage	d Realig	gnment
	0- 20	20- 50	50 - 100	0-20	20- 50	50 - 100	0-2	:0	20-50	50 - 1	00	0-20	20- 50	50 - 100
Key Policy Drivers	-							1						
Industrial, commercial and economic assets:	\bigcirc			-	\bigcirc		-							
Llanwern Steelworks Reduce significance of impact associated with flooding and erosion to critical infrastructure. Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets and activities	Asse	ts will be	Ð	Assets	s will be p	rotected.	Ass	sets will	be at an incre	ased risk o	f flooding.	Impact w alignmer the reacl limited d being us agricultu be an ac	nt line: s h is not ue to lar ed for re. The	pace in very nd re may
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-							
	Coas will c	stal sque occur.	eze	Coast occur.	al squeez	e will	mai	intaineo	ill roll back, int d; however pot habitats.			Habitats intertidal maintain potential terrestria	habitats ed; how ly some	s ever loss of
Residential: Caldicot)		-		\bigcirc	-							

Reduce significance of impact associated with flooding and erosion to people and property								
	Residential properties protected.	Reside protec	ential pro	perties		sidential properties at ar ding.	n increased risk from	Impact will depend on alignment line: however adequate space to select alignment so larger residential settlements are likely to be protected. Isolated properties may be adversely impacted.
Critical infrastructure: Railway, Electricity transmission network, Sewerage network and M4 Gwent constabulary emergency response centres Reduce significance of impact associated with flooding and erosion to critical infrastructure.		-			-			
	Infrastructure protected.	Infrast	tructure p	rotected.	Infr	astructure at an increas	ed risk of flooding.	Impact will depend on alignment line: however there is adequate space to select alignment so critical infrastructure is likely to be protected as it is all located at a distance from the coast (with the exception of two electricity substations at Magnor Pill).
Theme Area High Level Objectives								
Heritage Landscape Scheduled		\bigcirc	\bigcirc	\bigcirc	-			
Monuments, Listed Buildings and non- designated sites of historic interest. Gwent levels historic landscape 13 SAMS including a cluster around Magnor and Undy Listed buildings in several villages across the area. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	Historic landscape and assets protected.	assets Poten advers	ic landsca s protecte tially som se effects ised heigh ces	d. e local from		toric landscape and ass	ets at an increased	Impact will depend on the alignment line: not very limited so there may be an adverse impact on the historic landscape.
Residential: Magor, Undy and Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and	•	-	-		-	-		

Recreational sites:	0	\circ	\bigcirc	\bigcirc	-			
Local facilities, open space and footpath network Coastal footpath and network of footpaths across Caldicot levels Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and	Recreational sites including the coastal footpath will be protected.	includ	eational si ding the ca ath will be cted.	oastal		treational sites includin tpath will be at an incre		Impact will depend on alignment line: however adequate space to select alignment so coastal footpath is likely to be adversely impacted.
Human Health)								
Industrial, commercial and					-			
economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Agriculture is primary land use; land protected	Agricu	ultural lan cted	d	Ag	icultural land at risk of	flooding and erosion	Impact will depend on alignment line; some land likely to be affected.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)								-
						1 A		
Reduce significance of impact associated with managing	-				-			
adverse impacts on nationally or locally	For Land based sites	s – Gwe	ent Levels	s – Nash a	nd G	oldcliff, Whitson, Red	wick and Llandevenn	y and Magor and Undy
designated conservation sites. (Biodiversity, Flora and Fauna)	Sites will be protected from coastal flooding.		will be pr coastal flo			es will be at an increase oding.	ed risk from coastal	Impact will depend on alignment line: however adequate space to select alignment so likely to be an adverse impact on Gwent levels SSSIs.
		-			-	\bigcirc	\bigcirc	\bigcirc
	For Marine based sit				114	bitoto will coll be also inte	rtidal babitata	
	Coastal squeeze will occur	occur	tal squee:	2e will		bitats will roll back, inte intained;.		Habitats will roll back, intertidal habitats maintained;
					-			
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-		-				

	will occur//terrestrial habitat will be gained.	occur.	intertidal habitats maintained.	habitats on the Caldicot levels.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	Residential properties protected.	- O Residential properties protected.	- - Residential properties at an increased risk from flooding.	Impact will depend on alignment line: however adequate space to select alignment so larger residential settlements are likely to be protected. Isolated properties may be adversely impacted.
Water resources are protected (Water)				
	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact	SPZ is at increased risk of salinisation	SPZ is at increased risk of salinisation.
No detriment to water quality (Water)	\bigcirc			
Source protection zone Uskmouth power station historic landfill site	Assets protected.	Assets protected.	Assets at an increased risk of flooding.	SPZ is at increased risk of saline intruction.
Policy is designed to				\bigcirc
adapt to or accommodate climate change trends. (Air and Climate)	Can not raise the height of the defences indefinitely.	Can not raise the heigh of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Managed retreat will accommodate climate change.
Avoid detrimental				-
effects to landscape character (Landscape)	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

This unit is dominated by agricultural landscape and the Llanwern Steelworks with a large extent of flooding under the NAI policy.

The 0 to 20 year flood cell from the shoreline at CALD1 includes sections of source protection zone 3. Saline intrusion from flooding may alter chemical status of groundwater.

The 'With Present Management' policy (set by SMP1) for <u>CALD2 – Sudbrook Point, north of M4 Severn</u> <u>Crossing to Black Rock at Black Rock Road</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Sudbrook Point to Black Rock	Do nothing (locally hold)	Do Nothing, locally Hold the Line or Retreat the Line	Do Nothing, locally Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Sudbrook Point, north of M4 Severn Crossing to Black Rock at Black Rock Road shoreline can be compared with alternative management policies through the following table:

	Policy L	Init – Su	dbrook P	oint, north	n of M4 Se	vern Cros	ssing to B	lack Roci	k at Black	Rock Ro	ad (CALD	2)
	Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Critical infrastructure: Electricity transmission network Reduce significance of impact associated with	-			· . ·			-	-	-	preclude	ound / harc es physica ne, option i red	l retreat
flooding and erosion to critical infrastructure		nfrastructu flooding.	re not at		nfrastructu i flooding.	re not at		nfrastructu n flooding.	ire not at			
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA				-			-			preclude	ound / harc es physica ne, option i red	l retreat
Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	Coastal s	squeeze v	vill	Coastal occur.	squeeze v	vill	back and will be m However ground a	y habitats d intertidal naintained. r reach is and hard g e for roll ba	habitats a high eology			
Residential: Portskewett Reduce significance of impact associated with flooding and erosion to	-			-	-	-	-	-	-	N/A High ground / hard ge precludes physical ret of the line, option not considered		l retreat
people and property (Population and Human Health)	Residen not at ris	tial proper k.	ties are	Residen not at ris	tial proper k.	ties are	Residen not at ris	tial proper sk.	ties are			
Theme Area High Level Objectives												
Heritage Landscape Scheduled Monuments, Listed Buildings and non-designated sites of historic interest	-			-	-	-	-	-	-	preclude	ound / harc es physica ne, option i red	l retreat
Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	No histo	rical asset	s at risk,	No histo	rical asset	s at risk,	No histo	rical asset	s at risk,			
Residential: Isolated residential properties Reduce significance of impact associated with	-			-	-	-	-	-	-	preclude	ound / harc es physica ne, option i red	l retreat
flooding and erosion to people and property	Residen not at ris	tial proper k.	ties are	Residen not at ris	tial proper k.	ties are	Residen not at ris	tial proper sk.	ties are			

	Γ				1			,
(Population and Human Health)								
Recreational Sites: Local facilities, open space and footpath network Reduce significance of	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	Recreational sites including the coastal footpath are not at risk.	including	onal sites the coast are not at		including	onal sites the coast are not at		
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Assets not at risk.	Assets n	ot at risk.		Assets n	ot at risk.		
Infrastructure: Local road and path network Reduce significance of impact associated with	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
flooding and erosion to critical infrastructure (Population and Human Health)	No assets at risk	No asse	ts at risk		No asset	ts at risk		
Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-			-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Coastal squeeze will occur	Coastal : occur.	squeeze w	vill	back and will be m However ground a	habitats v d intertidal aintained. reach is a and hard g for roll ba	habitats a high eology	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-		_ -	-	A -		N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Coastal squeeze will occur.	Coastal : occur.	squeeze v	vill	will roll b habitats However ground a	v coastal h ack and ir will be ma reach is a and hard g e for roll ba	itertidal intained. a high eology	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Recreational sites including the coastal		onal sites the coast	al		onal sites the coast	al	

	footpath are not at risk.	footpath	are not at	risk.	footpath	are not at	risk.	
Water resources are protected (Water)	-	-	-	-	-		-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Usk Devonian Old Red		onian Old		··· - ··· ··	ncreased i	isk of	
No detriment to water	Sandstone SPZ. No impact	Sandsto	ne SPZ. N I	o impact	saline int			N/A
quality (Water)		-	-	-	-			High ground / hard geology precludes physical retreat of the line, option not considered
	Usk Devonian Old Red Sandstone SPZ. No impact		onian Old ne SPZ. N		SPZ at ir saline inf	ncreased i trusion	isk of	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	_	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Can not raise the height of the defences indefinitely.		raise the h nces indefi		coast wil climate c	evolution of l accomm change: po people a	odate ossible	
Avoid detrimental effects to landscape character (Landscape)		-0	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	risk in th significat height of	lood and e is unit so nt increase defences ; limited im	e in not	flood/ero	at significa sion risk; be unlikely		

The majority of this area is high ground and is not impacted by flood or erosion risk; as a result the policies appraised do not significantly impact on the objectives or Key Policy Drivers.

The 'With Present Management' policy (set by SMP1) for <u>CALD3 – Black Rock at Black Rock Road to</u> <u>west bank of River Wye at Park Redding, Thornwell</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Sudbrook Point to Black Rock	Hold the Line / Do nothing	Hold the Line or Retreat the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Black Rock at Black Rock Road to west bank of River Wye at Park Redding, Thornwell shoreline can be compared with alternative management policies through the following table:

			it – Ca (CALE		ick Rock	at Black Ro			of River Wye at I	Park Red	ding,	
	Adv Line	ance t e	he	Hold the	Line		No Activ	ve Interventior	ı	Manag Realig		
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
Critical infrastructure: Electricity transmission network,					\bigcirc		-	-		-		
M48, Railway line Reduce significance of impact associated with flooding and erosion to critical infrastructure.		astructu ected.	ıre	Infrastructure protected.			Infrastru	m flooding.	Impact will depend or alignment line: however adequate space to select alignment so unlikely to be an adverse impact.		uate t nlikely	
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Coa sque occu	eeze w	ill	Coastal so	queeze wi	ll occur.	habitats	will roll back, ir maintained: ho lly some loss of	wever	maintai potentia	al habita ned: ho ally som strial ha	wever le loss
Theme Area High Level Objectives												
Heritage Landscape Scheduled Monuments, Listed				\bigcirc								
Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	prot flood Hist Land pote	ctures ected f ding;		Historic st from tidal Landscap	, flooding; l	Historic	from tida	structures poter al flooding; Histo lly affected	ntially at risk oric Landscape		: Landso ally affe	
Residential: Thornwell, Mathern and isolated properties	0			-			-			-		
Reduce significance of impact associated with flooding and erosion to people and property	prop	identia perties ected.	I	Residentia protected.		es	Residen flooding.	tial properties a	are at risk from	alignme howeve space t alignme	will dep ent line: er adequ o select ent, so u dverse i	uate t unlikely

Recreational sites:	\bigcirc	-	\bigcirc	\bigcirc	-			
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population	Recreational sites protected.	Recreatio	nal sites p	rotected.	Recreati risk of flo	onal sites are at boding.	an increased	Impact will depend on alignment line. Footpath network may be adversely impacted.
and Human Health)				-		•		
Industrial, commercial and economic assets:	\bigcirc	-	\bigcirc	$ \bigcirc$	-			
And economic assets. Local commercial assets Agricultural land Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Land use predominantly agricultural. Agricultural assets will be protected.	Land use agricultura assets wil	al. Agricul	tural		ıral assets will b d risk of flooding		Impact will depend on alignment line: however adequate space to select alignment, but agricultural land may be adversely impacted.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health) Reduce significance of	-	-	-	•	-	-		
impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	For Land based si Sites not at risk of tidal flooding via this unit.	ites – Bushy Sites not a flooding v	at risk of t	idal	-	Wye) SSSI	eased flood	Impact will depend on alignment line: however adequate space to select alignment so unlikely to be an adverse
	For Marine based	- sites – Sev	ern Estua		-			impact on the SSSIs.
	Coastal squeeze will occur.	Coastal so			habitats	will roll back, in maintained; hov ly some loss of	vever	Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	Coastal squeeze will occur, loss of intertidal habitats	- Coastal so loss of int				errestrial habita levels; intertidal ed.		Loss of terrestrial habitats on the Caldicot levels; intertidal habitats maintained
Avoid/minimise	\bigcirc	-	\bigcirc	\bigcirc	-			-
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	Residential properties protected.	Residentia protected.		es	Residen flooding.	tial properties ar	e at risk from	Impact will depend on alignment line: however adequate space to select alignment, so unlikely to be adverse impact.
Water resources are protected (Water)	-	-	-	-	-	-	-	-

	No resources known to be at risk.	No resour risk.	ces know	n to be at	No reso	urces known to l	No resources known to be at risk.	
No detriment to water	-	-	-	-	-	-	-	-
quality (Water)	No risk to water quality.	water No risk to water qua			k to water quality. No risk to water quality.			
Policy is designed to					-	-	_	\bigcirc
adapt to or accommodate climate change trends. (Air and Climate)	Can not raise the height of the defences indefinitely.	Can not ra the defend			accomm	evolution of the lodate climate cl impact to peopl	hange:	
Avoid detrimental effects to landscape character		-	-		-	-	-	
(Landscape)	Increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increasing defence w landscape character presence also a visi defences	vill affect I e in terms (increasin in the lan ual impac	ocal of ng dscape): t with	alter the positive perception townsca	ed frequency of f local landscape or negative dep- on). May be a lo pe due to increa ct on buildings a	(whether ends on ocal change to used flooding	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

The 0 to 20 year flood cell from the shoreline at CALD3 includes sections of source protection zone 3. Saline intrusion from flooding may alter chemical status of groundwater

The majority of this area is high ground and is not impacted by flood or erosion risk; as a result the policies appraised do not significantly impact on the objectives or Key Policy Drivers.

4.6 Chepstow and the River Wye Theme Area (WYE)

The 'With Present Management' policy (set by SMP1) for <u>WYE1 – west bank Wye at Park Redding,</u> <u>Thornwell to west bank River Wye at Alcove Wood, Chepstow</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Chepstow from Thornwell to Alcove Wood	Do nothing (locally hold)	Do Nothing, locally Hold the Line	Do Nothing, locally Hold the Line

The impact on the agreed objectives of continuing with present management policy at the west bank Wye at Park Redding, Thornwell to west bank River Wye at Alcove Wood, Chepstow, shoreline can be compared with alternative management policies through the following table:

	Wye – \ 1)	Nest banl	k Wye at F	ark Redd	ing, Thori	nwell to v	vest bank	River Wy	e at Alco	ve Wood,	Chepstow	(WYE
	Advanc	e the Line	•	Hold the	e Line		No Activ	ve Interve	ntion	Manag	ed Realigr	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers				_		-	-		-			
Residential: Chepstow and Bulwark Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i ed to be a le policy fr es to the S as it woul hel flood st ly leading looding. I ger erosior uce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-			
				Residential properties not at risk, from current or future flood or erosion.			at risk fr	tial proper om curren ood or eros	t or	alignme the read there is	will depend ent line: spa ch is limited likely to be e impact or ies.	ace in 1 so e an
Critical infrastructure: Railway, A48 crossing Reduce significance of impact associated with flooding and erosion to critical infrastructure	gAdvance the Line isfconsidered to be anunsuitable policy for		-	-	-	-	-	-	-			
	than red				nfrastructure is not om flooding.		Critical infrastructure is n at risk from flooding.			alignme critical i	will depend ent line: how nfrastructu ed to be im	wever re is not
International Nature Conservation sites: River Wye SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i red to be a le policy fr so to the S as it woul hel flood st er moveme ly leading looding. It ger erosion uce it	or evern d reduce orage ent, to t could	-	-	-	-	-	-	C		
				SAC not	s of River \ impacted site desig	by tidal	SAC not	s of River	by tidal		iment may inities to er	

Theme Area High Level Objectives		migrator	habitats, o y fish spec o habitats o for which t hated.	cies no or				
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		impacted	onal sites d by currer lal flooding	nt or	impacted	onal sites d by currer lal flooding	nt or	Impact will depend on alignment line. There is limited space for realignment so there may be adverse impacts.
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		current c	ot impacte or future tic and erosic	lal	current c	ot impacte or future tio and erosio	lal	Impact will depend on alignment line. There is limited space for realignment so there may be adverse impacts.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-		
				T				
National nature conservation: Lower Wye SSSI Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		habitat, o fish spec	gnated for otter and n cies. Lowe not impact cy.	nigratory r Wye		orocesses NAI unlike e		Impact will depend on the alignment line. May offer opportunities for enhancement
Scheduled Monuments, Listed Buildings and non-	N/A Advance the Line is	-	-	-	-	-	-	-

designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Historica	l assets a	re not at	Historica	l assets a	re not at	Impact will depend on
		current c	current or future risk from tidal flooding/erosion.		alignment line. There is limited space for realignment so there may be adverse impacts on St Peters Cave or Bulwarks camp SAMs or listed building in the Chepstow area.			
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		Habitats not at current or future risk from tidal flooding/erosion Habitats not at cur future risk from tid flooding/erosion			sk from tida		Impact will depend on the alignment line. If river channel is widened this is likely to have an adverse impact on the terrestrial or riverine habitats of the area.	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		Residen at risk.	tial propert	ties not	at risk.	tial proper	ties not	Impact will depend on alignment line: space in the reach is limited so there is likely to be an adverse impact.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-		-
		Water re risk.	sources a	re not at	Water re risk.	sources a	re not at	Water resources are not at risk.
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn	-	-	-	-	-	-	-

	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Water qu	uality is no	tatrisk.	Water qu	ality is no	t at risk.	Water quality is not at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	_	
		Can not raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		Limited current or future flood/erosion risk means there is no requirement to increase the height of defences		Limited current or future flood/erosion risk means Landscape is unlikely to change			Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.	

The West bank Wye at Park Redding, Thornwell to west bank River Wye at Alcove Wood, Chepstow includes a high density of residential property and associated assets of commercial property and recreation. The defences protecting the present assets from the minimal flood risk are in good condition with a residual life of 20 - 50 years.

The 'With Present Management' policy (set by SMP1) for <u>WYE2 – west bank River Wye at Alcove Wood,</u> <u>Chepstow to Bigsweir Bridge + east bank River Wye at Bigsweir Bridge to Bridge Street bridge,</u> <u>Sedbury,</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Alcove Wood to Tintern Abbey, Tintern Abbey to Chapel House Wood	Do nothing (locally hold)	Do Nothing, locally Hold the Line	Do Nothing, locally Hold the Line

The impact on the agreed objectives of continuing with present management policy at the west bank River Wye at Alcove Wood, Chepstow to Bigsweir Bridge + east bank River Wye at Bigsweir Bridge to Bridge Street bridge, Sedbury, shoreline can be compared with alternative management policies through the following table:

				ank River Bridge St				stow to Bi	gsweir Br	idge + ea	st bank R	iver
		e the Line		Hold the		-,		, ve Interve	ntion	Manage	ed Realigr	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers								-				
International Nature Conservation Sites International Nature Lower Wye Valley SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	d and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	-	-	-	preclude	ound / hard es physica re, option i red	l retreat	
				SAC not flooding; for river migrator impact to	s of River \ impacted site desig habitats, o y fish spec habitats for which t nated.	by tidal nated atter and cies no or	SAC not flooding; will oper habitats which th designat	Features of River Wye SAC not impacted by tidal flooding; natural processes will operate, no impact to habitats or species for which the site is designated.				
Residential: Chepstow, Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i ed to be a le policy fo as to the S as it woul- el flood st ly leading looding. It ger erosior uce it	n or evern d reduce orage ent, to t could	-	-	-	-			preclude	ound / hard es physica ne, option i red	l retreat
				not at cu	tial proper irrent or fu ng/erosion	ture risk	not at cu	tial proper irrent or fund ng/erosion	ture risk			
Theme Area High Level Objectives												
Heritage Landscape: Scheduled Monuments: Tintern Abbey Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural	consider unsuitab tributarie Estuary, in-chann and wate potential	the Line i ed to be a le policy fo s to the S as it woul el flood st er moveme ly leading looding. It	n or evern d reduce orage ent, to	-	-	-	-	-	-	preclude	ound / hard es physica ne, option red	l retreat

historic environment sites and their setting	also trigger erosion, rather than reduce it							
			l assets ar			l assets a		
		flooding/	r future ris erosion.	k of	flooding/	er future rist erosion.	sk of	
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		not at cu	ial propert rrent or fut g/erosion.	ure risk	not at cu	ial proper rrent or fu ig/erosion	ture risk	
Infrastructure: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
			nfrastructu t or future erosion.			nfrastructu t or future erosion.		
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
,		Assets a future ris flooding/		urrent or	Assets a future ris flooding/		urrent or	
Blackcliff-Wyndcliff SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		SSSI is r future ris flooding/		ent or	SSSI is r future ris flooding/		ent or	
National and local conservation sites: Lower Wye Valley, Barbadoes Hill Meadows, Cleddon Shoots Woodland and Wye Valley Bat Site SSSIs, plus The	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered

Hudnalls NNR. Reduce significance of impact associated with managing adverse impacts on nationally or locally	and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
designated conservation sites. (Biodiversity, Flora and Fauna)		Features of Wye SSSI not impacted by flooding. Other Sites not at current or future risk of flooding/erosion			impacted		ng.	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Habitats a current or flooding/e	· future ris			and speci or future ris erosion.		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Residenti not at cur of flooding	rent or fut	ure risk	not at cu	ial propert rrent or fuing/erosion		
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water res known to				sources a be at risk		
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water qua	•	t known	Water qui to be at r	iality is no isk.	t known	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce				-	-	_	N/A High ground / hard geology precludes physical retreat of the line, option not considered

	in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	0						
			raise the h	•	coast wil	evolution o l accomme hange: po people a	odate ossible	
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Limited current or future flood/erosion risk means there is no requirement to increase the height of defences			flood/erc	current or f sion risk r pe is unlik	neans	

The majority of this area is high ground and is not impacted by flood or erosion risk; as a result the policies appraised do not significantly impact on the objectives or Key Policy Drivers.

The 'With Present Management' policy (set by SMP1) for <u>WYE3 – east bank River Wye at Bridge Street</u> <u>bridge, Sedbury to Sedbury STW</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Alcove Wood to Tintern Abbey, Tintern Abbey to Chapel House Wood	Do nothing (locally hold)	Do Nothing, locally Hold the Line	Do Nothing, locally Hold the Line
Chapel House Wood to Sedbury Sewage Works	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the east bank River Wye at Bridge Street bridge, Sedbury to Sedbury STW shoreline can be compared with alternative management policies through the following table:

	Policy L	Jnit – Wye	– east ba	nk River	Wye at Br	idge Stre	et bridge,	Sedbury	to Sedbu	ry STW (V	VYE 3)	
	Advanc	e the Line		Hold the	Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: River Wye SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i red to be a le policy fo as to the So as it would hel flood stu- er moveme lly leading flooding. It ger erosior uce it	n evern d reduce orage ent, to c could	-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat
				impacted site desi habitats, migrator impact to	s of SAC n d by tidal fl gnated for otter and y fish spec b habitats for which t nated.	ooding; river sies no or	impacted natural p operate,		looding; will t to			
Critical infrastructure: Railway, A48, Sewage Treatment Works and crossing Reduce significance of impact associated with flooding and erosion to critical infrastructure	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i red to be a le policy for so to the So as it would hel flood streer moveme looding. It ger erosior uce it	n or evern d reduce orage ent, to could	-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat
				at risk fro	nfrastructu om current oding/eros	or	at risk fr	nfrastructu om curren ooding/ero	t or			
Theme Area High Level Objectives												
Residential: Tutshill and Sedbury Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitab tributarie Estuary, in-chann and wate potential	the Line i ed to be a le policy fo so to the So as it would hel flood str er movemen lly leading flooding. If	n or evern d reduce orage ent, to	-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat

	also trigger erosion, rather than reduce it							
		not at ris	tial proper k from cur oding/eros	rent or	not at ris	tial proper k from cu oding/ero	rrent or	
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		at risk fro	onal sites om current ooding/eros	or	at risk fr	onal sites om curren ooding/ero	t or	
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Assets are not at risk from current or future flooding/erosion.			Assets are not at risk from current or future flooding/erosion			
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
Notional Nature	N/A							NI/A
National Nature conservation: Lower Wye Valley SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							N/A High ground / hard geology precludes physical retreat of the line, option not considered
			ct to habita for which t nated.		operate,		t to	
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered

setting. (Historic	greater flooding. It could							
Environment)	also trigger erosion, rather than reduce it							
			l assets al current or erosion			l assets a current o erosion		
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
			and speci current or erosion			and speci current o erosion		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Residential properties are not at risk from current or future flooding/erosion Residential properties are not at risk from current or future flooding/erosion		rent or				
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
			sources a be at risk			sources a be at risk		
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water qu to be at i	iality is no risk.	t known	Water qu to be at r	iality is no isk.	t known	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could				-	-	_	N/A High ground / hard geology precludes physical retreat of the line, option not considered

	also trigger erosion, rather than reduce it							
		Cannot raise the height of the defences indefinitely.			coast wil	evolution o Il accommo change: po people a	odate ssible	
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	=	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Limited current or future flood/erosion risk means there is no requirement to increase the height of defences		flood/erc	current or f psion risk n pe is unlik	neans		

Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

The majority of this area is high ground and is not impacted by flood or erosion risk; as a result the policies appraised do not significantly impact on the objectives or Key Policy Drivers.

The 'With Present Management' policy (set by SMP1) for <u>WYE4 – east bank River Wye at Sedbury STW</u> to End of Beachley Road, Beachley Point – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Sedbury Sewage Works to north Beachley	Do nothing	Do Nothing	Do Nothing
Beachley Point	Do nothing	Do Nothing	Do Nothing or retreat the line

The impact on the agreed objectives of continuing with present management policy at the east bank River Wye at Sedbury STW to End of Beachley Road, Beachley Point shoreline can be compared with alternative management policies through the following table:

	Policy L	Jnit – Wy	e – east ba	ank River	Wye at Se	dbury ST	W to End	of Beach	ley Road,	Beachley	Point (W)	ΥE 4)
	Advanc	e the Line	9	Hold the	e Line		No Activ	e Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites River Wye SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-	-	-	-	-	-	N/A High ground / hard geolo precludes physical retrea of the line, option not considered		
		ye SAC w ly affected		Features of SAC not impacted by tidal flooding; site designated for river habitats, otter and migratory fish species no impact to habitats or species for which the site is designated.			Features of SAC not impacted by tidal flooding; natural processes will operate, no impact to habitats or species for which the site is designated.					
Critical infrastructure: M48 Crossing Reduce significance of impact associated with	-			-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat
flooding and erosion to critical infrastructure	Critical infrastructure is not at risk from current or future flooding/erosion			Critical infrastructure is not at risk from current or future flooding/erosion.			Critical infrastructure is not at risk from current or future flooding/erosion.					
Theme Area High Level Objectives												
Residential developments: Beachley Head Reduce significance of impact associated with	-			-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat
flooding and erosion to people and property (Population and Human Health)	not at ris	tial prope sk from cu poding/erc	rrent or	Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.					
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	-			-	-	-	-	-	-	preclude	und / hard s physical e, option n ed	retreat
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Assets are not at risk from current or future flooding/erosion			Assets are not at risk from current or future flooding/erosion			Assets are not at risk from current or future flooding/erosion					
Infrastructure: Local road and path network Reduce significance of	-			-	-	-	-	-	-	preclude	und / hard s physical e, option n	retreat

impact associated with flooding and erosion to critical infrastructure (Population and Human Health)								considered				
National nature			1	1								
conservation: Pennsylvania Fields and Lower Wye Valley SSSI Reduce significance of impact associated with						undetion		N/A High ground / hard geology precludes physical retreat of the line, option not considered				
managing adverse impacts		SSSI (Pennsylvania Fields) brackish pasture land requires periodic inundation Flooding to SSSI Flooding to SSSI Natural processes										
on nationally or locally designated conservation sites. (Biodiversity, Flora and	potentially reduced		lly reduced	ł	predomin evolve an should be	ate, site v d interest	vill features					
Fauna)	-	-	-	-	-	-	-					
	Lower Wye Valley SSSI											
			ict to habit for which t nated		Features impacted impact or species for designate	by floodir habitats or which t	ng; no or					
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Historical assets are not at risk from current or future flooding/erosion		al assets a n current of /erosion		Historical risk from flooding/e	current or						
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and		-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
Fauna)	ATL could adversely affect habitats and species for which the Wye is designated	at risk fr	and speci om current ooding/eros	t or	Habitats a risk from flooding/e	current or						
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
associated with flood and erosion risk) (Population and Human Health)	Residential properties are not at risk from current or future flooding/erosion.	not at ris	tial proper sk from cur poding/eros	rent or	Residenti not at risk future floo	from cur	rent or					
Water resources are protected (Water)	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	Water resources are not known to be at risk.		esources a be at risk		Water res							
No detriment to water quality (Water) Buttington Farm Historic Landfill site.	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	Water quality is not known to be at risk. Buttington Farm Historical landfill site is not at risk from current or future flooding/erosion.	to be at Farm Hi is not at	uality is no risk. Buttii storical lar risk from flooding/e	ngton Idfill site current	Water qua to be at ri Farm Hist is not at r future floo	sk. Buttir torical lan isk from c	ngton dfill site surrent or					
Policy is designed to adapt to or accommodate climate change trends.					-	-	-	N/A High ground / hard geology precludes physical retreat				

(Air and Climate)								of the line, option not considered
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.			Natural e coast will climate ch impact to property.	accommo nange: po	odate ssible	
Avoid detrimental effects to landscape character (Landscape)		-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Ever increasing the height of the defence/land reclamation will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Limited current or future flood/erosion risk means there is no requirement to significantly increase the height of defences		Limited current or future flood/erosion risk means Landscape is unlikely to change				

The majority of this area is high ground and is not impacted by flood or erosion risk; as a result the policies appraised do not significantly impact on the objectives or Key Policy Drivers.

High ground and no flood risk presently, therefore advance the line will not be a benefit and is technically inappropriate for areas of high ground and because there is no reduction in current flood risk/increased protection.

4.7 Tidenham and Surrounding Villages Theme Area (TID)

The 'With Present Management' policy (set by SMP1) for <u>TID1 – End of Beachley Road, Beachley Point</u> to Guscar Rocks – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Beachley to Sedbury Cliffs	Do nothing	Do Nothing	Do Nothing or retreat the line
Sedbury Cliffs	Do nothing	Do Nothing	Do Nothing
Sturch Pill to Guscar Rocks	Do nothing / Hold / Retreat	Do Nothing or (provisionally) Hold or Retreat the Line	Do Nothing or (provisionally) Hold or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the end of Beachley Road, Beachley Point to Guscar Rocks shoreline can be compared with alternative management policies through the following table:

	Policy 1)	Unit – Tie	denham a	and surro	unding v	illages – E	End of B	eachley Ro	ad, Beachley Po	int to Gu	scar Ro	cks (TID
	Advand	ce the Liı	ne	Hold th	e Line		No Ac	tive Interve	ention	Manag	ed Reali	ignment
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA	Coastal squeeze will occur.			- Coastal occur.	squeeze	will		ory habitats	will roll back and	Impact will depend on alignment line: adequate		
Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features									ssibly some loss	space to select alignment so unlikely to be an adverse impact. Terrestrial habitats are likely to be affected.		
Critical infrastructure: Railway Reduce significance of	ailway 🛛 💭						-					
Reduce significance of impact associated with flooding and erosion to critical infrastructure	Limited flood risk, within unit. Critical infrastructure will be protected.			Critical infrastructure will be protected.				l infrastructu sed flooding	ure at risk from I.	Impact will depend on realignment of coast. Assets may be adversely impacted.		
Theme Area High Level Objectives												
Residential:	\bigcirc			-	\bigcirc	\bigcirc	-			-		
Sedbury, Beachley, Tidenham and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	risk. R	/no prope esidential ies will be ed.		risk Re	no proper sidential p protected.		proper	d number of ties will be a m flooding.	residential at an increased	alignme only lim propert	will depe ent line: I nited nun ies in thi unlikely	however nber of
Recreational sites: Local facilities, open	-			-	-	-	-	-	-	-		
space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)		al access a	0		al access aintained	along	existin	d flood/erosi g footpaths cantly affect	unlikely to be			ine could ootpaths
Industrial, commercial and economic assets: Local commercial		ture is prii e; will be	mary		ure is prim			s some limit eased risk c	ed areas will be f flooding		ting the c esult in le	

assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	protected from flooding	flooding					agricultural land
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)		-		-			
National nature conservation:							
Severn Estuary SSSI		-		-			
Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	Coastal squeeze will occur.	ueeze will Coastal squeeze will occur. In theory habitats will re intertidal habitats will be maintained. In addition habitats within boundar designation will be affer					Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact. Terrestrial habitats within boundary of designation could be affected.
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Broad Stone Scheduled Ancient Monument Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)				-			-
	Limited features at risk under current and future tidal flooding/erosion. Historical assets protected.	Limited featur under current tidal flooding/ Historical ass	t and future 'erosion.	Historic	features pr al asset will ed risk of flo	l be at an	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-					
	Loss of intertidal habitat due to coastal squeeze.	Loss of interti due to coasta		coastal	squeeze be ne will not re	abitat due to ecause streat rapidly	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact. Terrestrial habitats are likely to be affected.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with		-		-			

flood and erosion risk) (Population and Human Health)								
	Residential properties will be protected.	Residential properties will be protected.				ntial propert ed risk from	ies will be at an flooding.	Impact will depend on alignment line: however space in reach is not very limited so adverse impact will only be localised to some isolated properties.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water to be at r	r resource risk.	e known	No wat risk.	er resource	known to be at	No water resource known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No known risk to water quality.	No known risk to water quality.			No kno	wn risk to w	ater quality.	No known risk to water quality.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.		aise the h nces inde		accomr	modate clim e impact to	f the coast will ate change: people and	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			may alte (whethe depends May be landsca	er the local l er positive or s on percep a local char pe due to p s in vegetati	negative tion) nge to	Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.

The area is predominantly protected from flood risk by high ground, with an embankment at Sturch Pill with a residual life of <20years.

The 'With Present Management' policy (set by SMP1) for TID2 – Guscar Rocks to Lydney Harbour – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Guscar Rocks to Lydney Harbour Mouth	Hold the Line	Hold the Line	Hold the Line or Retreat the Line (locally)

The impact on the agreed objectives of continuing with present management policy at the Guscar Rocks to Lydney Harbour shoreline can be compared with alternative management policies through the following table:

	Policy U	lnit – Tide	nham an	d surroun	ding othe	er villages	– Guscar	r Rocks to	Lydney I	Harbour (TID 2)	
	Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	tes: Ramsar, nce of d with ntegrity of signated purable			-			-					
				occur. L habitats	squeeze w oss of inte from within European s	rtidal n the	back and will be m However	In theory habitats will roll back and intertidal habitats will be maintained. However terrestrial habitats will be affected.			Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact. Terrestrial habitats are likely to be affected.	
Critical infrastructure: Railway Lydney Harbour Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Critical infrastructure will be protected.		Critical infrastructure will be protected.				nfrastructu n increasec		Impact will depend on realignment of coast. Assets may be adversely impacted.			
Theme Area High Level Objectives												
Residential: Netherend, Aylburton and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	•			-		•	-					
	Resident be prote	tial propert	ties will	Residential properties w be protected.		ties will	Residential properties will be at an increased risk from flooding.			Impact will depend on alignment line: however space in reach is not very limited so adverse impact will only be localised to some isolated properties.		wever not very impact ed to
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key	-			-	-	-	-	-	-	-		

community, recreational and amenity facilities. (Population and Human								
Health)	No assets known to be	No asse	ts known t	o be	No asset	s known t	o be	No assets known to be
	present.	present.			present.			present.
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)		-		•	-			-
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)		-		•	-			-
Nature conservation		-						
sites: Severn Estuary SSSI Reduce significance of impact associated with maintaining the integrity of nationally and locally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)								
	Coastal squeeze will occur.	Coastal occur.	squeeze v	vill	back and will be m However	habitats of intertidal aintained. terrestria will be affe	habitats I	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact. Terrestrial habitats are likely to be affected.
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-	-	-	-	-	-	-	-
	No assets present.	No asse	ts present		No asset	s present		No assets present.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-						
	Coastal squeeze will occur.	Coastal occur.	squeeze v	vill	back and will be m However	habitats v l intertidal aintained. terrestria will be affe	habitats I	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact. Terrestrial habitats are likely to be affected.

Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	•	-	•	•	-			
	Residential properties will be protected.	Residen be prote	tial proper cted.	ties will		tial proper increased ding.		Impact will depend on alignment line: however space in reach is not very limited so adverse impact will only be localised to some isolated properties.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No wate to be at	r resource risk.	known	No water to be at i	r resource risk.	known	No water resource known to be at risk.
No detriment to water quality (Water) Lydney recreation trust historic landfill site	•	•	•		-			-
	Protection from flooding of historic landfill site.		on from flo andfill site		potential	uality adve impacts b sed tidal f	ecause	Realignment is not likely to impact on the historic landfill site.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.		Natural evolution of the coast will accommodate climate change: possible impact to people and property.			Managed retreat will accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the de local lan characte presence landscap	oe): also a vith defend	affect terms of ing visual	flooding landscap positive depends May be a landscap	ng the frec may alter be (whethe or negativ on perce a local cha be due to p in vegeta	the local er otion). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

As the railway line embankment currently forms the defence for this Policy Unit, retreat of the line would leave the railway exposed therefore it has been considered to have a strong negative impact on the feature.

4.8 Lydney Harbour Theme Area (LYD)

The 'With Present Management' policy (set by SMP1) for LYD1 – Lydney Harbour – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Guscar Rocks to Lydney Harbour Mouth	Hold the Line	Hold the Line	Hold the Line or Retreat the Line (locally)

The impact on the agreed objectives of continuing with present management policy at the Lydney Harbour shoreline can be compared with alternative management policies through the following table:

	Policy U	Init – Lydr	ney – Lyc	Iney Harb	our basin	(LYD 1)						
	Advance	e the Line		Hold the	e Line		No Acti	ve Interve	ention	Manage	d Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of	Coastal s	squeeze w	ill	- Coastal occur.	squeeze v	vill	back an will be r	y habitats d intertida naintained er terrestria	l habitats	alignme	vill depend nt line: ha to be reali	rbour is
internationally designated sites and the favourable condition of their features	(habitats	will be aff	ected.			
Critical Infrastructure: Railway	\bigcirc			-			-					
Reduce significance of impact associated with flooding and erosion to critical infrastructure	Critical ir be prote	nfrastructur	re will	Critical i be prote	nfrastructu cted.	ire will		infrastructu n increase		realignm	vill depend nent of coa nay be ad d.	ast.
Residential: Lydney	\bigcirc			-	\bigcirc	\bigcirc	-					
Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	Resident be prote	tial propert cted.	ies will	Residen be prote	itial proper ected.	ties will		ntial propen i increased oding.		Impact v alignme space ir adverse localised	wever limited so ely to	
Theme Area High Level Objectives												
Recreational site:	\bigcirc			-	\bigcirc	\bigcirc	-			-		
Lydney Harbour facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	Asset pro	otected.		Asset pr	otected.		Asset at of floodi	t an increa	sed risk	alignme reach is to be ad	depends o nt line. Sp limited. U verse imp facilities.	bace in Jnlikely
Industrial, commercial and economic assets:	\bigcirc			-	\bigcirc	\bigcirc	-			-		
Lydney Harbour industrial estate Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Asset pro	otected.		Asset pr	otected.		Asset at of floodi	to be adver harbour fac				bace in Jnlikely
Lydney Harbour port operations	\bigcirc			-	\bigcirc	\bigcirc	-			-		
Reduce significance of impact associated with	Asset pr	otected.		Asset pr	otected.		Asset at of floodi	t an increa ing.	sed risk		lepends o nt line. Sp	

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policies on marine								reach is limited. Unlikely
operations and activities (Population and Human Health)								to be adverse impact to harbour facilities.
Infrastructure: Local road, path network and Lydney canal Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	•	-	•	•	-			
National nature conservation:		-			-			-
Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	Coastal squeeze will occur.	Coastal s occur.	squeeze v	<u>ill</u>	back and will be m However	habitats v d intertidal aintained. r terrestria will be affe	habitats I	Impact will depend on alignment line: harbour is unlikely to be realigned.
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Lydney Harbour Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)		-			-			-
	Asset protected	Asset pro	otected		Asset at of floodir	an increas ng.	sed risk	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-			-			-
	Coastal squeeze will occur.	Coastal s occur.	squeeze v	vill	back and will be m However	habitats v d intertidal aintained. terrestria will be affe	habitats I	Impact will depend on alignment line: harbour is unlikely to be realigned.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-	•	•	-			
Motor resources and	Residential properties will be protected.	Resident be protec	ial proper cted.	ties will		tial proper increased iding.		Impact will depend on alignment line: however space in reach is limited so adverse impact likely to localised properties.
Water resources are protected (Water)	- No water resource known	- No water	- resource	- known	- No wate	- r resource	- known	- No water resource known
No detriment to water	to be at risk.	to be at r	isk.	-	to be at			to be at risk.
quality (Water)			\bigcirc	\bigcirc	-			-

Lydney historic and active landfill sites								
	Protection from flooding of landfill sites.	Protectic landfill si	on from flo	oding of	potential	uality adve impacts b sed tidal f	ecause	Realignment is not likely to impact on the landfill sites.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)		-	-	-	-	-	-	•
	Cannot raise the height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)		-	-	-	-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	HTL will not involve any change to the mudstone cliffs.		flooding landscap positive depends May be a townsca increase	ng the freq may alter be (whethe or negative on percep a local cha pe due to d flooding buildings ea.	the local er otion). inge to and	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.	

The key policy driver for this unit is the harbour itself, including the flood defence (Harbour gates).

Within Lydney Harbour there are residential, industrial and commercial properties within the flood risk zone should the defences be allowed to deteriorate, failing in the 2nd epoch under a No Active Intervention scenario.

4.9 Lydney to Gloucester Theme Area (GLO)

The 'With Present Management' policy (set by SMP1) for GLO1 – Lydney Harbour to Brims Pill – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Lydney Harbour to Cliff Farm	Do nothing	Do Nothing	Do Nothing
Cliff Farm to Wellhouse Rock	Hold the Line	Hold the Line	Hold the Line
Wellhouse Rock to Poulton Court	Hold the Line	Hold the Line	Hold the Line
Poulton Court to Whitescourt, Awre	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the Lydney Harbour to Brims Pill shoreline can be compared with alternative management policies through the following table:

Policy U	Jnit – Lyd	ney to G	loucester -	- Lydney	Harbour	to Brims P	ill (GLO 1)			
Advanc	e the Line	9	Hold th	e Line		No Acti	ve Interve	ention	Manage	ed Realig	nment
0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
			-			-				20-50 20-50 pact will depend c provide the second second second second pact will depend c pact will depend c provide the second second second second provide the second se	
Coastal occur.	squeeze v	vill	Coastal occur.	squeeze v	vill	back an will be n Howeve likely to enough squeeze terrestria	d intertida naintained r: the coas erode bac so coasta e may occi al habitats	habitats st is not k fast l ur. Also	0-20 20-50	theory ack and will be	
			-			-					
Blakene infrastru flooding	y is the or cture likely Asset wi	nly y to be	Blakene infrastru flooding	ey is the or octure likely . Asset wi	ily / to be	Blakene infrastru flooding an incre	ey is the or acture likely . Asset wi ased risk	ly y to be Il be at	alignme line and works a adverse	ent line. R I sewage t re likely to ely impacte	ailway reatment be
-			-	-	-	-	-	-	-		
	Advanc 0-20 Coastal occur. Coastal occur. The raily Blakene infrastru flooding protecte	Advance the Link 0-20 20-50 Coastal squeeze to occur. The railway line no Blakeney is the or infrastructure likely flooding. Asset wi protected. -	Advance the Line 0-20 20-50 50 - 100 Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeeze will occur. Image: Coastal squeez	Advance the Line Hold th 0-20 20-50 50 - 100 0-20 Image: Constal squeeze will occur. - - - Coastal squeeze will occur. Coastal occur. Coastal occur. - Image: Coastal squeeze will occur. - - - Image: Coastal squ	Advance the Line Hold the Line 0-20 20-50 50 - 100 0-20 20-50 Image: Coastal squeeze will occur. - - - - Image: Coastal squeeze will occur. Coastal squeeze will occur. Coastal squeeze will occur. Coastal squeeze will occur. - - Image: Coastal squeeze will occur. - - - - - Image: Coastal squeeze will occur. - - - - - - Image: Coastal squeeze will occur. -	Advance the Line Hold the Line 0-20 20-50 50 - 100 0-20 20-50 50 - 100 Image: Constal squeeze will occur. - Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. - Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal squeeze will occur. Image: Constal	Advance the Line Hold the Line No Acti 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 Image: Solution of the solution	Advance the Line Hold the Line No Active Interve 0-20 20-50 50-100 0-20 20-50 50-100 0-20 20-50 Image: the set of the	0-20 20-50 50 - 100 0-20 20-50 50 - 100 Image: Constant squeeze will occur. - Image: Constant squeeze will occur. Image: Consta	Advance the Line Hold the Line No Active Intervention Manage 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 20-50 50 - 100 0-20 100 100 100 100 100 100 100 100 100 100 100 100	Advance the Line Hold the Line No Active Intervention Managed Realign 0-20 20-50 50 - 100 100 <td< td=""></td<>

Local Facilities, open space and footpath network. Reduce significance of impact associated with footbard and exsociated with footbard and exsociated footbard and exsociated footbard footbard and exsociat		at risk from flooding.	at risk fr	om floodin	g.	at risk fro	om floodin	g.	at risk from flooding.
risk. risk. risk. risk. risk. risk. risk. Industrial, commercial model assets: (coal commercial assets (model assets: (coal commercial assets) Image: associated with model assets: (coal commercial assets) Image: associated with model assets: (coal commercial instance) Image: associated with model assets: (coal commercial instance) Image: associated with model and activities Image: associated with model and are commercial model and and encode with model and are commercial (coal infrastructure: (Population and Human) Image: associated with model and are commercial model and encode with model and encode with model and and the model and encode with model and encode with mod	Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	-	-	-	-	-	-	-	-
Industrial, commercial assets: Local commercial assets: Local commercial assets: Concommercial assets: Incommercial assets: Incommercial assets: Incommercial assets: Incommercial assets: Incommercial assets: Incommercial assets: Incommercial assets: Incommercial and Human Health) Incommercial and Human Healthy Reduce significance of mypect associated with Incommercial assets: Incommercial and Human Healthy Incommercial assets: Incommercial and Human Healthy Incommercial associated with Incommercial Incommercial Incommercial Incommercial Incommercial Incomm				identified	to be at		identified	to be at	
Local road and path network Reduces significance of inical infrastructure (Population and Human Health) Geological SSSI: Lydney Cliff Reduces significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geological SSSIs (Land Use, Geological SSIS (Land	Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)								
Local road and path network Reduces significance of inical infrastructure (Population and Human Health) Geological SSSI: Lydney Cliff Reduces significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geological SSSIs (Land Use, Geological SSIS (Land	Infrastructure:								
Lydney Cliff Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geomorphology and Contaminated Land) Image: Contaminated Land Contaminated Land) National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with maintaining the integrity of nationally and locally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna) Image: Constal squeeze will conditions of their features will conditioned back and intertidal habitats will be arritational habitats will be arrestrial habitats will be arritational habitats will be arrestrial habitats will be arritational habitatats will be arritational habitatats will be ar	Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)								
conservation: Severn Estuary SSSI Reduce significance of impact associated with maintaining the integrity of nationally and locally designated sites and the favourable condition of their features Image: Conservation of their features (Biodiversity, Flora and Fauna) Coastal squeeze will cocur. In theory habitats will roll back and intertidal habitats will be maintained. However: the coast is not likely to erode back fast enough so coastal squeeze mill occur. Image: Coastal squeeze will occur. Image: Coa	Geological SSSI: Lydney Cliff Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)								-
Coastal squeeze will occur.Coastal squeeze will occur.back and intertidal habitats will be maintained. However: the coast is not likely to erode back fast enough so coastal squeeze may occur. Also terrestrial habitats will be affected.Impact will depend on alignment line. In theory habitats will occur maintained. Also terrestrial habitats will be affected.	National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with maintaining the integrity of nationally and locally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)		-			-			
						back and will be m However likely to e enough s squeeze terrestria	d intertidal naintained. T the coas erode back so coastal may occu al habitats	habitats it is not k fast ır. Also	alignment line. In theory habitats will roll back and intertidal habitats will be maintained. Also terrestrial habitats may be
	Listod Buildings and	-	-	-	-	-		-	-

					_			
non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)								
	Historic assets not at risk from flooding.	Historic from floo	assets not oding.	at risk	from floc	assets not ding.	at risk	Historic assets not at risk from flooding.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		-			-			
	Coastal squeeze will occur.	Coastal occur.	squeeze v	/ill	back and will be m However likely to e enough s squeeze	habitats of d intertidal naintained. r: the coas erode bac so coastal may occu al habitats	habitats it is not k fast ir. Also	Impact will depend on alignment line. In theory habitats will roll back and intertidal habitats will be maintained. Also terrestrial habitats may be affected.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-	-	-	-	-	-	-	-
	Residential properties not at risk from flooding.		tial proper om floodin			tial proper		Residential properties not at risk from flooding.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No wate to be at	r resource risk.	known	No water to be at i	r resource risk.	known	No water resource known to be at risk.
No detriment to water quality (Water)	•	\bigcirc	ightarrow	\bigcirc	-	-		-
	STW protected.	STW pro	otected.		STW at a of floodir	an increas	ed risk	Realignment is not likely to impact on the STW.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)		-	-	-	-	-	-	•
	Cannot raise the height of the defences indefinitely.	coast wi climate o	evolution Il accomm change: po people a	odate ossible	coast wil climate c	evolution c Il accomm change: po people a :	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)		-	-	-	-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	HTL will not involve any change to the mudstone cliffs.			flooding landscap positive depends May be a townsca increase	ng the frec may alter be (whethe or negativ on perce a local cha pe due to d flooding buildings ea.	the local er eption). ange to and	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.

This unit does not have defences at present due to high ground limiting flood and erosion risk to the features of the shoreline. A NAI policy will allow the continued exposure of Lydney Cliff (SSSI), therefore would have

a beneficial continued impact over the 3 epochs considered by the Severn Estuary SMP2. The railway line runs in close proximity to the shoreline around Wellhouse Bay and Purton, shoreline erosion may threaten this structure over the SMP2 timeframe.

The 'With Present Management' policy (set by SMP1) for GLO2 – Brims Pill to Northington Farm – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Whitescourt to Hayward	Hold the Line	Hold the Line or Retreat the Line	Retreat the Line
Hayward to Northington Farm	Hold the Line	Hold the Line or Retreat the Line	

The impact on the agreed objectives of continuing with present management policy at the Brims Pill to Northington Farm shoreline can be compared with alternative management policies through the following table:

Policy U	Init – Lydı	ney to Gl	oucester -	- Brims Pi	ll to North	nington Fa	arm (GLO	2)				
Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realigr	nment	
0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
			-			-						
Coastal : occur.	squeeze w	vill	Coastal occur.	squeeze v	vill	back and will be m reach is terms of scope to terrestria	d intertidal naintained. not limited space so roll back. al habitats	habitats The in there is Also	alignmen habitats intertida maintain terrestria	nt line. In will roll ba I habitats ned. Also al habitats	theory ack and will be	
-			-	-	-	-	-	-	-			
will be at	t an increa		will be a	t an increa		No assets identified that will be at an increased risk of flooding.			will be a	t an increa		
\bigcirc			\bigcirc	\bigcirc	\bigcirc	-						
but isola	ted proper		but isola	ated proper		at an inc	reased ris		Impact will depend alignment line. Iso properties could be adversely impacte		olated e	
-			-	-	-	-	-	-	-			
No sites risk.	identified	to be at	No sites risk.	identified	to be at	No sites risk.	identified	to be at	No sites risk.	identified	to be at	
-			-	-	-	-	-	-	-	No sites identified to be		
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Infrastructure:	-	-	\bigcirc	\bigcirc	-			-
Local road and path								
network Reduce significance of								
impact associated with								
flooding and erosion to								
critical infrastructure								
(Population and Human Health)								
liounny				<u> </u>				
National nature								
conservation:		-			-			-
Severn Estuary SSSI	Coastal squeeze will	Coastal	squeeze v	will	In theory	habitats	will roll	Impact will depend on
Reduce significance of impact associated with	occur.	occur.				d intertida		alignment line. In theory
managing adverse impacts						aintained		habitats will roll back and intertidal habitats will be
on nationally or locally						space so		maintained. Also
designated conservation					scope to	roll back	. Also	terrestrial habitats may be
sites. (Biodiversity, Flora and						al habitats	will be	affected.
Fauna)					affected.			
Listed Buildings and	-	-	-	-	-	-	-	-
non-designated sites of historic interest.	Limited historic assets		historic as	sets		historic as	sets	Limited historic assets
Priory Cottage listed	identified.	identifie	d.		identified	1.		identified.
building								
Reduce significance of impact to scheduled and								
locally, regionally and								
nationally important								
cultural historic								
environment sites and their setting. (Historic								
Environment)								
Maintain and enhance		-			-			
Biodiversity Action Plan								
	Coastal squeeze will		squeeze v	will		habitats		Impact will depend on
habitats and species in line with existing targets/plans	occur.	Coastal occur.	squeeze v	will	back and	d intertida	l habitats	alignment line. In theory
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impact with defences disrupting views.	impact with defences disrupting views.	townscape due to increased flooding and effect on buildings and use of the area.	townscape due to increased flooding and effect on buildings and use of the area.
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Flood risk within this Policy Unit does not extend to the residential and commercial properties of Awre over the SMP2 timeframe. Assets at risk of flooding include agricultural land, local footpaths and isolated residential properties. Heritage features within the flood risk area are environmental records which will not be affected by inundation.

The 'With Present Management' policy (set by SMP1) for <u>GLO3– Northington Farm to Newnham Church</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Northington Farm to Portlands Nab	Do nothing	Do Nothing (generally) or Hold the Line (locally)	Do Nothing (generally) or Hold the Line (locally)
Portlands Nab to the downstream boundary of Newnham	Do nothing	Do Nothing (generally) or Hold/Retreat the Line (locally)	Do Nothing (generally) or Hold/Retreat the Line (locally)

The impact on the agreed objectives of continuing with present management policy at the Northington Farm to Newnham Church shoreline can be compared with alternative management policies through the following table:

	Policy U	nit – Lydr	ney to Glo	oucester -	- Northing	ton Farm	to Newnh	nam Chur	ch (GLO 3	3)		
	Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	ed Realign	ment
Key Policy Drivers	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Critical infrastructure: A48, Railway	-								-			
Reduce significance of impact associated with flooding and erosion to critical infrastructure Theme Area High Level Objectives	Assets not at risk of flooding.			Assets r flooding.	not at risk o	of	Assets r flooding.	ot at risk o	of	Assets not at risk of flooding.		
Residential:	-	_	_	I -	-	-	-	-	-	-	_	_
Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	Resident at risk of	ial propert flooding.	ies not		tial proper flooding.		Residen	tial proper flooding.		Resider	ntial proper f flooding.	ties not
Recreational sites: Local facilities, open	-			-	-	-	-	-	-			
space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	Footpaths will be protected.			Footpaths will be protected.			an increa flooding.	otpaths wil		Impact will depend on alignment line; however space in reach is not limited so there is likely to be an adverse impact.		wever not likely to
Industrial, commercial and economic assets:	\bigcirc			\bigcirc	\bigcirc	\bigcirc	-					
Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	this reac	looding lik h but somo ral assets d.		this read	looding lik h but som ral assets d.		this read agricultu	flooding lik h but som ral assets d risk of fl	e at an		depends oi nt line: hov	
Listed Buildings and	-			-	-	-	-	-	-	-		
non-designated sites of historic interest. Priory Cottage listed building Reduce significance of impact to scheduled and locally, regionally and nationally important	Limited h	historical a	ssets.	Limited I	historical a	ssets.	Limited I	historical a	issets.	Limited	historical a	assets.

				1			(
Loss of intertidal habitat due to coastal squeeze.				increase habitats	d; possibl behind ex	e loss of	Intertidal habitats retained/ increased; possible loss of habitats affected by retreated line.
-	-	-	-	-	-	-	-
Residential properties not at risk of flooding.			ties not			ties not	Residential properties not at risk of flooding.
-	-	-	-	-	-	-	-
No water resource known to be at risk.			known			known	No water resource known to be at risk.
-	-	-	-	-	-	-	-
No risk to water quality known.	No risk t known.	o water qu	ality	No risk te known.	o water qu	uality	No risk to water quality known.
				-	-	-	\bigcirc
Cannot raise the height of the defences indefinitely.			0	coast wil climate c impact to	l accomm change: po people a	odate ossible ind	Managed retreat will accommodate climate change.
				-	-	-	-
Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the de local lan characte presenc landscap impact v	efence will dscape in er (increasi e in the pe): also a vith defence	affect terms of ng visual	flooding landscap positive depends May be a landscap	may alter be (whethe or negativ on perce a local cha be due to p	the local er eption). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation
	 due to coastal squeeze. Residential properties not at risk of flooding. - No water resource known to be at risk. - No risk to water quality known. Cannot raise the height of the defences indefinitely. Cannot raise the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual 	due to coastal squeeze. due to c - - Residential properties not at risk of flooding. Residen at risk of flooding. - - Residential properties not at risk of flooding. Residen at risk of flooding. - - No water resource known to be at risk. - - No water quality known. Cannot raise the height of the defences indefinitely. No risk to water quality known. Cannot raise the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences Ever increasing presence in the landscape): also a visual impact with defences	due to coastal squeeze. due to coastal squ - - Residential properties not at risk of flooding. Residential proper at risk of flooding. - Residential proper at risk of flooding. - - - - No water resource known to be at risk. - - - No risk to water quality known. No risk to water quality known. Cannot raise the height of the defences indefinitely. Cannot raise the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual	due to coastal squeeze. due to coastal squeeze. - - - Residential properties not at risk of flooding. Residential properties not at risk of flooding. Residential properties not at risk of flooding. - - - - No water resource known to be at risk. - - - - - - No risk to water quality known. No risk to water quality known. No risk to water quality known. Cannot raise the height of the defences indefinitely. Cannot raise the height of the defences indefinitely. Cannot raise the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences	due to coastal squeeze. due to coastal squeeze. increase habitats defences habitats defences - - - - - Residential properties not at risk of flooding. No water the source known to be at risk. No water resource known to be at risk. No water quality known. No risk to known. No risk to known. - - - - - - - - - - - - - - - -	due to coastal squeeze. due to coastal squeeze. increased; possibl habitats behind ex defences. - - - - - - Residential properties not at risk of flooding. - - - - - - - No water resource known to be at risk. - - - - - No water resource known to be at risk. - - - - - - No risk to water quality known. No risk to water quality coast will accommedimate the defences indefinitely. -<	due to coastal squeeze. due to coastal squeeze. increased; possible loss of habitats behind existing defences. - - - - - - Residential properties not at risk of flooding. - - - - - - No water resource known to be at risk. - - - - - - - - - - - No risk to water quality known. - - - Cannot raise the height of the defences indefinitely. Image: possible impact to people and property. - - - - Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences - - - - - - - - - - - - - - - - -

High ground and hard geology limit flood and erosion risk to this unit, therefore few assets are at risk. Minimal agricultural land is at risk under a No Active Intervention scenario.

The 'With Present Management' policy (set by SMP1) for <u>GLO4– Newnham Church to Farm north of</u> <u>Broadoak</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Newnham and Broadoak	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Newnham Church to Farm north of Broadoak shoreline can be compared with alternative management policies through the following table:

	Policy l	Jnit – Lyd	ney to Glo	oucester -	- Newnha	m Church	to Farm	north of B	sroadoak (GLO4)		
	Advanc	e the Line		Hold the	e Line		No Acti	ve Interve	ention	Manag	ed Realigr	nment
Key Policy Drivers	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Residential: Newnham	0			0	0	\bigcirc						
Broadoak Reduce significance of impact associated with flooding and erosion to people and property	Residen protecte	tial proper d.	ties	Residen protecte	itial proper	ties		ntial proper ased risk o		alignme space in limited	will depend ent line; ho n the reach so there is dverse imp	wever n is likely to
Critical infrastructure: A48, Railway	\bigcirc			-			-			-		
Reduce significance of impact associated with flooding and erosion to critical infrastructure	Critical i be prote	nfrastructu cted.	re will	Critical i be prote	nfrastructu ected.	ire will		infrastructu n increase		realignr Assets	will depend ment of coa unlikely to aly impacte	ast. be
Theme Area High Level Objectives												
Recreational sites: Local facilities, open	O Dublia a			O Dublic c		\bigcirc				-		-l
space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)		ar park in m will be p oding/	protected		ar park in am will be p oding/	protected	Newnha	ar park in am will be a ed risk fror /		realignr Assets	will depend nent of coa unlikely to ely impacte	ast. be
Industrial, commercial	\bigcirc			\bigcirc	\bigcirc	\bigcirc						
and economic assets: Local commercial assets Agricultural land Local businesses Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Assets p flooding	orotected fi	rom	Assets p flooding	orotected f	rom	Assets a from floo	at an incre oding.	ased risk	realignr	will depend nent of coa may be ad ad.	ast.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-			-	-	-	-	-	-	-		
Listed Buildings and	\bigcirc			\bigcirc	\bigcirc	\bigcirc						
non-designated sites of historic interest.	Historica from floo	al assets p oding.	rotected	Historica from floo	al assets p	rotected		al assets a ed risk fror			will depend ment of the	

Listed buildings in Newnham and Broadoak Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and	Loss of intertidal habitat due to coastal squeeze.		intertidal h oastal squ		increase	I habitats d; possibl behind ex	le loss of	Historical assets may be adversely impacted.
Fauna) Avoid/minimise						s.		
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	Residential properties protected.	Residen	tial proper d.	ties		tial proper ased risk		Impact will depend on alignment line; however space in the reach is limited so there is likely to be an adverse impact.
Water resources are	-	-	-	-	-	-	-	-
protected (Water)	No water resource known to be at risk.	No wate to be at	r resource risk.	known	No wate to be at	r resource risk.	e known	No water resource known to be at risk.
No detriment to water	-	-	-	-	-	-	-	-
quality (Water)	No risk to water quality known.	No risk t known.	o water qu	uality	No risk t known.	o water q	uality	No risk to water quality known.
Policy is designed to adapt					-	-	-	0
to or accommodate climate change trends. (Air and Climate)	Cannot raise the height of the defences indefinitely.	Cannot the defe	raise the h nces indef	eight of initely.	coast wi	evolution Il accomm change: p o people a	nodate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects					-	-	-	-
to landscape character (Landscape)	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the de local lan characte presenc landsca impact v	reasing the efence will dscape in er (increasi e in the be): also a vith defence ng views.	affect terms of ing visual	flooding landscap positive depends May be townsca increase	may alter be (wheth or negative s on perce a local cha pe due to ed flooding buildings	er ve eption). ange to g and	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.

High ground and hard geology limit flood and erosion risk to this unit, however, the rate of erosion at the shoreline will accelerate as a result of sea level rise. Newnham is a key residential and centre of heritage assets within the Policy Unit, many properties are located on the immediate cliff line, and therefore at erosion risk in the short term and continuing through the SMP2 timeframe. As the line is currently held, to preserve the landscape character a Hold the Line policy would be beneficial.

The 'With Present Management' policy (set by SMP1) for <u>GL05– farm to the north of Broadoak to Hill</u> <u>Farm, Rodley</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Broadoak to the upstream end of Garden Cliff	Hold the Line (do nothing locally)	Hold the Line, locally Do Nothing	Hold the Line, locally Do Nothing
The Dumballs	Hold the Line	Hold the Line	Hold the Line or Retreat the Line
Rodley to Bollow	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the farm to the north of Broadoak to Hill Farm, Rodley shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Lyd	ney to G	loucester	– Farm to	north of	Broadoak	to Hill Fa	rm, Rodle	y (GLO 5)		
	Advanc	e the Line	÷	Hold th	e Line		No Acti	ve Interve	ntion	Manage	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Heritage: Westbury House and Gardens						\bigcirc						
Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	protecte	al assets v d.	<i>i</i> ill be	Historic protecte	al assets v ed.	vill be		al assets w ased risk o		alignme Westbur gardens adverse alignme that poir	will depen nt line; ho ry House could be ly impacte nt is requi nt of the re	wever water ed if red at
Residential: Westbury on Severn and	\bigcirc									-		
Rodley Reduce significance of impact associated with flooding and erosion to people and property	Residen protecte	tial proper d.	ties	Resider	ntial proper	ties		ntial proper ed risk of fl		alignme space ir very lim	will depend nt line; ho n the reach ited so pro y to be aff	wever n is not operty is
Theme Area High Level Objectives												
Residential: Isolated residential	\bigcirc			\bigcirc	\bigcirc	\bigcirc				-		
properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	Residen protecte	tial proper d.	ties	Resider protecte	ntial proper ed.	ties		ntial proper ed risk of fl		alignme space ir very lim	will depend nt line; ho n the reach ited so pro y to be aff	wever n is not operty is
Recreational sites:	\bigcirc			\bigcirc	\bigcirc	\bigcirc						
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)		path will b d from floo			path will b			path will b ed risk fron		realignn Coastal	will depend nent of coa footpath i rsely impa	ast. s likely to
Industrial, commercial	\bigcirc			\bigcirc	\bigcirc	\bigcirc						
and economic assets: Agricultural land Tourism Local commercial assets Reduce significance of impact associated with	Assets p flooding.	protected f	rom	Assets flooding	protected f	rom	Assets a from flo	at an increa oding.	ased risk	realignm	vill depend nent of coa nay be ad d.	ast.

Addetsfail, commercial and production and Human feeth) And activities Population and Human feeth And activities Population and Human feeth) And activities Population and Human feeth And activities Population and Human feeth) And activities Population and Human feeth And activities Population and Human feeth And activities Population and Human feeth And And And And And And And And Population and Human feeth And And And Population and Human feeth And And And Population and Human feeth Population and Human feeth And And And Population and Human feeth Population a									
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Reduce significance of myscar associated with local and errors in the resource known to be at risk.	-								
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Avoid detrimental effects o landscape character Landscape) Avoid detrimental effects o landscape in terms of character (increasing presence in the Avoid detrimental effects o landscape in terms of character (increasing presence in the Avoid detrimental effects o landscape character	environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Water resources are protected (Water) No detriment to water quality (Water) Policy is designed to adapt to or accommodate climate	 protected. No water resource known to be at risk. No risk to water quality known. Cannot raise the height of 	- No wate to be at - No risk t known.	ed. 	- e known - Jality eight of	- No wate to be at - No risk t known. - Natural coast wi	- r resource risk. - o water qu - evolution o Il accomm	ooding. 	alignment line; however space in the reach is not very limited so property is not likely to be affected. - No water resource known to be at risk. - No risk to water quality known. Managed retreat will accommodate climate
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Avoid detrimental effects o landscape characterof the defence will affect local landscape in terms of character (increasing presence in theof the defence will affect local landscape in terms of character (increasing presence in theflooding may alter the local landscape (whether positive or negative depends on perception). May be a localof flooding may alter the local landscape (whether positive or negative depends on perception).	environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Water resources are protected (Water) No detriment to water quality (Water) Policy is designed to adapt to or accommodate climate change trends.	 protected. No water resource known to be at risk. No risk to water quality known. Cannot raise the height of 	- No wate to be at - No risk t known.	ed. 	- e known - Jality eight of	- No wate to be at - No risk t known. - Natural coast wi climate o impact to property	- r resource risk. - o water qu - evolution o Il accomm change: po o people a	ooding.	alignment line; however space in the reach is not very limited so property is not likely to be affected. - No water resource known to be at risk. - No risk to water quality known. Managed retreat will accommodate climate change.
o landscape character local landscape in terms of character (increasing presence in the presence	environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Water resources are protected (Water) No detriment to water quality (Water) Policy is designed to adapt to or accommodate climate change trends.	 protected. - No water resource known to be at risk. - No risk to water quality known. Cannot raise the height of the defences indefinitely. 	- No wate to be at - No risk t known. Cannot the defe	ed. 	- e known Jality Leight of finitely.	- No wate to be at - No risk t known. - Natural coast wi climate o impact to property -	- r resource risk. - o water qu - evolution c II accomm change: po o people a	ooding.	alignment line; however space in the reach is not very limited so property is not likely to be affected. - No water resource known to be at risk. - No risk to water quality known. Managed retreat will accommodate climate change. -
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Tandocapo, alco a notal Tandocapo, alco a notal Tonango to fandocapo dal to Timay be a locar change to	environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Water resources are protected (Water) No detriment to water quality (Water) Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	 protected. No water resource known to be at risk. No risk to water quality known. Cannot raise the height of the defences indefinitely. Ever increasing the height of the defence will affect local landscape in terms of character (increasing 	 protecter No water to be at - No risk to known. Cannot the defension of t	ed.	- Jality Jality Jality Jeight of finitely. e height affect terms of	 increase - No wate to be at - No risk t known. - Natural coast wi climate di impact ti property - Increasin flooding landscap or negat 	- resource risk. - o water qu - evolution of la accomm change: po o people a 	ooding.	 alignment line; however space in the reach is not very limited so property is not likely to be affected. - No water resource known to be at risk. - No risk to water quality known. • Managed retreat will accommodate climate change. Increasing the frequency of flooding may alter the local landscape (whether positive or negative
	environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Water resources are protected (Water) No detriment to water quality (Water) Policy is designed to adapt to or accommodate climate change trends. (Air and Climate) Avoid detrimental effects to landscape character	 protected. No water resource known to be at risk. No risk to water quality known. Cannot raise the height of the defences indefinitely. Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the 	- No water to be at - No risk t known. Cannot the defe	ed.	- e known - uality eight of finitely. e height affect terms of ing	- No wate to be at - No risk t known. - Natural coast wi climate of impact to property - Increasin flooding landscap or negat percepti	d risk of fl - r resource risk o water qu - evolution c II accomm change: pc o people a ng the frec may alter pe (whethe ive depen on). May	ooding.	 alignment line; however space in the reach is not very limited so property is not likely to be affected. - No water resource known to be at risk. - No risk to water quality known. • Managed retreat will accommodate climate change. Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception).

	impact with defences disrupting views.	impact with defences disrupting views.	potential changes in vegetation structure.	landscape due to potential changes in vegetation structure.
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The 'With Present Management' policy (set by SMP1) for <u>GLO6– west bank at Hill Farm, Rodley to west</u> bank at Goose Lane farm – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Rodley to Bollow	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the west bank at Hill Farm, Rodley to west bank at Goose Lane farm shoreline can be compared with alternative management policies through the following table:

	Policy l	Jnit – Lyd	ney to Glo	oucester	- west ba	nk at Hill I	Farm, Ro	dley to w	est bank at	t Goose L	ane farm ((GLO 6)
	Advanc	e the Line	;	Hold th	ne Line		No Act	ive Interv	ention	Manage	ed Realigr	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Theme Area High Level Objectives												
Industrial, commercial and economic assets:	\bigcirc			0	\bigcirc	\bigcirc	-					
Agricultural Assets: Agricultural Assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	ling						Impact will depend on realignment of coast. Agricultural land may be adversely impacted.					
Residential:	\bigcirc			\bigcirc	\bigcirc	\bigcirc	-			-		
Bollow and isolated residential Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	Residen protecte	tial proper d.	ties	Reside	ntial proper ed.	rties		ntial prope eased risk g.		alignme space ii very lim	will depend ent line; how in the reach ited so pro y to be affe	wever i is not perty is
Recreational sites:	-			-	-	-	-	-	-			
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	Recreati	onal asse poding.	ts not at		tional asse looding.	ts not at	Recrea risk of f	tional asso looding.	ets not at	Impact will depend on alignment line; assets be adversely impacted		
Listed Buildings and	-			-	-	-	-	-	-	-		
non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Historica of floodi	ıl assets n ng.	ot at risk	Historic of flood	al assets n ling.	not at risk	Historic of flood		not at risk	Historic of flood	al assets n ing.	ot at risk
Maintain and enhance												
Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)		ntertidal h oastal squ			intertidal h coastal squ		increas	al habitats ed; possib s behind e es.	le loss of	increas	al habitats ed; possibl affected b d line.	e loss of
Avoid/minimise	\bigcirc			\bigcirc	\bigcirc	\bigcirc	-			-		
environmental impacts which may have long term health impacts (including stress and anxiety	_	tial proper d.	ties	Reside	ntial proper ed.	rties		ntial prope eased risk g.		alignme	will depend ent line; how n the reach	wever

associated with flood and erosion risk) (Population and Human Health)								very limited so property is not likely to be affected.
Water resources are	-	-	-	-	-	-	-	-
protected (Water)	No water resource known to be at risk.	No wate to be at	r resource risk.	known	No wate to be at	r resource risk.	known	No water resource known to be at risk.
No detriment to water	-	-	-	-	-	-	-	-
quality (Water)	No risk to water quality known.	No risk t known.	o water qu	ality	No risk t known.	o water qu	uality	No risk to water quality known.
Policy is designed to adapt					-	-	-	\bigcirc
to or accommodate climate change trends. (Air and Climate)	Cannot raise the height of the defences indefinitely.		raise the h nces indef		coast wi	evolution of accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to					-	-	-	-
landscape character (Landscape)	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the de local lan characte presenc landscap impact v	reasing the efence will dscape in er (increasi e in the be): also a vith defence ng views.	affect terms of ng visual	flooding landscap positive depends May be landscap	ng the frec may alter be (whethe or negativ on perce a local cha be due to p i in vegeta	the local er e ption). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

The 'With Present Management' policy (set by SMP1) for <u>GL07– west bank at Goose Lane farm to west</u> <u>bank at Ley Road</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Bollow to Hartland's Hill	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the west bank at Goose Lane farm to west bank at Ley Road shoreline can be compared with alternative management policies through the following table:

	Policy L	Jnit – Lyd	ney to Glo	oucester -	- west bar	nk at Goo	se Lane fa	arm to we	st bank at	Ley Roa	d (GLO 7)	
	Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Walmore Common Ramsar Site Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i red to be a le policy for es to the S as it woul el flood st er moveme ly leading looding. It ger erosion uce it	n or evern d reduce orage ent, to t could				-			-		
					will be pro reased tida		increase Although wetland fluvial flo habitat.	will experi ed tidal floo n the site is it relies or boding to r Increased would hav impact.	oding. s Winter naintain tidal	It is unlikely that the site will be impacted by managed realignment.		
Theme Area High Level Objectives												
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage				•				-			
				Residen protecte	tial proper d.	ties		tial proper ased risk o		alignme space ir very lim	will depend nt line; how the reach ited so pro y to be affe	wever i is not perty is
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i red to be a le policy for as it woul el flood st er moveme ly leading looding. I ger erosior uce it	n or evern d reduce orage ent, to to									
					otpath netv d from floc			otpath net ased risk o			depends of nt line: the	

					flooding.			be an adverse impact.
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			•				-
		Assets pro flooding.	tected fro	m	Assets a of floodin	t an increa Ig.	ased risk	Impact depends on alignment line. However there is limited space in the catchment so an adverse impact is likely.
Critical infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		•	•				
		Assets pro	tected.		Assets a of floodin	t an increa ig.	ased risk	Impact depends on alignment line. However there is limited space in the catchment so an adverse impact is likely.
National nature conservation: Walmore Common SSSI and NNR Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			-
		The site wi from increa flooding.			increased Although wetland i fluvial flo habitat. I	will experi d tidal floc the site is t relies on oding to n ncreased would hav impact.	ding. Winter naintain tidal	It is unlikely that the site will be impacted by managed realignment.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			•				
		Wetland ha	abitat pro	tected.	Loss of v	vetland ha	bitat.	Loss of wetland habitat
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn			•				-

associated with flood and erosion risk) (Population and Human Health)	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Residen	tial proper	ties	Resident	tial proper	ties at	Impact will depend on
		protecte			an increa flooding.	ased risk o	of	alignment line; however space in the reach is not very limited so property is not likely to be affected.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No wate to be at	r resource	known	No water to be at r	r resource	known	No water resource known to be at risk.
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No risk t known.	o water qu	ality	No risk te known.	o water qu	ality	No risk to water quality known.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	aise the h	eight of	-	-	-	Managed retreat will
			nces indef		coast wil climate c	l accomm hange: po people a	odate ossible	accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		of the de local lan	reasing the efence will dscape in er (increasi e in the	affect terms of	flooding landscap positive	ng the freq may alter be (whethe or negative on perce	the local er e	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception).

	landscape): also a visual impact with defences disrupting views.	May be a local change to landscape due to potential changes in vegetation structure.	May be a local change to landscape due to potential changes in vegetation structure.
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Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

The 'With Present Management' policy (set by SMP1) for <u>GLO8 – Ley Road to Drain from Long Brook</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Hartland's Hill to Denny Hill	Hold the Line	Hold the Line	Hold the Line
Denny Hill to Minsterwortham	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Ley Road to Drain from Long Brook shoreline can be compared with alternative management policies through the following table:

	Policy I	Unit – Lyo	dney to G	loucester	– Ley Ro	ad to Dra	in from Lo	ng Brook (C	GLO 8)			
	Advanc	e the Lin	е	Hold the	e Line		No Activ	e Interventi	on	Manag	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Critical infrastructure: Railway, A40 Reduce significance of impact associated with flooding and erosion to critical infrastructure	conside unsuitat tributarie Estuary reduce i storage moveme leading flooding trigger e	Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it										
				Assets p	protected.		Assets at flooding.	an increase	d risk of	alignme limited	depends o ent line. H space for ment so ao kely.	owever,
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agricultural assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	conside unsuital tributarie Estuary reduce i storage moveme leading flooding	e the Line red to be ole policy es to the S , as it wou in-channe and wate ent, poten to greater . It could erosion, ra duce it	an for Severn Ild I flood r tially also									
				Agricultu from floo	ural land p oding.	rotected		ral land at ar d risk from flo		realignr Agricult	will depen ment of co cural land r ely impacte	ast. may be
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	conside unsuitat tributarie Estuary reduce storage moveme leading flooding	e the Line red to be ole policy es to the S , as it wou in-channe and wate ent, poten to greater . It could erosion, ra duce it	an for Severn Ild I flood r tially also	•	•	•						
				Local fo	otpath net	work	Local for	tpath networ	k	Impact	depends o	on

			g the tershire w d from floo			the Glouces cted from flo		alignment line: there may be an adverse impact.
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Assets p	protected.		Assets at flooding.	an increase	d risk of	Impact depends on alignment line. However there is limited space in the catchment so an adverse impact is likely.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•	•	•				
			and terres	strial	Loss of w habitat.	etland/ terre	strial	Loss of wetland/ terrestrial habitat
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•		•				-
		Residen protecte	tial proper d.	ties		al properties risk of flooc		Impact will depend on alignment line; however space in the reach is not very limited so property is not likely to be affected.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No wate to be at	r resource risk.	known	No water at risk.	resource kn	own to be	No water resource known to be at risk.
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn	-	-	-	-	-	-	-

	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Noriolet		olity (No rick to			
		known.	o water qu	laiity	INO FISK TO	water qualit	y known.	No risk to water quality known.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
			aise the h nces indef		will accom	olution of th modate clin ossible impa d property.	nate	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		of the de local land character presence landscap	e): also a ith defenc	affect terms of ng visual	flooding m landscape negative d perception change to	the frequer ay alter the (whether p lepends on). May be a landscape o hanges in v	local ositive or a local due to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

4.10 Gloucester to Haw Bridge Theme Area (MAI)

The 'With Present Management' policy (set by SMP1) for <u>MAI1 – West bank at Drain from Long Brook to</u> <u>west bank at railway / A40 bridge</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Lower Parting to Maisemore Weir	Hold the Line	Hold the Line	Hold the Line or Locally Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the West bank at Drain from Long Brook to west bank at railway / A40 bridge shoreline can be compared with alternative management policies through the following table:

	Policy l bridge (ucester to	o Haw Brid	dge – wes	t bank at	Drain froi	m Long Bro	ook to we	est bank at	t railway /	A40
	Advanc	e the Line	e	Hold the	e Line		No Act	ive Interve	ntion	Manage	ed Realigi	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Critical Infrastructure: Railway, A48, Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-			-		
				Critical in protecter	nfrastructu d	re	Railway	y at risk			ng realigni main road	
Residential: Minsterworth Reduce significance of impact associated with flooding and erosion to people and property.	consider unsuitat upper E reduce i storage moveme leading It could	e the Line red to be a ole policy f stuary, as n-channel and water ent, potent to greater also trigge rather that	an for the it would flood tially flooding.				-					
				Some isolated properties in at risk area; will be protected			Some isolated properties at risk; MInsterworth largely unaffected			Overall flood risk will be reduced however some isolated properties may be affected		some
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	consider unsuitab upper E reduce i storage moveme leading It could	e the Line red to be a ble policy f stuary, as n-channel and water ent, potent to greater also trigge rather that	an for the it would flood tially flooding. er			•	-					
				Assets v protecte	i vould rema d	ain	increas	built asset ed flooding griculture		majority	ed protect of assets effects to	; some

								within area of realignment
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No ident	ified featu	es at risk	No ident risk	ified featu	res at	No identified features at risk
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		Intertida coastal s	l habitats l squeeze	ost to	/increase	l habitats r ed; possibl behind ex s	e loss of	Intertidal habitats retained/increased ; possible loss of habitats behind existing defences
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
			properties to be prot		Flood risk will increase			Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	No featu	res at risk	-	-	res at risk	-	No features at risk

		No featu	res at risk		No featu	res at risk		No features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
			raise heigl indefinite		will acco change;	evolution o mmodate possible ir ind propert	climate npact to	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		defences landscap characte presence also a vis	Ever increasing height of efences will affect local andscape in terms of haracter (increasing resence in the landscape); Iso a visual impact with efences disrupting views		Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure			Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

The 'With Present Management' policy (set by SMP1) for <u>MAI2 – West bank from Railway / A40 bridge to</u> west bank at Haw Bridge, including River Leadon – is:

SMP1 Management Unit	0-20	20-50	50 - 100
No Policy Set	No Policy Set	No Policy Set	No Policy Set

No policy was set in the first round of SMPs because the upstream reaches of the Severn were considered to be primarily fluvial rather than estuarine, and therefore the definition of Strategic Shoreline Management Option for this unit was deemed not required.

The impact on the agreed objectives of all management policy options can be considered through the following table:

	Policy L (MAI 2)	Init – Glou	icester to H	aw Brid	ge –Lowe	er Parting	to west	bank at F	law Bridg	e, includi	ng River L	eadon
	Advance	e the Line		Hold t	he Line		No Ac	tive Interv	vention	Manage	ed Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
National / Local Nature Conservation Sites – Ashleworth Ham SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites	consider unsuitab upper Es reduce in storage a moveme leading t could als	e the Line is ed to be an le policy fo stuary, as i n-channel f and water of, potentia o greater f so trigger e an reduce	-	- vorthham	55516	-	-	A from	Assumi	line is		
				Site we	ould be pr undation	otected	saline habitat	water coul s – hydrau ays unclea	ld affect ulic		ng defence eated to SS	
Critical Infrastructure: A414 / A40, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion,		-			-						
	rather than reduce it			Limited critical infrastructure present, some power lines; protected from flooding/erosion			Limited critical infrastructure present, some power lines; subject to increased inundation			Some local adverse affects within retreated area, other areas protected		
Residential: Maisemore, Ashleworth Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitab upper Es reduce in storage a moveme leading t could als	e the Line is ed to be a le policy fc stuary, as i n-channel f and water ant, potentia o greater f so trigger e an reduce	n or the t would ilood ally looding. It rosion,				-					
					isolated p sk area; w ted		Some at risk	isolated p	roperties	reduced	flood risk w I however s properties	some

Theme Area High Level Objectives								
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	•		•	-			
,		Pubic fo west bar			feature	footpath a s at risk of g/erosion		Riverside footpath may be adversely affected, other features protected
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	•		-			
tourism) (Population and Human Health)		Land us agricultu some ar from floo erosion	ire (grazi able). P	ng with rotected	Agricul to inune	tural land dation	subject	Some local adverse affects within retreated area, land behind protected
Scheduled Monuments, Highnam Court Listing Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	•	•	-			
environment sites and their setting. (Historic Environment)		Limited features present; Highnam court outside flood risk area			Limited features present; Highnam Court outside flood risk area			No major features likely to be affected by retreated defences; features further back protected in long term
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		Intertida coastal s		s lost to	retaine possibl	al habitats d /increas e loss of h existing d	ed; abitats	Intertidal habitats retained/increased ; possible loss of terrestrial habitat as defences set back
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion,				-			

	rather than reduce it							
			d at risk ation prote	cted		oopulation ed risk	at	Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	- No res	ources kn	- own to	- No res	- ources kn	- own to	- No resources known to be
	N1/A	be pre			be pres			present
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	- ources kn	-	- No roo	- ources kn	-	- No resources known to be
		be at r		own to	be at ri		own to	at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
		Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		Ever increasing height of defences will affect local landscape in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views		ect local ms of asing a visual	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure			Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

Flooding in the 50 - 100 year epoch would inundate the freshwater SSSI of Ashleworth Ham. Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

The 'With Present Management' policy (set by SMP1) for <u>MAI3 – East bank at Haw Bridge (B4213) to</u> <u>Upper Parting</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
No Policy Set	No Policy Set	No Policy Set	No Policy Set

No policy was set in the first round of SMPs because the upstream reaches of the Severn were considered to be primarily fluvial rather than estuarine, and therefore the definition of Strategic Shoreline Management Option for this unit was deemed not required.

The impact on the agreed objectives of all management policy options can be considered through the following table:

	Polic	y Unit –	Gloucester to	o Haw Brid	lge – East	bank at H	aw Bridg	e (B4213)	to Upper	Parting	(MAI 3)		
	Adva	ince the	Line	Hold the	Line		No Act	ive Interv	ention	Manag Realig	ged Inment		
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100	
Key Policy Drivers													
Critical Infrastructure: Electricity Network Reduce significance of impact associated with flooding and erosion to critical infrastructure	ity Networkconsidered to be ansignificance ofunsuitable policy for thessociated withupper Estuary, as it wouldand erosion toreduce in-channel flood					-							
					Limited critical infrastructure present, some power lines; protected from flooding/erosion			Limited critical infrastructure present, some power lines; subject to increased inundation			Some local adverse affects within retreated area, land behind protected		
Theme Area High Level Objectives													
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	unsuitable policy for the e of with reduce in-channel flood n to storage and water cial movement, potentially leading to greater ral), flooding. It could also					- A							
				agricultur some ara	Land use predominantly agriculture (grazing with some arable). Protected from flooding and erosion			Agricultural land subject to inundation			Some local adverse affects within retreated area, land behind protected		
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consi unsui uppe reduc stora move leadin flood	r Estuary ce in-char ge and w ement, po ng to grea ing. It co er erosion	be an cy for the , as it would anel flood ater tentially ater				-			-			
(Population and Human Health)					alley Way n assets pi			Valley Wassets likel			n Valley ly affect		

			adversely affects	other assets protected
Wainlode Cliff SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils -including Geomorphology and Contaminated Land)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Site maintained by fluvial erosion – if defences installed potential adverse effects to SSSI	No active intervention will ensure cliff face maintained	Impact likely to depend on alignment line
National / Local Nature Conservation Sites: Coombe Hill Canal Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Terrestrial environment behind defences protected form flooding; However, there is no predicted flood risk to Coombe Hill Canal SSSI	Freshwater environment would be negatively affected by NAI if saline flooding was extensive in this unit. However, there is no predicted flood risk to Coombe Hill Canal SSSI	Impact would depend on alignment line
Listed Buildings and sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Limited no of features in this reach	Limited no of features in this reach	Limited no of features in this reach
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Intertidal habitats lost to coastal squeeze	Intertidal habitats retained /increased; possible loss of habitats behind existing defences	Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would		-	

anxiety associated with flood and erosion risk) (Population and Human Health)	reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it						
		Limited at risk po protected	pulation	Small po increase	pulation a d risk	at	Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	-	-
		No resources kn	own to be		urces kno	wn to	No resources known
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	-	-
		No resources kn risk	own to be at	No resou be at rist	urces kno «	wn to	No resources known to be at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	
		Can not raise he defences indefin		will acco change;	evolution mmodate possible <u>e and pro</u>	climate impact	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-
		Ever increasing I defences will affe landscape in ter character (increa presence in the I also a visual imp	ect local ms of sing andscape);	flooding local lan positive depends	d frequer may alter dscape (v or negativ on perce a local ch	the whether /e eption)	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception)

defences	disrupting views landscape due to potential changes in vegetation condition and structure	May be a local change to landscape due to potential changes in vegetation condition and structure
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The 'With Present Management' policy (set by SMP1) for <u>MAI4 – Upper Parting to Lower Parting (left</u> <u>bank of parting)</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Llanthony Weir to Lower Parting	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Upper Parting to Lower Parting (left bank of parting)shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – C	Gloucest	er to Haw Br	idge – Uppe	er Parting to I	Lower Pa	rting (left l	bank of pa	rting) (M	AI 4)	
	Advan	ce the L	.ine	Hold the L	ine		No Act	tive Interve	ention	Manag Realig		
	0-20	20-	50 -	0-20	20-50	50 - 100	0-20	20-50	50 -	0-20	20-	50 -
Key Policy Drivers		50	100						100		50	100
Critical Infrastructure: A417, A40, Rail inks, several electricity substations., Reduce significance of impact associated with flooding and erosion to critical infrastructure	conside unsuita the upp it would channe and wa potenti greater could a erosior	Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it Critical infrastructure protected Critical infrastructure at risk										
				Critical infr	Critical infrastructure protected Critical infrastructure at ris from increased flooding					Impact will depend on alignment line; however very limited space in the reach, so likely to be adverse		
Residential: Gloucester City Centre and northern suburbs Reduce significance of impact associated with flooding and erosion to people and property	conside unsuita the upp it would channe and wa potenti greater could a	ce the Li ered to b able polic per Estua d reduce el flood s ater movi ally lead f flooding also trigg n, rather it	be an cy for ary, as in- torage ement, ing to g. It er				-					
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	conside unsuita the upp it would channe and wa potenti greater could a	ce the Li ered to b able polic per Estua d reduce el flood s ater move ally lead r flooding also trigg n, rather it	be an cy for ary, as in- torage ement, ing to g. It er	Economia							will dopp	nd op
					assets includ s within flood protected		time	sed flood ris	sk over	Impact will depend on alignment line; however very limited space in the reach, so		

								likely to be adverse
Heritage: Scheduled Monument and Listed building concentration at Gloucester Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
			es within flood	l risk area;	Feature	es at risk of	flooding	Retreat of defences likely to affect
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
		Limited resi	idential prope	rties at risk		residential es at risk		Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resource	es known to b	e present		urces knov	vn to be	No resources known to be present
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resource	es known to b	e at risk	No reso at risk	ources know	vn to be	No resources known to be at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to	-			-	-	-	

	greater flooding. It could also trigger erosion, rather than reduce it	Can not raise indefinitely	height of d	efences	will accord	evolution o ommodate ; possible ir and propert	climate mpact to	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		Increasing he affect local lan character (inc the landscape with defences	flooding landsca positive depend May be landsca change	ed frequence may alter pe (whethe or negative s on percep a local cha upe due to p s in vegetation and struct	the local er obtion) inge to potential tion	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception)		

The 'With Present Management' policy (set by SMP1) for MAI5 - Alney Island - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Lower Parting to Maisemore Weir (west channel)	Hold the Line	Hold the Line	Hold the Line
Llathony Weir to the Lower Parting (east channel)	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Alney Island shoreline can be compared with alternative management policies through the following table:

	Policy I	Unit – Glo	oucester	to Haw Br	ridge – Al	ney Island (MAI 5)						
	Advanc	e the Lin	е	Hold th	e Line		No Acti	ve Interve	ntion	Manage	ed Realig	nment	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Key Policy Drivers													
Critical Infrastructure: railway, A40 and A417 Reduce significance of impact associated with flooding and erosion to critical infrastructure	conside unsuitat upper E would re flood sto moveme leading flooding	e the Line red to be ble policy stuary, as educe in-c orage and ent, poten to greater to greater to could rosion, ra duce it	an for the it channel water tially also										
Theme Area High Level Objectives													
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	conside unsuitat upper E would re flood sto moveme leading flooding	e the Line red to be ble policy stuary, as educe in-c orage and ent, poten to greater to greater to could rosion, ra duce it	an for the it channel water tially also	•									
				Limited protecte		ent; assets		asset pres at increase		Potentially some local adverse effects within retreated area, assets behind protected			
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	conside unsuitat upper E would re flood sto moveme leading flooding	e the Line red to be ole policy stuary, as educe in-c orage and ent, poten to greater to greater I. It could erosion, ra duce it	an for the it channel water tially also		•								
			Limited at risk	Limited residential properties at risk			Limited residential properties at risk			Some local adverse affects within retreated area, properties behind protected			
Recreational sites: Local facilities, open space and footpath		e the Line red to be					-						

network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Severn Valley Way and other	Severn Valley Way and	Severn Valley Way
		recreation assets protected	other assets likely to be adversely affects	possibly affected, other assets protected
Nature Conservation: Alney Island LNR (Mainly neutral wet grassland and flood meadows with associated broadleaf trees) Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		No impact if current hydrological regime maintained	Increased saline intrusion could affect habitat composition of site	Retreat the line would result in loss of habitat
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No impact on freshwater habitats if current hydrological regime maintained. Loss of intertidal habitats to coastal squeeze	Loss of freshwater/terrestrial habitats; intertidal habitats maintained	Loss of freshwater/terrestrial habitats; intertidal habitats maintained
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Limited residential properties at risk/protected	Limited residential properties at risk/protected	
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No known assets at risk	No known assets at risk	No known assets at risk

No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	-
		No known	features	at risk	No know	n features	at risk	No known features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	
		Can not rai defences ir			will acco change;	evolution o mmodate possible ir nd propert	climate npact to	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		Ever increasing height of defences will affect local landscape in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views			flooding landscap positive of depends May be a landscap changes	d frequence may alter to be (whethe or negative on percepta local cha be due to in vegetato and structo	the local er otion) nge to potential ion	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

The 'With Present Management' policy (set by SMP1) for MAI6 – Lower Parting to Severn Farm – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Lower parting to Rea	Hold the Line	Hold the Line	Hold the Line
Rea to Windmill Hill	Hold the Line, locally Do Nothing	Hold the Line, locally Do Nothing	Hold the Line, locally Do Nothing
Windmill Hill to east end of Elmore	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Lower Parting to Severn Farm shoreline can be compared with alternative management policies through the following table:

	Polic	y Unit –	Gloucest	er to Haw B	sridge – Low	ver Parting to	Severn Far	'm (MAI 6)				
	Adva	nce the	Line	Hold the L	.ine		No Activo	e Interventio	n	Manage	ed Realig	nment
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Residential: South Gloucester suburbs and Quedgeley Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	-	-	-	-			
Critical Infrastructure: transport network, Netheridge STW, A38 etc Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it						-					
				Significant infrastructure protected			Significant infrastructure at increased risk			Depends on alignment line – much of at risk infrastructure adjacent to river		
Theme Area High Level Objectives												
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health) Severn Valley Way, Gloucester & Sharpness Canal	consid unsuit the up it wou chanr and w poten greate could	Id reduction all flood rater mo tially lea er floodin also trig on, rathe	be an licy for uary, as e in- storage vement, ding to ng. It ger		standard of p			will increase			ment will	offort

		impact as a	or increased assets inc. Se &S canal will	evern Valley				riverside recreation
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), activities and tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
			redominantly from flooding			predominantl I; flood risk w		Potentially some local adverse effects within retreated area, assets behind protected
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		Limited fea	tures of inter	est	Limited fea	atures of inter	rest	Limited features of interest
Maintain and enhance Biodiversity	N/A Advance the Line is	-			-	-	-	-
Action Plan habitats and species in line with existing targets/plans	considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
and species in line with existing targets/plans	unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	current hyd maintained	on freshwate rological reg . Loss of inte coastal sque	ime ertidal		eshwater/terre		Loss of freshwater/terrestrial habitats; intertidal habitats maintained
and species in line with existing	unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than	current hyd maintained habitats to	rological reg Loss of inte coastal sque	ime ertidal eze -	habitats; ir maintained	-	ats -	freshwater/terrestrial habitats; intertidal habitats maintained
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and	unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than	current hyd maintained habitats to	rological regi Loss of inte coastal sque	ime ertidal eze -	habitats; ir maintained	ntertidal habit	ats -	freshwater/terrestrial habitats; intertidal

Water resources are protected (Water)	Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected	Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased floading (creation	Depends on alignment line ; impacts considered unlikely
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		flooding/erosion	
		Active landfill site protected from flooding	Active landfill site at risk from flooding	Realignment in this reach could affect landfill
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	- A		•
		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change;	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		· · · ·	-
		Ever increasing height of defences will affect local landscape in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

4.11 Gloucester to Sharpness Theme Area (SHAR)

The 'With Present Management' policy (set by SMP1) for SHAR1 – Severn Farm to Wicks Green – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Elmore	Hold the Line	Hold the Line	Hold the Line or Retreat the Line
West end of Elmore to Wicksgreen	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Severn Farm to Wicks Green shoreline can be compared with alternative management policies through the following table:

	Policy Uni	t – Glouc	ester to S	harpness	s –Severn	Farm to	Wicks Gr	een (SHAF	R 1)			
	Advance t	he Line		Hold th	e Line		No Act	ive Interve	ention	Manag	ed Realigi	nment
	0 - 20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture / Countryside Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	omic assets:Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion,		vould ood y oding. It	-	•		-					
			Land use predominantly agriculture; continued protection from flooding,		0	Agricultural land subject to inundation			Some local adverse affects within retreated area, land behind protected			
Residential: Elmore, Elmore Back, Farley's End and isolated properties Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance th considered unsuitable upper Estu reduce in-c storage and movement, leading to g could also rather than	to be an policy for ary, as it w hannel flo d water potentiall greater flo trigger ero	vould ood y oding. It	•			-					
				Isolated protecte	propertie d	s	Isolated	properties	s at risk	reduced	flood risk d however l properties d	some
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance th considered unsuitable upper Estu reduce in-co storage and movement, leading to g could also rather than	to be an policy for ary, as it w hannel flo d water potentiall greater flo trigger ero	vould ood y oding. It	-			-					
					Valley Wa creation a d		other as	Valley Wa ssets likely ely affects		possibl	Valley Wa y affected, protected	
Critical Infrastructure: Reduce significance of impact associated with	N/A Advance th considered											

flooding and erosion to critical infrastructure (Population and Human Health)	unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Limited infrastructure at risk/protected – power lines only	Limited infrastructure at risk – power lines only	Some local adverse affects within retreated area, land behind protected
Sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-		-
		Limited features within flood risk area some listed structures would be protected	Limited features within flood risk area some listed structures would be affected	Some local adverse affects within retreated area, features behind protected
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Isolated properties protected	Isolated properties at risk	Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected	Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased	Depends on alignment line ; impacts considered unlikely

					flooding/	erosion		
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No knov	wn feature	s at risk	No knov	vn feature	s at risk	No known features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	
			raise heig s indefinite		Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		Ever increasing height of defences will affect local landscapes in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views		Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure			Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure	

The 'With Present Management' policy (set by SMP1) for **SHAR2 – Wicks Green to Longley Green** – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Wicksgreen to Longley Crib	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Wicks Green to Longley Green shoreline can be compared with alternative management policies through the following table:

	Policy	Policy Unit – Gloucester to Sharpness – Wicks Green to Longley Green (SHA 2)											
	Advan	ce the L	ine	Hold the I	_ine			No A	Active Inter	vention	Manag	jed nment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20		20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers		00	100										100
Theme Area High Level Objectives													
Industrial, commercial and economic assets: Agricultural / Countryside Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including	consid unsuita the upp it would channe and wa potenti greate could a	ce the Lii ered to b able polic oer Estua d reduce el flood s ater movy ally lead r flooding also trigg h, rather it	e an cy for ary, as in- torage ement, ing to g. It er	-			-						
tourism)				Primary land use is agriculture; land protected from flooding from increased flooding				Some local adverse affects within retreated area, land behind protected					
Residential: Waterend and Longney Reduce significance of impact associated with flooding and erosion to people and property	consid unsuita the upp it would channe and wa potenti greate could a	ce the Li ered to b able polic per Estua d reduce el flood s ater move ally lead r flooding also trigg also trigg n, rather it	e an cy for ary, as in- torage ement, ing to g. It er				-						
				isolated pr	in these ar operties. F d or reduced		SO	risk;	also isolate erties. Floo		alignm advers realign	s will dep ent. Sor e impact ment are tion prote	ne s in a; wider
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. Severn Valley Way & G&S Canal (Population and Human Health)	consid unsuita the upp it would channe and wa potenti greated could a	ce the Li ered to b able polici per Estua d reduce el flood s ater move ally lead r flooding also trigg n, rather it	e an sy for ary, as in- torage ement, ing to g. It er				-						

		Severn Valley Way and other recreation assets protected	Severn Valley Way and other assets likely to be adversely affects	Severn Valley Way possibly affected, other assets protected
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Limited critical infrastructure; some pylon lines; protected	Limited critical infrastructure; some pylon lines at risk	Impact depends on retreat line. Some local adverse affects within retreated area, land behind protected
Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No designated sites in this reach	No designated sites in this reach	No designated sites in this reach
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest at Waterend and Longney Reduce significance of impact to Scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Eastures protocold from increased	Features at increased risk	
		Features protected from increased flooding	from flooding	Some features within retreated area affected; those behind will have increased level of protection
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans Habitat Creation Opportunity in this reach	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Intertidal habitats lost to coastal squeeze	Opportunity for creation of intertidal habitats; possible loss of terrestrial habitats behind existing defences	Opportunity for creation of Intertidal habitats retained/increased ; possible loss of

						habitats behind existing
	N1/A				•	defences
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-			
		Limited at risk population	n protected	Small population increased risk	at	Overall flood risk will be reduced however some isolated properties may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		•			-
		Gloucester Canal SW at Purton (Bristol Water).		Gloucester Cana abstraction for P (Bristol Water). (affected by incre- flooding/erosion	urton Could be	Depends on alignment line ; impacts considered unlikely
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	· ·		-		-
		No known features at ris	k	No known featur	es at risk	No known features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		-	-	-	
		Can not raise height of c indefinitely	lefences	Natural evolution will accommodat change; possible people and prop	e climate impact to	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as		▲ ⁻	-	-	-

it would reduce in- channel flood stor and water movem potentially leading greater flooding. I could also trigger erosion, rather tha reduce it	age ent, to t						
	affect loca character landscape	asing height I landscape (increasing p); also a visu disrupting vie	in terms of presence in t al impact wi	he th	Increased freque flooding may alte landscape (whet positive or negat depends on perc May be a local c landscape due to changes in vege condition and str	er the local her vive ception) hange to potential tation	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

Advance the line has not been assessed due to the adverse impact on fluvial flood risk from restricting channel flow capacity.

Habitat creation opportunities are hampered only by holding the present shoreline. Whilst defences remain in place there is no impact on the habitat creation opportunity, where defences fail reinstallation or further maintenance of the defence becomes a hindrance to habitat creation. Policies No Active Intervention and Managed Realignment allow and create more potential over time for habitat creation.

The 'With Present Management' policy (set by SMP1) for SHAR3 -Longley Green to Overton Lane - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Longney Crib to Priding Wick Court (left bank).	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Longley Green to Overton Lane shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – G	louceste	r to Sharpr	iess – Long	gley Green	to Overto	n Lane (SH	A 3)			
		ce the Li		Hold the			-	Interventio		_	ed Realig	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
Critical Infrastructure: Access Road to Overton Reduce significance of impact associated with flooding and erosion to critical infrastructure	conside unsuita upper l would i channe and wa potenti greater could a	ce the Lin ered to be able policy Estuary, a reduce in el flood st atter move ally leadin r flooding also trigge h, rather t	e an / for the as it - orage ment, ng to . It er				-					
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agricultural / Countryside Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	conside unsuita upper l would i channe and wa potenti greater could a	ce the Lin ered to be able policy Estuary, a reduce in el flood st ally leadin ally leadin ally leadin allso trigge h, rather t	e an / for the as it - orage ment, ng to . It er				-					<u>.</u>
				agricultur	predomina e. Protecte and erosion	ed from	Agricultu inundatio	ral land sub on	ject to	affects	ocal adve within reti and behind ed	reated
Residential: Framilode, Priding, plus isolated properties Reduce significance of impact associated with flooding and erosion to people and property	conside unsuita upper l would i channe and wa potenti greater could a	ce the Lin ered to be able policy Estuary, a reduce in el flood st atter move ally leadin r flooding also trigge n, rather t	e an / for the as it - orage ment, ng to . It er				-					
				Assuming or increas	soP is ma ed	intained	Flood ris	k increases		reduce	flood risk d howeve d propertie cted	r some
Recreational sites: Local facilities, open space and footpath network	consid	ce the Lin ered to be able policy	e an		•		-					

Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	Severn Valley Way Gloucester and Sharpness canal and	Severn Valley Way Gloucester and Sharpness canal and	Severn Valley Way Gloucester and
		other recreation assets protected	other assets likely to be adversely affects	Sharpness canal possibly affected, other assets protected
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
	Limited no of features in this reach	Limited no. of features in this reach. Listed structures in Saul	Limited no of features in this reach	Limited no of features in this reach
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		Loss of intertidal habitat	Intertidal habitat maintained/increased; loss of terrestrial habitats	Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Assuming SoP is maintained or increased	Flood risk increases	Overall flood risk will be reduced however some isolated populations may be affected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger			-

	erosion, rather than reduce it-							
		No knowr	n features a	at risk	No knowr	features a	t risk	No known features at risk
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No knowr	n features a	at risk	No knowr	n features a	t risk	No known features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
			aise height indefinitely		accommo	volution of c date climat mpact to p	e change;	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		defences landscape character in the land	easing heig will affect I e in terms (increasing dscape); al th defences g views	ocal of g presence so a visual	flooding r landscape negative perceptio May be a landscape changes condition due to po	I frequency nay alter the e (whether p depends on n) local chang e due to pc in vegetatio and structu stential chan n condition	e local positive or ge to tential n re nges in	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

The 'With Present Management' policy (set by SMP1) <u>for SHAR4 – Overton Lane to upstream of Hock</u> <u>Cliff</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Priding Wick court to Longmarsh Pill	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Overton Lane to upstream of Hock Cliff shoreline can be compared with alternative management policies through the following table:

	Policy	VUnit –	Glouces	ster to Sharp	oness – Ove	rton Lane to	upstream o	of Hock Cliff	(SHA 4)			
	Advar	nce the l	Line	Hold the L	ine		No Ac	tive Interver	ntion	Manag	ged Inment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
Critical Infrastructure: Electricity Transmission Network Reduce significance of impact associated with flooding and erosion to critical infrastructure	consid unsuita the up as it w channe storag moven potent greate could a	ially lead r floodin also trigg n, rather	be an cy for lary, uce in- ater ding to g. It ger	-		•	-			-		
				present; so	ical infrastrue ome pylons a rom flooding			itical infrastru ome pylons a		Depends on alignment position		ignment
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agricultural / Countryside Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	consid unsuita the up as it w channe storag moven potent greate could a	ially lead r floodin also trigg n, rather	be an cy for lary, uce in- ater ding to g. It ger	-	•		-					
Residential: Arlingham and isolated properties Reduce significance of impact associated with flooding and erosion to people and property	consid unsuita the up as it w channe storag moven potent greate could a	ially lead r floodin also trigg n, rather	be an cy for lary, uce in- ater ding to g. It ger	-		•	-					
				Assuming increase	SoP is maint	ained or	Flood risk	increases		be red	Il flood ris uced hov isolated	

				properties may be
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	- •		affected
	Severn Way and other recreational assets protected	Severn Way and other recreational assets protected	Severn Way and other features subject to increased flooding	Severn Valley Way possibly affected, other assets protected
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Land use predominantly agriculture. Protected from flooding and erosion	Agricultural land subject to inundation	Some local adverse affects within retreated area, land behind protected
Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	- A	
·		Listed structures in Alringham protected	Listed structures in Alringham at risk	Depends on alignment; few features within immediate river corridor
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	Loss of freshwater/terrestrial	- Loss of
				2000 0.

		maintained.	rological reg Loss of inte	ertidal	habitats; in maintainec	tertidal habi I	tats	freshwater/terrestrial habitats; intertidal habitats maintained
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) Parts of Arlingham and individual properties at risk (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-			
		At risk popu protected	ulation remai	ns	Increased	flood risk		Limited number of properties affected by realignment; wider FRM benefits
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	•	-	-	-
		No known f	eatures		No known	features		No known features
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	- No known f	-		-	-	-	- No known features
Doliov in donignod to	NI/A				_			
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
		Can not rais indefinitely	se height of o	defences		olution of co late climate		Managed retreat will accommodate climate change
Avoid detrimental	N/A		A		-			

(Landscape)	unsuitable policy for the upper Estuary, as it would reduce in- channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Ever increasi will affect loca of character (in the landsca impact with d views	al landscap increasing ape); also a	e in terms presence visual	may alter th (whether po depends or May be a lo landscape	requency of the local lands ositive or neg n perception) ocal change t due to poter vegetation c re	scape jative o itial	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

The 'With Present Management' policy (set by SMP1) for SHAR5 - Hock Cliff - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Longmarsh Pill to Hock Ditch (left bank).	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the Hock Cliff shoreline can be compared with alternative management policies through the following table:

	Policy U	Init – Glou	ucester to	o Sharpne	ss – Hock	Cliff (SH	A 5)					
	Advance	e the Line		Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Theme Area High Level Objectives												
National Geological Nature Conservation Hock Cliff To allow natural processes and to maintain the visibility of geological exposure throughout the SSSI	geology technica	igh ground ATL is not Ily appropr ot consider	riate,				•	•	•	preclude	ound / hard es physical ie, option r ed	retreat
Residential: Fretherne Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	geology technica	igh grounc ATL is not Ily appropr ot consider	riate,	-	-	-	-	-	-	preclude	ound / hard es physical ie, option r red	retreat
				No at ris	k populati	on	No at risk population					
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	geology technica	igh ground ATL is not lly appropr ot consider	riate,	-	-	-	-	-	-	preclude	ound / hard es physical ie, option r red	retreat
,				None pr	esent		None pr	esent				
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	geology technical	igh ground ATL is not Ily appropr ot consider	riate,		-	-	-	-	-	preclude	ound / hard es physical le, option r ed	retreat
				None pr	esent		None pr	esent				
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human	geology technical	igh grounc ATL is not Ily appropr ot consider	riate,	-	-	-	-	-	-	preclude	ound / hard es physical ie, option r red	retreat

Health)								
		None pre	esent		None pr	esent		
Listed Buildings and non-designated sites of historic interest at Fretherne Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		None pre	esent		None pr	esent		
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-						N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Intertidal coastal	habitat lo squeeze	st to	roll back	und will pr of habitat habitat lo queeze	s –	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		No at ris	k populati	on	No at ris	k populati	on	
Water resources are protected (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		No featu	res at risk		No featu	res at risk		
No detriment to water quality (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		No featu	res at risk		No featu	res at risk		
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered				-	-	_	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		defences indefinitely			will acco change;	evolution o mmodate possible in nd proper	climate mpact to	
Avoid detrimental effects to landscape character (Landscape)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		landscap	istant feat be unlikely significant	to	landscap	istant feat be unlikely significantl	to	

Hock Cliff is the primary feature of this Policy Unit, dominating future landscape character. The shoreline is currently not defended and is stable. Additional features of the Policy Unit - residential developments, commercial property or historic sites - are not affected by the management of the shoreline.

The 'With Present Management' policy (set by SMP1) for <u>SHAR6 – downstream of Hock Cliff to Frampton</u> <u>Pill</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Hock Cliff to Frampton Breakwater	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the downstream of Hock Cliff to Frampton Pill shoreline can be compared with alternative management policies through the following table:

	Policy Unit – Gloucester to Sharpness – downstream of Hock Cliff to Frampton Pill (S								on Pill (Sl	HA6)		
	Advanc	e the Lin	е	Hold the	Line		No Activ	e Interven	tion	Manage	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Designations: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact on internationally designated sites and the favourable condition of their features				-			-					
	Loss of	intertidal I	nabitat	Coastal habitat lo	squeeze; ir ss	ntertidal		oll back; int etained; te ss		Habitat roll back; intertidal habitats retained; terrestrial habitat loss		
Theme Area High Level Objectives												
Residential: Frampton on Severn Reduce significance of impact associated with flooding and erosion to people and property	•			-	-	•	-	-		-		
Recreational sites: Open space and footpath network including the Severn Way and G&S canal. Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)							-					
	Feature: flooding	s protecte	ed from	Features flooding	protected	rom	Features	at risk			ls on align ures likely I	
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including							-					

tourism) (Population and Human Health)				
	Primary land use is agriculture. Assets protected	Assets protected	Assets at risk	Some local adverse affects within retreated area, land behind protected
Local Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure Frampton STW and power lines, Gloucester to Sharpness Canal (Population and Human Health)				
	Infrastructure protected	Infrastructure protected	Infrastructure at risk	Depends on alignment. Some local adverse effects within retreated area, features behind protected
National nature conservation: Severn Estuary SSSI. Frampton Pools unaffected Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		- (
	Intertidal habitat loss	Intertidal habitat loss to coastal squeeze	Roll back of habitats permitted so status quo maintained	Depends on alignment; likely to be neutral or positive
Historic Park and Garden: Frampton Court Listed Buildings and sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)				-
	Density of listed buildings around Frampton; protected form flooding	Density of listed buildings around Frampton; protected form flooding	Density of listed buildings around Frampton; at risk from flooding Frampton Court not in flood risk area	Depends on alignment
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	-			-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk). Frampton and Saul at risk (Population and Human Health)				

	Flood risk maintained or reduced	Flood risk reduced	(maintaine	ed or	Flood risł time	k will increa	ase over	Depends on alignment, but limited space so likely to be negative
Water resources are protected (Water)	•				-			
	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Water ab	er Canal So straction fo /ater). Not	or Purton	Water ab (Bristol W	er Canal S straction fo /ater). Cou oy increase erosion	or Purton uld be	Depends on alignment line ; but limited space so likely to be negative
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No known features at risk	No knowr	n features a	at risk	No know	n features a	at risk	No known features at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Can not raise height of defences indefinitely	Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
		Ever increasing height of defences will affect local landscape in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views			flooding r landscap or negativ perceptio May be a landscap changes	d frequency may alter the (whether ve depends n) I local chan e due to p in vegetation and struct	ne local positive s on ge to otential	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception) May be a local change to landscape due to potential changes in vegetation condition and structure

The shoreline defence fails in the 20 to 50 year epoch, although residential properties become at risk from flooding between 50 and 100 years.

The intertidal zone downstream from Hock Cliff, to Frampton Pill, is currently in an unfavourable condition according to it's inclusion in international and national conservation designations as a result of coastal squeeze. Holding the Line as a policy for this unit has been considered to have a negative impact on meeting the objective to "Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features" as sea level rise will exacerbate the situation over time.

The 'With Present Management' policy (set by SMP1) for <u>SHAR7 – Frampton Pill to Royal Drift Outfall</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Frampton Breakwater to The Dumbles	Hold the Line	Hold the Line or Retreat the Line	Hold the Line or Retreat the Line
The Royal Drift	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Frampton Pill to Tites Point shoreline can be compared with alternative management policies through the following table:

	Policy Unit – Gloucester to Sharpness – Frampton Pill to						Tites Point (SHA 7)					
	Advance the Line		Hold the L	.ine		No Active	Interventior	ו	Manag	ged Inment		
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation Designations: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of intertidal habitat			Coastal squeeze; intertidal habitat loss			Habitat roll back; intertidal habitats retained; terrestrial habitat loss			Habitat roll back; intertidal habitats retained; terrestrial habitat loss		
Critical Infrastructure: Electricity Network, Sewerage Treatment Works Reduce significance of impact associated with flooding and erosion to critical infrastructure										-		
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)							-					
	land us protect	lture is m se; land ed from g and er			is main land rom flooding			e is main land will increase	d use;	affects	local adv within re and elsev ted	etreated

Recreation: inc. Sharpness to Gloucester Canal and Severn Valley Way, Slimbridge wetland centre. Reduce significance of impact associated with flooding and erosion to critical infrastructure					-			- Depends on
	Features protected from flooding	Features p	rotected fror	n flooding	Features a	t risk		alignment, but features likely to be affected
Residential: Slimbridge and Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property Small communities and isolated properties					-			-
	Property protected from flooding	Property p	rotected fron	n flooding	Flood risk	will increase		Some local adverse affects within retreated area, property elsewhere protected
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)					-			
Infrastructure: Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)					-			-
Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. Severn SSSI (Biodiversity, Flora and Fauna)		-			-	-	-	-
	Intertidal habitat loss	Intertidal h squeeze	abitat loss to	coastal		of habitats pe juo maintaine		Depends on alignment; likely to be neutral or positive
Scheduled Monuments, Listed	-	\bigcirc	\bigcirc	\bigcirc	-			-

		I		
Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	No features of major	No features of major significar	nce; No features of major significance;	No features of major
	significance; onshore features protected	features protected	feature sat risk or increased flooding	significance
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-	- A		-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coasta squeeze	I Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-			-
Water resources are protected (Water)	•		-	
	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Gloucester Canal Severn Wat abstraction for Purton (Bristol Water). Not affected	er Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion	Depends on alignment line ; but limited space so likely to be negative
No detriment to water quality (Water)	-		-	-
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)				
	Can not raise height of defences indefinitely	Can not raise height of defend indefinitely	 Natural evolution of coast will accommodate climate change; possible impact to people and property 	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)				-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the	Ever increasing the height of t defence will affect local landscape in terms of charact (increasing presence in the landscape): also a visual impa with defences disrupting views	flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on

landscape): also a visual impact with defences disrupting views.	changes in vegetation structure.	perception). May be a local change to landscape due to potential changes in vegetation structure.
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As low lying areas with residential, commercial/industrial and key community facilities are at flood risk, to hold the line or advance the line would be beneficial for the assets and meet the set objectives.

The 'With Present Management' policy (set by SMP1) for <u>SHAR8 – Royal Drift Outfall to Sharpness</u> <u>Docks</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Tites Point to South Ridge Sand	Hold the Line	Hold the Line	Hold the Line
Sharpness (north)	Hold the Line	Hold the Line	Hold the Line
Sharpness (west)	Hold (locally) / Do nothing (locally)	Hold the Line (locally), Do Nothing (locally)	Hold the Line (locally), Do Nothing (locally)

The impact on the agreed objectives of continuing with present management policy at the Royal Drift Outfall to Sharpness Docks shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Glo	oucester	to Sharpn	ess – Roy	val Drift ou	tfall to Sha	rpness D	ocks (SH	A 8)		
	Advanc	e the Lin	е	Hold th	e Line		No Activ	e Interver	ntion	Manage	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Designations: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of	intertidal	habitat	Coastal habitat I	squeeze; oss	; intertidal		oll back; in etained; te ss		habitats	roll back; retained; al habitat	
Critical infrastructure: Docks, Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-			-	-	-	-	-	-			
		nfrastruct om floodi			nfrastructi n flooding.		Critical in risk from	frastructur flooding.	e not at	Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture, Docks and related Industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	-			-	-	-	-	-	-			
	Assets r flooding	not at risk	from		Assets not at risk from flooding.			Assets not at risk from flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.	

Description 1 1								
Recreational sites: Local facilities, open space and footpath network including the Severn Way and Gloucester to Sharpness canal Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)							-	
	Assets not at risk from flooding.	Assets r flooding	not at risk f	rom	Assets no flooding.	t at risk fro	m	Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	
	Residential properties not at risk of flooding.		itial proper f flooding.	ties not	Residentia risk of floo		es not at	Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.
Local infrastructure: Gloucester and Sharpness Canal Local road and path network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-	-	-	-	-	-	-	
	Infrastructure not at risk from flooding.	Infrastru from floo	icture not a oding.	at risk	Infrastruct from flood		risk	Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.
Purton Passage SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)								-
	Cliff face will no longer be exposed to natural processes				Cliff face erode	will continu	ie to	Impact will depend on alignment line. Cliff face is unlikely to be excavated and the coastline moved backwards.
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-			-			

	Loss of intertidal habitat	Coastal squeeze; intertidal habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-			
	Historical assets not at risk of flooding.	Historical assets not at risk of flooding.	Historical assets not at risk of flooding.	Impact will depend on alignment line. However there is limited space so could be adverse impacts to listed buildings at Sharpness or the milepost between Sharpness and Purton.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-			-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-			
	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.
Water resources are protected (Water)	-			-
	No sources at risk of flooding.	No sources at risk of flooding.	No sources at risk of flooding.	No sources at risk.
No detriment to water quality (Water)	-			-
	Water quality not at risk.	Water quality not at risk.	Water quality not at risk.	Water quality not at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)			· · ·	•
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)				-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to

impact with defences disrupting views.	defences disrupting views.	potential changes in vegetation structure.	landscape due to potential changes in vegetation structure.
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4.12 Sharpness to Severn Crossings Theme Area (SEV)

The 'With Present Management' policy (set by SMP1) for <u>SEV1 – South of Sharpness Docks to Bull Rock</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Sharpness (west)	Hold (locally) / Do nothing (locally)	Hold the Line (locally), Do Nothing (locally)	Hold the Line (locally), Do Nothing (locally)
South of Sharpness Docks to Berkley Pill	Hold the Line	Hold the Line	Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the South of Sharpness Docks to Bull Rock shoreline can be compared with alternative management policies through the following table:

	Policy U	Unit – Sha	arpness t	o Severn (Crossing	s – South	of Sharpn	ess docks	to Bull Ro	ock (SEV	1)	
	Advanc	e the Lin	е	Hold the	e Line		No Act	ive Interve	ntion	Manage	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of	intertidal h	nabitat	Coastal habitat I		; intertidal		roll back; i retained; i loss		habitats	roll back; retained; al habitat	
Critical Infrastructure: Sharpness Sewerage Treatment Works Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-	•		-			-		
	Asset protected.			Asset protected.			Asset at an increased risk of flooding.			alignme adequa alignme	will depen ent line. H te space t ent so impa not likely.	owever o select
Theme Area High Level Objectives												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	•			-	•							
	Residen protecte	ntial prope ed.	rties	Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely to isolated properties.		
Recreational sites:	\bigcirc			-								

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		[
Local facilities, open space and footpath network including the				
Severn Way Reduce significance of				
impact associated with				
flooding and erosion to key community,				
recreational and amenity				
facilities. (Population and Human Health)				
	Assets protected.	Assets protected.	Assets at an increased risk of flooding.	Impact will depend on alignment line. Adverse impacts likely because Severn Way runs along coast.
Industrial, commercial and economic assets:	\bigcirc	- • •	- 	
Local commercial				
assets Reduce significance of				
impact associated with flooding and erosion to				
industrial, commercial				
and economic assets (including agricultural),				
and activities (including				
tourism) (Population and Human Health)				
	Assets protected.	Assets protected.	Assets at an increased risk of flooding.	Impact will depend on alignment line. Adverse
			of hooding.	impacts likely because
				Severn Way runs along coast.
National nature conservation sites:		-	- 🔺 🔺	
Severn Estuary SSSI				
Reduce significance of impact associated with				
managing adverse				
impacts on nationally or locally designated				
conservation sites. (Biodiversity, Flora and				
Fauna)				
	Loss of intertidal habitat	Coastal squeeze; intertidal habitat loss	Habitat roll back; intertidal habitats retained; terrestrial	Habitat roll back; intertidal habitats retained;
Listed Buildings and	\bigcirc		- A	terrestrial habitat loss
non-designated sites of historic interest.				
Listed buildings				
Reduce significance of impact to scheduled and				
locally, regionally and				
nationally important cultural historic				
environment sites and				
their setting. (Historic Environment)				
	Limited historic assets – assets protected.	Limited historic assets – assets protected.	Limited historic assets – assets at an increased risk	Limited historical assets. Impact will depend on
			of flooding.	realignment but there is
				unlikely to be an adverse impact.
Maintain and enhance Biodiversity Action Plan	-	-		-
habitats and species in				
line with existing targets/plans. Potential				
habitat creation site			Intentiale Inc. 2000	Interfided by block
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some	Intertidal habitat maintained; possibly some
	-		loss of terrestrial habitats	loss of terrestrial habitats
	terrestrial habitat gained	coastal squeeze		

Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-	•					
	Residential properties protected.	Resider protecte	ntial proper ed.	ties		tial proper d risk of fl		Impact will depend on alignment line. Adverse impacts likely to isolated properties.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces kno	wn to be	No reso at risk.	urces knov	wn to be	No resources known to be at risk.
No detriment to water quality (Water) Sharpness STW		-						•
	Asset protected so no risk to water quality.	Asset protected so no risk to water quality.			flooding water qu	increased so there d ality issue ed with the FW.	ould be	Impact will depend on alignment line. However adequate space to select alignment so impact on STW is not likely.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.		coast wi climate d	evolution of accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			flooding landscap or negat perception change to potential	ng the frec may alter be (whethe ive depen- on). May to landsca changes on structur	the local er positive ds on be a local pe due to in	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

As low lying areas with residential, commercial/industrial and key community facilities are at flood risk, to hold the line or advance the line would be beneficial for the assets and meet the set objectives.

The 'With Present Management' policy (set by SMP1) for <u>SEV2 – Bull Rock to southern boundary of</u> <u>Berkeley Power Station</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Berkley Power Station	Hold the Line	Hold the Line	Hold the Line / Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Bull Rock to southern boundary of Berkeley Power Station shoreline can be compared with alternative management policies through the following table:

	Policy 2)	Unit – Sh	arpness t	o Severn	Crossing	gs –Bull Ro	ck to sout	hern boun	dary of Be	rkley pov	ver statio	າ (SEV
		ce the Lir	ne	Hold th	ne Line		No Acti	ve Interver	ntion	Manag	ed Realig	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers	-											
Industrial, commercial and economic assets: Berkeley Power Station and Associated Infrastructure Reduce significance of impact associated with flooding and erosion to critical infrastructure							-					
	Assets	protected		Assets	protected		Assets at risk of some (limited) flooding.			Impact will depend on alignment line. However there is very limited space in this reach so adverse impacts are likely.		
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of	intertidal	habitat	Coasta habitat		; intertidal		roll back; in retained; te oss		intertida	roll back; al habitats d; terrestri loss	al
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	•						-			-		
,	Assets	protected		Assets	protected		Assets at risk of some (limited) flooding.			alignme there is space i	will depen ent line. Ho very limite n this reac e impacts a	owever ed h so

conservation: Severe fistury SSI Reduce significance of import issociated with import issoc		•						
(Biodiversity, Flora and Fauna) Loss of intertidal habitat Coastal squeeze; intertidal habitat relations: Intertidal habitats relations: Intertidal habitat relation: Intertidal habitat relation	Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated		-		-			
Faune) Loss of intertidal habitat Coastal squeeze; intertidal habitat rol back interidal habitat rol back intertidal habitat rol back int								
Scheduled Monuments, Listed Buildings and habital loss habital loss habital loss interdial habital habital loss Scheduled Monuments, Listed Buildings and habitar loss Image: Scheduled Monuments, Listed Buildings and habitar loss Image: Scheduled Monuments, habitar loss Image: Scheduled Monuments, habitar loss Image: Scheduled Monuments, habitar loss Image: Scheduled Monuments, listed Buildings and habitar loss Image: Scheduled Monuments, habitar loss Image: Scheduled Monuments, listed Buildings and habitar loss Image: Scheduled Monuments, listed Buildings Impacts Wild Bopend on malagement build Building Impacts Monuments, listed Buildings Impacts Wild Bopend on malagement buildings Impacts Wild Bopend on malagement buildings Impacts Wild Bopend on malagement buildings Impacts Wild Bopend on malagement building Impacts Wild Bopend on malagement buildings Impacts Wild Bopend on malagement building Impacts Wild Bopend on malagement building Impacts Wild Bopend Impacts Impacts Wild Bopend Impacts Imp	Fauna)	Loop of intertidal habitat	Capatal				tortidal	
Lieted Buildings and non-designated siles of historic interest. Lieted buildings south of Berdigy Reduce significance of impact to scheduled and impact historic assets – assets protected. Brediden significance of impact to scheduled and their setting. (Historic assets – assets protected. Brediden significance of interview and their setting. (Historic assets – assets protected. Bredidential: properties Reduce significance of interview and their setting. (Historic assets – assets protected. Bredidential: properties Reduce significance of interview and their setting. (Historic assets – assets protected. Bredidential: properties Reduce significance of interview and their setting and enclose of the setting of the se		Loss of intertidal habitat			habitats	retained; te		intertidal habitats retained; terrestrial
assets protected. assets protected. assets at an increased risk of incoreased risk of increased risk of increased	Listed Buildings and non-designated sites of historic interest. Listed buildings south of Berkley Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic	•		•••	-			-
residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health) Residential properties protected. Residential properties protected. Residential properties protected. Impact will depend on alignment line. Adverse impact sitely to isolated properties. Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat reaction site -					assets a	at an increas		Impact will depend on realignment but there is unlikely to be an adverse
protected. protected. protected. increased risk of flooding. alignment line. Adverse impacts likely to isolated properties. Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat lost; tergets/plans. Potential habitat lost; tergets/plans. Potential habitat lost; terrestrial habitat lost; terrestrial habitat gained -	residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human	•	-	• •				
Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site Intertidal habitat lost; terrestrial habitat lost; terrestrial habitat gained Intertidal habitat lost to coastal squeeze Intertidal habitat maintained; possibly some loss of terrestrial habitats Intertidal habitat maintained; possibly some loss of terrestrial habitats Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) Impact will depend on alignment line. Adverse and power station protected. Residential properties and power station protected. Residential properties and power station protected. Residential properties and power station protected. Residential properties and power station protected. Impact will depend on alignment line. Adverse impacts likely to power station and isolated properties.								alignment line. Adverse impacts likely to isolated
terrestrial habitat gained coastal squeeze possibly some loss of terrestrial habitats maintained; possibly some loss of terrestrial habitats Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Image: Coastal squeeze Image:	Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential	-	-		-	-	-	-
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health) Image: Constraint of the stress and power station protected. Image: Constraint of the stress and power station at an increased risk of flooding. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power station and isolated properties. Water resources are protected (Water) Image: Constraint of the stress and power station and isolated properties. Image: Constraint of the stress and power stati					possibly	some loss	,	maintained; possibly some loss of terrestrial
and power station protected. power station protected. power station at an increased risk of flooding. alignment line. Adverse impacts likely to power station and isolated properties. Water resources are protected (Water) - - - - - - - -	environmental impacts which may have long term health impacts			•				
protected (Water)		and power station protected.	power sta	ation protected.	power s increase	tation at an ed risk of flo	oding.	alignment line. Adverse impacts likely to power station and isolated
		-	-		-	-	-	-
		No resources known to be	No resou	irces known to be	No reso	urces know	n to be at	No resources known to

	at risk.	at risk.	risk.	be at risk.
No detriment to water quality (Water) Berkley nuclear Power Station				-
	Asset protected so no risk to water quality.	Asset protected so no risk to water quality.	Asset at increased risk of flooding so there could be water quality issues associated with the flooding of the STW.	Impact will depend on alignment line. However adequate space to select alignment so adverse impact on Berkley Power station is likely. This could potentially cause water quality issues.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)				•
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)				-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

The defences fronting Berkeley Power Station have a residual life of 20 - 50 years. Current Policy is to Hold the Line. In order to continue to meet the objective to protect the power station from flooding and erosion Hold the Line is the preferred policy. The power station is protected from flooding and erosion by the current defences over the first epoch (0 - 20 years).

Stress and anxiety of the local population and the preservation of water quality are linked directly to the protection of the power station.

The 'With Present Management' policy (set by SMP1) for <u>SEV3 – southern boundary of Berkley power</u> <u>station to Oldbury Power station</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
South of Berkley Power Station to Chapel House	Hold the Line	Hold the Line	Hold the Line / Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the southern boundary of Berkley power station to Oldbury Power station shoreline can be compared with alternative management policies through the following table:

	Policy L station		rpness to) Severn (Crossings	-southerr	n boundar	y of Berkl	ley powe	r station to	o Oldbury	Power
		e the Line		Hold th	e Line		No Acti	ve Interve	ntion	Manage	ed Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Industrial, commercial and economic assets: Assets of adjacent PUs (Power Stations), and Agriculture Reduce significance of impact associated with flooding and erosion to critical infrastructure	•			•	•	•	-					
	Agricultu	ural land pi	rotected.	Agricult	ural land p	rotected.	Agriculti flooding	ural land a	t risk of	alignme adequa alignme adverse	will depend ent line. Ho te space to ent so likely e impact on ural land.	owever; o select
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
Theme Area High Louis	Loss of i	intertidal h	abitat	Coastal habitat	squeeze; loss	intertidal	habitats	roll back; in retained; al habitat le		habitats	roll back; in retained; al habitat l	
Theme Area High Level Objectives												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)												
	Residen protecte	tial proper d.	ties	Resider protecte	ntial proper ed.	ties		ntial proper ased risk o		alignme	will depend int line. Ac likely to is es.	lverse
Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of												

impact associated with flooding and erosion to								
key community,								
recreational and amenity								
facilities. (Population								
and Human Health)	Assets protected.	Assots	protected.		Assots a	l at an increa	asod risk	Impact will depend on
	Assets protected.	Assels	protected.		of floodin		aseu nsk	alignment line. Adverse
						.9.		impacts likely because
								Severn Way runs along
Induction commencial								coast.
Industrial, commercial and economic assets:					-			
Local commercial								
assets								
Reduce significance of								
impact associated with flooding and erosion to								
industrial, commercial								
and economic assets								
(including agricultural),								
and activities (including tourism) (Population								
and Human Health)								
Critical infrastructure:	0	\bigcirc	\bigcirc	\bigcirc	-			-
Local road and path								
network								
Reduce significance of impact associated with								
flooding and erosion to								
critical infrastructure								
(Population and Human Health)								
пеани	Assets protected.	Assets	protected.		Assets a	t an increa	ased risk	Impact will depend on
		1.000.00			of floodir			alignment line. May be an
						•		adverse impact.
National nature		-			-			
conservation:		-			-			
conservation: Severn Estuary SSSI Reduce significance of		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites.		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and		-			-			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites.	Loss of intertidal babitat		SQUARTE	intertidal	- Habitatr	Oll back: ii	Itertidal	Habitat roll back: intertidal
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and	Loss of intertidal habitat		squeeze; oss	intertidal		oll back; ii retained;	ntertidal	Habitat roll back; intertidal habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	Loss of intertidal habitat	Coastal		intertidal	habitats			
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	Loss of intertidal habitat	Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic		Coastal		intertidal	habitats	retained;		habitats retained;
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and		Coastal habitat I	oss		habitats terrestria	retained; al habitat li		habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic		Coastal habitat I			Listed bu	retained;	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic		Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic		Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Listed buildings protected.	Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)		Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment) Maintain and enhance Biodiversity Action Plan habitats and species in	Listed buildings protected.	Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment) Maintain and enhance Biodiversity Action Plan habitats and species in line with existing	Listed buildings protected.	Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss
conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Listed Buildings and non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Listed buildings protected.	Coastal habitat I	oss		Listed bu	retained; al habitat li	risk of	habitats retained; terrestrial habitat loss

	Intertidal habitat lost; terrestrial habitat gained		al habitat lo squeeze	ost to		l habitat red; possil terrestrial		Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		•		•				
	Residential properties protected.	Resider	ntial prope ed.	rties		tial proper ased risk		Impact will depend on alignment line. Adverse impacts likely to isolated properties.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	ources kno	wn to be	No reso at risk.	urces kno	wn to be	No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No known water quality risks.	No kno risks.	wn water c	juality	No know risks.	vn water q	uality	No known water quality risks.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.		raise the h ences inde		coast wi	evolution of Il accomm change: p o people a v.	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the d local lan charact present also a v	creasing th lefence wil ndscape in er (increas ce in the la visual impa es disruptir	l affect terms of ing ndscape): ct with	of floodii local lan positive depends May be landsca	ng the free ng may al dscape (v or negativ s on perce a local cha pe due to s in vegeta e.	er the vhether e ption). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

Agriculture is the dominant economic activity at the shoreline from the southern boundary of Berkley Power Station to the northern boundary of Oldbury Power Station. To advance the line is theoretically a positive step for the industry over the SMP2 timeframe as the total area of agricultural land could be increased.

The protection from flooding and erosion of nationally significant power stations at either end of this Policy Unit are key drivers for the setting of policy at the shoreline. Both power stations are within the flood cells of this Policy Unit.

For historic environment assets to advance the line would have a negative impact. Some assets are marine based, and the physical advancement of the line is likely to disturb or destroy the sites. To hold the line will have a positive impact post 2050 as defences under no active intervention will have failed if the line is not held, leaving the sites vulnerable to flooding and erosion.

The 'With Present Management' policy (set by SMP1) for **SEV4 – Oldbury Power Station** – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Chapel House to Oldbury Power Station	Hold the Line	Hold the Line	Hold the Line of Retreat the Line

The impact on the agreed objectives of continuing with present management policy at Oldbury Power Station shoreline can be compared with alternative management policies through the following table:

	Policy l	Jnit – Sha	rpness to	Severn C	crossings	–Oldbury	power sta	tion (SEV	/ 4)			
	Advanc	e the Line	;	Hold the	e Line		No Activ	ve Interve	ntion	Manage	ed Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Industrial, commercial and economic assets: Oldbury Power Station, Agriculture, set back behind power station Reduce significance of impact associated with flooding and erosion to critical infrastructure	•			•	•	•	-					
	tation and Iral land p			tation and Iral land pr	otected.	flooding. higher g	Iral land a Power st round so r flooding.	tation on	alignme adequat alignme adverse	will depend nt line. He te space to nt so likely impact or ural land.	owever; o select y	
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features (Biodiversity, Flora and Fauna)				-			-					
	Loss of	intertidal h	abitat	Coastal habitat l	squeeze; oss	intertidal	habitats	oll back; in retained; al habitat le		habitats	roll back; i retained; al habitat l	
Critical infrastructure: Tidal Reservoir fronting Power Station Reduce significance of impact associated with flooding and erosion to critical infrastructure							-			N/A		
		uld impact he tidal re		from refi	ervoir not lling. Pow risk of floo	er station	impedec	ervoir not from refil tation is no	ling.	N/A		
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets	•			•	•	•	-			-		

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				•				
(including agricultural), and activities (including tourism) (Population and Human Health)								
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-			-			
	Loss of intertidal habitat	Coastal habitat I	squeeze; oss	intertidal	habitats	oll back; in retained; al habitat le		Habitat roll back; intertidal habitats retained; terrestrial habitat loss
Listed Buildings and		\bigcirc			-			
non-designated sites of historic interest. Listed buildings. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)								
	Historical assets protected from flooding.	Historica from floo	al assets p oding.	rotected		al at risk fro d flooding		Impacts depend on alignment line. Assets are set back from the coast so are unlikely to be adversely impacted.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-	-			-	-	-	-
	Intertidal habitat lost; terrestrial habitat gained		I habitat lo squeeze	st to		l habitat ed; possib errestrial l		Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)			•		-			
	Assets protected.	Assets p	protected.	1	Assets a of floodin	it an increa	ased risk	Impacts depend on alignment line. Retreat is likely to be perceived negatively.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces know	wn to be	No reso at risk.	urces know	vn to be	No resources known to be at risk.
No detriment to water quality (Water) Historic Landfill sites adjacent to Oldbury Power Station.		•	•	•	-			
	Landfill site protected so no risk to water quality.		site protec vater qualit		increase could be	site at risk d flooding water qua ssociated	so there ality	Impact will depend on alignment line. However adequate space to select alignment so adverse

		flooding of the STW.				impact on the historic landfill site is likely. This could potentially cause water quality issues.		
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.			coast wi climate d	evolution o Il accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever incre of the def local land character presence also a vis defences	ence will scape in (increasi in the lar ual impac	affect terms of ng ndscape): ct with	of floodin local lan positive depends May be landscap	ng the frec ng may alt dscape (w or negativ on perce a local cha be due to p i in vegeta	er the hether e ption). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

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The protection from flooding and erosion of nationally significant power station at Oldbury is a key driver for the setting of policy at the shoreline. Although the majority of this unit benefits from high ground, the impact of flooding or erosion on the power station would have a major impact.

The 'With Present Management' policy (set by SMP1) for <u>SEV5 – Oldbury power station to Littleton</u> <u>Warth</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Oldbury to Littleton	Hold the Line	Hold the Line	Hold the Line of Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Oldbury power station to Littleton Warth shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Sha	rpness to	Severn C	rossings	- Oldbury	power st	ation to L	ittleton W	/arth (SE\	/ 5)	
	Advanc	e the Line	•	Hold the	e Line		No Acti	ve Interve	ntion	Manag	ed Realigr	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of i	intertidal h	abitat	Coastal habitat le	squeeze; oss	intertidal	habitats	roll back; i retained; al habitat l		habitats	roll back; i retained; al habitat l	
Theme Area High Level Objectives												
Residential: Oldbury on Severn Isolated properties Reduce significance of impact associated with flooding and erosion to people and property				-			-					
	Residential properties protected.		Residential properties protected.			tial proper ased risk (alignme space in very lim impacts residen unlikely	will depend ent line. Ho in the reach ited so adv on large tial areas is . Isolated ies may be ed.	owever i is not verse		
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)				-			-					
				Agricultural land protected.		Agricultural land at risk of flooding.			alignme adequa alignme adverse	will depend ent line. Ho te space to ent so likely e impact or ural land.	owever; o select	

Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	Assets protected.	- Assets protected.	Assets at an increased risk of flooding.	Impact will depend on alignment line. Adverse impacts likely because Severn Way runs along coast.
Local infrastructure: Local road and paths network Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-			-
	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-		
	Loss of intertidal habitat	Coastal squeeze; intertidal habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss
Scheduled Monuments: At Oldbury on Severn Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)		-		
	Historical assets protected.	Historical assets protected.	Historical assets are at an increased risk of flooding.	Impacts will depend on realignment but it is likely that historical assets will be protected as they are set back from the coast.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-			-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with		-		

flood and erosion risk) (Population and Human Health)								
	Residential properties protected.	Residential properties protected.				tial proper ased risk o		Impact will depend on alignment line. However space in the reach is not very limited so adverse impacts on large residential areas is unlikely. Isolated properties may be impacted.
Water resources are protected (Water)	-		-	-	-	-	-	-
	No resources known to be at risk.	No resour at risk.	rces know	vn to be	No resou at risk.	urces knov	vn to be	No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No water quality risks identified.	No water identified.		sks	No wate identified	r quality ri d.	sks	No water quality risks identified.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.	Cannot ra the defen			coast wi	evolution o Il accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			of floodir local lan positive depends May be landscap	ng the frec ng may alt dscape (w or negativ on perce a local cha be due to p in vegeta	er the hether e otion). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

Agriculture is the dominant economic activity at the shoreline from the southern boundary of Berkley Power Station to the northern boundary of Oldbury Power Station. To advance the line is theoretically a positive step for the industry over the SMP2 timeframe as the total area of agricultural land could be increased.

The protection from flooding and erosion of nationally significant power stations at either end of this Policy Unit are key drivers for the setting of policy at the shoreline. Both power stations are within the flood cells of this Policy Unit.

For historic environment assets to advance the line would have a negative impact. Some assets are marine based, and the physical advancement of the line is likely to disturb or destroy the sites. To hold the line will have a positive impact post 2050 as defences under no active intervention will have failed if the line is not held, leaving the sites vulnerable to flooding and erosion.

The 'With Present Management' policy (set by SMP1) for **SEV6 – Littleton Warth to Aust Ferry** – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Aust Cliff to Old Passage	Do nothing (locally hold)	Do Nothing, locally Hold the Line	Do Nothing, locally Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Littleton Warth to Aust Ferry shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Sha	rpness to	o Severn (Crossings	– Littletor	n Warth to	o Aust Fer	ry (SEV 6	i)		
	Advance	e the Line	÷	Hold the	e Line		No Act	ive Interve	ention	Manage	d Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Critical Infrastructure: M48 Road Crossing and Services, Power Line Crossing and Substation Reduce significance of impact associated with flooding and erosion to critical infrastructure	-			-	-	-	-	-	-	geology physical	ound / hard precludes retreat of ot conside	; the line,
		e at risk fro via this fro ct			e at risk fr via this fro ct			le at risk fr y via this fro act				
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-			geology physical	ound / hard precludes retreat of ot conside	; the line,
	Loss of i	ntertidal h	abitat	Coastal habitat I	squeeze; oss	intertidal	habitats	roll back; i retained; al habitat l				
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	-			-	-	-	-	-	-	geology physical	bund / hard precludes retreat of ot conside	; the line,
	use; not	ire is main at risk froi via this fro ct	m tidal	use; not	ure is mair at risk fro via this fro ct	m tidal	use; no	ure is mair t at risk fro y via this fro act	m tidal			
Aust Cliff SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and					-	-		•	•	geology physical	ound / hard precludes retreat of ot conside	; the line,

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Contaminated Land)				
	Advancing the line would mean exposure was no longer subject to natural erosion processes	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Natural processes would be maintain	
Residential: Aust and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Residential properties not at risk of tidal flooding via this frontage; no impact	Residential properties not at risk of tidal flooding via this frontage; no impact	Residential properties not at risk of tidal flooding via this frontage; no impact	
Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	-			N/A
	Open space and footpath network are not at risk of tidal flooding via this frontage; no impact	Open space and footpath network are not at risk of tidal flooding via this frontage; no impact	Open space and footpath network are not at risk of tidal flooding via this frontage; no impact	
National nature conservation sites: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				
r aunaj	Loss of intertidal habitat	Coastal squeeze; intertidal habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-			N/A
	No historical assets identified.	No historical assets identified.	No historical assets identified.	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-			-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze	Intertidal habitat maintained; possibly some loss of terrestrial habitats	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	-	· · ·		N/A

anxiety associated with flood and erosion risk) (Population and Human Health)								
	No risk of flooding from this frontage.	No risk of frontage	of flooding	from this	No risk of this front	of flooding tage.	from	
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces know	wn to be	No resou at risk.	urces know	wn to be	No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No water quality risks identified.	No wate identified	er quality ri d.	sks	No wate identified	r quality ri d.	sks	No water quality risks identified.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Cannot raise the height of the defences indefinitely.		raise the h inces indef		coast wi climate d	evolution o Il accomm change: po o people a	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	of the de local lan characte presenc also a vi	reasing th efence will idscape in er (increas e in the lai isual impa- s disruptin	affect terms of ing ndscape): ct with	of floodir local lan positive depends May be landscap	ng the frec ng may alt dscape (w or negativ s on perce a local cha be due to j in vegeta a.	er the /hether e ption). ange to potential	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.

The negative impact on heritage features of advancing the line is entirely based on the impact on the Aust Ferry Site; all other heritage sites would undergo no impact to the advancement of the shoreline.

4.13 Severnside to Bristol and Avon Theme Area (BRIS)

The 'With Present Management' policy (set by SMP1) for BRIS1 – Aust Ferry (site of) to New Passage – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Old Passage to new Passage	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Aust Ferry (site of) to New Passage shoreline can be compared with alternative management policies through the following table:

	Policy	y Unit –	Bristol	and Severns	ide Aust Fer	ry (site of) to I	New Passag	e (BRIS 1)				
	Adva	nce the	Line	Hold the Li	ne		No Active	e Interventior	۱	Manageo Realignn		
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
Critical infrastructure: Power Line Crossing, M4 and M48, Severn Tunnels, Bedwick STW To manage the risk of flooding and erosion to critical infrastructure.							-			-		
	Infras protec	tructure ted.		Infrastructur	e protected.		flooding.	ire at risk fron	1	Impact w alignmen adequate select alig unlikely to adverse i	t line: ho space t gnment s b be an	owever o
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Coast will oc	al sque cur	eze	Coastal squ	eeze will occu	ir	habitats ma	ill roll back, in aintained; how some loss of nabitats.		Habitats intertidal maintaine potentiall terrestrial	habitats ed; howe y some l	ever oss of
Theme Area High Level Objectives												
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and	•			-			-					

economic assets (including agricultural), and activities (including tourism)	L ondus -	Agricultural		Acristic	enerte : "II l		Import vill das so bas
	Land use predominantly agricultural. Agricultural assets will be protected.	Agricultural assets v		l assets will b isk of flooding	Impact will depend on alignment line: space in the reach is not very limited due to land being used for agriculture. There may be an adverse impact		
Residential: Isolated residential developments at Northwick and Redwick Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)				-			-
	Residential properties protected.	Residential properti	es protected.	Residential from floodir	properties an	e at risk	Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact.
Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)				-			-
	Recreational sites including the Severn Way will be protected.	Recreational sites in Severn Way will be		Severn Wa	al sites includ y will be at ar isk of flooding	1	Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact.
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-		-			
	Coastal squeeze will occur	Coastal squeeze wi	ll occur	habitats ma	II roll back, in aintained; how some loss of abitats.		Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.

Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Limited no of	- Historical as	sets will be p	rotected.	- Historical a	ssets will be a	A am	- Impact will depend on
	features of note; historical assets will be protected.				increased r	risk of flooding	j .	alignment line: however adequate space to select alignment so unlikely to be adverse impact.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-	-	-	-
	Loss of intertidal habitat due to coastal squeeze.	Loss of inter squeeze.	tidal habitat d	lue to coastal	/increased;	abitats retaine possible loss hind existing		Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-	•		-			-
	Limited number of residential properties; residential properties protected.	Residential p	properties pro	tected.	Residentia from floodii		e at risk	Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resource	s known to be	e at risk.	No resourc risk.	es known to b	be at	No resources known to be at risk.
No detriment to water quality (Water) Bedwick Sewage treatment works					-			
	STW protected.	STW protect	red.		STW at risi for pollution	k of flooding;	ootential	Asset protected as it is assumed managed retreat will not impact on either the sewage treatment works or the chemical works.
Policy is designed to adapt to or					-	-	-	•

accommodate climate change trends. (Air and Climate)								
	Can not raise the height of defences indefinitely.	Can not raise the heig indefinitely.	Natural evolut will accommo change; poss people and pr	date climate		Managed retreat will accommodate climate change.		
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing heigh will affect local landsc character (increasing landscape): also a vis defences disrupting vi	ape in ter presence ual impac	ms of in the	Increasing the flooding may landscape (winegative deperenception). I change to lan potential char condition and	alter the loca hether positi ends on May be a loc dscape due nges in vege	al ve or al to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

Agriculture is the dominant economic activity at the shoreline from the southern boundary of Berkley Power Station to the northern boundary of Oldbury Power Station. To advance the line is theoretically a positive step for the industry over the SMP2 timeframe as the total area of agricultural land could be increased.

The protection from flooding and erosion of nationally significant power stations at either end of this Policy Unit are key drivers for the setting of policy at the shoreline. Both power stations are within the flood cells of this Policy Unit.

For historic environment assets to advance the line would have a negative impact. Some assets are marine based, and the physical advancement of the line is likely to disturb or destroy the sites. To hold the line will have a positive impact post 2050 as defences under no active intervention will have failed if the line is not held, leaving the sites vulnerable to flooding and erosion.

The 'With Present Management' policy (set by SMP1) for BRIS2 – New Passage to north extent of Severnside Works – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Old Passage to new Passage	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the New Passage to north extent of Severnside Works shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – B	ristol and	d Severnsid	e -New Pas	sage to nor	th extent o	f Severnsid	e Works (BF	RIS 2)		
	Advan	ce the Li	ine	Hold the I	Line		No Activ	e Interventio	on	Mana Realig	ged gnment	
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers												
Critical infrastructure: M4 and M5, Second Severn Crossing, Power Line Crossing, Severn Tunnels, Railway (defences), Seabank Power Station To manage the risk of flooding and erosion to critical infrastructure.				-			-				•	
	Infrastr	ucture pr	otected.	Infrastruct	ure protecte	ed.	Infrastruc flooding.	ture at risk fr	rom	alignn howev space	t will dep nent line: ver very l in the re to be an t.	imited ach so
Industrial, commercial and economic assets: Chemical Processing Plants, Chittening Wharf Trading Estate Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-			-				\ -	
	Assets	will be p	rotected.	Assets wil	be protecte	əd.	Assets wi of floodin	ill at an incre g.	ased risk	alignn howev space	t will dep nent line: ver very l in the re to be an t.	imited
International Nature Conservation Sites Severn Estuary: Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and				-			-					

the favourable								
condition of their features.								
Thomas Area Link	Coastal squeeze will occur	Coastal squeeze will	occur	and intertid maintained developed limited in se	abitats will roll back lal habitats will be ; however reach so scope for roll back ome areas; also habitats may be	In theory habitats will roll back and intertidal habitats will be maintained; however reach developed so scope for roll back limited in some areas; also terrestrial habitats may be affected		
Theme Area High Level Objectives								
Residential: Severn Beach Reduce significance of impact associated with flooding and erosion to people and property		-		-				
	Residential properties protected.	Residential properties	s protected.	Residential from floodii	l properties are at risk ng.	Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.		
Recreational sites: Severn Way Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)				-				
	Footpaths and caraval and camping site will b protected.			camping si	aths and caravan and te will be at an risk of flooding.	Impact will depend on alignment line: however very limited space in the reach so likely to be an adverse impact.		
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				-				
	Coastal squeeze will occur	Coastal squeeze will	occur	and intertid maintained developed limited. In	abitats will roll back lal habitats will be . However reach so scope for rollback addition terrestrial ll be affected	Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected		
Scheduled Monuments: Heavy anti-aircraft battery; Listed Buildings and non-designated				-				

			<u> </u>	
sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	Historical assets	Historical assets protected.	Historical assets will be at an	Impact will depend on
	protected.		increased risk of flooding.	alignment line: however very limited space in the reach so likely to be an adverse impact.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Intertidal habitats maintained however potential loss of terrestrial habitats; also space limited due to development	Set back of line will maintain intertidal habitats; however potential loss of terrestrial habitats; also space limited due to development
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-		
	Properties protected.	Properties protected.	Residential properties and industry are at risk from flooding.	Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.
Water resources are protected (Water)	-			-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.
No detriment to water quality (Water) Sewage Treatment Works at Bedwick Chemical Treatment works; Active landfill sites		-		
	Assets protected.	Assets protected.	Assets at risk from increased flooding, with associated implications for water quality.	Asset protected as it is assumed managed retreat will not impact on either the sewage treatment works or the chemical works. However limited space to achieve realignment
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)		-		•
	Can not raise the height	Can not raise the height of	Natural evolution of the coast will	Managed retreat will

	of defences indefinitely.	defences indefinitely.	accommodate climate change; possible impact to people and property.	accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)			· · · ·	-	
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.	

Significant assets indicate a Hold the Line Policy to be appropriate. Very large flood cells spanning large areas of the shoreline mean the impact of not defending this shoreline from flooding are far reaching. There are, however, significant environmental impacts to Holding the Line at BRIS 2 and adjacent segments due to lost habitat as a result of coastal squeeze.

The chemical processing plant is considered a Key Policy Driver due to the economic benefit and the potential detrimental impact on water quality and the environment in the event of flooding or erosion of the site.

The 'With Present Management' policy (set by SMP1) for <u>BRIS3 – North extent of Severnside Works to</u> <u>Avonmouth Pier</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Severnside Works to Mitchell's Salt Rhine	Hold the Line	Hold the Line	Hold the Line or Retreat the Line
Mitchell's Salt Rhine to Avonmouth Pier	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the New North extent of Severnside Works to Avonmouth Pier shoreline can be compared with alternative management policies through the following table:

	Policy	Unit – Nor	th extent	of Severn	side Work	s to Avon	nmouth Pier (BRIS 3)						
	Advanc	e the Line	e	Hold the	Line		No Acti	ve Interve	ntion	Manag	ed Realig	nment	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Key Policy Drivers													
Critical Infrastructure: M5 and M49, Railway Line, Lighthouse Electricity substations Avonmouth sewage treatment works Avonmouth Docks Manage the risk of flooding and erosion to critical infrastructure.							-						
	protecte	infrastructu ed	ure		Critical infrastructure protected			nfrastructu d risk of fl		significa	ent space antly realig g infrastru	n without	
Industrial, commercial and economic assets: Avonmouth industry including chemical processing plant Avonmouth port Fuel depots Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)													
	Assets	will be prot	tected.	Assets w	vill be prote	cted.	Assets will be at an increased risk of flooding.			Assets will be adversely affected by the realignment.			
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features				-			-						
Coastal squeeze will occur			Coastal squeeze will occur		In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected			alignme very lim reach; t	will depen ent line: ho ited space errestrial l be affecte	wever in the nabitats			

Theme Area High Level Objectives								
Residential: Settlement of Avonmouth Reduce significance of impact associated with flooding and erosion to people and property					-			
	Residential properties will be protected.	Resident protected	ial propert J.	ies will be		tial proper increased		Some local adverse affects within retreated area, land behind protected; however scope to retreat defences in this reach currently limited by development.
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	-	-	-	-	-	-	-	-
	No assets known to be present.	No asset present.	s known to	o be	No asset present.	ts known t	o be	No assets known to be present.
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)					-			
	Coastal squeeze will occur	Coastal squeeze will occur			In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected			Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)					-			
	Historical assets protected	Historica	l assets pr	otected		I assets a d flooding		Historical assets protected
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans					-			
	Loss of intertidal habitat due to coastal squeeze.		ntertidal ha			 habitats ertidal hab ed 		Set back of line will maintain intertidal habitats
Avoid/minimise environmental impacts		\bigcirc	\bigcirc					

which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	Limited residential	Assets will be protected.	Assets will be at an	Some local adverse
	properties present assets will be protected.		increased risk of flooding.	affects within retreated area, assets behind protected. Scope for retreat limited by industrial development
Water resources are protected (Water)	-			-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.
No detriment to water quality (Water) Avonmouth STWs Active landfill sites	\bigcirc			\bigcirc
	Assets protected.	Assets protected.	Assets at an increased risk of flooding, with implications for water quality.	Majority or assets protected; potential for some to be affected by the realignment.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)				
	Can not raise the height of defences indefinitely.	Can not raise the height of defences indefinitely.	Natural evolution of the coast will accommodate climate change; possible impact to people and property.	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)				-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

Significant assets indicate a Hold the Line Policy to be appropriate. Very large flood cells spanning large areas of the shoreline mean the impact of not defending this shoreline from flooding are far reaching. There are, however, significant environmental impacts to Holding the Line at BRIS 3 and adjacent segments due to lost habitat as a result of coastal squeeze.

The 'With Present Management' policy (set by SMP1) for BRIS4 – Avonmouth Pier to Netham Weir – is:

SMP1 Management Unit	0-20	20-50	50 - 100
River Avon (Right Bank)	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Avonmouth Pier to Netham Weir shoreline can be compared with alternative management policies through the following table:

	Policy U	Jnit – Bris	stol and s	Severnside -	Avonmou	o Netham Weir (BRIS 4)						
	Advanc	e the Line	9	Hold the L	ine		No Acti	ve Interve	ention	Manage	ed Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Residential Developments Bristol city Sned Park Sea Mils Shirehampton Avonmouth Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitab tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a ble policy f es to the S as it wou n-channel and water and, potent to greater . It could a rosion, rai uce it	an or evern Id flood ially also	-	•		-					
				at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be protected.not at ri the exception in Avon in Avon in Avon				ssidential properties are t at risk of flooding with e exception of properties Avonmouth. Properties Avonmouth will be at an creased risk of flooding.			ng the! lin gnificant a opment	
Critical infrastructure: M5 Avonmouth electricity substations Avonmouth Fire and Police stations Bristol electricity substations Bristol hospitals To manage the risk of flooding and erosion to critical infrastructure.	consider unsuitabit tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a ble policy f es to the S as it wou n-channel and water ent, potent to greater . It could a rosion, rai	an or Gevern Id flood ially also				-					
				Critical infra centre of B from floodir M4 and Av be protecte	ristol is not ng. The M onmouth a	at risk 5 and rea will	Critical infrastructure in the centre of Bristol is not at risk from flooding. The M4 and M5 and Avonmouth area will be at an increased risk of flooding.				ng the line itical infra	
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA, Avon Gorge Woodlands SAC Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features	consider unsuitabit tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a ble policy f es to the S as it wou n-channel and water ent, potent to greater . It could rosion, rai	an or Severn Id flood ially also	-			-					
				Avon Gorg unaffected Severn Est Coastal squ	by tidal flo uary affect	oding. ed.	back an will be n Howeve	y habitats d intertidal naintained r reach de e for rollba	habitats eveloped	alignme very lim reach; te	will depend nt line: ho ited space errestrial h be affecte	wever in the nabitats

					limited	In addition	<u>ו</u>	
					terrestria	al habitats		
Industrial, commercial and economic assets: Industrial Assets, Regeneration Potential Avonmouth Docks Avonmouth Industry Bristol commercial centre Bristol Docks Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
,		The centre risk from flo Avonmouth protected fr this option.	oding. Th assets wil	e I be	at risk of Avonmo at an inc	tre of Brist f flooding. outh assets creased ris under this	The will be k of	Significant realignment not feasibly due to presence of assets that would be adversely affected
Theme Area High Level Objectives					liobailig			
Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-			
		Residential at risk of flo exception o Avonmouth Avonmouth	oding with f propertie . Propertie	the s in es in	Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be at an increased risk of flooding,			If sufficient space available realignment towards the mouth of the Avon could offer some local protection
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		Limited recreational assets present. Recreational amenities are not at risk of flooding.				ional amer sk of floodi		Limited recreational assets to be affected h
Reduce significance of impact associated with policies on marine operations and activities (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater	-	-	-	-	-	-	-

	flooding. It could also							
	trigger erosion, rather than reduce it							
		Marine ope likely to be		e not		perations be impact		
National Nature Conservation Designations (Severn Estuary, Avon Gorge and Horseshoe Bend SSSIs). Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
		All SSSI ap Estuary una flooding, bo future Opti terrestrial p however int experience	affected by oth now an ion will pro arts of site ertidal are	r tidal d in otect e, as will	protecte habitat c Howeve	l habitats d for as lo can roll bao r space lin errestrial h ir	ng as ck. nited,	Retreating the line will allow habits to roll back, however space limited; terrestrial habitats that exist will be lost
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Historic Parks and Gardens: King Weston House Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		Scheduled Listed Build of tidal flood	lings are n		and List	ed Monun ed Building sk of floodi	gs are	Features may be adversely affected if line retreated
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-			-
		Coastal squeeze will result in loss of intertidal habitats			In theory habitats will roll back retaining intertidal habitats, however space limited due to development so some loss of habitats ix likely t occur			Set back of line will maintain intertidal habitats however may affect terrestrial habitats, also space limited due to development
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater	-			-	-		•

			· · · · · · · · · · · · · · · · · · ·	
	flooding. It could also trigger erosion, rather than reduce it			
		Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be protected.	Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be at an increased risk of flooding,	Some local adverse effects within retreated area; more widely properties will be protected
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-
		No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No resources known to be at	No resources known to be	No resources known to be
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	risk.	at risk.	at risk
		Can not raise the height of defences indefinitely.	Natural evolution of the coast will accommodate climate change; possible impact to people and property.	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			
		Ever increasing height of the defences will affect local landscape in terms of	Increasing the frequency of flooding may alter the local landscape (whether	Retreating the defences will alter the appearance and character of the

character (increasing presence in the landscape): also a visual impact with defences disrupting views.	positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.	urban area; the nature and design of any changes will determine whether this is a positive or negative impact
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Significant assets indicate a Hold the Line Policy to be appropriate, despite limited likely impact as a result of high ground. Current defence anticipated lifespan into the 2nd epoch of the SMP2 limit the impact of a potential change in policy.

The 'With Present Management' policy (set by SMP1) for <u>BRIS5– Netham Weir to Avon road (Easton-in-Gordano)</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Netham Weir to South of Burgh Walls	Hold the Line	Hold the Line	Hold the Line
Burgh Walls to Chapel Pill	Do nothing	Do Nothing	Do Nothing
Chapel Pill to Portbury Pier	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at Netham Weir to Avon road (Eastern In Gordano) shoreline can be compared with alternative management policies through the following table:

	Policy U (BRIS 5)		tol and Se	evernside	- Netham	Weir to A	von road	(Eastern	In Gordar	10)		
	Advance	e the Line	•	Hold the	e Line		No Activ	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Residential: Bristol city Easton in Gordano Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i ed to be a le policy fr s to the S as it woul el flood st r moveme ly leading. li ger erosion uce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-	-		
	anan reu			Residen	tial proper	ties are	Residen	tial proper	ties are	Residen	tial proper	ties are
				not at ris	k of floodi	ng.	small nu in Eastor	k of floodi mber of pr n in Gorda increased	operties no will		sk of floodi pace to re s	
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA and Avon Gorge Woodlands SAC Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i ed to be a le policy for s to the S as it woul el flood st er moveme ly leading looding. I ger erosior uce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-			
				currently tidal floo predicted	orge Wood r unaffecte ding and is d to be at f vern site is reach	d by s not uture	currently tidal floo predicted	rge Wood unaffecte ding and is d to be at f vern site is reach	ed by s not future	currently tidal floo predicte risk. Re adverse	orge Wood / unaffecte oding and is d to be at f treat the lin ly affect the site is remo-	d by s not uture ne could e site.
Critical infrastructure: Bristol electricity substations Bristol hospitals within reach Reduce significance of impact associated with flooding and erosion to critical infrastructure	consider unsuitab tributarie Estuary, in-chann and wate	the Line i ed to be a le policy fo s to the S as it woul el flood st er moveme ly leading	n or evern d reduce orage ent,	-	-	-	-	-	-	-		

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		looding. It ger erosior										
	than red		,									
					al infrastru dal flooding			al infrastru dal flooding			al infrastri dal floodir	
Theme Area High Level Objectives												Ī
Industrial, commercial and economic assets: Agriculture, Industrial Development Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i ed to be a le policy fo ss to the So as it would el flood stu ly leading looding. It ger erosior uce it	n evern d reduce orage ent, to c could	-	-	-	-	-	-	-		
				Assets n flooding.	ot at risk o	of	Assets n flooding.	ot at risk o	of	Assets r flooding	ot at risk	of
Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i ed to be a le policy fo es to the So as it would el flood ste er moveme ly leading looding. It ger erosior uce it	n evern d reduce orage ent, to could	-	-	-	-	-	-	-		
				Assets n flooding.	ot at risk o	of tidal	Assets r flooding.	ot at risk o	of tidal		ot at risk limited s ient.	
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i ed to be a le policy fo as it would el flood str er moveme ly leading looding. It ger erosior uce it	n evern d reduce orage ent, to c could	-	-	-	-	-	-	-		
					onal amer k of tidal f			onal amer k of tidal f			k of tidal pace for	nities are flooding;
Reduce significance of impact associated with policies on marine operations and activities (Population and Human Health)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	the Line i ed to be a le policy fo as it would as it would er moveme ly leading looding. It ger erosior uce it	n evern d reduce orage ent, to c could	-	-	-	-	-	-	-		
					perations be impacte			perations be impacte				
Reduce significance of impact associated with managing adverse impacts on nationally or locally designated	consider unsuitab	e the Line i ed to be a le policy fo es to the So	n or	-	-	-	-	-	-			

conservation sites (Ashton Court, Ham Green SSSIs, Leigh Woods NNR). (Biodiversity, Flora and Fauna)	Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		flooding;	currently ed by tidal no impac ed with HT	ts	flooding;	currently ed by tidal no impac ed with thi	ts	All sites currently unaffected by tidal flooding; retreat the line would adversely affect sites
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Historic Parks and Gardens: Leigh Court, Arnos Vale Cemetery Bristol University Botanic Gardens Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		and Liste	ed Monum ed Building k of tidal f	gs are	and Liste	ed Monum ed Building k of tidal f	gs are	Scheduled Monuments and Listed Buildings are not at risk of tidal flooding. Retreating the line could adversely affect the sites
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
			squeeze n loss of inte		back in s	for habita ome area terrestrial at risk	s ;	Retreat the line would adversely affect designated terrestrial sites
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
			tial proper k of tidal f pact.			tial proper k of tidal f pact.		Residential properties are not at risk of tidal flooding so no impact.
Water resources are protected (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement,	-	-	-	-	-	-	-

	potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		No resou at risk.	urces knov	vn to be	No resou at risk.	urces know	vn to be	No resources known to be at risk.
No detriment to water quality (Water)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resou at risk.	urces know	vn to be	No resou at risk.	urces know	vn to be	No resources known to be at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				_	_	-	
			raise the h s indefinite		Natural evolution of the coast will accommodate climate change; possible impact to people and property.			Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-	-	-	-
		Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			disrepair tidal floo increase	s will fall ir however ding will n . Potentia anges to l be	risk form ot Illy some	Retreating the defences will alter the appearance and character of the area; the nature and design of any changes will determine whether this is a positive or negative impact

Significant assets indicate a Hold the Line Policy to be appropriate, despite limited likely impact as a result of high ground. Current defence anticipated lifespan into the 2nd epoch of the SMP2 limit the impact of a potential change in poli

The 'With Present Management' policy (set by SMP1) for <u>BRIS6– Avon road (Easton-in-Gordano) to</u> <u>Portishead Pier</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Chapel Pill to Portbury Pier	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the Avon road (Eastern In Gordano) to Portishead Pier shoreline can be compared with alternative management policies through the following table:

	Policy l	Jnit – Bris	stol and S	Severnside	e- Avon r	oad (Eas	tern In Gor	dano) to P	ortishead	d Pier (BR	IS 6)			
	Advanc	e the Lin	e	Hold the	e Line		No Activ	ve Interver	ntion	Manag	ed Realig	nment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100		
Key Policy Drivers														
International Nature Conservation Designations Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	flooding. It could also trigger erosion, rather than reduce it		-			-								
				Coastal	squeeze v	will occur	intertidal maintain	will roll bac habitats ed; howeve al habitats l	er		al habitats nowever te s lost			
Industrial, commercial and economic assets: Dock Related Industry and Infrastructure – asset from adjacent Policy Unit within flood risk To manage the risk of flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than		nd economic assets: Dock Related Industry ind Infrastructure – Isset from adjacent Policy Unit within flood isk To manage the risk of looding and erosion to pritical infrastructure. Advanc conside unsuital tributari Estuary reduce boding and erosion to Iterational Iteration											
		will be pro	tected.	Assets v	will be prot	tected.	Assets a of floodir	it an increa ng.	sed risk	protect	y or assets ed from the g but some d adversely ment.	e risk of may be		
Critical infrastructure: Docks and marinas Lighthouse M5 Avonmouth road and rail Bridge Electricity substations Portbury Wharf STW To manage the risk of flooding and erosion to critical infrastructure.	conside unsuitab tributarie Estuary, reduce i storage moveme leading flooding trigger e		an for Severn Id flood tially also											
		trigger erosion, rather than reduce it			Infrastructure protected			cture at risl	(Impact depends on alignment; in theory some local adverse impacts with wider positive benefits				

Theme Area High Level								
Objectives								
Residential: Portbury Wharf, including new developments, and Sheepway Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							-
		protecte	itial assets d.			tial assets reased floo		Residential assets protected but some may be adversely affected by realignment.
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		centre a	s route, lei ind some f s. Assets d.		centre a network	s route, leis nd some fo s. Assets a d risk of flo	otpath at an	Sustrans route, leisure centre and some footpath networks. Overall assets protected potentially some local adverse effects due to realignment.
Dock and marina operations Reduce significance of impact associated with policies on marine operations and activities (Population and Human Health)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it-		•					
		Dock op	erations p	rotected	Dock op	erations at	risk	Retreating the line likely to affect dock operations
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Coastal	squeeze v	vill occur	intertida maintair	will roll bac habitats ed; some of terrestri	space for	Habitats will roll back , intertidal habitats maintained; some space for roll back of terrestrial habitats
Maintain and enhance Biodiversity Action Plan	N/A Advance the Line is				-		\bigcirc	\bigcirc

habitats and species in line with existing targets/plans	considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it Loss of intertidal habitat	Loss of i	ntertidal h	abitat	Habitats	will roll bac	k	Set back of line will
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	Loss of intertidal habitat due to coastal squeeze. N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it		oastal squ			habitats m		Set back of line will maintain intertidal habitats -
	Residential assets protected.	Residen protecte	tial assets d.			l ial assets a eased flood		Residential assets protected but some may be adversely affected by realignment.
Water resources are protected (Water)	-N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
			urces knov	wn to be		rces know	n to be at	No resources known to be
No detriment to water quality (Water) Portbury Wharf STW	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	at risk.			risk.		•	at risk.
		Asset pr	otected.		flooding v potentiall 20 year fl shoreline sections zone 1. S flooding r	risk of coas with pollutio y resulting lood cell fro at PORT1 of source p Galine intrus may alter c groundwat	on The 0 to om the includes protection sion from hemical	Realignment in this reach is likely to affect the STW.
Policy is designed to adapt to or accommodate climate change trends.	N/A Advance the Line is considered to be an unsuitable policy for				-	-	-	

(Air and Climate)	tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Can not r defences			coast will climate cl	volution of accommonange; pos people an	date sible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it					-	-	-
		Ever incre the defen local land character presence landscap impact wi disrupting	ces will a lscape in t (increasi in the e): also a th defenc	ffect terms of ng visual	flooding r landscape or negativ perceptio change to potential	g the frequ nay alter th e (whether ve depends n). May be b landscap changes in n condition	ne local positive s on e a local e due to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

Significant assets indicate a Hold the Line Policy to be appropriate, despite limited likely impact as a result of high ground. Current defence anticipated lifespan into the 2nd epoch of the SMP2 limit the impact of a potential change in policy.

4.14 Portishead and Clevedon Theme Area (PORT)

The 'With Present Management' policy (set by SMP1) for **PORT1- Portishead Pier to swimming pool** - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Old Pier to Portishead Point	Do nothing	Do Nothing	Do Nothing, locally Retreat the Line (provisional option)

The impact on the agreed objectives of continuing with present management policy at the Portishead Pier to swimming pool shoreline can be compared with alternative management policies through the following table:

	Policy Unit – Portishead a	nd Cleved	on – Porti	shead Pie	er to swim	ming poo	I (PORT	1)	
	Advance the Line	Hold the	Line		No Activ	ve Interve	ntion	Managed Realignment	
	0-20 20-50 50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20 20-50 50 - 100	
Key Policy Drivers									
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features		-			-				
	Coastal squeeze will occur	Coastal	squeeze w	ill occur		will roll ba habitats ed	ick ,	Habitats will roll back , intertidal habitats maintained	
Critical infrastructure: Lighthouse Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-	-	•	-	-	-	-	-	
, 	Lighthouse and electricity substations are not at risk of flooding.	Lighthouse and electricity substations are not at risk of flooding.			Lighthouse and electricity substations are not at risk of flooding.			Lighthouse and electricity substations are not at risk of flooding.	
Theme Area High Level Objectives									
Residential: Reduce significance of impact associated with flooding and erosion to people and property									
	Woodlands Road residential properties not at risk; properties in outskirts of Portishead affected Some residential properties at risk of flooding. Properties protected	at risk of	Some residential properties at risk of flooding. Properties protected		Some residential properties at risk of flooding; flood risk will increase over time.			Local adverse effects, wider benefits	
Recreational Sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity	-	-	-	-	-	-	-		

facilities. (Population				
and Human Health)				
	Limited recreational assets including footpaths. They are not at risk of flooding.	Limited recreational assets including footpaths. They are not at risk of flooding.	Limited recreational assets including footpaths. They are not at risk of flooding.	Limited recreational assets including footpaths. They are not at risk of flooding but may be adversely affected due to realignment.
Portishead Pier to Black Nore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)				
	Advancing the line means exposure will no longer be subject to coastal processes	Defences may damage exposure; however processes will continue to operate	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				
	Coastal squeeze will occur	Coastal squeeze will occur	Habitats will roll back , intertidal habitats maintained	Habitats will roll back , intertidal habitats maintained
Heritage Features: Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	- High number of non-			- Impact will depend on
	designated archaeological features along this reach of coastline. Assets along coast are not at risk of tidal flooding.	at risk of tidal flooding.	along coast are not at risk of tidal flooding.	alignment. Historical assets along coast are not at risk of tidal flooding.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Habitats will roll back, intertidal habitats maintained. LNR behind defences potentially affected	Set back of line will maintain intertidal habitats; however terrestrial habitats inc LNR may be affected
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with	-	· · ·	· · ·	

flood and erosion risk) (Population and Human Health)								
	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding				tial proper ast are no ooding		Residential properties are not at risk of flooding; realignment would therefore cause additional stress.
Water resources are protected (Water)	-				-	-	-	-
	No resources known to be at risk.	No resou at risk.	urces know	vn to be	No reso at risk.	urces knov	vn to be	No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.			No reso at risk.	urces knov	wn to be	No resources known to be at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Can not raise the height of defences indefinitely.	Can not raise the height of defences indefinitely.			coast wi climate d	evolution o ll accomm change; po o people a	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			flooding landscap positive depends May be landscap changes	ng the frec may alter be (whethe or negativ on perce a local cha be due to p in vegeta a and struct	the local er ption). ange to potential tion	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

The residential properties along the shoreline within this Policy Unit are on high ground but at erosion risk over the long term due to their close proximity to the coast.

Leisure centre set back out of flood cell or erosion risk line, therefore no impact of any policy approach.

The 'With Present Management' policy (set by SMP1) for **PORT2 – swimming pool to southern extent of Esplanade Road** – is:

SMP1 Management Unit 0-20		20-50	50 - 100
Woodhill Bay	Hold the Line	Hold the Line	Hold the Line

The impact on the agreed objectives of continuing with present management policy at the swimming pool to southern extent of esplanade road shoreline can be compared with alternative management policies through the following table:

	Policy l	Jnit – Poi	rtishead a	nd Cleved	don - swi	mming po	ool to soutl	hern exter	t of Espla	nade Road (PORT 2)
	Advanc	e the Lin	e	Hold the	e Line		No Activ	e Interven	tion	Managed Realignment
	0-20 20-50 50 - 100			0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20 20-50 50 - 100
Key Policy Drivers										
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-			
	Coastal occur				squeeze v	vill occur		will roll bac habitats m		Habitats will roll back , intertidal habitats maintained
Theme Area High Level Objectives										
Recreational Sites: Woodhill Bay Swimming Pool and Marine Lake Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities	-			-	-	-	-	-	-	
		ional asse sk of flood		Recreational assets are not at risk of flooding.			Recreation at risk of	nal assets flooding.	are not	Recreational assets along the sea front (including the pool and lake) will be adversely affected due to realignment.
Residential: Woodhill Bay residential properties Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	-			-	-	-	-	-	-	
	Residential properties along coast are not at risk of tidal flooding.			along co	Residential properties along coast are not at risk of tidal flooding.			al propertion not at risk		Residential properties are not at risk of flooding; realignment will therefore have an adverse effect on coastal properties.
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to	-			-	-	-	-	-	-	-

industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)				
	Local commercial assets are not at risk of flooding.	Local commercial assets are not at risk of flooding		No assets to be protected/affected by retreated line
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-			-
	None present	None present	None present	None present
Portishead Pier to Black Nore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)				
	Advancing the line means exposure will no longer be subject to coastal processes	Defences may damage exposure; however processes will continue operate	Natural processes will maintain the exposure o	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				
	Coastal squeeze will occur	Coastal squeeze will oc	Habitats will roll back , intertidal habitats maintained	Habitats will roll back , intertidal habitats maintained
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-			-
	High number of non- designated archaeological features along this reach of coastline. Assets along coast are not at risk of tidal flooding.	Assets along coast are at risk of tidal flooding.	tot Local historical assets along coast are not at risk of tidal flooding.	Impact will depend on alignment. Historical assets along coast are not at risk of tidal flooding.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Habitats will roll back, intertidal habitats maintained. Terrestrial	Set back of line will maintain intertidal habitats; however terrestrial be

					habitats p	ossible aff	ected	affected
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-	-	-	-	-	-	-	A -
	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.				al propertie are not at ing.		Residential properties are not at risk of flooding; realignment in this location will therefore have an adverse effect.
No detriment to water resources (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces know	vn to be	No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces know	vn to be	No resources known to be at risk.			No resources known to be at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)		-			_	-	_	•
	Can not raise the height of defences indefinitely.		raise the h s indefinite		will accon change; p	volution of nmodate cl ossible im id property	limate pact to	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	the defe local lan characte presenc landsca impact v	reasing he nces will a dscape in er (increasi e in the be): also a vith defenc og views.	ffect terms of ing visual	flooding n landscape or negativ perception change to potential o	g the freque nay alter the e (whether re depends n). May be landscape changes in n condition	e local positive s on e a local e due to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

The landscape character at the shoreline is dominated by the presence of the primarily recreational marine lake. The marine lake is located directly on the shoreline, at risk from even minimal erosion rates of change over the long term. Under a scenario of no active intervention the marine lake will lose its integrity over time and gradually be taken by the sea, thus the current character of the landscape will be lost.

The 'With Present Management' policy (set by SMP1) for <u>PORT3 – southern extent of Esplanade Road to</u> <u>Ladye Point</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Kilkenny Bay to Redcliff Bay	Do nothing	Do Nothing, locally Retreat the Line (provisional option)	Do Nothing, locally Retreat the Line (provisional option)
Redcliff Bay to Ladye Point	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the southern extent of Esplanade Road to Ladye Point shoreline can be compared with alternative management policies through the following table:

	Policy U	Init – Port	ishead ar	nd Cleved	on - soutl	nern exter	nt of Espla	anade Roa	d to Lady	e Point (PORT 3)		
	Advance	e the Line	•	Hold the	e Line		No Activ	ve Intervei	ntion	Manage	d Realign	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Coastals	Coastal squeeze will occur C			squeeze v	vill occur	because not erod	squeeze w the coastl e fast enou to roll back	ine will Igh for		will roll ba I habitats ied	ack ,
Theme Area High Level Objectives												
Recreational sites: Golf Course Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities	-			-	-	-	-	-	-			
		onal asset e not at ris	0	Recreational assets along coast are not at risk of tidal flooding.			Recreational assets along coast are not at risk of tidal flooding			Recreational assets along the sea front (including the golf course) will be adversely affected due to realignment.		
Residential: Redcliff Bay residential developments, West Hill, Walton in Gordano Reduce significance of impact associated with flooding and erosion to people and property	-			-	-	-	-	-	-	A -		
	along the coast are not at			Residential properties along the coast are not at risk of tidal flooding.			Residential properties along the coast are not at risk of tidal flooding.			Residential properties along the coast are not at risk of tidal flooding.; realignment will therefore have an adverse impact		
Infrastructure: IRB, Petrol Storage Site Reduce significance of impact associated with flooding and erosion to critical infrastructure	-			-	-	-	-	-	-			

	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	-			-
	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Local commercial assets are not at risk of flooding.
Portishead Pier to Black Nore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)		· · ·		
	Advancing the line means exposure will no longer be subject to coastal processes	Defences may damage exposure; however processes will continue to operate	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes
National nature conservation designations: Severn Estuary, Holly Lane, Walton Common and Gordano Valley SSSIs Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				
Walton Common and Holly Lane SSSIs unaffected by tidal flooding now and in future.	Coastal squeeze will affect Severn Estuary SSSI. Gordano Valley unaffected	Coastal squeeze will affect Severn Estuary SSSI. Gordano Valley unaffected	Intertidal habitats of Severn SSSI will roll back	Habitats will roll back , intertidal habitats maintained. Assume Gordano Valley far enough inland to be unaffected
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	-			
	Local historical assets are	Local historical assets are	Local historical assets are	Impact will depend on

	not at risk of flooding.	not at ris	sk of floodi	ng.	not at ris	k of floodii	ng.	alignment line. Historical assets may be affected.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-			•
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.			back fas	stline will r t enough f habitats to	or	Set back of line will maintain intertidal habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-	-	-	-	-	-	-	
	Residential properties along coast are not at risk of tidal flooding.	Residen along co of tidal	tial proper bast are no flooding	ties ot at risk	Residen along co of tidal f	tial propert ast are no looding	ties t at risk	Residential properties along coast are not at risk of tidal flooding. realignment would therefore cause increased stress to communities along coast
Source Protection Zone 1 Water resources are protected (Water)	-	-	-	-	-	-	-	-
	Source protection zone 1 is not at risk of being flooded.		protection risk of bei			protection : k of being		Source protection zone 1 is not at risk of being flooded.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso at risk.	urces know	wn to be	No resou at risk.	urces knov	vn to be	No resources known to be at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	•
	Can not raise the height of defences indefinitely.		raise the l s indefinite		coast wi	evolution o Il accommo change; pc o people a	odate ssible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			flooding landscap positive depends May be landscap changes	ng the freq may alter be (whethe or negative on percep a local cha be due to p in vegetal n and struc	the local er otion). nge to potential tion	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

Although there is no flooding and minimal erosion at the shoreline, many features are in close proximity of the shore and subject to erosion.

The petrol storage site is a Key Policy Driver for this unit – it is within the erosion risk zone over the long term and has the potential to have a significant negative impact on the environment and water quality if affected.

The 0 to 20 year flood cell from the shoreline at PORT1 includes sections of source protection zone 1. Saline intrusion from flooding may alter chemical status of groundwater. To hold the line following a breach of the defences under a No Active Intervention Scenario will be significantly positive for the

The 'With Present Management' policy (set by SMP1) for PORT4 - Ladye Point to Old Church Road - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Clevedon	Hold the Line (do nothing locally)	Hold the Line, locally Retreat the Line or Do Nothing	Hold the Line, locally Do Nothing

The impact on the agreed objectives of continuing with present management policy at the Ladye Point to Old Church Road shoreline can be compared with alternative management policies through the following table:

	Policy (PORT -		tishead a	and Cleve	don - Lady	e Point to (Old Churo	ch Road				
	Advanc	e the Lin	е	Hold th	e Line		No Acti	ive Interve	ntion	Manage	ed Realigi	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
Residential: Clevedon Reduce significance of impact associated with flooding and erosion to people and property				•			-					
	Clevedo				ntial propert on will be p		Clevedo	ntial proper on will be a ed risk of fl	t an		itial prope in will be id	rties in
Critical Infrastructure: Clevedon Hospital Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	0			-			-					
	Hospital under N protecte	l potential AI. Asset d	y at risk will be	Asset w	ill be prote	cted.		ill be at an ed risk of fl		Asset w	ill be prote	ected.
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Coastal occur	squeeze	will	Coastal squeeze will occur		Limited potential for roll back of habitats due to development; intertidal habitats will be lost			Limited potential for realignment due to development; intertidal habitats will be lost		to rtidal	
Theme Area High Level Objectives												
Recreational sites: Local facilities, footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)				-			-					
	unit affe under N	estern sec ected by flo AI. Recre will be pro	ooding ational	Recreat protecte	ional asset ed.	s will be		ional asse ly affected				
Industrial, commercial and economic assets:	-	•		-	-	-	-	-	-			

Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Land use is predominantly	Land use is predominantly	Land use is predominantly	Realignment may
	residential. Limited economic assets at risk from tidal flooding.	residential. Limited economic assets at risk from tidal flooding.	residential. Limited economic assets at risk from tidal flooding	adversely affect some tourism assets along the seafront e.g. pier.
Clevedon Shore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)				
	Advancing the line means exposure will no longer be subject to coastal processes	Defences may damage exposure; however processes will continue to operate	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes
National nature conservation designations: Severn Estuary and SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)			-	
	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur because the coastline will not erode fast enough for habitats to roll back.	Habitats will roll back , intertidal habitats maintained
Listed Buildings and non-designated sites of historic interest. Historic Park and Garden: Clevedon Court Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)				-
	Local historical assets are not at risk of flooding or erosion	Local historical assets are not at risk of flooding.	Local historical assets are not at risk of flooding	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Historical assets are not at risk of flooding.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing				•

targets/plans								
Church and Wains Hills LNR	Loss of intertidal habitat due to coastal squeeze		to coastal squeeze.		back fas	stline will r it enough f l habitats t	or	Set back of line will maintain intertidal habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-			-			
	Residential properties in Clevedon will be protected.		itial propert n will be pr		Clevedo increase	tial proper n will be a ed risk of fl	t an	Residential properties in Clevedon will be protected.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No reso risk.	urces know	n to be at	No reso at risk.	urces know	vn to be	No resources known to be at risk.
No detriment to water quality (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk	No reso risk	urces know	n to be at	No reso at risk	o resources known to be t risk		No resources known to be at risk
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	_	
· · · ·	Can not raise the height of defences indefinitely.		raise the h s indefinite		coast wi	evolution c Il accomm change; po o people a 7.	odate ossible	Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	defence landsca characte presenc also a vi	reasing hei s will affect pe in terms er (increasin e in the lan isual impac s disrupting	local of ng dscape): t with	flooding landsca positive depends May be landsca changes	ng the frec may alter oe (whethe or negativ on perce a local cha oe due to p is in vegeta n and struc	the local er otion). inge to potential tion	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure

4.15 Kingston Seymour to Sand Bay Theme Area (KIN)

The 'With Present Management' policy (set by SMP1) for KIN1 – Old Church Road to St Thomas' Head – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Wains Hill to St Thomas's Head	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Old Church Road to St Thomas' Head shoreline can be compared with alternative management policies through the following table:

	Policy Unit – Kingston Seymour to Sand Bay -Old Church Road to St Thomas' Head (KIN 1)										
	Advance the Lin	e I	Hold the L	ine		No Active	Interventior	ı	Manag Realig		
		0 - (00	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Key Policy Drivers										00	100
Critical Infrastructure: M5 Kingston Seymour STW Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)						-					and on
	Critical infrastruct protected from flooding.		Critical infrastructure protected from flooding.			Critical infrastructure at an increased risk of flooding.			Impact will depend on alignment line. There may be impacts on the Kingston and Seymour STW (600m from the coast).		
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features						-					
	Coastal squeeze occur	will	Coastal squ	ueeze will oc	cur	Habitats wi habitats ma	II roll back , i aintained	ntertidal		ts will roll al habitat ined	
Residential: Clevedon Wick St. Lawrence, Kingston Seymour and isolated properties Reduce significance of impact associated with flooding and erosion to people and property		-	-			-					

	Residential properties in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will protect them.	Residential properties in Clevedon and the village including Wick St Lawre Kingston Seymour are a Policy will protect them.	es nce and	Clevedon and the villages			Impact will depend on alignment line. Some adverse local impacts for wider community benefit .		
Theme Area High Level Objectives									
Industrial, commercial and economic assets: Agriculture Agricultural land, caravan and camping parks south of Clevedon. Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)		-		-					
	Agriculture main land use; assets protected.	Assets protected.		Assets at a flooding.	n increased	rick of	Impacts will depend on new line; some local impacts offset by wider benefits due to large area at risk.		
Recreational sites: Local facilities, footpath network and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)		-	•	-			•		
	Golf course south of Clevedon and network of footpaths across area will be protected.	Golf course south of Cle and network of footpaths area will be protected.		and networ	e south of Cle k of footpath adversely a	is across	Impact will depend on alignment line. Some local adverse impacts for wider community benefit		
National nature conservation designations: Severn Estuary Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-		-					
	Coastal squeeze will occur.	Coastal squeeze will occ	cur.	Habitats wi habitats ma	II roll back in aintained.	tertidal	Habitats will roll back, intertidal habitats maintained.		
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest.		-		-			•		

4 SAMs including Woodspring Priory and many listed buildings in villages. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)								
	Historical assets protected from flooding.	Historical a flooding.	assets protec	ted from	Historical a increased f	ssets at risk looding.	of	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Historical assets protected from flooding.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-	•	•	•
	Loss of intertidal habitat due to coastal squeeze.	Loss of inte coastal squ	ertidal habita Jeeze.	t due to	Space for habitats to	terrestrial an roll back	d intertidal	Set back of line will maintain intertidal habitats; plus sufficient space for terrestrial habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		-			-			
	Populations in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will reduce concern.	and the vill Lawrence a	s in south Cla ages includir and Kingston Policy will re	ng Wick St Seymour	and the vill Lawrence a	s in south Clages includir ages includir and Kingston Policy will n	ng Wick St Seymour	Impact will depend on alignment line. Some local impacts for wider community benefit
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No resources known to be at risk.		es known to	be at risk.		es known to	be at risk.	No resources known to be at risk.
No detriment to water quality (Water) Clevedon Source Protection Zone Kingston Seymour STW		•			-			
	Protection of Clevedon source protection zone and of Kingston Seymour STW.		of Clevedon zone and of I TW.		and Kingst risk of tidal	ource protect on Seymour flooding and affected by se	STW at I being	Protection of Clevedon source protection zone and of Kingston Seymour STW.
Policy is designed to adapt to or accommodate climate change					-	-	-	•

trends. (Air and Climate)								
	Can not raise the height of defences indefinitely.		Can not raise the height of defences indefinitely.			blution of the late climate c pact to peop	Managed retreat will accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	defences v landscape (increasing landscape)	asing height vill affect loca in terms of c presence in calso a visu ces disruptin	al haracter hthe al impact	flooding ma landscape negative de May be a le landscape	the frequence ay alter the lo (whether pos- epends on pe- bocal change due to poten vegetation c ire.	ocal sitive or erception). to tial	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

The 'With Present Management' policy (set by SMP1) for <u>KIN2 – St Thomas' Head to Middle Hope car</u> park (Sand Point) – is:

SMP1 Management Unit	0-20	20-50	50 - 100
St Thomas's Head to Sand Point	Do nothing	Do Nothing	Do Nothing
Sand Point to Middle Hope Car Park	Do nothing	Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the St Thomas' Head to Middle Hope car park (Sand Point) shoreline can be compared with alternative management policies through the following table:

	Policy L (KIN 2)	Jnit – Kin	igston Se	ymour to S	Sand Bay	nas' Head	to Middle I	Hope car p	oark (Sand	l Point)		
		e the Line)	Hold the	e Line		No Activ	e Intervent	tion	Manage	d Realigr	ment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features	geology technica	iigh groun ATL is no illy approp ot conside	t riate,				-			to topog	not feasi raphy; uni on steep h	t is
				Coastal squeeze will occur			Habitats will roll back , intertidal habitats maintained					_
Theme Area High Level Objectives			I									
National nature conservation designations: Severn Estuary & Middle Hope SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites	geology technica	high groun ATL is no Illy approp ot conside	t riate,				-			to topog	not feasi raphy; uni on steep h	t is
				will occu calcareo interest o impact	Coastal so r. Middle H us grassla on top of cl	iope – nd	very slow geology/t intertidal Possible	will roll bac dy due to opography habitats ma impact to c d as cliff ret	so aintained. alcareous			
Industrial, commercial and economic assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	geology technica	igh groun ATL is no illy approp ot conside	t riate,	-	-	-	-	-		to topog	t not feasi raphy; uni on steep h	t is

		No assets at risk	No assets at risk	
Isolated Residential properties of Middle Hope Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	· · · ·		N/A. MR not feasible due to topography; unit is located on steep headland
		No properties at risk from tidal flooding via this unit	No properties at risk from tidal flooding via this unit	
Recreational sites: footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			N/A. MR not feasible due to topography; unit is located on steep headland
		Footpaths on the Middle Hope headland and LNR not affected by flooding via this unit; access severed due to flooding to the rear of the unit (see PU?)	Footpaths on the Middle Hope headland and LNR not affected by flooding via this unit; access severed due to flooding to the rear of the unit (see PU?)	
Middle Hope SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils -including Geomorphology and Contaminated Land)				
	Advancing the line means exposure will no longer be subject to coastal processes	Defences may damage exposure; however processes will continue to operate	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			N/A. MR not feasible due to topography; unit is located on steep headland
		No critical infrastructure present.	No critical infrastructure	
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		Present. - <td>N/A. MR not feasible due to topography; unit is located on steep headland</td>	N/A. MR not feasible due to topography; unit is located on steep headland
		No historic environment assets will be impacted.	No historic environment assets will be impacted.	
Maintain and enhance Biodiversity Action Plan habitats and	N/A Due to high ground / hard geology ATL is not			N/A. MR not feasible due to topography; unit is located on steep headland

species in line with	technically appropriate,							
existing targets/plans	option not considered				.			Out hash of the state
	Loss of intertidal habitat due to coastal squeeze.		ntertidal ha		l opograp of rollbac	hy will limi	t degree	Set back of line will maintain intertidal habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland
Human Health)								
			l ential prop tidal flood tage			l ntial prope tidal floodir		
Water resources are protected (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland
			r resource			resource a		
No detriment to water quality (Water)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland
		No know	n features	at risk.	No knowr	features a	at risk.	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered					•		N/A. MR not feasible due to topography; unit is located on steep headland
			raise heig s indefinite			volution of nmodate c		
Avoid detrimental effects to landscape character (Landscape)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered				-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland
		the defe local lan characte presence landscap	oe): also a vith defenc	ffect terms of ng visual		ffected by limited eros		

The 'With Present Management' policy (set by SMP1) for <u>KIN3 – Middle Hope car park to southern extent</u> <u>of Beach Road</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
Middle Hope Car Park to South Kewstoke	Hold the Line	Hold the Line	Hold the Line or Retreat the Line

The impact on the agreed objectives of continuing with present management policy at the Middle Hope car park to southern extent of Beach Road shoreline can be compared with alternative management policies through the following table:

	Policy l (KIN 3)	Jnit – Ki	ngston S	eymour to Sa	ind Bay - I	Middle Ho	ope car pa	rk to sout	hern exte	ent of Bea	ch Road	
		e the Line	9	Hold the Li	ne		No Acti	ve Interve	ntion	Manage	ed Realigr	nment
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-					
	Loss of	intertidal h	abitat	Coastal squ	ieeze will c	occur.	intertida maintair restrictic	will roll ba I habitats ned. Some ons due to ment along		maintair habitats	k of line w n intertidal ; Some re levelopme st	strictions
Theme Area High Level Objectives												
Residential: Sand Bay. Kewstoke Holiday Camp Reduce significance of impact associated with flooding and erosion to people and property					•		-					
	Protecte	ed from flo	oding	Protected fr	om floodin	g		tial areas ed risk forn		resident concent	umbers of ial propert rated alon Ily affecte ig line	ies g coast
Recreational sites: Local facilities, footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)							-					
	Existing	assets pro	otected	Assuming s protection m increased re including the be protected	naintained ecreation a e beach fro	or Issets	Flood ris	sk will incre	ease		oad and th is along it l.	

Industrial, commercial and economic assets: Agriculture, Tourism/Commercial holiday and caravan parks Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	Existing assets will be	Local comm	ercial asse	• ets are	-	d flood ris	k over	Negative impact on
	protected	present such and caravan protected.			time.			caravan parks, holiday park and potential loss of agricultural land. Wider benefit to areas behind line
Critical infrastructure: M5 Two electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)					-			
	Reduced risk of flooding for beach road. Path network could be developed.	Infrastructur	e will be pr	rotected.	time. Th the elect	ed flood ris his will not ricity subs e present	protect tations	Beach road will be affected and electricity substations could be put at more risk.
National nature conservation		-			-	\bigcirc	\bigcirc	\bigcirc
designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)								
Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)	Loss of intertidal habitat	Coastal sque	eeze will o	ccur	Habitats intertidal maintain		ack ,	Set back of line will maintain intertidal habitats.
Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora	-				intertidal maintain -	habitats ed -	-	maintain intertidal habitats. -
Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna) Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic					Flood ris Limited t	habitats ed - k will incre	- ease	maintain intertidal habitats.

species in line with existing targets/plans								
	Loss of intertidal habitat due to coastal squeeze.	Loss of inter coastal sque		at due to	Habitats intertidal maintain		ack ,	Set back of line will maintain intertidal habitats
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)		•	•	•	-			
	Limited residential properties at risk/protected	Limited resid at risk/proted		perties		residential es at risk in <		Overall flood risk will be reduced however some properties and caravan parks may be affected.
Water resources are protected (Water)	-	-	-	-	-	-	-	-
	No water resource assets at risk of being affected.	No water res		ets at		r resource being aff		No water resource assets at risk of being affected.
No detriment to water quality (Water)								
	No known features at risk.	No known fe	eatures at i	risk.	No know	n features	s at risk.	No known features at risk.
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	-	-	
	Can not raise the height of the defences indefinitely.	Can not rais defences inc		fthe		evolution o Il accomm change.		Managed retreat will accommodate climate change.
Avoid detrimental effects to landscape character (Landscape)					-	-	-	-
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increas defences wil landscape ir character (ir in the landso impact with disrupting vi	Il affect loc n terms of ncreasing p cape): also defences	al presence	of floodir local lan positive depends May be landscap changes	ng the frec ng may alt dscape (w or negativ on perce a local cha be due to p in vegeta n and strue	er the hether e ption). ange to potential tion	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.

The 'With Present Management' policy (set by SMP1) for <u>KIN4 – southern extent of Beach Road to</u> <u>Birnbeck Island</u> – is:

SMP1 Management Unit	0-20	20-50	50 - 100
South Kewstoke to Birnbeck Island	Do nothing (locally hold)	Do Nothing (locally Hold the Line)	Do Nothing (locally Hold the Line or Do Nothing)

The impact on the agreed objectives of continuing with present management policy at the southern extent of Beach Road to Birnbeck Island shoreline can be compared with alternative management policies through the following table:

		Policy Unit – Kingston Seymour to Sand Bay - southern extent of Beach Road to Birnbe (KIN 4)								eck Island		
	Adv Line	ance t	he	Hold the	Line		No Activo	e Intervent	ion		naged lignm	ent
	0- 20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0- 20	20- 50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features				-			-	•		reali cons unsu this to el	uitable	d to be an policy for Unit due d
	habi inter	rtidal itat los: nation gnatec	ally	Coastal s	queeze will	occur		will roll back e to elevate אין	,			
Critical Infrastructure: Lifeboat Station To manage the risk of flooding and erosion to critical infrastructure.				-	•		-			reali cons unsu this to el	uitable	d to be an policy for Unit due d
	line adve	ancing may h erse ef he lifet on.	ave fects	Asset pro	tected.		protected	tation will r and will be risk of floo	at an			<u>}</u>
Theme Area High Level Objectives												
Future Development Opportunity – Birnbeck Island Reduce significance of impact associated with flooding and erosion to				-			-			reali cons unsu this to el	uitable	d to be an policy for Unit. due d

		1	1	1		1		
industrial, commercial and economic assets (including agricultural), and activities (including tourism)								
Residential: Weston Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. (Population and Human Health)	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	Features not at flood risk now or under future scenarios. Unaffected by advance the line		not at flood uture scena			not at flood uture scena		
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism) (Population and Human Health)	-	-	-	-	-	-	-	- N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	There are limited industrial, commercial and economic present within this reach ; no assets at risk	commerci present w	e limited ind ial and ecor rithin this re risk from tio no impact	nomic ach ; no	commerci present w	limited ind al and ecor rithin this re risk from tio no impact	nomic ach ; no	

			1	I
	from tidal flooding ; no impact .			
Infrastructure: Local road and paths networks Reduce significance of impact associated with flooding and erosion to critical infrastructure (Population and Human Health)	-		· · · ·	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	No risk of tidal flooding via the frontage within this unit; no impact from ATL	No risk of tidal flooding via the frontage within this unit; no impact	No risk of tidal flooding via the frontage within this unit; no impact	
Spring Cove Cliffs SSSIs Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils -including Geomorphology and Contaminated Land)				N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Cliffs no longer exposed to natural erosive processes; exposure will become buried	Defences may damage exposure; otherwise impact will depend on whether defences are in front or behind the cliffs. However defences unlikely as no flood risk here.	Cliffs will remain exposed to natural erosive processes	
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally and locally designated conservation sites. (Biodiversity, Flora and Fauna)				N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Coastal squeeze will occur	Coastal squeeze will occur	habitats will roll back all be it slowly due to elevated land behind	
Scheduled Monuments, Listed Buildings and non-designated	-	· · · ·	· · · ·	N/A Managed realignment is considered to be an unsuitable policy for

sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting. (Historic Environment)	No risk of tidal flooding via the		tidal floodi			tidal floodii vithin this u		this Policy Unit. due to elevated topography
	frontage within this unit; no impact from ATL.	no impact			impact		, 	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Loss of intertidal habitat due to coastal squeeze.	Loss of in to coastal	tertidal hab squeeze.	itat due		will roll back e to elevate אין		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-	-	-	-	-	-	-	- N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Limited residential properties at risk/protected	Limited re at risk/pro	sidential pr tected	operties	Limited re at risk/pro	esidential pr otected	operties	
Water resources are protected (Water)		-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	No water resource assets at risk of being affected.		resource as ng affected			resource as ing affected		
No detriment to water quality (Water)	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	No known features at risk.	No known	features a	t risk.	No knowr	n features a	t risk.	
Policy is					_	-	_	N/A

designed to adapt to or accommodate climate change trends. (Air and Climate)							Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	Can not raise the height of the defences indefinitely.	Can not raise he defences indefin			volution of nmodate cl		
Avoid detrimental effects to landscape character (Landscape)				-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing l defences will affor landscape in terr character (increas presence in the l also a visual imp defences disrupt	ect local ns of ising andscape): act with	erode fas or negativ perceptio change to potential	landscape ter (whethe re depends n). May be landscape changes in n condition	er positive s on e a local e due to	

4.16 The Holms Theme Area (HOL)

The 'With Present Management' policy (set by SMP1) for HOL1 - Flat Holm - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Flat Holm		Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the Flat Holm shoreline can be compared with alternative management policies through the following table:

	Policy Unit – The Holms – Flat Holm (HOL 1)											
	Advance the Line			Hold the	Line		No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Key Policy Drivers												
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features							-	-	-	preclude	und / hard s physical e, option ed	retreat
	Loss of intertidal habitats			place Coastal squeeze will occur. Loss of intertidal habitat			place Co occur. L	Currently no defences in place Coastal squeeze will occur. Loss of intertidal and ultimately terrestrial habitat				
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries and WWII anti aircraft batteries Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	-			-	-	-	-	-	-	preclude	und / hard es physical e, option ed	retreat
	Historical sites not at risk of flooding/erosion.			Historica flooding/	l sites not	at risk of	Historica flooding/	l sites not	at risk of			
Critical infrastructure: Lighthouse, Landing Pier To manage the risk of flooding and erosion to critical infrastructure.		ng/erosion		-	-	-	-	-	-	preclude	ound / hard s physical ie, option ed	retreat
	Advancing the line would make assets redundant /inaccessible			Infrastructure not at risk of flooding.			Infrastructure not at risk of flooding.					
Theme Area High Level Objectives												
Residential: Lighthouse provides isolated residency Reduce significance of impact associated with flooding and erosion to people and property (Population and Human Health)	-			-	-	-	-	-	-	preclude	und / hard s physical e, option ed	retreat
	Limited residential properties at risk /				esidential s at risk /			esidential s at risk /				

	protected. Lighthouse not	protecte	d. Lighthou	use not	protected	d. Lightho	ouse not	
	at risk of flooding.	at risk of	flooding.		at risk of			
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)		-			-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Loss of intertidal habitats but gain of terrestrial	place Co	y no defen bastal sque loss of inte	eze will	place Co occur. L and ultim habitat	v no defen astal sque oss of inte nately terre	eeze will ertidal	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Loss of intertidal habitat due to coastal squeeze.		ntertidal h oastal squ		ultimatel	ntertidal a y terrestria pastal squ	al habitat	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-		-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No residential properties at risk / protected.	No resid risk / pro	I ential prop tected.	erties at	No reside risk / pro	ential prop tected.	Derties at	
Water resources are protected (Water)		-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No water resource assets at risk of being affected.		r resource being affe		No water resource assets at risk of being affected.			
No detriment to water quality (Water)		-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No known features at risk.	No know	n features	at risk.	No know	n features	at risk.	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)					-	_	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Can not raise the height of the defences indefinitely.	Can not raise height of the defences indefinitely.		Natural evolution of the coast will accommodate climate change.				
Avoid detrimental effects to landscape character (Landscape)					-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	ver increasing height of he defences will affect ocal landscape in terms of haracter (increasing presence in the landscape): ilso a visual impact with lefences disrupting views.		Limited change anticipated				

The shoreline of Flat Holm is included in the internationally recognised nature conservation designations of the Severn Estuary, advancement of the current shoreline out into the estuary will have a negative impact on the sites. To physically hold the line will also have a negative impact on the environment and nature conservation – engineering works will prevent natural interactions at the shoreline that generate the present habitats.

Due to the hard rock geology of Flat Holm, and subsequent stable shoreline, the failure to hold the line will not have a positive or negative impact on landscapes adaptation /accommodation of climate change. The hard rock geology and negligible movement of the shoreline over the next century ensures there is no impact from flooding or erosion on the nationally recognised heritage features on Flat Holm.

The 'With Present Management' policy (set by SMP1) for HOL2 - Steep Holm - is:

SMP1 Management Unit	0-20	20-50	50 - 100
Flat Holm		Do Nothing	Do Nothing

The impact on the agreed objectives of continuing with present management policy at the Steep Holm shoreline can be compared with alternative management policies through the following table:

	Policy Unit – The Holms – Steep Holm (HOL 2)												
	Advance the Line			Hold the	e Line		No Activ	ve Interve	ntion	Managed Realignment			
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Key Policy Drivers													
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Reduce significance of impact associated with maintaining the integrity of internationally designated sites and the favourable condition of their features							-	-	-	preclude	ound / hard s physical le, option ed	retreat	
	Loss of i	ntertidal ha	abitats	place Co	y no defen bastal sque loss of inte	eze will	place Co occur. L and ultin habitat	y no defen bastal sque loss of inte nately terre	eeze will ertidal				
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries Listed Buildings and non-designated sites of historic interest Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting							-			preclude	ound / hard es physical ie, option red	retreat	
Theme Area High Level Objectives	Historica flooding/	I sites not erosion.	at risk of	Historica flooding/	al sites not erosion.	at risk of	Historica flooding/	al sites not erosion.	at risk of				
National nature conservation: Severn Estuary SSSI Reduce significance of impact associated with managing adverse impacts on nationally or locally designated conservation sites. (Biodiversity, Flora and Fauna)				-			-	-	-	preclude	l ound / hard es physical ie, option r ed	retreat	
	Loss of intertidal habitats			Currently no defences in place Coastal squeeze will occur. Loss of intertidal habitat			Currently no defences in place Coastal squeeze will occur. Loss of intertidal and ultimately terrestrial habitat				ntertidal h of terrestr		
Maintain and enhance Biodiversity Action							-	-	-	N/A High gro	ound / hard	l geology	

Severn Estuary SMP Review

Plan habitats and species in line with existing targets/plans	Intertidal habitats lost to coastal squeeze.	Intertidal habitats lost to coastal squeeze.	Loss of intertidal and ultimately terrestrial habitat	precludes physical retreat of the line, option not considered
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk) (Population and Human Health)	-		due to coastal squeeze.	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No residential properties at risk / protected.	No residential properties at risk / protected.	No residential properties at risk / protected.	
Water resources are protected (Water)	-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No water resource assets at risk of being affected.	No water resource assets at risk of being affected.	No water resource assets at risk of being affected.	
No detriment to water quality (Water)	-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No known features at risk.	No known features at risk.	No known features at risk.	
Policy is designed to adapt to or accommodate climate change trends. (Air and Climate)				N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Can not raise the height of the defences indefinitely.	Can not raise height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change.	
Avoid detrimental effects to landscape character (Landscape)				N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Limited change anticipated	

Steep Holm is an important site for nature conservation. Advancement of the current shoreline out into the estuary will have a negative impact on the internationally recognised environment and nature conservation sites. To physically hold the line will also have a negative impact on the environment and nature conservation – engineering works will prevent natural interactions at the shoreline that generate the present habitats.

Due to the hard rock geology of Steep Holm, and subsequent stable shoreline, the failure to hold the line will not have a positive or negative impact on landscapes adaptation /accommodation of climate change. The hard rock geology and negligible movement of the shoreline over the next century ensures there is no impact from flooding or erosion on the nationally recognised heritage features on Steep Holm.