Annex A Policy and Plan Review

Annex A - Review of policies, plans, and programmes and relevance to the Shoreline Management Plan Review

Relevant plan, policy or programme	Potential influence	Themes	Relevant opportunities or constraints we need to consider
Legislation			
EU Bathing Water Directive (76/160/EEC)	The Directive sets the minimum quality criteria to be met by bathing water including; the physical, chemical and microbiological parameters; the mandatory limit values and indicative values for such parameters; the minimum sampling frequency and method of analysis or inspection of such water.	2, 3, 7	The SMP2 will need to comply with this legislation.
EU Freshwater Fish Directive (78/659/EEC)	The Directive aims to protect and/or improve the quality of fresh waters that support, or could support, certain species of fish. It requires member states to monitor the quality of designated waters and take measures to ensure that they comply with the minimum standards. This directive has been integrated into the proposed Water Framework Directive and will be repealed in due course.	4, 5, 7, 12	The SMP2 will need to comply with this legislation.
EU Shellfish Water Directive (79/932/EEC)	Outlines the requirements for the quality of designated waters which support shellfish and aims to protect these shellfish populations from the harmful consequences resulting from the discharge of polluting substances into the sea.	4, 5, 7, 12	The SMP2 will need to comply with this legislation.
EU Environmental Liability Directive (2004/35/EC)	The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage. Environmental damage is defined as direct or indirect damage to the aquatic environment, species and natural habitats, and contamination of the land which creates a significant risk to human health.	2, 4, 6, 7, 9, 17	The SMP2 will need to comply with this legislation.
EU Landfill Directive (1999/31/EC)	Intended to prevent or reduce the adverse effects of the landfill of waste on the environment, in particular on surface water, groundwater, soil, air and human health.	13, 15	The SMP2 will need to comply with this legislation.
EU Waste Directive (2008/98/EC)	Aims to protect the environment and human health through the prevention of the harmful effects of waste generation and waste management.	12, 13, 15	The SMP2 will need to comply with this legislation.
EU Nitrates Directive (91/676/ EEC)	Aims to protect water bodies against pollution induced by nitrates from agricultural sources and ensure that groundwater nitrate	2, 4, 7	The SMP2 will need to comply with this legislation.

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	concentrations do not exceed 50 mg/l.		
EU Directive on Environmental Noise (2002/49/EU)	Transposed into the Environmental Noise (England) Regulations 2006 which requires formal Noise Action Plans to be undertaken.	2	The SMP2 will need to comply with this legislation.
Water Resources Act 1991 (HMSO, 1991)	The WRA regulates discharges to controlled waters, namely rivers, estuaries, coastal waters, lakes and groundwaters.	2	The SMP2 should take account of the duties and powers resulting from this Act
Land Drainage Act 1991, as amended in 1994 (HMSO, 1991)	Gives operating authorities (including the Environment Agency) authorisation to carry out works on watercourses for certain purposes. Also paces environmental and recreational duties on the Environment Agency	1,2,	The SMP2 should take account of the duties and powers resulting from this Act
The Environment Act 1995 (HMSO, 1995)	Created the Environment Agency and set new legislation for environmental protection.	3,4,5,6, 7, 8	The SMP2 should take account of the duties and powers resulting from this Act
EU Directive on Assessment and Management of Flood Risk (2007/60/EC)	The EU proposes action on flood risk management to improve protection against flooding. The Commission proposes a number of actions. These include flood risk management plans for affected river basins and coastal zones, flood risk maps showing the areas at risk of flooding, co-ordination of information exchange, ensuring the contribution of all relevant EU policies and increasing public awareness	8	The SMP2 will complement the requirements of the proposed Directive.
Marine Bill (Consultation Draft April 2008)	The Marine Bill will increase the protection of marine and coastal environment, by putting in place better systems for delivering sustainable development of marine and coastal environment.	1,3 4, 5, 6, 9, 11,12	The SMP2 will need to take the requirements of the draft Bill into consideration; SEA will ensure impacts on terrestrial and marine environment are taken into consideration
Conservation (Natural Habitats, &c) Regulations, 1994	The Regulations provide for the designation and protection of European sites, the protection of European protected species, and the adaptation of planning and other controls for the protection of European Sites. The Regulations require competent authorities to consider or review planning permission, applied for or granted, affecting a European site, and, subject to certain exceptions, restrict or revoke permission where the integrity of the site would be adversely affected. Strategies and pans are also subject to the requirements of the legislation	4	The SMP2 will need to comply with this legislation
The Natural Environment and Rural Communities (NERC) Act 2006	Established Natural England and united in a single organisation the responsibility for enhancing biodiversity and landscape – in rural, urban and coastal areas - with promoting access and recreation. Other relevant elements include: provisions to address a small number of gaps and uncertainties which have been identified for Sites of Special Scientific Interest (SSSIs), provisions	3. 4.6	The SMP2 will need to comply with this legislation

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	to make amendments to the Wildlife and Countryside Act 1981 to improve wildlife protection, extension of the CROW biodiversity duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity, provisions to amend the flood defence byelaw-making powers of the Environment Agency, Local Authority and Internal Drainage Board to allow them to take nature conservation into account when determining consent for flood defence works.		
Countryside and Rights of Way Act 2000 (CRoW Act)	The purpose of the Act is to create a new statutory right of access on foot to certain types of open land, to modernise the public rights of way system, to strengthen nature conservation legislation, and to facilitate better management of AONBs. Government departments are required to have regard for biodiversity in carrying out its functions, and to take positive steps to further the conservation of listed species and habitats. The protection of SSSIs, already established in the Wildlife and Countryside Act, is strengthened giving greater power to Natural England. Local Authorities have a statutory duty to further the conservation and enhancement of SSSIs both in carrying out their operations, and in exercising their decision making functions. The Act strengthens legal protection for threatened species and assists in bringing offenders to justice, and provides for stronger penalties	3, 4, 6	The SMP2 will need to comply with this legislation
National and Regional Planning Wale			
Wales a Better Country (Welsh Assembly Government, September 2003)	The strategic agenda of the Welsh Assembly Government promotes working across organisations to achieve objectives. It sets a strategic, integrating agenda for the next 20 years. Includes objectives to manage the environment comprehensively	1,2,3,4	Seek opportunities to work with other organisations to deliver SMP2 measures or environmental benefit
People Places Futures: The Wales Spatial Plan and Wales Spatial Plan Update (Welsh Assembly Government, 2004 and 2008)	Provides strategic context for development; aims to support and influence spatial polices and programmes of WAG and others to achieve economic success, social inclusion and a quality environment. The Wales Spatial Plan reflects the planning policies set out in Planning Policy Wales (see below).	1,2,3, 4, 8, 9, 10, 12, 16	Ensure planning process incorporates objectives, policies and/or actions from SMP2 including avoidance of development in flood risk areas and consideration of flood risk at a catchment scale;
Environment Strategy for Wales (Welsh Assembly Government, 2006)	Addresses key challenges faced by Wales under 5 broad areas – climate change, sustainable resource use, distinctive biodiversity, landscapes and seascapes, local environment and environmental	1, 2, 3, 4, 6, 7, 8, 11,10, 12, 13, 14,	The SMP2 will address management of coastal flood and erosion risk and should address climate change by increasing

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	hazards. References the themes of biodiversity, landscape, climate change and flood risk management. Supports the approach of managing the risks and consequences of flooding. Seeks to ensure protected sites are in favourable condition to support the species and habitats for which they have been identified.	15, 16, 17	resilience to impacts. They may also identify areas/actions for improvement
Planning Policy Wales (Welsh Assembly Government, March 2002)	PPW identifies the requirement for the planning system to move away from flood defence and the mitigation of the consequences of new development in areas of flood hazard, towards a more positive avoidance of development in flood risk areas; advocates that planning authorities adopt a precautionary approach when formulating Local Development Plan policies on development and flood risk, and when considering planning applications. The guidance also suggests that local planning authorities take a strategic approach to flood risk and consider the catchment as a whole.	1, 4, 6, 8, 9, 10, 11, 12, 13,14,15, 17	The SMP2 will set objectives, policies and/or actions to be incorporated within the Local Planning process including avoidance of development in flood risk areas and consideration of flood risk at a catchment scale and policies or measures for strategic reaches
Sustainable Development Action Plan 2004-2007 (Welsh Assembly Government, 2004)	This Action Plan states how it will promote sustainable development in the exercise of its functions in Wales. The principles of the Sustainable Development Scheme require the Environment Agency Wales to seek to enhance environmental; social and economic capital, in combination, in all its work. The policy suggests that climate change is the greatest international sustainable development challenge. The policy suggests there is also a need to take action that allows adaptation to the effects of climate change in its many guises, be it flooding, storm damage, sea level rise or pressure on water resources. A key objective (No. 10) is that any flood risk management measures should seek to be sustainable, both in terms of maintenance requirements and in ensuring the reintroduction or continuation of natural processes.	1, 4, 9, 10	The SMP2 should seek to enhance the environment; it will promote sustainable policies/ measures ensuring the reintroduction or continuation of natural processes
Wales a Vibrant Economy The Welsh Assembly Government's Strategic Framework for Economic Development – Consultation Document (Welsh Assembly Government, 2005)	Sets out strategy for improving Welsh Economy, highlights the need for this to be achieved whilst being environmentally sustainable.	1	The SMP2 will consider the economic implications of any proposed policy options
Technical Advice Notes (Welsh Assembly Government)	Support key aspects of the planning system. Include: TAN5 addresses how Nature Conservation should be integrated into and taken account of in the planning system.	1,2,3,4,6,7,8, 9,10, 11, 12,13, 14,	The SMP2 will embrace the main principles of the relevant TANs and should help Planning Authorities when reviewing development

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	TAN 6: Agriculture and Rural Development including use of agricultural buildings, and irrigation TAN 8 relates to the land use planning considerations of Renewable Energy. TAN13 Tourism TAN 14: Coastal Planning sets out how local planning authorities should manage coastal development; will need to be taken in to consideration in the planning of any defences. TAN15 Development and Flood Risk requires adequate assessment and if necessary mitigation be implemented prior to approval of development.	15, 17	applications. Particularly in relation to avoidance of development in flood risk areas and consideration of flood risk at a catchment scale.
Minerals Planning Policy Wales and Minerals Technical Advice Note 1 (Aggregates) (Welsh Assembly Government 2001 onwards)	Sets out land use planning policy guidance in relation to mineral extraction. Guidance to be taken in preparation of unitary development plans by Mineral Planning Authority. The overarching objective of these documents is to ensure mineral supply is managed in a sustainable way. The Bristol Channel is currently the main source of fine aggregates for South Wales, and particularly South East Wales.	12	Marine dredging could affect the morphology off the estuary and therefore flood risk; however a detailed consideration of the impacts of current and proposed dredging proposals is outside the remit of this study and will be addressed as part of individual applications. In order to ensure regional sustainability of aggregate extraction and improving the evidence base for individual licence applications the marine aggregate industry has made a voluntary commitment to undertake Regional Environmental Assessments (REAs) for a number of strategic areas of extraction. The Bristol Channel Region is also being considered for regional assessment in the future.
Marine Aggregates Dredging Policy (National Assembly for Wales, November 2004)	WAG policy on dredging the sea bed, which includes moving dredging further offshore over the next ten years. States that it is unlikely in the foreseeable future that the marine-dredged sand could be substantially replaced from other sources without raising the cost and reducing the quality of construction – emphasis on encouraging efficient and appropriate use of dredged aggregates.	12	
Welsh Assembly Government High Level Targets (2001)	High Level Target 10 relates to CFMPs and requires Environment Agency Wales to take into account the predicted impacts of climate change and to incorporate appropriate adaptation policies. High Level Target 11 relates to biodiversity requires the Environment Agency, to: avoid damage to environmental interest; ensure no net loss to habitats covered by Biodiversity Action Plans; and seek opportunities for environmental enhancement.	4, 10	The SMP2 are informed by current climate change and sea level rise predictions. Biodiversity loss and habitat creation/replacement are also key considerations.
South-East Wales and Waste Strategy	Planning and controlling the development of an integrated network of facilities to treat and dispose of waste in	12, 15	The SMP2 should seek to promote sustainable policies.

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	South East Wales in a way which will satisfy environmental standards and meet targets set by European and national legislation.		
Walking and Cycling Strategy for Wales	Consideration should be given to the promotion, protection and enhancement of green spaces, access routes, footpaths, bridleways, and cycle routes.	1, 2, 3, 14	The SMP2 should seek to encourage the inclusion of recreational routes.
Building a Future in Wales: A Sustainable Housing Strategy	Addresses minimising waste and carbon emissions as well as making homes more efficient in terms of their use of energy, water and materials.	1, 10, 13, 15	?????
Better Woodlands for Wales 2005	Undertake and promote sustainable woodland management and support sustainable communities, learning opportunities, Health improvement, recreation, economic growth, tourism and improving the environment.	1, 2, 3, 4	The SMP2 should seek to promote sustainable policies.
Draft Wales Soils Action Plan 2007	In delivering this Action Plan, it will contribute to outcome No 16 of the Environment Strategy for Wales, ensuring that soil is managed to safeguard its ability to support biodiversity, store carbon and provide other important ecosystem services.	1, 4, 10	The SMP2 should seek to promote sustainable policies.
Cultural Strategy for Wales 2002	Promotion of cultural development.	2	The SMP2 should seek to encourage the inclusion of cultural policies.
South East Wales Spatial Plan Networked Environmental Regional Report	The Wales Spatial Plan provides high level strategic guidance and a framework for collaborative action to guide future development and policy interventions.	1	The SMP2 should seek to promote sustainable policies.
National and Regional Planning England			
South West Regional Spatial Strategy (draft 2006-2026) (Government Office South West, 2004)	The strategy promotes avoiding the need for development in flood risk areas and incorporating measures in design and construction to avoid the effects of flooding. It also promotes managed realignment and the role of wetlands in ameliorating flood risk. The strategy sets out to be compatible with relevant Shoreline Management Plans (SMPs) and River Basin Management Plans (RBMPs), and other existing relevant strategies, and to take account of the Environment Agency's Flood Map.	1,2,3,4,6,7,8, 9,10, 11, 12,13, 14, 15.16, 17	The strategy will take the effects of climate change into account when identifying future coastal policies and flood risk management measures. A Strategic Sustainability Assessment of the plan has been undertaken
South West Regional Housing Strategy 2005-2016 (South West Housing Board July 2005)	The South West Regional Housing strategy promotes that the planning system should ensure that the full environmental impact of developments is considered, including floodplain risks, and whether the overall impact on infrastructure, the landscape and	1, 2, 4, 6, 8, 10	The SMP2 will seek to ensure development is kept out f the floodplain

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	habitats is in line with the economic and social benefits from the development.		
Our Environment: Our Future, The Regional Strategy for the South West Environment 2004-2014 (South West Regional Assembly in association with the South West Regional Environment Network, 2004)	The overarching objective of this strategy is to protect and enhance the regions environmental assets. As a result it promotes the regional assessment of the coastal and other flood-related requirements to identify opportunities for managed realignment.	1, 4, 6, 8, 9	Environmental protection and managed retreat objectives of the SMP2 are compatible with the Regional Strategy.
Regional Economic Strategy for South West England 2006-2015 including Delivery Framework (South West of England Regional Development Agency, May 2006)	This economic strategy sets out policies for the development of the regions economy. The plan takes account of the need to tackle pressures on energy supply and use of resources, adopting more sustainable practices to combat climate change whilst being efficient and competitive	1, 10, 13	The SMP2 will consider the economic implications of any proposed policy options
Regional Spatial Strategy for West Midlands (West Midlands Regional Assembly, January 2008)	The Regional spatial strategy promotes the use of natural habitats to help absorb flood water. It encourages the careful location of new developments in areas which avoid risk of flooding and the direction of development away from areas at highest risk; It promotes the use of sustainable drainage techniques and suggests that Local authorities should other strategic plans such as local EA plans, Catchment Flood Management Plans and indicative floodplains when assessing future developments.	1,2,3,4,6,7,8, 9,10, 11, 12,13, 14, 15.16, 17	A sustainability appraisal of the RSS is being prepared.
West Midlands Economic Strategy and Action Plan 2004-2010	The economic strategy makes reference to the value of the environment, value of environment for tourism, the important economic function of flood storage.	1, 10, 13	The plan refers to the need to prepare for climate change and the changes this may bring including increased flood risk
West Midlands Rural Delivery Framework (Government Office for West Midlands / Rural Accord November, 2005)	This framework sets out to enhance the value of the countryside and refers to the need for flood risk management.		The SMP2 will take into account of the needs of the rural communities
Planning Policy Statements DCLG, 2006	Support key aspects of the planning system. Includes PPS 20: Coastal Planning sets out how local planning authorities should manage coastal development. It discusses types of coasts, policies for their conservation and development and policies covering risks of flooding, erosion and land instability, as well as coastal protection and defence. It outlines policies for coastal developments including tourism, recreation, mineral extraction, energy generation and waste water and sewage	1,2,3,4,6,7,8, 9,10, 11, 12,13, 14, 15.16, 17	The SMP2 can contribute towards the implementation of these policies

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	treatment plants; this is currently under revision. PPS 25: Development and Flood Risk sets out how local planning authorities should help protect floodplains and reduce flood risk through both the forward planning and development control processes.		
Minerals Policy Statement 1: Planning and Minerals (ODPM)	The Minerals policy statement sets out to ensure that in areas at risk of flooding, mineral extraction proposals do not have a significant adverse impact on flood flows or flood storage capacity. Operators should demonstrate that mineral working should not materially increase the risk of flooding at other properties or locations and, where practicable, should increase flood storage capacity; Similarly, it promotes that proposals for mineral extraction from coastal cliffs, beaches and dune systems should not adversely affect the stability of the coastal environment, increase the rate of coastal erosion or vulnerability to flooding, or affect sensitive habitats or landscapes.	4, 6, 8, 9,	Marine dredging could affect the morphology off the estuary and therefore flood risk; however a detailed consideration of the impacts of current and proposed dredging proposals is outside the remit of this study and will be addressed as part of individual applications. In order to ensure regional sustainability of aggregate extraction and improving the evidence base for individual licence applications the marine aggregate industry has made a voluntary commitment to undertake Regional Environmental
Minerals Policy Statement 2: Controlling and Mitigating the Environmental Effects of Mineral Extraction in England (ODPM, 2005)	No particular reference to dealing with flood risk in particular, but general policies to ensure that the environmental impacts caused by mineral operations and the transport of minerals are kept to an acceptable minimum	4, 6, 7, 11	Assessments (REAs) for a number of strategic areas of extraction. The Bristol Channel Region is also being considered for regional assessment in the future.
Defra Outcome Measures	Outcome Measures for flood and coastal erosion risk management provide greater clarity on what policies and funding for flood and coastal erosion risk management are intended to achieve. Measures include	2, 4, 8	SMP2 policy options should seek to deliver outcome measures
	 Overall benefits of flood and coastal erosion risk management activities in monetary terms. The number of households at risk from flooding or from coastal erosion flood and coastal erosion risk reduction which is targeted to the most deprived communities. the delivery of flood, water level and coastal management remedies which contribute to the government target to have 95% of Sites of Special Scientific Interest in favourable 		

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	 condition by 2010. Increase in UK Biodiversity Action Plan habitats habitat achieved through flood and coastal erosion risk management activities. the proportion of households and businesses in high risk areas that are offered the Flood Warnings Direct service and have registered to receive warnings. Percentage of Local Resilience Fora emergency response plans that are considered by the Environment Agency to satisfactorily address flood risk. the number of households covered by planning consents which have been granted despite Environment Agency objections on flood risk grounds Long term policies and action plans: percentage of Catchment Flood Management Plans and Shoreline Management Plans that have been signed off 		
Local Planning Wales			
Cardiff County Council	The Cardiff Unitary Development Plan was placed on deposit in October 2003. In May 2005, the council formally resolved to cease work on the Cardiff UDP and begin work on the LDP. The South Glamorgan Structure Plan (1999 – 2011) and the City of Cardiff Local Plan (1996) provide the current development framework, however the draft UDP remains a consideration the determination of any planning applications. The UDP contains policies to protect the coastal environment and minimise flood risk. A sustainability appraisal will be prepared in support of the LDP	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the UDP. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Vale of Glamorgan County Council	The Vale of Glamorgan Adopted Unitary Development Plan 1996 – 2011 (Adopted April 2005) constitutes the development plan for the authority and supersedes all adopted structure and local plans that were previously in force. The UDP contains policies to protect the coastal environment and minimise flood risk. The Vale of Glamorgan Council will be preparing a new Local Development Plan (LDP), which will set out how land within the Vale is used between 2011 and 2026. The proposals and policies in the LDP will eventually replace those in the Adopted Unitary Development Plan 1996 – 2011. A deposit draft of the LDP is currently programmed for spring/summer 2009.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the UDP. The SMP2 should provide support to the council in setting strategic policy and determining planning applications

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Monmouthshire County Council	The current development plan is the Monmouthshire Unitary Development plan (1996-2011). Key objectives include reduction of the risks to people and the developed and natural environment from flooding from both rivers and the sea and protection of the natural environment . Policy 2.10 the Development of floodplains outlines how floodplains will be protected. The UDP contains a Sustainability Appraisal	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the UDP. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Newport City Council	The current development plan is the Newport Unitary Development Plan 1996 – 2011 which was formally adopted on the 16th May 2006. The UDP contains policies to protect the coastal environment and minimise flood risk. SP24 states that development which increases the risk of flooding either on or off site will not be permitted unless an assessment can prove the development is acceptable or able to cope with flood risk. Preparation of the Local Development Plan for Newport is currently underway. The draft scoping report for the Local Plan Sustainability Appraisal is currently out to consultation.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the UDP. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Local Planning England Somerset County Council	Following the introduction of the Planning and Compulsory Purchase Act 2004 the production of County Structure Plans has been abolished; these will be replaced with a regional level	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15,	SMP2 should not contravene or obstruct implementation of any policies outlined in the Regional Spatial Strategy. The SMP2 should
	statutory policy in the form of the Regional Spatial Strategy (RSS). The current adopted Somerset And Exmoor National Park Joint Structure Plan 1006-2016 will still be used to guide development within Somerset until the Regional Spatial Strategy is adopted. Relevant polices within the structure plan include:	17	provide support to the council in setting strategic policy and determining planning applications
	Policy 15: Coastal Development: Provision for any development along the coast, including the Exmoor Heritage Coast, should be made within towns, rural centres and villages settlements. Policy 60: Floodplain Protection: Areas vulnerable to flooding should continue to be protected from development which would cause a net loss of flood storage area or interrupt the free flow of water or adversely affect their environmental or ecological value.		

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South Gloucestershire Council	South Gloucestershire Local Plan sets out the planning policies for the area up to 2011. The UDP contains policies to protect the coastal environment and minimise flood risk. The plan aims to ensure that new development does not cause a safety hazard or increase the risk of flooding and is not itself at risk. Development which requires a coastal location will be directed towards the developed areas. This document will continue to provide the current development framework until South Gloucestershire Core Strategy, Site Allocations and Development Control Development Plan Documents have been adopted (2012).	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Stroud District Council	The current development plan is the Stroud District Local Plan, adopted in November 2005. The UDP contains policies to protect the coastal environment and minimise flood risk. Policy GE4 advocates that planning applications within areas at risk of flooding must be accompanied by a flood risk assessment. It also promotes the use of Sustainable Drainage systems. The current plan has been "saved" until such time as it is replaced by the Local Development Framework.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
West Somerset Council	The West Somerset District Plan contains policies to protect the coastal environment and minimise flood risk. The Plan states that development on flood plains or elsewhere that would result in increased flood risk of watercourses, land and property or increased surface water run-off will only be permitted where satisfactory environmentally acceptable measures are undertaken to mitigate these risks. Documents forming part of the Local Development Framework are currently under preparation.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Bristol City Council	The 1997 Bristol City Council Adopted Local Plan is at present the main document used to determine planning applications in Bristol. The Plan contains policies to protect the coastal environment and minimise flood risk. Policies include: ME8 Development within the coastal zone, will only be permitted where:— (i) A coastal location is an operational requirement. (ii) Appropriate flood defence works are undertaken as part of development.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications

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	(iii) Nature conservation interests are not significantly affected, either directly or indirectly.		
	ME9 (I) Development subject to flood risk will be required to provide the appropriate defence works at the same time as the development itself. (II) Development which would increase the risk of flooding, or which is likely to cause unacceptable effects arising from surface water run-off, will be required to provide for the appropriate drainage infrastructure works and retention works at the same time as the development itself.		
	The Bristol Development Framework is currently being prepared and will gradually replace the Local Plan and associated documents to guide development in the city over the next 20 years		
Forest of Dean District Council	The Forest of Dean Local Plan adopted in November 2005 supports flood risk management policies and the protection of floodplains. Policy R FBE. 5 sets out measures to reduce flood risk. The current Local Development Scheme (LDS) for the Forest of Dean District sets out the development plan documents to be prepared over the period March 2007 to March 2010	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Gloucester City Council	The second stage draft deposit local plan 2002 has adopted the policy statement on Flood and Coastal Defence to comply with the Government's strategy. It promotes the use of flood risk assessments in accordance with PPG25. The use of urban drainage systems is also promoted. The Local Development Framework in currently under preparation.	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
North Somerset Council	The North Somerset Replacement Local Plan (RLP) was adopted on 30 March 2007 and sets out the local planning context up to 2011. Work has also begun on the Local Development Framework (LDF)	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and determining planning applications
Sedgemoor District Council	POLICY CNE14A of the Sedgemoor development plan states all new development proposals within identified floodplains or other flood risk locations should be subject of an appropriate flood risk assessment. Any new properties built within a floodplain (including	1,2,3,4,6,7,8, 9, 10, 11, 12, 13, 14, 15, 17	SMP2 should not contravene or obstruct implementation of any policies outlined in the Plan. The SMP2 should provide support to the council in setting strategic policy and

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	areas of floodplain protected by flood defence schemes) should have finished floor levels set at least 0.5 metres above surrounding ground levels and any other necessary additional flood mitigation measures.		determining planning applications
	Within the plan period 1991-2011 an additional 9,200 dwellings are proposed, an average of 460 dwellings per year. In accordance with the sequential approach to development a target of 44% for brownfield housing supply is adopted.		
Environment Agency Plans			
Environment Agency Vision	The Environment Agency Wales will improve flood defences and information on flood risks. Aim to reduce flood risks through preventive planning, restoration of rivers and flood plains, better management of the disposal of surface water and better design of buildings. Flood defences will be designed and constructed to deliver optimum environmental benefits, and positive aspects of natural flood events recognised. Flood risks arising from land use and climate change will be recognised, understood and fully taken into account in planning decisions.	1, 2, 4, 7, 8,10,12, 14, 17	Improve flood defences and information on flood risk Reduce flood risk through preventive planning, restoration of rivers and flood plains, better management of the disposal of surface water and better design of buildings
Environment Agency Wales - Creating A Better Wales (2006-11)	 Preparation of flood management plans that will include local climate change impacts such as the Northern Area Rapid Response Pilot Project which looks at responding to the increased risk of flash flooding Contributing to the development of the Wales Spatial Plan to take account of increased flood risk and encourage renewable energy generation. Producing nine Catchment Flood Management Plans across Wales by 2009 which can be incorporated into the Water Framework Directive River Basin Management Plans Assessing the contribution to flood alleviation that land use practices might have, especially farming and forestry. 	1, 2, 4, 7, 8,10,12, 14, 17	The SMP2 will consider impact of climate change and changes in land use on flood risk.
Environment Agency Wales South East	Relevant targets include:	1, 4, 6, 8	Seek environmental benefits

Relevant plan, policy or programme	Potential influence	Themes	Relevant opportunities or constraints we need to consider
Area Local Contribution (2003-2007)	achieve a reduction in the proportion of 'at risk' properties exposed to a 'high risk' of flooding;		Ensure FRM Is sustainable
	make proportionate progress towards BAP targets for otters, water voles and shad.		
	These targets will be achieved by:		
	identifying areas at risk and promote cost effective and sustainable capital schemes which deliver environmental benefits;		
	encouraging alternative use for floodplain (conservation wetlands and recreation);		
	carrying out EIA of Environment Agency operations;		
	contributing to the implementation of Local BAPs for aquatic habitats and species;		
	identifying actual and potential otter breeding sites and seeking to protect them.		
Environment Agency River Basin Management Plans (Severn River Basin District)	The Draft River Basin Management Plans identify actions to be taken to deliver by 2015 the following benefits:	1, 4, 5, 6, 7	An assessment of the compliance of the SMP2 with the WFD has been undertaken
Addressing environmental inequalities: flood risk, waste management and river water quality in Wales Science Report: SC020061/SR5 SCHO0507BMRX-E-P	The report examines the three policy areas of flood risk, waste management and river water quality, and considers how issues of environmental inequality may arise and be responded to. Recommendations included: Flood policy and management should recognise the social impacts of flooding on different social	1, 2, 7, 8, 15,	Consider socially vulnerable communities in the delivery of flood risk management

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Catchment Flood Management Plans for the Taff and Ely, Eastern Valleys, Wye and Usk, Bristol Avon, Severn Tidal Tributaries and Somerset	groups; interactions between processes of environmental, social and economic change and how these might increase vulnerabilities for particular parts of society in the future should be identified; opportunities should be identified for tackling environmental and social issues together CFMPs aims to understand the factors that contribute to Flood Risk within a catchment and recommend the best ways of managing the risk of flooding within the catchment over the next 50 to 100 years. SEA was undertaken for each of the CFMPs	1, 2, 4, 6, 8, 10, 11,12	In identifying flood risk management measures for the strategy we need to take into consideration preferred policies for the downstream policy units within each of the catchments to ensure compatibility.
Biodiversity Convention of Biological Diversity , Rio de Janeiro 1992	Signed by 150 government leaders at the 1992 Rio Earth Summit, the Convention on Biological Diversity is dedicated to promoting sustainable development	4	The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2. opportunities for habitat replacement/ compensation will be sought as part of the FRMS
UK Biodiversity Action Plan (BAP)	Policies such as managed realignment and floodplain creation will lead to improvements and habitat gain for UK Biodiversity Action Plan species and habitats; however in coastal locations this could cost some freshwater habitats and species.	4	The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2. opportunities for habitat replacement/ compensation will be sought as part of the FRMS
Working with the Grain of Nature - A Biodiversity Strategy for England (DEFRA, 2002)	This report references how the creation or restoration of habitats can help flood risk management. It is likely that through wetland creation and managed realignment it will be possible to provide washland storage to help flood alleviation of urban areas, and as compensation for freshwater wetland habitats lost due to coastal squeeze. In the process biodiversity targets set for flood defence operating authorities applicable to all flood defence capital schemes will result in net gains of habitats, such as chalk rivers and saltmarsh.	4	The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2. opportunities for habitat replacement/ compensation will be sought as part of the FRMS
50 Year vision for Wetlands: England's Wetland Landscape: securing a future for nature, people and the historic environment. (RSPB, English Heritage, Natural England, Wildlife Trusts, Environment Agency, May 2008)	This joint policy set out by English Heritage, the Environment Agency, Natural England, RSPB and the Wildlife Trusts sets out to make wetlands more relevant to people's lives by better understanding and harnessing the benefits provided by naturally-functioning rivers and wetlands. Highlighting their ability to slow and store flood waters, protect water quality, recharge groundwaters and store carbon. Highlights issues of sea level rise, climate change, emphasis on natural processes, and farming in relation to wetlands.	4, 8, 9, 10, 16	Policy relevant to strategy particularly in relation to managed realignment. Opportunity to achieve common goals

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South West Biodiversity Implementation Plan, Biodiversity: A natural advantage for the South West (South West Regional Biodiversity Partnership, July 2004)	SW BIP sets out a framework of policy, priorities and actions to assist in a more joined up approach to biodiversity delivery. The BIP seeks to contribute to regional strategies, plans and policies such as the Regional Spatial Strategy and regional agrienvironment scheme targeting. The BIP identifies key programmes of work, both for those directly	4, 9, 10, 16	The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2. opportunities for habitat replacement/ compensation will be sought as part of the FRMS
	involved and for those who can enable these, under five specific sectors including * Farming and Food * Water and Wetlands * Coastal and Marine Environment		
	The generic priorities across the sectors are compatible with those highlighted in the South West Environment Strategy and include the:		
	Development of integrated sustainable land management practices that safeguard and enhance the region's biodiversity whilst also bringing benefits to society, the economy and environment. Understanding and managing the dynamic processes of change (e.g. climate change) and develop long-term sustainable approaches within the region that focus on the quality, extent and diversity of habitats.		
Conservation (Natural Habitats & c) Regulations (as amended)	The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.	4	The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2.
Earth Science Conservation in Great Britain 1990	In 1990, the Nature Conservancy Council published Earth science conservation in Great Britain – a strategy which provided a detailed and practical guide to meeting the challenge of Earth heritage conservation. It gave an overview of the problems which needed to be addressed, the means by which conservation can be effected, and the organisations best placed to take an active role.	4, 6, 9	
Severn Estuary Scheme of Management (ASERA)	Almost all the relevant authorities on the Severn Estuary have formed the ASERA to produce a single management scheme for the Severn Estuary EMS.	1, 2, 3, 4, 5, 6, 7, 8, 9, 11	
Landscape			
European Landscape Convention	The European Landscape Convention - also known as the	6	The SMP2 will seek to protect and enhance

17

Council of Europe, 2000	Florence Convention, after the city where the convention was		and landscapes in the study area
	adopted - promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues.		, , , , , , , , , , , , , , , , , , , ,
Register of Welsh Historic Landscapes (Countryside Council for Wales, December 1995)	The Register of two parts. Part 1 concerns itself with the historic parks and gardens of Wales, from those in towns and cities, to those of the rural estate of the country itself. Part 2 comprises the historic landscapes of Wales which make up the nation as a whole. They are the landscapes which carry physical evidence of past ages from the agricultural landscapes of the prehistoric period to the industrial landscapes of the 19th century and, the technological landscapes of the 20th century.	6, 11	The SMP2 will seek to protect and enhance and landscapes in the study area
Countryside Character Volume 8: South West, The character of England's natural and man-made landscape (The Countryside Agency, 1996)	Identifies and describes character of England in order to: Raise awareness of diversity of countryside; Increase understanding of what contributes to the character and what may influence it in the future; and Encourage public awareness and understanding. Uses 12 national datasets to map character of England, once identified and mapped, each character area on the map is described. 42 areas have been described in the South West.	6	The SMP2 will seek to protect and enhance and landscapes in the study area
LANDMAP assessment for bordering local authorities (Wales)	The LANDMAP (Landscape Assessment and Decision Making Process) programme allows information about the landscape to be gathered, organised and evaluated into a nationally consistent data set (CCW, 2006).	6	The SMP2 will seek to protect and enhance and landscapes in the study area
Historic Environment			
Heritage Counts 2004 The State of South West's Historic Environment (South West Historic Environment Forum, 2004)	Highlights that threats to the region's historic coastal areas include improvements to sea defences, mineral extraction and potentially damaging effects of offshore wind farms and tidal energy projects. Priorities of strategy include: Increased understanding of the South West's coastal and maritime historic environments and wetland landscapes; and, reflect this improved knowledge and understanding by positive and informed conservation of the historic environment	11	The SMP2 will seek to minimise the adverse effects of climate change and flood/erosion risk on the historic environment
Severn Estuary Rapid Coastal Zone Assessment (English Heritage, 2006)	The study covered the English side of the estuary. The aims of the project were to enhance the archaeological record of the coastal zone and contribute to the shoreline planning of the estuary by	6, 8, 9, 10,11	The SMP2 will seek to minimise the adverse effects of climate change and flood/erosion risk on the historic environment

Ancient/ Listed Buildings ands Archaeological Areas Act, 1990	collecting and integrating information from a variety of sources. The results of this phase of the project provide: • A record of all known archaeology within the intertidal zone and its immediate hinterland • An assessment of current erosion patterns and threats this poses to the archaeological resource • An enhanced understanding of the archaeological resource • An overview of coastal change from the Palaeolithic to the present day • Identification of sites which need further investigation as part of Phase 2 of the RCZA It is a criminal offence to undertake works to listed buildings or scheduled ancient monuments without detailed written consent.	11	The SMP2 will need to be complaint with the legislation
Planning (Listed Buildings and Conservation Areas) Act 1990	To protect the integrity of listed buildings. A 'listed building consent' must be obtained from the local planning authority for any alterations.	11	The SMP2 will need to be complaint with the legislation
Fisheries, Agriculture and Land Use			
Directive 2006/44/EC on the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life EC, 2006	The strategy will need to take into consideration any designated waterbodies and may identify should protect action to improve status	5	The SMP2 will need to be complaint with the legislation
Environment Agency Salmon Action Plans for the Severn, Usk and Wye (2006)	Sets out objectives for the management of salmon fisheries in England and Wales. It sets four main objectives which are primarily aimed at securing the well being of the stock but in doing so will improve catches and the associated economic returns to the fisheries. These four objectives are being addressed by means of local Salmon Action Plans (SAPs).	5	SMP should consider impacts on salmon fisheries
National Trout and Grayling Fisheries Strategy (EA, 2003)	The strategy will need to ensure protection of key waters and may identify action to protect or improve status	5	SMP2 should take Strategy into account when identifying policies
A strategy for the Recreational Fisheries of Wales (Environment Agency November 2003)	The strategy provides a high level framework from which Assembly-Sponsored Bodies with an influence on fisheries, ecology, tourism and economic development can work in partnership with angling bodies, clubs and fishery owners to	3, 5	SMP2 should take Strategy into account when identifying policies

	optimise the Welsh coastal and inland fisheries		
Welsh Fisheries Strategy (Welsh Assembly Government)	Promotion of sustainable fisheries in Wales	5	SMP should ensure no detrimental effects on water quality or physical habitat and seek opportunities for enhancement
The Sustainable Fisheries Programme (Environment Agency Wales)	Aims to ensure Welsh Fisheries are healthy productive and biologically diverse and provide a valuable and sustainable natural resources for Welsh communities and visitors to Wales	1, 3, 5	SMP should ensure no detrimental effects on water quality or physical habitat and seek opportunities for enhancement
Farming for the Future (Welsh Assembly Government, 2001)	Aims to promote a viable and economically, environmentally and socially sustainable future of farming in Wales; emphasis on agricultural self sufficiency within Wales. Care for the environment is an integral part of the strategy; identifies that in some areas, there will be opportunities to combine such approaches with developments in woodlands, farming practice and management of river catchment areas, to improve flood defence for urban areas downstream	8, 16	The Plan should consider impacts of climate change and SMP policies on land use and agriculture; future land use change could affect flood risk
The Wales Agri-Food Strategy	A series of strategies have been produced under this banner to enable the Welsh Agri-food sector to keep in touch with market demand and respond to new opportunities. Emphasis on moving away from reliance on commodity markets and towards markets where competition is more on factors such as quality, branding and added value	16	SMP should consider impacts on land use and agriculture; the Plan should consider impacts of climate change and FRM on land use and agriculture; future land use change could affect flood risk
The Strategy for Sustainable Farming and Food - Facing the Future (Defra, 2002)	This strategy sets out the Government approach to agrienvironment schemes and land management. It suggests that a multi-objective approach to agri environment schemes, could in the future include other objectives such as managing land in ways that reduce the risk of flooding. It also sets out that Defra is researching the exact interaction between flooding and particular agricultural practices or forms of cultivation.	8, 16	Climate change is also likely to increase the risk of flooding.
Wales Catchment Sensitive Farming Project; (WAG) and <u>Catchment Sensitive</u> <u>Farming Programme</u> (Defra, June 2007)	Seeks to reduce agricultural sources of diffuse pollution through land management practices at the catchment scale. May in future link into agri-environmental schemes. Additionally it will contribute to several of Defra's wider aims including encouraging sustainable farming, raising water quality and improving wildlife habitats. The delivery initiative Is based on a catchment specific-approach.	4, 7, 8, 16	Catchment scale land management and FRM could deliver water quality improvements
Rural Development Plan for Wales (National Assembly for Wales (2000-2006 and 2007-2013))	Sets out the framework for rural development measures. Focuses on: improving the competitiveness of the agriculture and forestry sector, improving the environment and countryside and improving quality of life In rural areas and diversification of the rural	2, 4,16	Seeks to deliver environmental benefit through land management; could be allied to the SMP objectives

		1	_
	economy. The plan sets out the framework for a range of rural development measures and agri-environmental schemes run by the Welsh Assembly Government		
England Rural Development Programme (Defra 2000)	The Programme outlines that there are major issues relating to water resources and flooding, but solutions often lie outside the Rural Development Programme. The main role for the Programme is at the interface with land management, in areas not otherwise covered by regulation.	16,	Seeks to deliver environmental benefit through land management; could be allied to the SMP objectives
Agricultural Subsidies (England and Wales)	Provides grant aid for schemes which seek to protect the heritage of rural Wales, pursue sustainable farming practices, and/or promote public enjoyment of the countryside	3, 4, 11, 16	Opportunity to link into schemes to achieve common goals
Woodlands for Wales (Welsh Assembly Government, 2001)	Key objectives to: Conserve and enhance biodiversity of woodlands Conserve and enhance the landscape of Wales Better integrate woodlands with other countryside management	4. 6,	Common aims including promoting biodiversity and looking at catchment scale approaches. Future land use changes have the ability to affect flooding
England Forestry Strategy: A New Focus for England's Woodlands – Strategic Priorities and Programmes (Forestry Commission, 1999)	This strategy sets out the Government's strategic priorities and programmes for forestry.	4, 6	Common aims including promoting biodiversity and looking at catchment scale approaches. Future land use changes have the ability to affect flooding
Identification of Priorities for Wetlands, Flood Risk and Diffuse Pollution Control within Future High Tier Targeted Agri- Environment Schemes (ADAS/CCW 2006)	Promotes and provides operation advice for a landscape approach to agri-environment schemes for wetland protection, water quality improvement and biodiversity and FRM benefit.	4, 6, 7, 8	Opportunity to achieve common goals
Recreation and Navigation			
Tomorrow's Tourism (1999) and Tomorrow's Tourism Today (Department of Culture Media and Sport, 2004)	These strategies set out the English approach to developing tourist industry services. It outlines a desire to exceed the rate of global growth in the tourist industry by the end of 2010, but also the need to ensure the industry grows in ways which are economically, socially and environmentally beneficial.	1, 3	Climate Change is also likely to put pressure on vulnerable landscapes and is likely to further impair their ability to accommodate visitors. Responding to this challenge will require measures that sustain the environmental capacity of these landscapes whilst developing new opportunities in less vulnerable locations
Welsh Coastal Tourism Strategy – Draft Final Strategy (Welsh Assembly Government, January 2006)	This strategy outlines the challenge of how to manage increased risk of flooding and coastal erosion and where coastal protection is appropriate, the potential of incorporating 'tourism' considerations into coastal defence schemes. This would cover visual aspects,	1, 2, 6, 8	Climate Change is also likely to put pressure on vulnerable landscapes and is likely to further impair their ability to accommodate visitors. Responding to this challenge will

	effects on access, the current use of the coastal areas and importantly whether there can be additional 'new' benefits/uses and funding.		require measures that sustain the environmental capacity of these landscapes whilst developing new opportunities in less vulnerable locations.
Towards 2015 Shaping Tomorrow's Tourism (South West of England Regional Development Agency South West Tourism, January 2005)	 The strategy does not refer directly to flooding or climate change constraints. However, it does suggest that by adopting a new strategic approach tourism will: protect the environment; improve the quality of life of local people; take advantage of the region's existing strengths; and create a long-term and sustainable industry. 	1, 2	Climate Change is also likely to put pressure on vulnerable landscapes and is likely to further impair their ability to accommodate visitors. Responding to this challenge will require measures that sustain the environmental capacity of these landscapes whilst developing new opportunities in less vulnerable locations
Water Quality and Resources			
Water Company Water Resource Plans	Targets investment to ensure supply can be maintained	1, 10,12	The SMP2 should not threaten water supplies
Environment Agency Water Resource Strategies and Catchment Abstraction Management Strategies	Provides principles and structure to sustainably mange water resources to ensure public water supply (and other demands) are met, whilst taking environmental requirements into consideration for	1,4, 5, 10,12	The SMP2 should not threaten water supplies
Other Strategies, Policies and Plans	101		
Sustainable and Secure Buildings Act 2004	The Act introduced new powers and requirements with respect to a range of building related issues. The Act covers the sustainability of buildings, security, historic buildings and enforcement measures.	1, 11. 12, 13	
Kyoto Protocol on Climate Change 1997	The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions .These amount to an average of five per cent against 1990 levels over the five-year period 2008-2012.	10,13	The SMP2 will seek to minimise future contributions to climate change
Responding to Our Changing Climate (Welsh Assembly Government 2007)	Identified action to address increased risk of flooding arising from climate change including identification of management strategies for flood risk locations;	2, 8	The Plan will set out preferred local policies for the management of flood risk and accommodate climate change.
	 enhancement of existing local networks to respond to local incidents development of better communication systems advice to those on the floodplain about the risk and safety measures required 		

	 the need for better public information about the risks and the need for this information to be communicated in a way that is accessible to different communities. 		
UK Climate Change Programme: Tomorrow's Climate Today's Challenge (Defra, 2006)	This programme builds on the 2000 climate change programme and contains further commitments to help achieve national and international goals towards combating the impacts of climate change. Among measures set out to deliver emission reductions the programme sets out measures to adapt to climate change. Within this it sets out the need to raise awareness in the land management sector of the risks, responsibilities and opportunities of climate change. The Government will put in place a sector specific communications strategy and the Rural Climate Change Forum, will be invited to advise on the delivery of this communications strategy. The Forum will aim to; identify, propose and promote practical actions and policy options, including the uptake of research findings: — to reduce and offset greenhouse emissions from rural land uses; — on adaptation measures for rural land uses (including for conservation purposes and new agricultural uses); and — on the potential for managing the impacts of climate change, e.g. Flooding, through changed land management practices.	8, 10	The SMP2 will set out preferred policy option for the management of flood and erosion risk and accommodation of climate change
Stern Review on the Economics of Climate Change (HM Treasury, 2006)	The report discusses the effect of climate change and global warming on the world economy. Its main conclusions are that one percent of global gross domestic product (GDP) per annum is required to be invested in order to avoid the worst effects of climate change, and that failure to do so could risk global GDP being up to twenty percent lower than it otherwise might be	10	The SMP2 will set out preferred policy option for the management of flood and erosion risk and accommodation of climate change
Warming to the Idea (South West Climate Change Impacts Partnership, 2003)	The report contains information on potential changes to the water environment following climate change impacts (e.g. water temperature), including increased runoff and flooding, changing water quality/quantity in rivers on habitat and biodiversity and agriculture.	4, 7, 8, 10, 16	The SMP2 will set out preferred policy option for the management of flood and erosion risk and accommodation of climate change
Outline South East Wales Regional Transport Plan (South East Wales Transport Alliance, January 2007)	The plan identifies problems faced by the regions transport network, with a vision "to provide a modern, integrated and sustainable transport system for south east Wales that increases	1,2, 4, 6, 11	The SMP2 will seek to protect valuable communication corridors

	opportunity, promotes prosperity and protects the environment."		
The Future of Transport: A Network for 2030 (Dept for Transport 2004)	This document sets out a long term strategy for a modern, efficient and sustainable transport system. The Future of Transport White Paper looks at the factors that will shape travel and transport over the next thirty years and sets out how the Government will respond to the increasing demand for travel, maximising the benefits of transport while minimising the negative impact on people and the environment.	1,2, 4, 6, 11	The SMP2 will seek to protect valuable communication corridors
Wales Transport Strategy Consultation Document Connecting Wales (Welsh Assembly Government, July 2006)	The Wales Transport Strategy has a general objective of improving the transport system in Wales. The Strategy sets out a number of Outcomes, one of which is Environment: The Strategy sets out an objective to adapt to the effects of climate change and in this way ensure that transport networks (existing and future) are adapted to cope with climate change, specifically temperature increase and flood risk. It promotes the need to use the transport network to help increase flood protection, for example in the way that we design roads, embankments, culverts and bridges. It also promotes the need to ensure that key transport links remain open in the event of flood and that routes remain open for people to leave an area e.g. impart greater flexibility in the construction of pavements on soils prone to movement in variable moisture conditions. In addition, measures to ensure highway drainage is able to cope with an increase in rainfall intensity will be important.	1,2, 4, 6, 8, 10, 11	The SMP2 will seek to protect valuable communication corridors
Regional Planning Guidance (RPG10) – Transport Chapter (Government Office South West / South West Regional Assembly, September 2001)	This Strategy sets out a broad development strategy for the period to 2016 and beyond. It sets out that the location of future development should be guided by the need to reduce and minimise flood risk to people and properties. In the Bristol area, constraints to physical expansion of the urban area include risks of coastal flooding, the limited number of crossings of the river Avon and areas of ecological and agricultural importance. Future expansion is constrained in the Gloucester area in certain directions particularly by the floodplain of the Severn. To avoid the consequences of flooding and the need for further public investment in defence works, the risk of flooding must be taken into account as a significant factor in the location, design and scale of development. In the longer term, adaptation options		The SMP2 will seek to protect valuable communication corridors

	may involve a strategy of managed retreat in some locations in the face of forecast rises in sea level. Policy RE2 Flood Risk sets out: Local authorities, the Environment Agency, other agencies and developers should seek to: • protect land liable to river and coastal flooding from new development, by directing development away from river and coastal floodplains; • promote, recognise and adopt the use of sustainable drainage systems for surface water drainage; • adopt a sequential approach to the allocation and development of sites, having regard to their flood risk potential in accordance with advice in PPG25 (Development and Flood Risk). Development plans should: • identify inland and coastal areas at risk from flooding based on the Environment Agency's indicative Maps and, supplemented where necessary by historical and modelled flood data and indications as to other areas which could be at risk in future; • provide criteria for redevelopment proposals in flood plains, in order to minimise their cumulative adverse impact and secure enhancement of the floodwater storage and ecological role of flood plains.		
Developing the Regional Transport Strategy in the South West: Investment priorities for the South West (South West Regional Assembly)	This strategy develops and updates the current Regional Transport Strategy in RPG10 adopted in 2001. It identifies the key issues that are relevant to the South West and what interventions or investments are required to deliver the region's priorities and longer term objectives; the strategy also takes the opportunity to co-ordinate existing approaches to freight through the preparation of a Regional Freight map. No specific mention of climate change and adapting to flood risk has been included in the strategy.		The SMP2 will seek to protect valuable communication corridors
Making Space for Water: Taking Forward a new Government Strategy for Flood and	The strategy highlights the need for a more integrated and holistic approach to the management of flood risk. It encourages the use	8	Key driver for SMP strategic approach

Coastal Erosion Risk Management in England (Defra, 2005)	of a portfolio of measures to manage risk including: developing coverage and reliability of information on the consequences of flooding including other sources of risk (ground water, urban drainage and overland flow). promoting the use of rural land use solutions (wetland, washlands and managed realignment).		
Water Strategy 'Directing the Flow: Priorities for Future Water Policy' (Defra, 2002)	Highlights that considerably more emphasis needs to be put on integrating water policies with policies in other areas additional to health – especially with regard to: Agriculture and fisheries; Biodiversity; Tourism and recreation; Land-use planning.	3, 4, 5, 8, 16	Key driver for SMP strategic approach
Making the most of Wales' Coast – Integrated Coastal Zone Management (ICZM) consultation document. ECM Division (Welsh Assembly Government, January 2006)	The strategy aims to provide a management framework to facilitate integrated working on the coast by the different interests involved in managing our coastal assets – with the aim of helping them ensure that these assets are maintained and enhanced for the benefit of present and future generations. It also sets out the links that must be made between diverse national and local policies and strategies so that the people involved in managing and using the coast can do so in a way that takes into account the needs of others.	9	SMP2 need to take ICZM findings into account
Framework For Future Flood Risk Management Programme (WAG, 2006)	Documents the review of government funding arrangements for flood risk management and identified the requirement for a new policy framework to prioritise flood defence investment	1, 2, 4, 8, 9,	Key driver for Flood Risk Management Strategy approach
Foresight Future Flooding Report (Office of Science and Technology, 2004)	 The key findings of the Foresight work are that: flood risk will increase everywhere; increasing national wealth will increase the value of buildings and assets at risk; the future social, economic and political context is particularly uncertain, emphasising the need to develop policies that are robust. Hard choices need to be taken: either invest in more sustainable 	1, 8, 10	Key driver for Flood Risk Management Strategy approach

		1	1
	approaches to flood and coastal management or learn to live with increasing flooding.		
The Integration of Agricultural, Forestry and Biodiversity Conservation Policies with Flood Management in England and Wales (Land Use Policy Group, 2004)	Identifies opportunities for delivery of better flood management resulting from agricultural, forestry and nature conservation practices	4, 8, 10, 16	Promotes delivery of solutions with multiple benefits; links to land management
Wetlands, Land Use Change and Flood Management (Defra, 2003)	This DEFRA joint statement (with English Nature, Environment Agency and the Forestry Commission) clarifies the environmental and flood risk management benefits of wetlands and washlands and looks into the policy issues that could facilitate the increased use of wetlands and washlands in flood management	4, 8, 10	SMP2 aims to promote viable approaches to FRM and can set the context for the delivery of wetland/ washland solutions
Securing the Future – Delivering UK Sustainable Development Strategy (HM Government, 2005) http://www.defra.gov.uk/sustainable/gover nment/publications/uk-strategy/index.htm	This strategy sets out the Government approach to sustainable development and new shared priorities agreed across the UK. It sets out ways in which to adapt to climate change, one of which is to research the effects of climate change, particularly flood and coastal management sectors. It also sets out that in line with national planning policy guidance, there will be flood risk assessments for publicly funded developments and new flood defence schemes; and integrated water management studies.	1,2,4,6,7,8,9, 10,11,12,13, 14,15,16 17	SMP2 will seek to adhere to principles of sustainable development
Severn Estuary Shoreline Management Plan (SMP) (Gifford Associate Consultants December 2000)	This management plan sets out a plan for coastal defence involving a complex web of issues and responsibilities.	8,10	The SMP2 will build on this initial study.
Gwent Levels Foreshore Management Plan (FMP) (Atkins, 2003);	The Foreshore Management Plan for Gwent is a strategy for the future management of the foreshore to maintain the integrity of the present and future sea defences. Short to medium term preferred scheme options are defined and medium to long term impact of the schemes and plan formulation is considered. The strategy will complement the requirements of the Foreshore Management Plan.	8,10	The Management Plan will inform the development of the SMP2
Strategy for the Severn Estuary (Severn Estuary Partnership, September 2001)	This Strategy is the result of the first five years of progress towards the integrated management of the Severn Estuary and its resources, and provides a framework for the sustainable management of the Estuary to meet the needs of present and future generations. It is a voluntary Strategy and therefore it is through existing statutory powers, remit, interest and enthusiasm of all Partnership members, and of the wider community, that the aims of the Partnership and action on the ground will be realised.	1,2, 3, 4,6,7,8,9, 10,11,12, 13, 14, 15, 16 17	The Strategy will inform the development of the SMP2

	It aims to develop a prosperous, vibrant and sustainable economy		
	whilst protecting and promoting the natural, cultural and historical		
	heritage. It also aims is to provide sustainable flood defence and		
	coastal protection, developed through a holistic understanding of		
	the Estuary and its communities, heritage and processes.		
National Trust Wales Shifting Shores	Sets outs Trusts policy is to take a long-term view, working with	8, 9, 10, 11	The NT policy will be taken into consideration
Living with a changing coastline, 2007	natural coastal change wherever possible. Advocate adaptation,		when determining SMP2 policy options
	because this will give the time and space to adjust. We believe		
	therefore that hard defences should only be used as a last resort.		
	Early adaptation is the most realistic and cost-effective approach		
	for the long term. It helps people understand the risks they face		
	and gives communities time to adjust and adapt, so reducing the		
	risks of suffering catastrophic flooding and erosion.		

Annex B: Assessment of Alternative Policy Options

1.1 Comparison of Significant Environmental Effects of Options

The aggregated impact significance against each objective for each of the alternative options shortlisted for the five reaches is presented in this section. An accompanying summary description under each table explains the key issues/differences between options how conclusions were reached. Finally, a recommended **preferred environmental option** is given for each Reach. The aggregated impacts are colour coded according to the significance scale shown in Table C1.1.

TableC1.1 - Key to symbols in the assessment tables

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

It should be noted that some policies have been amended as a result of the public consultation. In line with guidance, the SEA has not been amended to reflect these changes. If the policy changes are considered to be significant, an addendum to the SEA will be produced and publicly advertised to ensure that stakeholders are aware of the changes. Any addendum produced will be made available on the SECG website, along with all the other SMP2 documents.

1.2 Penarth Theme Area (PEN)

The impact on the SEA objectives of the alternative management policies within the Penarth Theme area are shown in the following table:

Policy Unit - South	n of Forest Road (PE	N1)								
	Advance the Line	Hold the L	ine		No Active	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
Population and Hu										
Residential: Lower Penarth developments Reduce significance of impact associated with flooding and erosion to people and property	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	No properti				rties at risk o		geology physica	ound / har y preclude al retreat o not consid	s f the line,
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	geology physica	ound / har / preclude al retreat o	s f the line,
anxiety associated with flood and erosion risk)		Assuming S same or is will not cha	increased			at risk of ti low or in the				
Recreational Sites: coastal path, Cosmeston Lakes and Country Park Lavernock Point	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	geology physica	ound / har / preclude al retreat or not consid	s f the line,
facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.		No assets a flooding no				s at risk of ti low or in the				
Material Assets &	Critical Infrastructur	е								
Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-		geology physica	ound / har / preclude al retreat of not conside	s f the line,
(including agricultural), and activities (including tourism)		No assets	at risk		No assets	s at risk				
Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	geology physica	ound / har / preclude al retreat on not conside	s f the line,
		No assets	at risk		No assets	at risk				
Biodiversity Flora										
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-			-	-		geology	ound / har y preclude al retreat o tion not ered	s
on integrity of internationally designated sites and the favourable condition of their features		Hold the lin coastal squ internationa	ieeze imp		of habitat habitats a	illow natural is and maini and features geology/top ate	tain s,			
National nature	N/A	-			_	_		N/A		

designations: Severn Estuary and Penarth Coast SSSI Reduce significance of impact on nationally or locally designated conservation sites. Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans Mistoric Environment Listed Buildings and non-designated sites of historic interest. Reduce significance of	ance the Line	Ho O-2 not e, I Ho coa Se SS ne	old the line astal sque overn SSS SSI potent w defenc	e will resulteeze impa SI. Penarthtially affectes bitats will	acting n Coast ted by	Rate of ha be limited of roll back Coast SSS	20-50 bitat roll badue to cliffs restricted	50 - 100 ack will s so rate Penarth	0-20 N/A High gro geology	und / hard	50 - 100
designations: Severn Estuary and Penarth Coast SSSI Reduce significance of impact on nationally or locally designated conservation sites. Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans Historic Environment Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	to high ground / d geology ATL is r inically appropriate on not considered to high ground / d geology ATL is r inically appropriate on not considered to high ground / d geology ATL is r inically appropriate on not considered to high ground / d geology ATL is r inically appropriate inically appropriate	not e, I Ho coa Se SS ne	old the line astal sque evern SSS SSI potent w defence	e will resulteeze impa SI. Penarthtially affectes bitats will	t in acting a Coast ted by	Rate of ha	bitat roll ba	ack will s so rate Penarth	N/A High gro geology physical	20-50 und / hard precludes retreat of	50 - 100
Severn Estuary and Penarth Coast SSSI Reduce significance of impact on nationally or locally designated conservation sites. Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans Historic Environment Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	to high ground / d geology ATL is r nically appropriated not considered to high ground / d geology ATL is r nically appropriated not considered to high ground / d geology ATL is r nically appropriated not considered	Ho coa Se SS net	astal squevern SSSSI potent w defence	eeze impa SI. Penarth tially affec es bitats will	t in cting n Coast ted by	be limited of roll back	due to cliff restricted	ack will s so rate Penarth ed	High gro geology physical	precludes retreat of	d S
Biodiversity Action Plan habitats and species in line with existing targets/plans Historic Environment Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	d geology ATL is r inically appropriat on not considered to high ground / d geology ATL is r inically appropriat	- Introde	ertidal ha	bitats will	be lost to	-	-		High gro geology physical	precludes retreat of	3
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	d geology ATL is r inically appropriat	coa			be lost to				consider		
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	d geology ATL is r inically appropriat	-	aotai oqu	0020	Intertidal habitats will be lost to coastal squeeze			ack			
non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important	d geology ATL is r inically appropriat					restricted b	- ,		1		
		e,		-	-		-	-	geology physical	und / hard precludes retreat of ot conside	the line,
environment sites and their setting.		_	No assets at risk now or in the future			No assets at risk now or in the future					
Water Environment		1.51/	•	21/2	1 11/4	1 21/2	1 21/0	1.51/0	I 21/2		
hard techr	to high ground / I geology ATL is r nically appropriat on not considered	e, I		N/A	N/A	N/A	N/A	N/A	geology physical	und / hard precludes retreat of ot conside	the line,
No detriment to water N/A		No N/A	assets a	t risk N/A	N/A	No assets a		N/A	NI/A		
quality Due hard techr	to high ground / I geology ATL is r inically appropriat on not considered	not e,				N/A	N/A	IN/A	geology physical	und / hard precludes retreat of ot conside	the line,
		No	water bo	odies at ris	ik	No water b	odies at ris	sk			
Air and Climate											
accommodate climate hard change trends. hard	to high ground / d geology ATL is r nically appropriat on not considered	e, I	\	_		-	-	-	geology physical option no	und / hard precludes retreat of ot conside	the line,
		Can not raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			N/A			
character hard techr	to high ground / d geology ATL is r nically appropriat on not considered	e, I		-	-	-	-	-	geology physical	und / hard precludes retreat of ot conside	the line,
	risl unl cha	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						

Policy Unit - South	Policy Unit - South of Forest Road (PEN1)											
	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
Natural coastal process are promoted	_			_	_		0	0		0		
e.g. through managed retreat of defences.	Natural estuary processes will be affected			Natural process or erosion and deposition will be affected		Natural processes will be allowed to operate			Retreating the defence line will allow natural coastal processes to operate.			
Minimise requirements for future								0				
maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.			Defences will require ongoing maintenance			No initial input required to deliver option and no ongoing maintenance requirements			the defe ongoing be requ	quired to rence line as maintena ired, altho wither the tions	and ance will ough less

No Active Intervention is the preferred policy for PEN1; there are no features at risk from current or future tidal flood or erosion risk. A policy of NAI will allow natural processes to continue to operate and designated sites will evolve as a result of these processes. No adverse impacts are likely to arise from the implementation of this policy in this location.

Policy Unit – Fores	st Road	to P <u>ena</u>	rth Hea	d (P <u>EN</u> 2)							
		e the Line		Hold the	<u> </u>		No Acti	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
Population and Hu	man He	alth										
Residential Properties: Penarth Head Developments including Bradford Place Reduce significance of	geology technical	igh ground ATL is not lly appropr ot consider	iate,		- erties at cu			erties at cu		No properties at current or		
impact associated with flooding and erosion to people and property.				future ris	sk of tidal f	looding	future ris	sk of tidal f	looding	future risk of tidal flooding- retreating the line will affect properties; no wider FRM benefit.		
Recreational Sites: coastal path; pier Esplanade, Gallery and marine recreation Reduce significance of	geology technical	igh ground ATL is not lly appropr ot consider	iate,				-					
impact associated with flooding and erosion to key community, recreational and amenity facilities.				current of features defence increase	res behind defences a on or in fr line at risk d erosion/ bing in me	t risk; ont of of	Flood risk will increase and features will be lost; Increased risk of overtopping to pier and impacts on seafront and coastal footpath			Some coastal recreational features in their current state will be lost e.g. pier		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	vironmental impacts ich may have long m health impacts declaration between the many street in the many stree			-			-			- Realignment may adversely		
anxiety associated with flood and erosion risk).				No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			Realignr affect pr	nent may a operties	adversely
Material Assets & (Infrastru	ıcture									
Industrial, commercial and economic assets: Local commercial assets Reduce significance of	geology technical	igh ground ATL is not lly appropr ot consider	iate,	-			-					
impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism				behind the at risk of now or in is however risk of over the attures defence	erty or bus ne esplana flooding on the future ver an incre vertopping on or in fr line e.g. t de in the m	ade are or erosion e; there eased of ont of he	along th be at incovertopp	conomic as e foreshor creased ris bing in the erm e.g. e	e might k of medium		conomic as e esplanad ed.	
Critical Infrastructure: Lifeboat Station Reduce significance of impact associated with flooding and erosion to	geology technical	igh ground ATL is not lly appropr ot consider	iate,	-			-					
critical infrastructure.				front of e	station is lexisting de be at risk	fences	affected	station po by increas on in the m m.	sed risk	Realignr lifeboat	nent could station	affect
Biodiversity, Flora	and Fa	una										
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of	geology technical	igh ground ATL is not lly appropr ot consider	iate,	-			-	-				

internationally designated sites and the favourable condition of their features.		coastals	line will re squeeze im onal sites		occur, bu	of habita at in some be restric logy and nent	places ted by	Realignment will be restricted in some places by hard geology and existing development
National nature designations: Severn Estuary SSSI, Penarth Coast SSSI Reduce significance of	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-			-	-		O / A
impact on nationally or locally designated conservation sites.		coastal s Severn s potential defences	line will re squeeze im SSSI. Pena lly affected	npacting arth SSSI	occur, bu restricted and exist	of habita ut rates wi d by hard of ting develous SSSI unate	ll be geology opment.	Realignment will be restricted in some places by hard geology and existing development. Penarth SSSI affected
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	-			-	-		
			line will re squeeze im SSSI.		operating habitats will be re	stricted by	k of but rates y hard	Realignment will be restricted in some places by hard geology and existing development
Historic Environme	ent							
Scheduled Monument: Penarth Churchyard Cross. Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to schedule and	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered				-			
locally, regionally and nationally important cultural historic environment sites and their setting.		current of flooding; esplanad	ore feature or future ris pier and de on or in line potent	k of tidal front of	current of flooding; esplanac	ore feature or future ris pier and de on or in line poten	sk of tidal front of	Some features along coast may be lost
Water Environmen	t							
Water resources are protected.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-
		No know	n resource	es	No know	n resourc	es	No known resources
No detriment to water quality.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-
		No know	n assets a	t risk	No know	n assets a	at risk	No known assets at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered				-	-	-	
			raise the h nces indefi			evolution of		Managed realignment will accommodate climate change
Landscape					, omnate C	manye.		i onango
Avoid detrimental effects	N/A	-	-	-	-	-	-	
to landscape character.	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	Due to geology existing landscape is likely to remain	Managed realignment will alter the townscape and views
Contribute toward	s Sustainable Developr	ment		
Natural coastal process are promoted	_			0
e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural ;processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Overall a **No Active Intervention** is the preferred policy for PEN2; there are no features behind the existing defences at risk from current or future tidal flood or erosion risk. A policy of NAI will allow natural processes to continue to operate and designated sites will evolve as a result of these processes. Penarth Coast SSSI unaffected. There are however some features in front of the exiting defence line (including the pier, esplanade and lifeboat station) that may be at risk of increased overtopping and /or erosion in the medium to long term.

1.3 Cardiff Theme Area (CAR)

The impact on the SEA objectives of the alternative management policies within the Cardiff Theme area are shown in the following table:

Policy Unit – Cardiff Bay	(CAR	1)										
		ce the l	ine	Hold the	Line		No Activ	e Interventi	on	Mana	ged 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
Population and Human I	Health											
Residential: Cardiff Bay residential	- No pro	perties a	>+	- No propo	-	-	- No prope	- rties at curre	-	- Potro	ating the li	no will
developments Reduce significance of impact associated with flooding and erosion to people and property.	curren	perties a or futur flooding	e risk		rties at curi			k of tidal floo		affect prope requir the Ba	residentia rties – woo e the remo arrage (no dered a fea	ıl uld oval of t
Recreational Sites: Coastal path, Cardiff Bay recreational attractions	-			-	-	-	-	-	-	-		
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	No features at risk now or in future from tidal flooding				es at risk n n tidal floo			es at risk no m tidal floodi		affect of bay the re Barra	ating defer recreation r – would r moval of the ge (not consible choice	nal use require he nsidered
Avoid/minimise environmental impacts which may have long	-			-	-	-	-	-	-	-		
term health impacts (including stress and anxiety associated with flood and erosion risk).	of tidal	perties a flooding e future	now		rties at risk now or in th			rties at risk on the		adver prope requir the Ba	gnment co sely affect rties – woo e the remo arrage (no dered a fea e)	uld oval of t
Material Assets and Crit	ical In	irastru	cture									
Industrial, commercial and economic assets: Cardiff Bay developments,				-	-		-	_	_	-		
docks Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	operat	s to and on of Co tentially d			d other eco otected from			k of erosion nmercial act arrage;		remov (not c	d require the land of the E onsidered le 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.		astructu t or futur sk			ructure at o			ture would beased erosio		would remov (not c	tructure af require th al of the E onsidered le choice)	ie Barrage
Biodiversity, Flora and F	Fauna											
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on				-			-			-		
integrity of internationally designated sites and the favourable condition of their		on tionally ed sites			queeze wil ertidal hab			queeze will i tertidal habit		will al	ged realig low intertion at to be ma	dal

Policy Unit – Cardiff Bay	(CAR	1)										
	Advar	ce the L	ine	Hold the L	ine.		No Activ	e Interven	tion	Mana	iged 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
features										remo	uld require val of the E considered ble choice)	Barrage
National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally		\					-			-		
designated conservation sites.	impact	ce the lir t on the ted site	ne will	Coastal sq on the prot			due to pre	oll back not esence of t coastal so	ay and	the are the relationship.	lopment wi mount of hack — would emoval of the ge (not consible choice	abitat d require ne nsidered
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-			-			-		
ŭ '	reduce	ce the lir e extent o lal habita	of	Coasts squ extent of in			will restric	nent and bact ability of coastal sq	habitat to	could habita the re Barra	ged realigi promote in at – would emoval of th ge (not consible choice	ntertidal require ne nsidered
Historic Environment												
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.	-			-	-	-	-	-	-	-		
setting.	No kno risk	own asse	ets at	No known	assets at i	risk	No knowr	n assets at	risk	No kr	nown asset	s at risk
Water Environment												
Water resources are protected.	-			-	-	-	-	-	-	-		
		sets at ris coding no future		No assets flooding no				s at risk of a		No kr	nown asset	s at risk
No detriment to water quality.	-			-	-	-	-	-	-	-		
	risk of	own asse tidal floo r in the fu	ding	No known tidal floodir future				n assets at ling now or		No kr	nown asset	s at risk
Air and Climate												
Policy is designed to adapt to or accommodate climate change				0	0	0	0	0	0	-		
trends.		ot raise the desired of the desired		Can not ra the defenc however a currently p yrs.	es indefini dequate p	tely; rotection	will be ac	of climate c commodat of strategy		will a clima requi the B	ged realign ccommoda te change re the remo arrage (no dered a fea e)	te – would oval of t
Landscape												

Policy Unit – Cardiff Bay	y (CAR	1)										
	Advan	ce the L	_ine	Hold the I	Line		No Activo	e Interve	ntion	Mana	aged 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
Avoid detrimental effects to landscape character.	-			-	-	-	-	-		-		
	limited defence required effect of landsc	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape-			minimal so defences li d. Limited scape	kely to	Due to lim presence landscape unchange	of barrag	e existing remain	will all and v requil the B	aged realige ter the town riews – wood re the remon arrage (not dered a feate)	nscape uld oval of t
Contribute towards Sus	tainabl	le Dev	elopme	ent								
Natural coastal process are promoted e.g. through						_	_			0		
managed retreat of defences.		l estuary ses will l d		Natural pro and depos affected	ocess or en sition will be		Natural pr and depo- affected of barrage	sition will	Retreating the defen line will allow natural coastal processes to operate.			
Minimise requirements for future maintenance/ new							•	0	0			
structures.	be required constru	es and to	hey will	Defences maintenar	will require	ongoing	No initial i deliver op maintena	tion and i	no ongoing	the dongo will be althor	required to efence line ing mainter e required, ugh less th r the ATL o	and nance an for

No Active Intervention and Hold the Line both perform favourably against the SEA objectives, as there is no existing flood risk in this unit due to the presence of the barrage. However under No Active Intervention the condition of the barrage would deteriorate and the risk of it failing post year 100 would increase; given the economic investment made in delivering the barrage this is considered an unacceptable option and the environmentally preferred option along this unit is therefore **Hold The Line**. Under the **HTL** option coastal squeeze in front of the defence line will result. In addition this option may restrict natural processes operating along the coastline and will require ongoing maintenance, and so does not perform well against the sustainability objective.

Policy Unit – Barrage to	River R	hy <u>mne</u>	ey, Rov <u>e</u>	r W <u>ay (</u>	CAR2)							
		e the Li			he Line		No Act	ive Interven	ition	Mana		
	0-20	20-	50 -	0-20	20-50	50 -	0-20	20-50	50 -	Reali 0-	gnme	ent 50 -
		50	100			100			100	20	20 - 50	100
Population and Human H	lealth											
Recreational Sites: Coastal Path)		0	0	0	-	_	_			
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Assets tidal floo	orotecte oding/ero			protected poding/ero			protected fro derosion	om tidal		ted by	ersely
Residential:							-	-				
Small scale residential developments Reduce significance of impact associated with flooding and erosion to people and property.	properti risk and	number es curre therefor ed under	ntly at re	proper risk an	d number ties curre d therefor ted under	ntly at e	currentl	number of p y at risk of t y/erosion u	future	adver some	rsely a prop ider F	erties.
Avoid/minimise environmental mpacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	properti risk and		ntly at re	proper risk an	d number ties curre d therefor ted under	ntly at e	currentl	number of p y at risk of f y/erosion u	future	adver some	rsely a prop ider F	erties;
Material Assets and Critic		struct	ure	Contion						Bone		
Critical Infrastructure: Docks –Queen Alexandra and Roath and access including												
railway Reduce significance of impact associated with flooding and erosion to critical infrastructure.		vill remained from a			will remai ted from a		Docks a	at risk prima	rily from		t dock	nt may
Industrial, commercial and economic assets:	0			0			-					
Dockland industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism	industria at risk a	number al assets nd there ed under	currently fore	industr curren therefo	d number rial assets tly at risk ore protec this option	and ted	risk of f	industrial as uture floodin nis option		would		ersely
Biodiversity, Flora and Fa	auna											
International Nature Conservation sites:				-			-)	
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal	squeeze	e will		I I al squeeze on the pr		Habitats	s will roll bad	ck	allow	gnme intert ats to	
National nature designations: Severn Estuary SSSI				-			-	0)	
Reduce significance of impact on nationally or locally designated conservation sites.			e will intertidal		al squeeze on the pr		Roll bad	ck of habitat	s will	maint	tain	nt will abitats
Maintain and enhance Biodiversity Action Plan habitats				-					0	0		
and species in line with existing targets/plans	Advance result in habitats	loss of i	e will intertidal		al squeeze on habita s		Roll bad occur	ck of habitat	s will	maint	tain	nt will abitats

Historic Environment								
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.	Terrestrial site protected; marine sites potentially adversely affected	Sites p	protected		Sites at flooding,		increased	Sites potentially affected by retreat term
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No resources known to be present	No res	ources k sent	nown to	No reso	urces kno	wn to be	No resources known to be present
	-	-	-	-	-	-	-	-
No detriment to water quality.	No assets known to be at risk	No ass at risk	sets knov	vn to be	No asse risk	ts known	to be at	No assets known to be at risk
Air and Climate								
Policy is designed to adapt to or					-	-	-	0
accommodate climate change trends.	Can not raise the height of the defences indefinitely.		ot raise the of the delitery.		will acco	mmodate	impact to	Managed realignment will accommodate climate change
Landscape								
Avoid detrimental effects to	-	-	-	-	-	-	-	-
landscape character.	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape	limited defend require	risk minir I raising o ces likely ed. Limite al landsc	of to be ed effect	coastline landscap significa	ntly witho al human	cur, but y to change	Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact
Contribute towards Sust	ainable Development							
Natural coastal process are								
promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	erosion	al process n and de affected	position		processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new						0	0	-
structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		l ces will rong mainte		deliver o	I input recoption and maintena	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for either the ATL or HTL options

Both the Hold the Line and No Active Intervention polices result in significant adverse effects. Adopting NAI will allow natural coastal processes to operate and the intertidal habitats of the Severn estuary to evolve naturally. However it will not protect people, property and critical infrastructure (in particular Cardiff Docks) from flood risk; therefore **Hold the Line** is the preferred policy option as flood risk to the human environment

will be managed. Adverse effects associated with this option include loss of intertidal habitat within the Severn Estuary European sites, and the requirement for ongoing maintenance of defences.

Policy Unit - River	Rhymn	ey to La	mby W	ay landf	ill site d	Irain / s	ewer ou	tfall (CA	NR3)			
	Advanc	e the Line	;	Hold the	Line		No Activ	/e 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
Population and Hum	an Hea	lth	100			100			1.00			1.00
Residential developments beside 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 ries; limited om curren erosion	number		ment may operties; r nefit	
Recreational Sites: Coastal path and local open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	conside unsuitat tributarie Estuary in-chanr and wat potentia	e the Line red to be a pole policy fres to the S as it woul nel flood stern movement lly leading. I ger erosionuce it	or evern d reduce orage ent, to t could	-								
					onal sites d, althougl		an increa	onal sites ased risk of although le sites.	of	alignme limited s	will depend nt line: how space in re be an adv	wever ach; so
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	conside unsuitate tributarie Estuary in-channe and wat potentia greater	e the Line red to be a pole policy fres to the S as it woul nel flood steer movemed lly leading. I ger erosionuce it	evern d reduce orage ent, to t could	-								
					number of es at risk fi	rom tidal		in flood ries; limited			ment may operties; r nefit	
Material Assets and		Infrasti	ucture									
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure.	conside unsuitat tributarie Estuary in-chanr and wat potentia greater	e the Line red to be a cole policy frees to the S as it would nel flood ster movement lly leading flooding. I ger erosion luce it	evern d reduce orage ent, to t could				-					
				Limited i risk	nfrastructu	ure at	Limited i risk	nfrastruct	ure at		ng the line ly affect ex acture	

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	Limitada			Limited			Limited assets at risk .
		Limited a			Limited a	issets at ri	ISK	realignment could affect assets
Biodiversity, Flora a	nd Fauna							
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on 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	-			-			
			squeeze w n the prote		Habitats	will roll ba	nck	Realignment will allow habitats to roll back
National and local nature designations: Severn Estuary, Penylan Quarry, and Rumney Quarry SSSIs, and Howardian LNR Reduce significance of impact on nationally or locally designated conservation 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							
		impact o sites Penylan Quarries than 500 and outs	and Rhum are locate im from the ide the floe efore will bed	ected nney ed more e river odplain		c of habita	•	Retreating the line will allow roll back of habitats
Rhymney River Section SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	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							-
		not adve	g the defersely affect to cated to comment t	t the cliff behind it	Natural p be maint	orocesses ained	would	Impact likely to depend on alignment line
Maintain and enhance Biodiversity Action Plan	N/A Advance the Line is	-				•	•	•

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	impact o	squeeze w n the prote and specie	ected		k of habita though spa	,	Retreating the line will allow roll back of habitats
Historic Environmen	ıt							
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.	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 /protecte	assets at ri d	isk	Limited a	assets at r	isk	Retreating the line may affect existing features
Water Environment								
Water resources are protected.	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 know risk.	n resource	es at	No know risk.	n resource	es at	No known resources at risk.
No detriment to water quality.	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 pre	and old lar sent; howe at/future er	ever not	sites pre	and old lar sent; howe nt/future er	ever not	Retreating line may put theses sites at increased flood risk with implications for water quality.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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		coast will	evolution o ll accommo change: po people au	odate ssible	Managed realignment will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character.	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 do be require effect on lo be	efences d.	changes	pe unlikely significantly additional h	y	Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact
Contribute towards	Sustainable Developme	ent						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate	will be	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requ maintenar		deliver o	l input requestion and in maintenar nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit as there is a requiem to manage the flood risk to people, property and infrastructure within this policy unit. Adverse effects that may result include restricted operation natural coastal processes and loss of intertidal habitats within the Severn Estuary European site/SSSI as a result of coastal squeeze; this loss will be mitigated for by habitats creation elsewhere within the estuary.

1.4 Wentlooge Theme Area (WEN)

The impact on the SEA objectives of the alternative management policies within the Wentlooge Theme area are shown in the following table:

	Advanc	e the Line	9	Hold th	ne Line		No Act	ive Interv	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
Population and Hur	nan Hea	alth	100			100			100			100
esidential: Outskirts of Cardiff, lewton and Llanromney				0			-					_
educe significance of npact associated with coding and erosion to eople and property	Cardiff a flooding	no. of prop at risk from . Residen es will be ed.	n tidal	Cardiff flooding	no. of propat risk from g. Resident ies will be p	i tidal ial		ntial prope n increase g.		Impact will depend on th alignment line. Resident properties potentially affected. No wider FRM benefits		
void/minimise							-					
nvironmental impacts which may have long term ealth impacts (including tress and anxiety ssociated with flood and rosion risk).	Residen be prote	ntial proper ected.	rties will	Resider be prote	ntial proper ected.	ties will		ntial prope n increase g.		alignme propert	will depenent line. Refes potenti J. No wide	esidenti ially
ecreational Sites:	0			0	0		-					
coastal path and local pen space leduce significance of inpact associated with ooding and erosion to ey community, ecreational and amenity acilities.		route alon ill be prote			route alon ill be prote		coast w	route alor vill be at ris ed floodin	k from	realignr The cur	depends of ment of the rent acces to be adv d.	e coast ss route
Material Assets and	Critica	l Infrast	ructure									
critical infrastructure: callway Line electricity substations,				-			-					
deduce significance of appact associated with coding and erosion to ritical infrastructure.	Infrastru	icture prot	ected.	Infrastr	ucture prot	ected.		ucture at a ed risk of f		alignme assets inland s will be p	will depenent line. The are at least to it is like or	he st 800m ly they and not
ndustrial, commercial nd economic assets: commercial	0						-					
evelopments of Newton nd Llanromney, agricultural landscape, deduce significance of inpact associated with coding and erosion to industrial, commercial and conomic assets including agricultural), and activities (including purism)	Assets p	protected		Assets	protected		Assets flooding	at increaso	ed risk of	the alig not exp develop impacte likely to	pact will donment line ected that ected that ements will ed on but the an adron the agr	e. It is the I be here is verse

International Nature Conservation sites: Severn Estuary Ramsar,				
Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	ATL will impact on the protected sites	Coastal squeeze will impact on the protected sites	Habitats will roll back, intertidal habitats maintained.	Intertidal habitats will roll back and be maintained.
National and local nature designations: Reduce significance of				
impact on nationally or	For Land based sites – Gwe	nt Levels Rumney and Peters	stone SSSI	J
locally designated conservation sites.	The Gwent Levels Rumney and Peterstone SSSI site will be protected	The Gwent Levels Rumney and Peterstone SSSI site will be protected	There will be an adverse impact on the site because the coast will erode the SSSI	There will be an adverse impact on the site due to the realignment of the coast
	For marine based sites – Se	vern Estuary SSSI	<u> </u>	J
	ATL will impact on the protected site	Coastal squeeze will impact on the protected site	Habitats will roll back, intertidal habitats maintained	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.	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.	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.	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.
Historic Environmen	nt			
Heritage Landscape: Scheduled Monuments: Relict Seawall on	0/	-		
Rumney Great Wharf 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	Limited number of features. Structures will be protected. Historic landscape will be altered	Structures and Historic landscape will be protected, although increased height of defences could have a local impact within the Gwent Levels Historic Landscape Area	Structures will be at an increased risk of flooding as will the historic landscape	Structures and Historic landscape may be adversely affected by realignment
Water Environment				
No detriment to water quality.	- LPateria Inc. (CH elica per			- LPateria Laudilla di canana
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 landfill sites are present in the flood risk zone but are not expected to pose a risk to water quality.	Historic landfill sites are present in the flood risk zone but are not expected to pose a risk to water quality.	Historic landfill sites are present in the flood risk zone but are not expected to pose a risk to water quality.
Water resources are protected.	No known impost to water	No known impact to water	No known impost to water	No known impact to water
	No known impact to water resources.			
Air and Climate				
				0
Policy is designed to adapt to or accommodate climate change trends.	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.

Landscape							
Avoid detrimental effects o landscape character.	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 of the defence will local landscape in character (increas presence in the la also a visual impadefences disrupting	affect terms of ing ndscape): ct with	flooding landscap or negati perceptic change i due to po	d frequency may alter to be (whether live dependent). May be nother thanked the thick thanked the thic	the local er positive ds on be a local scape anges in	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.
Contribute towards Natural coastal process	Sustainable Developm	nent					
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process of and deposition will affected			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				0	0	0	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will requongoing maintena		deliver o	input requiption and maintenar intenar	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Overall the preferred option on environmental grounds is **Hold the Line**. This protects key aspects of the human environment including residential properties and the Great Western Railway line running from Swansea to Bristol, and an electricity substation. In addition the Gwent Levels Historic Landscape Area and SSSI are protected from increased flooding. Adverse impacts will however affect the Severn European sites. The HTL option does not however perform favourable on sustainability grounds and the defences will require ongoing maintenance.

Policy Unit – Slui (WEN2)	се Но	use Farı	n / Tar	wick Rhyr	ne to we	st bank	of River Ek	obw at N	laesglas	railway bridge
	Advar	nce the Liı	1е	Hold the L	ine		No Active I	nterventic	n	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
Population and Hu	ıman l									
Residential: Peterstone, Marshfield, St. Brides				•	•		-			
and isolated properties. Reduce significance of impact associated with flooding and erosion to people and property		ential prop		Residential properties will be protected.			Residential an increase	properties d risk of flo	will be at ooding.	Impact will depend on the alignment line. There are isolated properties along the coast that could be adversely impacted by the realignment of the coast. No wider FRM benefit.
Recreational Sites: Local open space and facilities.							-			-
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.		s route alo will be prof		Access rou will be prot		e coast	Access rout will be at ris flooding.			Impact depends on the realignment of the coast. The current access route is likely to be adversely affected but it could be repositioned.
Avoid/minimise environmental impacts				0			-			
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).		ential prop protected		Residentia protected.	I properties	will be	Residential an increase			Isolated residential properties may be adversely impacted by the realignment. There would be loss of agricultural land in the area. No wider FRM benefit
Material Assets an	d Crit	ical Infra	astruct	ture						
Critical infrastructure: Railway Line, Electricity substations				-			-			
Reduce significance of impact associated with flooding and erosion to critical infrastructure.	Infrast	ructure pro	otected.	Infrastructu	ire protecte	d.	Infrastructur risk of flood		reased	Impact will depend on alignment line. The assets are at least 2km inland so they are likely to be protected and not adversely impacted.
Industrial, commercial and economic assets: Agricultural landscape							-			
Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	Assets	s protected		Assets pro	rected.		Assets at ar flooding.	nd increase	ed risk of	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.
Biodiversity, Flora	and F	auna								
International Nature Conservation sites: Severn Estuary				-			-			
Ramsar, SAC and SPA Avoid significant impact on integrity of		rill impact of ted site	on the	Coastal sq the protect		mpact on	Habitats will habitats ma		intertidal	Intertidal habitats will roll back and be maintained.

internationally										
designated sites and the favourable condition of										
their features										
National nature		-			-					
designations: Reduce significance of										
impact on nationally or	For Land based sites – G	went Levels -	- St. Bride	s SSSI		L	·L	L		
locally designated										
conservation sites.	The Gwent Levels -St	The Gwent			There will be			There will be an		
	BridesSSSI site will be protected	Brides SSS protected.	I site will b	е	on the site re		om	adverse impact on the		
	protected	protected.			Coastal elos	IOII.		site due to the realignment of the		
								coast.		
		-								
	For marine based sites –	Severn Estua	ary SSSI	I	.1	L	L	L		
					11-12-1-1-1	and board	'atant'dal	Late of the Line State (191		
	ATL will impact on the protected site	Coastal squ the protecte		npact on	Habitats will habitats mai		intertidai	Intertidal habitats will roll back and be		
	protoctod one	tilo protocto	a ono		Trabitato Trial	nanioa.		maintained.		
Maintain and enhance	?	?			?			?		
Biodiversity Action Plan habitats and species in	Unclear how the mix of	Unclear how			Unclear how		-	Unclear how the mix of		
line with existing	terrestrial and marine habitats and species	terrestrial ar and species			terrestrial an and species			terrestrial and marine habitats and species		
targets/plans.	will be affected –	possible neg			possible neg			will be affected –		
	possible negative,	positive out	comes. Mo	ore	positive outo	omes. Mo	ore	possible negative,		
	neutral or positive outcomes. More	detailed ass level require		t lower	detailed asso		t lower	neutral or positive outcomes. More		
	detailed assessment at	lever require	u.		level require	u.		detailed assessment at		
	lower level required.							lower level required.		
Historic Environme	ent									
Heritage Sites:		-			-					
Scheduled Monuments:										
St. Mary's Churchyard	Terrestrial structures will be protected. Gwent	Features on the defence			Structures at Landscape A		Structures likely to be protected as located			
Cross at Marshfield And Listed Buildings	Levels Historic	Landscape			increased ris		over 2.5km inland;			
Reduce significance of	Landscape may be	protected. Ir					· ·	Historic landscape area		
impact to scheduled and	adversely affected	defences co adverse imp		ocal				could be adversely affected		
locally, regionally and		auverse imp	Jact					arrected		
nationally important cultural historic										
environment sites and										
their setting										
Water Environmen	t									
Water resources are	-	-	-	-	-	-	-	-		
protected.	No resources known to	No resource	s known to	be	No resource	s known to	be	No resources known to		
	be present.	present.			present.			be present.		
	Landfill sites protected	Landfill sites	nrotected	from	Landfill sites	are at an		Impact depends on the		
	from flooding.	flooding.	protected	110111	increased ris		ng.	realignment of the		
No detriment to water	3	3					3	coast. One of the sites		
quality 3 Active landfill sites								is on the coast and another within 500m so		
								it is likely that they		
								would be adversely		
Air and Climate								affected.		
Air and Climate										
Air and Climate Policy is designed to					-	-	-	affected.		
Policy is designed to adapt to or	Can not raise the height	Can not rais		ht of the	Natural evolu			affected. Managed retreat will		
Policy is designed to	Can not raise the height of the defences indefinitely.	Can not rais defences inc		ht of the		odate clim	ate	affected.		

Landscape						
Avoid detrimental effects to landscape character.	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	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		
Natural coastal process are promoted	s Sustainable Develo	ppment Natural process or erosion and	Natural processes will be	vegetation condition and structure. Retreating the defence		
e.g. through managed retreat of defences. Minimise requirements for future maintenance/	processes will be affected	deposition will be affected	allowed to operate	line will allow natural coastal processes to operate.		
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options		

Overall the preferred option on environmental grounds is **Hold the Line**. This protects key aspects of the human environment including residential properties, the main line railway between Swansea and Bristol and an electricity substation. In addition the Gwent Levels Historic Landscape Area and SSSI are protected from increased flooding. Adverse impacts will however affect the Severn European sites with loss of intertidal habitat resulting. Habitat will be created elsewhere within the estuary to mitigate this impact. In addition the HTL option does not perform favourable on sustainability grounds and the defences will require ongoing maintenance.

1.5 Newport and the River Usk Theme Area (NEW)

The impact on the SEA objectives of the alternative management policies within the Newport and River Usk Theme area are shown in the following table:

(NEW 1)	Advanc	e the Line	e	Hold th	e Line		No Act	ive Interve	ention	Manage	ed Realign	ment											
	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -											
Population and Hun	⊥ nan Hea	ılth	100			100	_		100			100											
esidential	N/A											-											
solated residential properties Reduce significance of mpact associated with looding and erosion to be exple and property.	conside unsuital tributarie Estuary reduce i storage moveme leading It could	e the Line red to be a cole policy fes to the Ses the Line Indicate the Ses the	en devern dd flood dially flooding.																				
	reduce it				tial propert d.	ies		ntial proper eased risk		Impact will depend on alignment line: however limited space in reach so likely to be an adverse impact.													
Avoid/minimise environmental impacts which may have long term nealth impacts (including stress and anxiety associated with flood and erosion risk).	conside unsuital tributarie Estuary reduce i storage moveme leading It could	e the Line red to be a cole policy fes to the S, as it woul in-channel and water ent, potent to greater also trigge, rather tha	en devern dd flood dially flooding.																				
	reduce			Assets	will be prote	ected.		will be at a ed risk of f		Some local adverse affects within retreated areas. Assets behind protected. Scope for retreat limited by docks.		ated nind for											
Material Assets and	Critica	l Infrast	ructure																				
Critical infrastructure: Docks Electricity substations Reduce significance of mpact associated with looding 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 reduce it			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			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			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			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					-					
	. 53455			Assets	protected.			will be at a ed risk of f		Impact will depend on the alignment line: however limited space in reach seassets likely to be affected.													

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 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	Assets p	protected.			rill be at ar		Impact will depend on the alignment line: however
								limited space in reach and assets likely to be affected.
Biodiversity, Flora a	nd Fauna							
International Nature Conservation sites: River Usk SAC Avoid significant impact on 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	-	-	-	-			-
		habitats	ignated for , otter and n impact on l	nigratory	might inc	I back of herease rive and impro	er	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for otter.
National Nature conservation: River Usk and Gwent Levels St. Brides SSSI Reduce significance of impact on nationally or locally designated conservation 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		-	-	-			
		SSSI un	sk and Gwe affected		Usk pote enhance		abitat	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		how the mi			? now the m I and mari		Unclear how the mix of terrestrial and marine
		habitats affected	and specie – possible e, neutral or	s will be	habitats a	and specion ed – poss , neutral o	es will ible	habitats and species will be affected – possible negative, neutral or

			es. More de			outcomes.		positive outcomes. More detailed assessment at
Historic Environmer	nt	required	tt		lower le	vel require	<u>d</u>	lower level required
Listed buildings and	N/A	0	0					
non-designated sites of historic interest including Transporter Bridge Reduce significance of inpact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	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	al assets pr	otected.		al assets a ed flooding		Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Water Environment								
Water resources are protected.	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	ources know	n to be	No reso	urces knov	vn to be	No resources known to be
No. data'a a at ta conta	N/A	at risk.	1	1.000	at risk.		I A	at risk.
No detriment to water quality. 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.		of floodi	at an increa ng, with ons for wa		Assets all border coast so assets are likely to be impacted by the managed realignment with adverse implications for water quality.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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							
	100000		raise the he nces indefir	coast wi	evolution of accommonage post people a	odate ossible	Managed retreat will accommodate climate change.	
Landscape								
Avoid detrimental effects to landscape character.	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		erosion and			sed increa		Retreating the defences will alter the appearance
		risk within the unit both at present and in the future so limited raising of defences likely to be required. Limited effect on local landscape.			alter the (whethe negative percepti local cha due to ir	local land r positive of depends on). May lange to tow arreased flot on build	scape or on be a wnscape looding	and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.
	Sustainable Developm	ent						
Natural coastal process								
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or e position will b			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/								
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance			deliver o	l input requestion and maintenar	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Overall a policy of **Hold the Line** is the environmentally preferred option for this unit. This will ensure critical infrastructure and isolated residential properties are protected from increased flood risk. No European or nationally designated nature conservation sites are affected by this policy and its implementation will ensure both the historic environment and water quality are protected. This option doe not perform well against the sustainability objective as the defence will require ongoing maintenance.

Policy Unit - West I						est ban	ık of Usk					
		e the Line		Hold the				/e Interve			ed Realigr	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hum		th										
Recreational Sites: Local open space and facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line i red to be a ele policy for es to the So as it would er moveme ly leading looding. It ger erosior uce it	n or evern d reduce orage ent, to									
				Recreati protected	onal sites d.	will be		onal sites reased ris		alignme limited s	will depend nt line: ho space in re be an adv	wever ach; so
Pilgwenlly and Baneswell residential developments and isolated residential properties 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 in the tobe at the policy for the Strain and the strain and the the strain and the st	or evern d reduce orage ent, to									
				Residen protected	tial proper d.	ties		tial proper ased risk o		alignme	will depend nt line: ho space in re be an adv	wever each so
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line in the total	n evern d reduce orage ent, to c could									
					assets at r vill be prote			vill b at an d risk of fl	ooding.	within re Assets I	ocal advers etreated ar oehind pro or retreat l	eas. tected.
Material Assets and	Critical	Infrastr	ucture									
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)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line in the tent of the	n evern d reduce orage ent, to c could									

		Assets w	vill be prot	ected	Assets a risk of flo	re at an in ooding	creased	Impact will depend on the alignment line: however limited space in reach of assets likely to be affected
Critical infrastructure: Roads – Usk road crossings Electricity substations Railway line 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 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 risk of flo	re at an in ooding.	creased	Impact will depend on the alignment line: however limited space in reach so assets likely to be affected
Biodiversity, Flora a	nd Fauna							
International Nature Conservation Sites: River Usk SAC Avoid significant impact on 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	-	-	-	-			
		river hab	C designate vitat, otter a y fish; no i der HTL	and		I to increas and enhar		Potential to increase river corridor and enhance the site
National Nature conservation designations: Lower River Usk SSSI Reduce significance of impact on nationally or locally designated conservation 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		-	-	-	-	-	-
		habitats,	ignated for otter and y fish; no i		dominate undevelo	processes e, however oped space pansion of	r limited e to	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for otter.
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	?	?	?	?	?	?	?
		terrestria habitats be affect negative	how the mark all and mark and specified – poss , neutral o outcomes.	ne es will ible r	terrestria habitats be affect negative	how the marial and mariand specied – possen, neutral ooutcomes.	ine es will ible r	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More

			assessme /el require			assessme vel require		detailed assessment at lower level required		
Historic Environmen	t									
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.	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									
		Historica	al assets p	rotected.		al assets a ed flooding		Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.		
Water Environment										
Water resources are protected	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	irces know	vn to be	No resor	urces know	vn to be	No resources known to be at risk.		
No detriment to water quality Docks STW Outfalls	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									
		Asset pr	otected			at an increa ng, potenti		Asset protected because it is assumed that managed retreat will not impact on the docks or the sewage outfalls.		
Air and Climate										
Policy is designed to adapt to or accommodate climate change trends.	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 f nces indef		coast wi	evolution of ll accomm change: po o people a	odate ossible	Managed retreat will accommodate climate change.		

Landscape								
Avoid detrimental effects to landscape character.	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 characte presence landscap	oe): also a vith defend	affect terms of ing visual	flooding landscap positive depends May be townsca increase	ed frequen- may alter be (whether or negatives on percela a local char pe due to ad flooding buildings ea.	the local er e otion). inge 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.
Contribute towards	Sustainable Developme	ent						
Natural coastal process						0	0	0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		orocess or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					0	0	0	
new structures. Significant work will be required to construct the defences and they will require ongoing maintenance.		Defences will require ongoing maintenance			deliver o	l input requestion and maintenar	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Overall a policy of **Hold the Line** is the environmentally preferred option for this unit. This will ensure critical infrastructure and isolated residential properties are protected from increased flood risk. No European or nationally designated nature conservation sites are affected by this policy and its implementation will ensure both the historic environment and water quality are protected. This option doe not perform well against the sustainability objective as the defence will require ongoing maintenance.

Policy Unit River Us	sk (both	Banks) at M4	crossing	g to Nev	vbridge	on Usk	(NEW 3)				
	Advanc	e the Line	•	Hold the	Line		No Acti	ve Interven	ition	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
Population and Hum	nan Hea	lth										
Residential: Caerleon, Llanhennock, Newbridge on Usk and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	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		Panidan	- tial proper	-	- Posidon	tial properti	-	Import	vill depend		
					k of tidal f			sk of tidal flo		alignme adequat alignme	nt line hov e space to nt so unlik rse impac	vever o select cely to be
Recreational sites: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consider unsuitable tributarie Estuary, reduce i storage movemente leading in tributation in the could in the	e the Line red to be a pole policy fes to the S, as it wou n-channel and water ent, potent to greater also trigge rather that t	en or Severn Id flood ially flooding.	-	-	-	-	-	-	-		
					onal assed			ional assets dal flooding		alignme adequat alignme	will depend nt line hov se space to nt so unlik rse impac	vever o select cely to be
Material Assets												
Industrial, commercial and economic assets: Agriculture and local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	consider unsuitable tributarie Estuary, reduce i storage movemente leading in It could a	e the Line red to be a ble policy fees to the S as it wou n-channel and water ent, potent to greater also triggerather that	an or Severn Id flood ially flooding.									
					iral land pi		Agricultu tidal floc	ural land at leding.	risk of	alignme	will depend nt line. Po agricultura	otential
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure.	consider unsuitable tributarie Estuary, reduce i storage movemente leading in It could at the storage tributaries.	e the Line red to be a cole policy fees to the S as it wou n-channel and water ent, potent to greater also triggerather tha	en or Severn Id flood ially flooding.	-	-	-	-	-	-	-		

	reduce it							
	Toddoo it	Accete n	ot at risk o	of tidal	Accete	ot at risk of	tidal	Impact will depend on
		flooding.		n tidal	flooding.		tiuai	alignment line however adequate space to select alignment so unlikely to be an adverse impact.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	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	-	-	-	-		-	
			oroperties al flooding.	at risk		oroperties a al flooding.	t risk	Impact will depend on alignment line; effects unlikely.
Biodiversity, Flora a	nd Fauna							
International Nature Conservation Sites: Usk SAC Avoid significant impact on 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	-	-	-	-			
		river hab	C designat bitat, otter; y fish; no i der HTL	and		I to increase and enhand		Potential to increase river corridor and enhance the site
National nature conservation: Lower River Usk SSSI Reduce significance of impact on nationally or locally designated conservation 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	-	-	-	-	-	-	
		habitats, migrator likely	ignated for otter and y fish ; no	impact	dominate undevelo expansio	orocesses ve, however oped space on of river c	limited to allow orridor	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for otter.
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	? Unclear	? how the m	?	?	? how the mix	?	? Unclear how the mix of
		unclear	now the m	IIX UI	Unclear	now the mix	K UI	Unclear now the mix of

		habitats be affect negative positive detailed	al and mar and speci- ted – poss , neutral o outcomes. assessme /el require	es will ible r More ent at	habitats affected neutral o More de	al and marin and species – possible or positive o tailed asses vel required	s will be negative, utcomes. ssment at	terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.
Historic Environmer	nt							
Historic Environment Scheduled Monuments, Listed Buildings and non-designated sites of historic interest including concentration at Caerleon Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites 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	-	-	-	-	-	-	-
their setting			assets are tidal flood			assets are r n tidal floodii		Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact.
Water Environment								
Water resources are protected.	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	risk.	urces knowi	n to be at	No resources known to be at risk.
No detriment to water quality Ponthir 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	-	-	-	-	-	-	
		flooding.	t at risk of	τιααι	flooding.	t at risk of ti	aaı	Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact on STW.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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.
Landscape				
Avoid detrimental effects to landscape character.	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.
Contribute towards	Sustainable Developm	nent		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for with either the ATL or HTL options

No properties, critical infrastructure or designated sites are at risk of flooding within the policy unit either now or in the future; **No Active Intervention** is therefore the environmentally preferred policy option; this will potentially result in an increased risk of flooding of agriculture land along the River Usk east of Caerleon.

Policy Unit - East	East Bank of Usk at M4 crossing to Spytty Pill, North of A48 crossin						ing (NEV	V 4)				
	Advanc	e the Lin	е	Hold the	e 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
Population and Hun	nan Hea	alth										
Residential: St. Julian's, Barnardtown and Somerton Reduce significance of impact associated with flooding and erosion to people and property	conside unsuitable tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a policy fees to the Sa as it wou n-channe and waten to greater . It could prosion, raluce it	an for Severn Id I flood r tially									
				Residen protecte	tial proper d.	ties	Resident from floo	tial propertion	es at risk	alignme very lim souther reach s to be im	will depenent line; ho ited space n section o propertion pacted. N RM benefi	owever e in the of the es likely lo wider
Recreational Sites: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	conside unsuitab tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a policy fees to the S, as it wou n-channe and water ent, poten. It could trosion, raluce it	an for Severn Id I flood r tially									
				Local re be prote	creational cted.	sites will		Recreational sites will be at an increased risk of flooding.		alignme the read there is	will depenent line. So his limite likely to be impact.	pace in ed so e an
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	conside unsuitab tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a ble policy the sto the Storm as it wound n-channe and water ent, poten. It could prosion, raluce it	an for Severn Id I flood r tially								a tott	
				Assets p	protected.		Assets a flooding.	t an increas	sed risk of	alignme very lim reach: a	will depenent line ho ited space assets like I. No wide enefit.	wever e in ely to be
Material Assets and	Critica	I Infras	tructur	е								
Critical infrastructure: Usk crossings including M4, Railway Electricity substations Gwent Police station Reduce significance of	conside unsuitat tributarie	e the Line red to be a ble policy the es to the S as it wou	an for Severn									

impact associated with flooding and erosion to critical infrastructure.	reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Infrastru	cture prote	ected.	Assets ar	e at an inci oding.	reased	Impact will depend on the alignment line: however limited space in reach so assets likely to be affected.
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).	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 v	vill be prot	ected.	Assets wi	II be at an i	increased	Impact will depend on the alignment line. Space in the reach is limited so there is likely to be an adverse impact.
Biodiversity, Flora	and Fauna							
International Nature Conservation Sites: Usk SAC Avoid significant impact on 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		-					
		river hab	C designat bitat, otter by fish; no i der HTL	and		to increase nd enhanc		Potential to increase river corridor and enhance the site
National nature conservation: Lower Usk SSSI Reduce significance of impact on nationally or locally designated conservation 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	-	-	-	-	-	-	
		habitats migrator likely	ignated for , otter and ry fish; no i	mpact	dominate undevelor expansion	rocesses w , however I ped space n of river co	imited to allow orridor	Impact will depend on alignment line: however very limited space in reach: potential to increase habitat for otter.
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							
		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.			terrestrial and spec possible i positive c	now the mix and marin ies will be a negative, n utcomes. ussessment iired.	e habitats affected – eutral or More	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.
Historic Environme	nt							
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							
		Historica	al assets p	rotected.	Historical increased	assets at r I flooding.	isk of	Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Water Environment								
Water resources are protected.	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	-	-	- rces knowr	-	-
		at risk.	uices kilov	wii to be	risk.	rces knowi	i to be at	No resources known to be at risk.
No detriment to water quality. 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	protected.			an increas potential fo		Asset protected because it is assumed that managed retreat will not impact on the sewage outfall or historic landfill site. No wider tidal FRM benefit

Air and Climat								
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 I nces indef		will accor change: p	volution of nmodate cl possible im nd property	imate pact to	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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		ng the hei	-		- I frequency		Retreating the defences
		landscal characte presenc landscal impact v disruptir	will affect pe in terms er (increasi e in the pe): also a vith defence ng views.	s of ing visual	flooding r landscape negative perceptio change to increased	may alter the (whether depends or n). May be townscap I flooding and use	e local positive or a a local e due to nd effect	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.
	Sustainable Developm	nent						
Natural coastal process are promoted e.g.					0			0
through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			rocesses woo operate	rill be	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		es will requ maintenar		deliver op	input requirence require	ongoing	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Significant numbers of properties and several elements of critical infrastructure (including M4, Railway Electricity substation, and Gwent Police station) within this policy unit are potentially at future risk of flooding; therefore **Hold the Line** is the environmentally preferred policy option. Adopting this policy option will not affect any European or nationally designated nature conservation or heritage sites, but may result in local landscape impacts.

Policy Unit - Spytty						n point	(NEW 5					
		e the Line		Hold the				ve Interve			ed Realigr	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hum	an Hea	lth										
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	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			educe ge uld								
				Residen		ties		tial proper creased ris		alignme the rea therefo	will dependent line: spach is limited re there made impact. Nenefit	ace in d ay be an
Recreational site: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consider unsuitable tributarie Estuary, in-chanre and water potential greater for the consideration of the conside	e the Line is red to be a sole policy for es to the S as it woul hel flood ster moveme filly leading. It leading flooding. It ger erosion uce it	n evern d reduce orage ent, to could	•			-					
				Recreati protecte	onal sites d.	will be		ional sites creased ris		alignme the rea therefo	will dependent line: spach is limited re there made impact.	ace in d
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitable tributarie Estuary, in-chanr and water potentia greater for the substitute of the	e the Line is red to be a sole policy for es to the S as it would nel flood steer movementally leading. It ger erosion uce it	n evern d reduce orage ent, to	-			-					
				Residen protecte	tial proper d.	ties are		tial proper om floodin		alignme very lim reach, s	will dependent line; howelet space so likely to entire impact. Nemetit	wever in be an
Material Assets and	Critical	Infrastr	ucture									
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	consider unsuitable tributarie Estuary, in-chanr and water potentia greater for the substitute of the	e the Line is red to be a sole policy from the Sole as it would nel flood steer movement ly leading flooding. It	n or evern d reduce orage ent, to : could	-			-					

(including tourism)	than reduce it							
		Industria protected	l assets w d.	ill be		ll assets w ased risk o		Impact will depend on alignment line: space in the reach is limited therefore there may be an adverse impact.
Critical infrastructure: Uskmouth Power Station and associated infrastructure Electricity substations Nash STW 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 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 increa	ased risk	Impact will depend on alignment line: space in the reach is limited therefore there may be an adverse impact.
Biodiversity, Flora a	nd Fauna							
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA, Usk SAC Avoid significant impact on 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	-	-	-	-	-	-	-
		intertidal result of however	- some lot habitats a sea level this is cor affect the	is a rise nsidered	back Inte be maint possible SAC. He	habitats vertidal hab cained and benefits for owever readed so scop limited.	itats will or Usk ach	Impact will depend on alignment line: however very limited space in reach likely to be affected.
National nature conservation: Lower Usk SSSI Reduce significance of impact on nationally or locally designated conservation 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		-	-	-	-	-	-
		habitats,	gnated for otter and / fish; no i		dominate undevelo	processes e, howeve 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.
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				-			

	I d 9		1		1	1		
	than reduce it	1	at and dall b	-1-11-1	0 1 - 1		Labeta	Language William and an
			ntertidal ha oastal squ		occur be	squeeze li ecause rea ed. Also th I loss of te	ch is nere is a	Impact will depend on alignment line: however very limited space in reach: terrestrial habitats likely to be affected.
Historic Environmen	nt							
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.	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							
		Historica	al assets p	rotected.		al assets a ed flooding		Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
Water Environment								
Water resources are protected.	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	urces knov	vn to be	No resor	urces knov	vn to be	No resources known to be at risk.
No detriment to water quality. 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	d landfill si d.	tes	an incre	d landfill si ased risk c , with incre ollution.	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.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 wi	evolution of accommodal period accommodal period accommodal period accommodal period according a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to andscape character.	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.			flooding landscap positive depends May be townscap increase	ed frequen may alter be (whether or negatives on perce a local char pe due to de flooding buildings ea.	the local er e ption). ange 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.
Contribute towards	Sustainable Developme	ent			•			
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requ maintenar		deliver o	I input requestion and maintenainents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Several important economic assets and elements of critical infrastructure are located behind the defences including an electricity substation and Uskmouth Power Station. A **Hold the Line** policy is therefore the environmentally preferred potion for this reach. Potentially adverse effects include possible loss of intertidal habitats within the Severn European sites and the requirement for ongoing maintenance of the defences. Intertidal habitat will be created elsewhere within the estuary to offset adverse impacts on the Severn European sites and SSSI.

1.6 Caldicot Levels Theme Area (CALD)

The impact on the SEA objectives of the alternative management policies within the Caldicot Levels Theme area are shown in the following table:

Policy Unit – Usk (CALD 1)	mouth	Power	Statio	n point	to Sud	brook F	Point, r	orth of	M4 Sev	vern Cr	ossing	
	Advanc	e the Line	;	Hold th	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
Population and Hum	nan Hea	lth										
Residential: Caldicot, Magor, Undy and Isolated residential properties		tial proper	ties		ntial proper	ties	l l	ntial proper			will depen	
Reduce significance of impact associated with flooding and erosion to people and property	protecte	a.		protecte	ea.		flooding	ed risk fron 3.		adequate space to select alignment so larger residential settlements are likely to be protected. Isolated properties may be adversely impacted. No wider FRM benefit		
Recreational sites: Local facilities, open	0			0			-				<u> </u>	
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.	including	ional sites g the coas will be pro			ional sites stal footpat ed.		the coa	tional sites stal footpat creased ris J.	h will be	alignme coastal	will depen nt line: ho footpath i ersely imp	wever s likely to
Avoid/minimise	0			-	0	0	-					
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	protecte			Residential properties protected.				ntial proper ed risk fron g.		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.		
Material Assets and	Critical	Infrast	ructure									
Industrial, commercial and economic assets: Llanwern Steelworks &				-			-					
other industrial facilities Reduce significance of impact associated with flooding and erosion to critical infrastructure. Reduce significance of impact associated with	Assets v	vill be prot	ected.	Assets v	will be prot	ected.		will be at a ed risk of fl		alignme adequa alignme unlikely	will depen int line: ho te space t int, so imp and asse works pro	owever o select oacts ts such
flooding and erosion to industrial, commercial and economic assets and activities Critical infrastructure:				-			-					
Railway, Electricity transmission network,												
transmission network, Sewerage network and M4 Gwent constabulary emergency response	Infrastru	cture prot	ected.	Infrastru	icture prote	ected.	l l	ucture at ar ed risk of fl		alignme there is	will depenent line: ho adequate lignment s	wever space to

centres Reduce significance of impact associated with flooding and erosion to critical infrastructure.								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).
Biodiversity, Flora a	nd Fauna							
International Nature Conservation sites		-	_		-	-		
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal squeeze will occur.	Coastal s	squeeze w	ill occur.	shoreline Habitats intertidal maintain potential	processes will opera will roll ba habitats ed; howev ly some lo al habitats.	ate; ack, ver	Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.
Reduce significance of impact on nationally or locally designated					-			
conservation sites.	For Land based sites – Gwe Undy SSSIs	nt Levels	– Nash ar	nd Goldcli	f, Whitso	n, Redwid	k and Llar	ndevenny and Magor and
	Sites will be protected from coastal flooding.	Sites will coastal fl	be protec ooding.	ted from		l be at an coastal fl		Impact will depend on alignment line: however adequate space to select alignment so likely to be an adverse impact on Gwent levels SSSIs.
		-			-			
	For Marine based sites – Se Coastal squeeze will occur.		ary SSSI squeeze w	ill occur.	Habitats intertidal maintain		ack,	Habitats will roll back, intertidal habitats maintained;
Maintain and enhance Biodiversity Action Plan	?	?	?	?	?	?	?	?
line with existing targets/plans.	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.	terrestria habitats a affected - negative, outcomes	now the m I and mari and specie - possible neutral or s. More dent at lowe	ne es will be r positive etailed	terrestria habitats affected negative outcome	how the mal and mar and speci — possible of, neutral cost. More conent at low.	ine es will be er positive letailed	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.
Historic Environmen	it							
Heritage Landscape Scheduled 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	Historic landscape and assets protected.	assets pr some loc	andscape rotected. F al adverse eased hei	otneally e effects		landscape t an increa ng.		Impact will depend on the alignment line: not very limited so there may be an adverse impact on the historic landscape.
and their setting								
Water Environment								
Water resources are protected.	Usk Devonian Old Red Sandstone SPZ. No impact		onian Old ne SPZ. N		SPZ at ii salinizati	ncreased i	isk of	SPZ at increased risk of salinization.

No detriment to water quality. Source protection zone Uskmouth power station historic landfill site	Assets protected.	Assets p	orotected.	-	- Assets a of flooding	at an increang.	ased risk	SPZ at increased risk of salinization.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	Can not raise the height of the defences indefinitely.		raise the h		coast wi	evolution of ll accommon change: po people a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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 the efence will descape in er (increasi e in the lar isual impacs disruptin	affect terms of ng ndscape): ct with	flooding landscap or negat percepti change to increa	ed frequent may alter be (whether ive depend on). May le to townsca ased floodi a buildings ea.	the local er positive ds on be a local ape due ng 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.
	Sustainable Developm	ent						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		es will requ maintenar		deliver c	I input requestion and maintenar nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Overall the preferred environmental option is Hold the Line. This policy protects key aspects of the human environment including residential areas of Caldicot, Magor and Undy, isolated properties across the levels, Llannwern Steel works and other industrial facilities and critical infrastructure including the Swansea-Bristol mainline railway, the M4, electricity transmission lines and sewerage infrastructure. IN addition the Gwent Levels SSSI will be protected from increased inundation Adverse impacts resulting from adopting this policy will include loss of intertidal habitats, within the Severn European sites/SSSI; this will be mitigated by habitat creation elsewhere within the estuary. Adverse impacts on the local landscape may result from the requirement to raise existing defences, but adopting a Hold the Line policy will ensure the Gwent Levels Historic landscape area and numerous SAMs and Listed structures will be protected.

Policy Unit - Sudbr	ook Po	int, nort	th of M4	Severn	Crossi	ng to Bl	ack Roo	ck at Bla	ack Rocl	k Road ((CALD 2	2)
	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
Population and Hum	an Hea	lth										
Residential: Portskewett and Isolated residential properties Reduce significance of impact associated with	-			-	-	-	-	-	-	geology	ound / hard precludes of the line, sidered	physical
flooding and erosion to people and property.	Resider	ntial proper sk.	ties are	Residen	tial proper k.	ties are	Residen not at ris	tial proper k.	ties are			
Recreational Sites: Local facilities, open space and footpath network Reduce significance of	-			-	-	-	-	-	-	geology	ound / hard precludes of the line, sidered	physical
impact associated with flooding and erosion to key community, recreational and amenity facilities.	includin	ional sites g the coas are not at		including	onal sites the coas are not at			onal sites tal footpat				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety				-	-	-	-	-	-	geology	ound / hard precludes of the line, sidered	physical
associated with flood and erosion risk).	Resider not at ris	ntial proper sk.	ties are	Residen not at ris	tial proper k.	ties are	Residen not at ris	tial proper sk.	ties are			
Material Assets and	Critical	Infrasti	ructure									
Critical infrastructure: Electricity transmission network Reduce significance of	-			-	-	-	-	-	-	geology	ound / hard precludes of the line, sidered	physical
impact associated with flooding and erosion to critical infrastructure		infrastructun flooding.	ire not at		nfrastructu nflooding.	ire not at		nfrastructu n flooding.	ure not at			
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	-			-	-	-	-	-	-	geology	ound / hard precludes of the line, sidered	physical
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	Assets I	not at risk.		Assets n	ot at risk.		Assets r	not at risk.	•			
Biodiversity, Flora a	nd Fau	na										
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on				-			-	-		geology	ound / hard precludes of the line, sidered	physical
integrity of internationally designated sites and the favourable condition of their features	Coastal occur.	squeeze v	vill	Coastal occur.	squeeze v	vill	processe habitats however	allow natu es to ope to roll bac geology phy may li	rate and k;			
Reduce significance of impact on nationally or locally designated conservation sites. Severn Estuary SSSI				-			-	-		geology	ound / hard precludes of the line, sidered	physical
	Coastal	squeeze v	vill occur	Coastal occur.	squeeze v	vill	process	allow natu es to oper to roll bac	rate and			

					however	aeoloav		
Mariataria	0	0			/topogra	phy may li		l NI/A
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
	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.	terrestria habitats be affect negative outcome	how the mal and mar and specieted – posse neutral or es. More denent at low	ne es will ible positive etailed	terrestria habitats affected negative outcome	how the mal and mar and specion possible neutral or s. More deent at low	ine es will be positive letailed	
Historic Environmen								
Heritage Landscape Scheduled Monuments, Listed Buildings and non-designated sites of historic interest	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	No historical assets at risk,	No histo	rical asset	s at risk,	No histor	rical asset	s at risk,	
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	N/A 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			onian Old ne SPZ – ooding		
No detriment to water quality.	-	,	-		-	-	-	N/A 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			onian Old ne SPZ – ooding		
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.					-	-	-	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		coast will	evolution of accommodule accommodule possible possible accommodule	odate ossible	
Landscape								
Avoid detrimental effects to landscape character.				-	-	-	-	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	defence landscap characte presence	ng the heig will affect be in terms er (increasi e in the be): also a	local of ng				

	impact with defences disrupting views.	impact with d					
Contribute towards	Sustainable Developme	ent					
Natural coastal process are promoted e.g. through managed retreat of defences.							N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Natural estuary processes will be affected	Natural proce and deposition affected	ess or erosion on will be		orocesses to operate	will be	
Minimise requirements for future maintenance/ new structures.							N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will ongoing mair	•	deliver o	input requestion and maintenar nents	no	

No elements of the human or natural environment are at risk of flooding or erosion now or in the future; **No Active Intervention** is therefore the preferred policy option; this will allow coastal processes to function and maintain the natural interactions at the shoreline that generate the current habitats. No adverse impacts are predicted to result from the implementation of policy options.

	Advar	nce the	Line	Hold the L	ine		No A	ctive Interv	ention	Mana	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
Population and		n Heal	th		_							
Residential: Thornwell, Mathern and isolated				-			-			-		
properties Reduce significance of impact associated with flooding and erosion to people and property	Reside proper	ential rties pro	ected.	Residential	properties pro	tected.		ential prop looding.	erties are at risk	on alighowed space alignments to be a	t will de gnment l ver adeq to select nent, so adverse der FRM t	ine: uate t unlikely impact
Recreational sites:				-		0	-					
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Recreation Protect	ational s ted.	ites	Recreation	al sites protect	ed.		ational site	s are at an flooding.	on alig	t will de gnment l ath netw e advers ted.	ine. ork
Avoid/minimise environmental				-			-			-		
impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	Reside proper	ential rties pro	ected.	Residential	properties pro	tected.		ential prop looding.	erties are at risk	on alighowed space alignments	t will de gnment I ver adeq to select nent, so adverse &M bene	ine: uate t unlikely impact
Material Assets	and C	ritical	Infras	tructure								
Critical infrastructure: Electricity							-	-		-		
transmission network, M48, Railway line Reduce significance of impact associated with flooding and erosion to critical nfrastructure.	Infrast protec	ructure ted.		Infrastructu	re protected.		Infras	tructure at	risk from flooding.	on alig howev space alignm	t will de gnment I ver adeq to select nent so u an adver t.	ine: uate t unlikely
Industrial, commercial and economic assets:	0			-		•	-					
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 iourism).	agricul Agricu	minantly	sets		edominantly . Agricultural a d.	assets will		ultural asse ased risk of	ts will be at an flooding.	on alig however space alignmagricu	t will de gnment l ver adeq to selec nent, but ltural lar versely ted.	ine: uate t

International Nature Conservation sites Severn Estuary		-			-	•		
Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal squeeze will occur.	Coastal sque	eeze will occur			al coastal pro ue to operate	cesses will e. Habitats will roll	Intertidal habitats maintained: however potentially some loss of terrestrial habitats.
Reduce significance of impact on nationally or locally	- For Lond board sites	- Dushy Class	- CCCL Divor M	- /// / / 0/// 0	- 10/1/00	-	-	-
designated conservation sites.	For Land based sites -	- Busny Close	SSSI, River v	ye (Lowe	r w ye) s	5551		
	Sites not at risk of tidal flooding via this unit.	Sites not at I this unit.	isk of tidal floc	oding via	Sites u	unaffected by	rincreased flood	Impact will depend on alignment line: however adequate space to select alignment so unlikely to be an adverse impact on the SSSIs.
		•			-			
	For Marine based sites	– Severn Es	tuary SSSI		L]
	Coastal squeeze will occur.		eeze will occur		habita	•	•	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.	Coastal squeeze will occur, loss of intertidal habitats	Coastal sque	eeze will occur oitats.	, loss of		of terrestrial hot levels; into	Loss of terrestrial habitats on the Caldicot levels; intertidal habitats maintained.	
Historic Environ	ment							
Heritage Landscape 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 structures protected from flooding; Historic Landscape potentially affected.		ctures protecte ; Historic Land		from ti	c structures dal flooding; cape potenti	- II ((()	Historic Landscape potentially affected.
Water Environm	ent							
	-	-	-	-	-	-	-	-
Water resources are protected.	No resources known to be at risk.	No resource	s known to be	at risk.	No res	sources know	vn to be at risk.	No resources known to be at risk.
No detriment to water quality.	- No risk to water quality.	- No risk to wa	- ater quality.	-	- No ris	- k to water qu	ality.	- No risk to water quality.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	Can not raise the height of the defences indefinitely.	Can not rais defences inc	e the height of lefinitely.	the	accom	nmodate clim le impact to		

Landscape								
Avoid detrimental							-	-
effects to landscape character.	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.	defence will in terms of presence in	the height of affect local character (in the landscauct with defendance).	landscape ncreasing ape): also a	alter the I positive of perception to townso	ocal landso or negative n). May be cape due to and effect o	of flooding may cape (whether depends on e a local change increased on buildings 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.
Contribute towa	rds Sustainable D	evelopme	nt					
Natural coastal								
process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		cess or eros		Natural p operate	rocesses w	vill be allowed to	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for					0	0	0	
future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences v maintenand	vill require o	ngoing		d no ongoi	red to deliver ng maintenance	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Within this unit residential properties (including Thornwell, Mathern and isolated properties) and critical infrastructure (including Electricity transmission network, the M48, and the Swansea to Bristol mainline Railway are at risk of flooding. **Hold the Line** is therefore the preferred environmental option which will ensure these features are protected. In addition adopting this policy will ensure that nationally recognised historic features (including the Gwent Levels Historic landscape) as well as the Gwent Levels SSSI are protected. However the Severn Estuary European sites and the SSSI are likely to be affected by coastal squeeze. There may be local adverse impacts associated with increasing the height of defences and the structures will require ongoing maintenance. Habitats created elsewhere in the estuary will compensate for the los of intertidal habitat.

1.7 Chepstow and the River Wye Theme Area (WYE)

The impact on the SEA objectives of the alternative management policies within the Chepstow and Wye Theme area are shown in the following table:

Wye – West bank Wy	e at Par <u>k</u>	Redding, Th	ornwel <u>l</u>	to w <u>est</u>	bank R	iver Wy	e at Alco	ove Woo	od, Che	ostow (V	VYE 1)
	Advance t		Hold the				ve Interve			d Realign	
	0-20	20-50 50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Huma	n Health										
Residential: Chepstow and Bulwark Reduce significance of impact associated with flooding and erosion to people and property.	Estuary, as in-channel and water potentially greater floor	to be an policy for to the Severn it would reduce flood storage movement, leading to oding. It could rerosion, rather	-	-	-	-	-	-			
			at risk, fi	tial proper rom currer pod or eros	nt or	at risk fr	tial proper om curren ood or eros	t or	alignmenthe reacthere is adverse	vill depend nt line: spa h is limited likely to be impact on es. No wide	ce in so an
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	tal facilities and tpath network duce significance of act associated with ding and erosion to key nmunity, recreational and advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage		-	-			-				
				onal sites d by tidal f			ional sites d by tidal f		alignment limited s realignm	vill depend nt line. The pace for nent so the rse impacts	ere is re may
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	Estuary, as in-channel and water potentially greater floor	to be an policy for to the Severn it would reduce flood storage movement, leading to oding. It could recision, rather	-	-	-	-	-	-			
	WIGHT FOR COLOR		Residen at risk.	Residential properties not at risk.			tial proper	ties not	alignmenthe reacthere is	vill depend nt line: spa h is limited likely to be impact. No nefit	ce in so an
Material Assets and C	Critical Inf	rastructure									

Critical infrastructure: Railway, A48 crossing 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 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		- frastructu om flooding			- nfrastructu om floodin		Impact will depend on alignment line: however critical infrastructure is not expected to be impacted.
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).	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 tid and erosio	lal	current o	ot impacte or future tid and erosid	lal	Impact will depend on alignment line. There is limited space for realignment so there may be adverse impacts.
Biodiversity, Flora an								
International Nature Conservation sites: River Wye SAC Avoid significant impact on 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		-					
			of River V	Vve	Features	of Divor I	Vve	Realignment may offer
		flooding; for river l migratory impact to	site desig habitats, o y fish spec o habitats o for which t	by tidal nated tter and ies no or	SAC not flooding; will oper	impacted natural pr ate; no imp or species e site is	by tidal ocesses pact to	opportunities to enhance the site
National nature conservation: Lower Wye SSSI Reduce significance of impact on nationally or locally designated conservation 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	flooding; for river I migrator; impact to species I is design	site desig habitats, o y fish spec o habitats o for which t	by tidal nated tter and ies no or he site	SAC not flooding; will oper habitats which the designat	impacted natural pr ate; no imp or species e site is	by tidal ocesses pact to for	opportunities to enhance

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	- Habitats tidal floo	not at risk ding.	from	Habitats tidal floo	not at risk ding.	from	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
Historic Environment								area.
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.	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	l assets ar or future ris ding/erosio	k from	current o	al assets a or future ris ding/erosio	k from	Impact will depend on 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.
Water Environment								
Water resources are protected.	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.	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	t at risk.	- Water qu	- uality is no	t at risk.	- Water quality is not at risk.

Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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		coast wi	evolution of accommonages poor o people a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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				-	-	-	-
		flood/ero there is increase defences	current or tosion risk renorequired the heigh s	means ment to	flood/ero	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.
	Sustainable Developme	nt	1					
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		es will requ maintenar		deliver o	I input requestion and maintenantents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Wye at Bigsweir Brid		e the Line	Hold the		W L Z)	No Acti	ve Interve	ention	Manage	d Realign	ment
	0-20	20-50 50 -	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -
	0-20	100	0-20	20-30	100	0-20	20-30	100	0-20	20-30	100
Population and Hum	an Heal	th									
Residential: Chepstow and Reduce significance 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		er	tial proper	- ties are	Resider	- ntial prope	- ties are	preclude	ound / hard es physical le, option r red	retreat
			not at cu	ırrent or fu	ture risk	not at cu	urrent or fu	uture risk			
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line is led to be an le policy for les to the Severn as it would reduce le flood storage or movement, ly leading to looding. It could ger erosion, ratheuce it	- ce	ng/erosion	-	-	ng/erosior	-	preclude	ound / hard es physical ee, option r red	retreat
			not at cu of floodi	tial proper urrent or fu ng/erosion	ture risk	not at cu	ntial proper urrent or fu ng/erosior	uture risk			
Material Assets and		Infrastructui	re						Laur		
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 is ed to be an le policy for es to the Severn as it would reduc el flood storage er movement, ly leading to looding. It could ger erosion, rathe uce it		-	-	-	-	-	preclude of the lir consider		retreat not
				nfrastructu om floodin			infrastructi om floodir		alignme	vill depend nt line: how nfrastructur d to be imp	wever re is not
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).	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line is led to be an le policy for les to the Severn as it would reduce le flood storage er movement, ly leading to looding. It could ger erosion, rather les to be an experience it		-	-	-	-	-	N/A High gro	ound / hard es physical ne, option r	l geology retreat
				are not at r			are not at i				

International Nature Conservation Sites International Nature River Wye SAC Avoid significant impact on 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	SAC not flooding; for river migrator; impact to	of River V impacted site designabitats, o y fish specentials of the control of th	by tidal nated tter and cies no or	SAC not flooding; will oper		by tidal rocesses pact to	N/A High ground / hard geology precludes physical retreat of the line, option not considered
National and local conservation sites: Lower Wye Valley, Blackcliff-Wyndcliff, Barbadoes Hill Meadows, Cleddon Shoots Woodland and Wye Valley Bat Site SSSIs, plus The Hudnalls NNR. Reduce significance of impact on nationally or locally designated	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
conservation sites.		impacted		ng.	impacted		ng.	
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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
			and speci or future ris erosion.			and speci or future ris erosion.		
Historic Environmen	t							
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 historic environment sites and their setting	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	Liotorica		ro not at	Lintarios	- al assets a	- not at	N/A High ground / hard geology precludes physical retreat of the line, option not considered
Ü			I assets and a future rist erosion.			or future ris		
Water Environment								
Water resources are	N/A	-	-	-	-	-	-	N/A

protected.	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		sources a			sources a		High ground / hard geology precludes physical retreat of the line, option not considered
NIs detains ent to contain	NI/A	known to	be at risk	ζ. Ι	known to	be at risk	ζ. Ι	NI/A
No detriment to water quality.	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 que to be at	uality is no risk.	t known	Water que to be at	uality is no risk.	t known	
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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
		Can not the defe	raise the h	neight of initely.	coast will	evolution on a common of the c	odate ossible	
Landscape								
Avoid detrimental effects to landscape character. Wye Valley AONB	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
		flood/ero	current or to sion risk ro no required the heigh	neans ment to	flood/erc	current or to sion risk r pe is unlik	neans	
Contribute towards	Sustainable Developme							
Natural coastal process are promoted e.g. through managed retreat of defences.	Notural activary pro-	Netural	A	orosia	Not and	0	مط النبيد	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Natural estuary processes	ivatural p	process or	erosion	ivatural	orocesses	wiii de	•

	will be affected	and deposition will be affected			allowed	to operate	ı	
Minimise requirements for future maintenance/ new structures.								N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		No initial input required to deliver option and no ongoing maintenance requirements				

Policy Unit – Wye –	east bai	nk River	Wye at	Bridge	Street k	oridge, S	Sedbury	to Sed	bury ST	W (WYE 3)		
	Advanc	e the Line		Hold the	Line		No Acti	ve Interve	ention	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
Population and Hum	an Hea	lth										
Residential: Tutshill and Sedbury Reduce significance of impact associated with flooding and erosion to people and property	tshill and Sedbury duce significance of eact associated with ending and erosion to Advance the Line is considered to be an unsuitable policy for tributaries to the Severn		n evern d reduce orage ent, to t could	Posiden	tial proper	-	Pacidan	tial proper	ties are	preclud	ound / hard es physical ne, option r red	retreat
				not at ris	ik from cur oding/ero	rent or	not at ris	sk from cu boding/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.	consider unsuitable tributarie Estuary, in-chanr and wat potentia greater for the consideration of the considerati	e the Line is red to be a policy for est to the S as it would nel flood sterm movemed lly leading. If ger erosionuce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-	preclud	ound / hard es physical ne, option r red	retreat
				at risk fro	onal sites om curren ooding/ero	t or	at risk fr	ional sites om curren ooding/ero	t or			
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	consider unsuitable tributarie Estuary, in-chanre and wat potentia greater for the consideration of the considerat	e the Line is red to be a policy for est to the S as it would nel flood steer movemed flooding. It ger erosion ucce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-	preclud	ound / hard es physical ne, option r red	retreat
				not at ris	tial proper k from cur	rent or	not at ris	tial proper sk from cu	rrent or			
Material Assets and	Critical	Infrastr	ucture	tuture flo	oding/ero	sion.	tuture flo	ooding/ero	sion.			
Critical infrastructure: Railway, A48, Sewage Treatment Works and crossing Reduce significance of impact associated with flooding and erosion to critical infrastructure	consider unsuitable tributarie Estuary, in-chanre and water potentia greater for the sum of the sum	e the Line is red to be a sole policy foes to the S as it would nel flood ster movement lly leading flooding. It ger erosion luce it	n or evern d reduce orage ent, to t could	-	-	-	-	-	-	preclud	ound / hard es physical ne, option r red	retreat
				at risk fro	nfrastructu om current oding/ero	t or	at risk fr	nfrastructu om curren ooding/ero	t or			
Industrial, commercial and economic assets: Local commercial assets Reduce significance of	conside	e the Line i red to be a ble policy fo	n	-	-	-	-	-	-	preclud	ound / hard es physical ne, option r	retreat

impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	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							considered
		current of flooding/		ISK Trom	current of flooding/		ISK Trom	
Biodiversity, Flora a	nd Fauna							
International Nature Conservation Sites: River Wye SAC Avoid significant impact on 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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		impacted site designable habitats, migratory impact to	of SAC n d by tidal fl gnated for otter and y fish spec o habitats for which t	looding; river cies no or	impacted natural p operate,		looding; will to	
National Nature conservation: Lower Wye Valley SSSI Reduce significance of impact on nationally or locally designated conservation 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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
			ct to habita for which to ated.		operate,		to	
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 of erosion.		
Historic Environmen								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally,	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

regionally and nationally important cultural historic	in-channel flood storage and water movement,							
environment sites and their setting. (Historic	potentially leading to greater flooding. It could							
Environment)	also trigger erosion, rather							
	than reduce it	Historica	l assets ar	e not at	Historica	l al assets a	re not at	
		risk from flooding/	current or	future	risk from flooding/	current o	r future	
Water Environment		nooding/	erosion.		nooding/	erosiori.		
	N/A							L NI/A
Water resources are protected.	N/A Advance the Line is	-	-	-	-	-	-	N/A High ground / hard geology
	considered to be an unsuitable policy for							precludes physical retreat of the line, option not
	tributaries to the Severn Estuary, as it would reduce							considered
	in-channel flood storage							
	and water movement, potentially leading to							
	greater flooding. It could also trigger erosion, rather							
	than reduce it	201			387			
			sources and be at risk			sources a be at risk		
No detriment to water quality.	N/A Advance the Line is	-	-	-	-	-	-	N/A High ground / hard geology
quanty.	considered to be an							precludes physical retreat
	unsuitable policy for tributaries to the Severn							of the line, option not considered
	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	iality is not	known	Water qu	uality is no risk	t known	
Air and Climate								
Policy is designed to adapt	N/A				-	-	_	N/A
to or accommodate climate change trends.	Advance the Line is considered to be an							High ground / hard geology precludes physical retreat
	unsuitable policy for tributaries to the Severn							of the line, option not considered
	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							
	triair reduce it		aise the h			evolution o		
		the defer	nces indefi	nitely.		II accomm change: po		
					impact to	o people a	nd	
Landscape								
Avoid detrimental effects	N/A	-	-	-	-	-	-	N/A
to landscape character.	Advance the Line is considered to be an							High ground / hard geology precludes physical retreat
	unsuitable policy for tributaries to the Severn							of the line, option not considered
	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	
Contribute towards	Sustainable Developme	ent		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	N/A High ground / hard geology precludes physical retreat of the line, option not considered
Minimise requirements for future maintenance/				-
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	N/A High ground / hard geology precludes physical retreat of the line, option not considered

Policy Unit – Wye –						o End of			*			<u> </u>
		e the Line		Hold the			No Activ			•	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
Population and Hun	nan Hea	alth										
Residential developments: Beachley Head Reduce significance of impact associated with flooding and erosion to	-			-	-	-	-	-	-	geology		es
people and property.	not at ris	itial propei sk from cu boding/erc	rrent or		al propertie m current o rosion.		Resident not at risk future floo	k from cu	rrent or			
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with	-			-	-	-	-	-	-	geology		es
flood and erosion risk).	not at ris	itial proper sk from cu boding/erc	rrent or		al propertie m current o rosion.		Residenti not at risk future floo	k from cu	rrent or			
Material Assets and												
Critical infrastructure: M48 Crossing Reduce significance of impact associated with flooding and erosion to critical infrastructure	-			-	-	-	-	-	-	geology		es
	not at ris	nfrastructi sk from cu poding/erc	rrent or		rastructure current or furosion.		Critical in at risk fro future floo	m curren	t or			
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	-			-	-	-	-	-	-	geology		es
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism	Assets a current of flooding		isk from	Assets are current or flooding/e		from	Assets ar current o flooding/e	r future	isk from			
Biodiversity, Flora a	nd Fau	na										
International Nature Conservation Sites River Wye SAC Avoid significant impact on integrity of internationally designated				-	-	-	-	-	-	geology		es
sites and the favourable condition of their features		ye SAC w ly affected		by tidal flo designate otter and species n	of SAC not boding; site d for river h migratory fi to impact to a for which of d.	habitats, sh habitats	Features impacted natural properate, habitats of which the designate	by tidal for tocesses no impactor species esite is	looding; will t to			
National nature conservation: Pennsylvania Fields and Lower Wye Valley SSSI Reduce significance of impact on nationally or	<u></u>						-	-	-	geology		es
locally designated		-	ıa Fields)	requires inc		C - V	I NI - 1			conside	eu	
conservation sites.	Flooding	g to SSSI		Flooding t	o SSSI pot	entially	Natural p	processes	5			

		1			,			
	potentially reduced	reduced			predomin evolve an features s protected	d interes should be	t	
		-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Lower Wye Valley SSSI		L	L	J		L	
	No impact to habitats or species for which the site is designated		t to habitats or which the ed.		Features impacted impact or species for is designation	by flooding the habitats or which t	ng; no or	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans.	A	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	ATL could adversely affect habitats and species for which the Wye is designated		and species current or fu crosion.		Habitats a at risk fro future floo	m current	t or	
Historic Environmen	nt							
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally,	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
regionally and nationally important cultural historic environment sites and their setting.	Historical assets are not at risk from current or future flooding/erosion		assets are ent or future erosion		Historical risk from flooding/e	current o		
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Water resources are not known to be at risk.		ources are be at risk.	not	Water res			
No detriment to water quality. 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 flooding.	be at risk.	ality is not k Buttingtor Iandfill site flooding.	Farm	Water quato be at ri Farm Histissis not at r	sk. Buttii torical lar	ngton Idfill site	
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.					-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Cannot raise the height of the defences indefinitely.		ise the heig indefinitely		Natural e coast will climate cl impact to property.	accomm	odate ossible	

Landscape								
Avoid detrimental effects o landscape character.		-	-	-	-	-	-	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.	flood/eros is no requ significan height of	urrent or fut sion risk me uirement to tly increase defences	ans there	flood/ero	current or sion risk i pe is unlik	means	
Contribute towards	Sustainable Developn	nent						
Natural coastal process are promoted e.g.	_				0	0	0	0
through managed retreat of defences.	Natural estuary processes will be affected		rocess or er sition will be			orocesses to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/								
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance			deliver o	input req ption and maintena ents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

1.8 Tidenham and Surrounding Villages Theme Area (TID)

The impact on the SEA objectives of the alternative management policies within the Tiddenham Theme area are shown in the following table:

Policy Unit – Tidenh	am and	surroui	nding vi	illages –	- End of	Beachl	ey Road	d, Beach	nley Poi	nt to Gu	ıscar Ro	ocks	
(TID 1)	Advanc	e the Line		Hold the	e Line	-	No Acti	ve Interve	ention	Manag	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	
Population and Hum	an Hea	lth											
Residential: Sedbury, Beachley, Tidenham and isolated residential properties Reduce significance of impact associated with	No properties at risk			- No prop				erties at ri properties at increa ar 50.	·	- Adverse impacts unlikely. No wider FRM benefit.			
flooding and erosion to people and property. 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.	No asse present.	ts known t	o be	No asse present.	ts known t	o be	No asse present	ets known	to be	No asso present	ets known	to be	
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			No properties at risk.			- No prop	erties at ri	- sk	- Adverse impacts unlikely. No wider FRM benefit.			
Material Assets and	Critical	Infrastr	ucture										
Critical infrastructure: Railway link to Gloucester							-	-					
Reduce significance of impact associated with flooding and erosion to critical infrastructure	Railway	will be pro	tected.	Railway will be protected			increase	embankmed risk of of waters fro	lamage	Impact will depend on realignment of coast; however railway runs clos to coast so impacts likely.			
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).	Agricultu protecte	ural land w d.	ill be	Agricultu protecte	ural land w d.	ill be	land wil	reas of agi I be at an i ooding yea	ncreased	alignme	will dependent line. Aquely to be a	gricultural	
Biodiversity, Flora a	nd Faur	na											
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal occur.	squeeze v	vill	- Coastal occur.	squeeze v	vill	back an will be r	y habitats d intertida naintained terrestrial affected.	l habitats In	alignme space t so unlik	will dependent line: ad o select ali ely to be a e impact.	equate gnment	

National nature conservation:		-			-	•				
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur.	Coastal occur.	pastal squeeze will cur. In theory habitats will roll back and intertidal habitats will be maintained				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.	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze. Habitats will roll back				Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact.				
Historic Environmen	nt									
Broad Stone &Roman villa SW of Woolaston	0				-					
Monuments Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	Limited nos. of designated features present. Historical asset protected.		nos. of dea present. Hotected.		feature at increa			Impact will depend on alignment line. Two SMs at increased risk of flooding after year 50		
Water Environment										
Water resources are	-	-	-	-	T -	-	-	-		
protected.	No water resource known to be at risk.	No wate	r resource risk.	known	No wate	er resourd risk.	e known	No water resource known to be at risk.		
No detriment to water quality.	-	-	-	-	-	-	-	-		
	No known risk to water quality.	quality.	vn risk to v	vater	quality.	vn risk to	water	No known risk to water quality.		
Air and Climate										
Policy is designed to adapt						0		0		
to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		raise the h nces indef			evolution ill accomi change:		Managed retreat will accommodate climate change.		
Landscape										
Avoid detrimental effects to landscape character.					-	-	-	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.	of the de local lan characte presenc landsca impact v disruptir	reasing the efence will adscape in er (increase in the pe): also a with defence or yiews.	affect terms of ing visual	flooding	ed frequer is not like in this rea	ely 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.		
	Sustainable Developme	ent								
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.		
Minimise requirements for future maintenance/					0	0	0			
new structures.	Significant work will be required to construct the defences and they will require ongoing		es will requ maintena		No initial input required to deliver option and no ongoing maintenance requirements			Input required to retreat the defence line and ongoing maintenance will be required, although less		



Within this policy unit there is little to choose between Hold the Line, No Active Intervention and Managed realignment; both have adverse effects associated with them.

There are potentially a few isolated properties at future risk of flooding towards the end of the SMP2's life with this policy unit; there is also a risk that a short section (~2000m) of the railway embankment might be subject to damage by floodwaters from year 50 onwards and there is an increased risk of flooding to small areas agricultural land. Natural coastal processes would dominate and the Severn nature conservation sites would evolve naturally

Under a policy of No Active Intervention some properties and the railway would be at increased risk of flooding and erosion risk with the policy until after year 50; measures to mitigate these impacts will need to be discussed in further detail as part of the FRMS and as part of individual projects.

A hold the line policy would protect critical infrastructure, agricultural land, designated historic features. The environmentally preferred option for this policy unit is No Active Intervention.

Policy Unit – Tidenha	am and	surrour	nding o	ther vill	ages –	Guscar	Rocks	to Lydn	ey Harb	our (TIE	2)	
	Advanc	e the Line		Hold the	Line		No Acti	ve Interve	ention	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
Population and Hum	an Hea	lth										
Residential: Netherend, Aylburton and isolated residential properties Reduce significance of impact associated with flooding and erosion to	outskirts isolated Residen				tial proper	ties will		ntial proper increased oding.		Impact will depend on alignment line: however adequate space in reach so adverse impact likely to be limited to isolated properties. No wider FRM		
people and property. Recreational sites: Local facilities, open space and footpath network; Lydney harbour Reduce significance of impact associated with flooding and erosion to key community, recreational	Canal in associat	g could affe adjacent ted recreat es; features	unit and ional	- Features	s protected	d.	Canal in	g could aff n adjacent ted recreates	unit and	benefit - No assets known to be present, within potential retreat area.		
and amenity facilities. Avoid/minimise				-			-					
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	Resident be prote	itial proper ected.	ties will	Residen be prote	tial proper	ties will		ntial proper increased oding.		alignme adequa so adve likely to	will dependent line: howers in the space in	wever reach only ated
Material Assets and	Critical	Infrastr	ucture									
Critical infrastructure: Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure	Critical i	nfrastructu ected.	re will	Critical in	nfrastructucted.	ure will		infrastructu n increase		realignr Assets	will depend ment of coa may be ad	ist.
Industrial, commercial and economic assets:	0			-	0	0	-			impacte -	:u.	
Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	Assets v	will be prot	ected.	Assets w	I vill be prot	ected.		l will be at a ed risk of fl		alignme	will dependent line. As y to be adv	sets are
Biodiversity, Flora a	nd Faui	na										
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal occur.	squeeze v	vill	Coastal occur.	squeeze v	vill	back an	y habitats d intertida naintained	l habitats	alignme space to so unlik	will dependent line: addoorselect aligned to be a minute.	equate gnment
Nature conservation sites: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal occur.	squeeze v	vill	Coastal s	squeeze v	vill	back an	y habitats d intertida naintained	l habitats	alignme space to so unlik	will dependent line: add o select alided sely to be a de impact	equate gnment

Maintain and enhance		-						
Biodiversity Action Plan habitats and species in line with existing targets/plans.	Coastal squeeze will occur.	occur.			back an	y habitats d intertidal naintained	habitats	Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact.
Historic Environmen	t							au o o o mpaon
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.	No designated assets present.	No desig present.	gnated ass	ets	No desiq present.	gnated ass	sets	No designated assets present.
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water 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.		0	0	<u> </u>	-			-
Lydney recreation trust historic landfill site	Protection from flooding of historic landfill site.		on from flo andfill site				Realignment is not likely to impact on the historic landfill site.	
Air and Climate								
Policy is designed to adapt					-	-	-	0
to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		raise the h nces indef		coast wi	evolution of accommodule properties of accommodule properties of the contract	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to					-	-	-	-
landscape character.	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 impact w disruptin	oe): also a vith defend	affect terms of ng visual	flooding landscap positive depends May be landscap	ng the frec may alter be (whether or negatives on perce a local char be due to perce in vegeta	the local er e ption). ange 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.
	Sustainable Developme	ent						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					<u> </u>			
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requ maintenar		deliver o	l input req option and maintena nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Due to the large number of residential properties in Ayleburton and outskirts of Lydney, industrial operations on the outskirts of Lydney and a considerable length of the mainline railway all at risk

from year 20 onwards the preferred environmental option for this policy unit is Hold the Line. Adverse impacts will include loss of intertidal habitats from within the Severn European sites and SSSI; however this will be mitigated by intertidal habitat creation elsewhere in the estuary. Defences will require ongoing maintenance and there may be local impacts on landscape resulting from raising of defences.

1.9 Lydney Harbour Theme Area (LYD)

The impact on the SEA objectives of the alternative management policies within the Lydney Harbour Theme area are shown in the following table:

	Advance tl	he Line	Hold th	e Line		No Act	ive Interve	ention	Managed Realignment		
	0-20	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -	
		20-50 50 - 100			100			100			100
Population and Hum	an Health										
Residential: Lydney Reduce significance of mpact associated with double and property.	N/A This po within the I ATL is there feasible pol of the harbo would be co	on	-	-	-	-	-				
	would be completinised			perties curr n flooding			perties curr n flooding		Impact will depend on alignment line: however space in reach is limited so adverse impact likely to localised properties.		
Recreational site: Lydney Harbour and associated facilities Reduce significance of mpact associated with looding and erosion to key	within the harbour of ATL is therefore not feasible policy as of the harbour and reference to the harbour and the harbour an		on		-	-	-				
community, recreational and amenity facilities.			No flood risk			conditio	maintenar on of harbo ate in long	ur would		operation likely to b	
Avoid/minimise environmental impacts which may have long term nealth impacts (including stress and anxiety associated with flood and	within the I ATL is there feasible pol of the harbo	olicy unit lies narbour walls efore not a licy as operat our and marin ompromised	on	-	-	-	-	-			
erosion risk				No properties currently at risk from flooding via this unit			No properties currently at risk from flooding via this unit			will depend nt line: how n reach is le impact liked d propertie	wever limited so ely to
Material Assets and	Critical In	frastructu	re								
Critical Infrastructure: Railway Reduce significance of mpact associated with flooding and erosion to critical infrastructure	within the I ATL is there feasible pol of the harbo	olicy unit lies narbour walls efore not a licy as operat our and marin ompromised	on	-	-	-	-	-			
				ets current oding via t		No assets currently at risk from flooding via this unit			realignn Harbour	will depend nent line. /canal to b ly impacte	oe
ndustrial, commercial and economic assets: Lydney Harbour port operations, industrial estate Reduce significance of	within the I ATL is there feasible pol of the harbo	olicy unit lies narbour walls efore not a licy as operat our and marin ompromised	on a	-	-	-	-	-	-		
mpact associated with looding and erosion to ndustrial, commercial and economic assets (including agricultural), and activities including tourism).				ets current oding via t		condition	maintenar on of harbo rate in long	ur would	alignme reach is be adve	depends of nt line. Sp limited. L rse impact facilities.	ace in likely to

International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation	-	-	-	-	-	-	-
Avoid significant impact on integrity of internationally	of the harbour and marina would be compromised							
designated sites and the favourable condition of their features		Sites una	affected		Sites un	affected		Impact will depend on alignment line: harbour is unlikely to be realigned.
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-	-	-	-
conservation sites.		Sites una	affected		Sites un	affected		Impact will depend on alignment line: harbour is unlikely to be realigned.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-	-	-	-
		No impa	ct		No impa	ıct		Impact will depend on alignment line: harbour is unlikely to be realigned.
Historic Environmen	t							
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Lydney Harbour SAM Reduce significance of	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-			-	-		
impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.		Asset pro	otected		condition	maintenar n of harbor ate in the l	ur would	Harbour SAM would be adversely affected
Water Environment								
Water resources are protected.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-	-	-	-
		No water	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. Lydney historic and active landfill sites	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-	-	-	-
			ts at risk fr via this un			ts at risk f via this ur		No assets at risk from flooding via this unit
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-	-	-	
			risk so no nent to rais s.		coast wi	evolution of accomm change: po o people a	odate ossible	Managed retreat will accommodate climate change.

Landscape							
Avoid detrimental effects to landscape character.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised	-	-	-	-		
		requirem defences	risk so no nent to rais	unlikely significa	l risk so la to change ntly; buildi es could fa r.	ngs and	Retreating the defence line would affect the character and setting of the Harbour.
Contribute towards	Sustainable Developme	ent					
Natural coastal process are promoted e.g. through managed retreat of defences.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised						
			orocess or osition will		processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	N/A This policy unit lies within the harbour walls; ATL is therefore not a feasible policy as operation of the harbour and marina would be compromised						
	·		s will requ maintenar	deliver o	l input req option and maintena nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

No assets are at risk form flooding within this policy unit. However the adoption of a No Active Intervention policy would mean maintenance of the harbour would cease and the condition of the harbour which is an important economic, recreational and historic asset would be affected; potentially affecting its future operation. For this reason **Hold the Line** is the environmentally preferred option. Apart from the ongoing maintenance commitment there are no other adverse effects associated with this policy option.

1.10 Lydney to Gloucester Theme Area (GLO)

Policy Unit – Lydney	to Glo	ucester	– Lydne	ey Harbo	our to B	rims Pil	I (GLO	1)				
	Advanc	e the Line		Hold the	Line		No Acti	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
Population and Hum	an Hea	lth										
Residential:	-			-	-	-	-	-	-	-		
Blakeney and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.								itial proper om floodin		Residential properties no at risk from flooding.		
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.	No sites identified to be at risk.			No sites risk.	I identified	to be at	No sites risk.	identified	to be at	No sites risk.	identified	to be at
Avoid/minimise	-			-	-	-	-	-	-	-		
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).		ntial properi			tial proper om floodin			tial proper om floodin			tial proper om floodin	
Material Assets and	Critical	Infrastr	ucture									
Critical infrastructure: Railway, Electricity transmission network	- No asse	ets at risk		- No asse	- te at rick	-	- No asse	- ets at risk	-	- No asse	te at riek	
Blakeney Sewage treatment works Reduce significance of impact associated with flooding and erosion to critical infrastructure	110 0000	at non		NO assets at risk			110 0000	ac at risk		110 0350	to at non	
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).	No asse	ets at risk		No asse	ts at risk		No asse	ets at risk		No asse	ts at risk	
Biodiversity, Flora a	nd Faui	na										
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal occur.	squeeze w	vill	Coastal occur.	squeeze v	vill	dominat features rate of r	processes e; habitats of site ma etreat will by cliffs b	and aintained; be	alignmen processo habitats site mair	vill depend nt line. Na es will dom and featur ntained; ra vill be redu	itural ninate; es of te of
National nature conservation:				-			-	-	0	0		
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal occur.	squeeze w	vill	Coastal occur.	squeeze v	vill	dominat features rate of r	processes e; habitats of site ma etreat will by cliffs b	and aintained; be	Impact will depend on Impact will depend on alignment line. Natural processes will dominate; habitats and features of		

					behind.			site maintained; rate of retreat will be reduced by cliffs behind
Geological SSSI: Lydney Cliff								-
Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	Advancing the line would mean exposure was no longer subject to natural erosion processes	not advers cliff and w behind it n	the defences sely affect the rere located natural proces maintained.		Natural p be maint	orocesses ained	would	Impact likely to depend on alignment line
Maintain and enhance		-		\	-	-	0	?
Biodiversity Action Plan habitats and species in line with existing targets/plans.	Coastal squeeze will occur.	Coastal so	queeze will		dominate	rocesses e; habitats of site ma	and	Impact will depend on alignment line. In theory habitats will roll back and intertidal habitats will be maintained/possible loss of terrestrial habitats. Further assessment required.
Historic Environmen	t							
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 assets not at risk from flooding.	Historic as from flood	ssets not at ris	sk	Historic a from floo	assets not ding.	at risk	Historic assets not at risk from flooding.
Water Environment								
Water resources are	-	-			-	-	-	-
protected.	No water resource known to be at risk.	to be at ris		vn	to be at r			No water resource known to be at risk.
No detriment to water	No assets at risk	- No assets			- No asset	-	-	No assets at risk
quality. Air and Climate	INO assets at risk	NO assets	at risk		INO asset	S at risk		INO assets at risk
All and Cilliate								
				_	-	-	-	
Policy is designed to adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		ise the height ces indefinitely		coast will climate c	evolution of laccomm hange: po people a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to					-	-	-	-
landscape character.	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 defe local lands character presence landscape	e): also a visua h defences	t s of	flooding landscap positive of depends May be a townscap increased	d flooding buildings	the local er e otion). ange to	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.
	Sustainable Developme	ent						
Natural coastal process				_				
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		ocess or eros sition will be	ion		rocesses o operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				\	0	0		
new structures.	Significant work will be required to construct the defences and they will		will require naintenance		deliver o	input required otion and maintena	no	Input required to retreat the defence line and ongoing maintenance will

require ongoing maintenance.	requirements	be required, although less than for wither the ATL or
		HTL options

No aspects of the human or natural environment are at risk of flooding either now or in the future; the preferred environmental option is therefore **No Active Intervention**. Under this option natural coastal processes will continue to operate and maintain the features of the designated sites. No adverse impacts have been identified under this option.

Policy Unit – Lydney	to Glo	ucester	– Brims	Pill to I	Northing	gton Far	rm (GLC	2)				
	Advanc	e the Line		Hold the	Line		No Acti	ve Interve	ention	Manag	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
Population and Hum	an Hea	lth										
Residential: Awre and isolated	0			0	0	0						
properties Reduce significance of impact associated with flooding and erosion to people and property.	2 or 3 is	ot at risk of colated proporotected.			at risk of plated pro otected.			properties creased ris		Impact will depend on alignment line. Isolated properties could be adversely impacted.		
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.	No sites risk.	risk. Awre not at risk of flooding;			identified	to be at	No sites risk.	identified	to be at	No sites identified to be at risk.		
Avoid/minimise environmental impacts				0	0	0						
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	2 or 3 is	ot at risk of solated prop protected.		2 or 3 iso will be pr	olated pro	perties		properties creased ris		alignme	will dependent line. Is dies could be ely impacte	olated e
Material Assets and	Critical	Infrastr	ucture									
Critical infrastructure: Reduce significance of				-	•	0	-					
impact associated with flooding and erosion to critical infrastructure	of the ra Blakene infrastru	ort section ailway line rely is the on acture likely ooding. As	near ly to be at	of the ra Blakeney infrastruction risk of flo	Very short section (200m) of the railway line near Blakeney is the only nfrastructure likely to be at isk of flooding. Asset will be protected.			ort section ilway line y at risk of ed flooding	near f	Impact alignme line and works a adverse realignr	ailway eatment be	
Industrial, commercial and economic assets:	0			0		0						
Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	Agricultu protecte	ural land w ed.	ill be	Agricultu protected	ral land w	I ill be		I ural land w ased risk (alignme	will depend ent line. Ag ald be adve ed.	ricultural
Biodiversity, Flora a	nd Faui	na										
Internationally Nature Conservation Sites				-			-	0	0			
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of internationally designated sites and the favourable condition of their features	Coastal occur.	squeeze w	vill	Coastal occur.	squeeze v	vill	continue features	processes to mainta and habit ted sites	ain	continu features	processes e to mainta s and habit ated sites	iin
National nature conservation:				-			-					
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal occur.	squeeze w	vill	Coastal : occur.	squeeze v	vill	continue features	processes to mainta and habit ted sites	ain	continu features	processes e to mainta s and habit ated sites	iin
Maintain and enhance				-			?	?	?	?		

Biodiversity Action Plan habitats and species in line with existing targets/plans.	Coastal squeeze will occur.	occur. te				how the nal and males and specieted – posse, neutral contcomes assessment of the control of the	rine ies will sible or . More ent 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.
Historic Environmen	t							
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 cultural historic environment sites and their setting.	Limited no of designated historic assets within Unit; none at risk form flooding.	historic a	- no of desig assets with risk form fl	nin Unit ;	historic	no of desi assets with risk form f	hin Unit ;	Limited no of designated historic assets identified; depending on alignment line some features could be at risk
Water Environment								
Water resources are	-	-	-	-	-	-	-	-
protected.	No water resource known to be at risk.	No wate	r resource risk.	known	No wate	er resource risk.	known	No water resource known to be at risk.
No detriment to water	-	-	-	-	-	-	-	-
quality. Blakeney STW	STW not at risk from flooding.	STW not at risk from flooding. STW not at risk from flooding.					Realignment is not likely to impact on the STW.	
Air and Climate								
Policy is designed to adapt to or accommodate climate					-	-	-	0
change trends.	Cannot raise the height of the defences indefinitely.		raise the h nces indef		coast w	evolution of the second of the	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to					-	-	-	-
landscape character.	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 og views.	affect terms of ing visual	flooding landsca positive depend May be townsca increase	ing the free may alter or negative s on perce a local cha ape due to ed flooding n buildings rea.	the local er re ption). ange to	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.
	Sustainable Developme	ent						
Natural coastal process are promoted e.g.	Notural actions process	Notice	oroccos c	orgais	Notice	process	Will be	Detrooting the defence for
through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/								
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	ongoing maintenance d			deliver	al input requestion and maintena ments	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line, No Active Intervention and Managed Realignment all have both positive and negative environmental outcomes and there is no clear preferred environmental option. Within the policy unit there

are a few isolated properties, approximately 200m of the railway at Blakeney and agricultural land on the Awre peninsular at risk of increased flooding under the NAI /MR policy option; however adopting these options would ensure the features for which the Severn Estuary European site is designated sites are maintained; they will also offer a more sustainable approach to flood risk management.

Adoption of a Hold the Line policy would protect the features of the environment identified as being at risk above; however adverse effects on the Severn Estuary European site would result and this option would have an ongoing resource requirement to deliver and maintain.

Given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the line policy would be justified by the economic benefits accrued and **No Active Intervention and Managed Realignment** are the preferred policy options. Impacts on property, critical infrastructure, economic, historic and recreational assets and avoidance or mitigation actions will need to be considered in determining the line for realignment of defences.

Policy Unit – Lyd	lney to	Glou	cester	– Northii	ngton Farm	ı to Newnh	nam Churcl	h (GLO 3)				
	Advan	ce the	Line	Hold the	Line		No Active II	ntervention		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
Population and H	luman	Healt	h									
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property.		ential pro	operties ooding.	- Residentia flooding.	- al properties n	- ot at risk of	- Residential of flooding.	- properties not	at risk	Reside not at r		operties ooding.
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.	Footpa protect	aths will ed.	be	Footpaths	will be protec	ed.		ths will be at a	an	alignme howeve reach is	ent line er spac s not lin likely t	e in nited so o be an
Avoid/minimise	-			-	-	-	-	-	-	-		
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).		ential pro	operties ooding.	Residentia flooding.	al properties n	ot at risk of	Residential of flooding.	properties not	at risk	Reside not at r		operties ooding.
Material Assets a	and Cr	itical l	Infrastr	ucture								
Critical infrastructure:	-			-	-	-	-	-	-	-		
A48, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure	Assets floodin	not at r g.	risk of	Assets no	I t at risk of floo	l ding.	Assets not a	I at risk of floodi	ng.	Assets		isk of
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).		ets at ri		No assets	at risk		No assets a	I t risk		No ass	ets at ri	sk
Biodiversity, Flor	ra and	Faun	а									
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable	unit; ad line co	itside po dvancin uld have tream e	g the e	Site unaff	ected	-	Site unaffec	ted	-	Site un	affected	d

					1			T
condition of their features.								
National nature designations:	Site outside policy	- Site unaffe	- ected	-	- Site unaffect	- ted	-	- Site unaffected
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	unit; advancing the line could have downstream effects							0.10 0.10.100
Maintain and enhance					A ?	?	?	^ ?
Biodiversity Action Plan habitats and species in line with existing targets/plans.	Loss of intertidal habitat due to coastal squeeze.	Loss of ini coastal sq	ertidal habitat ueeze.	due to	and marine I will be affect negative, ne outcomes.	vithe mix of ter habitats and s led – possible utral or positiv More detailed at lower level	pecies	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.
Historic Environ	ment							
Listed Buildings and	-	-	-	-	-	-	-	-
non-designated sites of historic interest. Priory Cottage listed building Reduce significance	Limited designated historical assets present.	Limited de present.	esignated histo	orical assets	Limited designated assets prese	gnated historio	cal	Limited designated historical assets present.
of impact to scheduled and locally, regionally and								
nationally important cultural historic environment sites and their setting.								
Water Environme	ent							
Water resources are	-	-		-	-	-	-	-
protected.	No water resource known to be at risk.	No water risk.	resource know	n to be at	No water res	source known	to be at	No water resource known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-	-
quanty.	No risk to water quality known.	No risk to	water quality l	known.	No risk to wa	ater quality kno	own.	No risk to water quality known.
Air and Climate								
Policy is designed to					-	-	-	
adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		ise the height indefinitely.	of the	accommoda	ution of the co te climate cha pact to people	nge:	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental					-	-	-	-
effects to landscape character.	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.	defence w terms of c presence	asing the heig ill affect local haracter (incre in the landsca act with defen views.	landscape in easing pe): also a	flooding may landscape (v negative der May be a loo landscape d	ne frequency of alter the local whether positive pends on percical change to ue to potential pregetation structure.	l ve or eption).	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.
	ds Sustainable De	velopme	nt					
Natural coastal								

process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		ocess or erosi will be affecte		Natural proc to operate	esses will be a	allowed	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences maintenar	will require on	going	option and n	ut required to o ongoing requirements		Input required to retreat the defence line and ongoing maintenance will be required, although less than for with either the ATL or HTL options

For the duration of the SMP2 limited erosion and flood risk will not impact on residential properties, critical infrastructure or material assets and No Active Intervention is therefore preferred from an environmental viewpoint. The only potential adverse impact is increased risk of flooding to recreational assets such as local footpaths; measures to realign or divert these features will be explored with the Action Plan or as part of the FRMS.

Policy Unit – Lydney	to Gloucester – Newnl	ham Ch	urch to	Farm n	orth of	Broado	ak (GLO	4)
	Advance the Line	Hold th	e Line		No Act	ive Interv	ention	Managed Realignment
Population and Hum	an Health							
Residential: Newnham		0			<u> </u>			N/A Cliff at Newnham prevents realignment.
Broadoak Reduce significance of impact associated with flooding and erosion to people and property.	Flood risk limited, however Newnham is located on top of the cliff and vulnerable to erosion. Residential properties protected.	protecte	itial proper	ties		ntial prope eased risk		
Recreational sites: Local facilities, open		0		0				N/A Cliff at Newnham prevents realignment.
space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Public car park in Newnham will be protected from flooding/erosion		ar park in am will be p	protected	Newnh	car park in am will be ed risk fro	at an	protonic realignment.
Avoid/minimise environmental impacts	•	0	0	0				N/A Cliff at Newnham prevents realignment.
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	Residential properties protected.	protected.				ntial prope eased risk		, state found in the
Material Assets and	Critical Infrastructure							
Critical infrastructure: A48, Railway Reduce significance of		-			-			N/A Cliff at Newnham prevents realignment.
impact associated with flooding and erosion to critical infrastructure	Critical infrastructure will be protected.	Critical i	nfrastructu ected.	ıre will		infrastruct n increase		
Industrial, commercial and economic assets:				0				N/A Cliff at Newnham prevents realignment.
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).	Assets protected from flooding.	Assets p	orotected f	rom	Assets from er	at an incre	eased risk	
Biodiversity, Flora a	nd Fauna							
International Nature Conservation sites	No important in the state of th	- Nation	-	-	-	-	-	N/A Cliff at Newnham prevents realignment.
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.	No impact to international nature conservation sites.		act to interr conservatio			act to inter conservati		
National nature designations:	-	-	-	-	-	-	-	N/A Cliff at Newnham prevents realignment.
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites. SSSIs.	No impact to national nature conservation sites.		act to natio conservatio		No impact to national nature conservation sites.			
Maintain and enhance Biodiversity Action Plan	_				0	•	0	N/A Cliff at Newnham prevents realignment.

habitats and species in line with existing targets/plans. Historic Environmen	Loss of intertidal habitat due to coastal squeeze.		intertidal h oastal squ		operation	processes on and nat evolution h	ural	N/A Cliff at Newnham
non-designated sites of historic interest. 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.	Historical assets protected from erosion	Historica from ero	l al assets p sion	rotected		al assets a ed risk fron		prevents realignment.
Water Environment								
Water resources are protected.	- No water resource known	- No wate	- er resource	- known	- No wate	- er resource	- e known	N/A Cliff at Newnham prevents realignment.
No detains ent to conten	to be at risk.	to be at		1	to be at		T	NI/A Cliff at Name are
No detriment to water quality.	-	-	-	-	-	-	-	N/A Cliff at Newnham prevents realignment.
	No risk to water quality known.						uality	
Air and Climate								
Policy is designed to adapt to or accommodate climate	_				-	-	-	N/A Cliff at Newnham prevents realignment.
change trends.	Cannot raise the height of the defences indefinitely.		raise the h	•	coast w	evolution ill accommode: people a	nodate ossible	
Landscape								
Avoid detrimental effects to landscape character.	_	_	_	_	-	-	-	N/A Cliff at Newnham prevents realignment.
	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 impact v	reasing the efence will dscape in er (increasi e in the pe): also a vith defence ng views.	affect terms of ng visual	flooding landsca positive depend May be townsca increase	ing the free may alter pe (wheth or negativ s on perce a local chape due to ed flooding n buildings rea.	the local er ve eption). ange to	
	Sustainable Developme	ent						
Natural coastal process are promoted e.g. through managed retreat								N/A Cliff at Newnham prevents realignment.
of defences.	Natural estuary processes will be affected	, ,				to operate		
Minimise requirements for future maintenance/								N/A Cliff at Newnham prevents realignment.
new structures.			No initial input required to deliver option and no ongoing maintenance requirements					

The town of Newham and its associated residential properties, critical infrastructure and historical assets are located on top of the cliff and is therefore at risk if coastal erosion is allowed to proceed unchecked. The preferred environmental option is therefore **Hold the Line**. Coastal squeeze and loss of intertidal habitats

will result, however this can be mitigated by habitat creation elsewhere in the estuary. In addition there will be an ongoing maintenance requirement for any defences.

Policy Unit – Lydney	to Glo	ucester	– Farm	to nort	h of Bro	adoak t	o Hill F	arm, Ro	dley (GL	O 5)		
	Advanc	e the Line	÷	Hold th	e Line		No Act	ive Interve	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
Population and Hum	an Hea	lth										
Residential: Westbury on Severn and Rodley and isolated properties Reduce significance of impact associated with flooding and erosion to	Resider protecte	ntial proper ed.	ties	Resider	ntial propered.	rties		ntial proper ed risk of fl		alignme adequa	will dependent line; hower the space so y is not like the space so y is not like the space so th	wever so
people and property. 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.												
	Coastal path will be protected from flooding.			Coastal path will be protected from flooding.				l path will b ed risk fron J.		realignr Coastal	will depend ment of coa footpath is ersely impa	ast. s likely to
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).					-							
	Resider protecte	ntial proper ed.	ties	Resider protecte	ntial propered.	rties		ntial proper ed risk of fl		alignme adequa	will dependent line; howent line; hower te space so y is not liked.	wever o
Material Assets and	Critical	Infrasti	ructure									
Critical Infrastructure:												
Railway line at Elton A4151 Reduce significance of impact associated with flooding and erosion to critical infrastructure.	Assets flooding	orotected f	rom	Assets flooding	protected f	rom	Assets from flo	at an incre	ased risk	realignr	will depend ment of coa are likely to ed.	ast.
Industrial, commercial				0								
and economic assets: Agricultural land Tourism Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	Assets flooding	orotected f	rom	Assets flooding	protected f	rom	Assets from flo	at an incre oding.	ased risk	realignr	will depend ment of coa may be ad ed.	ast.
Biodiversity, Flora a	nd Fau	na										
Garden Cliff SSSI Reduce significance of impact associated with										0		
maintaining the visibility of geological exposures throughout geological SSSIs	mean e	ing the line xposure was subject to n processes	as no atural	not adve	ng the defe ersely affe were loca it natural p	ct the ited	Natural maintai	processes n	would be	Impact alignme	likely to de ent line	pend on

		would be	e maintair	ied.				
International Nature	-	-	-	-	-	-	T -	-
Conservation Sites Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features	No sites within this unit No impact to international nature conservation sites.		act to inter conservation			ct to interr onservatio		No impact to international nature conservation sites.
National nature	-	-	-	-	-	-	-	-
conservation: Reduce significance of impact on nationally or locally designated conservation sites.	No impact to national nature conservation sites.		act to natio conservation			ct to natio onservatio		No impact to national nature conservation sites.
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans.								
	Loss of intertidal habitat due to coastal squeeze.		intertidal h oastal squ		increase	I habitats red; possible behind ex	e loss of	Intertidal habitats retained/ increased; possible loss of habitats affected by retreated line.
Historic Environmen	nt							
Heritage: Westbury House and Gardens								
Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	Historical assets will be protected.	Historica protecte	al assets v ed.	vill be		al assets w ased risk o		Impacts will depend on the alignment line; however Westbury House water gardens could be adversely impacted if alignment is required at that point of the reach.
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.								
	Historical assets will be protected.	Historica protecte	al assets v	vill be		al assets wased risk o		Impacts will depend on the alignment line; however assets could be adversely impacted because those at Lower and Upper Dumbell are close to the coast.
Water Environment								
Water resources are protected.	No water resource known to be at risk.	- No wate to be at	- er resource	- e known		r resource	- known	No water resource known
No detriment to water	-	-	-	-	to be at	-	-	to be at risk.
quality.	No risk to water quality known.	No risk t	to water q	uality	No risk t	o water qu	uality	No risk to water quality known.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		raise the hences inde		coast wi	evolution of accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.
Landscape								

Avoid detrimental effects to landscape character.				-
io ia iacapo citatación	Ever increasing the height of the defence will affect local landscape in terms of character (increasing	Increasing the frequency of flooding may alter the local landscape (whether positive or negative		
	presence in the landscape): also a visual impact with defences disrupting views.	character (increasing presence in the landscape): also a visual impact with defences disrupting views.	or negative depends on perception). May be a local change to landscape due to potential changes in vegetation structure.	depends on perception). May be a local change to landscape due to potential changes in vegetation
Cantributa tauranda	Cuatainabla Davalanm	n m 4		structure.
Contribute towards	Sustainable Developme	ent		
Natural coastal process				
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Property and critical infrastructure are at risk of flooding along with recreational and historic assets. A **Hold the Line** policy is therefore the environmentally preferred option for this policy unit. Adverse impacts will include loss of BAP habitat (intertidal) which should be compensated for by habitat creation elsewhere in the estuary and the requirement of ongoing maintenance.

Tolicy Offic - Lydriey		e the Line		Hold the		m, Kou		est Dani ive Interve		bse Lane farm (GLO 6) Managed Realignment			
						50							
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Population and Hum	an Hea	lth											
esidential:	-			-	-	-	-	-	-	-			
Bollow and isolated esidential Reduce significance of mpact associated with coding and erosion to eople and property.	No prop flooding	erties a ris via this un	k of it		erties a ris via this ur			perties a ris		Impact will depend on alignment line; however available space in the reach so property is not likely to be affected.		wever the is not	
ecreational sites:	-			-	-	-	-	-	-				
cocal facilities, open pace and footpath letwork Reduce significance of inpact associated with ooding and erosion to key ommunity, recreational and amonity facilities.	risk of flooding risk of flooding significance of ssociated with and erosion to key ity, recreational enity facilities.			Recreati risk of flo	onal asse ooding.	ts not at		tional asse looding.	ts not at	Impact will depend on alignment line; assets mabe adversely impacted.			
void/minimise	_			_	-	_	-	_	-	-			
nvironmental impacts /hich may have long term ealth impacts (including tress and anxiety ssociated with flood and rosion risk).	No properties a risk of flooding via this unit				I erties a ris via this ur			L perties a ris g via this ur		alignme space ir very lim	will dependent line; ho had the reach ited so proy to be aff	wever n is not operty is	
Material Assets and	Critical	Infrastr	ucture										
Critical Infrastructure:				-	-	-	-	-	-	-			
Reduce significance of mpact associated with ooding and erosion to ritical infrastructure.	No asse	ets at risk.		No assets at risk.			No ass	No assets at risk.			ets at risk.		
ndustrial, commercial and economic assets:	-			-	-	-	-	-	-				
Agricultural Assets Reduce significance of mpact associated with ooding and erosion to industrial, commercial and conomic assets (including gricultural), and activities including tourism).	No asse	ets at risk		No asse	ts at risk		No ass	ets at risk		realignn Agricult	will dependent of coaural land related	ast. nay be	
Biodiversity, Flora a	nd Faui	na											
laintain and enhance										?			
Biodiversity Action Plan labitats and species in line with existing targets/plans.									Unclear how the m terrestrial and mari habitats and specie be affected – possi negative, neutral or positive outcomes. detailed assessmel lower level required		rine ies will sible or s. More ent at		
nternationally Nature	-			-	-	-	-	-	-	-			
Avoid significant impact in the integrity of iternationally designated ites and the favourable ondition of their features	nature o	act to intern conservatio		nature c	ct to interr onservatio		nature	act to inter		nature	act to inter conservation		
ational nature	-			-	-	-	-	-	-	-			
onservation: Reduce significance of mpact on nationally or		ect to nation onservatio			ct to natio			act to natio			act to natio		

locally designated								
conservation sites.								
Historic Environmen	t							
Listed Buildings and non-designated sites of	- No designated historical	- No desig	- gnated his	- torical	- No desi	- gnated his	- torical	- No designated historical
historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	assets not at risk of flooding.	assets n flooding.	ot at risk o	of	assets r flooding	not at risk (of	assets not at risk of flooding.
Water Environment								
Water resources are	-	-	-	-	-	-	-	-
protected.	No water resource known to be at risk.	No wate to be at	r resource risk.	_	to be at	er resource risk.	•	No water resource known to be at risk.
No detriment to water guality.	-	-	-	-	-	-	-	-
4	No risk to water quality known.	No risk t known.	o water qu	iality	No risk known.	to water qu	uality	No risk to water quality known.
Air and Climate								
Policy is designed to adapt					-	-	-	0
to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		raise the h		coast w	evolution of ill accommon change: poo to people a /.	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to					-	-	-	-
landscape character.	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 landscar impact w disruptin	oe): also a vith defend	affect terms of ing visual	flooding landsca positive depend May be landsca	ng the free may alter pe (wheth- or negativ s on perce a local cha pe due to s in vegeta e.	the local er re 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.
Natural coastal process	Sustainable Developme	JIIL A						
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					0	0	0	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance					no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

No aspects of the human or natural environment within this policy unit are subject to flood or erosion risk either now or in the future. The preferred environmental policy is therefore **No Active Intervention**; no adverse impacts are predicted to arise as result of adopting this policy.

Policy Unit – Lydney					_ane far				
		e the Line	Hold the				ve Interve		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
Population and Hum		lth							
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property.	consider unsuitab tributarie Estuary, in-chanr and wate potential greater f	e the Line is red to be an ole policy for es to the Severn as it would reduce net flood storage er movement, lly leading to flooding. It could ger erosion, rather uce it							-
			Resident protected	tial proper	ties		tial proper ased risk o		Impact will depend on alignment line; however space in the reach is not very limited so property is not likely to be affected.
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.	consider unsuitab tributarie Estuary, in-chanr and wate potential greater f	e the Line is red to be an ole policy for es to the Severn as it would reduce nel flood storage er movement, lly leading to flooding. It could ger erosion, rather uce it							
			Local footpath network protected from flooding.				otpath net ased risk o		Impact depends on alignment line: there may be an adverse impact.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitab tributarie Estuary, in-chanr and wate potential greater f	e the Line is red to be an ole policy for as to the Severn as it would reduce nel flood storage er movement, lly leading to flooding. It could ger erosion, rather uce it							-
			Resident	tial proper d.	ties		tial proper ased risk o		Impact will depend on alignment line; however space in the reach is not very limited so property is not likely to be affected.
Material Assets and	Critical	Infrastructure							
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).	consider unsuitab tributarie Estuary, in-chanr and wate potential greater f	e the Line is red to be an ole policy for es to the Severn as it would reduce nel flood storage er movement, lly leading to flooding. It could ger erosion, rather uce it	Access	oludia -		Access			- Impact depends on
			Assets ir agricultu	ncluding ral land p	rotected	Assets ir agricultu	ncluding ral land ar	e at an	Impact depends on alignment line. Howeve

		from flooding.	increased risk of flooding.	there is limited space in the catchment so an adverse impact is likely.
Critical infrastructure: 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 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			
		Asset protected.	Asset at an increased risk of flooding.	Impact depends on alignment line. However there is limited space in the catchment so an adverse impact is likely.
Biodiversity, Flora a	nd Fauna			
International Nature Conservation Sites: Walmore Common Ramsar Site Avoid significant impact on 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			-
		The site will be protected from increased tidal flooding.	The site will experience increased tidal flooding. Although the site is wetland it relies on Winter fluvial flooding to maintain habitat. Increased tidal flooding would have an adverse impact.	It is unlikely that the site will be impacted by managed realignment.
National nature conservation: Walmore Common SSSI and NNR Reduce significance of impact on nationally or locally designated conservation 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			-
		The site will be protected from increased tidal flooding.	The site will experience increased tidal flooding. Although the site is wetland it relies on Winter fluvial flooding to maintain habitat. Increased tidal flooding would have an adverse impact.	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.	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	habitat pr	otected.	Loss of v	ı wetland ha	bitat.	Loss of wetland habitat
Historic Environmen	t							
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 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							
			d structur s protecte			ructure at d flooding		Listed structure at risk of increased flooding
Water Environment								
Water resources are protected.	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 water to be at r	resource isk.	known	No wate to be at	r resource risk.	known	No water resource known to be at risk.
No detriment to water quality.	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 to	o water qu	ality	No risk t	o water qu	iality	No risk to water quality known.
Air and Climate		MIOWII.			I INTOWITE			
Policy is designed to adapt to or accommodate climate change trends.	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		coast wil	evolution of accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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.	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.
Contribute towards	Sustainable Developme	ent		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option as it will protect residential properties, critical infrastructure, agricultural land and Walmore Common SPA/Ramsar/NNR form tidal flooding. There may be adverse local landscape impacts resulting from the requirement to maintain/raise the defences, but these impacts can be mitigated to some degree through appropriate input at the detailed design stage.

Policy Unit – Lydney to Gloucester – Ley Road to Drain from Long Brook (GLO 8) Advance the Line Hold the Line No Active Intervention Managed Realignment												
				Hold th				ive Intervent				
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hu	man He	alth										
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								-				
				Isolated residential properties are protected from flooding.				I residential p n increased r J.		alignme may be impact of of isolat	depends of the control of the contro	ere se number ties but
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.	conside unsuital tributari Estuary reduce storage movem- leading flooding	e the Line red to be ble policy es to the s , as it wou in-channe and wate ent, poten to greatel g. It could erosion, ra	an for Severn ald If flood r tially also									
				Local footpath network including the Gloucestershire way protected from flooding.			includin	ootpath netwo g the Glouces otected from fl	alignme	depends on the dependency of t	ere may	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	conside unsuital tributari Estuary reduce storage movem- leading flooding	e the Line red to be ble policy es to the s , as it wou in-channe and wate ent, poten to greated grosion, ra duce it	an for Severn ald If flood r tially also							-		
				Residential proprotected.		rties		ntial propertie ed risk of floo		alignme space in very lim	will depenent line; ho the reac ited so pro y to be aff	wever h is not operty is
Material Assets and	d Critic	al Infra	structu	re								
Critical infrastructure: Railway, A40 Reduce significance of impact associated with flooding and erosion to critical infrastructure.	conside unsuital tributari Estuary reduce storage movement	e the Line gred to be ble policy es to the s r, as it wou in-channe and wate ent, poten to greatel	an for Severn uld el flood r tially									

	Manager Handalan							
	flooding. It could also trigger erosion, rather than reduce it.							
		Assets p	protected.		Assets a flooding.	t an increased	d risk of	Impact depends on alignment line. However, limited space for realignment so adverse effect likely.
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).	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.							
		Agricultu from floc	ural land po oding.	rotected		ral land at an d risk from flo		Impact will depend on realignment of coast. Agricultural land may be adversely impacted.
Biodiversity, Flora	and Fauna							
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 v habitat.	vetland/ terres	strial	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.
International Nature	-	-	-	-	-	-	-	-
Conservation Sites: Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.	No sites within this policy unit. No impact	No sites unit. No	within this impact	policy	No sites No impa	within this pol	icy unit.	No sites within this policy unit. No impact
National nature conservation: Reduce significance of impact on nationally or locally designated conservation sites.	No sites within this policy unit. No impact	No sites unit. No	within this impact	- s policy	No sites No impa	within this po	cy unit.	No sites within this policy unit. No impact
Historic Environme	ent							
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 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							
	THAT FOOD I	No asse	ts at risk;	no	No asset	ts at risk; no im	pact	No assets at risk; no impact
Water Environment								
Water resources are protected.	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.	r resource know	wn to be	No water resource known to be at risk.
No detriment to water quality.	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 to	o water qu	uality	No risk to	o water quality	known.	No risk to water quality known.
Air and Climate		iaiowii.						NIOWII.
Policy is designed to adapt to or accommodate climate change trends.	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		will acco change:	evolution of the mmodate clima possible impacent property.	ate	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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 inc	reasing th	e height	Increasir	ng the frequenc	y of	Increasing the frequency

		of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			landscap negative percepti change	may alter the pe (whether po e depends on on). May be a to landscape of changes in week.	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.	
Contribute towards	Sustainable Develop	ment						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will		Natural processes will be allowed to operate			Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		deliver o	I input required pption and no cance requirem	ongoing	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options	

Hold the Line is the environmentally preferred option as it will protect residential properties, critical infrastructure and agricultural land from tidal flooding. There may be adverse local landscape impacts resulting from the requirement to maintain/raise the defences, but these impacts can be mitigated to some degree through appropriate input at the detailed design stage.

1.11 Gloucester to Haw Bridge Theme Area (MAI)

Policy Unit – Glouce bridge (MAI 1)	ester to	Haw Bridge	e – we	st bar	nk at Dra	ain from	Long B	rook to	west ba	nk at ra	ilway / A	\40
	Advanc	e the Line	H	lold the	Line		No Acti	ve Interve	ntion	Manage	d Realign	ment
	0-20	20-50 50 - 100		-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hum	nan Hea	lth										
Residential: Minsterworth 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		uld ing.				-					
			р	ropertie	5) isolate s in at rish rotected			olated pronsterworth ed		reduced	lood risk w however s properties	some
Recreational sites:					0		-			-		
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consider unsuitab upper Es reduce i storage moveme leading t It could a erosion, reduce i	e the Line is ed to be an le policy for the stuary, as it won-channel flood and water ent, potentially o greater floodi also trigger rather than	e b	ootpaths	tershire W		footpath Glouces	tershire W increased	ay would	reduced open spa	lood risk is although s ace and fo lost during	some otpaths
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitab tributarie Estuary, reduce i storage moveme leading t It could a	e the Line is ed to be an le policy for ss to the Severr as it would n-channel flood and water int, potentially o greater floodi also trigger rather than	ing.				-					
					properties to be prot		Flood risk will increase			reduced	lood risk v however s properties	some
Material Assets and	Critical	Infrastruct	ure									
Critical Infrastructure: Railway, A48, Reduce significance of impact associated with flooding and erosion to critical infrastructure	consider unsuitab upper Es reduce in storage movement leading to It could a	e the Line is ed to be an le policy for the stuary, as it won-channel flood and water ent, potentially o greater floodi also trigger rather than	uld		-	-	-	-	-			

		No critic risk	al infrastru	cture at	No critic risk	al infrastru	cture at	Assuming realignment avoids main road and railway
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)	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				-			
		Assets v protecte	vould rema d	ain		ouilt assets d flooding priculture		Increased protection to majority of assets; some adverse effects to assets within area of realignment
Biodiversity, Flora a	nd Fauna							
International Nature Conservation Sites: Avoid significant impact on 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 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	-	-	-	-	-	-	-
			present w adjacent to			present w adjacent to		No sites present within or directly adjacent to policy unit
National nature conservation: Reduce significance of impact 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	-	-	-	-	-	-	-
			present w adjacent to			present wadjacent to		No sites present within or directly adjacent to policy unit
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	I habitats losqueeze	ost to		orocesses to evolve r		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

Historic Environmen	nt							
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 desig	nated feat	tures at	No desig	nated feat	ures at	No designated features at risk
Water Environment								
Water resources are protected	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	N/A	No featu	res at risk		No featu	res at risk		No features at risk
quality	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		No featu	res at risk		No features at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 s indefinite		will acco	evolution of mmodate of possible in and propert	climate npact to	Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood		<u> </u>	A	-	-	-	-

	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
Contribute towards	Sustainable Developm	ent		
Natural coastal process				
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Up until year 20 defences will manage the risk of flooding to existing properties and land. From year 20 onwards a total of 349 Ha of agricultural land will be undefended and subject to frequent flood risk; in addition a few isolated properties, and several public footpaths will be at increase risk of flooding. **Hold the Line** is therefore the environmentally preferred option for this policy unit

However given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active Intervention** is therefore the preferred policy option. Impacts on individual properties and public rights of way and avoidance or mitigation actions will need to be considered as an integral part of subsequent more detailed studies.

Policy Unit – Glouc (MAI 2)	ester to Ha	w Briage –Lo	wer Pa 	rting to	west b	ank at	Haw Br	lage, in	clualing I	River L	eadon
	Advance th			he Line			tive Interv			d Realigr	
	0-20 2	0-50 50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hur	nan Health										
Residential: Maisemore, Ashleworth Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the considered t unsuitable p upper Estua reduce in-ch storage and movement, leading to gr could also tr rather than r				-						
				isolated pr sk area; w ted		Some isolated properties at risk			reduced	lood risk v however properties	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.	reduce in-ch storage and movement, p leading to gr	o be an olicy for the ry, as it would annel flood water octentially reater flooding. It igger erosion,				-			•	/	
				footpath al ank proted		feature	footpath a s at risk o g/erosion		adversel	e footpath y affected protected	, other
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	reduce in-ch storage and movement, p leading to gr	o be an olicy for the ry, as it would cannel flood water cotentially reater flooding. It igger erosion,				-					
				d at risk ation proted	cted		oopulation ed risk	at	reduced	lood risk v however properties	some
Material Assets and	Critical In	frastructure									
Critical Infrastructure: A414 / A40, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure.		b be an olicy for the y, as it would annel flood water otentially eater flooding. trigger erosion, educe it	-			-					
		I I		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	
Industrial, commercial and economic assets:	N/A Advance the		-	0	0	-					

Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	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	agricultu some ara	e predomir re (grazinç able). Pro ding and e	g with tected		cultural lan undation	d subject	Some local adverse affects within retreated area, land behind protected
Biodiversity, Flora	and Fauna							
International Nature Conservation Sites: Avoid significant impact on 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 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	-	-	-	-	-	-	-
		or dire	es present ctly adjace		directly	s present adjacent		No sites present within or directly adjacent to policy
National / Local Nature Conservation Sites – Ashleworth Ham SSSI Reduce significance of impact 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	policy -	-		unit -	-		unit
		Site we	vorthham sould be produced to the produced to	otected	saline v habitats	ed floodin water coul s – hydrau ys unclea	d affect Ilic	Assuming defence line is not retreated to SSSI.
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	-			-	-	-	-
			lal habitats I squeeze		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
Historic Environme	nt							
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	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,	-			-			

cultural historic	rather than reduce it							
environment sites and their setting.		presen	I features t; Highnar e flood risk			features m Court o sk area		No major features likely to be affected by retreated defences; features further back protected in long term
Water Environment								
Water resources are protected.	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 sent	own to	No reso	ources kno sent	own to	No resources known to be present
No detriment to water quality.	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 be at ri	ources kn sk	own to	be at ris	ources kno sk	own to	No resources known to be at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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					-	-	
			ot raise he es indefini		will acc	l evolution commodat e; possible ple and pr	e climate impact	Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character.	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		A point of	Increes	- od frague		Increased fragues of
		defence landsca charace present landsca impact	creasing I es will affe ape in ter ter (increa ce in the ape); also with defer ing views	ect local ms of asing a visual	flooding local la positive depend May be landsca	sed freque g may alte ndscape (e or negat ds on perc e a local cl ape due to al change	er the (whether ive eption) hange to	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

	struct				vegetation	on conditi	on and	condition and structure
Contribute towards	Sustainable Developmer	nt						
Natural coastal process are promoted e.g. through managed retreat of defences.	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				•			
		Natural process or erosion and deposition will be affected				processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	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 will require ongoing maintenance			deliver o	l input red option and maintena nents	I no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Policy Unit MAI 2 – Gloucester to Haw Bridge –Lower Parting to west bank at Haw Bridge, including River Leadon: Isolated properties, some limited elements of critical infrastructure and agricultural land are the primary assets at risk in this unit and a Hold the Line policy is therefore the environmentally preferred option. Due to areas of low laying ground in this and linked Policy Units (MAI 1, MAI 2, MAI 3, MAI 4, MAI 5 and MAI 6) Hold the Line is also the overall preferred policy.

Policy Unit – Gloud	cester	to Hav	w Bridge –	- East bank at Haw Bridge (B4213) to Upper Parting (MAI 3)									
	Adva	nce the I	Line	Hold the	Line		No Acti	ve Interve	ention	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		
Population and Hu	man I	Health									•		
Reduce significance of impact associated with flooding and erosion to people and property	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		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			-	-	-	-	-	-		
				No properties at t risk of flooding.			Limited	property a	t risk of	Limited prope risk of flooding Opportunity for FRM benefit	g.		
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.	consider unsuit upper reduction storage mover leading flooding consideration and con	Estuary, e in-char pe and want, por g to greating. It con rerosion	be an cy for the as it would inel flood ater tentially ater				-			-			
				Severn Valley Way and other recreation assets protected			other as	Valley Wa sets likely ly affects		Severn Valley possibly affect other assets protected			
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuit upper reduction storage mover leading flooding to the constant of the constant of the consider of the consideration of the conside	Estuary, e in-char pe and want, por g to great g	be an cy for the as it would nnel flood ater tentially ater	-	-	-	-	-	-				
				flooding.	rties at t ris	sk of	Limited flooding	property a	t risk of	Limited prope risk of flooding Opportunity for FRM benefit	g.		
Material Assets an	d Crit	ical Inf	rastructur	е									
Critical Infrastructure: Electricity Network Reduce significance of impact associated with flooding and erosion to critical infrastructure.	consider unsuit upper reduction storage movel leading flooding the consideration of the consi	Estuary, e in-char ge and want, por g to great g	be an cy for the , as it would nnel flood ater tentially										

		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
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).	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 (grazing with some arable). Protected from flooding and erosion	Agricultural land subject to inundation	Some local adverse affects within retreated area, land behind protected
Biodiversity, Flora	and Fauna			
International Nature Conservation Sites: Avoid significant impact on 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 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 sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit
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 – assuming defence line is behind the sites the site will be protected	No active intervention will ensure cliff face maintained	Impact likely to depend on alignment line, but exposure likely to be maintained
National / Local Nature Conservation Sites: Coombe Hill Canal Reduce significance of impact 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

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 coastal s	habitats lo	st to	/increas	I habitats i ed; possib ats behind s	le loss	Intertidal habitats retained/increased; possible loss of habitats affected by retreated line
Historic Environm	ent							
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.	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 desigi this reach	nated featu n	ires in	No design	gnated fea ch	tures in	No designated features in this reach
Water Environmen	t							
Water resources are protected.	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 resou present	rces knowi	n to be	No reso present	urces know	wn to be	No resources known to be present
No detriment to water quality.	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 resou risk	rces knowi	to be at	No reso	urces knov	wn to be	No resources known to be at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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				-	-	-	

Landscape	leading to greater flooding. It could also trigger erosion, rather than reduce it	Can not raise heigh defences indefinitely		will acco	evolution o mmodate possible i nd proper	climate mpact to	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character.	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 heig defences will affect landscape in terms character (increasin presence in the land also a visual impact defences disrupting	flooding landscap positive depends May be landscap potentia	d frequen may alter be (whether or negative on perce a local cha be due to changes on condition	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		
Contribute towards	s Sustainable Develop	ment					
Natural coastal process are promoted					0		0
e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or e and deposition will b affected			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/							
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		deliver o	l input req ption and maintena nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line, No Active Intervention and Managed Realignment all have both positive and negative environmental outcomes and there is no clear preferred environmental option within this policy unit. If a No Active Intervention and/or Managed Realignment policy were implemented, no properties or major elements of critical infrastructure would be at risk of flooding either now or in the future. Some recreational features such as local open space and footpath networks would be affected and agricultural land would be at risk. However adopting this policy option would allow the Severn Estuary European sites to evolve and function naturally and would require minimal resource input to deliver and maintain.

A Hold the Line policy would protect all the assets at risk identified above, but would result in some intertidal habitat loss within the Severn European sites, as well as local landscape impacts.

Due to the fact that there are limited assets at risk and the extent of the floodplain is limited by high ground it unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued **No Active Intervention** is therefore the selected option. Under this option the existing flood defences will continue to afford protection to properties and land for the

first 20 years. From year 20 onwards flooding will remain constrained to a strip along the river. Agricultural land will experience more frequent flooding and become unusable. Mitigation may include shoreline defences or other actions

Policy Unit – Glou	ıceste	r to H	aw Bric	lge – Uppe	er Parting	to Lower I	Parting	(left ban	k of pa	rting) (MAI	4)
	Advan	ice the	Line	Hold the L	-ine		No Act	ive Interve	ention	Managed Realignme	ent
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20 2	20- 50 - 0 100
Population and H	uman	Healt	h								
Residential: Gloucester City Centre and northern suburbs 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		Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger								
				Residentia	ll areas prote	ected.		ntial areas ed risk of f	realignmer	nt. Adverse	
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	consid unsuita the up it woul channe and wa potenti greate could a	d reducted flood ater mo ially lea r floodir also trigen, rathe	be an icy for uary, as e instorage vement, ding to ng. It ger								
				Local oper be protecte		footpaths will	footpat	pen space hs will be a ed risk of f	t an	realignmer	nt. Adverse
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consid unsuita the up it woul channe and wa potenti greate could a	d reduce el flood ater mo ially lea r floodir also trig n, rathe	be an icy for uary, as e instorage vement, ding to ng. It ger				-				<u> </u>
				Limited res	sidential prop	perties at risk		residential ies at risk		Impact depends realignment. As impacts likely. Overall flood ris be reduced how some isolated properties may affected	d however ited
Material Assets a	nd Cri	tical I	nfrastru	ucture			1			3.100104	
Critical Infrastructure: A417, A40, Rail Iinks, several electricity substations. Reduce significance of impact associated with flooding and erosion to critical infrastructure.	consid unsuita the up it woul channe and wa potenti greate could a	d reduce el flood ater mo ially lea r floodir also trig n, rathe	be an icy for uary, as e instorage vement, ding to ng. It ger				-				

		Critical infrastructure protected	Critical infrastructure at risk from increased flooding	Impact will depend on alignment line; however very limited space in the reach, so likely to be adverse
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	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).		Economic assets including businesses within flood risk area o Gloucester protected	Increased flood risk over time	Impact will depend on alignment line; however very limited space in the reach, so likely to be adverse
Biodiversity Flora	a and Fauna			mony to be develop
International Nature Conservation Sites: Avoid significant impact on 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 the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.			-
		No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy	No sites present within or directly adjacent to
National / Local Nature Conservation Sites: Reduce significance of impact 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.		unit	policy unit
		No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy	No sites present within or directly adjacent to
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 inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.		unit	policy unit
		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
Historic Environn	nent							
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	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.				-			
and their setting.		Few feature protected fo	es within flood orm flooding	l risk area;	Feature	s at risk of	flooding	Retreat of defences likely to affect
Water Environme	nt							
Water resources are protected.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel 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	No reso present	urces knov	vn to be	No resources known to be present
No detriment to water quality.	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	urces knov	vn to be	No resources known to be at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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.				Notice		-	Managed sets at will
		Can not rais indefinitely	se height of d	etences	will acc	evolution of commodate if possible in and propertions.	climate mpact to	Managed retreat will accommodate climate change

Landscape								
Avoid detrimental effects to landscape character.	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.				-	-	-	-
		affect local character (the landsca with defend	landscape increasing	efences will in terms of presence in visual impact ng views	floodii landso positiv deper May b landso chang	ased frequency may alter cape (whether or negation do not be a local chape due to ges in vegetation and struing may alter and struin	r the local ner we eption) ange to potential ation	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception)
Contribute toward	ds Sustainable Deve	elopment						
Natural coastal								
e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural pro deposition	ocess or ero will be affe			al processe ed to operat		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for					0	0	0	
future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences v maintenan		ongoing	delive	tial input red r option and ng maintena ements	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit; it will protect property critical infrastructure, recreational and historical assets and agricultural land from increased flood risk. There may be some loss of BAP habitat (intertidal) as a result of coastal squeeze and potentially local landscape impacts resulting from the requirement to maintain or improve defences. The latter can be mitigated to some degree through appropriate input at the detailed design stage. Loss of intertidal habitat will be mitigated by habitat creation elsewhere within the estuary.

Policy Unit – Glouce					<u> </u>	M 5)						
		e the Line		Hold th				ive Interve			ed Realigr	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hum	an Hea	lth										
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	consider unsuitable unsuitable upper Erreduce i storage movement leading It could	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.		•								
					residential es at risk			residential es at risk		within re	ocal adversetreated ar es behind	
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.	consider unsuitable upper Erreduce i storage movement leading It could	e the Line in the tent of the content of the conten	n or the it would flood ally flooding.									
					Valley Wag creation as ed		other as	Valley Wa ssets likely ely affects		possibly	Valley Wa affected, protected	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	consider unsuitable unsuitable upper Erreduce i storage movement leading in the could interect in the could i	e the Line in red to be a sole policy for stuary, as n-channel and water ent, potentiato greater if also trigge rather tha	n or the it would flood ally flooding.									
					residential es at risk/p			residential es at risk/p			residentia es at risk/p	
Material Assets and	Critical	Infrastr	ucture									
Critical Infrastructure: railway, A40 and A417 Reduce significance of impact associated with flooding and erosion to critical infrastructure.	consider unsuitable unsuitable upper Erreduce i storage movement leading It could	e the Line in the tent of the control of the contro	n or the it would flood ally flooding.									
					assets incl d A417 will ed.		A40 and	assets incl d A417 will ed risk of fl	be at an	A40 and	assets incl d A417 will ed from flo	be
Industrial, commercial and economic assets:	N/A Advance	e the Line i	S				-					

Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	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 asset present; assets protected	Limited asset present Assets at increase risk of flooding	Potentially some local adverse effects within retreated area, assets behind protected
Biodiversity, Flora a	nd Fauna			
International Nature Conservation Sites: Avoid significant impact on 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 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 sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit
Nature Conservation: Alney Island LNR (Mainly neutral wet grassland and flood meadows with associated broadleaf trees) Reduce significance of impact 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
Historic Environmen				
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.	No histo	rical assets	o ot riok	No histo	rical asset	o ot riok	No historical assets at risk
		of floodin		s at risk	of floodi		S at HSK	of flooding.
Water Environment								
Water resources are protected.	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 deteles established	N/A	No know	vn assets a	at risk	No know	n assets a	at risk	No known assets at risk
No detriment to water quality.	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 know	n features	at risk	No know	n features	at risk	No known features at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 s indefinite		will acco	evolution on mmodate possible in and proper	climate mpact to	Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character.	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	reasing he s will affect be in terms or (increasing in the	local of	flooding landscap positive	ed frequen may alter be (whether or negatives on perce	the local er e	Increased 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 condition and structure	May be a local change to landscape due to potential changes in vegetation condition and structure
Contribute towards	Sustainable Developme	ent		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit; it will protect property critical infrastructure, and Alney Island LNR. There may be some loss of BAP habitat (intertidal) as a result of coastal squeeze and potentially local landscape impacts resulting from the requirement to maintain or improve defences. The latter can be mitigated to some degree through appropriate input at the detailed design stage. Loss of intertidal habitat will be mitigated by habitat creation elsewhere within the estuary.

Policy Unit -	Gloucester to Ha	w Bridge -	- Lower P	arting to S	Severn Fa	arm (MA	I 6)		
	Advance the Line	Hold the Lir	ne		No Activ	e Interven	tion	Managed Realignmen	t
	0- 20 20- 50 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0- 20 50	50 - 100
Population a	nd Human Health								
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.								
		Limited reside flooding. The				esidential p an increas		The limited residential properties ar unlikely to be impacted by managed realignment. will be protect	the They
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community,	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.								
recreational and amenity facilities. Severn Valley Way, Gloucester & Sharpness Canal		Assuming st maintained of impact as as Way and G&	or increased sets inc. Se	positive	Flood risi	k will increa	ase	Realignment affect riversic recreation	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	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 num risk/protecte		rties at	Limited n	number of p	properties at	Limited numl properties af by realignme wider FRM b	fected ent;
Material Ass	ets and Critical In	frastructur	е		1				

Critical Infrastructure: transport network, Netheridge STW, A38 etc Reduce significance of impact associated with flooding and erosion to critical infrastructure.	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 in	frastructure	protected	Significar increased	nt infrastruc I risk	ture at	Depends on alignment line – much of at risk infrastructure adjacent to river
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial,	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.				-			-
commercial and economic assets (including agricultural), activities and tourism).		Land use pro protected fro		agricultural;		predomina al; flood ris		Potentially some local adverse effects within retreated area, assets behind protected
Biodiversity,	Flora and Fauna							
International Nature Conservation Sites: Avoid significant impact on 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 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 sites pres adjacent to p		or directly		oresent with		No sites present within or directly adjacent to policy unit
National / Local Nature Conservation Sites: Reduce significance of impact 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 sites pres		r directly		oresent with		
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 of	Á	habitats if	-	eshwater/t	-	Loss of
		current hydromaintained.	ological regir Loss of inte	ne rtidal		intertidal ha		freshwater/terrestrial habitats; intertidal habitats maintained
Historic Env	ironment							
Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally	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.			-	-	-	-	-
important cultural historic environment sites and their setting.		No designat	ed features p	present	No desig	nated featu	res present	No designated features present
Water Enviro	nment							
Water resources are protected.	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 (Purton (Brist			abstraction Water).	er Canal S\ on for Purto Could be af d flooding/e	n (Bristol fected by	Depends on alignment line; impacts considered unlikely
No detriment to water quality.	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						A	

	reduce it			
		Active landfill site protected from flooding	Active landfill site at risk from flooding	Realignment in t his reach could affect landfill
Air and Clim	ate			
Policy is designed to adapt to or accommodate climate change trends.	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;	Managed retreat will accommodate climate change
Landscape				
Avoid detrimental effects to landscape character.	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
Natural coastal	A	A A		
process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements			0 0	
for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit; it will protect property critical infrastructure, recreational assets, agricultural land and the water environment. There may be some loss of BAP habitat (intertidal) as a result of coastal squeeze and potentially local landscape impacts resulting from the requirement to maintain or improve defences. The latter can be mitigated to some degree through appropriate input at the detailed design stage. Loss of intertidal habitat will be mitigated by habitat creation elsewhere within the estuary.

Gloucester to Sharpness Theme Area (SHAR)

Policy Unit – Glouce	ester to SI	narpnes	s –Seve	ern Fa <u>rr</u>	n to Wie	cks Gr	een (SH	AR 1) _				
	Advance t	he Line		Hold the	e Line		No Act	ive Interve	ention	Manage	ed Realigi	nment
	- 20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	-20 20-50 50 - 0-20 20- 100				
Population and Hun	nan Health	1										
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 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		- Isolatee	a properties	at rick	Overall	flood risk	will be	
				protecte		•	isolated	i properties	s at 115K	reduced	however properties	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.	N/A Advance th considered unsuitable upper Estu- reduce in-c storage and movement, leading to g could also t rather than	to be an policy for ary, as it was hannel flow water potentially greater flowingger ero	vould od y oding. It	-			-					
					Valley Wa creation as d		other as	Valley Wa ssets likely ely affects		possibly	Valley Wa / affected, protected	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	N/A Advance th considered unsuitable upper Estu- reduce in-co storage and movement, leading to g could also b rather than	to be an policy for ary, as it was the hannel flow water potentiall greater flowinger ero	vould od y oding. It				-					
				Isolated protecte	properties d	5	Isolated	d properties	s at risk	reduced	flood risk however properties	some
Material Assets and	Critical Ir	nfrastru	cture									
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance th considered unsuitable upper Estureduce in-c storage and movement, leading to g could also t rather than	to be an policy for ary, as it whannel flow water potentiall greater flowinger ero	vould od y oding. It									
					infrastruct ected – po y		risk – p	infrastruct ower lines		affects	ocal advers within retre nd behind ed	eated
Industrial, commercial and economic assets:	N/A Advance th	e Line is		-			-				157	

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; continued protection from flooding	Agricultural land subject to inundation	Some local adverse affects within retreated area, land behind protected
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			-
	directly adjacent to policy	directly adjacent to policy	No sites present within or directly adjacent to policy unit
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			-
	directly adjacent to policy	directly adjacent to policy	No sites present within or directly adjacent to policy unit
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			-
	coastal squeeze	maintained; possibly some	Intertidal habitat maintained; possibly some loss of terrestrial habitats
nt		, issue at terrocural manifeld	
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 designated	Limited no of designated	Some local adverse
	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 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 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 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 reduce it It	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 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 reduce it N/A Sites present within or directly adjacent to policy unit 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 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 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 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 in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion,	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: continued protection from flooding Agricultural land subject to invadance 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 sites present within or directly adjacent to policy unit

		area son	s would b		area sor	within floo ne listed es would b		affects within retreated area, features behind protected
Water Environment								
Water resources are protected	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				-		_	-
		abstracti	ter Canal s on for Pur Vater). No	ton	abstracti (Bristol V	ter Canal a ion for Pur Water). Co by increas erosion	ton ould be	Depends on alignment line; impacts considered unlikely
No detriment to water quality	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	vn feature	s at risk	No know	wn feature	s at risk	No known features at risk
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 indefinite			evolution on the commodate		Managed retreat will accommodate climate
		23/3/1000		-,	change;	possible i and proper	mpact to	change
Landscape								
Avoid detrimental effects to landscape character	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	reasing he s will affect bes in terr r (increasi e in the	t local ns of	flooding landscap positive	ed frequen may alter be (whethe or negative on perce	the local er e	Increased 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 condition and structure	May be a local change to landscape due to potential changes in vegetation condition and structure
Contribute towards	Sustainable Developme	nt		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/			0 0	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit, as it will protect the isolated properties, recreational assets, agricultural land and water environment within the policy unit. However given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active Intervention** is therefore the preferred policy option..

Within the first epoch existing flood defences will continue to reduce the risk to existing properties and land. Following this, defences will be monitored and managed to ensure failures do not pose a H&S risk. A total of 156 Ha of agricultural land will be undefended and will be subject to frequent flood risk. Realigned defences will manage the risk to properties and land behind new defences. Assets in front of realigned defences will be at risk from inundation. Impacts on individual properties and public rights of way, and mitigation actions will need to be considered as an integral part of subsequent more detailed studies and prior to determining alignment of new defences.

Policy Unit – Glo	uceste	r to SI	narpne	ess – Wic	ks Gr	een to L	ongley	Green (S	HA 2)				
	Advan	ice the	Line	Hold th	e Line			No Ad	ctive Interv	vention	Manage Realign		
	0-20	20- 50	50 - 100	0-20		20-50	50 - 100		20-50	50 - 100	0-20	20- 50	50 - 100
Population and H	luman	Healtl	1										
Residential: Waterend and Longney Reduce significance of impact associated with flooding and erosion to people and property	conside unsuital the upp it would channe storage movem potentia greater could al	er Estua I reduce I flood and wa ent, ally lead flooding Iso trigg , rather	e an cy for ary, as in- iter ing to g. It er	Population	in thes	e area at r	isk: also	Populatio	n in these	area at risk;	Impac	ts will de	enend
				isolated promaintained	operties	. Flood ris			ted propert		on alig advers realigr	gnment. se impad nment ai populati	Some ets in rea;
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		er Estua I reduce I flood and wa ent, ally lead flooding Iso trigg , rather	e an cy for ary, as in- iter ing to g. It er										
				Severn Varecreation			r		alley Way a ely to be ad		possib	n Valley bly affect	ed,
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	N/A Advanc conside unsuital the upp it would channe storage movem potentia greater could al erosion reduce	ered to be ble policioner Estudi I reduced I flood e and water, ally lead flooding Iso trigg, rather	e an cy for ary, as in- iter ing to g. It er					-			-		
				Flood risk	maintair	ned or red	uced.	Flood risk	will increa	se.	on alig advers realigr	ts will de gnment. se impac nment ai populati ted	Some ets in rea;
Material Assets a		tical lı	nfrastr	ucture									
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure	unsuital the upp	ered to be ble policy of the p	e an ey for ary, as in- iter										

	could also trigger						
	erosion, rather than reduce it						
		Limited crit pylon lines	ical infrastruc ; protected	ture; some		tical infrastructu n lines at risk	Impact depends on retreat line. Some local adverse affects within retreated area, land behind protected
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	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 r	isk population	n protected	Small popurisk	ulation at increa	overall flood risk will be reduced however some isolated properties may be affected
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	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	-			-		
activities (including tourism)			nd use is agri from flooding	culture; land	Agricultura increased	Il land at risk fro flooding	om Some local adverse affects within retreated area, land behind protected
Biodiversity, Flor	a and Fauna						
International Nature Conservation Sites: Avoid significant impact on 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 the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-		-
			resent within to policy unit	or directly		resent within or ljacent to policy	
Reduce significance of impact 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	-			-		
		ivo desigr	nated sites in	uns reach	No design reach	ated sites in thi	is No designated sites in this reach

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 ha	abitats lost to coa	stal	Opportunity intertidal ha loss of terre behind exist	bitats; pos strial habi	ssible tats	Opportunity for creation of Intertidal habitats retained/increased; possible loss of
								habitats behind existing defences
Historic Environr	ment							
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.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
		flooding	otected from inc	reased	from floo	s at increa oding	ised risk	Some features within retreated area affected; those behind will have increased level of protection
Water Environme			_					
Water resources are protected	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				-			-
			Canal SW abstrated water). Not		abstracti (Bristol V	ter Canal ion for Pui Vater). C by increa: erosion	rton ould be	Depends on alignment line; impacts considered unlikely
No detriment to water quality	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 at risk		No know	n feature:	s at risk	No known features at risk
Air and Climate								

Policy is designed to adapt to or accommodate climate change trends.	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 defences	Natural evolution of coast	Managed retreat will
		indefinitely	will accommodate climate change; possible impact to people and property	accommodate climate change
Landscape				
Avoid detrimental effects to landscape character.	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	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
	ds Sustainable Deve	elopment		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Hold the Line is the environmentally preferred option for this policy unit, as it will protect the isolated properties, the Severn Valley Way and other footpaths, agricultural land and water environment within the policy unit. However given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active Intervention/Managed Realignment** is therefore the preferred policy option.

Within the first epoch existing flood defences will continue to reduce the risk to existing properties and land. Following this, defences will be monitored and managed to ensure failures do not pose a Health &Safety risk. Under a No Active Intervention policy a total of 156 Ha of agricultural land will be undefended and will be subject to frequent flood risk, however realignment of defences may reduce this area. Realigned defences will manage the risk to properties and land behind new defences. Assets in front of realigned defences will continue to be at risk from inundation. Impacts on individual properties and public rights of way, and mitigation actions will need to be considered as an integral part of subsequent more detailed studies and prior to determining alignment of new defences.

Severn Estuary SMP2 – Appendix I – Strategic Environmental Assessment - Annexes

Policy Unit – Gloud	cester to Sharpness -	– Longley	Green	to Ove	rton Lane	(SHA 3)		
	Advance the Line	Hold the L				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
Population and Hu	man Health							
Residential: Framilode, Priding, plus isolated 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 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 S	OP is ma	intained	Flood risk ii	norreases		Overall flood risk will be
		or increase		iiiitaiiiea	T lood flok fi	Horeases		reduced however some isolated properties may be affected
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.	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	-			-			
		Severn Val Gloucester canal and c assets prot	and Shar other recre		and Sharpn	ley Way Glou ness canal an y to be advers	d other	Severn Valley Way Gloucester and Sharpness canal possibly affected, other assets protected
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	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 S or increase		intained	Flood risk in	ncreases		Overall flood risk will be reduced however some isolated populations may be affected
Material Assets an	d Critical Infrastructi	ure						
Critical Infrastructure: Access Road to Overton 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							

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)	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	agricultur	predomina e. Protect	ed from	- Agricultura inundation	al land subject	et to	Some local adverse affects within retreated area, land behind protected
Biodiversity, Flora	and Fauna							
International Nature Conservation Sites: Avoid significant impact on 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 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	-	-	-	-	-	-	-
			oresent wit djacent to			esent within policy unit	or directly	No sites present within or directly adjacent to policy unit
National / Local Nature Conservation Sites: Reduce significance of impact 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	-		-	-	-	-	-
			oresent wit djacent to			esent within policy unit	or directly	No sites present within or directly adjacent to policy unit
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 in	ntertidal ha	bitat	Intertidal h maintained terrestrial l	d/increased;	loss of	Intertidal habitats retained/increased; possible loss of habitats affected by retreated line
Historic Environme	ent							
Listed Buildings and non-designated sites of historic interest.	N/A Advance the Line is considered to be an	-	•	•	-			•

Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	unsuitable policy for the upper Estuary, as it would reduce inchannel 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 reach. List Saul			Limited no reach	of features	in this	Limited no of features in this reach
Water Environmen	t							
Water resources are protected	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		-
		Glouceste abstraction (Bristol W	n for Purt	on	abstraction Water). Co	Canal SW for Purton ould be affect flooding/eros	cted by	Depends on alignment line; impacts considered unlikely
Water resources are protected	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 known	features at r	isk	No known features at risk
No detriment to water quality	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 known	features at r	risk	No known features at risk
Air and Climate								non_
Policy is designed to adapt to or accommodate climate change trends.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to				-			

	greater flooding. It could also trigger erosion, rather than reduce it	Can not raise height o defences indefinitely	a	accommod	olution of coa ate climate pact to pec	change;	Managed retreat will accommodate climate change
Avoid detrimental effects to landscape character	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 defences will affect loc landscape in terms of character (increasing presence in the landscalso a visual impact widefences disrupting visual impact with the landscalso a visual impact with the landscalso a visual impact with the landscalso a visual impact with the landscale	cal r (cape); M ith language capes	may alter the content of the content	requency of ne local lancositive or ne n perception ocal change due to pote vegetation re ential chang condition ar	dscape gative) to ntial condition es 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
Contribute towards	s Sustainable Develo	pment					
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or ero and deposition will be affected		Natural pro allowed to	cesses will operate	be	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	C	option and	put required no ongoing ce requireme		Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Residential areas (including Saul, Framilode and isolated properties), recreational assets (including the Severn Valley Way), access to communities to the west (including Overton and Arlington), historical assets and agricultural land will all be at increased risk of flooding from year 20 onwards. **Hold the Line** is therefore the preferred policy option. Adverse impacts may include some loss of intertidal habitat and local landscape impacts resulting from the defences themselves. Habitat creation sites are being identified around the estuary to offset any loss of intertidal habitat and local landscape impacts will be mitigated through careful planning and design of defences.

Policy Unit – Glo	uceste	er to S	harpne	ess – Overto	on Lane to	o upstrea	am of Hoc	k Cliff (SH	A 4)		
	Advan	ce the I	Line	Hold the Lin	е		No Active	Intervention		Managed Realignme	ent
	0-20	20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20 20	50 -
Population and H	luman	Healt	h								
Residential: Arlingham and isolated properties Reduce significance of impact associated with flooding and erosion to people and property	consideration co	ce the Lered to lable police p	be an cy for ary, as e instorage rement, ding to g. It ger	- Assuming St	andord of Di	• • • • • • • • • • • • • • • • • • •	- Flood risk i			Overall floo	d rick will
				maintained o		OLECTION IS	Flood fisk i	ncreases		be reduced some isolat properties r affected	however ed
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.	consideration co		be an cy for lary, as e instorage rement, ding to g. It ger than	-			-			•	
	other r	n Way a ecreatio protecto	nal	Severn Way assets protec		creational		ay and other for ncreased floo		Severn Vall possibly aff assets prot	ected, other
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	consideration co	ce the Lered to lable police Estudente label flood stater movially leader floodinalso triggen, rathered	be an cy for ary, as e instorage rement, ding to g. It	-			-				
				At risk popula	ation remains	s protected	Increased	flood risk		Limited nur properties a realignmen FRM benef	affected by t; wider
Material Assets a		itical I	nfrastr	ucture							
Critical Infrastructure: Electricity Transmission Network Reduce significance of impact associated with flooding and erosion to critical infrastructure	consideration co	ce the Lered to lable police the Lered to lable police the Lered to lable the Lered the Lered to lable the Lered the Lered to lable the Lered to l	be an cy for ary, as e instorage rement, ding to g. It				-			-	

	reduce it			
		Limited critical infrastructure present; some pylons and lines; protected from flooding	Limited critical infrastructure present; some pylons and lines	Depends on alignment position
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	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			
activities (including tourism)		Land use predominantly agriculture. Protected from flooding and erosion	Agricultural land subject to inundation	Some local adverse affects within retreated area, land behind protected
Biodiversity, Flor	ra and Fauna			
International Nature Conservation Sites: Avoid significant impact on 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 the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-
		No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit
National / Local Nature Conservation Sites: Reduce significance of impact 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 sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit	No sites present within or directly adjacent to policy unit
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

Historic Environ	ment							
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.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it				-			
		Listed structur protected	es in Airing	nam	Listed structurisk	ires in Alring	ham at	Depends on alignment; few features within immediate river corridor
Water Environme	ent							
Water resources are protected	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	
		Gloucester Ca for Purton (Bri affected			Gloucester C abstraction for Water). Cou increased flo	or Purton (Br Id be affecte	Depends on alignment line; impacts considered unlikely	
No detriment to water quality	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-	-	-	-
		No known fea	tures		No known fe	atures		No known features
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce inchannel 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 de	fences	Natural evolu accommodat			Managed retreat will accommodate climate change

Landscape								
Avoid detrimental effects to landscape character	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 increasi will affect loca of character (the landscape with defences	al landscape increasing pr e); also a vis	in terms resence in ual impact	may alter the (whether poor depends or May be a loo landscape)	requency of the local land positive or neg the perception) pocal change due to poter vegetation of re	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	
Contribute towar	rds Sustainable Dev	velopment						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected		Natural pro allowed to	cesses will boperate	Retreating the defence line will allow natural coastal processes to operate.		
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		No initial input required to deliver option and no ongoing maintenance requirements			Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options	

Arlingham and additional isolated properties, recreational assets including the Severn Valley Way, agricultural land and listed structures in Arlingham are at risk of flooding from year 20 onwards. **Hold the Line** is therefore the environmentally preferred option. However given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active Intervention/Managed Realignment** is therefore the preferred policy option.

Within the first epoch the existing flood defences will continue to reduce the risk to existing properties and land. Subsequently with No Active Intervention a total of 409 Ha of agricultural land would be undefended and be subject to frequent flood risk. Realigned defences will manage the risk to properties and land behind new defences and reduce impacts. Assets in front of realigned defences will still be at risk from inundation. Impacts on property, land and recreational and historic assets, along with avoidance/mitigation actions will need to be considered in determining realignment of defences. This will be addressed in more detail as part of the SMP2 Action Plan, FRMS Strategy and individual projects.

Policy Unit – Gloue	cester	to Sha	rpness	– Hock	Cliff (SHA 5)						
	Advan	ce the Li	ne	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
Population and Hu	man F											
Residential: Fretherne Reduce significance of impact associated with flooding and erosion to people and property	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 population		No at ri	sk popula	ation			
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			-	-	-	-	-	-	geology		es	
looding and erosion to key community, ecreational and amenity facilities.				None pr	esent		None p	resent				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered		-	-	-	-	-	-	geology		es	
with flood and erosion risk)				No at ris	k population		No at ri	sk popula	ation			
Material Assets an	d Criti	cal Infr	astruct	ure								
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with	hard g	high grou eology AT cally appro not consid	L is not opriate,	-	-	-	-	-	-	geology		es
flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				None present			None p	resent				
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure	hard g	high grou eology AT cally appro not consid	L is not opriate,	-	-	-	-	-	-	geology		es
				None pr	esent		None p	resent				
Biodiversity, Flora	and F	auna										
International Nature Conservation sites Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their	hard g	o high gro geology A chnically priate, opt dered	TL is	-			-			geolog physic	ground / h gy preclud al retreat ption not lered	des
features.				Coastal	squeeze; intert	idal habitat loss		al squeez al habitat				

National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites. National Geological Nature Conservation Hock Cliff RIGS	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered N/A Due to high ground / hard geology ATL is	Intertid.		tat loss to	coastal		Coastal intertida			N/A High ground / hard geology precludes physical retreat of the line, option not considered N/A High ground / hard geology precludes
To allow natural processes and to maintain the visibility of geological exposure throughout the RIGS	not technically appropriate, option not considered						National			physical retreat of the line, option not considered
		Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.					be main		es would	
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 habitat lost to coastal squeeze					High gro roll back intertida coastal	c of hab I habita	t lost to	
Historic Environme	ent									
Listed Buildings and non-designated sites of historic interest at Fretherne Reduce significance of impact to scheduled and locally, regionally and nationally important	pon-designated sites of storic interest at retherne reduce significance of appact to scheduled and retrieval and r			-	-		None pro	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
cultural historic environment sites and their setting.		None p	None present				None pro	esent		
Water Environment	1									
Water resources are protected	N/A Due to high ground / ha geology ATL is not technically appropriate, option not considered					-	4	A		N/A High ground / hard geology precludes physical retreat of the line, option not considered
		al (E	ostract		ton	abstr (Bris	cester Ca raction for tol Water) ted by inc ling/erosic	Purton . Could reased on		
No detriment to water quality	N/A Due to high ground / ha 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 features at risk No features at risk								
Air and Climate										
Policy is designed to adapt to or accommodate climate change trends.	N/A Due to high ground / ha geology ATL is not technically appropriate, option not considered					-	-		-	N/A High ground / hard geology precludes physical retreat of the line, option not considered

		Can not raise height of defences indefinitely			Natural ev will accom change; p people an	modate cl ossible im	imate pact to	
Landscape								
Avoid detrimental effects to landscape character	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
		High resistant feature, landscape unlikely to change significantly			High resis landscape change sig	unlikely to		

No aspects of the human or natural environment are at risk of flooding or erosion now or in the future within this policy unit and **No Active Intervention** is therefore the preferred policy option. No adverse effects are likely to result from adopting this option.

Policy Unit – Gloucester	to Sharı	oness – d	ownstrea	am of Hock (Cliff to Fram	pton Pill (S	SHA6)						
	Advand	e the Lin	е	Hold the L	ine		No Act	ive Interv	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	
Population and Hui	man He	alth											
Residential:	0			-	-		-	-					
Frampton on Severn Reduce significance of impact associated with flooding and erosion to people and property		ntial prope ected from J.			Residential properties will be protected from flooding.			l ntial prope n increase g.		Impact will depend on alignment line.			
Recreational sites:				0	0		-						
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.	Feature flooding	s protecte	ed from	Features p	Features protected from flooding			s at risk		Depends on alignment, but features 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). Frampoin and Saul at risk	Flood ri reduced	sk mainta	ined or	Flood risk r	Flood ri	sk will inc	rease	Depends on alignment, but limited space so likely to be negative					
Material Assets and	d Critic	al Infras	structur	е									
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)		r land use ure. Asset ed		Assets protected			- Assets	at risk		Depends on alignment. Some local adverse affects within retreated area, land behind protected			
Critical Infrastructure Power lines				0			-						
rowel lines		critical ucture. Po Il be prote			ical infrastru s will be prot		lines wi	critical ucture. Po Il be at an ed risk of		infrastr	critical ucture. Po ill be prote		
Biodiversity, Flora	and Fa	una											
International Nature Conservation				-			-						
Designations: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.	Loss of	intertidal	habitat		Coastal squeeze; intertidal habitat loss			roll back; al habitats d; terrestri loss		Habitat roll back; intertidal habitats retained; terrestrial habitat loss			
National nature conservation:				-			-	-	-	-			
Severn Estuary SSSI. Frampton Pools unaffected Reduce significance of impact on nationally or	Intertida	al habitat l	oss	Intertidal hasqueeze	abitat loss to		ck of habit ed so stat ned		Depends on alignment; likely to be neutral or positive				

locally designated										
conservation sites.			A							
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	Intertidal habitat lost; terrestrial habitat gained	Intertidal ha	abitat lost to c	pastal	maintair	Il habitat ned; poss ss of terr		Intertidal habitat maintained; possibly some loss of terrestrial habitats		
Historic Environme	nt									
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.	Density of listed buildings around Frampton; protected form flooding	Density of li Frampton; p flooding	around from floo	of listed the Frampton oding Franct in flood	; at risk mpton	- Depends on alignment				
Water Environment										
Water resources are	0	0	0	0	-					
protected	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	abstraction for Purton (Bristol Water). Not affected				ster Cana bstractior Bristol W e affected ed /erosion	n for ater).	Depends on alignment line; but limited space so likely to be negative		
No detriment to water	-	-	-	-	-	-	-	-		
quality	No known features at risk	No known f	eatures at ris	(No know	vn feature	es at risk	No known features at risk		
Air and Climate										
Policy is designed to					-	-	_	0		
adapt to or accommodate climate change trends.	Can not raise height of defences indefinitely	Can not rais indefinitely	se height of d	efences	will acco	evolution ommodate possible le and pr	e climate impact	Managed retreat will accommodate climate change		
Landscape										
Avoid detrimental					-	-	-	-		
effects to landscape character		Ever increa defences w landscape (increasing landscape); with defenc	flooding local lar positive depends May be landsca potentia	ed freque may alte ndscape (or negati s on perc a local ch pe due to Il changes on condit es	r the whether ve eption) ange to	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				
Contribute towards	Sustainable Develop	ment								
Natural coastal process are promoted e.g.					0		0	0		
through managed retreat of defences.	Natural estuary processes will be affected		cess or erosic			processe to operat		Retreating the defence line will allow natural coastal processes to operate.		
Minimise requirements for future maintenance/					0					
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	maintenance			deliver of	I I I I I I I I I I I I I I I I I I I	d no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options		

Frampton on Severn and Oatfield and agricultural land along the coast are predicted to be at increased risk of flooding in the future; flooding could also affect recreational assets such as the Severn Valley Way and listed properties within Frampton on Severn. **Hold the Line** is therefore the preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences but these can be mitigated at the design stage of a scheme.

Advance the Line 0-20 20- 50 - 50 100 Jaman Health Features protected	0-20	e 20-50	50 - 100	No Active Inter	vention 20-50	50 - 100	Manage Realign 0-20		50 - 100
uman Health	0-20	20-50	50 - 100	0-20	20-50		0-20		
•								50	100
Features protected	0								
Features protected	Features protected from flooding Features at risk						-		
from flooding	Features prot	tected fron	n flooding	Features at risk			Depends on alignment, but features likely to be affected		
							-		
Property protected from flooding	Property prot	ected from	n flooding	Flood risk will in	crease	Some local adverse affects within retreated area, property elsewhere protected			
-							-		
from flooding		ected from	n flooding	Flood risk will in	crease	Some local adverse affects within retreated area, property elsewhere protected			
							-		
Critical assets protected from flooding.	Critical assets flooding.	s protected	d from	Critical assets a of flooding.	t an incre	ased risk	to be aff	fected b	у
0	0	0	0	-)	
Agriculture is main land use; land protected from flooding and erosion						se; flood	affects v	within re nd elsev	treated
	- Property protected from flooding Critical Infrastructure Critical assets protected from flooding. Agriculture is main land use; land protected from	- Property protected from flooding Property protected from flooding Critical Infrastructure Critical assets protected from flooding. Critical asset flooding. Agriculture is main land use; land protected from flooding.	- Property protected from flooding Property protected from flooding Critical Infrastructure Critical assets protected from flooding. Critical assets protected from flooding. Agriculture is main land use; land protected from flooderosion	rom flooding Property protected from flooding Property protected from flooding Critical Infrastructure Critical assets protected from flooding. Critical assets protected from flooding. Agriculture is main land use; land protected from flooding and erosion	Property protected from flooding Critical assets protected from flooding. Critical assets protected from flooding. Critical assets protected from flooding. Agriculture is main land use; land protected from flooding and erosion Agriculture is main land use; land protected from flooding and erosion	Property protected from flooding Critical assets protected from flooding. Critical assets at an incressof flooding. Critical assets at an incressof flooding. Agriculture is main land use; land protected from flooding and flooding flo	Property protected from flooding Agriculture is main land use; land protected from flooding and protected flooding	Property protected from flooding Property protected from flooding and flooding and erosion Property protected from flooding Property protec	Property protected from flooding Property protected from flooding and grade flood flooding flood flooding flood flooding flood flooding

International Nature		-		<u> </u>	-	<u> </u>		
Conservation								
Designations: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their	Loss of intertidal habitat	Coastal squ habitat loss	eeze; inter	tidal	Habitat roll bacl habitats retaine habitat loss			Habitat roll back; intertidal habitats retained; terrestrial habitat loss
features. Severn SSSI	<u> </u>	-		<u> </u>	-	-	_	-
Reduce significance of impact on nationally or locally designated conservation sites.	Intertidal habitat loss	Intertidal hab squeeze	itat loss to	coastal	Roll back of hat status quo mair		l nitted so	Depends on alignment; likely to be neutral or positive
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 hab squeeze	oitat lost to	coastal	Intertidal habita possibly some I habitats		,	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environn	nent							
Scheduled	-	0	0	0	-			-
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.	No features of major significance; onshore features protected	No features of significance;		rotected	No features of r feature sat risk flooding			No features of major significance
Water Environme	nt							
Water resources are protected	•	<u> </u>	0	<u> </u>	-	<u> </u>	_	
protection	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Gloucester C abstraction fo Water). Not	or Purton (Gloucester Can abstraction for F Water). Could I increased flood	Purton (Br	istol d by	Depends on alignment line; but limited space so likely to be negative
No detriment to water quality	-		•	•	_			-
Air and Climate								
Policy is designed to					-	-	-	•
adapt to or accommodate climate change trends.	Can not raise height of defences indefinitely	Can not raise indefinitely	e height of	defences	Natural evolutio accommodate of possible impact property	limate cha	ange;	Managed retreat will accommodate climate change
Landscape								
Avoid detrimental					-	-	-	-
effects to landscape character.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the	Ever increas defence will a landscape in (increasing p landscape): a with defence	affect local terms of coresence in also a visu	haracter the al impact	Increasing the f flooding may all landscape (whe negative depen May be a local landscape due	er the locather positions on percentage to	al ve or ception).	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.
Contribute toward	ds Sustainable Deve	elopment		
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for				
future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Slimbirdge and isolated residential properties are at risk within this policy unit, as is the canal and potentially electricity transmission pylons. In addition, the recreational assets such as Slimbridge and Severn Valley Way are also at risk. For these reasons **Hold the Line** is the environmentally preferred option. However given the small number and localised nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active Intervention/Managed Realignment** is therefore the preferred policy option.

Up unit the end of the second epoch (year 50)the existing flood defences will continue to reduce the risk to existing properties and land in this epoch Following this realigned defences will manage the risk of impacts to properties and land behind new defences Assets in front of realigned defences will still be at risk from inundation. Impacts on property, land and recreational and historic assets, along with avoidance/mitigation actions will need to be considered in determining realignment of defences. This will be addressed in more detail as part of the SMP2 Action Plan, FRMS Strategy and individual projects. Adopting these policy option will help maintain the condition and features of the Severn European sites.

Policy Unit – Glouce	ster to	Sharpn	ess – R	oyal Dr	ift outfa	II to Sha	rpness D	ocks (S	HA 8)			
	Advand	e the Lin	е	Hold th	e Line		No Active	e Interven	tion	Manag	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
Population and Hum	an Hea	lth										
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.	Assets flooding	not at risk J.	from	Assets r flooding	flooding.			t at risk fro	om	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		ntial prope of flooding.		Resider risk of fl		ties not at	Residentia	al propertion	es not at	alignme there is the read	will dependent line. Ho limited spector so advess are likely.	owever ace in rse
Avoid/minimise environmental impacts	-			-	-	-	-	-	-			
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)		ntial prope of flooding.		Resider risk of fl		ties not at	Residenti risk of floo	al properti	es not at	alignme there is the read	will dependent line. He limited space of so advess are likely.	owever ace in rse
Material Assets and	Critica	l Infrast	ructure									
Critical infrastructure: Docks, Gloucester and	-			-	-	-	-	-	-			
Sharpness canal Reduce significance of impact associated with flooding and erosion to critical infrastructure		infrastruct rom floodi			nfrastructun flooding.	ure not at	Critical inf	frastructure flooding.	e not at	alignme there is the read	will dependent line. He limited spector advector and limited spector advector are likely.	owever ace in rse
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 flooding	not at risk J.	from	Assets r flooding	not at risk t	from	Assets no flooding.	t at risk fro	om	alignme there is the read	will dependent line. He limited sp. ch so adves are likely.	owever ace in rse
Biodiversity, Flora a	nd Fau	na										
International Nature Conservation Designations:				-			-					
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.	Loss of	intertidal I	nabitat	Coastal habitat I	squeeze; oss	intertidal		ull back; int etained; te ss		habitats	roll back; is retained; ial habitat l	
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	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Cliff face will continue to erode	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 on nationally or	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
locally designated conservation sites.				terrestrial flabitat loss
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
Historic Environmen	t			
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.	- 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.
Water Environment				
Water resources are protected	-			-
proteoted	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 quality not at risk.	Water quality not at risk.	Water quality not at risk.	- Water quality not at risk.
	water quality not at risk.	Water quality not at risk.	Water quality not at risk.	water quality not at risk.
Air and Climate				
Policy is designed to adapt to or accommodate climate change trends.	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.
Landscape				
Avoid detrimental effects to landscape character	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.
Contribute towards S	Sustainable Developm	ent		
Natural coastal process			0 0 0	0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.

Minimise requirements for future maintenance/		_		_	0	0	0	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requir maintenand		deliver o	input requotion and remaintenan ents	10	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

No aspects of the human or natural environment are at risk of flooding or erosion now or in the future within this policy unit and **No Active Intervention** is therefore the preferred policy option. No adverse effects are likely to result from adopting this option.

1.12 Sharpness to Severn Crossings Theme Area (SEV)

Policy Unit - Sharp	ness to	Severi	n Cro	ssings –	South of	Sharpnes	s docks t	o Bull R	ock (SE	V 1)				
	Advand	ce the Lin	е	Hold the L	ine.		No Active	Intervent	ion	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		
Population and Hur	nan He	alth												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	Resider protecte	ntial prope ed.	rties	- Residentia	Properties	protected.	Residentia increased			Impact will depend on alignment line. Adverse impacts likely to isolated properties.				
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.	Assets	protected.		Assets pro	tected.		Assets at flooding.	an increas	ed risk of	of Impact will depend or alignment line. Adversimpacts likely because Severn Way runs also coast.				
Avoid/minimise environmental impacts	0	4: 1		-	0	0								
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Residential properties protected.			Residentia	I properties	protected.	Residentia increased		Impact will depend on alignment line. Adverse impacts likely to isolated properties.					
Material Assets and	d Critic	al Infras	struc	ture										
Critical Infrastructure: Sharpness Sewerage				-	0		-			-				
Treatment Works Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	Asset p	rotected.	ed. Asset protected.				Asset at a flooding.	n increase	d risk of	Impact will depend on alignment line. However adequate space to select alignment so impact on STW is not likely.				
	0			-	0	0	-			_				
Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	Assets	protected.		Assets pro	tected.		Assets at flooding.	an increas	ed risk of	alignme impacts	will depen ent line. A likely bec Way runs	dverse cause		
Biodiversity, Flora	and Fa	Fauna												
International Nature Conservation Sites: Severn Estuary				-			-							
Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition	Loss of habitat	intertidal		Coastal so loss	queeze; inte	ertidal habitat	Habitat roll habitats re habitat los	etained; ter		intertida	roll back; al habitats d; terrestri loss			

of their features.	<u> </u>	Ī			1			
National nature conservation sites: Severn Estuary SSSI		-			-			
Reduce significance of impact on nationally or locally designated conservation sites.	Loss of intertidal habitat	Coastal s loss	queeze; inte	rtidal habitat	Habitat rol habitats re habitat los	etained; te		Habitat roll back; intertidal habitats retained; terrestrial habitat loss
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 h squeeze	nabitat lost to	o coastal	Intertidal h possibly s terrestrial	ome loss		Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environme	ent							
Listed Buildings and	0	0	0	0	-			-
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.	Limited historic assets – assets protected.	Limited his protected.	storic assets	- assets	Limited his assets at a flooding.			Limited historical assets. Impact will depend on realignment but there is unlikely to be an adverse impact.
Water Environment	t							
Water resources are	-	-	-	-	-	-	-	-
protected	No resources known to be at risk.	No resour	ces known to	o be at risk.	No resoure risk.	ces knowr	n to be at	No resources known to be at risk.
No detriment to water	0	-		0				-
quality Sharpness STW	Asset protected so no risk to water quality.	Asset prot quality.	tected so no	risk to water	Asset at in flooding so water qual associated of the STV	o there co lity issues d with the	uld be	Impact will depend on alignment line. However adequate space to select alignment so impact on STW is not likely.
Air and Climate								
Policy is designed to					-	-	-	
adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		ise the heigh indefinitely.	nt of the	Natural ev will accom change: pe people and	modate clossible im	limate pact to	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental					-	-	-	-
effects to landscape character	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 flooding m landscape or negativ perception change to potential of vegetation	nay alter the (whether e depends n). May be landscape thanges in	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 structure.	
Contribute towards	Sustainable Devel	opment						
Natural coastal process						0		0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		ocess or ero		Natural pro allowed to		vill be	Retreating the defence line will allow natural coastal processes to operate.

Minimise requirements for future maintenance/					0	0	0	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences v maintenand	vill require or ce	ngoing	deliver op	input requir ition and no nce require	ongoing	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

The villages of Berkeley, Hook Street and isolated properties in the surrounding area, along with agricultural land within this policy unit coast are predicted to be at increased risk of flooding in the future; flooding could also affect recreational assets such as the Severn Valley Way. In addition this unit is linked to the adjacent units within which Berkley power station is located and potentially at increased risk of flooding in the future. **Hold the Line** is therefore the preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

	Advance the Line	Hold th	ne Line		No Act	ive Intervei	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	
Population and Hun										
Recreational sites:		-								
Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity	Severn Way and open space protected.		Way and protected.	open		Way and operated risk		Impact will depend on th alignment line. Adverse impacts likely to the Severn Way.		
facilities. Residential:		-					<u> </u>	<u> </u>		
residential properties: Berkley , Hook Street and isolated properties Reduce significance of impact associated with flooding and erosion to people and property.	Residential properties protected.	Reside protect	ential propi ted.	erties		ntial propert ed risk of flo		alignme	will depend on ent line. Advers s likely to isolate ies.	
Avoid/minimise	0	-								
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Residential properties ar power station protected.		ential propostation pro		power s	ntial propert station at an ed risk of flo		Impact will depend on alignment line. Advers impacts likely to power station and isolated properties.		
Material Assets and	Critical Infrastructu	ıre								
Critical infrastructure: Berkeley Power Station and Associated Infrastructure Reduce significance of impact associated with		-			-					
flooding and erosion to critical infrastructure	Assets protected.	Assets	Assets protected.			at risk of so) flooding.	me	Impact will depend on alignment line. Howeve there is very limited space in this reach so adverse impacts are likely.		
Industrial, commercial	0	-	0	0	-			-		
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)	Assets protected.	Assets	protected			at risk of so) flooding.	me	alignme there is space i	will depend on ent line. Howeve very limited n this reach so e impacts are	
Biodiversity, Flora	diversity, Flora and Fauna									
International Nature Conservation Sites: Severn Estuary		-			-					
Ramsar, SAC and SPA Avoid significant impact on the integrity of	Loss of intertidal habitat		Coastal squeeze; intertidal habitat loss			roll back; in retained; to loss	Habitat roll back; intertidal habitats retained; terrestrial habitat loss			

National nature		-			-			
conservation: Severn Estuary SSSI								
Reduce significance of impact on nationally or locally designated conservation sites.	Loss of intertidal habitat	Coasta habitat		e; intertidal		roll back; in retained; to loss		Habitat roll back; intertidal habitats retained; terrestrial habitat loss
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		dal habitat al squeeze		possibly	al habitat may some loss al habitats	,	Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environmen	nt							
Scheduled Monuments, Listed Buildings and	0	0		0	-			-
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 environment sites and their setting.	Limited historic assets – assets protected.		d historic a			historic ass at an increa J.		Limited historical assets. Impact will depend on realignment but there is unlikely to be an adverse impact.
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
protected	No resources known to be at risk.	No reso at risk.	ources kno	own to be	No resortisk.	urces knowi	n to be at	No resources known to be at risk.
No detriment to water quality Berkley nuclear Power		-						-
Station	Asset protected so no risk to water quality.		orotected s er quality.	o no risk	flooding water qu	increased in so there contains a substitution in some contains and the substitution in substit	uld be	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.
Air and Climate								
Policy is designed to					-	-	-	•
adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		t raise the fences ind		will acc change	evolution of ommodate of commodate of commod	climate npact to	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	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.	
Contribute towards	Sustainable Developm	nent						
Natural coastal process								0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		eposition w	or erosion vill be		processes to operate	will be	Retreating the defence line will allow natural coastal processes to

						operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will	s will requ	deliver o	I input requestion and maintenar	no	Input required to retreat the defence line and ongoing maintenance will
	require ongoing maintenance.		requirem	nents		be required, although less than for wither the ATL or HTL options

Berkeley Power Station and residential areas within this policy unit are predicted to be at increased risk of flooding in the future; flooding could also affect recreational assets such as the Severn Valley Way and Sustrans route 41. **Hold the Line** is therefore the preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

station (SEV 3)	A alvana	e the Line	Liolei de	ما اسم		No.4-	ivo Intern	ontien	Manage	d Doolism	mount
	0-20	20-50 50 -	Hold th	20-50	50 - 100	0-20	ive Interv	50 -	0-20	d Realign 20-50	ment 50 -
		100	0-20	20-50	50 - 100	0-20	20-50	100	0-20	20-50	100
Population and Hun Residential:	nan Hea	lth	-		T 👝						
Isolated residential	Residen	itial properties		ntial prope	rties	Reside	ntial prope	rties at	Impact will depend on alignment line. Adverse impacts likely to isolated properties.		
properties Reduce significance of impact associated with flooding and erosion to beople and property	protecte		protecte				eased risk				
Recreational sites:	0	- 0									
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.	Assets p	protected.	Assets	protected.		Assets of floor	at an incre	eased risk	Impact will depend on alignment line. Adverse impacts likely because Severn Way runs along coast.		
Avoid/minimise			-								
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Residen protecte	itial properties d.		Residential properties protected.			ntial prope eased risk g.		Impact will depend on alignment line. Adverse impacts likely to isolated properties.		
Material Assets and	Critical	I Infrastructur									
Critical infrastructure : Assets of adjacent PUs			-			-					
(Power Stations), Reduce significance of impact associated with flooding and erosion to critical infrastructure	Assets p	protected.	Assets protected.			Assets at an increased ris of flooding.			alignme no expe impacte	will depend nt line. Bu cted to be d on becar different P	it asse use th
ndustrial, commercial and economic assets:	0		-	0	•	-					
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)	Agricult	ural land protected	Agricultural land protected.		Agricultural land at risk of flooding.			Impact will depend on alignment line. However adequate space to sele alignment so likely adverse impact on agricultural land.			
Biodiversity, Flora a	nd Fau	na									
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	Loss of	intertidal habitat	Coastal habitat	squeeze loss	intertidal	habitat	roll back; s retained; ial habitat		habitats	roll back; ii retained; al habitat l	

National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or				-					
locally designated conservation sites.	Loss of intertidal habitat	Coastal squee habitat loss	ze; intertidal	habitats	oll back; in retained; al habitat lo		Habitat roll back; intertidal habitats retained; terrestrial habitat loss		
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 habita coastal squeez			- habitat ed; possib errestrial b		Intertidal habitat maintained; possibly some loss of terrestrial habitats		
Historic Environmer	nt								
Listed Buildings and	0	-		T -					
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.	Listed buildings protected.	Listed buildings	s protected.		uildings at d flooding		Impact will depend on alignment line. May be an adverse impact on listed buildings adjacent to the coast.		
Water Environment									
Water resources are protected	No resources known to be	No resources k	rnown to be		- urces know	- wn to be	- No resources known to be		
No detriment to water	at risk.	at risk.	-	at risk.	-	-	at risk.		
quality	No known water quality risks.	No known wate	er quality	No know	n water q	uality	No known water quality risks.		
Air and Climate									
Policy is designed to				-	-	-			
adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.	Cannot raise the defences in		coast will	evolution of accomm change: po people a	odate ossible	Managed retreat will accommodate climate change.		
Landscape									
Avoid detrimental effects				-	-	-	-		
to landscape character	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 of the defence local landscape character (increpresence in the also a visual in defences disru	will affect e in terms of easing e landscape): npact with	flooding landscap positive depends May be a landscap	ng the free may alter be (whether or negative on percel a local char be due to per 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.		
Contribute towards	Sustainable Developm	ent							
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural proces and deposition affected			processes to operate		Retreating the defence line will allow natural coastal processes to operate.		
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will	Defences will r ongoing mainte		deliver o	input requestion and maintenar	no	Input required to retreat the defence line and ongoing maintenance will		
	require ongoing			requirem			be required, although less		

maintenance.		than for wither the ATL or
		HTL options

Residential properties and recreational assets such as the Severn Valley Way and Sustrans route 41 are at risk of flooding, as is agricultural land; in addition connectivity with adjacent units means both Berkley and Oldbury power stations are at increased risk of flooding if this policy unit floods. **Hold the Line** is therefore the preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit - Sharpr	ness to	Severn	Crossir	ngs –Old	lbury po	ower sta	tion (SE	(V 4)										
		e the Line		Hold the			_	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						
Population and Hum	nan Hea	alth																
Residential:				-			1 -											
Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property		Residential property protected.			Residential property protected.						tial proper d.	ty		itial proper ed risk of fl		alignme	s depend or ent line. Re have adve	etreat is
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.	Recreational assets protected.			Recreati	Recreational assets protected.			ional asse ed risk of fl		Impacts depend on the alignment line. Retreat is likely to have some adverse impacts.								
Avoid/minimise				-			-											
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Assets protected.			Assets p	protected.		Assets a of floodi	at an increa	ased risk	alignme	s depend or ent line. Re be perceiv ely.	treat is						
Material Assets and	Critica	l Infrast	ructure															
Industrial, commercial	0			-	0	0	-											
and economic assets: Oldbury Power Station, Agriculture, set back behind power station Reduce significance of impact associated with flooding and erosion to critical infrastructure		station and ural land p			Power station and agricultural land protected.			ural land a . Power siround so real flooding.	tation on	Impact will depend on alignment line. However; adequate space to select alignment so likely adverse impact on agricultural land.		owever; o select						
Critical infrastructure:				-			-			N/A								
Tidal Reservoir fronting Power Station Reduce significance of impact associated with flooding and erosion to critical infrastructure		uld impact the tidal re		from refi	servoir not lling. Pow risk of floo	er station	impeded	servoir not d from refil tation is no ng.	ling.	N/A								
Biodiversity, Flora a	ınd Fau	na																
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated	Loss of	intertidal h	abitat	Coastal habitat le	squeeze;	intertidal	habitats	roll back; in retained; all habitat le		habitats	roll back; in a retained; ial habitat l							
conservation sites 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	Loss of	intertidal h	abitat	Coastal squeeze; intertidal habitat loss		habitats retained;				,		dal Habitat roll back; intertidal habitats retained; terrestrial habitat loss						
their features. 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	coastal squeeze n				l habitat ned; possib terrestrial h		Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environmen	nt							
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.	Historical assets protected from flooding.	- Historica from floo	l assets priding.	rotected		al at risk fro		Impacts depend on alignment line. Assets are set back from the coast so are unlikely to be adversely impacted.
Water Environment								
Water resources are protected	No resources known to be at risk.	- No resou	- urces know	- vn to be	- No reso	- urces knov	- vn to be	- No resources known to be at risk.
No detriment to water	O CONTRACTOR	-			-			<u> </u>
quality Historic Landfill sites adjacent to Oldbury Power Station.	Landfill site protected so no risk to water quality.		ite protect ater quality		increase could be issues a	site at risk ed flooding water qua ssociated of the STV	so there ality with the	Impact will depend on alignment line. However adequate space to select alignment so adverse impact on the historic landfill site is likely. This could potentially cause water quality issues.
Air and Climate								
Policy is designed to adapt to or					-	-	-	0
accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		aise the he		coast wi	evolution on the second of the	odate ssible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	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 land characte presence also a vis	reasing the fence will dscape in or (increasi e in the lan sual impac s disrupting	affect terms of ng ndscape): ct with	flooding landscap positive depends May be landscap	ng the freq may alter be (whether or negative on percep a local chat be due to p in vegetar e.	the local er e otion). inge to ootential	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.
	Sustainable developme	ent						
Natural coastal process are promoted e.g.								0
through managed retreat of defences.	Natural estuary processes will be affected		process or position will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					0	0	<u> </u>	
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance			deliver o	I I input requestion and maintenar nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

The presence of the power station within this unit means **Hold the Line** is the environmentally preferred policy option. Adoption of this policy will also mean agricultural land along the coast and recreational assets such as the Severn Valley Way and Sustrans route 41 are protected from increased risk of flooding in the future. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit - Sharpr	ess to	Severn	<u>Crossin</u>	ıgs – Ole	dbury p	ower st	ation to	Littletor	n Wart <u>h</u>	(SEV 5)		
		e the Line		Hold the				ive Interve		, ,	, 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
Population and Hum	nan Hea	llth										
Residential: Oldbury on Severn	0			-	0	0	-	_	_			
Isolated properties Reduce significance of impact associated with flooding and erosion to people and property	Residential properties protected.				Residential properties protected.			ntial proper eased risk (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.		
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.	Assets	protected.		Assets p	protected.		Assets of flood	at an incre ing.	ased risk	alignme impacts	will dependent line. Ac ent line. Ac elikely beca Way runs	lverse ause
Avoid/minimise	0			-		0	-					
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	impacts tress and ociated with				Residential properties protected.			ntial propei eased risk (J.		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.		
Material Assets and	Critica	I Infrasti	ructure									
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)	Agricult	ural land p	rotected.	- Agricultu	ural land p	rotected.	d. Agricultural land at risk of flooding.			Impact will depend on alignment line. However; adequate space to select alignment so likely adverse impact on agricultural land.		
Critical infrastructure None identified.	- No critic	cal infrastru	icture at	- No critic	al infrastru	- ucture at	- No critic	- cal infrastru	- ucture at	- No critic	cal infrastru	icture at
Biodiversity, Flora a	risk.			risk.			risk.			risk.		
International Nature	A Pau	110		-			-					
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.	Loss of	intertidal h	abitat	Coastal habitat l		ze; intertidal Habitat roll back; intertidal habitats retained; terrestrial habitat loss				Habitat roll back; interti habitats retained; terrestrial habitat loss		
National nature conservation: Severn Estuary SSSI				-			-					

Reduce significance of impact on nationally or locally designated conservation sites.	Loss of intertidal habitat	Coastal habitat lo	squeeze; i ss	intertidal	habitats	roll back; i retained; al habitat l		Habitat roll back; intertidal habitats retained; terrestrial habitat loss
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 coastal s	habitat los queeze	st to		I I habitat ned; possib terrestrial		Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environmer	nt							
Scheduled Monuments:		-		0	-			
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	Historical assets protected.	Historical	assets pr	otected.		al assets a		Impacts will depend on realignment but it is likely that historical assets will be protected as they are set back from the coast.
their setting. Water Environment								
Water resources are	-	-	-	-	-	-	-	-
protected	No resources known to be at risk.	No resou at risk.	rces know	n to be	No reso	urces kno	wn to be	No resources known to be at risk.
No detriment to water	-	-		-	-	-	-	-
quality	No water quality risks identified.	No water identified	quality ris	sks	No wate	r quality ri d.	sks	No water quality risks identified.
Air and Climate								
Policy is designed to					-	-	-	
adapt to or accommodate climate change trends.	Cannot raise the height of the defences indefinitely.		aise the he ices indefi		coast wi	evolution of accommonage poor opeople a	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	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 def local land character presence also a vis defences	easing the fence will decape in the fince asing the fince asing the fince as the fince and the fince and the fince and the fince as the final fi	affect terms of ng dscape): t with	of floodii local lan positive depends May be landsca	ng the free ng may alt dscape (w or negativ s on perce a local cha be due to s in vegeta	rer the whether re 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.
	Sustainable Developm	ent						
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		rocess or esition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					•			
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		No initial input required to deliver option and no ongoing maintenance requirements			Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options	

Oldbury on Severn and isolated residential properties along with agricultural land and heritage features within Oldbury are predicted to be at increased risk of flooding in the future; flooding could also affect

recreational assets such as the Severn Valley Way. This unit is in hydraulic connectivity with SEV 4 so any flooding within this unit could place the power station at risk. **Hold the Line** is therefore the environmentally preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Sharpr	ess to	Severn	Crossir	ngs – L <u>it</u>	tleton V	Varth to	Aust Fe	rry (SE\	/ 6)			
	Advanc	e the Line	е	Hold the	e Line		No Activ	ve Interve	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
Population and Hum	nan Hea	lth										
Residential: Aust and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property		itial prope f tidal floo			tial proper	ties not at		tial proper		N/A High ground / hard geology precludes physical retreat of the line option not considered		
				frontage; no impact			this fron	tage; no ir	npact			
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.	this frontage; no impact Open space and footpath network are not at risk of tidal flooding via this frontage; no impact			network tidal floo	- vace and for are not at ding via th ; no impac	risk of nis	network tidal floo	- ace and f are not at ding via th ; no impad	risk of nis	N/A		
Avoid/minimise	-			-	-	-	-	-	-	N/A		
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	No risk this from	of flooding tage.	from	No risk of frontage	of flooding	from this	No risk of this from	of flooding tage.	from			
Material Assets and	Critical	Infrast	ructure									
Critical Infrastructure: M48 Road Crossing and Services, Power Line Crossing and Substation	-			-	-	-	-	-	-	geology physica	ound / hard precludes I retreat of not conside	the line,
Reduce significance of impact associated with flooding and erosion to critical infrastructure		e at risk fr via this fr ct			e at risk fro via this fro ct			e at risk fr via this fro ct		·		
Industrial, commercial and economic assets: Local commercial assets Reduce significance of	-			-	-	-	-	-	-	geology physica	ound / hard precludes I retreat of not conside	the line,
impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	use; not	ure is mair at risk fro via this fr ct	m tidal	use; not	ure is main at risk fro via this fro ct	m tidal	use; not	ure is mair at risk fro via this fro ct	m tidal			
Biodiversity, Flora a	nd Fau	na										
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact				-			-			geology physica	ound / hard precludes I retreat of not conside	the line,
on the integrity of internationally designated sites and the favourable condition of their features.	Loss of	intertidal h	nabitat	Coastal habitat lo	squeeze; oss	intertidal	habitats	roll back; i retained; al habitat l				
Aust Cliff SSSI Reduce significance of										N/A High gro	ound / hard	d

Comment of the control of the distribution of the control of the c					1			and a managed and
impact associated with maintaining the visibility of geological exposures								geology precludes physical retreat of the line, option not considered
throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)	Advancing the line would mean exposure was no longer subject to natural erosion processes	not adve	ng the defe ersely affect te located la processes ned.	ct the cliff behind it	Natural p	processes tain	would	option not constanted
National nature conservation sites: Severn Estuary SSSI Reduce significance of impact on nationally or		-			-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
locally designated conservation sites.	Loss of intertidal habitat	Coastal squeeze; intertidal habitat loss		Habitat roll back; intertidal habitats retained; terrestrial habitat loss				
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential	-	-			-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
habitat creation site	Intertidal habitat lost; terrestrial habitat gained		Il habitat Ic squeeze	st to		l habitat led; possib errestrial		
Historic Environmen	nt							
Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
locally, regionally and nationally important cultural historic environment sites and their setting.	No historical assets identified.	No histo identifie	orical asset d.	s	No histo identified	rical asset	ts	
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No resources known to be at risk.	No reso at risk.	urces knov	wn to be	No resou	urces kno	wn to be	
No detriment to water quality	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No water quality risks identified.	No wate identified	er quality ri d.	sks	No wate identified	r quality ri d.	sks	
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.		_			-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Cannot raise the height of the defences indefinitely.		raise the hences indef		coast wi	evolution of accommodal accommoda	odate ossible	
Landscape								
Avoid detrimental effects					-	-	-	N/A

to landscape character				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.	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.	
Contribute towards	Sustainable Developm	ent		
Natural coastal process are promoted e.g. through managed retreat of defences.				N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	
Minimise requirements for future maintenance/ new structures.				N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	

Policy Unit SEV 6 – Sharpness to Severn Crossings – Littleton Warth to Aust Ferry: No aspects of the human or natural environment are at risk of flooding or erosion now or in the future within this policy unit and **No Active Intervention** is therefore the preferred policy option. No adverse effects are likely to result from adopting this option.

1.13 Severnside to Bristol and Avon Theme Area (BRIS)

Policy Unit –	Bristol an	id Se	vernside Aust	Ferry (si	New F	Passage	1)				
	Advance t	he	Hold the Line			No Ac	tive Interv	ention	Mana	ged gnmen	
	0- 20 20- 50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0- 20	20- 50	50 - 100
Population ar	nd Human	Heal	th								
Residential:			<u> </u>	0		-			-		
Isolated residential developments at Northwick and Redwick Reduce significance of impact associated with flooding and erosion to people and property	Residential properties protected.		Residential prope	erties protec	ted.		ential prop risk from f		on alighowers space alignmunlike advers	et will de gnment ver ade to sele nent so ly to be se impa	line: quate ect
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.	Recreations sites include the Severn will be protected.	ing	Recreational site Severn Way will			includ will be	ational site ing the Sev at an incre flooding.	vern Way	on alig however space alignm unlike	et will de gnment ver ade e to sele nent so ly to be se impa	line: quate ect
Avoid/minimise environmental			-			-			-		
impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Limited nur of residenti properties protected.	al	Residential prope		ted.		ential prop risk from fl		on alig however space alignm unlike	et will de gnment ver ade e to sele nent so ly to be se impa	line: quate ect
	ets and Cr	itical	Infrastructure								
Critical infrastructure: Power Line						-			-		
Crossing, M4 and M48, Severn Tunnels, Bedwick STW To manage the risk of flooding and erosion to critical infrastructure.	Infrastructu protected.	re	Infrastructure pro	tected.		Infrasi floodir	ructure at	risk from	on aliq however space alignment	et will de gnment ver ade e to sele nent so ly to be se impa	line: quate ect an
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 use predominantly agricultural. Agricultural assets will be protected.	Agricultural asset	s will be protected	at a	cultural ass n increased ding.		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
Biodiversity,	Flora and Faun	na					
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	inte mai pote	pitats will roll rtidal habita ntained; hov entially some estrial habita	ts vever e loss of	Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation	Coastal squeeze will occur	- Coastal squeeze	will occur	inte mai pote	bitats will roll rtidal habita ntained; hoventially some estrial habita	ts vever e loss of	Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.
sites. 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 coastal squeeze.	habitat due to	reta pos	rtidal habita ined /increa sible loss of ind existing	sed; habitats	Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line
Historic Envi	ronment						
Listed Buildings and non- designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally	Limited no of features of note; historical assets will be protected.	Historical assets	will be protected.	at a	orical asset m increased ding.		Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact.

important	1							
cultural historic environment sites and their setting.								
Water Enviro	nment							
Water	-	-	-	-	-	-	-	-
resources are protected	No resources known to be at risk.	No resources kno	own to be at	risk.	No res be at ri	ources kn isk.	own to	No resources known to be at risk.
No detriment to water quality (Water) Bedwick Sewage treatment works	STW protected.	STW protected.				at risk of fl al for polli		Asset protected as it is assumed managed retreat will not impact on either the sewage treatment works or the chemical works.
Air and Clima	ate							
Policy is					-	-	-	0
designed to adapt to or accommodate climate change trends.	Can not raise the height of defences indefinitely.	Can not raise the indefinitely.	height of d	efences	coast v	l evolution will accom e change; to people ty.	modate possible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the landscape): also	Ever increasing here defences will affeterms of character presence in the livisual impact with disrupting views.	ect local land er (increasin andscape):	dscape in g	of flood local la positive depend May be landsca	sing the fr ding may a ndscape e or negat ds on perc e a local c ape due to al change tion condi re.	alter the (whether tive ception). hange to one in	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change
	a visual impact with defences disrupting views.							to landscape due to potential changes in vegetation condition and structure.
Natural coastal	wards Sustaina	able Developn	nent	<u> </u>				
process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process of deposition will be		nd		I processed to opera		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future				_	0			
maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will rec maintenance	quire ongoin	g	deliver	ial input re option an g mainter ements	id no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Residential properties at Northwick and Redwick, critical infrastructure (including the M4. M48 and Severn tunnel) and agricultural land are all predicted to be at increased risk of flooding in the future; flooding could also affect recreational assets such as the Severn Valley Way. This unit is also hydraulically linked with units BRIS 2-5. **Hold the Line** is therefore the environmentally preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

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Policy Unit – Bris						orth ex	tent of							
	Advar	nce the L	ine	Hold the Line	9			No Ac	tive Interv	vention	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	
Population and H	uman	Health												
Residential: Severn Beach Reduce significance	•			-	-									
of impact associated with flooding and erosion to people and property	Residential properties protected.			Residential properties protected.					Residential properties are at risk from flooding.			Impact will depend or 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.		aths and amping si ted.		Local footpaths and caravan and camping site will be protected.					footpaths a an and can at an incre ding.	Impact will depend on alignment line: however very limited space in the reach so likely to be an adverse impact.				
Avoid/minimise	0			0		<u> </u>		-						
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	onmental cts which may long term health cts (including s and anxiety ciated with flood							ential prop ry are at ri	Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.					
Material Assets a	nd Cri	tical In	frastruc	ture										
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.	Infrast	ructure p	rotected.	Infrastructure	protected	d.		Infrast floodir	ructure at	risk from	alignm howev space likely t	t will dep ent line: er very li in the re o be an se impac	mited 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	s will be ted.		Assets will be	protecte	d.			s will at an sed risk of		alignm howev space likely t	t will dep ent line: er very li in the re o be an e impac	mited ach so	

	a and Fauna								
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 wi	ll occur		back and habitate maintain reach of scope for in some	ry habitats and intertida s will be ined; howe developed for roll bac e areas; al ial habitats d	al ever so k limited so	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	
National nature conservation:		-			-				
Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur	Coastal squeeze wi	ll occur		back and habitate maintain reach controlled addition	ry habitats and intertida s will be ined. Howe developed back limite a terrestria affected	Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to 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 ha squeeze.	bitat due to	coastal	maintai		Set back of line will maintain intertidal habitats; however potential loss of terrestrial habitats; also space limited due to development		
Historic Environm	nent								
Scheduled Monuments:		•			-				
Heavy anti-aircraft	Historical assets protected.	Historical assets pro	otected.		Historia	cal assets	will he at	Impact will depend on	
battery; 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.	protection.					eased risk		alignment line: however very limited space in the reach so likely to be an adverse impact.	
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.					an incr	eased risk		alignment line: however very limited space in the reach so likely to be an	
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. Water Environme Water resources are	nt -	-	-	-	an increflooding	eased risk g.	of	alignment line: however very limited space in the reach so likely to be an adverse impact.	
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. Water Environme Water resources are protected		- No resources know	-	- sk.	an increflooding	eased risk	of	alignment line: however very limited space in the reach so likely to be an adverse impact.	
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. Water Environme Water resources are protected No detriment to water quality	nt - No resources known to		-	- sk.	an increflooding	eased risk g.	of	alignment line: however very limited space in the reach so likely to be an adverse impact.	
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. Water Environme Water resources are protected	nt - No resources known to		-	sk.	an increflooding	eased risk g. - - - - - - - - - - - - - - - - - -	of	alignment line: however very limited space in the reach so likely to be an adverse impact.	
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. Water Environme Water resources are protected No detriment to water quality Sewage Treatment Works at Bedwick Chemical Treatment works; Active landfill sites	nt - No resources known to be at risk.	No resources know	-	sk.	an increflooding	eased risk g. - - - - - - - - - - - - - - - - - -	of	alignment line: however very limited space in the reach so likely to be an adverse impact. No resources known to be at risk. 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	
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. Water Environme Water resources are protected No detriment to water quality Sewage Treatment Works at Bedwick Chemical Treatment works; Active landfill sites	nt - No resources known to be at risk.	No resources know	- n to be at ris		an increflooding	eased risk g. - - - - - - - - - - - - - - - - - -	of	alignment line: however very limited space in the reach so likely to be an adverse impact. No resources known to be at risk. 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	

climate change trends.	of defences indefinitely.	indefinitely.	coast will accommodate climate change; possible impact to people and property.	accommodate climate change.		
Landscape						
Avoid detrimental effects to landscape character.	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.		
Contribute toward	ds Sustainable Deve	lopment				
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.		
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options		

Residential properties at Severn Beach, critical infrastructure (including the M4. M5, Seabank power station 48 and Severn tunnel) and agricultural land are all predicted to be at increased risk of flooding in the future; flooding could also affect recreational and historic assets. This unit is also hydraulically linked with units BRIS 1 and 3-5. **Hold the Line** is therefore the environmentally preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

		Advance the Line			Vorks to Avonmouth Pier Hold the Line			S 3) ive Interve	ntion	Managed Realignment		
	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -	0-20	20-50	50 -
			100	0-20	20-30	100	0-20	20-30	100	0-20	20-30	100
Population and Hum	nan Hea	lth										
Residential: Settlement of							-					
Avonmouth Reduce significance of impact associated with flooding and erosion to people and property	Residential properties will be protected.			Residential properties will be protected.			be at a	ntial prope n increased g.		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	-			-	-	<u> </u> -	-	-	-	-		
footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	present.	ts known	то бе	present.	ets known t	o be	present	ets known	то бе	No assets known to be present.		
Avoid/minimise environmental impacts)	
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).		esidentia es presen rotected.	-	Assets will be protected.				will be at a ed risk of f		Some local adverse affects within retreated area, assets behind protected. Scope for retreat limited by industrial development		
Material Assets and	Critical	I Infrast	tructure									
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.	Critical infrastructure protected			Critical infrastructure protected			Critical infrastructure at increased risk of flooding			Insufficient space to significantly realign withou affecting infrastructure		
Industrial, commercial and economic assets:				0								
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 v	vill be pro	tected.	Assets	will be prot	ected.	II.	will be at a ed risk of f			will be adv d by the ment.	versely
Biodiversity, Flora a	nd Fau	na										
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	Coastal	squeeze ^v	will occur	Coastal	squeeze v	vill occur	back ar will be Howeve so scop	ry habitats nd intertida maintained er reach de pe for rollba In additio	l habitats eveloped ack	alignme very lim reach; t	will depen ent line: ho ited space errestrial l be affecte	owever e in the habitats

National nature				-					
conservation designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur	Coastal squeeze w	ill occur	back and will be m However so scope limited.	habitats value intertidal aintained. Treach der for rollba	habitats veloped ck	Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected		
				affected	l habitats	will be			
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. Loss of intertidal habitat due to coastal squeeze. In theory habit back, intertidal maintained						Set back of line will maintain intertidal habitats		
Historic Environmen	nt								
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.	Historical assets protected	Historical assets pr	otected		assets at d flooding		Historical assets protected.		
Water Environment									
Water resources are protected	No resources known to be at risk.	No resources know at risk.	n to be	No resou	- irces knov	- vn to be	- No resources known to be at risk.		
No detriment to water quality Avonmouth STWs Active landfill sites	Assets protected.	Assets protected.		- Assets a of floodir	t an increa		Majority or assets protected; potential for some to be affected by the realignment.		
Air and Climate				, ,					
Policy is designed to adapt to or accommodate climate change trends.	Can not raise the height of defences indefinitely.	Can not raise the h defences indefinite	J	coast wil	evolution of l accommon hange; po people a	odate ossible	Managed retreat will accommodate climate change.		
Landscape									
Avoid detrimental effects to landscape character	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 hei defences will affect landscape in terms character (increasing presence in the landalso a visual impact defences disrupting	local of ng dscape): t with	flooding landscap positive of depends May be a landscap changes	ag the freq may alter be (whether on percep a local char be due to p in vegetal	the local er e otion). inge to ootential 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.		

Residential properties at Avonmouth, critical infrastructure (including the M49. M5, electricity substations, Avonmouth sewage treatment works and Avonmouth Docks) are all predicted to be at increased risk of flooding in the future. This unit is also hydraulically linked with units BRIS 1-2 and 4-5. **Hold the Line** is therefore the environmentally preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will

be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Bristo						etham_\	Weir (B	RIS 4)				
		e the Line		Hold the L				ive Interve		Manage	ed Realigi	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hun	nan Hea	alth										
Residential Developments Bristol city Sned Park Sea Mils Shirehampton Avonmouth Reduce significance of impact associated with flooding and erosion to people and property	consider unsuitable tributarie Estuary, reduce i storage movemente leading flooding	e the Line red to be a sole policy fes to the Sas it wou northwest to greater. It could a rosion, rafuce it	an or Severn Id flood rially	-								
				Residential at risk of flo exception of Avonmouth Avonmouth	ooding with of propertie . Properti	not at ris the exce in Avoni in Avoni	ntial prope sk of flood eption of p mouth. Pr mouth will ed risk of f	ing with roperties operties be at an	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.	consider unsuitable tributarie Estuary, reduce i storage movement leading flooding	e the Line red to be a pole policy fes to the S as it wou n-channel and water to greater. It could crosion, railuce it	an or Severn Id flood flood	-	-	-	-	-	-	-		
				Limited recreational assets present. Recreational amenities are not at risk of flooding.				tional ame sk of flood		Limited recreational assets to be affected h		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	consider unsuitable tributarie Estuary, reduce i storage moveme leading flooding	e the Line red to be a policy fes to the S as it wou n-channel and water ent, potent to greater. It could crosion, railuce it	an or Severn Id flood rially	-			-	-	_		_	
	man reduce it			at risk of flo exception of Avonmouth	Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be protected.			ntial prope sk of flood eption of p mouth. Pr mouth will ed risk of f	ing with roperties operties be at an	Some local adverse effects within retreated area; more widely properties will be protected		
Material Assets and		I Infrast	tructure)								
Critical infrastructure: M5 and M49 Avonmouth electricity substations Avonmouth Fire and Police stations Bristol electricity substations Bristol hospitals	consider unsuitab tributarie Estuary, reduce i storage	e the Line red to be a ble policy f es to the S as it wou n-channel and water ent, potent	an for severn Id flood				-					

To manage the risk of flooding and erosion to critical infrastructure.	leading to greater flooding. It could also trigger erosion, rather							
	than reduce it	Critical infra centre of Br from floodir M4 and Avo be protecte	istol is not g. The Mann nmouth a	at risk 5 and rea will	centre of risk from and M5 area will	nfrastructu f Bristol is n flooding. and Avoni be at an ed risk of fl	not at The M4 mouth	Retreating the line would affect critical infrastructure
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	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> </u>	
and economic assets (including agricultural), and activities (including tourism)		The centre risk from flo Avonmouth protected fr this option.	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		
Biodiversity, Flora	and Fauna							
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	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	- Avon Gorge	Woodlan	ds	In theory	y habitats	will roll	Impact will depend on
		unaffected Severn Est Coastal squ	oy tidal flo uary affect	oding. ed.	back and will be m Howeve so scope limited.	d intertidal naintained r reach de e for rollba In additior al habitats	habitats veloped ck	alignment line: however very limited space in the reach; terrestrial habitats likely to be affected
National Nature Conservation Designations (Severn Estuary, Avon Gorge and Horseshoe Bend SSSIs). Reduce significance of impact on nationally or locally designated conservation 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				-			
		All SSSI apart from Severn Estuary unaffected by tidal flooding, both now and in future Option will protect terrestrial parts of site, however intertidal areas will experience coastal squeeze.			protecte habitat c Howeve	I habitats of d for as local can roll bacer in space line errestrial had	ng as ck. nited,	Retreating the line will allow habits to roll back, however space limited; terrestrial habitats that exist will be lost
Maintain and enhance Biodiversity Action Plan	N/A Advance the Line is	1,51,51,50	_		-			-

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	Coastal squ loss of inter			back ret habitats limited d develop	y habitats aining inte , however lue to ment so so ats ix likely	rtidal space ome loss	Set back of line will maintain intertidal habitats however may affect terrestrial habitats, also space limited due to development
Historic Environme								
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	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	-	-		-	-	-	
environment sites and their setting.		Scheduled Listed Build				ed Monum ed Building		Features may be adversely affected if line
		of tidal flood	ling.		not at ris	sk of floodi	ng.	retreated
Water Environment								
Water resources are protected	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 resource risk.	es known t	o be at	No reso	urces know	wn to be	No resources known to be at risk
No detriment to water quality	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 lisk.	-	-	
		No resource	es known t	o be at	No reso	urces knov	wn to be	No resources known to be at risk
Air and Climate		7,010			at Holt.			
Policy is designed to	N/A				-	-	-	
adapt to or accommodate climate	Advance the Line is considered to be an							

change trends.	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 ra defences in		ght of	coast wi	evolution of accommodal accommodal period accommodal period accordance accord	odate ossible	Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character	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 increadefences valandscape character (presence in also a visu defences of	will affect lo in terms of (increasing n the lands al impact v	cal cape): vith	of floodi local lan positive depends May be townsca increase	ng the frec ng may alt dscape (w or negativ s on perce a local cha pe due to ed flooding n buildings ea	ter the whether re ption). ange 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 negative impact
Contribute towards	Sustainable Developn	nent						
Natural coastal process					0	0	0	0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural pro and depos				processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences v maintenant	•	ongoing	deliver o	I input req option and maintena nents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Residential properties at Avonmouth, critical infrastructure (including the M49. M5, electricity substations, Avonmouth sewage treatment works and Avonmouth Docks) are all predicted to be at increased risk of flooding in the future. This unit is also hydraulically linked with units BRIS 1-3 and 5. **Hold the Line** is therefore the environmentally preferred policy option. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Bristol						n road (
		e the Line		Hold the				ve Interve			d Realigr	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hum	an Heal	th										
Residential: Bristol city Easton in Gordano Reduce significance of impact associated with flooding and erosion to people and property N/A Advance the laconsidered to unsuitable po tributaries to t Estuary, as it in-channel flo and water mo potentially lead greater floodin also trigger et than reduce it		ed to be a le policy for set to the Solid as it would be flood storm of the set of the s	or evern d reduce orage ent, to t could	-	-	-	-	-	-	-		
					tial proper k of floodi		not at ris small nu in Easto	tial proper sk of floodi imber of pi n in Gorda increased	ng. A roperties ano will	not at ris	tial proper sk of flood pace to re s	ing; plus
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 ed to be a le policy fis to the S as it woul el flood ster movemely leading. I ger erosioluce it	or evern d reduce orage ent, to t could	-	-	-	-	-	-	-		
				Assets n flooding.	ot at risk o	of tidal	Assets r flooding.	not at risk o	of tidal		not at risk ; limited sp nent.	
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line ed to be a le policy fes to the S as it woul el flood ster movement ly leading looding. I ger erosionuce it	or evern d reduce orage ent, to t could	-	-	-	-	-	-	-		
					onal amer k of tidal f			ional amer sk of tidal f			•	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	consider unsuitab tributarie Estuary, in-chann and wate potential greater f	e the Line ed to be a le policy for sto the S as it woul el flood ster movemently leading looding. I ger erosionuce it	or evern d reduce orage ent, to t could		-	-	-	-	-	-		
					tial proper k of tidal f pact.			tial proper sk of tidal f pact.			tial proper sk of tidal f pact.	

Material Assets and	Critical Infrastructure							
Critical infrastructure: Bristol electricity substations Bristol hospitals within reach 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 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 critic	- al infrastru	- etura at	- No critic	- al infrastru	- oture at	No critical infrastructure at
			dal flooding			dal floodin		risk of tidal flooding
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)	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 n flooding.	ot at risk o	of	Assets r	not at risk o	of	Assets not at risk of flooding.
Biodiversity, Flora a	nd Fauna				<u> </u>			, <u>.</u>
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA and Avon Gorge Woodlands SAC Avoid significant impact on 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	-	-	-	-	-	-	
		currently tidal floo predicted	orge Wood vunaffected ding and id to be at the vern site is reach	ed by s not future	currently tidal floo predicte	orge Wood / unaffecte oding and i d to be at vern site is s reach	ed by s not future	Avon Gorge Woodlands is currently unaffected by tidal flooding and is not predicted to be at future risk. Retreat the line could adversely affect the site. Severn site is remote from 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 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 n	nav	Potentia	for habita	at roll	Retreat the line would
	N/A		loss of int		back in s however may be	some area r terrestria	s; sites	adversely affect designated terrestrial sites
Reduce significance of impact on nationally or locally designated conservation sites. (Ashton Court, Ham	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn	-	-	-	-	-	-	

Green SSSIs, Leigh Woods NNR).	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 impact ed with HT		unaffector 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
Historic Environmen	t							
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	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	-	-	-	-	-	-	
locally, regionally and nationally important cultural historic environment sites and their setting.		and Liste	ed Monum ed Building k of tidal fl	s 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
Water Environment								
Water resources are protected	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.	irces knov	vn to be	No resou	irces know	vn to be	No resources known to be at risk.
No detriment to water quality	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.	ırces knov	vn to be	No resou at risk.	urces knov	vn to be	No resources known to be at risk.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 defences indefinitely.			Natural evolution of the coast will accommodate climate change; possible impact to people and property.			Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character	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.		Defences will fall into disrepair however risk form tidal flooding will not increase. Potentially some minor changes to local landscape			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	
	ustainable Development		<u> </u>		1			
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requ maintenar		deliver o	I input requestion and maintenainents	no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

There are limited flood and erosion risk to the human and natural environment within this policy unit, however as it is located within the centre of the city of Bristol with significant development immediately behind the defences a policy of Hold the Line is the preferred environmental option No significant adverse effects are considered likely to arise from adopting this option.

Policy Unit – Bristol	and Se	evernsid	le- Avo	n road	(Easterr	ı In Go	rdano) to	Portish	ead Pie	r (BRIS	6)	
		e the Line		Hold th				ve Interver			ed Realigr	
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Hun	nan Hea	alth										
Residential: Portbury Wharf, including new developments, and Sheepway Reduce significance of impact associated with flooding and erosion to people and property	conside unsuital tributario Estuary reduce i storage movemo leading flooding	e the Line red to be a pole policy fes to the S, as it would in-channel and water ent, potent to greater. It could a prosion, ratit	an or severn Id flood ially	•	•					-		
				Resider protecte	itial assets d.			tial assets a reased floo		protecte	ntial assets ed but som ersely affeo nent.	ne may
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.	conside unsuital tributario Estuary reduce i storage moveme leading flooding	e the Line red to be a pole policy fes to the S, as it woul in-channel and water ent, potent to greater. It could a prosion, ratit	an or severn Id flood ially	•								
				centre a	s route, lei ind some f s. Assets ed.		centre a	s route, leis nd some fo s. Assets a ed risk of flo	otpath it an	centre a network protecte	is route, le and some t as. Overal ed potentia verse effe anment.	footpath l assets ally some
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	conside unsuital tributario Estuary reduce i storage moveme leading flooding	e the Line red to be a pole policy fes to the S, as it would in-channel and water ent, potent to greater. It could a prosion, ratit	an or eevern Id flood ially	•	•					-		
	Resider protecte	itial assets ed.	•	Resider protecte	itial assets			tial assets a reased floo		protecte	ntial assets ed but som ersely affeo nent.	ne may
Material Assets and	Critica	l Infrast	ructure									
Industrial, commercial and economic assets: Dock Related Industry and Infrastructure – asset from adjacent Policy Unit within flood risk To manage the risk of	conside unsuitat tributari Estuary reduce i	e the Line red to be a ble policy f es to the S , as it woul in-channel and water	an or severn Id flood									

flooding and erosion to critical infrastructure.	movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it Assets will be protected.	Assets will be protected.	Assets at an increased risk of flooding.	Majority or assets will be protected from the risk of flooding but some may be affected adversely by the realignment.
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.	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			
		Infrastructure protected	Infrastructure at risk	Impact depends on alignment; in theory some local adverse impacts with wider positive benefits
Biodiversity, Flora	and Fauna			
International Nature Conservation Designations Severn Estuary Ramsar, SAC and SPA Avoid significant impact on 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			
		Coastal squeeze will occur	Habitats will roll back , intertidal habitats maintained; however terrestrial habitats lost	Intertidal habitats will roll back , however terrestrial habitats lost
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation 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		-	
		Coastal squeeze will occur	Habitats will roll back , intertidal habitats maintained; some space for roll back of terrestrial habitats	Habitats will roll back , intertidal habitats maintained; some space for roll back of terrestrial habitats
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		I intertidal h oastal squ			will roll bac habitats m		Set back of line will maintain intertidal habitats
Historic Environmen	nt	uud to d	odotai oqu	0020.	intortidai	Trabitato III	diritairiod	mantan inortida nabidio
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest. Historic Parks and Gardens: Roman buildings of St Marys Lane SAM and several listed buildings. Reduce significance of impact to scheduled 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		•	•				
locally, regionally and nationally important cultural historic environment sites and their setting.		Assets p	protected for	rom tidal	Assets at of tidal flo	t an increas ooding.	sed risk	Assets will be protected if defences are retreated. They are unlikely to be impacted by the retreat.
Water Environment								
Water resources are protected	-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	urces knov	vn to be	No resou	irces know	n to be at	No resources known to be at risk.
No detriment to water quality 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							-
		Asset pr	otected.		flooding	risk of coas with pollution y resulting	on	Realignment in this reach is likely to affect the STW.
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 hei defences indefinitely.		coast will climate cl	volution of accommonange; pos people an	date sible	Managed retreat will accommodate climate change.
Landscape							
Avoid detrimental effects to landscape character				-		-	-
		Ever increasing heighthe defences will affel local landscape in tercharacter (increasing presence in the landscape): also a viimpact with defences disrupting views.	ect rms of J sual	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.
Contribute towards	Sustainable Developm	nent					
Natural coastal process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected		Natural p	rocesses vo operate	vill be	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance		deliver op	input requi tion and n maintenand ents	0	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

The residential developments of Portbury Wharf and Sheepway, economic activities within the docks and critical infrastructure including the M5, Avonmouth road and rail bridge and Portbury Wharf Sewage Treatment works are predicted to be at increased risk of flooding in the future; flooding could also affect recreational assets including footpath networks and a Sustrans route, as well as designated heritage features. Due to the local topography flooding via this unit has the potential to affect large areas of agricultural land to the south of Portishead and to the north of the M4. **Hold the Line** is therefore the environmentally preferred policy option. Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

1.14 Portishead and Clevedon Theme Area (PORT)

Policy Unit – Portish	ead and Clevedon – Po			swimn		<u> </u>		
	Advance the Line	Hold the	Line			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
Population and Hum	an Health							
Residential: Reduce significance of impact associated with	-	-	-	-	-	-	-	
flooding and erosion to people and property	No properties at risk of flooding via this policy unit	Some residential properties at risk of flooding. Properties protected			flooding;	sidential es at risk of flood risk over time	will	Properties affected by realignment; no wider FRM benefits
Recreational Sites:	-	-	-	-	-	-	-	
Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Limited recreational assets including footpaths. They are not at risk of flooding.	including	ecreationa footpaths trisk of flo	. They	including	ecreationa g footpaths at risk of flo	. They	Limited recreational assets including footpaths. They are not at risk of flooding but may be adversely affected due to realignment.
Avoid/minimise	-	-	-	-	-	-	-	
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Residential properties along coast are not at risk of tidal flooding.		I iial propert ast are no ooding		Residen along co of tidal fl	I tial proper ast are no ooding	L ties ot at risk	Residential properties are not at risk of flooding; realignment would therefore cause additional stress.
Critical Infrastructur	e and Material Assets							
Critical infrastructure:	-	-	-	-	-	-	-	-
Lighthouse Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure	Lighthouse and electricity substations are not at risk of flooding.		se and ele ons are not ng.			ise and ele ons are no ng.		Lighthouse and electricity substations are not at risk of flooding.
Industrial, commercial	-	-	-	-	-	-	-	-
and economic assets:	Limited assets not at risk of flooding.	Limited a flooding.	assets not	at risk of	Limited a	assets not ng.	at risk	Limited assets not at risk of flooding.
Biodiversity, Flora a	nd Fauna							
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	Coastals	squeeze w	ill occur		will roll ba habitats ed	ick,	Habitats will roll back , intertidal habitats maintained
Portishead Pier to Black Nore SSSI								
Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	Advancing the line means exposure will no longer be subject to coastal processes	not adve	versely affect the cliff ere located behind it il processes would be		processes the expos		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 on nationally or locally designated conservation sites.	Coastal squeeze will occur	Coastals	Coastal squeeze will occur Habitats will roll back , intertidal habitats maintained				Habitats will roll back , intertidal habitats maintained	
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 will roll back, intertidal habitats maintained. LNR behind defences on cliff top			Set back of line will maintain intertidal habitats; however terrestrial habitats inc LNR may be affected
Historic Environmer	nt				adverse	effects un	шкегу	
Heritage Features:		_		1	_	_		
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.	High number of non- designated archaeological features along this reach of coastline. Assets along coast are not at risk of tidal flooding.		ong coas tidal flood			- storical as- past are no looding.		Impact will depend on alignment. Historical assets along coast are not at risk of tidal flooding.
Water Environment								
Water resources are	-	-	-	-	-	-	-	-
protected	No resources known to be at risk.	No resou	ırces knov	vn to be	No reso	urces know	wn to be	No resources known to be at risk.
No detriment to water	-	-	-	-	-	-	-	-
quality	No resources known to be at risk.	No resou at risk.	ırces knov	vn to be	No reso at risk.	urces know	wn to be	No resources known to be at risk.
Air and Climate								
Policy is designed to					-	-	-	0
adapt to or accommodate climate change trends.	Can not raise the height of defences indefinitely.		raise the h indefinite		coast w	evolution of the column of the	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	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 defer local land characte presence landscap	nces will a dscape in r (increasi e in the ne): also a vith defenc	g height of flooding landscape easing positive depends to a visual landscape s. landscape changes		ng the frec may alter pe (whether or negatives on perce a local char pe due to s in vegeta n and strue	the local er e ption). ange to cotential 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.
Contribute towards	Sustainable Developme	ent						
Natural coastal process					0		0	0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or position will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requ maintenar		No initial input required to deliver option and no ongoing maintenance requirements		uired to no	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Policy Unit – Portish	nead and Clevedon - s	wimmi	ng pool	to sout	hern ext	ent of Es	splanade	Road (PORT 2)
	Advance the Line	Hold th	e Line		No Activ	e Interver	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
Population and Hum	nan Health							
Recreational Sites: Woodhill Bay	-	-	-	-	T -	-	-	
Swimming Pool and Marine Lake Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities	Recreational assets are not at risk of flooding.		l ional asse sk of flood		Recreati at risk of	l onal assets flooding.	s 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	Residential properties along coast are not at risk of tidal flooding.	along co	ntial proper past are no looding.			ial properti e not at risk		Residential properties are not at risk of flooding; realignment will therefore have an adverse effect on coastal properties.
Avoid/minimise environmental impacts which may have long term health impacts	-	-	-	-	-	-	-	
(including stress and anxiety associated with flood and erosion risk)	Residential properties along coast are not at risk of tidal flooding.	along co	ntial proper past are no flooding.	ties ot at risk		tial properti t are not at ding.		Residential properties are not at risk of flooding; realignment in this location will therefore have an adverse effect.
Critical Infrastructur	re and Material Assets							
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)	Local commercial assets are not at risk of flooding.	1	ommercial at risk of fl			mmercial a k of floodin		No assets to be protected/affected by retreated line
Critical Infrastructure: Reduce significance of	-	-	-	-	-	-	-	-
impact associated with flooding and erosion to critical infrastructure	None present	None pi	resent		None pre	esent		None present
Biodiversity, Flora a	ind Fauna							
International Nature Conservation Sites		-			-			
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		will roll bac habitats m		Habitats will roll back , intertidal habitats maintained
Portishead Pier to Black Nore SSSI								
Reduce significance of impact associated with maintaining the visibility	Advancing the line means exposure will no longer be subject to coastal	not adv	ng the defe ersely affe were loca	ct the		the exposi		Will depend on alignment; however likely that retreating the line will

designations: Severn Estuary SSS Reduce significance of impact on nationally or locally designated maintained with the property of local or designated intended in a property or local or local intended in a property or loca	of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land) National nature	processes		t natural p e maintain					leave the exposure subject to natural processes
Loss of intertidal habitat due to coastal squeeze. Loss of intertidal habitat due to coastal squeeze. Loss of intertidal habitat due to coastal squeeze. Loss of intertidal habitats maintained. Terrestrial habitats maintained. Terrestrial habitats possible affected High number of non-designated archaeological features along display and nationally important cultural historic devironment stees and their setting. Assets along coast are not at risk of tidal flooding. Losal 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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. Impact will depend on alignment. 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 floo	Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		Coastal	squeeze v	vill occur	intertidal	habitats m	aintained	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. Water Environment No detriment to water quality No detriment to water quality Assets along coast are not at risk of tidal flooding. No resources known to be at risk. No resources known to be at risk. Air and Climate Policy is designed to adept to or adept to resources will affect to landscape character for landscape character for landscape; also a visual impact with defences iderupting views. Air and Climate Policy is designed to adept to or adept to adept to or ad	Biodiversity Action Plan habitats and species in line with existing		Loss of			Habitats intertidal maintaine	l will roll bad habitats ed. Terrest	L ck, rial	Set back of line will maintain intertidal habitats; however terrestrial be
Thigh number of 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. Water Environment No detriment to water resources No detriment to water quality Assets along coast are not at risk of tidal flooding. No resources known to be at risk. Air and Climate Policy is designed to adapt to or accommodate climate change; possible impact to people and property. Landscape Avoid detrimental effects to landscape character of landscape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape; also a visual impact with defences indefinitely. Ever increasing height of the defences will affect load and scape in terms of character (increasing presence in the landscape); also a visual impact with defences indefinitely. Ever increasing height of landscape in terms of scape with the defences will affect lo	Historic Environmen	nt							
Refuse significance of impact to scheduled and flooding. Assets along closes are not at risk of tidal flooding. Assets along closes are not at risk of the flooding. Assets along closes are not at risk of the flooding. Assets along closes are not at r			-	-	-	-	-	-	-
No detriment to water resources No resources known to be at risk. No detriment to water quality No resources known to be at risk. Natural evolution of t	historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and	designated archaeological features along this reach of coastline. Assets along coast are not at risk of		0		coast are			alignment. Historical assets along coast are not
No resources known to be at risk.	Water Environment								
No fescultices known to be at risk. No detriment to water quality		-							
No resources known to be at risk. Air and Climate Policy is designed to adapt to or accommodate climate change trends. Can not raise the height of defences indefinitely. Can not raise the height of the defences will accommodate climate change, possible impact to possible	resources			urces knov	wn to be		rces know	n to be at	
Air and Climate Policy is designed to adapt to or accommodate climate change trends. Can not raise the height of defences indefinitely. Can not raise the height of defences will accommodate climate change; possible impact to people and property. Coal landscape (whether positive or negative depends on perception). May be a 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. Contribute towards Sustainable Development Natural coastal process are promoted e.g. through managed retreat will accommodate climate change; possible impact with defences disrupting views. Sustainable Development Natural coastal process will be affected Natural estuary processes will be affected Natural estuary processes to operate. Minimise requirements					-		-		
Policy is designed to adapt to or accommodate climate change trends. Can not raise the height of defences indefinitely. Can not raise the height of least index and indeposition of the coast will accommodate climate change; possible impact on perception. Can not raise the height of least index and index and index and coastal process or engative or negative depends on perception). May be a local changes in vegetation condition and structure. Contribute towards Sustainable Development Natural coastal process will be allowed to operate Increasing the frequency of flooding may alter the local landscape (whether positive or negative	quanty			urces knov	wn to be		rces know	n to be at	
Avoid detrimental effects to landscape character Landscape Avoid detrimental effects to landscape character in the landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views. Contribute towards Natural evolution of the coast will accommodate climate change; possible impact to people and property. Managed retreat will accommodate climate change; possible impact to people and property. Landscape Avoid detrimental effects to landscape character 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. Contribute towards Natural coastal process are promoted e.g. Natural evolution of the coast will accommodate climate change; possible impact to people and property. 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. Landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure. Contribute towards Natural evolution of the coast will accommodate climate change; possible impact will accommodate climate change. 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. Contribute towards Natural evolution of the coast will accommodate to positive of landscape due to potential changes in vegetation condition and structure. Natural evolution of the climate climate climate climate climate climate climate property. Increasing the frequency of flooding may alter the local landscape	Air and Climate								
Avoid detrimental effects to landscape character Avoid detrimental effects to landscape character 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. 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. Ever increasing height of the defences will affect local landscape (whether positive 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. Contribute towards Sustainable Development Natural coastal process are promoted e.g. Natural estuary processes will be affected Natural estuary processes will be affected Natural processes or erosion and deposition will be affected Minimise requirements			-			-	-	-	0
Avoid detrimental effects to landscape character 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. Ever increasing height of the defences will affect 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. Contribute towards Sustainable Development Natural coastal process are promoted e.g. through managed retreat of defences. Minimise requirements A	accommodate climate				- 3	coast will climate c impact to	accommo hange; pos	date ssible	accommodate climate
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. Contribute towards Sustainable Development Sustainable Developmen	Landscape								
the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views. Contribute towards Sustainable Development Natural coastal process are promoted e.g. through managed retreat of defences. Minimise requirements Level increasing neight of the defences will affect the defences will allowange 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. Montribute towards Sustainable Development Natural coastal process are promoted e.g. Natural estuary processes will be affected Natural process or erosion and deposition will be affected Natural process or erosion and deposition will be affected Natural processes to operate.							-		-
Natural coastal process are promoted e.g. Natural estuary processes will be affected Natural process or erosion and deposition will be affected Natural processes will be allowed to operate	to landscape character	the defences will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences	the defe local lan characte presenc landsca impact v	ences will andscape in er (increas ee in the pe): also a with defence	affect terms of ing visual	flooding in landscap or negation perception change to potential vegetation	may alter the (whether we dependent). May be landscape changes in condition	he local r positive s on e a local he due to	of flooding may after the local landscape (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation
are promoted e.g. through managed retreat of defences. Natural estuary processes will be affected Natural process or erosion and deposition will be affected Natural processes will be allowed to operate line will allow natural coastal processes to operate.		Sustainable Developm	ent						
through managed retreat of defences. Natural processes will be affected w						0	0		
Minimise requirements	through managed retreat		and dep	osition will				will be	line will allow natural coastal processes to

red de red	ignificant work will be equired to construct the efences and they will equire ongoing naintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options
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Policy Unit – Portish	olicy Unit – Portishead and Clevedon - southern extent of Esplanade Road to Ladye Point (PORT 3)												
	Advanc	e the Line)	Hold the	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	
Population and Hum	an Hea	lth											
Recreational sites: Golf Course	-			-	-	-	-	-	-				
Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities		onal asse e not at ris	•		onal asse e not at ris			ional asset re not at ris		the sea golf cou adverse	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	along the	tial proper e coast ar dal floodin	e not at	along the	tial proper e coast ard dal floodin	e not at	along th	tial propert e coast are dal flooding	e not at	along th risk of ti- realignn	tial proper e coast are dal floodir nent will th adverse in	e not at ng.; nerefore	
Avoid/minimise environmental impacts	-			-	-	-	-	-	-				
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)		tial proper past are no looding.		along co	Residential properties along coast are not at risk of tidal flooding			tial propert past are no flooding		along co of tidal f realignn therefor	nent would e cause in communi	ot at risk creased	
Material Assets and	Critical	Infrast	ructure										
Infrastructure: IRB, Petrol Storage Site	-			-	-	-	-	-	-				
Reduce significance of impact associated with flooding and erosion to critical infrastructure	of tidal fl realignm	cture is no looding.; nent will the adverse in	nerefore	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)		mmercial I are not a			mmercial are not a			mmercial and are not at		alignme assume alignme inland.	will depend nt line. It i d that the nt will not i Local com are not at ri	s move far mercial	
Biodiversity, Flora a	nd Faur	na											
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 v	vill occur	because not erod	squeeze we the coastle fast enou	line will ugh for		s will roll ba I habitats ned	ack ,	
Portishead Pier to Black Nore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	exposur	ng the line e will no lo o coastal es		not adve	g the deferrsely affect to located larocesses ained.	ct the cliff behind it		processes the expos		howeve retreating leave th	end on alig r likely that ig the line e exposure al processe	t will e subject	

National nature conservation designations: Severn Estuary, Holly Lane, Walton Common		-			-			
and Gordano Valley SSSIs Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will affect Severn Estuary SSSI. Gordano Valley unaffected Walton Common and Holly Lane SSSIs unaffected by tidal flooding now and in future.	Severn I	squeeze w Estuary SS o Valley un	SI.	flooding Intertida	o Valley aff under NAI I habitats o I roll back		Habitats will roll back , intertidal habitats maintained. Assume Gordano Valley far enough inland to be unaffected
Maintain and enhance		-			-			0
Biodiversity Action Plan habitats and species in line with existing targets/plans	Loss of intertidal habitat due to coastal squeeze.		intertidal ha		back fas	stline will r t enough f habitats to	or	Set back of line will maintain intertidal habitats
Historic Environmen	nt							
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.	Local historical assets are not at risk of flooding.		storical ass sk of floodi			storical ass k of floodii		Impact will depend on alignment line. Historical assets may be affected.
Water Environment								
Source Protection Zone	-	-	-	-	-	-	-	-
1 located to the south of B3124 Water resources are protected	Source protection zone 1 is not at risk of being flooded.		orotection : sk of being			orotection : sk of being		Source protection zone 1 is not at risk of being flooded.
No detriment to water quality	-	-	-	-	-	-	-	-
quanty	No resources known to be at risk.	No resor	urces knov	vn to be	No resou at risk.	urces knov	vn to be	No resources known to be at risk.
Air and Climate								
Policy is designed to					-	-	-	0
adapt to or accommodate climate change trends.	Can not raise the height of defences indefinitely.		raise the h s indefinite		coast will	evolution of accommodule accom	odate ssible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	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 presence landscap	oe): also a vith defend	ffect terms of ng visual	flooding landscap positive depends May be a landscap changes	ng the freq may alter be (whethe or negative on percep a local cha be due to p in vegetal an and struc	the local er et otion). enge to ootential	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.
Contribute towards	Sustainable Developmo	ent						
Natural coastal process					0	0	0	0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/					0	<u> </u>	0	

new structures. Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options
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	Auvano	ce the Lin	e	Hold th	e Lille		NO ACT	ve Interv	#IIIIOII	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
Population and Huma	an Heal	th										
Recreational sites:	0			-	0	<u> </u>	-					
Local facilities, footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	unit affe under N	estern sec ected by fl IAI. Recre will be pro	ooding ational		Recreational assets will be protected.			ional asse ly affected				
Residential:							-					
Clevedon Reduce significance of impact associated with flooding and erosion to people and property		ntial prope on will be ed.	rties in		ntial proper on will be p		Clevedo	ntial prope on will be a ed risk of f	at an		ntial prope on will be ed	erties ir
Avoid/minimise				-			-					
environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)		ntial prope on will be ed.	rties in		ntial proper on will be p		Clevedo	Residential properties in Clevedon will be at an increased risk of flooding.			ntial prope on will be ed.	erties ir
Material Assets and 0	Critical	Infrastr	ucture									
Critical Infrastructure:	0			-	0		-					
Clevedon Hospital Reduce significance of impact associated with flooding and erosion to critical infrastructure		l potential der NAI. A ected		Asset will be protected.			Asset will be at an increased risk of flooding.			Asset w	rill be prot	ected.
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)	econom		at risk	resident			resident econom	e is predo tial. Limite ic assets al flooding	ed at risk	adverse tourism	ment may ely affect s assets al t e.g. pier	some ong the
Biodiversity, Flora ar	nd Faur	na										
nternational Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on he integrity of nternationally designated sites and the favourable condition of their features.		squeeze	will	Coastal	squeeze v	vill occur	back of develop	potential f habitats of ment; inte	due to ertidal	realignr develop	potential nent due ment; into will be lo	to ertidal
Clevedon Shore SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological	means longer b	ing the lin exposure be subject processe	will no to	not adv	ng the defe ersely affer re located l	ct the cliff behind it		processes the expo			ent; howeverteating the	e line v

						_		1 =
National nature conservation designations:		-			-			
Severn Estuary and SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur	Coastal	squeeze w	ill occur	because not erod	squeeze verthe coast le fast eno to roll bac	lline will ugh for	Habitats will roll back , intertidal habitats maintained
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		Loss of intertidal habitat due to coastal squeeze.			stline will it enough I habitats t	for	Set back of line will maintain intertidal habitats
Historic Environment	t .							
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.	Local historical assets are not at risk of flooding or erosion		storical ass			storical as sk of floodi		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.
Water Environment								
Water resources are		-	-	-	-	-	-	-
protected	No resources known to be at risk.	No resor	urces know	n to be at	No reso at risk.	urces know	wn to be	No resources known to be at risk.
No detriment to water	-	-	-	-	-	-	-	-
quality	No resources known to be at risk	No resor	urces know	n to be at	No reso at risk	urces knov	wn to be	No resources known to be at risk
Air and Climate								
Policy is designed to adapt					_	_	_	
to or accommodate climate change trends.	Can not raise the height of defences indefinitely.		raise the h		coast wi	evolution of accommodal accommodal period accommodal ac	odate ossible	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape character.	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 landscap characte presenc also a vi	reasing hei s will affect pe in terms er (increasir e in the lan- isual impact s disrupting	local of ng dscape): t with	flooding landscapositive depends May be landscaposition	ng the free may alter pe (whether or negative s on perce a local cha pe due to pe s in vegeta n and strue	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 condition and structure
Contribute towards S	Sustainable Developm	ent						
Natural coastal process							0	
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process or osition will			processes to operate		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/ new								

structures. Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options
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1.15 Kingston Seymour to Sand Bay Theme Area (KIN)

	Advance the Line	Hold the L				St Thomas' F		•	ad .	
	Advance the Line	Hold the L	ine		No Ac	tive Interventio	n	Manage Realign		
	0- 20- 50 - 20 50 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Population and Hum	an Health									
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 south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will protect them.			Cleved Wick S Seymo	Residential properties in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will not protect them.			Impact will depend on alignment line. Some adverse local impacts for wider community benefit .	
Recreational sites:	<u> </u>	-			-			0		
Local facilities, footpath network and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Golf course south of Clevedon and network of footpaths across area will be protected.	Golf course Clevedon a footpaths a protected.	and netwo		netwo	ourse south of C rk of footpaths ac adversely affect	cross area	Impact will depend on alignment line. Some local adverse impacts for wider community benefit		
Avoid/minimise environmental impacts	0	-	0	<u> </u>	-			<u> </u>		
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Populations in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will reduce concern.	Population Clevedon a including V and Kingst risk. Policy concern.	and the vill Vick St Lav on Seymo	wrence ur are at	the vill	ations in south C lages including V nce and Kingstor risk. Policy will r rn.	Impact will depend on alignment line. Some local impacts for wider community benefit		Some r wider	
Material Assets and	Critical Infrastruc	ture								
Industrial, commercial and economic assets: Agriculture	0	-		•	-)	
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 pro	tected.		Assets floodin	s at an increased	risk of	Impacts on new local im wider be large ar	line; sor pacts of enefits d	me fset by lue to
Critical Infrastructure: M5 Kingston Seymour					-					
Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure	Critical infrastructure protected from flooding.	Critical infr protected f		ng.		il infrastructure a sed risk of floodi		Impact will depend on alignment line. There may be impacts on the Kingston and Seymour STW (600m from the coast).		
	nd Fauna									

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 so	ueeze will	occur		ts will roll back , inter is maintained	tidal	Habitats will roll back , intertidal habitats maintained
National nature		-			-			
conservation designations: Severn Estuary Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur.	Coastal sq	ueeze will	occur.		ts will roll back interti	dal	Habitats will roll back, intertidal habitats maintained.
Maintain and enhance		-			-	<u> </u>		0
Biodiversity Action Plan habitats and species in line with existing targets/plans	Loss of intertidal habitat due to coastal squeeze.	Loss of int to coastal		itat due		for terrestrial and in	tertidal	Set back of line will maintain intertidal habitats; plus sufficient space for terrestrial habitats
Historic Environmen	nt							
Scheduled Monuments,	0	-			-			0
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.	Historical assets protected from flooding.	Historical a		ected	Histori floodin	cal assets at risk of ir g.	ncreased	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Historical assets protected from flooding.
Water Environment								
Water resources are	-	-	-	-	-	-	-	-
protected	No resources known to be at risk.	No resource risk.	ces known	to be at	No res	ources known to be a	at risk.	No resources known to be at risk.
No detriment to water quality	Destruction of	O Dantantina	(0)		-			Destruction of
Clevedon Source Protection Zone Kingston Seymour STW	Protection of Clevedon source protection zone and of Kingston Seymour STW.	Protection source pro Kingston S	tection zor	ne and of	and Ki of tidal	don source protection ngston Seymour STV flooding and being a d by saline intrusion.	V at risk adversely	Protection of Clevedon source protection zone and of Kingston Seymour STW.
Air and Climate								
Policy is designed to					_	-	-	0
adapt to or accommodate climate change trends.	Can not raise the height of defences indefinitely.	Can not ra defences i			accom	Il evolution of the coa modate climate chan le impact to people a ty.	ige;	Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects					-	-	-	-
to landscape character	Ever increasing height of the defences will affect local landscape in terms of character (increasing presence in the	Ever incredefences values and scape character of presence is also a visue defences of	will affect to in terms o (increasing n the lands al impact v	ocal f l scape): with	may al (wheth dependent local contents	sing the frequency of ter the local landscapter positive or negative ds on perception). Me hange to landscape of tal changes in vegetate on and structure.	oe /e lay be a due to	Increasing the frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a

	landscape): also a visual impact with defences disrupting views.			local change to landscape due to potential changes in vegetation condition and structure.
Contribute towards	Sustainable Devel	lopment		
Natural coastal process				0
are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/				
new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

Residential properties on the outskirts of Clevedon, isolated residential properties and large areas of agricultural land, recreational features such as footpaths and a golf course and designated heritage features (4 SMs and numerous isolated listed structures). The environmentally preferred option for this policy unit is therefore **Hold the Line**.

However given the isolated nature of features at risk it is unlikely that the costs of implementing a Hold the Line policy would be justified by the economic benefits accrued and **No Active** Intervention/Managed Realignment is therefore the preferred policy option. For the first 20 years existing defences will remain in place managing the risk of impacts from flooding to properties and land. Within the second epoch realigned defences will manage the risk of impacts to properties and land behind new defences. Assets in front of realigned defences will be at risk from inundation. Impacts on property, land use, recreational features and historic assets and mitigation actions will need to be considered in determining realignment of defences. This will be addressed and associated avoidance of mitigation measures will need to be considered in more detail as part of the SMP2 Action Plan, FRMS Strategy and individual projects. A MR policy may benefit flood risk management in adjacent, linked Policy Units (KIN 3, KIN 4). Adopting these policy options will help maintain the condition of and features of the Severn European sites.

Policy Unit - King	ston Se	ymour	to Sand	Bay - S	St Thom	as' Hea	d to Mid	dle Hope	e car par	k (Sand	Point) ((KIN 2)	
		e the Line		Hold the			No Acti	ve Interver	ntion		ed Realign		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	
Population and Hu	ıman He	ealth											
Isolated Residential properties of Middle Hope Reduce significance of impact associated with	geology technica	nigh ground ATL is not ally approp not conside	t riate,	-	-		-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland			
flooding and erosion to people and property					erties at ris ding via th			erties at ris ding via thi					
Recreational sites: footpath network Reduce significance of impact associated with flooding and erosion to	geology technica	nigh ground ATL is not ally approp ot conside	t riate,	-	-	-	-	-	-	N/A. MR to topog located			
key community, recreational and amenity facilities.				Hope he not affect this unit; due to floor	ns on the Meadland and ted by flood access see to ooding to the little (see PU	d LNR oding via evered he rear	Hope he affected unit; acc	ns on the Meadland and by flooding ess severe to the rear e PU?)	LNR not via this d due to				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	geology technica	nigh ground ATL is not ally approp of conside	t riate,	-	-	-	-	-	-	to topog	R not feasi raphy; uni on steep h	t is	
anxiety associated with flood and erosion risk)					ential prop tidal flood tage			lential prop n tidal flood tage					
Material Assets an	d Critic	al Infras	structur	е									
Industrial, commercial and economic assets: Agriculture Reduce significance of	geology technica	nigh ground ATL is not ally approp	t riate,	-	-	-	-	-		to topog	R not feasi raphy; uni on steep h	t is	
impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				No asse	ts at risk		No asse	ts at risk					
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to	geology technica	nigh ground ATL is not ally approp ot conside	t riate,	-	-	-	-	-	-	to topog	R not feasi raphy; uni on steep h	t is	
critical infrastructure				No critic present.	al infrastru	cture	No critic present.	al infrastrud	cture				
Biodiversity, Flora	and Fa	una											
International Nature Conservation Sites Severn Estuary Ramsar, SAC and SPA	geology technica	nigh ground ATL is not ally approp	t riate,				-			to topog	not feasi raphy; uni on steep h	t is	
Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.				Coastal	squeeze w	vill occur		will roll bad I habitats m					
National nature conservation designations: Severn Estuary &	geology	nigh ground ATL is not ally approp	t				-			to topog	R not feasi raphy; uni on steep h	t is	

Middle Hope SSSI	option not considered							
Reduce significance of	.,					l		
impact on nationally or locally designated conservation sites.		will occu calcareo	Coastal so r. Middle H rus grassla on top of c	lope – nd	very slov geology/ intertidal maintain	ed. Possib eous grass	so le impact	
Middle Hope SSSI Reduce significance of impact associated with maintaining the visibility of geological	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
exposures throughout geological SSSIs		not adve	g the defe rsely affect e located b processes ved.	t the cliff ehind it		processes we the exposu		
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. MR not feasible due to topography; unit is located on steep headland
			ntertidal ha bastal sque		Topograph of rollbac	phy will limi k	it degree	
Historic Environme	ent							
Scheduled Monuments, Listed Buildings and non- designated sites of historic interest.	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
Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.			ric environ vill be impa			ic environn ill be impac		
Water Environmen	t							
Water resources are protected	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 eing affecte			resource a		
No detriment to water quality	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 know	n features	at risk.	
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.	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 heigh s indefinite			evolution of mmodate c		
Landscape					ondinge.			
Avoid detrimental effects to landscape character	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

Contribute toward	s Sustainable Develop	Ever increasing he the defences will at local landscape in character (increasi presence in the lar also a visual impactered defences disrupting ment		affected by limited ero			
Natural coastal process are promoted e.g. through managed retreat of defences.	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
		Natural process or and deposition will affected			rocesses v o operate	vill be	
Minimise requirements for future maintenance/ new structures.	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
		Defences will requi ongoing maintenar	No initial input required to deliver option and no ongoing maintenance requirements				

No Active Intervention is the preferred policy for PEN1; there are no features at risk from current or future tidal flood or erosion risk. A policy of NAI will allow natural processes to continue to operate and designated sites will evolve as a result of these processes. No adverse impacts are likely to arise from the implementation of this policy in this location.

3)	Advance	the Line	Hold the Line			No Act	ive Interv	ention	Manag	ged Rea	lignment
		20- 50 - 50 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20- 50	50 - 100
Population and Hu	man Hea	alth									
Residential: Sand Bay. Kewstoke	0		<u> </u>	0	0	-					
Holiday Camp Holid	Protected	from flooding	Protected from flooding				I ntial areas ed risk fo		Large numbers of residential properties concentrated along coast potentially affected by retreating line		
Recreational sites: Local facilities,			Assuming standard of protection			-					
footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Existing a protected	ssets	Assuming stand maintained or in assets including be protected	ncreased re	ecreation	Flood r	isk will inc	rease	public	road an car park e affecte	s along it
Avoid/minimise environmental impacts			0			-			0		
which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	Limited re properties risk/protec	at	Limited residential properties at risk/protected			Limited residential properties at risk increased flood risk			Overall flood risk will be reduced however some properties and caravan parks may be affected.		
Critical Infrastruct	ure and I	Material Ass	ets								
Industrial,	<u> </u>		0			-			0		
sommercial and		ssets will be	Local commercial assets present such as holiday caravan parks will be presented to the commercial assets present such as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial assets presented as holiday caravan parks will be presented to the commercial as holiday caravan parks will be presented to the commercial as holiday caravan parks will be presented to the commercial as holiday caravan parks will be presented to the commercial as holiday caravan parks will be presented to the commercial as holiday		oliday park and		ed flood r	isk over	carava park a of agri	ve impar in parks, nd poten cultural I benefit t I line	holiday itial loss and.
(including tourism) Critical	0		0	0		-			0		
infrastructure: M5 Two electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure			Infrastructure w	vill be prote	cted.	time. T	ed flood r his will no ctricity sub are preser	ot protect	affecte		
Biodiversity, Flora	and Fau	ına									
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	Loss of in	tertidal habitat	- Coastal squeez	e will occur		intertida maintai restricti	s will roll I al habitats ned. Som ons due t oment alo	ie 0	mainta habitat restrict	ck of line ain interti ts; Some tions due apment a	dal

National nature conservation		-			-	<u> </u>	•	
designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Loss of intertidal habitat	Coastal squeez	e will occur			s will roll b Il habitats ned	lack,	Set back of line will maintain intertidal habitats.
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 intertida coastal squeeze		e to		s will roll b Il habitats ned	eack ,	Set back of line will maintain intertidal habitats
Historic Environme	ent							
Scheduled	-	0			-	-	-	-
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.	No historic environment assets that will be impacted on.	Historic environing protected	ment asset	S	Limited environ	sk will inc historic ment asse mpacted .	ets that	Impact depends on alignment; potentially some local impacts but greater number of assets protected
Water Environmen	nt							
Water resources are	-	-	-	-	-	-	-	-
protected	No water resource assets at risk of being affected.	No water resour being affected.	ce assets a	at risk of		er resourc f being af		No water resource assets at risk of being affected.
No detriment to water quality	N. I. C. C.	N						N. I. C. C.
1000 9	No known features at risk.	No known featu	res at risk.		NO KNO	vn feature	es at risk.	No known features at risk.
Air and Climate								
Policy is designed to adapt to or					-	-	-	0
accommodate climate change trends.	Can not raise the height of the defences indefinitely.	Can not raise he defences indefin				evolution ill accomr change.		Managed retreat will accommodate climate change.
Landscape								
Avoid detrimental effects to landscape					-	-	-	-
character	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 defences will aff in terms of char- presence in the visual impact wi disrupting views	of floodi local lar positive depende May be landsca potentia	ing the free ing may a subscape (' or negati son perce a local chipe due to all changes on condite.	Iter the whether ve eption). ange 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.		
Contribute toward	s Sustainable Develo	pment						
Natural coastal process are promoted				<u> </u>	0	0	0	
e.g. through managed retreat of defences.	Natural estuary processes will be affected	Natural process deposition will b		and		processe to operat		Retreating the defence line will allow natural coastal processes to operate.
Minimise requirements for future maintenance/								
new structures.	Significant work will be required to construct the defences and they will	Defences will re maintenance	quire ongo	ing	deliver	I al input recoption and maintena	no l	Input required to retreat the defence line and ongoing maintenance

require ongoing maintenance.	requirements	will be required, although less than for wither the ATL or HTL options
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Economic assets along the coast largely relating to tourism and agriculture and critical infrastructure including the M5 and two electricity substations are at increased risk of flooding. The environmentally preferred option for this policy unit is therefore **Hold the Line.** Adoption of this policy is likely to result in loss of intertidal habitat within the European and nationally designated sites) as a result of coastal squeeze; this will be offset by habitat creation elsewhere within the estuary. Some local landscape impacts may arise as a rest of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – 4)	Kingston Sey	mour to Sand	Bay - so	outhern ex	ktent of Bo	each Road	d to Birn	beck Island (KIN
	Advance the Line	Hold the Line		No Active	Intervention	1	Manage	d Realignment
	0- 50 20 20 50 100	0-20 20-50	50 - 100	0-20	20-50	50 - 100	0- 20 20- 50	50 - 100
Population and	Human Healt	h						
Residential: Weston Reduce significance of	-		-	-	-	-	consider policy for	aged realignment is ed to be an unsuitable r this Policy Unit. due ed topography
impact associated with flooding and erosion to people and property	Limited residential properties at risk/protected	Limited resident properties at risk/protected	ial	Limited res	sidential prop ted	erties at		
Recreational sites: Local facilities and footpath	-		-	-	-	-	consider policy for	aged realignment is ed to be an unsuitable r this Policy Unit due ed topography
network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	Features not at flood risk now or under future scenarios. Unaffected by advance the line	Features not at now or under fu scenarios.			oot at flood ris re scenarios.	sk now or		
Avoid/minimise environmental impacts which may have long	-		-	-	-	-	consider policy for	aged realignment is ed to be an unsuitable r this Policy Unit. due ed topography
term health impacts (including stress and anxiety associated with flood and erosion risk)	Limited residential properties at risk/protected	Limited resident properties at risk/protected	ial	Limited res	sidential prop ted	erties at		
Material Assets	and Critical I	nfrastructure						
Critical Infrastructure: Lifeboat Station To manage the		-		-			consider policy for	aged realignment is ed to be an unsuitable r this Policy Unit due ed topography
risk of flooding and erosion to critical infrastructure.	Advancing the line may have adverse effects on the lifeboat station.	Asset protected	-	protected	ation will not and will be at risk of floodir	an		
Industrial, commercial and economic assets: Local commercial assets; future Development Opportunity – Birnbeck Island Reduce significance of impact associated with flooding and erosion to industrial, commercial and							consider policy for	aged realignment is ed to be an unsuitable r this Policy Unit. due ed topography

economic assets (including agricultural), and activities (including tourism)								
	There are limited industrial, commercial and economic present within this reach; no assets at risk from tidal flooding; no impact.	industri econon this rea	are limited al, comme nic presen ich; no as m tidal floc	ercial and at within ssets at	commercia within this i	imited industi I and econon reach ; no as: looding; no in	nic present sets at risk	
Biodiversity, Fl	ora and Fauna	1						
International Nature Conservation Sites		-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography.
Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features.	Intertidal habitat loss of internationally designated sites	Coasta occur	Isqueeze	will		Il roll back, al to elevated to		
Spring Cove Cliffs SSSIs Reduce significance of								N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	Cliffs no longer exposed to natural erosive processes; exposure will become buried	did not the cliff behind	ing the def adversely and were it natural ses would ned.	affect located		emain expose sive processe		
National nature conservation designations: Severn Estuary					-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur	Coasta occur	l squeeze	will		ll roll back all rated land bel	,	
Maintain and enhance Biodiversity Action Plan habitats and		,			•			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
species in line with existing targets/plans	Loss of intertidal habitat due to coastal squeeze.		intertidal coastal sq			ill roll back all to elevated to		
Historic Environ	nment							
Scheduled Monuments, Listed Buildings and non- designated sites	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography

of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	No risk of tidal flooding via the frontage within this unit; no impact from ATL.	via the	of tidal flo frontage v impact			idal flooding v ithin this unit;		
Water Environr	nent							
Water resources are protected	-	-	-	-	-	-	-	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.		er resourc of being af		No water re being affect	esource asse ted.	ts at risk of	
No detriment to water quality	-		-	-	-	-	-	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 kno	wn feature	es at risk.	No known	features at ris	sk.	
Air and Climate	•							
Policy is designed to adapt to or accommodate climate change		_			-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
trends.	Can not raise the height of the defences indefinitely.		t raise hei es indefini			olution of the late climate c		
Landscape								
Avoid detrimental effects to landscape character					-	-	-	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.	the defollocal landscalimpact	creasing hences will ndscape in acter (increase in the ape): also with defering views.	affect n terms easing a visual	faster (whe depends of local chang potential ch	andscape ma ether positive n perception) ge to landsca nanges in veç ind structure.	or negative . May be a pe due to	
Contribute tow	ards Sustainal	ole Dev	/elopme	ent				
Natural coastal process are					0	0	0	0
process are promoted e.g. through managed retreat of defences.	Natural estuary processes will be affected		process of position will be a consisted as the consisted		Natural pro to operate	ocesses will b	e allowed	Retreating the defence line will allow natural coastal processes to operate.

Minimise requirements for				0	0	0	
future maintenance/ new structures.	Significant work will be required to construct the defences and they will require ongoing maintenance.	Defences ongoing r		option and	put required no ongoing ce requireme		Input required to retreat the defence line and ongoing maintenance will be required, although less than for wither the ATL or HTL options

No Active Intervention is the preferred policy for PEN1; there are no features at risk from current or future tidal flood or erosion risk. A policy of NAI will allow natural processes to continue to operate and designated sites will evolve as a result of these processes. No adverse impacts are likely to arise from the implementation of this policy in this location.

1.16 The Holms Theme Area (HOL)

Policy Unit - The			olm (H									
		e the Line		Hold the				ve Interve			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
Population and Hui	man He	alth										
Residential: Lighthouse provides isolated residency Reduce significance of impact associated with			-	-	-	-	-	-	preclude	es physica ne, option		
flooding and erosion to people and property	propertie protecte	residential es at risk / ed. Lightho f flooding.		propertie protecte	residential es at risk / d. Lightho f flooding.		properti protecte	residential es at risk / ed. Lightho f flooding.				
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with	-			-	-	-	-	-	-	preclude	es physica ne, option	
flooding and erosion to key community, recreational and amenity facilities.		recreation om open g			recreation om open g			recreation om open gi				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	-			-	-	-	-	-	-	preclude	es physica ne, option	
anxiety associated with flood and erosion risk)	No resid	lential pro otected.	perties at	No resid	lential propotected.	perties at	No resid	dential propotected.	perties at			
Material Assets and	d Critica	al Infras	tructure	•								
Critical infrastructure: Lighthouse, Landing Pier To manage the risk of flooding and erosion to				-	-	-	-	-	-	preclude	ound / har es physica ne, option red	al retreat
critical infrastructure.		ng the line ssets redu sible		Infrastructure not at risk of flooding.			Infrastructure not at risk of flooding.					
Industrial, commercial and economic assets: Local commercial assets; future Development	-			-	-	-	-	-	-	preclude	ound / har es physica ne, option red	al retreat
Opportunity – Birnbeck Island Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	No asse	ets at risk.		No asse	ts at risk.		No asse	ets at risk.				
Biodiversity, Flora	and Fau	una										
International Nature Conservation Sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact										preclude	es physica ne, option	
on the integrity of internationally designated sites and the favourable condition of their features.	Loss of	intertidal h	abitats	place Co	y no defer pastal squ ∟oss of inte	eeze will	place N	y no defer atural proc e to operat	ess will			

Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans			Natural management	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Natural process will continue to operate.	
National nature conservation: Severn Estuary , Flat Holm SSSIs; GCR site Reduce significance of				N/A High ground / hard geology precludes physical retreat of the line, option not considered
impact on nationally or locally designated conservation sites.	Loss of intertidal habitats but gain of terrestrial	Currently no defences in place Coastal squeeze will occur. Loss of intertidal habitat	Natural process will continue to operate	
Historic Environme	ent			
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries and WWII	-			N/A High ground / hard geology precludes physical retreat of the line, option not considered
anti aircraft batteries Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	Historical sites not at risk of flooding/erosion.	Historical sites not at risk of flooding/erosion.	Historical sites not at risk of flooding/erosion.	
Water Environment	t			
Water resources are protected				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				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.	
Air and Climate				
Policy is designed to adapt to or accommodate climate change trends.				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.	
Landscape				
Avoid detrimental effects to landscape character				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	

Contribute towards Sustainable Development										
Natural coastal process are promoted e.g. through managed retreat of defences.								N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Natural estuary processes will be affected		process or osition will			orocesses to operate	will be			
Minimise requirements for future maintenance/ new structures.								N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Significant work will be required to construct the defences and they will require ongoing maintenance.		es will requ maintenar		deliver o	input requestion and maintenar intents	no			

No features of the human environment are at risk form current or future flood risk or erosion. Similarly there are no heritage assets or water features at risk. Therefore **No Active Intervention** is the preferred policy option for this unit; this will allow natural processes to continue to operate ands allow the Seven Estuary European sites and SSSI to evolve naturally. There are no adverse environmental impacts associated with the policy option.

Policy Unit – The												
		e the Line					ve Interve		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
Population and Hu	ıman He	alth										
Avoid/minimise environmental impacts which may have long term health impacts (including stress and	-									N/A High ground / hard geology precludes physical retreat of the line, option not considered		
anxiety associated with flood and erosion risk)	No resid	ential prop	erties at					No residential properties at risk / protected.				
Residential: Isolated residency Reduce significance of impact associated with flooding and erosion to	-				-	-	-	-	-	N/A High ground / hard geo precludes physical retr of the line, option not considered		
people and property	II .	esidential es at risk / d.			esidential es at risk /	protected		residential es at risk /	protected			
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with	-			-	-	-	-	-	-	N/A High ground / hard geolog precludes physical retreat of the line, option not considered		
flooding and erosion to key community, recreational and amenity facilities.	Limited recreational sites, apart from open ground.			Limited recreational sites, apart from open ground.			Limited recreational sites, apart from open ground.					
Material Assets an	d Critica	al Infras	tructur	е								
Critical infrastructure: Landing Pier To manage the risk of flooding and erosion to				-	-	-	-	-	-	N/A High ground / hard geolog precludes physical retreat of the line, option not considered		
critical infrastructure.		ng the line sets redur sible		Infrastructure not at risk of flooding.			Infrastructure not at risk of flooding.					
Industrial, commercial and economic assets: Local commercial assets; future	-			-	-	-	-	-	-	preclud	ound / hard les physica ne, option ered	retreat
Development Opportunity – Birnbeck Island Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	No asse	ts at risk.		No asse	ts at risk.		No asse	ets at risk.				
Biodiversity, Flora	and Fa	una										
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.								-	-	preclud	ound / hard les physica ne, option ered	retreat
	Loss of i	ntertidal h	abitats	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					
National nature conservation:				-			-	-	-	N/A High gr	ound / hard	l geology

Severn Estuary SSSI Reduce significance of impact on nationally or								precludes physical retreat of the line, option not considered				
locally designated conservation sites.	Loss of intertidal habitats	place Co	no defen pastal sque oss of inte	eze will	place Co occur. L	no defendastal sque oastal sque oss of intendately terre	eeze will ertidal	Loss of intertidal habitats but gain of terrestrial				
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				
	Intertidal habitats lost to coastal squeeze.	Intertidal coastal s	habitats lo queeze.	ost to	ultimatel	ntertidal a y terrestria pastal squ	al habitat					
Historic Environment												
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
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	Historical sites not at risk of flooding/erosion.	Historica flooding/	l sites not erosion.	at risk of	Historica flooding/	I sites not at risk of erosion.						
Water Environment												
Water resources are protected	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	No water resource assets at risk of being affected.		resource being affe			resource being affe						
No detriment to water quality	-	-	-	-	-	-	-	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.					
Air and Climate												
Policy is designed to adapt to or accommodate climate change trends.					-	_	_	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 heigl s indefinite			evolution of accommeters in accommendation accommen						
Landscape												
Avoid detrimental effects to landscape character					-	-	-	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.	the defer local land characte presence also a vis	reasing he nces will a dscape in r (increasi e in the lar sual impace disrupting	ffect terms of ng ndscape): ct with	Limited	change an	ticipated					

Contribute towards Sustainable Development										
Natural coastal process are promoted e.g. through managed retreat of defences.								N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Natural estuary processes will be affected		orocess or osition will			orocesses to operate	will be			
Minimise requirements for future maintenance/ new structures.								N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Significant work will be required to construct the defences and they will require ongoing maintenance.		s will requi maintenan		deliver o	input requiption and remaintenantenantenantenantenantenantenante	าด			

No features of the human environment are at risk form current or future flood risk or erosion. Similarly there are no heritage assets or water features at risk. Therefore **No Active Intervention** is the preferred policy option for this unit; this will allow natural processes to continue to operate ands allow the Seven Estuary European sites and SSSI to evolve naturally. There are no adverse environmental impacts associated with the policy option.

Annex C Maps Showing Key Features of Policy Areas

1.17 Maps showing Key Features of the Policy Units

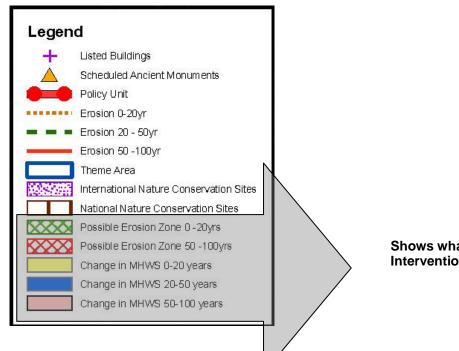
1.17.1 Understanding the Maps

The section is a guide to help guide readers on how to interpret and understand the maps for each Policy Unit. Each one consists of a large main map showing the detail of the Policy Unit and a small inset map.

Main Map

The main map shows the stretch of shoreline (*Policy Unit*) to which the Policy Statement applies and the boundaries of the Policy Unit. It also shows:

- The erosion that could happen in each epoch (based on available information) under No Active Intervention (NAI).
 - a) Where erosion is shown as a line (e.g. Erosion 0-20yr), there is a relatively high degree of certainty about the rate of erosion.
 - b) Where erosion is shown as a cross-hatched area (e.g. Possible Erosion Zone 0-20yr), there is less certainty about the rate of erosion. The shoreline could erode to any point in the zone and improved shoreline monitoring is recommended.
- Where Mean High Water Spring (MHWS) would be under NAI in each epoch
- The international nature conservation sites in the area (SACs, SPAs, Ramsar sites).
- The national nature conservation sites in the area (SSSIs and NNRs).
- The Listed Buildings in the area.
- The Scheduled Ancient Monuments in the area.

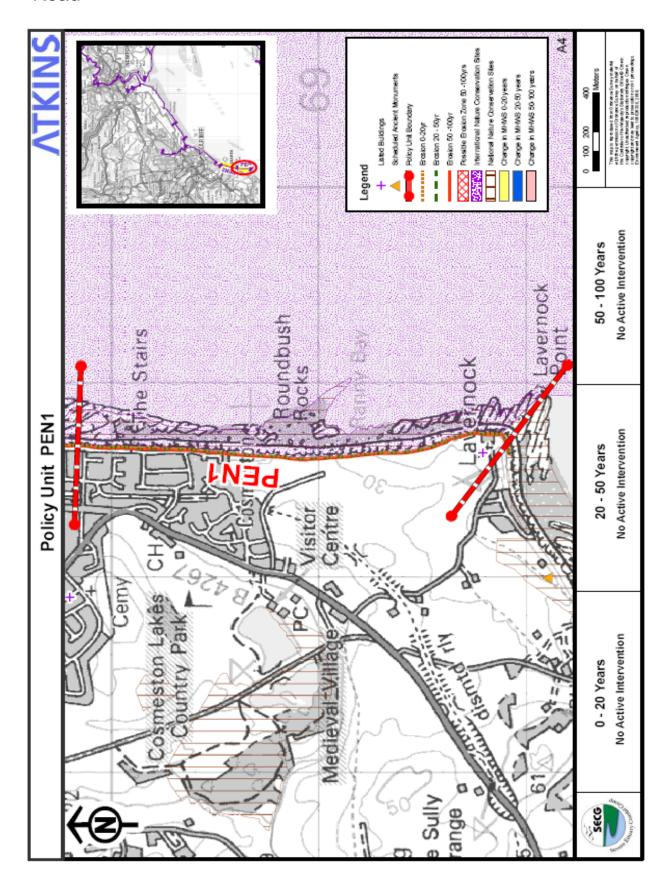


Shows what would happen under a No Active Intervention (NAI) policy

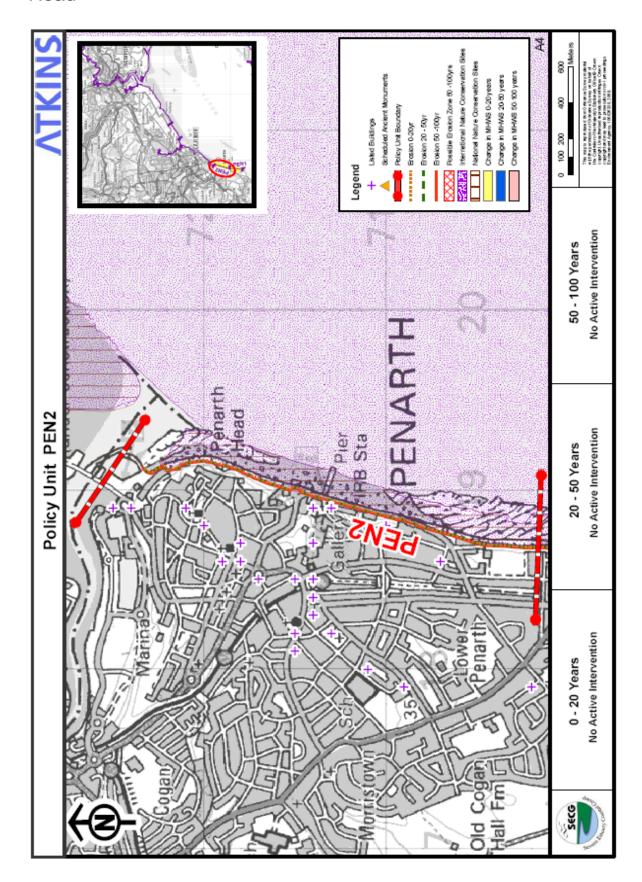
Small Inset Map

This shows the general location of the **Policy Unit** within the context of the overall SMP2 area. It highlights the Policy Unit shown in the large map (circled in red) and shows which adjacent Policy Units are linked to it by physical processes (flooding and erosion) (highlighted in yellow). The choice of policy option made will depend on how it affects the linked Policy Units. More detail on different policy options considered and how the interlinkages between Policy Units affected the choice of policy option can be found in **Appendix G** of the main SMP2 Report.

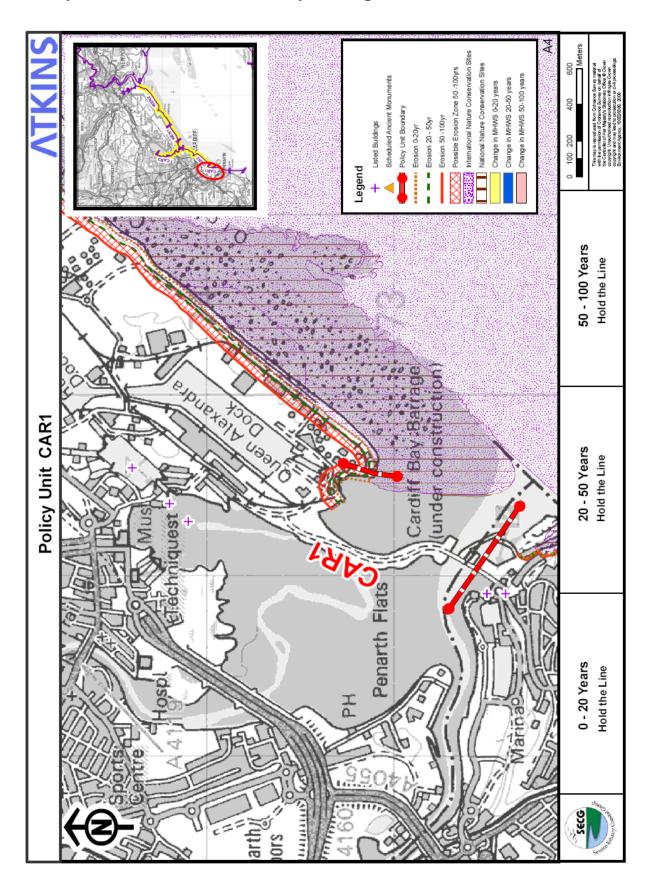
Policy Unit: PEN 1 – Lavernock Point to the shore south of Forest Road



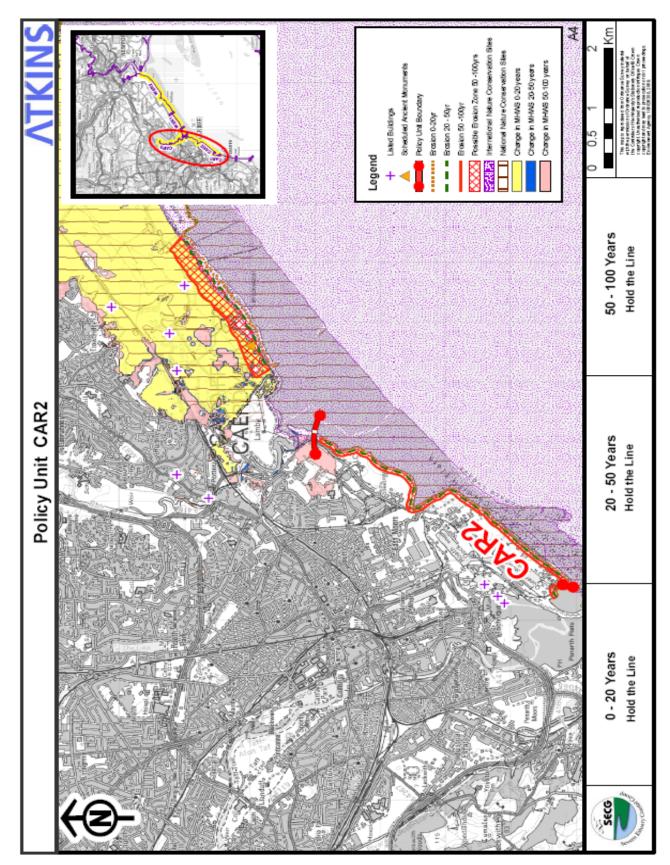
Policy Unit: PEN 2 - the shore south of Forest Road to Penarth Head



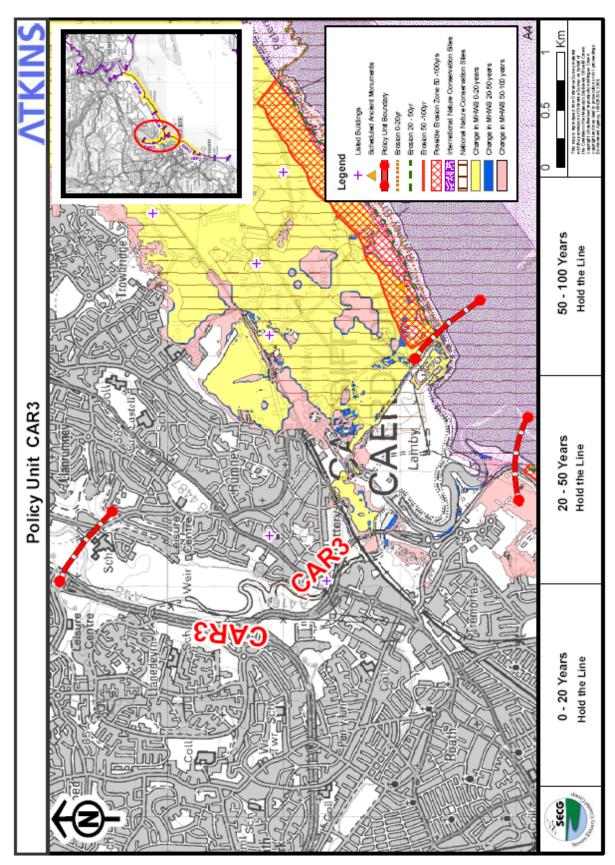
Policy Unit: CAR 1 – Cardiff Bay Barrage



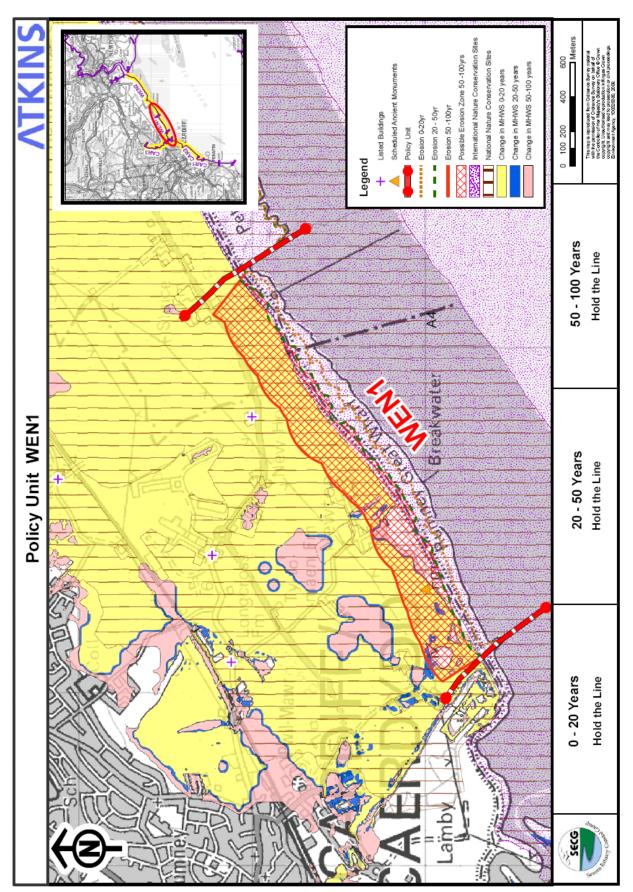
Policy Unit: CAR 2 – Western end of Cardiff Bay Barrage to mouth of River Rhymney at Rover Way



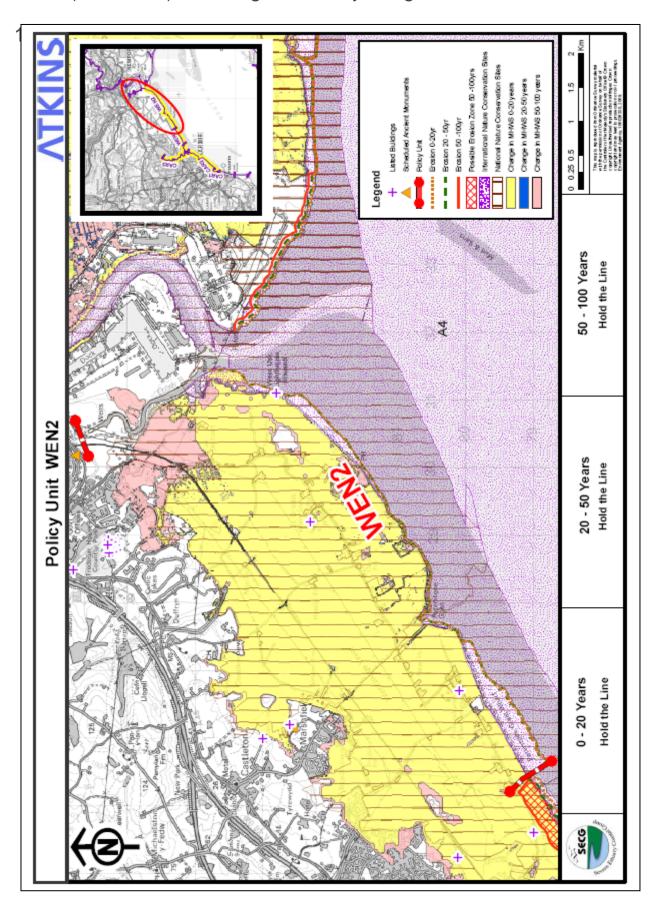
Policy Unit: CAR 3 – Both banks of the River Rhymney from the mouth at Rover Way to the Lamby Way landfill site drain



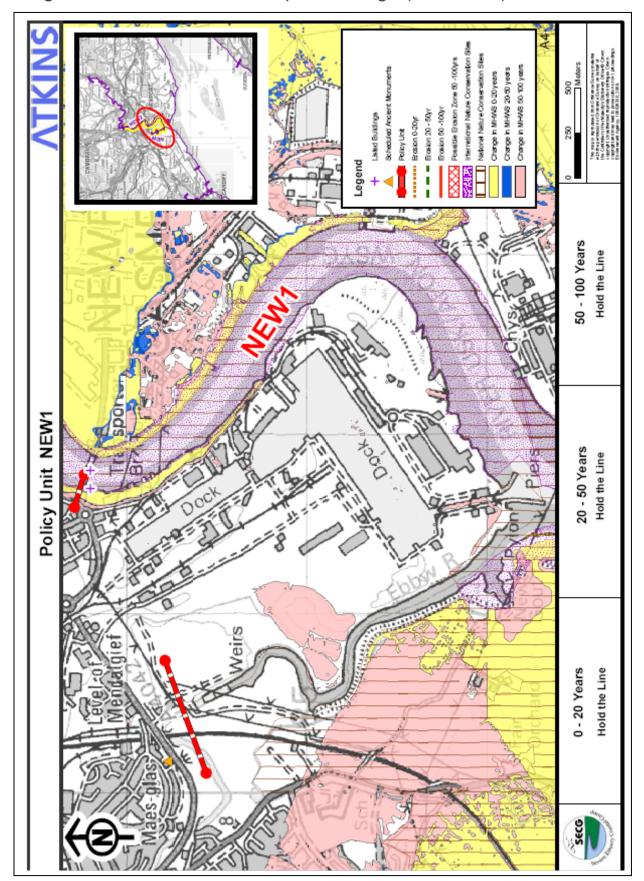
Policy Unit: WEN 1 - Lamby Way landfill site drain to Sluice House Farm (Tarwick Rhyne)



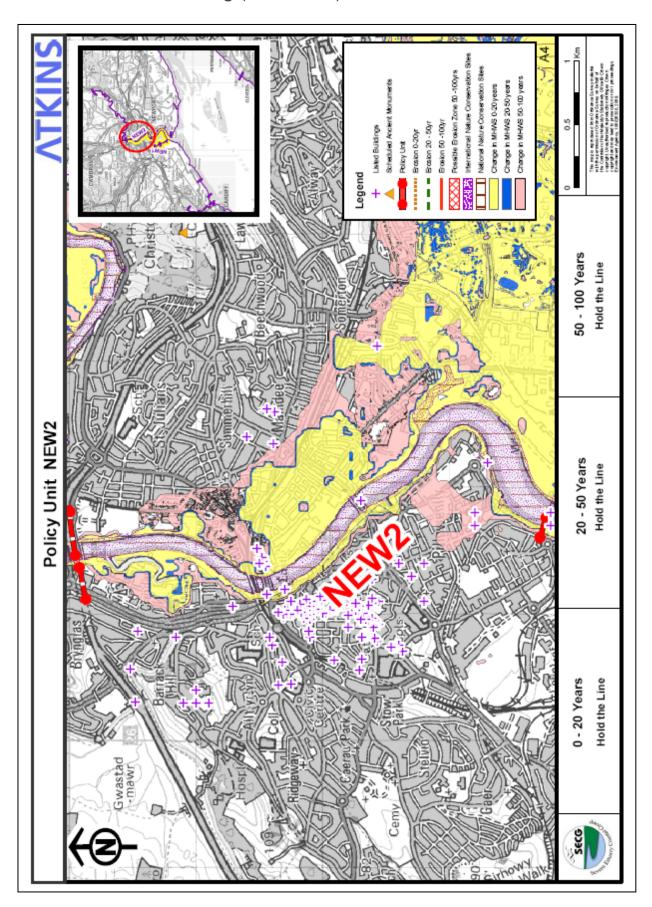
Policy Unit: WEN 2 - Sluice House Farm (Tarwick Rhyne) to the River Ebbw (west bank) at Maesglas Railway Bridge



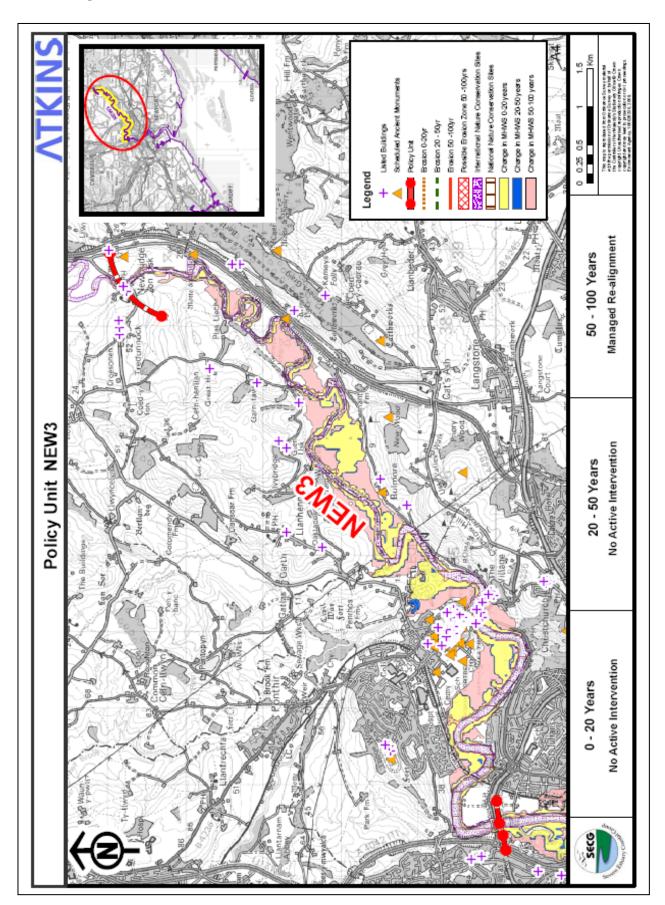
Policy Unit: NEW 1 – River Ebbw (east bank) at Maesglas Railway Bridge to River Usk at the transporter bridge (west bank)



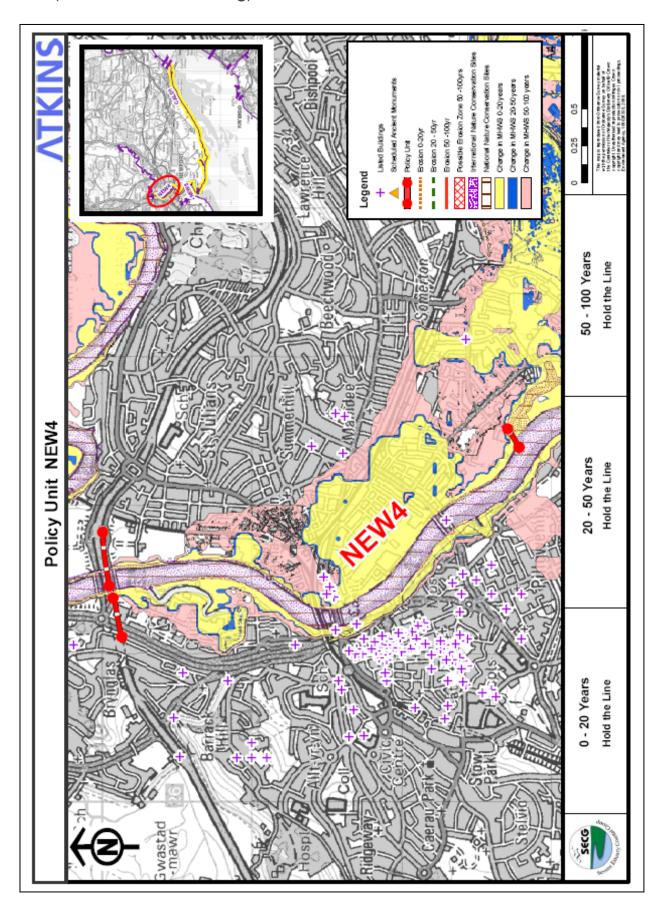
Policy Unit: NEW 2 - River Usk at the transporter bridge (west bank) to River Usk at M4 crossing (west bank)



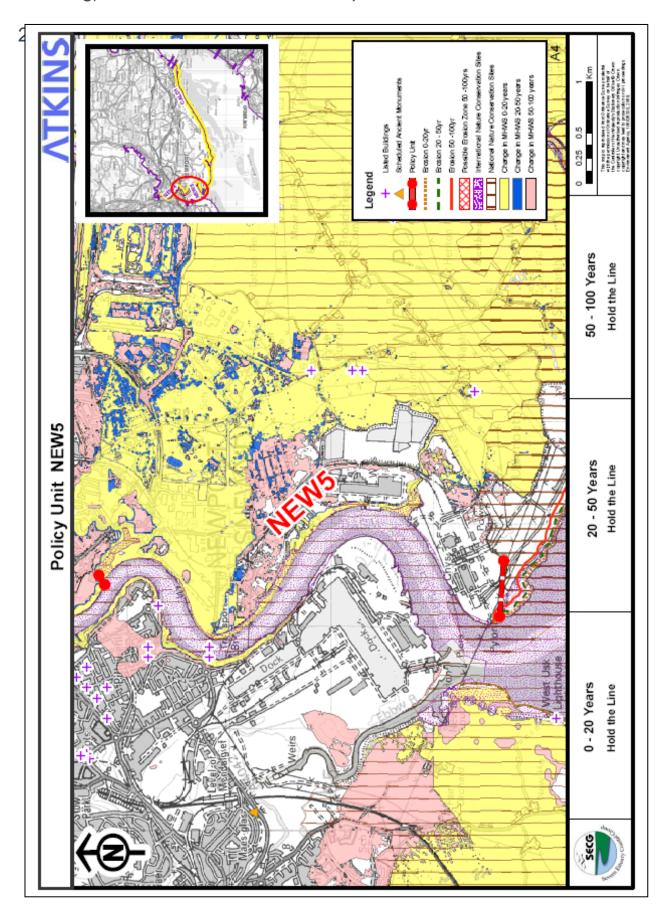
Policy Unit: NEW 3 - River Usk (both banks) from M4 crossing to Newbridge on Usk



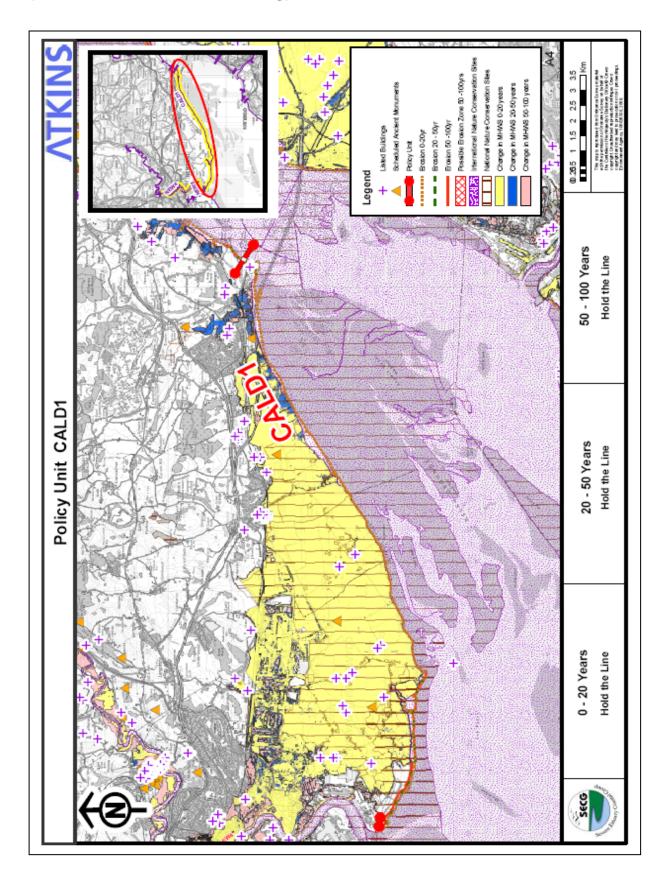
Policy Unit: NEW 4 - River Usk (east bank) at M4 crossing to Spytty Pill (north of A48 crossing)



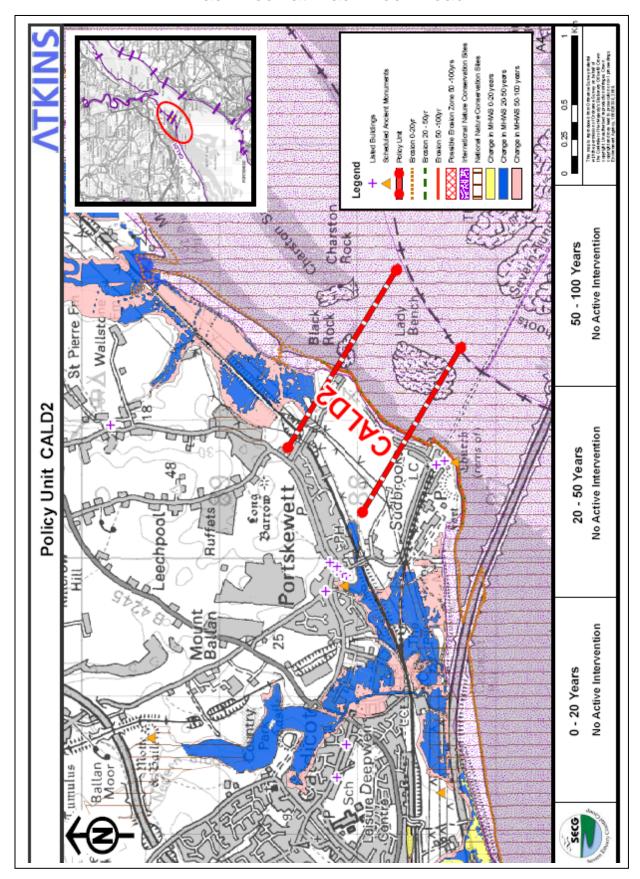
Policy Unit: NEW 5 - River Usk (East bank) at Spytty Pill (North of A48 crossing) to Uskmouth Power Station point



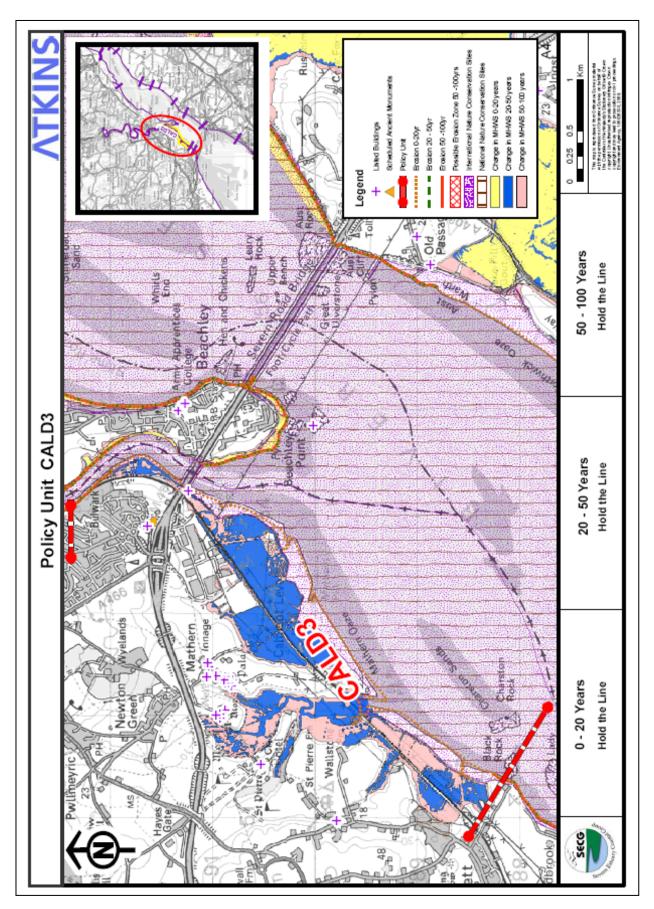
Policy Unit: CALD 1 - Uskmouth Power Station point to Sudbrook point (north of M4 Severn crossing)



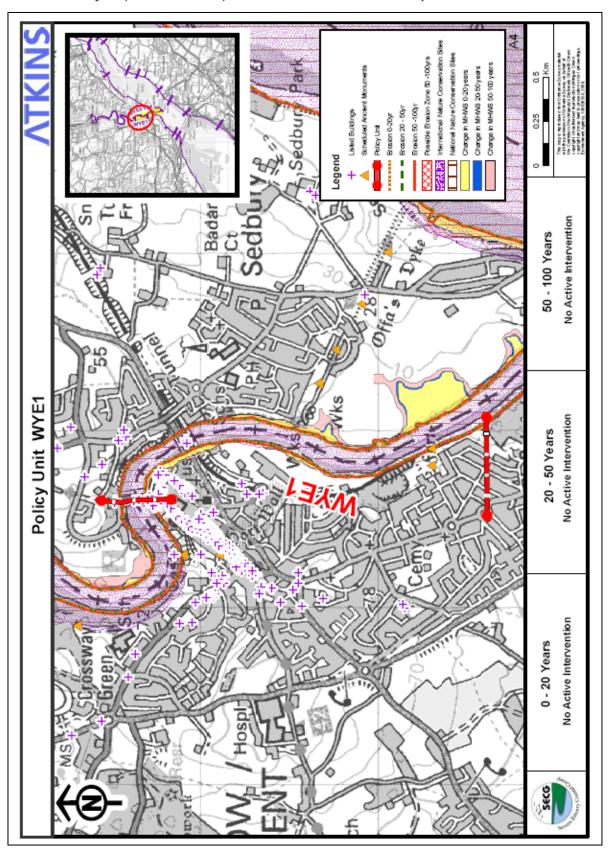
Policy Unit: CALD 2 - Sudbrook point (north of M4 Severn crossing) to Black Rock at Black Rock Road



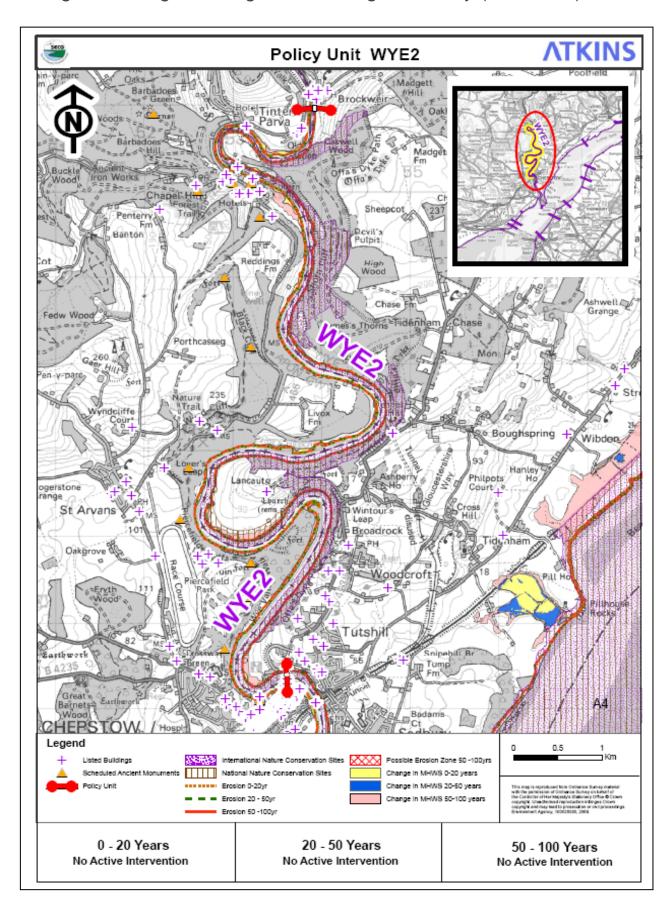
Policy Unit: CALD 3 - Black Rock at Black Rock Road to River Wye (West bank) at Park Redding, Thornwell



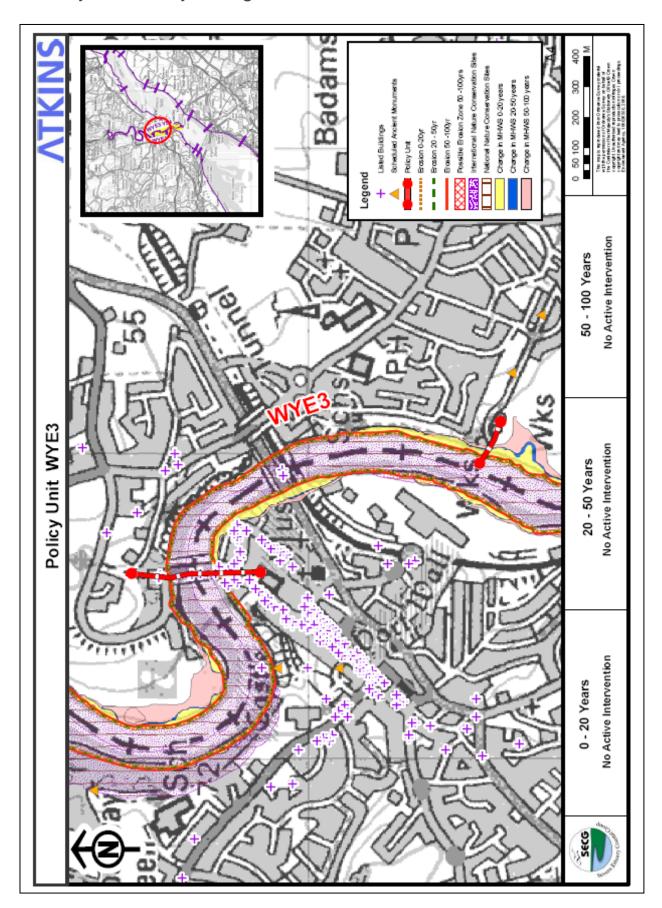
Policy Unit: WYE 1 - River Wye (West bank) at Park Redding, Thornwell to River Wye (West bank) at Alcove Wood, Chepstow



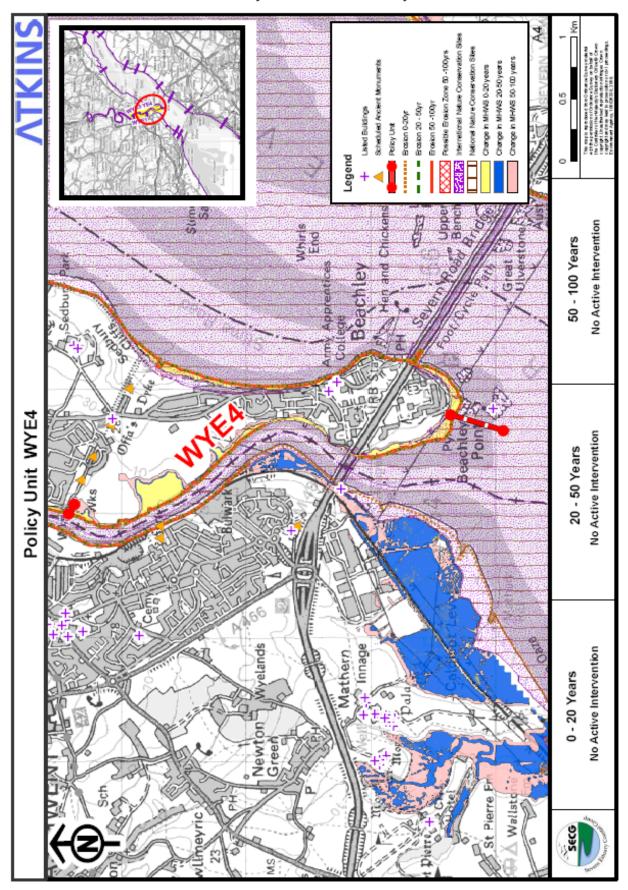
Policy Unit: WYE 2 – River Wye (West bank) at Alcove Wood, Chepstow to Bigsweir Bridge to Bridge Street Bridge, Sedbury (East bank)



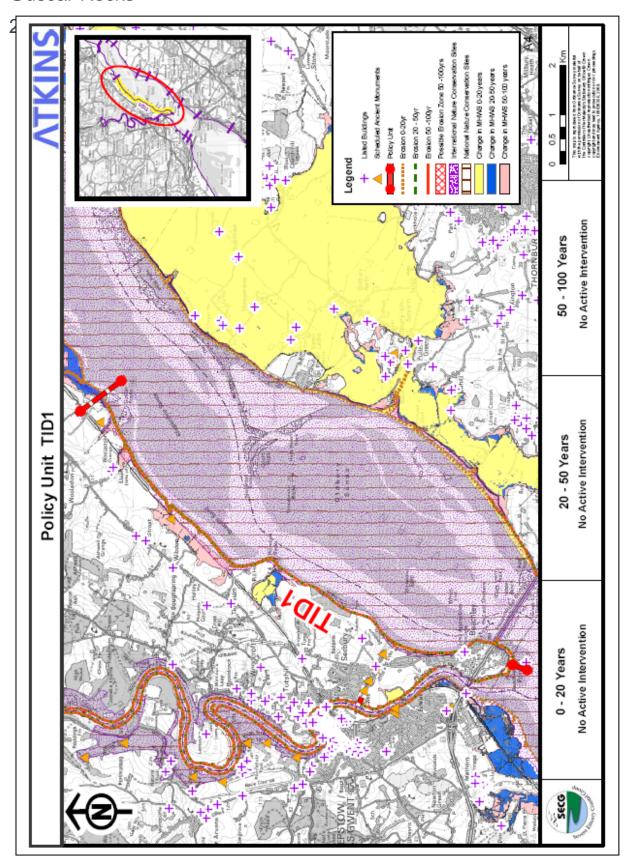
Policy Unit: WYE 3 – River Wye (East bank) from Bridge Street Bridge, Sedbury to Sedbury sewage treatment works



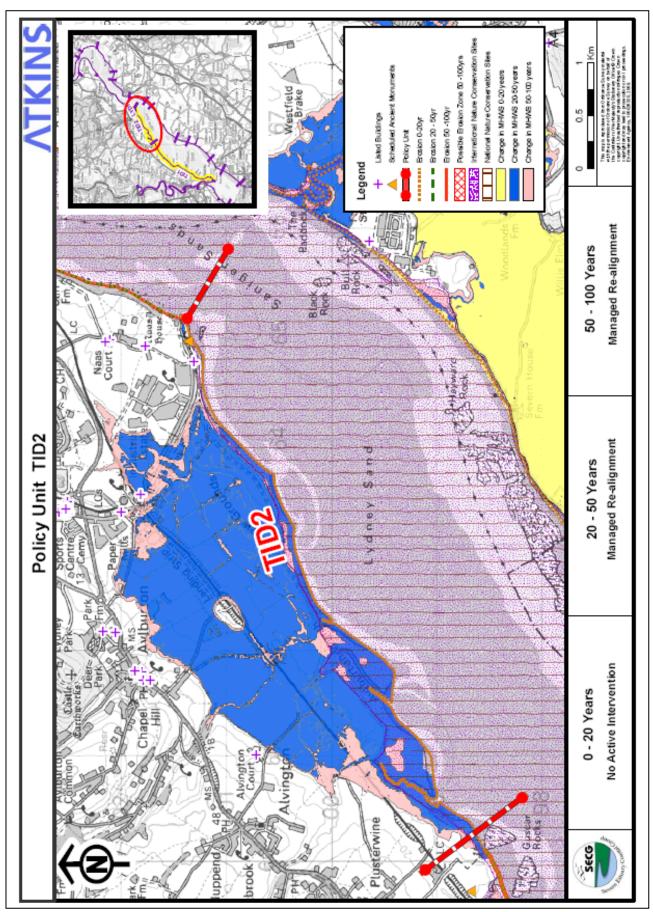
Policy Unit: WYE 4 – River Wye (East bank) Sedbury sewage treatment works to the end of Beachley Road, Beachley Point



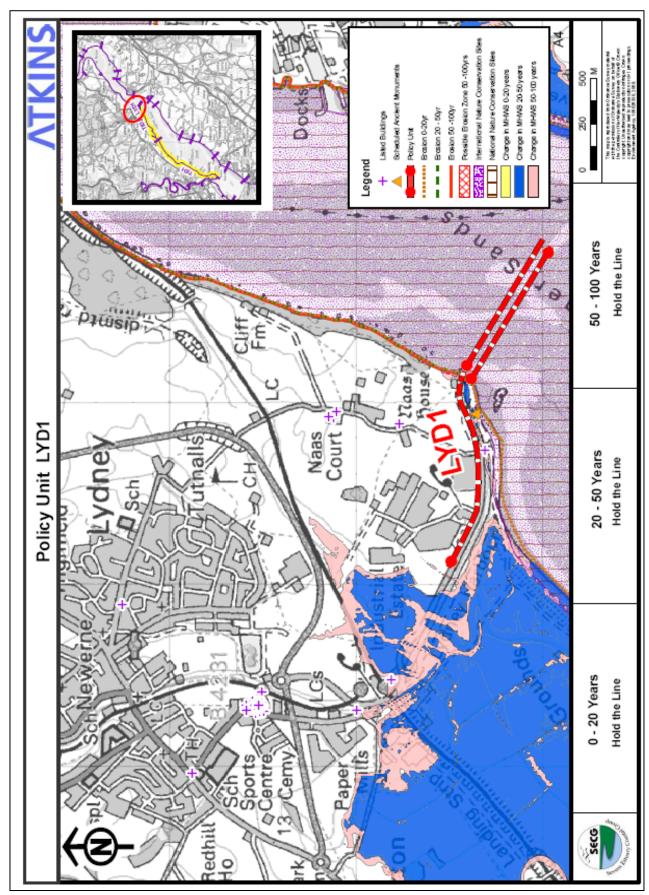
Policy Unit: TID 1 – The end of Beachley Road, Beachley Point to Guscar Rocks



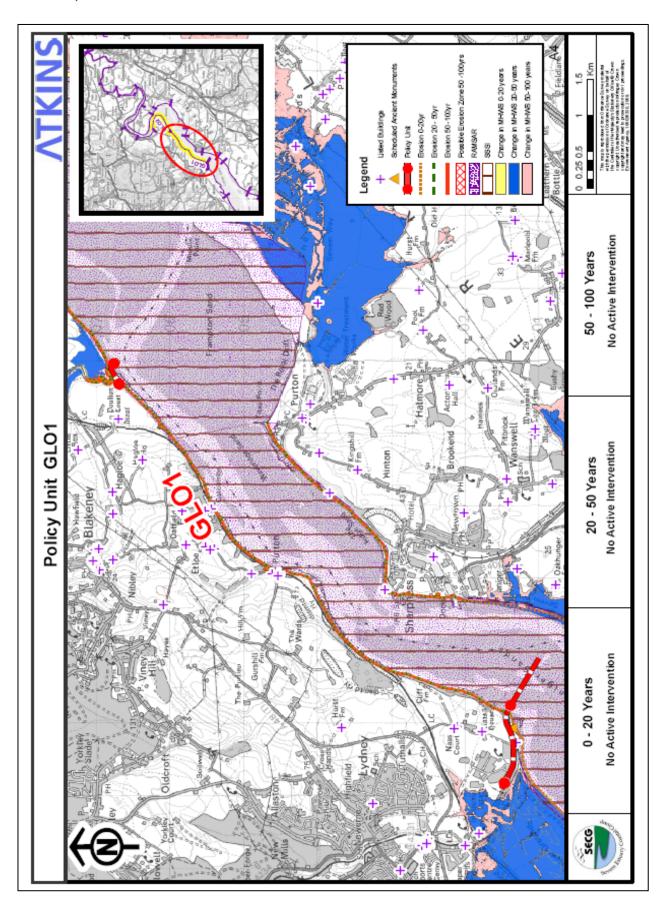
Policy Unit: TID 2 - Guscar Rocks to Lydney Harbour



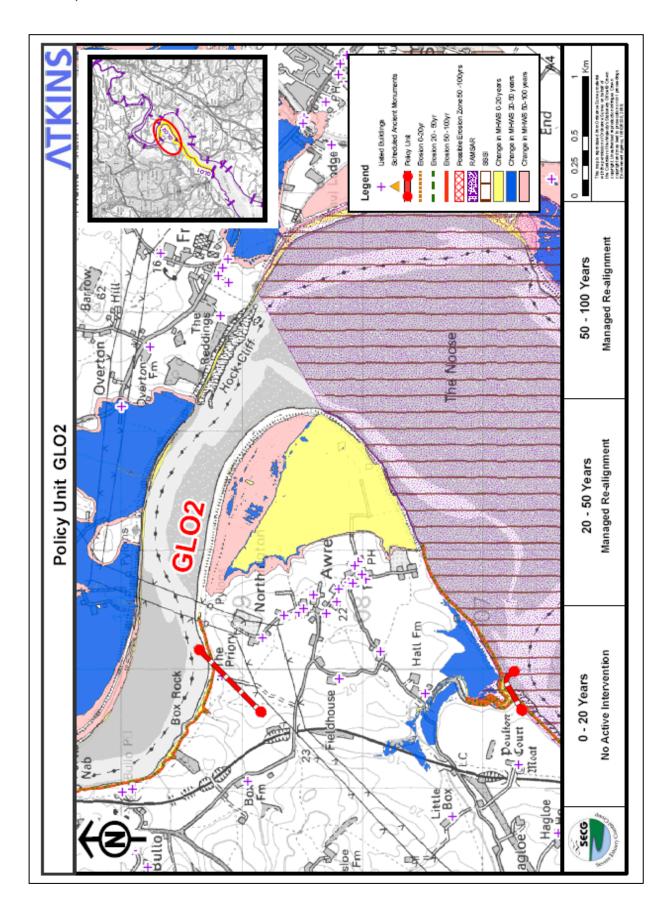
Policy Unit: LYD 1 – Lydney Harbour and basin



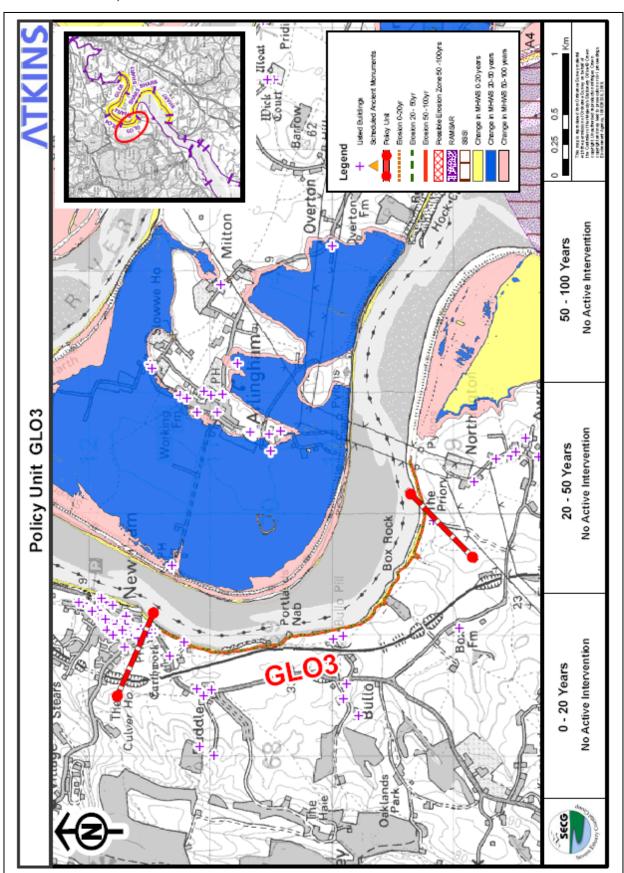
Policy Unit: GLO 1 – Lydney Harbour to Brims Pill (west bank of the Severn)



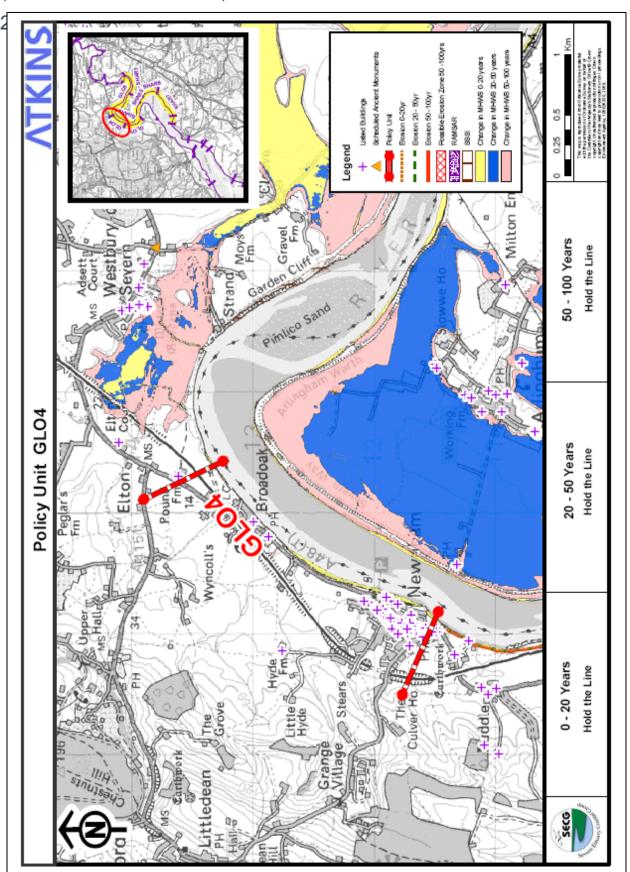
Policy Unit: GLO 2 – Brims Pill to Northington Farm (west bank of the Severn)



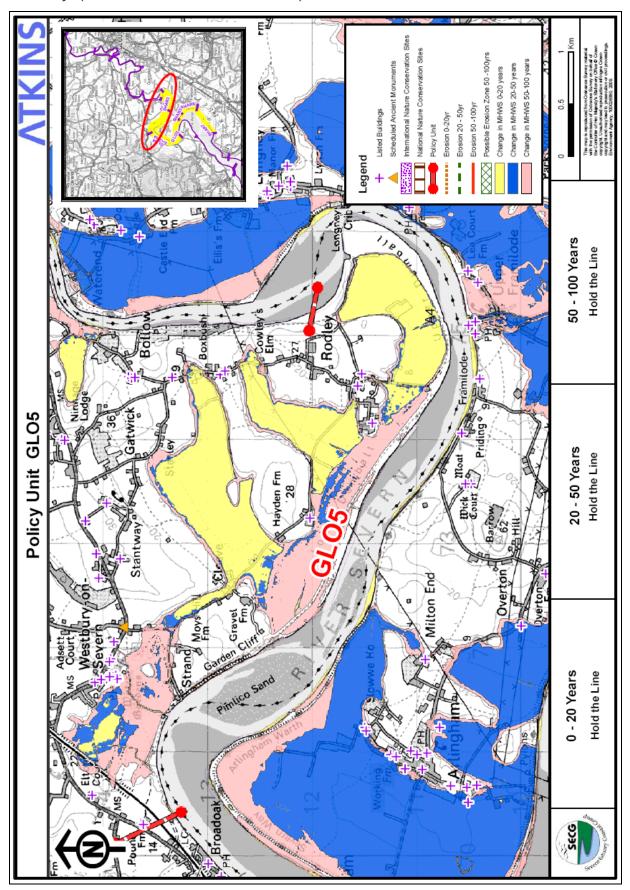
Policy Unit: GLO 3 – Northington Farm to Newnham Church (west bank of the Severn)



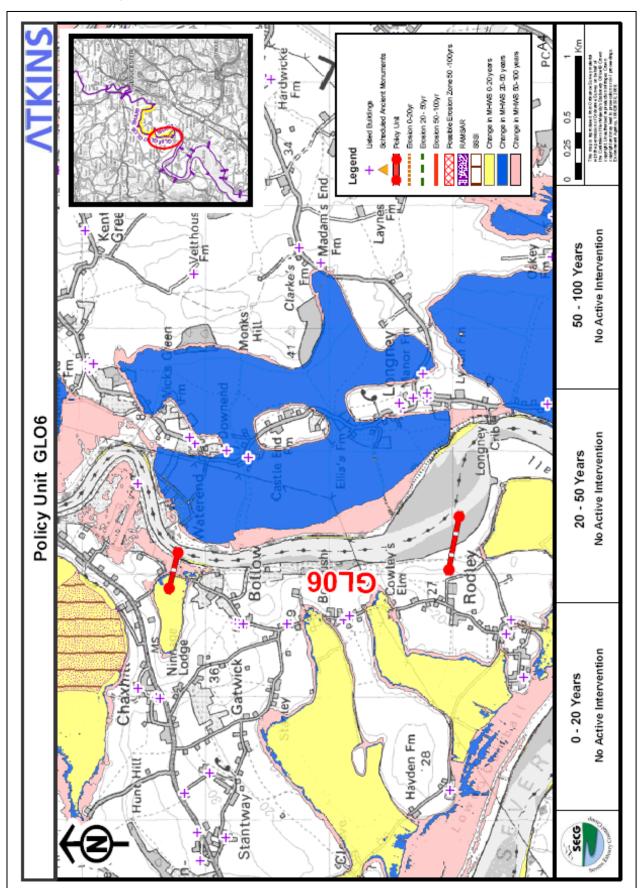
Policy Unit: GLO 4 – Newnham Church to the farm north of Broadoak (west bank of the Severn)



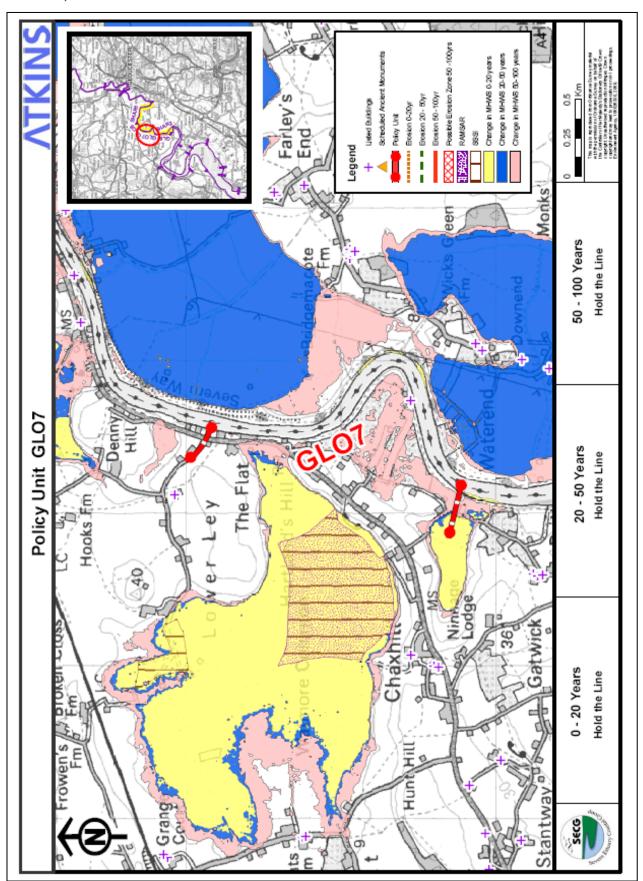
Policy Unit: GLO 5 – the farm to the north of Broadoak to Hill Farm, Rodley (west bank of the Severn)



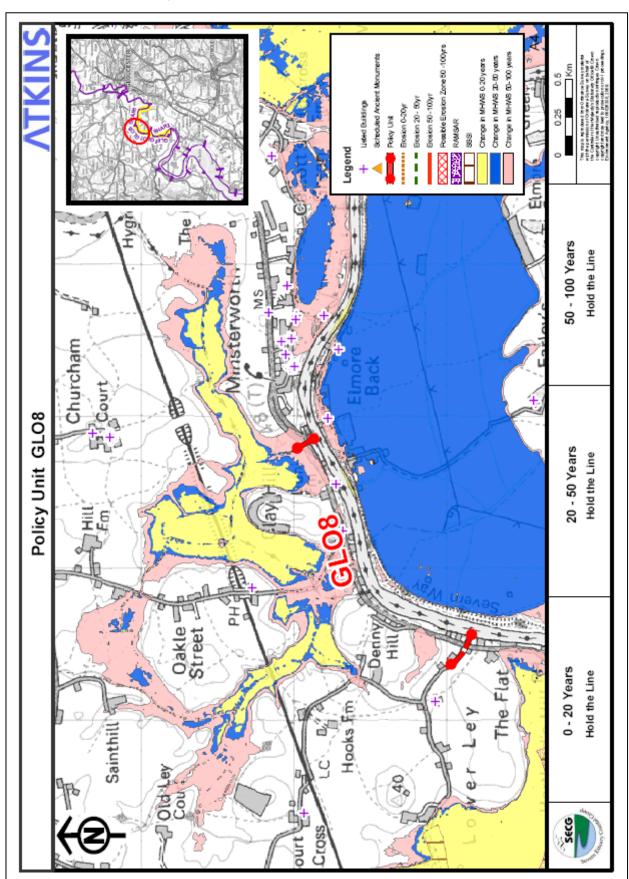
Policy Unit: GLO 6 - Hill Farm, Rodley to Goose Lane farm (west bank of the Severn)



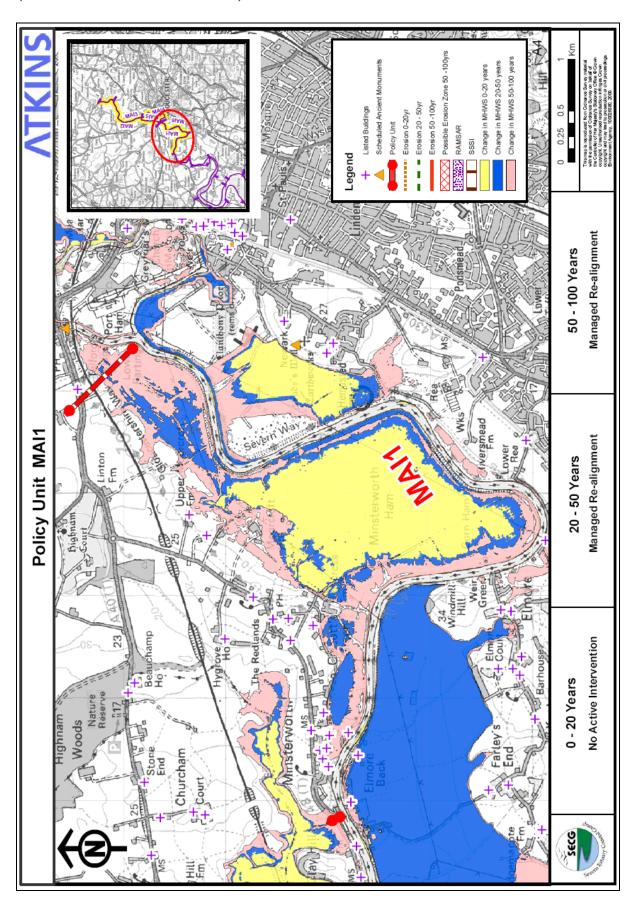
Policy Unit: GLO 7 – Goose Lane farm to Ley Road (west bank of the Severn)



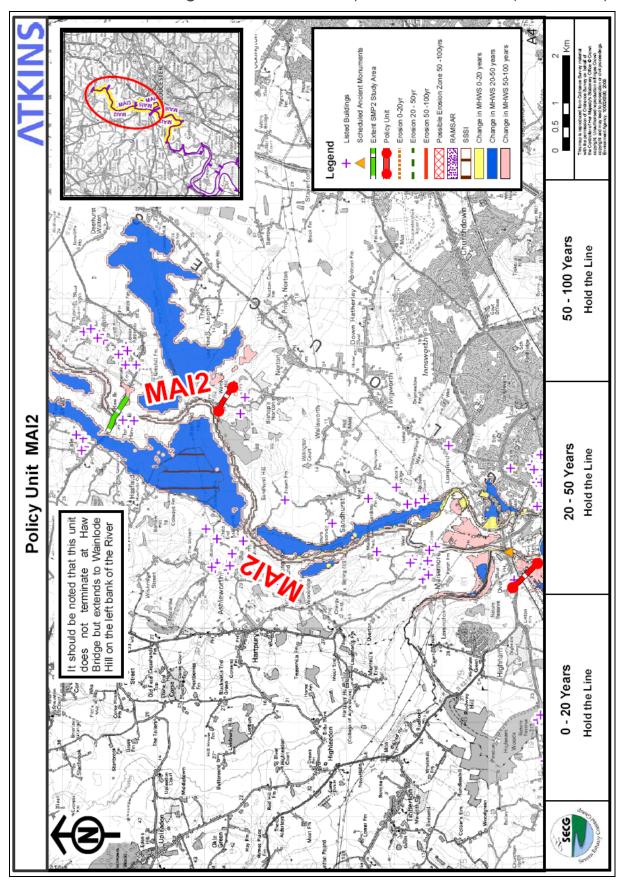
Policy Unit: GLO 8 – Ley Road to the drain from Long Brook (west bank of the Severn)



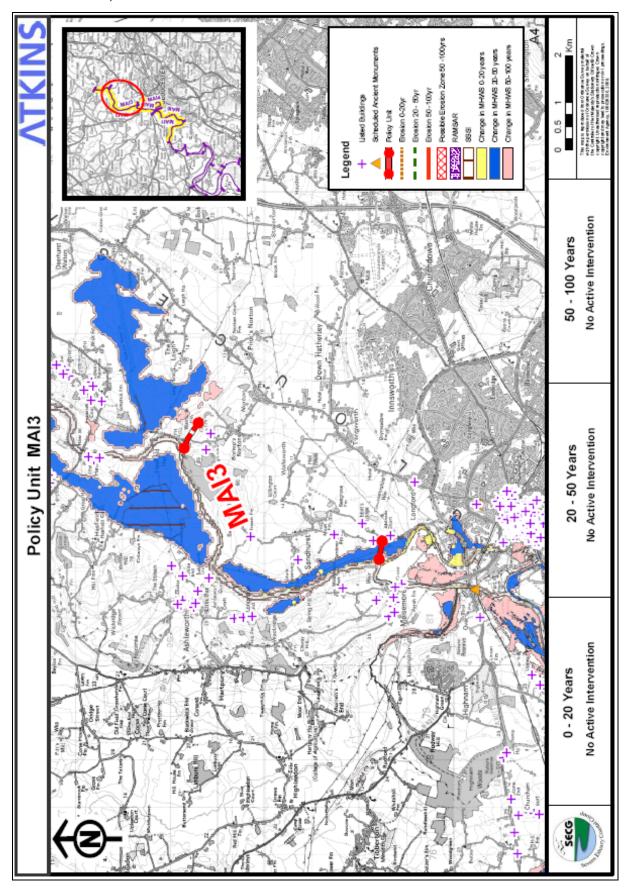
Policy Unit: MAI 1 – the drain at Long Brook to the railway/A40 bridge (west bank of the Severn)



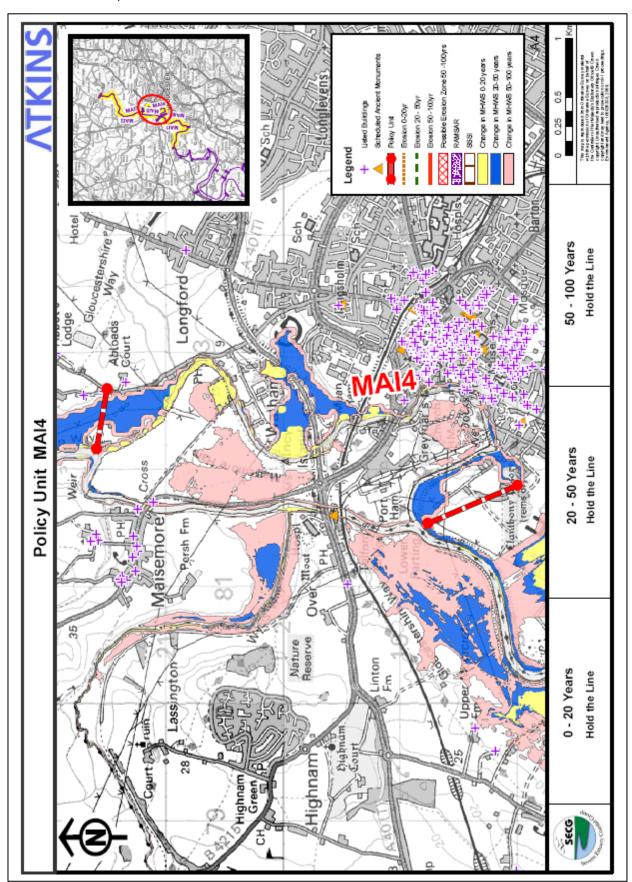
Policy Unit: MAI 2 – Railway/A40 bridge to Haw Bridge (west bank of the Severn, including the River Leadon) to Wainlode Hill (east bank)



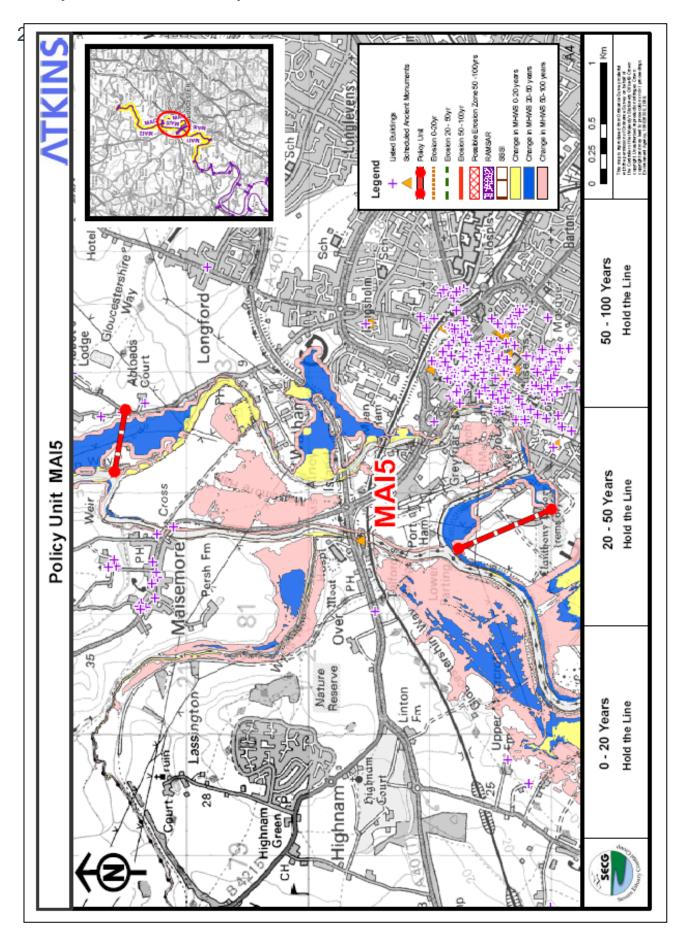
Policy Unit: MAI 3 - Haw Bridge (B4213) to Upper Parting (east bank of the Severn)



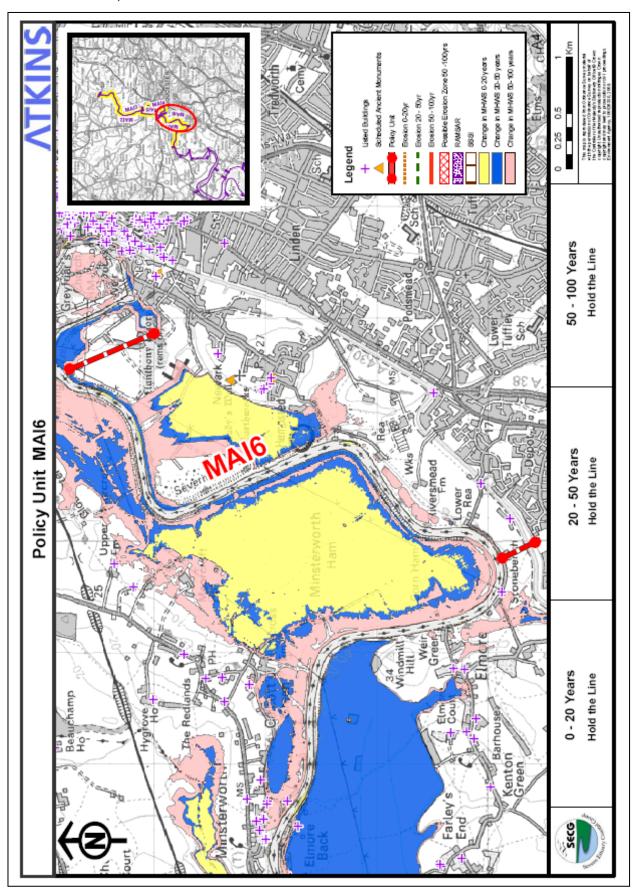
Policy Unit: MAI 4 – Upper Parting to Lower Parting (east bank of the River Severn)



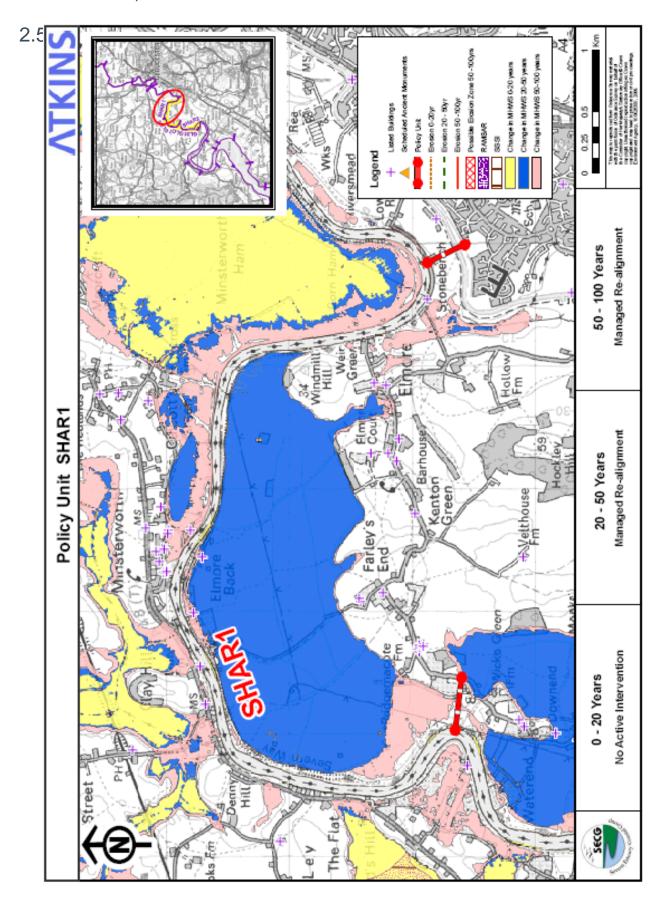
Policy Unit: MAI 5 - Alney Island



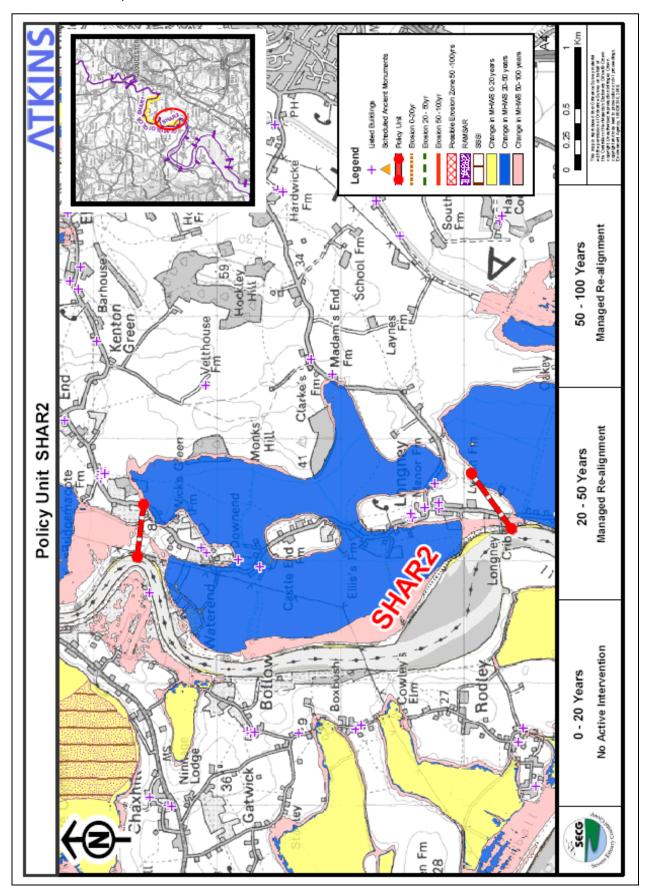
Policy Unit: MAI 6 – Lower Parting to Severn Farm (east bank of the River Severn)



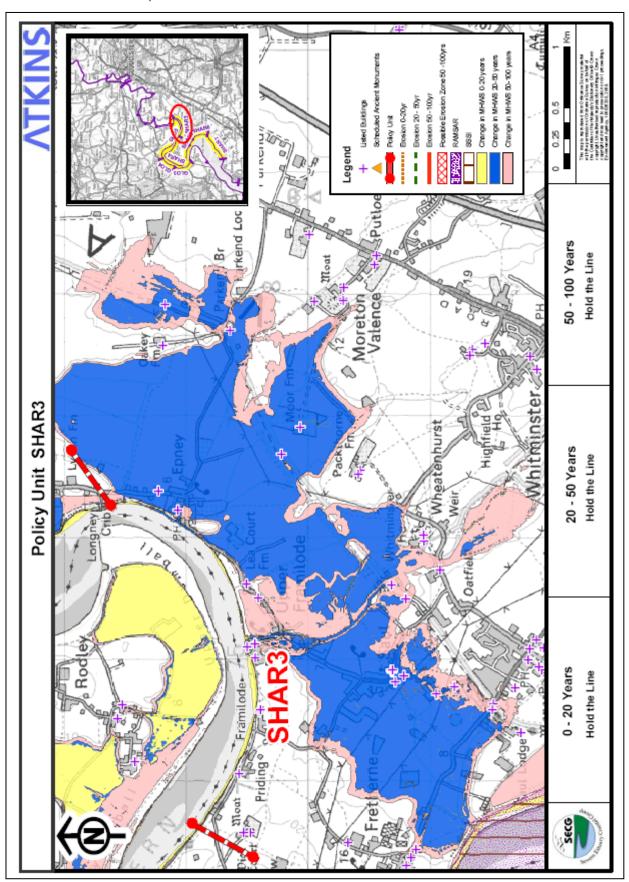
Policy Unit: SHAR 1 – Severn Farm to Wick's Green (east bank of the River Severn)



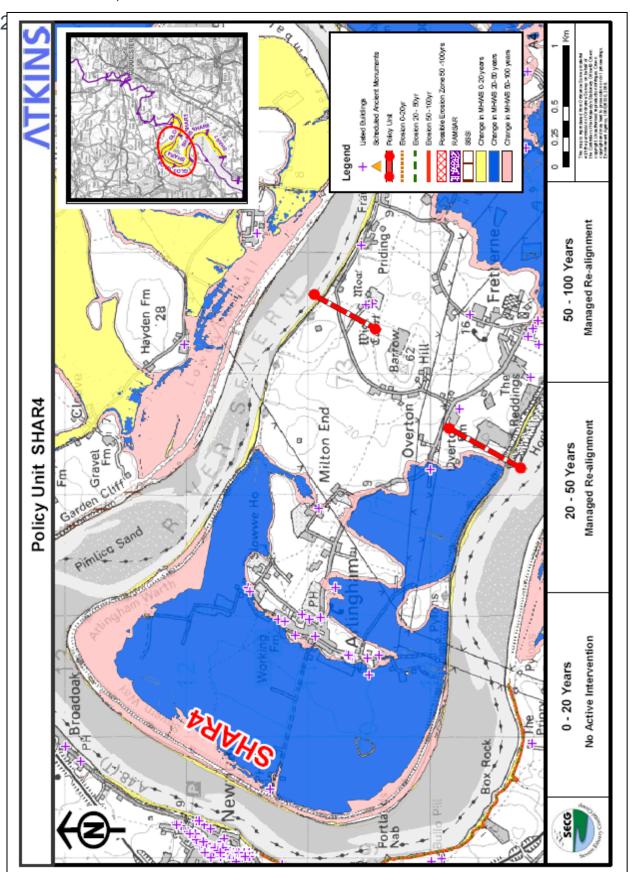
Policy Unit: SHAR 2 – Wick's Green to Longley Green (east bank of the River Severn)



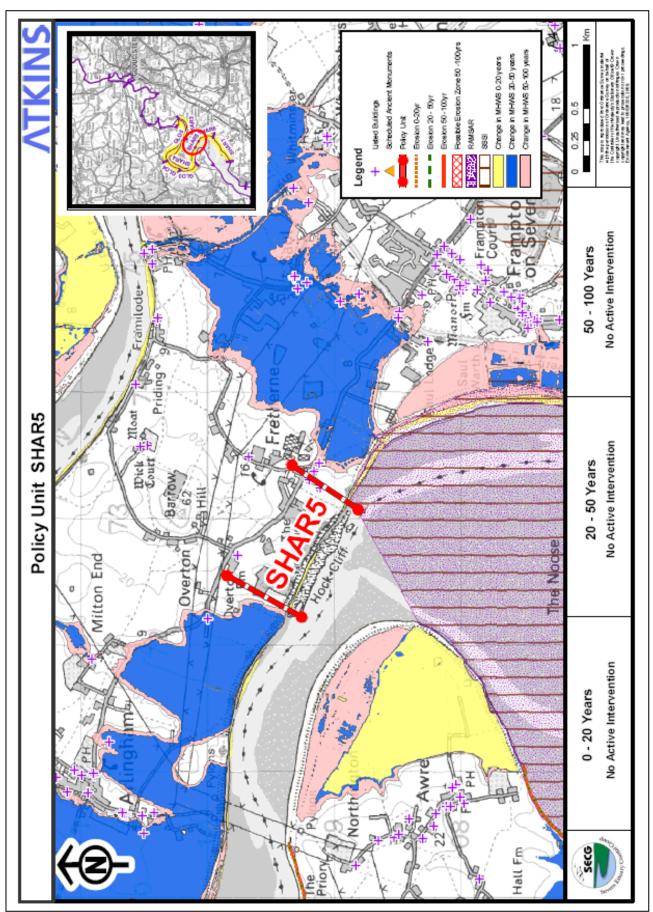
Policy Unit: SHAR 3 – Longley Green to Overton Lane (east bank of the River Severn)



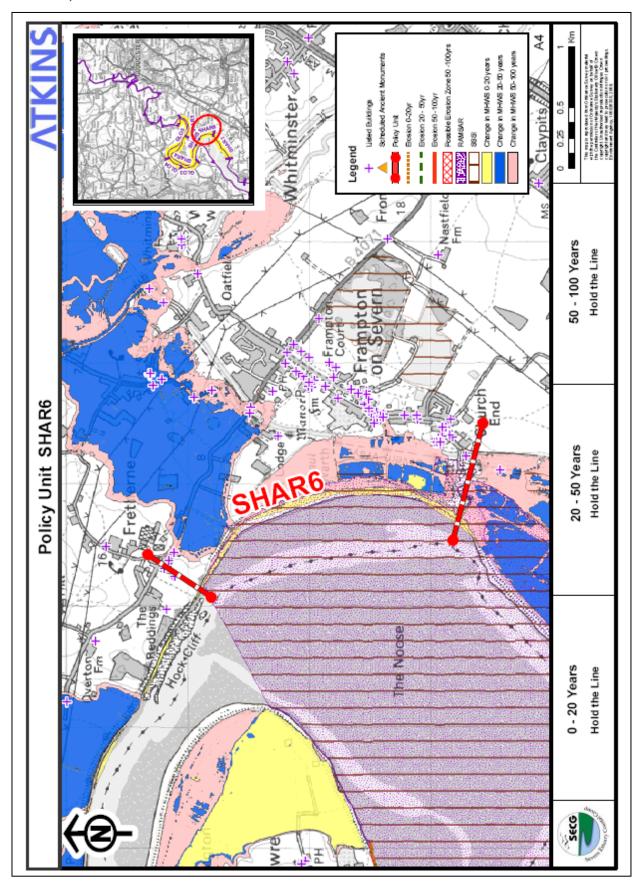
Policy Unit: SHAR 4 – Overton Lane to Hock Cliff (west bank of the River Severn)



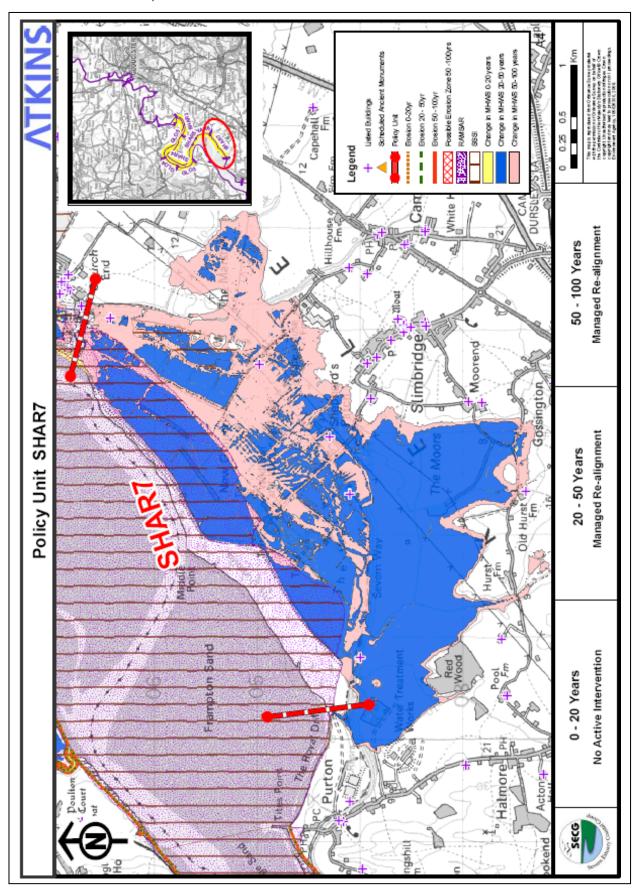
Policy Unit: SHAR 5 - Hock Cliff (west bank of the River Severn)



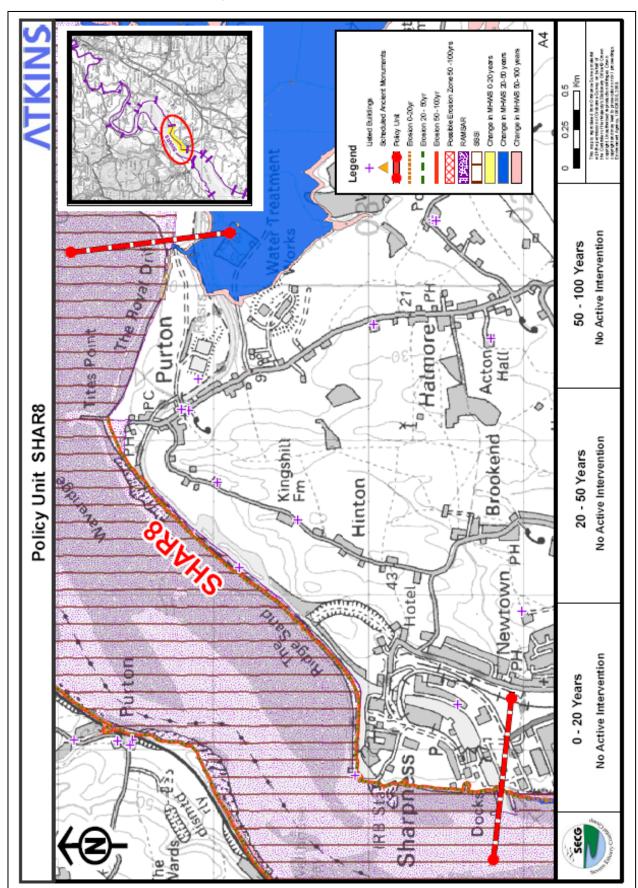
Policy Unit: SHAR 6 – Hock Cliff to Frampton Pill (west bank of River Severn)

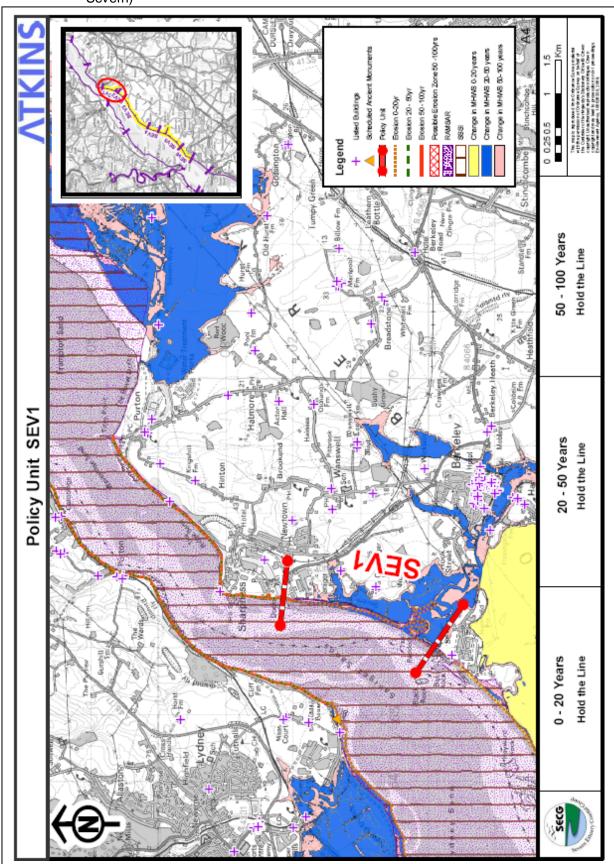


Policy Unit: SHAR 7 – Frampton Pill to Royal Drift outfall (west bank of the River Severn)



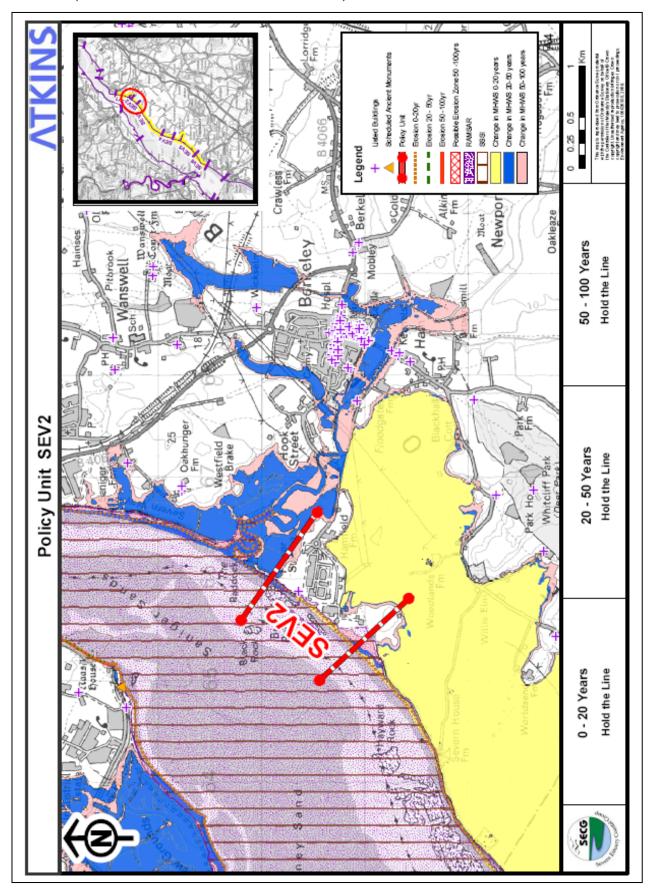
Policy Unit: SHAR 8 – Royal Drift outfall to Sharpness Docks (east bank of the River Severn)



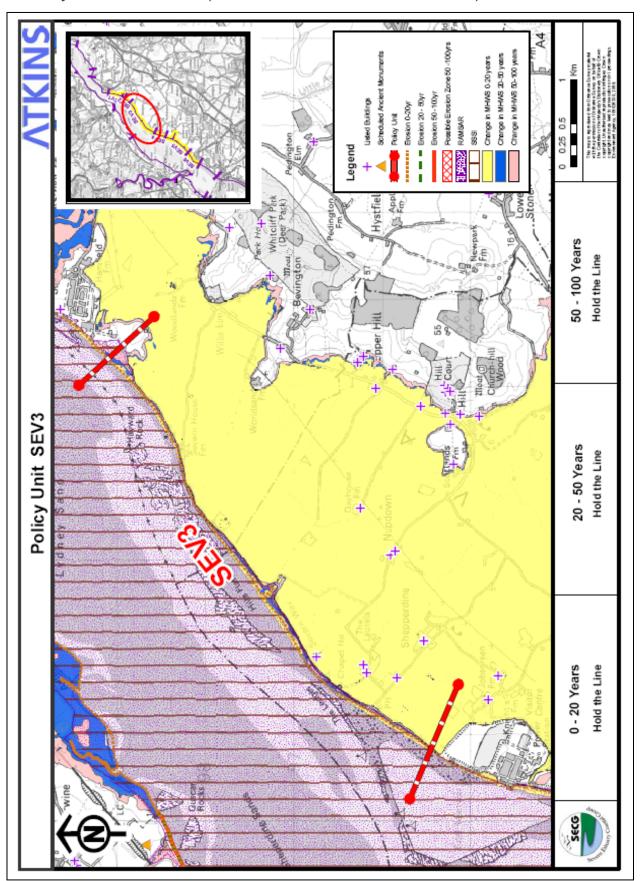


Policy Unit: SEV 1 – South of Sharpness Docks to Bull Rock (east bank of the River Severn)

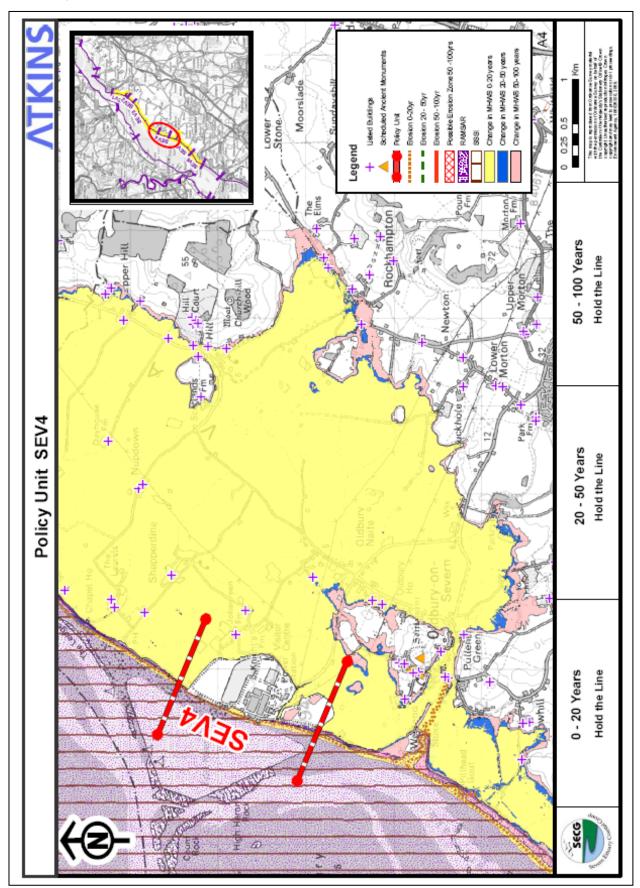
Policy Unit: SEV 2 – Bull Rock to southern boundary of Berkeley Power Station (east bank of the River Severn)



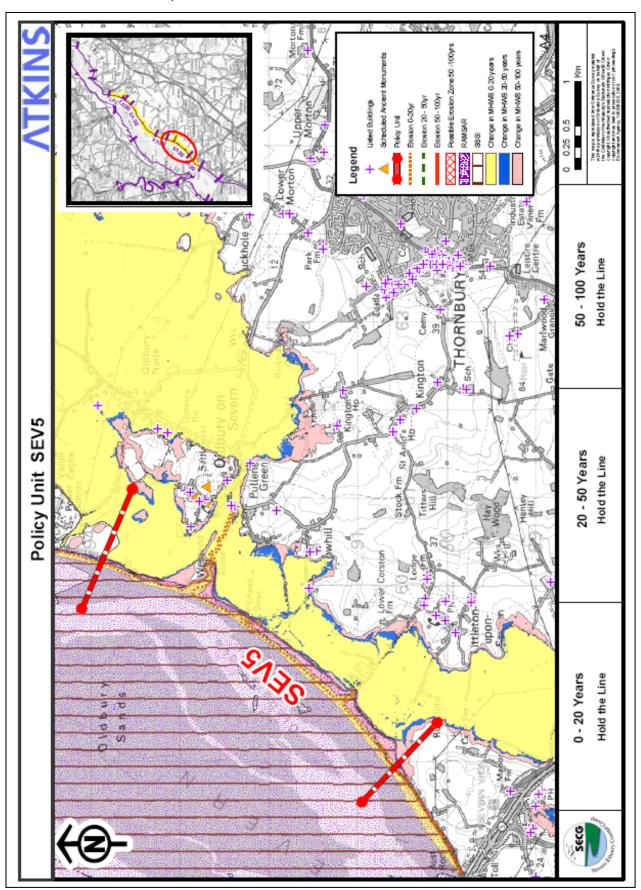
Policy Unit: SEV 3 – Southern boundary of Berkeley Power Station to Oldbury Power Station (east bank of the River Severn)



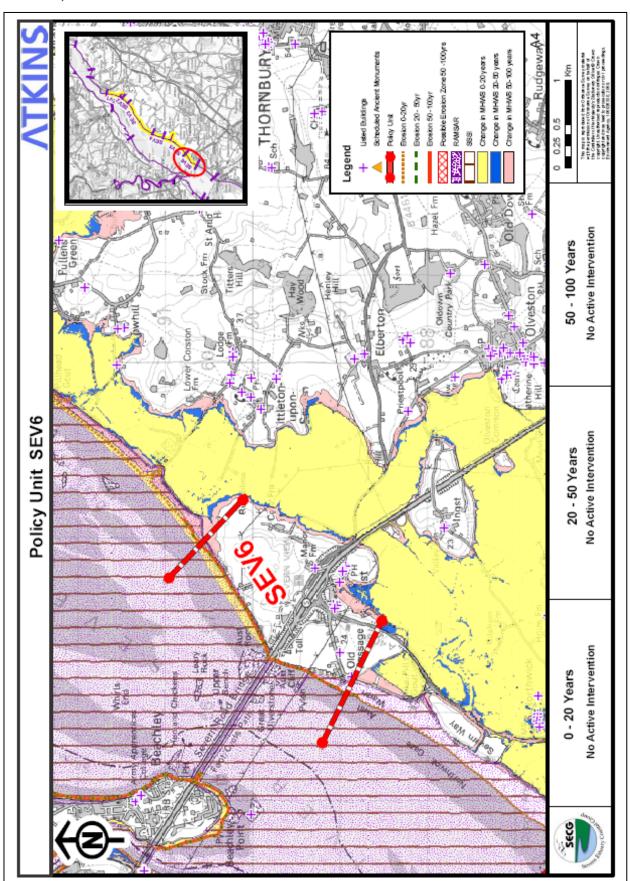
Policy Unit: SEV 4 – Oldbury Power Station (east bank of the River Severn)

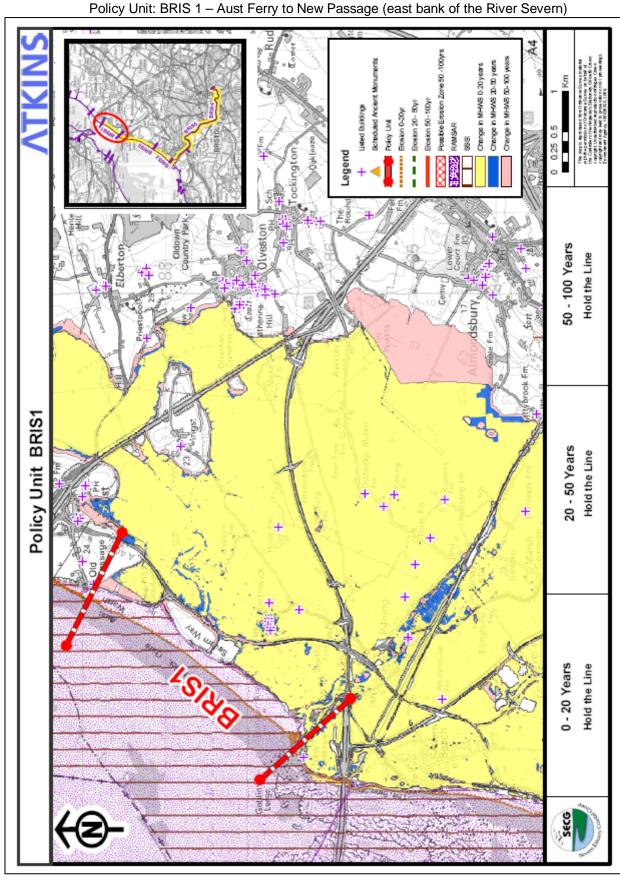


Policy Unit: SEV 5 – Oldbury Power Station to Littleton Warth (east bank of the River Severn)

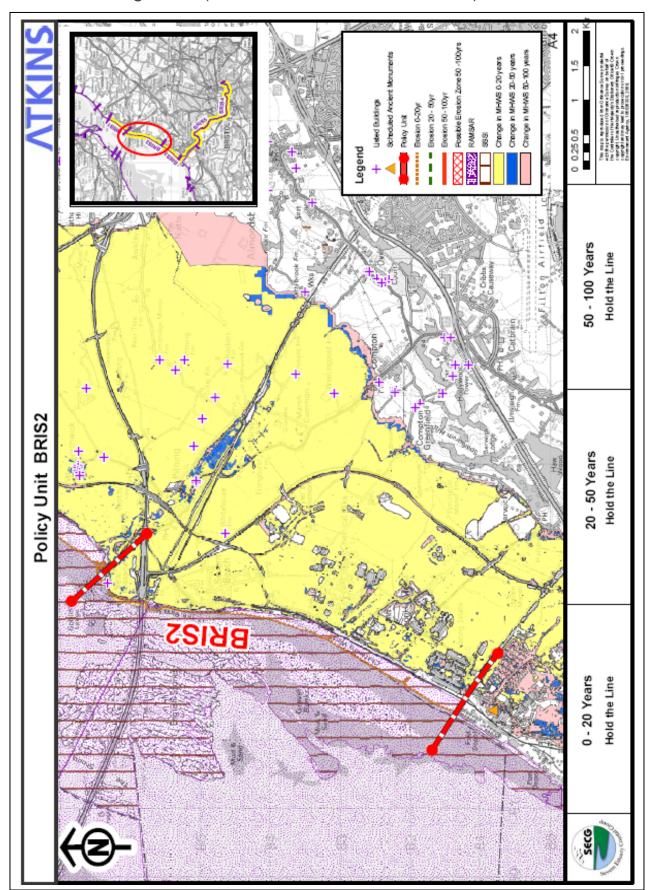


Policy Unit: SEV 6 - Littleton Warth to Aust Ferry (east bank of the River Severn)

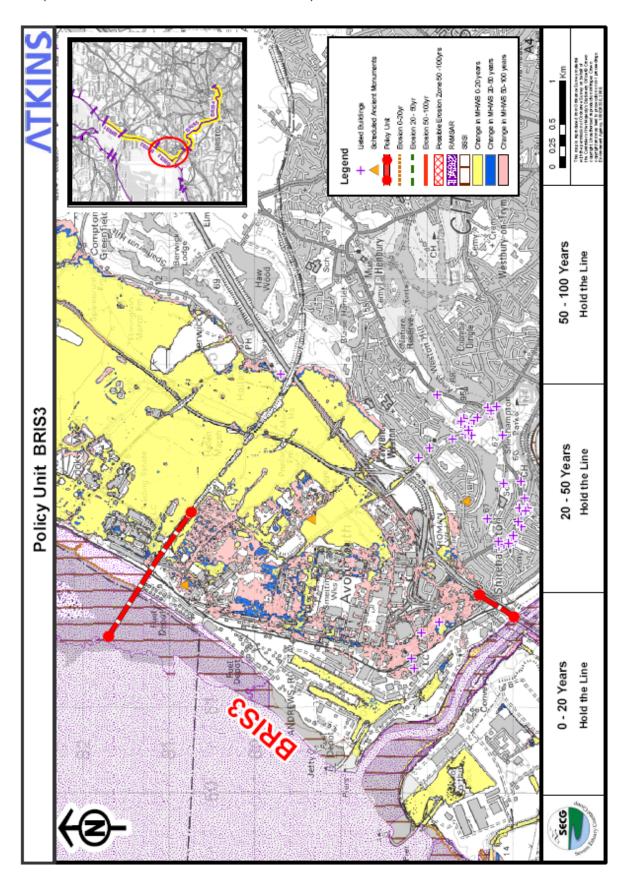




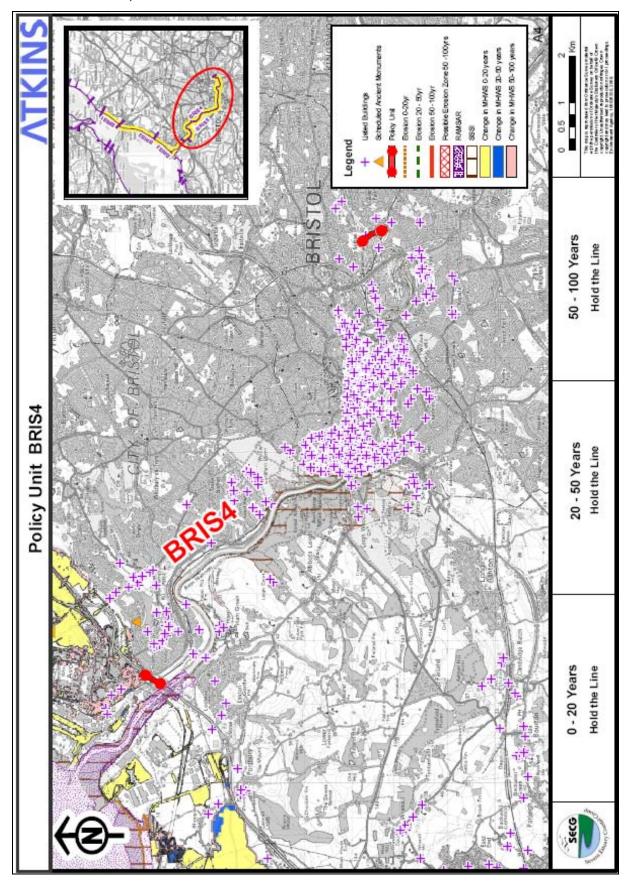
Policy Unit: BRIS 2 – New Passage to Severnside Works, nr Smoke Lane/Chittening Road (east bank of the River Severn)



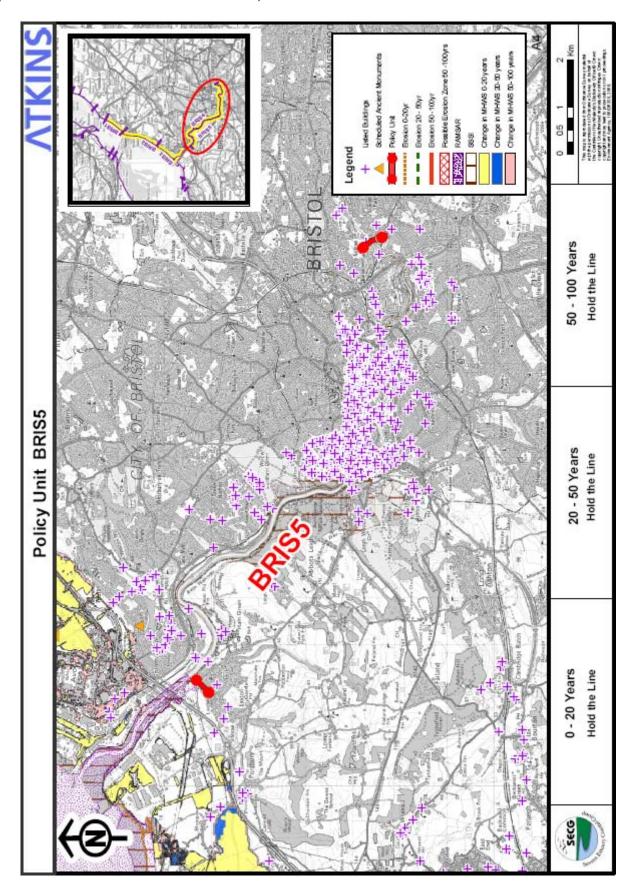
Policy Unit: BRIS 3 - Severnside Works, Nr Smoke Lane/ Chittening Road (east bank of the River Severn) to Avonmouth Pier



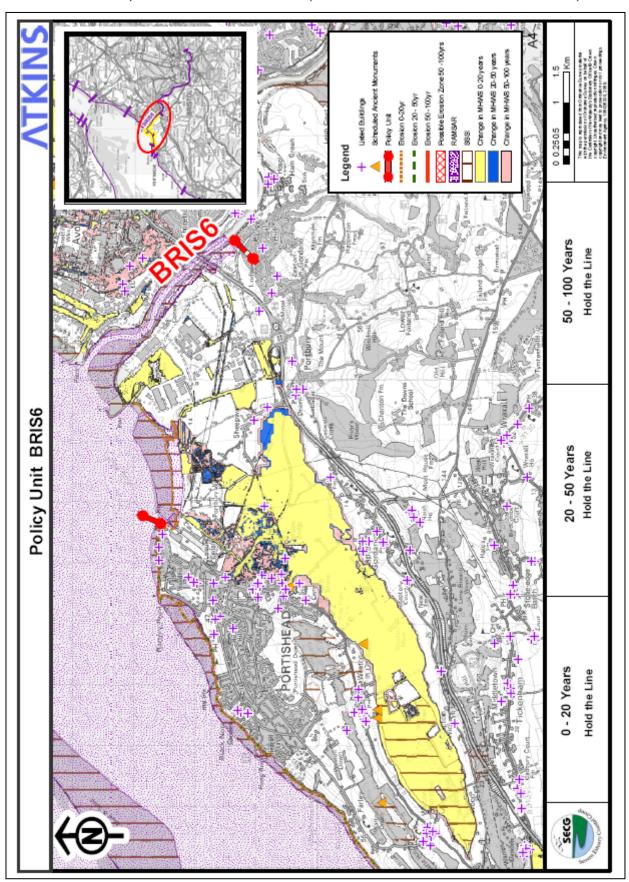
Policy Unit: BRIS 4 - Avonmouth Pier to Netham Weir (north bank of the River Avon)



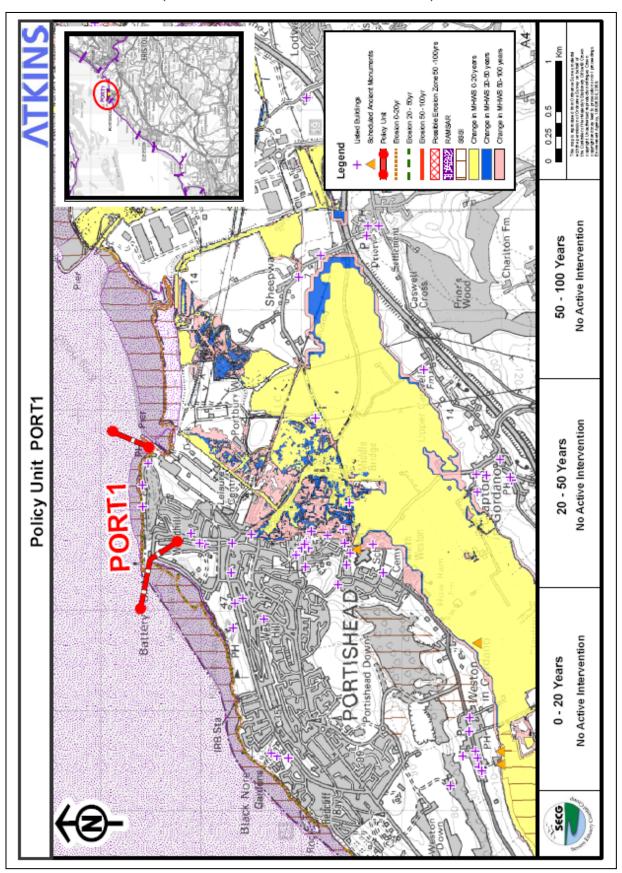
Policy Unit: BRIS 5 Netham Weir to Avon Road, Easton-in-Gordano (south bank of the River Avon)



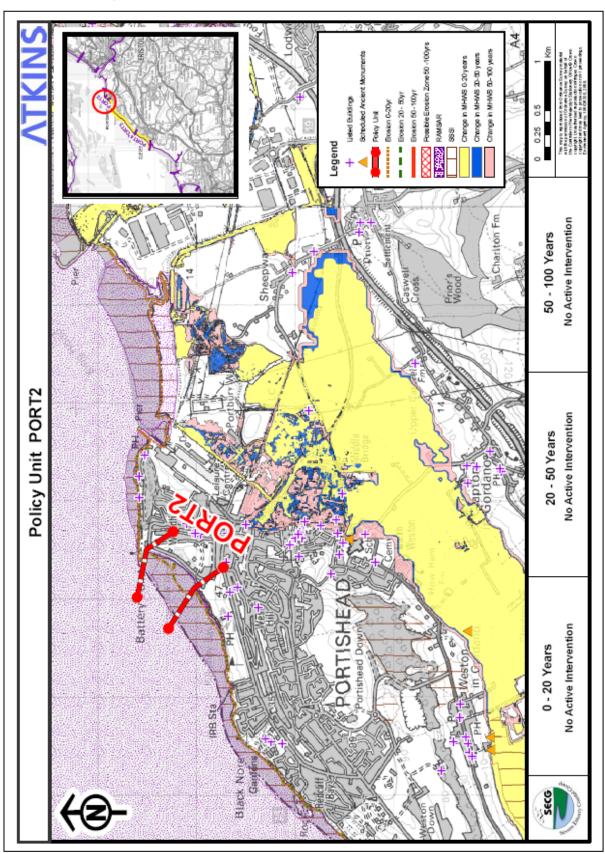
Policy Unit: BRIS 6 – Avon Road, Easton-in-Gordano (south bank of the River Avon) to Portishead Pier (east bank of the River Severn)



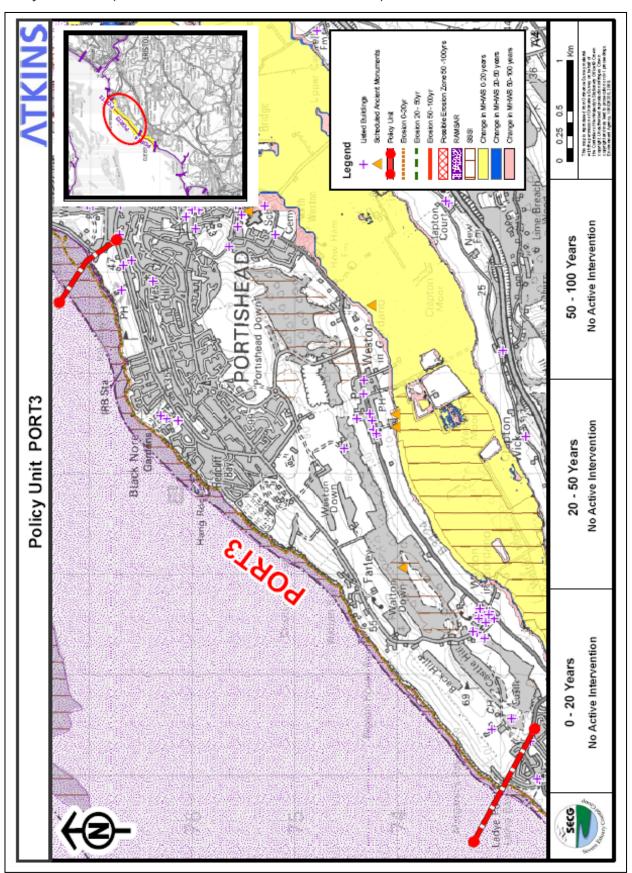
Policy Unit: PORT1 – Portishead Pier to swimming pool, Esplanade Road, Portishead (east bank of the River Severn)



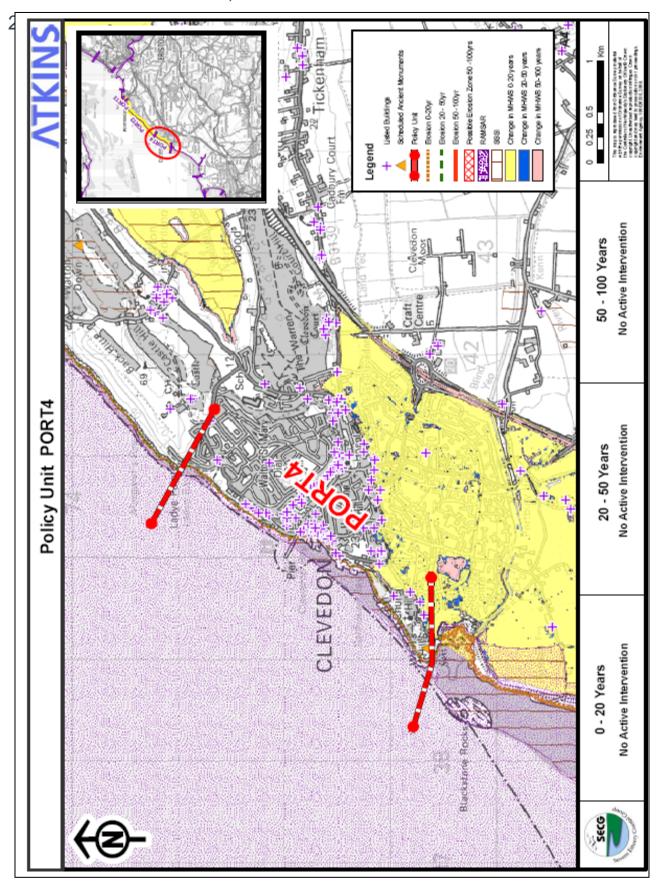
Policy Unit: PORT 2 - Swimming pool, Esplanade Road, Portishead to the end of Esplanade Road at Lake Road, Portishead (east bank of the River Severn)



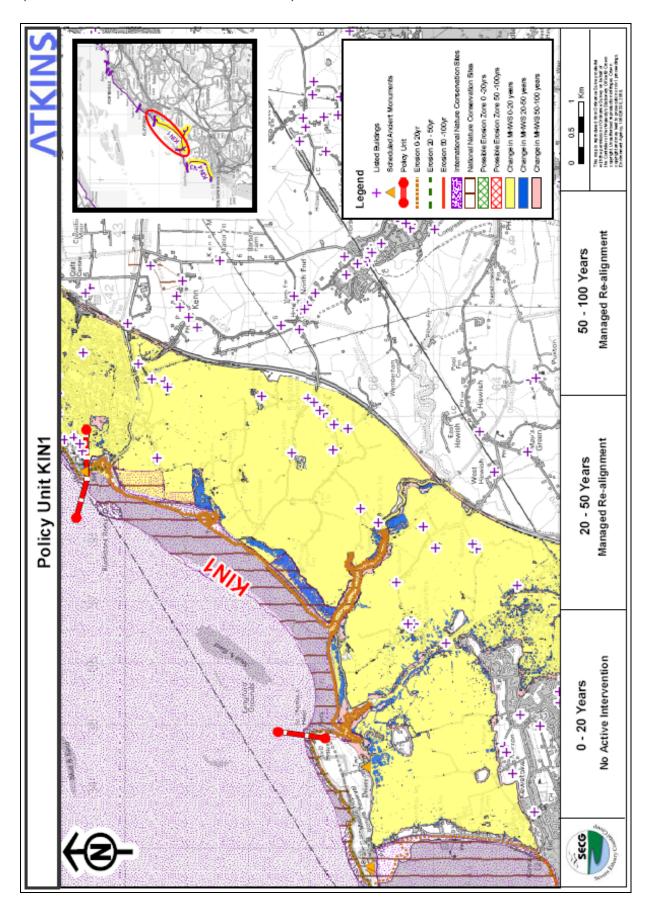
Policy Unit: PORT 3 - The end of Esplanade Road at Lake Road to Ladye Point (east bank of the River Severn)



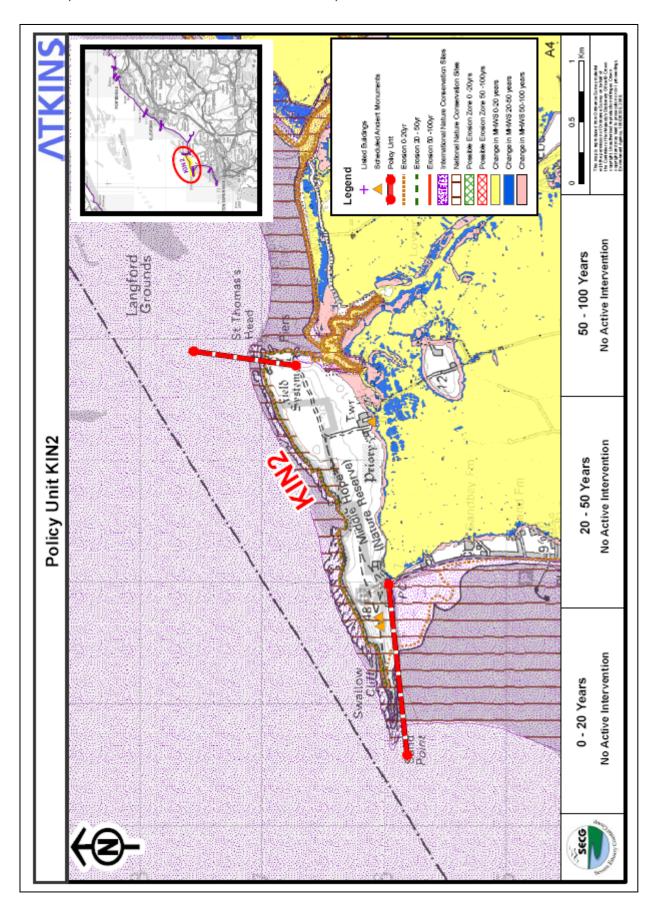
Policy Unit: PORT 4 - Ladye Point to Old Church Road, Clevedon (east bank of the River Severn)



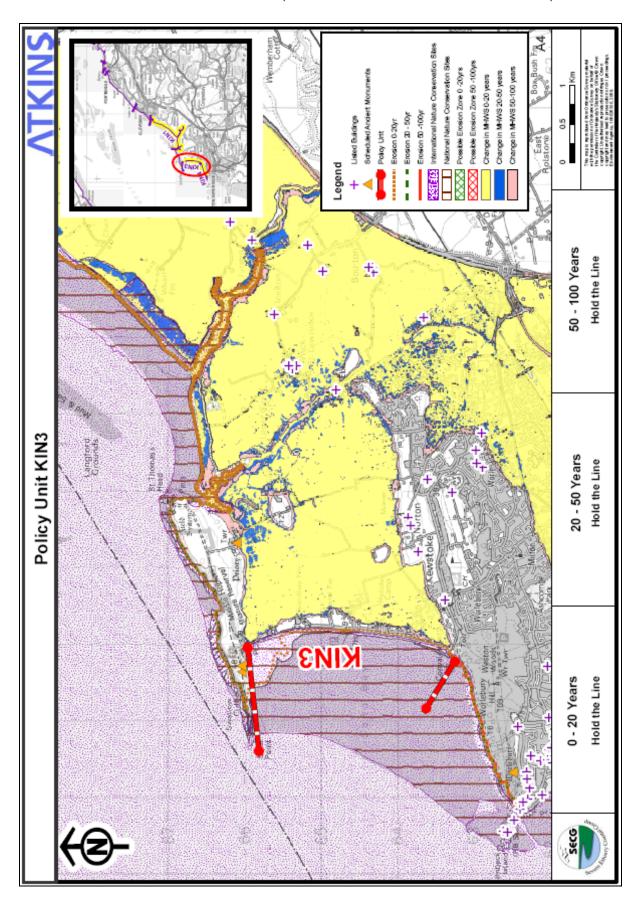
Policy Unit: KIN 1 - Old Church Road, Clevedon to St Thomas' Head (east bank of the River Severn)



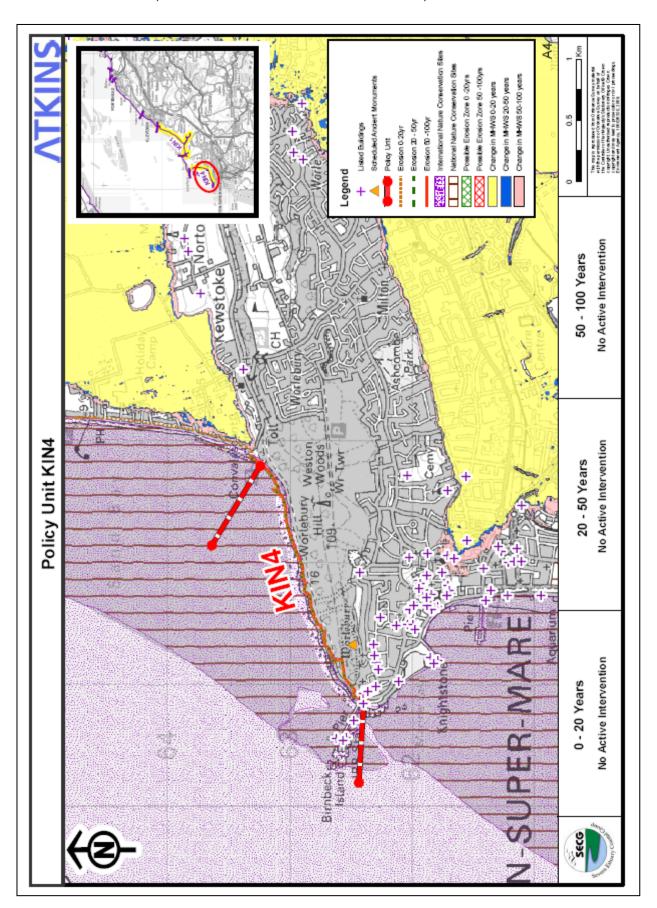
Policy Unit: KIN 2 - St Thomas' Head to Middle Hope car park at Sand Point (east bank of the River Severn)



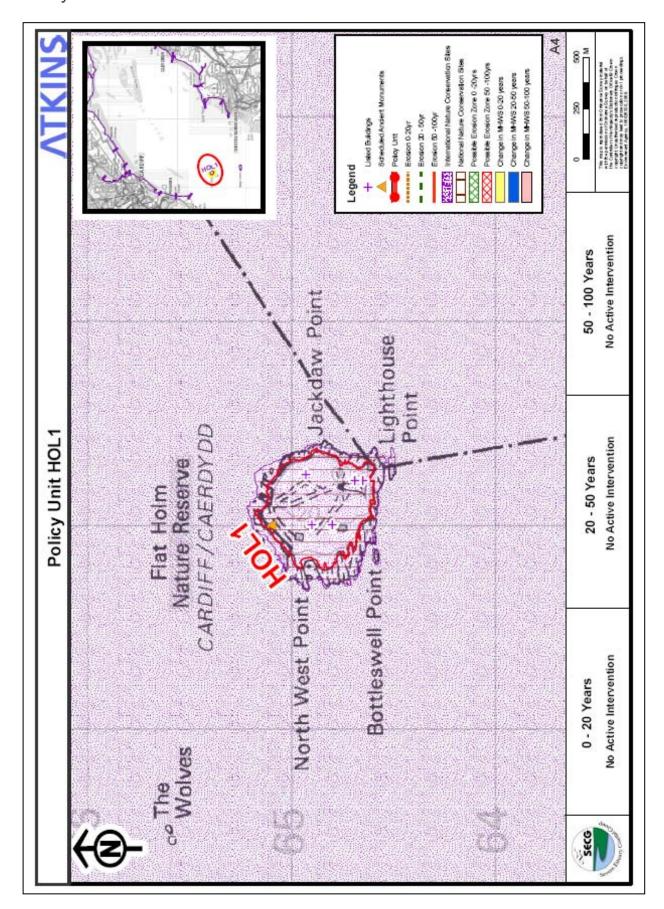
Policy Unit: KIN 3 - Middle Hope car park at Sand Point to the southern end of Beach Road, Kewstoke (east bank of the River Severn)



Policy Unit: KIN 4 - the southern end of Beach Road, Kewstoke to Birnbeck Island (east bank of the River Severn)



Policy Unit: HOL 1 – Flat Holm



Policy Unit: HOL 2 – Steep Holm

