

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; <ul style="list-style-type: none"> 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 This directive has been integrated into the proposed Water Framework Directive and will be repealed in due course.	4, 5, 7, 12	The SMP2 will need to comply with this legislation.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 places 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 plans 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 Wales			
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 policies 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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	<p>hazards.</p> <p>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.</p>	15, 16, 17	resilience to impacts. They may also identify areas/actions for improvement
Planning Policy Wales (Welsh Assembly Government, March 2002)	<p>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.</p>	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)	<p>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.</p>	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)	<p>Sets out strategy for improving Welsh Economy, highlights the need for this to be achieved whilst being environmentally sustainable.</p>	1	The SMP2 will consider the economic implications of any proposed policy options
Technical Advice Notes (Welsh Assembly Government)	<p>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.</p>	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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	<p>TAN 6 : Agriculture and Rural Development including use of agricultural buildings, and irrigation</p> <p>TAN 8 relates to the land use planning considerations of Renewable Energy.</p> <p>TAN13 Tourism</p> <p>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.</p> <p>TAN15 Development and Flood Risk requires adequate assessment and if necessary mitigation be implemented prior to approval of development.</p>	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)	<p>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.</p> <p>The Bristol Channel is currently the main source of fine aggregates for South Wales, and particularly South East Wales.</p>	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)	<p>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.</p>	12	
Welsh Assembly Government High Level Targets (2001)	<p>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.</p> <p>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.</p>	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	<p>Planning and controlling the development of an integrated network of facilities to treat and dispose of waste in</p>	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 of 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.
<u>Regional Economic Strategy for South West England 2006-2015 including Delivery Framework</u> (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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	<p>treatment plants; this is currently under revision.</p> <p>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.</p>		
<p>Minerals Policy Statement 1: Planning and Minerals (ODPM)</p>	<p>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;</p> <p>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.</p>	<p>4, 6, 8, 9 ,</p>	<p>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.</p>
<p>Minerals Policy Statement 2: Controlling and Mitigating the Environmental Effects of Mineral Extraction in England (ODPM, 2005)</p>	<p>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</p>	<p>4, 6, 7, 11</p>	<p>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.</p>
<p>Defra Outcome Measures</p>	<p>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</p> <ul style="list-style-type: none"> • 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 	<p>2, 4, 8</p>	<p>SMP2 policy options should seek to deliver outcome measures</p>

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	<p>condition by 2010.</p> <ul style="list-style-type: none"> • 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	<p>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</p>	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	<p>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.</p>	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	<p>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 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 :</p> <p>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.</p> <p>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.</p>	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 Regional Spatial Strategy. The SMP2 should provide support to the council in setting strategic policy and determining planning applications

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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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	<p>(iii) Nature conservation interests are not significantly affected, either directly or indirectly.</p> <p>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.</p> <p>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</p>		
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 is 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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	<p>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.</p> <p>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.</p>		determining planning applications
Environment Agency Plans			
Environment Agency Vision	<p>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.</p> <p>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.</p>	1, 2, 4, 7, 8,10,12, 14, 17	<p>Improve flood defences and information on flood risk</p> <p>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</p>
Environment Agency Wales - Creating A Better Wales (2006-11)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • achieve a reduction in the proportion of 'at risk' properties exposed to a 'high risk' of flooding; • make proportionate progress towards BAP targets for otters, water voles and shad. <p>These targets will be achieved by:</p> <ul style="list-style-type: none"> • 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. 		Ensure FRM Is sustainable
Environment Agency River Basin Management Plans (Severn River Basin District)	<p>The Draft River Basin Management Plans identify actions to be taken to deliver by 2015 the following benefits:</p> <ul style="list-style-type: none"> • Clean water for people and wildlife • Wiser sustainable use of water • Protect and enhance native wildlife and habitats • Protect the natural landscape, promoting the value of recreation <p>Actions include:</p> <ul style="list-style-type: none"> • Reducing impacts from rural land management • Achieving low impact transport and built environments • Securing sustainable amounts of water • Restoring wildlife habitats • Addressing localised pollution sources 	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	<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</p>	1, 2, 7, 8, 15,	Consider socially vulnerable communities in the delivery of flood risk management

	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		
Catchment Flood Management Plans for the Taff and Ely, Eastern Valleys, Wye and Usk, Bristol Avon, Severn Tidal Tributaries and Somerset	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

<p><u>South West Biodiversity Implementation Plan, Biodiversity: A natural advantage for the South West</u> (South West Regional Biodiversity Partnership, July 2004)</p>	<p>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 agri-environment scheme targeting.</p> <p>The BIP identifies key programmes of work, both for those directly involved and for those who can enable these, under five specific sectors including</p> <ul style="list-style-type: none"> * Farming and Food * Water and Wetlands * Coastal and Marine Environment <p>The generic priorities across the sectors are compatible with those highlighted in the South West Environment Strategy and include the:</p> <p>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.</p>	<p>4, 9, 10, 16</p>	<p>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</p>
<p>Conservation (Natural Habitats & c) Regulations (as amended)</p>	<p>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.</p>	<p>4</p>	<p>The conservation of biodiversity and promotion of sustainable development are prime objectives for the SMP2.</p>
<p>Earth Science Conservation in Great Britain 1990</p>	<p>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.</p>	<p>4, 6, 9</p>	
<p>Severn Estuary Scheme of Management (ASERA)</p>	<p>Almost all the relevant authorities on the Severn Estuary have formed the ASERA to produce a single management scheme for the Severn Estuary EMS.</p>	<p>1, 2, 3, 4, 5, 6, 7, 8, 9, 11</p>	
<p>Landscape</p>			
<p>European Landscape Convention</p>	<p>The European Landscape Convention - also known as the</p>	<p>6</p>	<p>The SMP2 will seek to protect and enhance</p>

Council of Europe, 2000	Florence Convention, after the city where the convention was adopted - promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues.		and landscapes in the study area
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: <ul style="list-style-type: none"> • 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. <p>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.</p>	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

	<p>collecting and integrating information from a variety of sources. The results of this phase of the project provide:</p> <ul style="list-style-type: none"> • 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 		
Ancient/ Listed Buildings and Archaeological Areas Act, 1990	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 compliant 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 compliant 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 compliant 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
<u>A strategy for the Recreational Fisheries of Wales</u> (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 agri-environment 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 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

	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
<u>Welsh Coastal Tourism Strategy – Draft Final Strategy</u> (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.
<u>Towards 2015 Shaping Tomorrow's Tourism</u> (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: <ul style="list-style-type: none"> • 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 manage 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			
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; <ul style="list-style-type: none"> • 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 	2, 8	The Plan will set out preferred local policies for the management of flood risk and accommodate climate change.

	<ul style="list-style-type: none"> 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)	<p>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.</p> <p>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.</p> <p>The Forum will aim to; identify, propose and promote practical actions and policy options, including the uptake of research findings:</p> <ul style="list-style-type: none"> – 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) <i>per annum</i> 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

<p>The Future of Transport: A Network for 2030 (Dept for Transport 2004)</p>	<p>opportunity, promotes prosperity and protects the environment.” 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.</p>	<p>1,2, 4, 6, 11</p>	<p>The SMP2 will seek to protect valuable communication corridors</p>
<p><u>Wales Transport Strategy Consultation Document Connecting Wales</u> (Welsh Assembly Government, July 2006)</p>	<p>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.</p>	<p>1,2, 4, 6, 8, 10, 11</p>	<p>The SMP2 will seek to protect valuable communication corridors</p>
<p>Regional Planning Guidance (RPG10) – Transport Chapter (Government Office South West / South West Regional Assembly, September 2001)</p>	<p>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</p>		<p>The SMP2 will seek to protect valuable communication corridors</p>

	<p>may involve a strategy of managed retreat in some locations in the face of forecast rises in sea level.</p> <p>Policy RE2 Flood Risk sets out: Local authorities, the Environment Agency, other agencies and developers should seek to:</p> <ul style="list-style-type: none"> • 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). <p>Development plans should:</p> <ul style="list-style-type: none"> • 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. 		
<p><u>Developing the Regional Transport Strategy in the South West: Investment priorities for the South West</u> (South West Regional Assembly)</p>	<p>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.</p>		<p>The SMP2 will seek to protect valuable communication corridors</p>
<p>Making Space for Water: Taking Forward a new Government Strategy for Flood and</p>	<p>The strategy highlights the need for a more integrated and holistic approach to the management of flood risk. It encourages the use</p>	<p>8</p>	<p>Key driver for SMP strategic approach</p>

<p>Coastal Erosion Risk Management in England (Defra, 2005)</p>	<p>of a portfolio of measures to manage risk including:</p> <ul style="list-style-type: none"> • 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). 		
<p>Water Strategy 'Directing the Flow: Priorities for Future Water Policy' (Defra, 2002)</p>	<p>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:</p> <ul style="list-style-type: none"> • Agriculture and fisheries; • Biodiversity; • Tourism and recreation; • Land-use planning. 	<p>3, 4, 5, 8, 16</p>	<p>Key driver for SMP strategic approach</p>
<p><u>Making the most of Wales' Coast – Integrated Coastal Zone Management (ICZM) consultation document</u>, ECM Division (Welsh Assembly Government, January 2006)</p>	<p>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.</p>	<p>9</p>	<p>SMP2 need to take ICZM findings into account</p>
<p>Framework For Future Flood Risk Management Programme (WAG, 2006)</p>	<p>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</p>	<p>1, 2, 4, 8, 9,</p>	<p>Key driver for Flood Risk Management Strategy approach</p>
<p>Foresight Future Flooding Report (Office of Science and Technology, 2004)</p>	<p>The key findings of the Foresight work are that:</p> <ul style="list-style-type: none"> • 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. <p>Hard choices need to be taken: either invest in more sustainable</p>	<p>1, 8, 10</p>	<p>Key driver for Flood Risk Management Strategy approach</p>

	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/government/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





	<p>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.</p>		
<p>National Trust Wales Shifting Shores Living with a changing coastline, 2007</p>	<p>Sets outs Trusts policy is to take a long-term view, working with natural coastal change wherever possible. Advocate adaptation, 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.</p>	<p>8, 9, 10, 11</p>	<p>The NT policy will be taken into consideration when determining SMP2 policy options</p>

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 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
Population and Human Health												
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 properties at risk of tidal flooding now or in the future			No properties at risk of tidal flooding now or in the future							
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	-	-	-	-
		Assuming SoP remains the same or is increased flood risk will not change			No assets at risk of tidal flooding now or in the future							
Recreational Sites: coastal path, Cosmeston Lakes and Country Park Lavernock Point facilities Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	-	-	-	-
		No assets at risk of tidal flooding now or in the future			No assets at risk of tidal flooding now or in the future							
Material Assets & Critical Infrastructure												
Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	-	-	-	-
		No assets at risk			No assets 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	-	-	-	-	-	-	-	-	-	-	-
		No assets at risk			No assets at risk							
Biodiversity Flora and 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 Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	▲	▲▲	-	-	●	-	-	-	-	-
		Hold the line will result in coastal squeeze impacting international sites			NAI will allow natural roll back of habitats and maintain habitats and features, however geology/topography will limit rate							
National nature	N/A	-	▲	▲	-	-	●	-	-	-	-	-

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
designations: Severn Estuary and Penarth Coast SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Due to high ground / hard geology ATL is not technically appropriate, option not considered											
				Hold the line will result in coastal squeeze impacting Severn SSSI. Penarth Coast SSSI potentially affected by new defences			Rate of habitat roll back will be limited due to cliffs so rate of roll back restricted Penarth Coast SSSI unaffected					
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 habitats will be lost to coastal squeeze			Rate of habitat roll back restricted by cliffs					
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.	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 assets at risk now or in the future			No assets at risk now or in the future					
Water Environment												
Water resources are protected	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			N/A	N/A	N/A	N/A	N/A	N/A	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				No assets at risk			No assets at risk					
No detriment to water quality	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered			N/A	N/A	N/A	N/A	N/A	N/A	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				No water bodies at risk			No water bodies 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 High ground / hard geology precludes physical retreat of the line, option not considered		
				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		
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		
				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					
Contribute towards Sustainable Development												

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 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		

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 – Forest Road to Penarth Head (PEN2)												
	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
Population and Human Health												
Residential Properties: Penarth Head Developments including Bradford Place 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 properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			No properties at current or 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 impact associated with flooding and erosion to key community, recreational and amenity facilities.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	▲	▲	▲	-	▲	▲	▲	▲	▲	▲	▲
		No features behind the current defences at risk; features on or in front of defence line at risk of increased erosion/ overtopping in medium to long term			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 anxiety associated with flood and erosion risk).	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	-	-	-	-
		No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			Realignment may adversely affect properties				
Material Assets & 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)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	▲	▲	-	▲	▲	▲	▲	▲	▲	▲
		No property or businesses behind the esplanade are at risk of flooding or erosion now or in the future; there is however an increased risk of overtopping of features on or in front of defence line e.g. the esplanade in the medium to long term.			Some economic assets along the foreshore might be at increased risk of overtopping in the medium to long term e.g. esplanade and pier.			Some economic assets along the esplanade may be affected.				
Critical Infrastructure: Lifeboat Station 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	-	▲	▲	-	▲	▲	▲	▲	▲	▲	▲
		Lifeboat station is located in front of existing defences and may be at risk;			Lifeboat station potentially affected by increased risk of erosion in the medium to long term.			Realignment could affect lifeboat station				
Biodiversity, Flora and Fauna												
International Nature Conservation sites Severn Estuary Ramsar, SAC and SPA Avoid significant impact on the integrity of	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	▲	▲	-	-	●	●	●	●	●	●











internationally designated sites and the favourable condition of their features.		Hold the line will result in coastal squeeze impacting international sites				Roll back of habitats will occur, but in some places rates will be restricted by hard geology and existing development		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 impact on nationally or locally designated conservation sites.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	▲	▲	-	-	●	● / ▲
		Hold the line will result in coastal squeeze impacting Severn SSSI. Penarth SSSI potentially affected by new defences				Roll back of habitats will occur, but rates will be restricted by hard geology and existing development. Penarth SSSI unaffected		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	-	▲	▲	-	-	●	●
		Hold the line will result in coastal squeeze impacting Severn SSSI.				Natural processes operating; roll back of habitats will occur, but rates will be restricted by hard geology and existing development		Realignment will be restricted in some places by hard geology and existing development
Historic Environment								
Scheduled Monument: Penarth Churchyard Cross. 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 Due to high ground / hard geology ATL is not technically appropriate, option not considered	▲	▲	▲	-	▲	▲	▲
		No onshore features at current or future risk of tidal flooding; pier and esplanade on or in front of defence line potentially at risk				No onshore features at current or future risk of tidal flooding; pier and esplanade on or in front of defence line potentially at risk		Some features along coast may be lost
Water Environment								
Water resources are protected.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-
		No known resources				No known resources		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 known assets at risk				No known assets 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	▲	▲	▲	-	-	-	●
		Can not raise the height of the defences indefinitely.				Natural evolution of the coast will accommodate climate change:		Managed realignment will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character.	N/A Due to high ground / hard	-	-	-	-	-	-	▲

	geology ATL is not technically appropriate, option not considered							
		Limited current or future flood risk so raising of defences unlikely to be required; limited change to current landscape/views			Due to geology existing landscape is likely to remain			Managed realignment will alter the townscape and views
Contribute towards Sustainable Development								
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

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 (CAR1)												
	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
Population and Human Health												
Residential: Cardiff Bay residential developments Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	-	-	-
	No properties at current or future risk of tidal flooding	No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			No properties at current or future risk of tidal flooding			Retreating the line will affect residential properties – would require the removal of the Barrage (not considered a feasible choice)	
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	No features at risk now or in future from tidal flooding			No features at risk now or in future from tidal flooding			No features at risk now or in future from tidal flooding			Retreating defences will affect recreational use of bay – would require the removal of the Barrage (not considered a feasible choice)	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	-	-	-
	No properties at risk of tidal flooding now or in the future	No properties at risk of tidal flooding now or in the future			No properties at risk of tidal flooding now or in the future			No properties at risk of tidal flooding now or in the future			Realignment could adversely affect properties – would require the removal of the Barrage (not considered a feasible choice)	
Material Assets and Critical Infrastructure												
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)		-	-		-			-	-	-	-	-
	Access to and operation of Cardiff Bay potentially affected	Docks and other economic assets protected from risk of erosion			Future risk of erosion will affect commercial actives in front of barrage;			Would require the removal of the Barrage (not considered a feasible choice)				
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.	-	-	-	-	-	-	-		-	-	-	-
	No infrastructure at current or future tidal flood risk	No infrastructure at current or future tidal flood risk			Infrastructure would be at risk from increased erosion			Infrastructure affected – would require the removal of the Barrage (not considered a feasible choice)				
Biodiversity, Flora and 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		-			-			-	-	-	-	-
	Impact on internationally protected sites	Coastal squeeze will result in loss of intertidal habitats			Coastal squeeze will result in loss of intertidal habitats			Managed realignment will allow intertidal habitat to be maintained				

Policy Unit – Cardiff Bay (CAR1)												
	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
features												- would require the removal of the Barrage (not considered a feasible choice)
National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.							-					-
	Advance the line will impact on the protected site	Coastal squeeze will impact on the protected site			Habitat roll back not possible due to presence of bay and barrage – coastal squeeze will result;			Development will restrict the amount of habitat roll back – would require the removal of the Barrage (not considered a feasible choice)				
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-			-					-
	Advance the line will reduce extent of intertidal habitats	Coasts squeeze will reduce extent of intertidal habitat			Development and barrage will restrict ability of habitat to roll back; coastal squeeze will occur.			Managed realignment could promote intertidal habitat – would require the removal of the Barrage (not considered a feasible choice)				
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.	-			-	-	-	-	-	-	-		-
	No known assets at risk	No known assets at risk			No known assets at risk			No known assets at risk				
Water Environment												
Water resources are protected.	-			-	-	-	-	-	-	-		-
	No assets at risk of tidal flooding now or in the future	No assets at risk of tidal flooding now or in the future			No assets at risk of tidal flooding now or in the future			No known assets at risk				
No detriment to water quality.	-			-	-	-	-	-	-	-		-
	No known assets at risk of tidal flooding now or in the future	No known assets at risk of tidal flooding now or in the future			No known assets at risk of tidal flooding now or in the future			No known assets at risk				
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 raise the height of the defences indefinitely; however adequate protection currently provided for 100 yrs.			Impacts of climate change will be accommodated for duration of strategy			Managed realignment will accommodate climate change – would require the removal of the Barrage (not considered a feasible choice)				
Landscape												

Policy Unit – Cardiff Bay (CAR1)												
	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
Avoid detrimental effects to landscape character.	-			-			-			▲		
	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape-			Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape			Due to limited flood risk and presence of barrage existing landscape likely to remain unchanged until last epoch			Managed realignment will alter the townscape and views – would require the removal of the Barrage (not considered a feasible choice)		
Contribute towards Sustainable Development												
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 process or erosion and deposition will be affected due to presence of barrage			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		

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 Rhymney, Rover Way (CAR2)												
	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
Population and Human Health												
Recreational Sites: Coastal Path Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Assets protected from tidal flooding/erosion			Assets protected from tidal flooding/erosion			Assets protected from tidal flooding/erosion			Assets adversely affected by retreat		
Residential: Small scale residential developments Reduce significance of impact associated with flooding and erosion to people and property.							-	-				
	Limited number of properties currently at risk and therefore protected under this option			Limited number of properties currently at risk and therefore protected under this option			Limited number of properties currently at risk of future flooding/erosion under this option			Realignment may adversely affect some properties. No wider FRM benefit.		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).							-					
	Limited number of properties currently at risk and therefore protected under this option			Limited number of properties currently at risk and therefore protected under this option			Limited number of properties currently at risk of future flooding/erosion under this option			Realignment may adversely affect some properties; No wider FRM benefit		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Docks –Queen Alexandra and Roath and access including railway Reduce significance of impact associated with flooding and erosion to critical infrastructure.												
	Docks will remain protected from and erosion			Docks will remain protected from and erosion			Docks at risk primarily from erosion			Realignment may affect dock operation		
Industrial, commercial and economic assets: Dockland industry Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)							-					
	Limited number of industrial assets currently at risk and therefore protected under this option			Limited number of industrial assets currently at risk and therefore protected under this option			Limited industrial assets at risk of future flooding/erosion under this option			Realignment would adversely affect local industry operation		
Biodiversity, Flora and 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 squeeze will impact on the protected sites			Habitats will roll back			Realignment will allow intertidal habitats to roll back		
National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.				-			-					
	Advance the line will result in loss of intertidal habitats			Coastal squeeze will impact on the protected site			Roll back of habitats will occur			Realignment will maintain intertidal habitats		
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans				-			-					
	Advance the line will result in loss of intertidal habitats			Coastal squeeze will impact on habitats and species			Roll back of habitats will occur			Realignment will maintain intertidal habitats		

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 protected	Sites at risk from increased flooding/erosion			Sites potentially affected by retreat term		
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No resources known to be present	No resources known to be present	No resources known to be present			No resources known to be present		
No detriment to water quality.	-	-	-	-	-	-	-	-
	No assets known to be at risk	No assets known to be at risk	No assets known to be at risk			No assets 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 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 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	Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape	Some erosion of the coastline may occur, but landscape unlikely to change significantly without additional human intervention			Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact		
Contribute towards Sustainable Development								
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 either the ATL or HTL options		

















Both the Hold the Line and No Active Intervention policies 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 Rhymney to Lamby Way landfill site drain / sewer outfall (CAR3)												
	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
Population and Human Health												
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			●	●	●	▲	▲	▲	▲		
				Limited number of properties at current or future risk from tidal flooding/erosion			Increase in flood risk to properties; limited number at risk from current/future flooding/erosion			Realignment may affect some properties; no wider FRM benefit		
Recreational Sites: Coastal path and local open space 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 tributaries to the Severn Estuary, as 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 sites will be protected, although limited flood risk			Recreational sites will be at an increased risk of flooding, although limited vulnerable sites.			Impact will depend on the alignment line: however limited space in reach; so likely 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			-	●	●	▲	▲	▲	▲		
				Limited number of properties at risk from tidal flooding			Increase in flood risk to properties; limited number at risk			Realignment may affect some properties; no wider FRM benefit		
Material Assets and Critical Infrastructure												
Critical Infrastructure: 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			●	●	●	-	▲	▲	▲		
				Limited infrastructure at risk			Limited infrastructure at risk			Retreating the line may adversely affect existing infrastructure		

Industrial, commercial and economic assets: Commercial development aside River Rhymney Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-							
		Limited assets at risk/protected	Limited assets at risk	Limited assets at risk , realignment could affect assets					
Biodiversity, Flora and 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	-			-				
		Coastal squeeze will impact on the protected sites	Habitats will roll back	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	-			-				
		Coastal squeeze will impact on the protected sites Penylan and Rhumney Quarries are located more than 500m from the river and outside the floodplain and therefore will be unaffected	Roll back of habitats may occur, although space is limited	Retreating the line will allow roll back of habitats					
Rhumney 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							-	
		Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Natural processes would be maintained	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								
		Coastal squeeze will impact on the protected habitats and species			Roll back of habitats may occur, although space is limited			Retreating the line will allow roll back of habitats	
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.	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 assets at risk /protected			Limited assets at risk			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 known resources at risk.			No known resources at risk.			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	-	-	-	-	-	-	-	-
		Current and old landfill sites present; however not at current/future erosion or flood risk			Current and old landfill sites present; however not at current/future erosion or flood risk			Retreating line may put these 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							
	.	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 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	-	-	-	-	-	-	-
		Flood risk minimal so limited raising of defences likely to be required. Limited effect on local landscape	Landscape unlikely to change significantly without additional human intervention			Managed realignment will alter the current industrial landscape and views. Subjective as to whether this is positive or negative impact		
Contribute towards Sustainable Development								
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 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:

Policy Unit – Lamby Way Landfill site drain / sewer outfall to Sluice House Farm / Tarwick Rhyne (WEN1)												
	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
Population and Human Health												
Residential: Outskirts of Cardiff, Newton and Llanromney Reduce significance of impact associated with flooding and erosion to people and property							-					
	Limited no. of properties in Cardiff at risk from tidal flooding. Residential properties will be protected.			Limited no. of properties in Cardiff at risk from tidal flooding. Residential properties will be protected.			Residential properties will be at an increased risk of flooding.			Impact will depend on the alignment line. Residential properties potentially affected. No wider FRM benefits		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).							-					
	Residential properties will be protected.			Residential properties will be protected.			Residential properties will be at an increased risk of flooding.			Impact will depend on the alignment line. Residential properties potentially affected. No wider FRM benefits		
Recreational Sites: Coastal path and local open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Access route along the coast will be protected.			Access route along the coast will be protected.			Access route along the coast will be at risk from increased flooding.			Impact depends on the realignment of the coast. The current access route is likely to be adversely affected.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Railway Line Electricity substations, Reduce significance of impact associated with flooding and erosion to critical infrastructure.				-			-					
	Infrastructure protected.			Infrastructure protected.			Infrastructure at an increased risk of flooding.			Impact will depend on alignment line. The assets are at least 800m inland so it is likely they will be protected and not adversely impacted.		
Industrial, commercial and economic assets: Commercial developments of Newton and Llanromney, Agricultural landscape, Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)							-					
	Assets protected			Assets protected			Assets at increased risk of flooding			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 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		-			-			
	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 locally designated conservation sites.		-			-			
	For Land based sites – Gwent Levels Rumney and Peterstone SSSI							
	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 – Severn Estuary SSSI							
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 Environment								
Heritage Landscape: Scheduled Monuments: Relict Seawall on 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. 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 impact to water resources.	No known impact to water resources.	No known impact to water resources.		No known impact to water resources.				
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 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.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.				
Contribute towards Sustainable Development								
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				

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 – Sluice House Farm / Tarwick Rhyne to west bank of River Ebbw at Maesglas railway bridge (WEN2)												
	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
Population and Human Health												
Residential: Peterstone, Marshfield, St. Brides and isolated properties. Reduce significance of impact associated with flooding and erosion to people and property							-					
	Residential properties will be protected.	Residential properties will be protected.			Residential properties will be at an increased risk of flooding.			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.							-					
	Access route along the coast will be protected.	Access route along the coast will be protected.			Access route along the coast will be at risk from increased 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 which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).							-					
	Residential properties will be protected.	Residential properties will be protected.			Residential properties will be at an increased risk of flooding.			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 and Critical Infrastructure												
Critical infrastructure: Railway Line, Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure.				-			-					
	Infrastructure protected.	Infrastructure protected.			Infrastructure at an increased risk of flooding.			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 protected.	Assets protected.			Assets at and increased risk of flooding.			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 Fauna												
International Nature Conservation sites: Severn Estuary Ramsar, SAC and SPA Avoid significant impact on integrity of				-			-					
	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.				

internationally designated sites and the favourable condition of their features								
National nature designations: Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	For Land based sites – Gwent Levels – St. Brides SSSI							
	The Gwent Levels – St Brides SSSI site will be protected	The Gwent Levels – St Brides SSSI site will be protected.	There will be an adverse impact on the site resulting from coastal erosion.		There will be an adverse impact on the site due to the realignment of the coast.			
		-						
	For marine based sites – Severn Estuary SSSI							
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.	?	?	?	?	?	?	?	
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 Environment								
Heritage Sites: Scheduled Monuments: St. Mary's Churchyard Cross at Marshfield And Listed Buildings Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	/	-			-			
	Terrestrial structures will be protected. Gwent Levels Historic Landscape may be adversely affected	Features on landward side of the defences and Historic Landscape Area will be protected. Increased height if defences could have local adverse impact	Structures and Historic Landscape Area will be ay an increased risk of flooding.		Structures likely to be protected as located over 2.5km inland; Historic landscape area could be adversely affected. .			
Water Environment								
Water resources are protected.	- No resources known to be present.	- No resources known to be present.	-	-	-	-	-	-
No detriment to water quality 3 Active landfill sites					-			
	Landfill sites protected from flooding.	Landfill sites protected from flooding.	Landfill sites are at an increased risk of flooding.		Impact depends on the realignment of the coast. One of the sites is on the coast and another within 500m so it is likely that they would be adversely affected.			
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 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.	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.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape); also a visual impact with defences disrupting views.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change in the landscape due to potential changes in vegetation condition and structure.
Contribute towards Sustainable Development									
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 process or erosion and deposition will be affected	Natural process or erosion and deposition will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Natural processes will be allowed to operate	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	Defences will require ongoing maintenance	Defences will require ongoing maintenance	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	No initial input required to deliver option and no ongoing maintenance requirements	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:

Policy Unit – East bank of River Ebbw at Maesglas railway bridge to west bank Usk at transporter bridge (NEW 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential 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											
				Residential properties protected.			Residential properties at an increased risk of flooding.			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 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											
				Assets will be protected.			Assets will be at an increased risk of flooding.			Some local adverse affects within retreated areas. Assets behind protected. Scope for retreat limited by docks.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Docks Electricity substations 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 protected.			Assets will be at an increased risk of flooding.			Impact will depend on the alignment line: however limited space in reach so assets 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 protected.	Assets will be at an increased risk of flooding.	Impact will depend on the alignment line: however limited space in reach and assets likely to be affected.					
Biodiversity, Flora and 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	-	-	-	-			-	
		Usk designated for river habitats, otter and migratory fish ; no impact on Usk SAC likely	Usk – roll back of habitats might increase river corridor and improve site for otters	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	-	-	-	-				
		River Usk and Gwent Levels SSSI unaffected	Gwent Levels unaffected; Usk potential for habitat enhancement	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	?	?	?	?	?	?	?	
		Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or	Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or					

		outcomes. More detailed assessment at lower level required			positive outcomes. More detailed assessment at lower level required			positive outcomes. More detailed assessment at lower level required
Historic Environment								
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							
		Historical assets protected.	Historical assets at risk of increased flooding.			Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.		
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 resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
No detriment to water quality. 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.	Assets at an increased risk of flooding, with implications for water quality.			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							
		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	-	-	-	-	-	-	-
		Limited erosion and flood 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.			V. localised increase in 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 Development								
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

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 does not perform well against the sustainability objective as the defence will require ongoing maintenance.

Policy Unit – West bank of Usk at transporter bridge to west bank of Usk at M4 crossing (NEW 2)												
	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
Population and Human Health												
Recreational Sites: Local open space and facilities 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 tributaries to the Severn Estuary, as 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 sites will be protected.	Recreational sites will be at an increased risk of flooding.			Impact will depend on the alignment line: however limited space in reach; so likely to be an adverse impact.						
Pilgwenlly and Baneswell residential developments and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
		Residential properties protected.	Residential properties at an increased risk of flooding.			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 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											
		Limited assets at risk; assets will be protected.	Assets will be at an increased risk of flooding.			Some local adverse affects within retreated areas. Assets behind protected. Scope for retreat limited by docks.						
Material Assets and Critical Infrastructure												
Industrial, commercial and economic assets: Dock related industry and commercial developments Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											

		Assets will be protected			Assets are at an increased risk of flooding			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 protected			Assets are at an increased risk of flooding.			Impact will depend on the alignment line: however limited space in reach so assets likely to be affected
Biodiversity, Flora and 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	-	-	-	-			
		Usk SAC designated for river habitat, otter and migratory fish; no impacts likely under HTL			Potential to increase river corridor and enhance the site			Potential to increase river corridor and enhance the site
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	-	-	-	-	-	-	-
		Usk designated for river habitats, otter and migratory fish; no impact likely			Natural processes will dominate, however limited undeveloped space to allow expansion of river corridor			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			Unclear how the mix of terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. 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			detailed assessment at lower level required			detailed assessment at lower level required
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.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	●	●	●	▲	▲	▲	●
		Historical assets protected.			Historical assets at risk of increased flooding.			Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
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 resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality 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 protected			Assets at an increased risk of flooding, potential for pollution,			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	▲	▲	▲	-	-	-	●
		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 Development								
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				

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 does not perform well against the sustainability objective as the defence will require ongoing maintenance.

Policy Unit River Usk (both Banks) at M4 crossing to Newbridge on Usk (NEW 3)												
	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
Population and Human Health												
Residential: Caerleon, Llanhennock, Newbridge on Usk and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	-	-	-		
				Residential properties are not at risk of tidal flooding.			Residential properties are not at risk of tidal flooding.			Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact.		
Recreational sites: Local facilities and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	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			-	-	-	-	-	-	-		
				Recreational assets not at risk of tidal flooding.			Recreational assets not at risk of tidal flooding.			Impact will depend on alignment line however adequate space to select alignment so unlikely to be an adverse impact.		
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)	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			●	●	●	▲	▲	▲	▲		
				Agricultural land protected from tidal flooding.			Agricultural land at risk of tidal flooding.			Impact will depend on alignment line. Potential loss of agricultural land		
Critical Infrastructure: 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 not at risk of tidal flooding.			Assets not at risk of tidal flooding.			Impact will depend on 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	-	-	-	-	-	-	-
		Limited properties at risk from tidal flooding.			Limited properties at risk from tidal flooding.			Impact will depend on alignment line; effects unlikely.
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	-	-	-	-	●	●	●
		Usk SAC designated for river habitat, otter and migratory fish; no impacts likely under HTL			Potential to increase river corridor and enhance the site			Potential to increase river corridor and enhance the site
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	-	-	-	-	-	-	●
		Usk designated for river habitats, otter and migratory fish ; no impact likely			Natural processes will dominate, however limited undeveloped space to allow expansion of river corridor			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			Unclear how the mix of			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 marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.	terrestrial and marine habitats and species will be affected – possible negative, neutral or positive outcomes. More detailed assessment at lower level required.			
Historic Environment							
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 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	-	-	-	-	-	-
		Historic assets are not at risk from tidal flooding.	Historic assets are not at risk from tidal flooding.	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 resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.			
No detriment to water quality 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	-	-	-	-	-	▲
		STW not at risk of tidal flooding.	STW not at risk of tidal flooding.	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 Development										
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 Bank of Usk at M4 crossing to Spytty Pill, North of A48 crossing (NEW 4)												
	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
Population and Human Health												
Residential: St. Julian's, Barnardtown and Somerton 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											
				Residential properties protected.			Residential properties at risk from flooding.			Impact will depend on alignment line; however very limited space in the southern section of the reach so properties likely to be impacted. No wider tidal FRM benefit		
Recreational Sites: Local facilities and open space 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 tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
				Local recreational sites will be protected.			Recreational sites will be at an increased risk of flooding.			Impact will depend on the alignment line. Space in the reach is limited so there is likely to be an adverse impact. . No tidal FRM benefit		
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											
				Assets protected.			Assets at an increased risk of flooding.			Impact will depend on alignment line however very limited space in reach: assets likely to be affected. No wider tidal FRM benefit.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Usk crossings including M4, Railway Electricity substations Gwent Police station Reduce significance of	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would											

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							
		Infrastructure protected.	Assets are at an increased risk of flooding.			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 will be protected.	Assets will be at an increased risk of flooding.			Impact will depend on the alignment line. Space in the reach is limited so there is likely to be an adverse impact.		
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	-	-	-	-	●	●	●
		Usk SAC designated for river habitat, otter and migratory fish; no impacts likely under HTL	Potential to increase river corridor and enhance the site			Potential to increase river corridor and enhance the site		
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	-	-	-	-	-	-	-
		Usk designated for river habitats, otter and migratory fish; no impact likely	Natural processes will dominate, however limited undeveloped space to allow expansion of river corridor			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.	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 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. (Historic Environment)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	●	●	●	▲	▲	▲	●
		Historical assets protected.	Historical assets at risk of increased flooding.	Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.				
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 resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.				
No detriment to water quality. 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 protected.	Assets at an increased risk of flooding, potential for pollution,	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 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	▲	▲	▲	-	-	-	-
		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 Development								
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				

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 Pill, north of Uskmouth Power station point (NEW 5)												
	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
Population and Human Health												
Residential: 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				-							
		Residential properties protected.	Residential properties are at an increased risk from flooding.	Impact will depend on alignment line: space in the reach is limited therefore there may be an adverse impact. No wider FRM benefit								
Recreational site: Local facilities and open space 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 tributaries to the Severn Estuary, as 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 sites will be protected.	Recreational sites will be at an increased risk from flooding.	Impact will depend on alignment line: space in the reach is limited therefore 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).	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-							
		Residential properties are protected.	Residential properties are at risk from flooding.	Impact will depend on the alignment line; however very limited space in reach, so likely to be an adverse impact. No wider FRM benefit								
Material Assets and Critical Infrastructure												
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	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	-			-							

(including tourism)	than reduce it							
		Industrial assets will be protected.			Industrial assets will be at an increased risk of flooding.			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 protected.			Assets at an increased risk of flooding.			Impact will depend on alignment line: space in the reach is limited therefore there may be an adverse impact.
Biodiversity, Flora and 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	-	-	-	-	-	-	-
		Usk SAC – some loss of intertidal habitats as a result of sea level rise however this is considered unlikely to affect the SAC			In theory habitats will roll back Intertidal habitats will be maintained and possible benefits for Usk SAC. However reach developed so scope for rollback limited.			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	-	-	-	-	-	-	-
		Usk designated for river habitats, otter and migratory fish; no impact likely			Natural processes will dominate, however limited undeveloped space to allow expansion of river corridor			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							
		Loss of intertidal habitat due to coastal squeeze.			Coastal squeeze likely to occur because reach is developed. Also there is a potential loss of terrestrial habitats.			Impact will depend on alignment line: however very limited space in reach: terrestrial habitats likely to be affected.
Historic Environment								
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	●	●	●	▲	▲	▲	▲
		Historical assets protected.			Historical assets at risk of increased flooding.			Impact will depend on the alignment line, however very limited space in the reach so asset may be adversely affected.
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 resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality. 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 landfill sites protected.			STW and landfill sites at an increased risk of flooding, with increased risk of pollution.			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.			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 Development								
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

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 option 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 – Uskmouth Power Station point to Sudbrook Point, north of M4 Severn Crossing (CALD 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Caldicot, Magor, Undy and Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property				-			-					
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment so larger residential settlements are likely to be protected. Isolated properties may be adversely impacted. No wider FRM benefit				
Recreational sites: Local facilities, open space and footpath network Coastal footpath and network of footpaths across Caldicot levels Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Recreational sites including the coastal footpath will be protected.	Recreational sites including the coastal footpath will be protected.			Recreational sites including the coastal footpath will be at an increased risk of flooding.			Impact will depend on alignment line: however coastal footpath is likely to be adversely impacted.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).				-			-					
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment so larger residential settlements are likely to be protected. Isolated properties may be adversely impacted.				
Material Assets and Critical Infrastructure												
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 flooding and erosion to industrial, commercial and economic assets and activities				-			-					
	Assets will be protected.	Assets will be protected.			Assets will be at an increased risk of flooding.			Impact will depend on alignment line: however adequate space to select alignment, so impacts unlikely and assets such as steelworks protected.				
Critical infrastructure: Railway, Electricity transmission network, Sewerage network and M4 Gwent constabulary emergency response				-			-					
	Infrastructure protected.	Infrastructure protected.			Infrastructure at an increased risk of flooding.			Impact will depend on alignment line: however there is adequate space to select alignment so critical				

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 and 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 squeeze will occur.			Natural processes at the shoreline will operate; Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.			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 – Gwent Levels – Nash and Goldcliff, Whitson, Redwick and Llandeenny and Magor and Undy SSSIs							
	Sites will be protected from coastal flooding.	Sites will be protected from coastal flooding.			Sites will be at an increased risk from coastal flooding.			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 – Severn Estuary SSSI							
Coastal squeeze will occur.	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.	?	?	?	?	?	?	?	?
	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 Environment								
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 and their setting					-			
	Historic landscape and assets protected.	Historic landscape and assets protected. Potentially some local adverse effects from increased height of defences			Historic landscape and assets at an increased risk of flooding.			Impact will depend on the alignment line: not very limited so there may be an adverse impact on the historic landscape.
Water Environment								
Water resources are protected.								
	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact			SPZ at increased risk of salinization			SPZ at increased risk of salinization.

No detriment to water quality. Source protection zone Uskmouth power station historic landfill site	●-	-●	●-	-	-	▲	▲	●▲
	Assets protected.	Assets protected.			Assets at an increased risk of flooding.			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.	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.	▲	▲	▲	▲	-	-	-	-
	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Ever increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.			Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception). May be a local change to townscape due to increased flooding and effect on buildings and use of the area.			Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.
Contribute towards Sustainable Development								
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

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 – Sudbrook Point, north of M4 Severn Crossing to Black Rock at Black Rock Road (CALD 2)												
	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
Population and Human Health												
Residential: Portskewett and Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Residential properties are not at risk.			Residential properties are not at risk.			Residential properties are not at risk.					
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 High ground / hard geology precludes physical retreat of the line, option not considered		
	Recreational sites including the coastal footpath are not at risk.			Recreational sites including the coastal footpath are not at risk.			Recreational sites including the coastal footpath are not at risk.					
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Residential properties are not at risk.			Residential properties are not at risk.			Residential properties are not at risk.					
Material Assets and Critical Infrastructure												
Critical infrastructure: Electricity transmission network Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Critical infrastructure not at risk from flooding.			Critical infrastructure not at risk from flooding.			Critical infrastructure not at risk from flooding.					
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 High ground / hard geology precludes physical retreat of the line, option not considered		
	Assets not at risk.			Assets not at risk.			Assets not at risk.					
Biodiversity, Flora and 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 High ground / hard geology precludes physical retreat of the line, option not considered				
	Coastal squeeze will occur.			Coastal squeeze will occur.			NAI will allow natural processes to operate and habitats to roll back; however geology /topography may limit rates					
Reduce significance of impact on nationally or locally designated conservation sites. Severn Estuary SSSI		-			-	-		N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	Coastal squeeze will occur			Coastal squeeze will occur.			NAI will allow natural processes to operate and habitats to roll back;					

					however geology /topography may limit rates		
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.	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	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 Environment							
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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No historical assets at risk,	No historical assets at risk,	No historical assets at risk,	No historical assets at risk,	No historical assets at risk,	No historical assets 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	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ – not at risk of flooding	Usk Devonian Old Red Sandstone SPZ – not at risk of flooding	
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	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ. No impact	Usk Devonian Old Red Sandstone SPZ – not at risk of flooding	Usk Devonian Old Red Sandstone SPZ – not at risk of flooding	
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 the height of the defences indefinitely.	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.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	
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	Increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual	Increasing the height of the defence will affect local landscape in terms of character (increasing presence in the landscape): also a visual	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.	impact with defences disrupting views.						
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	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					

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.

Policy Unit – Caldicot – Black Rock at Black Rock Road to west bank of River Wye at Park Redding, Thornwell (CALD 3)												
	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
Population and Human Health												
Residential: Thornwell, Mathern and isolated properties 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 on alignment line: however adequate space to select alignment, so unlikely to be adverse impact. No wider FRM benefit				
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.				-			-					
	Recreational sites protected.	Recreational sites protected.			Recreational sites are at an increased risk of flooding.			Impact will depend on alignment line. Footpath network may be adversely impacted.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).				-			-					
	Residential properties protected.	Residential properties protected.			Residential properties are at risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment, so unlikely to be adverse impact No FRM benefit.				
Material Assets and Critical Infrastructure												
Critical infrastructure: Electricity transmission network, M48, Railway line Reduce significance of impact associated with flooding and erosion to critical infrastructure.							-	-				
	Infrastructure protected.	Infrastructure protected.			Infrastructure at risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment so unlikely to be an adverse impact.				
Industrial, commercial and economic assets: Local commercial assets Agricultural land Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).				-			-					
	Landuse predominantly agricultural. Agricultural assets will be protected.	Landuse predominantly agricultural. Agricultural assets will be protected.			Agricultural assets will be at an increased risk of flooding.			Impact will depend on alignment line: however adequate space to select alignment, but agricultural land may be adversely impacted.				
Biodiversity, Flora and 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 squeeze will occur.			Natural coastal processes will continue to operate. 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 – Bushy Close SSSI, River Wye (Lower Wye) SSSI							
	Sites not at risk of tidal flooding via this unit.	Sites not at risk of tidal flooding via this unit.			Sites unaffected by increased flood risk.			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 Estuary SSSI								
Coastal squeeze will occur.	Coastal squeeze will occur.			Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.			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 squeeze will occur, loss of intertidal habitats.			Loss of terrestrial habitats on the Caldicot levels; intertidal habitats maintained.			Loss of terrestrial habitats on the Caldicot levels; intertidal habitats maintained. .
Historic Environment								
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.	Historic structures protected from tidal flooding; Historic Landscape protected			Historic structures potentially at risk from tidal flooding; Historic Landscape potentially affected			Historic Landscape potentially affected.
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-	
	No risk to water quality.	No risk to water quality.			No risk to water quality.			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 raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			

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.	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 Development								
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


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 loss 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 Wye at Park Redding, Thornwell to west bank River Wye at Alcove Wood, Chepstow (WYE 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Chepstow and Bulwark 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			-	-	-	-	-	-			
				Residential properties not at risk, from current or future flood or erosion.			Residential properties not at risk from current or future flood or erosion risk.			Impact will depend on alignment line: space in the reach is limited so there is likely to be an adverse impact on properties. No wider FRM benefit		
Recreational sites: Local facilities 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 tributaries to the Severn Estuary, as 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 sites will not be impacted by tidal flooding.			Recreational sites will not be impacted by tidal flooding.			Impact will depend on alignment line. There is limited space for realignment so there may be adverse impacts.		
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			-	-	-	-	-	-			
				Residential properties not at risk.			Residential properties not at risk.			Impact will depend on alignment line: space in the reach is limited so there is likely to be an adverse impact. No wider FRM benefit		
Material Assets and Critical Infrastructure												

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	-	-	-	-	-	-	-
		Critical infrastructure is not at risk from flooding.	Critical infrastructure is not at risk from flooding.	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	-	-	-	-	-	-	▲
		Assets not impacted by current or future tidal flooding and erosion.	Assets not impacted by current or future tidal flooding and erosion.	Impact will depend on alignment line. There is limited space for realignment so there may be adverse impacts.				
Biodiversity, Flora and 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	-	-	-	-	-	-	●
		Features of River Wye SAC not impacted by tidal flooding; site designated for river habitats, otter and migratory fish species no impact to habitats or species for which the site is designated.	Features of River Wye SAC not impacted by tidal flooding; natural processes will operate; no impact to habitats or species for which the site is designated.	Realignment may offer 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	-	-	-	-	-	-	●
		Site designated for river habitat, otter and migratory fish species. Lower Wye SSSI is not impacted by HTL policy.	Natural processes will operate; NAI unlikely to affect site	Impact will depend on the alignment line. May offer opportunities for enhancement				

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 not at risk from tidal flooding.			Habitats not at risk from tidal flooding.			Impact will depend on the alignment line. If river channel is widened this is likely to have an adverse impact on the terrestrial or riverine habitats of the area.	
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.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-	-
		Historical assets are not at current or future risk from tidal flooding/erosion.			Historical assets are not at current or future risk from tidal flooding/erosion.			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 resources are not at risk.			Water resources are not at risk.			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 quality is not at risk.			Water quality is not 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	▲	▲	▲	-	-	-	●
		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	-	-	-	-	-	-	-
		Limited current or future flood/erosion risk means there is no requirement to increase the height of defences	Limited current or future flood/erosion risk means Landscape is unlikely to change			Retreating the defences will alter the appearance and character of the urban area; the nature and design of any changes will determine whether this is a positive or a negative impact.		
Contribute towards Sustainable Development								
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

No features of the natural human environment are at risk from current or future flooding and erosion. **No Active Intervention** is therefore the environmentally preferred option. No adverse impacts will arise from the adoption of this option.

Policy Unit – Wye – west bank River Wye at Alcove Wood, Chepstow to Bigsweir Bridge + east bank River Wye at Bigsweir Bridge to Bridge Street bridge, Sedbury (WYE 2)												
	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
Population and Human Health												
Residential: Chepstow and Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Residential properties are not at current or future risk of flooding/erosion.			Residential properties are not at current or future risk of flooding/erosion.					
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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Residential properties are not at current or future risk of flooding/erosion.			Residential properties are not at current or future risk of flooding/erosion.					
Material Assets and Critical Infrastructure												
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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Critical infrastructure is not at risk from flooding.			Critical infrastructure is not at risk from flooding.			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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Assets are not at risk from flooding.			Assets are not at risk from flooding.					
Biodiversity, Flora and Fauna												

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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Features of River Wye SAC not impacted by tidal flooding; site designated for river habitats, otter and migratory fish species no impact to habitats or species for which the site is designated.	Features of River Wye SAC not impacted by tidal flooding; natural processes will operate, no impact to habitats or species for which the site is designated.					
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 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
		Features of Wye SSSI not impacted by flooding. Other Sites not at current or future risk of flooding/erosion	Features of Wye SSSI not impacted by flooding. Other Sites not at current or future risk of flooding/erosion					
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
		Habitats and species not at current or future risk of flooding/erosion.	Habitats and species not at current or future risk of flooding/erosion.					
Historic Environment								
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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Historical assets are not at current or future risk of flooding/erosion.	Historical assets are not at current or future risk of flooding/erosion.					
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								High ground / hard geology precludes physical retreat of the line, option not considered
		Water resources are not known to be at risk.	Water resources are not 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	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water quality is not known to be at risk.	Water quality is not 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	▲	▲	▲	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Can not raise the height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.						
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
		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 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	Natural process or erosion	Natural processes will be	.					















	will be affected	and deposition will be affected			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			

No features of the natural human environment are at risk from current or future flooding and erosion. **No Active Intervention** is therefore the environmentally preferred option. No adverse impacts will arise from the adoption of this option.






Policy Unit – Wye – east bank River Wye at Bridge Street bridge, Sedbury to Sedbury STW (WYE 3)												
	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
Population and Human Health												
Residential: Tutshill and Sedbury 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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.					
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 tributaries to the Severn Estuary, as 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		
				Recreational sites are not at risk from current or future flooding/erosion			Recreational sites are not at risk from current or future flooding/erosion.					
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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.					
Material Assets and Critical Infrastructure												
Critical infrastructure: Railway, A48, Sewage Treatment Works and 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			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
				Critical infrastructure is not at risk from current or future flooding/erosion.			Critical infrastructure is not at risk from current or future flooding/erosion					
Industrial, commercial and economic assets: Local commercial assets Reduce significance of	N/A Advance the Line is considered to be an unsuitable policy for			-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not		

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
		Assets are not at risk from current or future flooding/erosion.	Assets are not at risk from current or future flooding/erosion						
Biodiversity, Flora and 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
		Features of SAC not impacted by tidal flooding; site designated for river habitats, otter and migratory fish species no impact to habitats or species for which the site is designated.		Features of SAC not impacted by tidal flooding; natural processes will operate, no impact to habitats or species for which the site is designated.					
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
		No impact to habitats or species for which the site is designated.		Natural processes will operate, no impact to habitats or species for which the site is designated.					
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans (Biodiversity, Flora and Fauna)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Habitats and species not at risk from current or future flooding/erosion.		Habitats and species not at risk from current or future flooding/erosion.					
Historic Environment									
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 environment sites and their setting. (Historic Environment)	in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
		Historical assets are not at risk from current or future flooding/erosion.			Historical assets are not at risk from current or future flooding/erosion.			
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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water resources are not known to be at risk.			Water resources are not 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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Water quality is not known to be at risk.			Water quality is not 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	▲	▲	▲	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		Cannot raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			
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	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered

		Limited current or future flood/erosion risk means there is no requirement to increase the height of defences	Limited current or future flood/erosion risk means Landscape is unlikely to change	
Contribute towards Sustainable Development				
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

No features of the natural human environment are at risk from current or future flooding and erosion. **No Active Intervention** is therefore the environmentally preferred option. No adverse impacts will arise from the adoption of this option.

Policy Unit – Wye – east bank River Wye at Sedbury STW to End of Beachley Road, Beachley Point (WYE 4)												
	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
Population and Human Health												
Residential developments: Beachley Head Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Residential properties are not at risk from current or future flooding/erosion			Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.					
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.			Residential properties are not at risk from current or future flooding/erosion.					
Material Assets and Critical Infrastructure												
Critical infrastructure: M48 Crossing Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Critical infrastructure is not at risk from current or future flooding/erosion			Critical infrastructure is not at risk from current or future flooding/erosion.			Critical infrastructure is not at risk from current or future flooding/erosion.					
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 High ground / hard geology precludes physical retreat of the line, option not considered		
	Assets are not at risk from current or future flooding/erosion			Assets are not at risk from current or future flooding/erosion			Assets are not at risk from current or future flooding/erosion					
Biodiversity, Flora and 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 High ground / hard geology precludes physical retreat of the line, option not considered		
	River Wye SAC will be adversely affected.	Features of SAC not impacted by tidal flooding; site designated for river habitats, otter and migratory fish species no impact to habitats or species for which the site is designated.			Features of SAC not impacted by tidal flooding; natural processes will operate, no impact to habitats or species for which the site is designated.							
National nature conservation: Pennsylvania Fields and Lower Wye Valley SSSI Reduce significance of impact on nationally or locally designated conservation sites.					-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	SSSI (Pennsylvania Fields) requires inundation											
	Flooding to SSSI		Flooding to SSSI potentially			Natural processes						

	potentially reduced	reduced			predominate, site will evolve and interest features should be protected			
	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Lower Wye Valley SSSI							
	No impact to habitats or species for which the site is designated	No impact to habitats or species for which the site is designated.			Features of Wye SSSI not impacted by flooding; no impact on habitats or species for which the site is designated			
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
	ATL could adversely affect habitats and species for which the Wye is designated	Habitats and species not at risk from current or future flooding/erosion.			Habitats and species not at risk from current or future flooding/erosion.			
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.	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Historical assets are not at risk from current or future flooding/erosion	Historical assets are not at risk from current or future flooding/erosion			Historical assets are not at risk from current or future flooding/erosion			
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.	Water resources are not known to be at risk.			Water resources are not known to be at risk.			
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.	Water quality is not known to be at risk. Buttington Farm Historical landfill site is not at risk from flooding.			Water quality is not known to be at risk. Buttington Farm Historical landfill site is not at risk from flooding.			
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.	Cannot raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			

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/land reclamation will affect local landscape in terms of character (increasing presence in the landscape): also a visual impact with defences disrupting views.	Limited current or future flood/erosion risk means there is no requirement to significantly increase the height of defences	Limited current or future flood/erosion risk means Landscape is unlikely to change					
Contribute towards Sustainable Development								
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

No features of the natural human environment are at risk from current or future flooding and erosion. **No Active Intervention** is therefore the environmentally preferred option. No adverse impacts will arise from the adoption of this option.

1.8 Tidenham and Surrounding Villages Theme Area (TID)

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

Policy Unit – Tidenham and surrounding villages – End of Beachley Road, Beachley Point to Guscar Rocks (TID 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Sedbury, Beachley, Tidenham and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	▲	-	-	-
	No properties at risk			No properties at risk from.			No properties at risk; isolated properties potential at increased risk from year 50.			Adverse impacts unlikely. No wider FRM benefit.		
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 assets known to be present.			No assets known to be present.			No assets known to be present.			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).	-	-	-	-	-	-	-	-	-	-	-	-
	No properties at risk			No properties at risk.			No properties at risk			Adverse impacts unlikely. No wider FRM benefit.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Railway link to Gloucester Reduce significance of impact associated with flooding and erosion to critical infrastructure	●	●	●	●	●	●	-	-	▲	▲	▲	▲
	Railway will be protected.			Railway will be protected			Railway embankment at increased risk of damage by floodwaters from year 50			Impact will depend on realignment of coast; however railway runs close 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).	●	-	●	●	-	-	▲	▲	▲	▲	▲	▲
	Agricultural land will be protected.			Agricultural land will be protected.			Small areas of agricultural land will be at an increased risk of flooding years 50 - 100.			Impact will depend on the alignment line. Agricultural land likely to be affected		
Biodiversity, Flora and 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 squeeze will occur.			In theory habitats will roll back and intertidal habitats will be maintained. . In addition terrestrial habitats will be affected.			Impact will depend on alignment line: adequate space to select alignment so unlikely to be an adverse impact.		

National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	Coastal squeeze will occur.	Coastal squeeze will occur.	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 Environment								
Broad Stone & Roman villa SW of Woolston Scheduled Ancient 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.	Limited nos. of designated features present. Historical asset protected.	Limited nos. of designated feature present. Two SMs at increased risk of flooding after year 50	Impact will depend on alignment line. Two SMs at increased risk of flooding after year 50				
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-	-
	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.	No known risk to water quality.
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:	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.	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 is not likely to impact on this reach of coastline.	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 Development								
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	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				

	maintenance.			than for wither the ATL or HTL options
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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 – Tidenham and surrounding other villages – Guscar Rocks to Lydney Harbour (TID 2)												
	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
Population and Human Health												
Residential: Netherend, Aylburton and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.				-			-					
	Properties in Aylburton and outskirts of Lydney plus isolated houses at risk. Residential properties will be protected.	Residential properties will be protected.			Residential properties will be at an increased risk from flooding.			Impact will depend on alignment line: however adequate space in reach so adverse impact likely to be limited to isolated properties. No wider FRM benefit				
Recreational sites: Local facilities, open space and footpath network; Lydney harbour Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.				-			-					
	Flooding could affect the Canal in adjacent unit and associated recreational facilities; features protected	Features protected.			Flooding could affect the Canal in adjacent unit and associated recreational facilities			No assets known to be present, within potential retreat area.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).				-			-					
	Residential properties will be protected.	Residential properties will be protected.			Residential properties will be at an increased risk from flooding.			Impact will depend on alignment line: however adequate space in reach so adverse impact only likely to be to isolated properties. No wider FRM benefit				
Material Assets and Critical Infrastructure												
Critical infrastructure: Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Critical infrastructure will be protected.	Critical infrastructure will be protected.			Critical infrastructure at risk from increased flooding.			Impact will depend on realignment of coast. Assets may be adversely 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).				-			-					
	Assets will be protected.	Assets will be protected.			Assets will be at an increased risk of flooding.			Impact will depend on the alignment line. Assets are not likely to be adversely affected.				
Biodiversity, Flora and 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 squeeze will occur.			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.				
Nature conservation sites: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.				-			-					
	Coastal squeeze will occur.	Coastal squeeze will occur.			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.		-						
	Coastal squeeze will occur.	Coastal squeeze will occur.	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.			
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.	-	-	-	-	-	-	-	-
	No designated assets present.	No designated assets present.	No designated assets present.		No designated assets present.			
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.		No water resource known to be at risk.			
No detriment to water quality. Lydney recreation trust historic landfill site					-			-
	Protection from flooding of historic landfill site.	Protection from flooding of historic landfill site.	Water quality adverse potential impacts because of increased tidal flood risk.		Realignment is not likely to impact on the historic landfill site.			
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 Sustainable Development								
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			

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:















Policy Unit – Lydney – Lydney Harbour basin (LYD 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Lydney Reduce significance of impact associated with flooding and erosion to people and property.	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 properties currently at risk from flooding via this unit			No properties currently at risk from flooding via this unit			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 impact associated with flooding and erosion to key community, recreational and amenity facilities.	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 flood risk			With no maintenance condition of harbour would deteriorate in long term			Harbour operation and facilities 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	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 properties currently at risk from flooding via this unit			No properties currently at risk from flooding via this unit			Impact will depend on alignment line: however space in reach is limited so adverse impact likely to localised properties.		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure	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 assets currently at risk from flooding via this unit			No assets currently at risk from flooding via this unit			Impact will depend on realignment line. Harbour/canal to be adversely impacted.		
Industrial, commercial and economic assets: Lydney Harbour port operations, industrial estate Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).	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 assets currently at risk from flooding via this unit			With no maintenance condition of harbour would deteriorate in long term			Impact depends on the alignment line. Space in reach is limited. Likely to be adverse impact to harbour facilities.		
Biodiversity, Flora and 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 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	-	-	-	-	-	-	-
		Sites unaffected			Sites unaffected			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 conservation 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	-	-	-	-	-	-	-
		Sites unaffected			Sites unaffected			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 impact			No impact			Impact will depend on alignment line: harbour is unlikely to be realigned.
Historic Environment								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Lydney Harbour SAM Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	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	-	●	●	-	-	▲	▲
		Asset protected			With no maintenance condition of harbour would deteriorate in the long term.			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 resource known to be at risk.			No water resource known to be at risk.			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	-	-	-	-	-	-	-
		No assets at risk from flooding via this unit			No assets at risk from flooding via this unit			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	-	-	-	-	-	-	●
		No flood risk so no requirement to raise defences.			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 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 flood risk so no requirement to raise defences.			No flood risk so landscape unlikely to change significantly; buildings and structures could fall into disrepair.			Retreating the defence line would affect the character and setting of the Harbour.
Contribute towards Sustainable Development								
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	▲	▲	▲	●	●	●	●
		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.	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	▲	▲	▲	●	●	●	▲
		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

No assets are at risk from 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 Gloucester – Lydney Harbour to Brims Pill (GLO 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Blakeney and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	-	-	-
	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not 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 identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.	No sites identified to be at risk.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	-	-	-
	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.	Residential properties not at risk from flooding.
Material Assets and Critical Infrastructure												
Critical infrastructure: Railway, Electricity transmission network Blakeney Sewage treatment works Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	-	-	-
	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk
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 assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk
Biodiversity, Flora and 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 squeeze will occur.	Coastal squeeze will occur.	Coastal squeeze will occur.	Natural processes will dominate; habitats and features of site maintained; rate of retreat will be reduced by cliffs behind.	Impact will depend on alignment line. Natural processes will dominate; habitats and features of site maintained; rate of retreat will be reduced by cliffs behind						
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-	-			-	-		
	Coastal squeeze will occur.	Coastal squeeze will occur.	Coastal squeeze will occur.	Coastal squeeze will occur.	Natural processes will dominate; habitats and features of site maintained; rate of retreat will be reduced by cliffs behind	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	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Natural processes would be maintained	Impact likely to depend on alignment line				
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans.		-			-	-		?
	Coastal squeeze will occur.	Coastal squeeze will occur.	Natural processes will dominate; habitats and features of site maintained	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 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.	-	-	-	-	-	-	-	
	Historic assets not at risk from flooding.	Historic assets not at risk from flooding.	Historic assets not at risk from flooding.	Historic assets not at risk from flooding.				
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	
	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.				
No detriment to water quality.	-	-	-	-	-	-	-	
	No assets at risk	No assets at risk	No assets at risk	No assets 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 townscape due to increased flooding and effect on buildings and use of the area.	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.				
Contribute towards Sustainable Development								
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	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance	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
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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 Gloucester – Brims Pill to Northington Farm (GLO 2)												
	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
Population and Human Health												
Residential: Aware and isolated properties Reduce significance of impact associated with flooding and erosion to people and property.	●			● ● ●			▲ ▲ ▲			▲		
	Aware not at risk of flooding; 2 or 3 isolated properties will be protected.			Aware not at risk of flooding; 2 or 3 isolated properties will be protected.			Isolated properties will be at an increased risk of flooding.			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 identified to be at risk.			No sites identified to be at risk.			No sites identified to be at risk.			No sites identified to be at risk.		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	●			● ● ●			▲ ▲ ▲			▲		
	Aware not at risk of flooding; 2 or 3 isolated properties will be protected.			2 or 3 isolated properties will be protected.			Isolated properties will be at an increased risk of flooding.			Impact will depend on alignment line. Isolated properties could be adversely impacted.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure	●			-			▲ ▲ ▲			▲		
	Very short section (200m) of the railway line near Blakeney is the only infrastructure likely to be at risk of flooding. Asset will be protected.			Very short section (200m) of the railway line near Blakeney is the only infrastructure likely to be at risk of flooding. Asset will be protected.			Very short section (200m) of the railway line near Blakeney at risk of increased flooding from year 20.			Impact will depend on alignment line. Railway line and sewage treatment works are likely to be adversely impacted by realignment.		
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).	●			● ● ●			▲ ▲ ▲			▲		
	Agricultural land will be protected.			Agricultural land will be protected.			Agricultural land will be at an increased risk of flooding.			Impact will depend on the alignment line. Agricultural line could be adversely impacted.		
Biodiversity, Flora and Fauna												
Internationally 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 squeeze will occur.			Coastal processes will continue to maintain features and habitats of designated sites			Coastal processes will continue to maintain features and habitats of designated sites		
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	▲			- ▲ ▲			-			● ● ●		
	Coastal squeeze will occur.			Coastal squeeze will occur.			Coastal processes will continue to maintain features and habitats of designated sites			Coastal processes will continue to maintain features and habitats of designated sites		
Maintain and enhance	▲			- ▲ ▲			? ? ?			?		

Biodiversity Action Plan habitats and species in line with existing targets/plans.	Coastal squeeze will occur.	Coastal squeeze will occur.	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 Environment								
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.	Limited no of designated historic assets within Unit ; none at risk form flooding	Limited no of designated historic assets within Unit ; none at risk form flooding	Limited no of designated historic assets within Unit ; none at risk form flooding	Limited no of designated historic assets within Unit ; none at risk form flooding	Limited no of designated historic assets within Unit ; none at risk form flooding	Limited no of designated historic assets within Unit ; none at risk form flooding	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 water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	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.	STW not at risk from flooding.	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 change trends.	▲	▲	▲	▲	-	-	-	●
	Cannot raise the height of the defences indefinitely.	Cannot raise the height of the defences indefinitely.	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.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Natural evolution of the coast will accommodate climate change: possible impact to people and property.	Managed retreat will accommodate climate change.
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.	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 townscape due to increased flooding and effect on buildings and use of the area.	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.	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.	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.
Contribute towards Sustainable Development								
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 process or erosion and deposition will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	Natural processes will be allowed to operate	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	Defences will require ongoing maintenance	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	No initial input required to deliver option and no ongoing maintenance requirements	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, 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 – Lydney to Gloucester – Northington Farm to Newnham Church (GLO 3)												
	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
Population and Human Health												
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	-	-	-
	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of 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.												
	Footpaths will be protected.	Footpaths will be protected.	Footpaths will be protected.	Footpaths will be protected.	Footpaths will be protected.	Footpaths will be protected.	Local footpaths will be at an increased risk of flooding.	Local footpaths will be at an increased risk of flooding.	Local footpaths will be at an increased risk of flooding.	Local footpaths will be at an increased risk of flooding.	Local footpaths will be at an increased risk of flooding.	Local footpaths will be at an increased risk of flooding.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	-	-	-
	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.	Residential properties not at risk of flooding.
Material Assets and Critical Infrastructure												
Critical infrastructure: A48, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	-	-	-
	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.	Assets not at risk of flooding.
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 assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk
Biodiversity, Flora 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		-	-	-	-	-	-	-	-	-	-	-
	Site outside policy unit; advancing the line could have downstream effects	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected	Site unaffected

condition of their features.								
National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	▲	-	-	-	-	-	-	-
	Site outside policy unit; advancing the line could have downstream effects	Site unaffected			Site unaffected			Site unaffected
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.			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 Environment								
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 designated historical assets present.	Limited designated historical assets present.			Limited designated historical assets present.			Limited designated historical assets present.
Water Environment								
Water resources are protected.	-	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water resource known to be at risk.			No water resource known to be at risk.			No water resource known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-	-
	No risk to water quality known.	No risk to water quality known.			No risk to water quality known.			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.	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 Sustainable Development								
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

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 – Newnham Church to Farm north of Broadoak (GLO4)									
	Advance the Line	Hold the Line			No Active Intervention			Managed Realignment	
Population and Human Health									
Residential: Newnham Broadoak Reduce significance of impact associated with flooding and erosion to people and property.								N/A Cliff at Newnham prevents realignment.	
	Flood risk limited, however Newnham is located on top of the cliff and vulnerable to erosion. Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of erosion.				
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 Cliff at Newnham prevents realignment.	
	Public car park in Newnham will be protected from flooding/erosion	Public car park in Newnham will be protected			Public car park in Newnham will be at an increased risk from erosion				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).								N/A Cliff at Newnham prevents realignment.	
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of erosion				
Material Assets and Critical Infrastructure									
Critical infrastructure: A48, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure		-			-			N/A Cliff at Newnham prevents realignment.	
	Critical infrastructure will be protected.	Critical infrastructure will be protected.			Critical infrastructure at risk from increased erosion				
Industrial, commercial and economic assets: Local commercial assets Agricultural land Local businesses Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism).								N/A Cliff at Newnham prevents realignment.	
	Assets protected from flooding.	Assets protected from flooding.			Assets at an increased risk from erosion.				
Biodiversity, Flora 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.	-	-	-	-	-	-	-	N/A Cliff at Newnham prevents realignment.	
	No impact to international nature conservation sites.	No impact to international nature conservation sites.			No impact to international nature conservation sites.				
National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites. SSSIs.	-	-	-	-	-	-	-	N/A Cliff at Newnham prevents realignment.	
	No impact to national nature conservation sites.	No impact to national nature conservation sites.			No impact to national nature conservation sites.				
Maintain and enhance Biodiversity Action Plan								N/A Cliff at Newnham prevents realignment.	

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.	Coastal processes operation and natural habitat evolution habitats retained	
Historic Environment				
Listed Buildings and 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.	●	● ● ●	▲ ▲ ▲	N/A Cliff at Newnham prevents realignment.
	Historical assets protected from erosion	Historical assets protected from erosion	Historical assets at an increased risk from erosion.	.
Water Environment				
Water resources are protected.	-	- - -	- - -	N/A Cliff at Newnham prevents realignment.
	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	
No detriment to water quality.	-	- - -	- - -	N/A Cliff at Newnham prevents realignment.
	No risk to water quality known.	No risk to water quality known.	No risk to water quality known.	
Air and Climate				
Policy is designed to adapt to or accommodate climate change trends.	▲	▲ ▲ ▲	- - -	N/A Cliff at Newnham prevents realignment.
	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.	
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.	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 townscape due to increased flooding and effect on buildings and use of the area.	
Contribute towards Sustainable Development				
Natural coastal process are promoted e.g. through managed retreat of defences.	▲	▲ ▲ ▲	● ● ●	N/A Cliff at Newnham prevents realignment. ●
	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 Cliff at Newnham prevents realignment.
	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 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 Gloucester – Farm to north of Broadoak to Hill Farm, Rodley (GLO 5)												
	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
Population and Human Health												
Residential: Westbury on Severn and Rodley and isolated properties Reduce significance of impact associated with flooding and erosion to people and property.	●			● ● ●			▲ ▲ ▲			-		
	Residential properties protected.			Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line; however adequate space 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.	●			● ● ●			▲ ▲ ▲			▲		
	Coastal path will be protected from flooding.			Coastal path will be protected from flooding.			Coastal path will be at an increased risk from flooding.			Impact will depend on realignment of coast. Coastal footpath is likely to be adversely impacted.		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	●			● ● ●			▲ ▲ ▲			-		
	Residential properties protected.			Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line; however adequate space so property is not likely to be affected.		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Railway line at Elton A4151 Reduce significance of impact associated with flooding and erosion to critical infrastructure.	●			● ● ●			▲ ▲ ▲			●		
	Assets protected from flooding.			Assets protected from flooding.			Assets at an increased risk from flooding.			Impact will depend on realignment of coast. Assets are likely to be protected.		
Industrial, commercial 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 protected from flooding.			Assets protected from flooding.			Assets at an increased risk from flooding.			Impact will depend on realignment of coast. Assets may be adversely impacted.		
Biodiversity, Flora and Fauna												
Garden Cliff SSSI 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			Assuming the defences did not adversely affect the cliff and were located behind it natural processes			Natural processes would be maintain			Impact likely to depend on alignment line		

		would be maintained.						
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 unit No impact to international nature conservation sites.	No impact to international nature conservation sites.			No impact to international nature conservation sites.			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.	No impact to national nature conservation sites.			No impact to national nature conservation sites.			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.	Loss of intertidal habitat due 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 Environment								
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.	Historical assets will be protected.			Historical assets will be at an increased risk of flooding.			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.	Historical assets will be protected.			Historical assets will be at an increased risk of flooding.			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 water resource known to be at risk.			No water resource known to be at risk.			No water resource known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-	-
	No risk to water quality known.	No risk to water quality known.			No risk to water quality known.			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.	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.	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 Development								
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.

Policy Unit – Lydney to Gloucester – west bank at Hill Farm, Rodley to west bank at Goose Lane farm (GLO 6)												
	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
Population and Human Health												
Residential: Bollow and isolated residential Reduce significance of impact associated with flooding and erosion to people and property.	-	-	-	-	-	-	-	-	-	-	-	-
	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	Impact will depend on alignment line; however available space in the reach 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.	-	-	-	-	-	-	-	-	-	-	-	▲
	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Recreational assets not at risk of flooding.	Impact will depend on alignment line; assets may be adversely impacted.
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk).	-	-	-	-	-	-	-	-	-	-	-	-
	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	No properties a risk of flooding via this unit	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												
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure.	-	-	-	-	-	-	-	-	-	-	-	-
	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.	No assets at risk.
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).	-	-	-	-	-	-	-	-	-	-	-	▲
	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	No assets at risk	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.	▲	▲	▲	▲	▲	▲	●	●	●	?	?	?
	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 habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.	Habitats evolve as a result of natural processes .	Habitats evolve as a result of natural processes .	Habitats evolve as a result of natural processes .	Habitats evolve as a result of natural processes .	Habitats evolve as a result of natural processes .	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.
Internationally Nature Conservation Sites Avoid significant impact on the integrity of internationally designated sites and the favourable condition of their features	-	-	-	-	-	-	-	-	-	-	-	-
	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.	No impact to international nature conservation sites.
National nature conservation: Reduce significance of impact on nationally or	-	-	-	-	-	-	-	-	-	-	-	-
	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.	No impact to national nature conservation sites.

locally designated conservation sites.							
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.	-	-	-	-	-	-	-
	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.	No designated historical assets not at risk of flooding.
Water Environment							
Water resources are protected.	-	-	-	-	-	-	-
	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.	No water resource known to be at risk.
No detriment to water quality.	-	-	-	-	-	-	-
	No risk to water quality known.	No risk to water quality known.	No risk to water quality known.	No risk to water quality known.	No risk to water quality known.	No risk to water quality known.	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.	Cannot raise the height of the defences indefinitely.	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.	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.	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.	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 Development							
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 process or erosion and deposition will be affected	Natural process or erosion and deposition will be affected	Natural processes will be allowed to operate	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	Defences will require ongoing maintenance	Defences will require ongoing maintenance	No initial input required to deliver option and no ongoing maintenance requirements	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

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 to Gloucester – west bank at Goose Lane farm to west bank at Ley Road (GLO 7)												
	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
Population and Human Health												
Residential: Isolated residential developments 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									-		
				Residential properties protected.			Residential properties at an increased risk of flooding.			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.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
				Local footpath network protected from flooding.			Local footpath network at an increased risk of flooding.			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).	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it									-		
				Residential properties protected.			Residential properties at an increased risk of flooding.			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).	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 including agricultural land protected			Assets including agricultural land are at an			Impact depends on alignment line. However		

		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.		
Biodiversity, Flora and 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.		
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.		
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 protected.			Loss of wetland habitat.			Loss of wetland habitat
Historic Environment								
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	●	●	●		▲	▲	▲
		One listed structure at risk. All assets protected			Listed structure at risk of increased 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 resource known to be at risk.			No water resource known to be at risk.			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 water quality known.			No risk to water quality known.			No risk to water quality 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	▲	▲	▲	-	-	-	●
		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.	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 Development								
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 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.

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		
	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 Health												
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.			Isolated residential properties are at an increased risk of flooding.			Impact depends on alignment line: There may be an adverse impact on a small number of isolated properties but this though to be unlikely.		
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 tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
				Local footpath network including the Gloucestershire way protected from flooding.			Local footpath network including the Gloucestershire way protected from flooding.			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).	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it									-		
				Residential properties protected.			Residential properties at an increased risk of flooding.			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												
Critical infrastructure: Railway, A40 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 protected.			Assets at an increased risk of flooding.			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.	●	●	●	▲	▲	▲	▲
		Agricultural land protected from flooding.			Agricultural land at an increased risk from flooding.			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	●	●	●	▲	▲	▲	?
		Wetland and terrestrial habitat protected.			Loss of wetland/ terrestrial habitat.			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 within this policy unit. No impact			No sites within this policy unit. No impact			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 within this policy unit. No impact			No sites within this policy unit. No impact			No sites within this policy unit. No impact
Historic Environment								
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							
		No assets at risk; no impact			No assets at risk; no impact			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 water resource known to be at risk.			No water resource known to be at risk.			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 water quality known.			No risk to water quality known.			No risk to water quality 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	▲	▲	▲	-	-	-	●
		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.	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			Increasing the frequency 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.	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.	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 Development				
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 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 – Gloucester to Haw Bridge – west bank at Drain from Long Brook to west bank at railway / A40 bridge (MAI 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
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			●	●	●	-	▲	▲	●		
				Some (<5) isolated properties in at risk area; will be protected			Some isolated properties at risk; Minsterworth largely unaffected			Overall flood risk will be reduced however some isolated properties may be affected		
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			●	●	●	-	▲	▲	-		
				Local open space, public footpaths and Gloucestershire Way would be protected.			Local open space, public footpaths and Gloucestershire Way would be at an increased risk of flooding.			Overall flood risk is reduced although some open space and footpaths may be lost during retreat.		
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			●	●	●	-	▲	▲	●		
				Limited properties at risk – continue to be protected			Flood risk will increase			Overall flood risk will be reduced however some isolated properties may be affected		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Railway, A48, Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	-	-	●		

		No critical infrastructure at risk			No critical infrastructure at risk			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 would remain protected			Limited built assets at risk; increased flooding would affect agriculture			Increased protection to majority of assets; some adverse effects to assets within area of realignment
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
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	-	-	-	-	-	-	-
		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	-	▲	▲	●	●	●	?
		Intertidal habitats lost to coastal squeeze			Natural processes allow habitats to evolve naturally			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 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. (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 designated features at risk			No designated features at risk			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 features at risk			No features at risk			No 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 features at risk			No features 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	▲	▲	▲	-	-	-	●
		Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
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		
Contribute towards Sustainable Development								
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 – Gloucester to Haw Bridge –Lower Parting to west bank at Haw Bridge, including River Leadon (MAI 2)												
	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
Population and Human Health												
Residential: Maisemore, Ashleworth 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				-							
		Some isolated properties in at risk area; will be protected			Some isolated properties at risk			Overall flood risk will be 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				-							
		Pubic footpath along the west bank protected			Public footpath and other features at risk of flooding/erosion			Riverside footpath may be adversely affected, other features 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 risk population protected			Small population at increased risk			Overall flood risk will be reduced however some isolated properties may be affected				
Material Assets and Critical Infrastructure												
Critical Infrastructure: A414 / A40, Railway Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-			-							
		Limited critical infrastructure present, some power lines; protected from flooding/erosion			Limited critical infrastructure present, some power lines; subject to increased inundation			Some local adverse affects within retreated area, other areas protected				
Industrial, commercial and economic assets:	N/A Advance the Line is	-			-							

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								
		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			
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	-	-		-	-			
		Ashleworthham SSSIs Site would be protected from inundation from saline water	Increased flooding from saline water could affect habitats – hydraulic pathways unclear			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	-			-	-	-	-	
		Intertidal habitats lost to coastal squeeze	Intertidal habitats retained /increased; possible loss of habitats behind existing defences			Intertidal habitats retained/increased ; possible loss of terrestrial habitat as defences set back			
Historic Environment									
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 environment sites and their setting.	rather than reduce it							
		Limited features present; Highnam court outside flood risk area	Limited features present; Highnam Court outside flood risk area	No major features likely to be affected by retreated defences; features further back protected in long term				
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 resources known to be present	No resources known to be present	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 resources known to be at risk	No resources known to be at risk	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	▲	▲	▲	-	-	-	●
		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property	Managed retreat will accommodate climate change				
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	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			condition and structure	
Contribute towards Sustainable Development								
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			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.	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			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

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 – Gloucester to Haw Bridge – East bank at Haw Bridge (B4213) to Upper Parting (MAI 3)												
	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
Population and Human Health												
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			-	-	-	-	-	-	●		
				No properties at t risk of flooding.			Limited property at risk of flooding.			Limited property at risk of flooding. Opportunity for wider FRM benefit		
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 Valley Way and other recreation assets protected			Severn Valley Way and other assets likely to be adversely affects			Severn Valley Way possibly affected, other assets protected		
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			-	-	-	-	-	-	●		
				No properties at t risk of flooding.			Limited property at risk of flooding.			Limited property at risk of flooding. Opportunity for wider FRM benefit		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Electricity Network Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			●	●	●	-	▲	▲	●		

		Limited critical infrastructure present, some power lines; protected from flooding/erosion			Limited critical infrastructure present, some power lines; subject to increased inundation			Some local adverse affects within retreated area, 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 from 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 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 Environment								
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 designated features in this reach	No designated features in this reach			No designated features in this reach		
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 resources known to be present	No resources known to be present			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 resources known to be at risk	No resources known to be at risk			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								
		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change			
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			
Contribute towards Sustainable Development									
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, 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 – Gloucester to Haw Bridge – Upper Parting to Lower Parting (left bank of parting) (MAI 4)												
	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
Population and Human Health												
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 reduce it.				-							
		Residential areas protected.			Residential areas at an increased risk of flooding..			Impact depends on realignment. Adverse impacts likely.				
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.				-							
		Local open space and footpaths will be protected.			Local open space and footpaths will be at an increased risk of flooding.			Impact depends on realignment. Adverse impacts likely.				
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 residential properties at risk			Limited residential properties at risk			Overall flood risk will be reduced however some isolated properties may be affected				
Material Assets and Critical Infrastructure												
Critical Infrastructure: A417, A40, Rail links, several electricity substations. Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.				-							

		Critical 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 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.				-			
		Economic assets including businesses within flood risk area of 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 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
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.							
		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 Environment								
Heritage: Scheduled Monument and Listed building concentration at Gloucester Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.	●	●	●	-	▲	▲	▲
		Few features within flood risk area; protected form flooding			Features at risk of flooding		Retreat of defences likely to affect	
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 resources known to be present			No resources known to be present		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 resources known to be at risk			No resources known to be at risk		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.	▲	▲	▲	-	-	-	●
		Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property		Managed retreat will accommodate climate change	

















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.	▲	▲	▲	-	-	-	-
		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)		
Contribute towards Sustainable Development								
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, 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 – Gloucester to Haw Bridge – Alney Island (MAI 5)												
	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
Population and Human Health												
Residential: 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 the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.											
				Limited residential properties at risk			Limited residential properties at risk			Some local adverse affects within retreated area, properties behind protected		
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	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 Valley Way and other recreation assets protected			Severn Valley Way and other assets likely to be adversely affects			Severn Valley Way possibly affected, other assets protected		
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 residential properties at risk/protected			Limited residential properties at risk/protected			Limited residential properties at risk/protected		
Material Assets and Critical Infrastructure												
Critical Infrastructure: railway, A40 and A417 Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.											
				Critical assets including A40 and A417 will be protected.			Critical assets including A40 and A417 will be at an increased risk of flooding.			Critical assets including A40 and A417 will be protected from flooding.		
Industrial, commercial and economic assets:	N/A Advance the Line is						-					

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 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				
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 Environment								
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 historical assets at risk of flooding.	No historical assets at risk of flooding.	No historical assets at risk 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 known assets at risk	No known assets 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 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 Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.	▲	▲	▲	-	-	-	●
		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property	Managed retreat will accommodate climate change				
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	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception)	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 Development				
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 Haw Bridge – Lower Parting to Severn Farm (MAI 6)													
		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
Population and 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 residential properties at risk of flooding. They will be protected.				Limited residential properties will be at an increased risk of flooding.						The limited residential properties are unlikely to be impacted by the managed realignment. They will be protected.	
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. Severn Valley Way, Gloucester & Sharpness Canal	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 standard of protection maintained or increased positive impact as assets inc. Severn Valley Way and G&S canal will be protected				Flood risk will increase						Realignment will affect riverside 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 number of properties at risk/protected				Limited number of properties at risk						Limited number of properties affected by realignment; wider FRM benefits	
Material Assets and Critical Infrastructure													

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 infrastructure protected	Significant infrastructure at increased risk	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, commercial and economic assets (including agricultural), activities and 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 agricultural ; protected from flooding	Land use predominantly agricultural; flood risk will increase	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 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			
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 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.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it.	-	-	-	-	-	-	-
		No designated features present			No designated features present			No designated features present
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	●	●	●	-	▲	▲	-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected			Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion			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	●	●	●	-	▲	▲	▲

	reduce it							
		Active landfill site protected from flooding			Active landfill site at risk from flooding			Realignment in this reach could affect landfill
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	▲	▲	▲	-	●	●	●
		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
Contribute towards Sustainable Development								
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, 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 – Gloucester to Sharpness –Severn Farm to Wicks Green (SHAR 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	- 20	0	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50
Population and Human Health												
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 protected			Isolated properties at risk			Overall flood risk will be 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 Valley Way and other recreation assets protected			Severn Valley Way and other assets likely to be adversely affects			Severn Valley Way possibly affected, other assets protected		
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						-					
				Isolated properties protected			Isolated properties at risk			Overall flood risk will be reduced however some isolated properties may be affected		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure.	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it											
				Limited infrastructure at risk/protected – power lines only			Limited infrastructure at risk – power lines only			Some local adverse affects within retreated area, land behind protected		
Industrial, commercial and economic assets:	N/A Advance the Line is			-			-					

Agriculture / Countryside 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							
		Land use predominantly agriculture; continued protection from flooding	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		
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	-	▲	▲	-	-	-	-
		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 Environment								
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	-	●	●	-	▲	▲	●
		Limited no of designated	Limited no of designated			Some local adverse		

		features within flood risk area some listed structures would be protected	features within flood risk area some listed structures would be affected	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	●	●	●	-	▲	▲	-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected	Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion	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 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 Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	▲	▲	▲	-	-	-	●
		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property	Managed retreat will accommodate climate change				
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 landscapes in terms of character (increasing presence in the	Increased frequency of flooding may alter the local landscape (whether positive or negative depends on perception)	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 Development				
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, 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 – Gloucester to Sharpness – Wicks Green to Longley Green (SHA 2)												
	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
Population and Human Health												
Residential: Waterend and Longney 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				-							
		Population in these area at risk; also isolated properties. Flood risk maintained or reduced			Population in these area at risk; also isolated properties. Flood risk will increase			Impacts will depend on alignment. Some adverse impacts in realignment area; wider population protected				
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities. Severn Valley Way & G&S Canal	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 Valley Way and other recreation assets protected			Severn Valley Way and other assets likely to be adversely affects			Severn Valley Way possibly affected, other assets protected				
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				-			-				
		Flood risk maintained or reduced.			Flood risk will increase.			Impacts will depend on alignment. Some adverse impacts in realignment area; wider population protected				
Material Assets and Critical Infrastructure												
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It				-							

	could also trigger erosion, rather than reduce it							
		Limited critical infrastructure; some pylon lines; protected			Limited critical infrastructure; some pylon lines at risk			Impact depends on retreat line. Some local adverse affects within retreated area, land behind protected
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 risk population protected			Small population at increased risk			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 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	-	●	●	-	▲	▲	●
		Primary land use is agriculture; land protected from flooding			Agricultural land at risk from increased flooding			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
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 designated sites in this reach			No designated sites in this reach			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 habitats lost to coastal squeeze		Opportunity for creation of intertidal habitats; possible loss of terrestrial habitats behind existing defences		Opportunity for creation of Intertidal habitats retained/increased ; possible loss of habitats behind existing defences		
Historic Environment								
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 in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	●	●	●	-	▲	▲	●
		Features protected from increased flooding		Features at increased risk from flooding		Some features within retreated area affected; those behind will have increased level of protection		
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	●	●	●	-	▲	▲	-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected		Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion		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 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 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 indefinitely	Natural evolution of 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 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		
Contribute towards Sustainable Development								
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.

Policy Unit – Gloucester to Sharpness – Longley Green to Overton Lane (SHA 3)												
	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
Population and Human 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 SoP is maintained or increased			Flood risk increases			Overall flood risk will be 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 Valley Way Gloucester and Sharpness canal and other recreation assets protected			Severn Valley Way Gloucester and Sharpness canal and other assets likely to be adversely affects			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 SoP is maintained or increased			Flood risk increases			Overall flood risk will be reduced however some isolated populations may be affected		
Material Assets and Critical Infrastructure												
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	-			-			
		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, 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		
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				-	-	-	-
		Loss of intertidal habitat	Intertidal habitat maintained/increased; loss of terrestrial habitats			Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line		
Historic Environment								
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 in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it							
	Limited no of features in this reach	Limited no. of features in this reach. Listed structures in Saul			Limited no of features in this reach			Limited no of features in this reach
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-	●	●	●	-	▲	▲	-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected			Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion			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 risk			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 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							
		Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
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 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 Development								
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 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 – Gloucester to Sharpness – Overton Lane to upstream of Hock Cliff (SHA 4)												
	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
Population and Human Health												
Residential: Arlingham 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			-	●	●	-	▲	▲	●		
				Assuming Standard of Protection is maintained or increased			Flood risk increases			Overall flood risk will be 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 Way and other recreational assets protected			Severn Way and other recreational assets protected			Severn Way and other features subject to increased flooding			Severn Valley Way possibly affected, other assets protected		
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	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	●	●	-	▲	▲	●		
				At risk population remains protected			Increased flood risk			Limited number of properties affected by realignment; wider FRM benefits		
Material Assets and Critical Infrastructure												
Critical Infrastructure: Electricity Transmission Network Reduce significance of impact associated with flooding and erosion to critical infrastructure	N/A Advance the Line is considered to be an unsuitable policy for the upper Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than			-	●	●	-	▲	▲	-		





	reduce it							
		Limited critical infrastructure present; some 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 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. 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
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 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.	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	-	●	●	-	▲	▲	●
		Listed structures in Alringham protected	Listed structures in Alringham at risk	Depends on alignment; few features within immediate river corridor				
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	●	●	●	-	▲	▲	-
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected	Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion	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 features	No known features	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 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 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			
Contribute towards Sustainable Development								
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	

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 – Gloucester to Sharpness – Hock Cliff (SHA 5)												
	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						
Population and Human Health												
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 risk population			No at risk population							
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered			
		None present			None present							
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	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 risk population			No at risk population							
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)	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered			
		None present			None present							
Critical Infrastructure: 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	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered			
		None present			None present							
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 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				
		Coastal squeeze; intertidal habitat loss			Coastal squeeze; intertidal habitat loss							

National nature designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	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 loss to coastal squeeze			Coastal squeeze; intertidal habitat loss			
National Geological Nature Conservation Hock Cliff RIGS To allow natural processes and to maintain the visibility of geological exposure throughout the RIGS	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
		Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.			Natural processes would be maintained.			
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 ground will prevent roll back of habitats – intertidal habitat lost to coastal squeeze			
Historic Environment								
Listed Buildings and non-designated sites of historic interest at Fretherne Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
		None present			None present			
Water Environment								
Water resources are protected	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
		Gloucester Canal SW abstraction for Purton (Bristol Water). Not affected			Gloucester Canal SW abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion			
No detriment to water quality	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 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 / 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

		Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property					
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 resistant feature, landscape unlikely to change significantly			

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 Sharpness – downstream of Hock Cliff to Frampton Pill (SHA6)												
	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
Population and Human Health												
Residential: Frampton on Severn Reduce significance of impact associated with flooding and erosion to people and property				-	-		-	-		-		
	Residential properties will be protected from flooding.	Residential properties will be protected from flooding.			Residential properties will be at an increased risk of flooding.			Impact will depend on alignment line.				
Recreational sites: Open space and footpath network including the Severn Way and G&S canal. Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Features protected from flooding	Features protected from flooding			Features 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). Frampton and Saul at risk							-					
	Flood risk maintained or reduced	Flood risk maintained or reduced			Flood risk will increase over time			Depends on alignment, but limited space so likely to be negative				
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)							-					
	Primary land use is agriculture. Assets protected	Assets protected			Assets at risk			Depends on alignment. Some local adverse affects within retreated area, land behind protected				
Critical Infrastructure Power lines							-					
	Limited critical infrastructure. Power lines will be protected.	Limited critical infrastructure. Power lines will be protected.			Limited critical infrastructure. Power lines will be at an increased risk of flooding.			Limited critical infrastructure. Power lines will be protected.				
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.				-			-					
	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				
National nature conservation: Severn Estuary SSSI. Frampton Pools unaffected Reduce significance of impact on nationally or				-			-	-	-	-		
	Intertidal habitat loss	Intertidal habitat loss to coastal squeeze			Roll back of habitats permitted so status quo maintained			Depends on alignment; likely to be neutral or positive				

locally designated conservation sites.								
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans	-	-	▲	▲	-	-	-	-
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze			Intertidal habitat maintained; possibly some loss of terrestrial habitats			Intertidal habitat maintained; possibly some loss of terrestrial habitats
Historic Environment								
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 from flooding	Density of listed buildings around Frampton; protected from flooding			Density of listed buildings around Frampton; at risk from flooding Frampton Court not in flood risk area			Depends on alignment
Water Environment								
Water resources are protected	●	●	●	●	-	▲	▲	▲
	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected			Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion			Depends on alignment line ; but limited space so likely to be negative
No detriment to water quality	-	-	-	-	-	-	-	-
	No known features at risk	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.	▲	▲	▲	▲	-	-	-	●
	Can not raise height of defences indefinitely	Can not raise height of defences indefinitely			Natural evolution of coast will accommodate climate change; possible impact to people and property			Managed retreat will accommodate climate change
Landscape								
Avoid detrimental effects to landscape character		▲	▲	▲	-	-	-	-
		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 structures			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 Development								
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

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 result of maintaining or raising the defences but these can be mitigated at the design stage of a scheme.

Policy Unit – Gloucester to Sharpness – Frampton Pill to Tites Point (SHA 7)												
	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
Population and Human Health												
Recreation: inc. Sharpness to Gloucester Canal and Severn Valley Way , Slimbridge wetland centre. Reduce significance of impact associated with flooding and erosion to critical infrastructure										-		
	Features protected from flooding	Features protected from flooding			Features at risk			Depends on alignment, but features likely to be affected				
Residential: Slimbridge and Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property Small communities and isolated properties										-		
	Property protected from flooding	Property protected from flooding			Flood risk will increase			Some local adverse affects within retreated area, property elsewhere protected				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-									-		
	Property protected from flooding	Property protected from flooding			Flood risk will increase			Some local adverse affects within retreated area, property elsewhere protected				
Material Assets and Critical Infrastructure												
Critical Infrastructure: Electricity Network, Water Treatment Works Gloucester and Sharpness Canal Reduce significance of impact associated with flooding and erosion to critical infrastructure										-		
	Critical assets protected from flooding.	Critical assets protected from flooding.			Critical assets at an increased risk of flooding.			Critical assets unlikely to be affected by managed realignment.				
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)							-					
	Agriculture is main land use; land protected from flooding and erosion	Agriculture is main land use; land protected from flooding and erosion			Agriculture is main land use; flood risk will increase			Some local adverse affects within retreated area, land elsewhere protected				
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.		-			-			
	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			
Severn SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-	-	-	-
	Intertidal habitat loss	Intertidal habitat loss to coastal squeeze	Roll back of habitats permitted so status quo maintained		Depends on alignment; likely to be neutral or positive			
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 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.	-				-			-
	No features of major significance; onshore features protected	No features of major significance; features protected	No features of major significance; feature sat risk or increased flooding		No features of major significance			
Water Environment								
Water resources are protected					-			
	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Not affected	Gloucester Canal Severn Water abstraction for Purton (Bristol Water). Could be affected by increased flooding/erosion		Depends on alignment line ; but limited space so likely to be negative			
No detriment to water quality	-							-
Air and Climate								
Policy is designed to adapt to or accommodate climate change trends.					-	-	-	
	Can not raise height of defences indefinitely	Can not raise height of defences indefinitely	Natural evolution of coast will accommodate climate change; possible impact to people and property		Managed retreat will accommodate climate change			
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 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		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 towards Sustainable Development				
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

Slimbridge 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 – Gloucester to Sharpness – Royal Drift outfall to Sharpness Docks (SHA 8)												
	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
Population and Human Health												
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 not at risk from flooding.			Assets not at risk from flooding.			Assets not at risk from flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
Residential: Isolated residential developments Reduce significance of impact associated with flooding and erosion to people and property	-			-			-			▲		
	Residential properties not at risk of flooding.			Residential properties not at risk of flooding.			Residential properties not at risk of flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-			-			-			▲		
	Residential properties not at risk of flooding.			Residential properties not at risk of flooding.			Residential properties not at risk of flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
Material Assets and Critical Infrastructure												
Critical infrastructure: Docks, Gloucester and Sharpness canal Reduce significance of impact associated with flooding and erosion to critical infrastructure	-			-			-			▲		
	Critical infrastructure not at risk from flooding.			Critical infrastructure not at risk from flooding.			Critical infrastructure not at risk from flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
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 not at risk from flooding.			Assets not at risk from flooding.			Assets not at risk from flooding.			Impact will depend on alignment line. However there is limited space in the reach so adverse impacts are likely.		
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.	▲			-			▲			▲		
	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		
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 locally designated conservation sites.	▲	-	▲	▲
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans. Potential habitat creation site	-	-	▲	▲
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	
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 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.	-	-	-	▲
Historical assets not at risk of flooding.	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	-	-	-	-
No sources at risk of flooding.	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.
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.	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 Sustainable Development				
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

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 – Sharpness to Severn Crossings – South of Sharpness docks to Bull Rock (SEV 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property				-								
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely to isolated properties.				
Recreational sites: 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 protected.			Assets at an increased risk of flooding.			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)				-								
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely to isolated properties.				
Material Assets and Critical Infrastructure												
Critical Infrastructure: Sharpness Sewerage Treatment Works Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-			-			-		
	Asset protected.	Asset protected.			Asset at an increased risk of flooding.			Impact will depend on alignment line. However adequate space to select alignment so impact on STW is not 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)				-			-					
	Assets protected.	Assets protected.			Assets at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely because Severn Way runs along coast.				
Biodiversity, Flora 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				-			-					
	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				









of their features.							
National nature conservation sites: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-		
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
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 Environment							
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.					-		
Limited historic assets – assets protected.		Limited historic assets – assets protected.			Limited historic assets – assets at an increased risk of flooding.		Limited historical assets. Impact will depend on realignment but there is unlikely to be an adverse impact.
Water Environment							
Water resources are protected	-	-	-	-	-	-	-
No resources known to be at risk.		No resources known to be at risk.			No resources known to be at risk.		No resources known to be at risk.
No detriment to water quality Sharpness STW		-					
Asset protected so no risk to water quality.		Asset protected so no risk to water quality.			Asset at increased risk of flooding so there could be water quality issues associated with the flooding of the STW.		Impact will depend on alignment line. However adequate space to select alignment so 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.		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 Sustainable Development							
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

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.

Policy Unit – Sharpness to Severn Crossings –Bull Rock to southern boundary of Berkley power station (SEV 2)												
	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
Population and Human Health												
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 Way and open space protected.			Severn Way and open space protected.			Severn Way and open space at an increased risk of flooding.				Impact will depend on the alignment line. Adverse impacts likely to the Severn Way.	
Residential: residential properties: Berkley , Hook Street and isolated properties Reduce significance of impact associated with flooding and erosion to people and property.				-								
	Residential properties protected.			Residential properties protected.			Residential properties at an increased risk of flooding.				Impact will depend on alignment line. Adverse impacts likely to isolated properties.	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)				-								
	Residential properties and power station protected.			Residential properties and power station protected.			Residential properties and power station at an increased risk of flooding.				Impact will depend on alignment line. Adverse impacts likely to power station and isolated properties.	
Material Assets and Critical Infrastructure												
Critical infrastructure : Berkeley Power Station and Associated Infrastructure Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Assets protected.			Assets protected.			Assets at risk of some (limited) flooding.				Impact will depend on alignment line. However there is very limited space in this reach so adverse impacts are likely.	
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)				-			-					
	Assets protected.			Assets protected.			Assets at risk of some (limited) flooding.				Impact will depend on alignment line. However there is very limited space in this reach so adverse impacts are likely.	
Biodiversity, Flora 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.				-			-					
	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	

National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	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		
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 Environment								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Listed buildings south of Berkley Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.					-			-
	Limited historic assets – assets protected.	Limited historic assets – assets protected.			Limited historic assets – assets at an increased risk of flooding.			Limited historical assets. Impact will depend on realignment but there is unlikely to be an adverse impact.
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality Berkley nuclear Power Station		-						-
	Asset protected so no risk to water quality.	Asset protected so no risk to water quality.			Asset at increased risk of flooding so there could be water quality issues associated with the flooding of the STW.			Impact will depend on alignment line. However adequate space to select alignment so adverse impact on Berkley Power station is likely. This could potentially cause water quality issues.
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 Sustainable Development								
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		

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.

Policy Unit – Sharpness to Severn Crossings –southern boundary of Berkley power station to Oldbury Power station (SEV 3)												
	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
Population and Human Health												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property				-								
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely to isolated properties.				
Recreational sites: 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 protected.			Assets at an increased risk of flooding.			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)				-								
	Residential properties protected.	Residential properties protected.			Residential properties at an increased risk of flooding.			Impact will depend on alignment line. Adverse impacts likely to isolated properties.				
Material Assets and Critical Infrastructure												
Critical infrastructure : Assets of adjacent PUs (Power Stations), Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Assets protected.	Assets protected.			Assets at an increased risk of flooding.			Impact will depend on alignment line. But assets no expected to be impacted on because they are in a different PU.				
Industrial, commercial and economic assets: Local commercial assets Agricultural land Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-			-					
	Agricultural land protected.	Agricultural land protected.			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.				
Biodiversity, Flora 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.				-			-					
	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				

National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	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		
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 Environment								
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.		-			-			
	Listed buildings protected.	Listed buildings protected.			Listed buildings at risk of increased 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 at risk.	No resources known to be at risk.			No resources known to be at risk.	No resources known to be at risk.		
No detriment to water quality	-	-	-	-	-	-	-	-
	No known water quality risks.	No known water quality risks.			No known water quality risks.	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 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 Sustainable Development								
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	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		

	maintenance.			than for wither the ATL or HTL options
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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 – Sharpness to Severn Crossings – Oldbury power station (SEV 4)												
	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
Population and Human Health												
Residential: Isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property				-			-					
	Residential property protected.			Residential property protected.			Residential property at an increased risk of flooding.			Impacts depend on the alignment line. Retreat is likely to have adverse impacts.		
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.			Recreational assets protected.			Recreational assets at an increased risk of flooding.			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 protected.			Assets at an increased risk of flooding.			Impacts depend on alignment line. Retreat is likely to be perceived negatively.		
Material Assets and Critical Infrastructure												
Industrial, commercial and economic assets: Oldbury Power Station, Agriculture, set back behind power station Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Power station and agricultural land protected.			Power station and agricultural land protected.			Agricultural land at risk of flooding. Power station on higher ground so not at risk from flooding.			Impact will depend on alignment line. However; adequate space to select alignment so likely adverse impact on agricultural land.		
Critical infrastructure: Tidal Reservoir fronting Power Station Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-				N/A	
	This would impact on the refill of the tidal reservoir.			Tidal reservoir not impeded from refilling. Power station is not at risk of flooding.			Tidal reservoir not impeded from refilling. Power station is not at risk of flooding.			N/A		
Biodiversity, Flora and Fauna												
National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites..				-			-					
	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		
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.				-			-					
	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		
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 Environment					
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.	Historical assets protected from flooding.	Historical at risk from increased flooding.	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 resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.	
No detriment to water quality Historic Landfill sites adjacent to Oldbury Power Station.	●	-	● ●	-	▲ ▲ ▲
	Landfill site protected so no risk to water quality.	Landfill site protected so no risk to water quality.	Landfill site at risk of increased flooding so there could be water quality issues associated with the flooding of the STW.	Impact will depend on alignment line. However adequate space to select alignment so adverse impact on the historic landfill site 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.	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 Sustainable development					
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	














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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Sharpness to Severn Crossings – Oldbury power station to Littleton Warth (SEV 5)												
	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
Population and Human Health												
Residential: Oldbury on Severn Isolated properties Reduce significance of impact associated with flooding and erosion to people and property				-			-					
	Residential properties protected.			Residential properties protected.			Residential properties at an increased risk of flooding.				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 protected.			Assets at an increased risk of flooding.				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)				-			-					
	Residential properties protected.			Residential properties protected.			Residential properties at an increased risk of flooding.				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 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)				-			-					
	Agricultural land protected.			Agricultural land protected.			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 critical infrastructure at risk.			No critical infrastructure at risk.			No critical infrastructure at risk.				No critical infrastructure at risk.	
Biodiversity, Flora 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.				-			-					
	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	
National nature conservation: Severn Estuary SSSI				-			-					

Reduce significance of impact on nationally or locally designated conservation sites.	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
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 Environment								
Scheduled Monuments: At Oldbury on Severn Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	●	-	●	●	-	▲	▲	-
	Historical assets protected.	Historical assets protected.			Historical assets are at an increased risk of flooding.			Impacts will depend on realignment but it is likely that historical assets will be protected as they are set back from the coast.
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality	-	-	-	-	-	-	-	-
	No water quality risks identified.	No water quality risks identified.			No water quality risks identified.			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.	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 Sustainable Development								
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

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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Sharpness to Severn Crossings – Littleton Warth to Aust Ferry (SEV 6)												
	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
Population and Human Health												
Residential: Aust and isolated residential properties Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Residential properties not at risk of tidal flooding via this frontage; no impact			Residential properties not at risk of tidal flooding via this frontage; no impact			Residential properties not at risk of tidal flooding via this frontage; no impact					
Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	-	-	-	-	-	-	-	-	-	N/A		
	Open space and footpath network are not at risk of tidal flooding via this frontage; no impact			Open space and footpath network are not at risk of tidal flooding via this frontage; no impact			Open space and footpath network are not at risk of tidal flooding via this frontage; no impact					
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-	-	-	-	-	-	-	-	-	N/A		
	No risk of flooding from this frontage.			No risk of flooding from this frontage.			No risk of flooding from this frontage.					
Material Assets and Critical Infrastructure												
Critical Infrastructure: M48 Road Crossing and Services, Power Line Crossing and Substation Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Very little at risk from tidal flooding via this frontage; no impact			Very little at risk from tidal flooding via this frontage; no impact			Very little at risk from tidal flooding via this frontage; no 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)	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Agriculture is main land use; not at risk from tidal flooding via this frontage; no impact			Agriculture is main land use; not at risk from tidal flooding via this frontage; no impact			Agriculture is main land use; not at risk from tidal flooding via this frontage; no impact					
Biodiversity, Flora 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.		-			-			N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	Loss of intertidal habitat			Coastal squeeze; intertidal habitat loss			Habitat roll back; intertidal habitats retained; terrestrial habitat loss					
Aust Cliff SSSI Reduce significance of									N/A High ground / hard			






















impact associated with maintaining the visibility of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)								geology precludes physical retreat of the line, option not considered
	Advancing the line would mean exposure was no longer subject to natural erosion processes	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.			Natural processes would be maintained			
National nature conservation sites: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	▲	-	▲	▲	-	▲	▲	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	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 habitat creation site	-	-	▲	▲	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Intertidal habitat lost; terrestrial habitat gained	Intertidal habitat lost to coastal squeeze			Intertidal habitat maintained; possibly some loss of terrestrial habitats			
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.	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	No historical assets identified.	No historical assets identified.			No historical assets identified.			
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 resources known to be at risk.			No resources known to be at risk.			
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 water quality risks identified.			No water quality risks identified.			
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.	Cannot raise the height of the defences indefinitely.			Natural evolution of the coast will accommodate climate change: possible impact to people and property.			
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.	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 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		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 and Severnside Aust Ferry (site of) to New Passage (BRIS 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50-100	0-20	20-50	50-100	0-20	20-50	50-100	0-20	20-50	50-100
Population and Human Health												
Residential: Isolated residential developments at Northwick and Redwick 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 on alignment line: however adequate space to select alignment so unlikely to be adverse impact.				
Recreational sites: Local facilities, open space and footpath network including the Severn Way Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Recreational sites including the Severn Way will be protected.	Recreational sites including the Severn Way will be protected.			Recreational sites including the Severn Way will be at an increased risk of flooding.			Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)							-					
	Limited number of residential properties protected.	Residential properties protected.			Residential properties are at risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact				
Material Assets and Critical Infrastructure												
Critical infrastructure: Power Line Crossing, M4 and M48, Severn Tunnels, Bedwick STW To manage the risk of flooding and erosion to critical infrastructure.							-					
	Infrastructure protected.	Infrastructure protected.			Infrastructure at risk from flooding.			Impact will depend on alignment line: however adequate space to select alignment so unlikely to be an adverse impact.				
Industrial, commercial and economic							-					

<p>assets: Agriculture Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)</p>	<p>Land use predominantly agricultural. Agricultural assets will be protected.</p>	<p>Agricultural assets will be protected.</p>	<p>Agricultural assets will be at an increased risk of flooding.</p>	<p>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</p>
Biodiversity, Flora and Fauna				
<p>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</p>	<p style="text-align: center;"></p> <p>Coastal squeeze will occur</p>	<p style="text-align: center;">-</p> <p>Coastal squeeze will occur</p>	<p style="text-align: center;"> </p> <p>Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.</p>	<p style="text-align: center;">  </p> <p>Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.</p>
<p>National nature conservation: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.</p>	<p style="text-align: center;"></p> <p>Coastal squeeze will occur</p>	<p style="text-align: center;">-</p> <p>Coastal squeeze will occur</p>	<p style="text-align: center;"> </p> <p>Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.</p>	<p style="text-align: center;">  </p> <p>Habitats will roll back, intertidal habitats maintained; however potentially some loss of terrestrial habitats.</p>
<p>Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans</p>	<p style="text-align: center;"></p> <p>Loss of intertidal habitat due to coastal squeeze.</p>	<p style="text-align: center;">-</p> <p>Loss of intertidal habitat due to coastal squeeze.</p>	<p style="text-align: center;"> </p> <p>Intertidal habitats retained /increased; possible loss of habitats behind existing defences</p>	<p style="text-align: center;">-</p> <p>Intertidal habitats retained/increased ; possible loss of habitats affected by retreated line</p>
Historic Environment				
<p>Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally</p>	<p style="text-align: center;"></p> <p>Limited no of features of note; historical assets will be protected.</p>	<p style="text-align: center;"> -  </p> <p>Historical assets will be protected.</p>	<p style="text-align: center;">-</p> <p>Historical assets will be at an increased risk of flooding.</p>	<p style="text-align: center;"> </p> <p>Impact will depend on alignment line: however adequate space to select alignment so unlikely to be adverse impact.</p>















important cultural historic environment sites and their setting.								
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
No detriment to water quality (Water) Bedwick Sewage treatment works	●	●	●	●	-	▲	▲	●
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
	STW protected.	STW protected.			STW at risk of flooding; potential for pollution .			Asset protected as it is assumed managed retreat will not impact on either the sewage treatment works or the chemical works.
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 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 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 towards Sustainable Development								
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 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 – Bristol and Severnside -New Passage to north extent of Severnside Works (BRIS 2)												
	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
Population and Human 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 on alignment line; however very limited space in the reach so likely to be an adverse impact.				
Recreational sites: Severn Way Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.							-					
	Footpaths and caravan and camping site will be protected.	Local footpaths and caravan and camping site will be protected.			Local footpaths and caravan and camping site will be at an increased risk of flooding.			Impact will depend on alignment line; however very limited space in the reach so likely 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)							-					
	Properties protected.	Properties protected.			Residential properties and industry are at risk from flooding.			Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.				
Material Assets and Critical Infrastructure												
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.							-					
	Infrastructure protected.	Infrastructure protected.			Infrastructure at risk from flooding.			Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.				
Industrial, commercial and economic assets: Chemical Processing Plants, Chitting Wharf Trading Estate Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-			-					
	Assets will be protected.	Assets will be protected.			Assets will at an increased risk of flooding.			Impact will depend on alignment line; however very limited space in the reach so likely to be an adverse impact.				

Biodiversity, Flora 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 will occur			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		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 will occur			In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected		Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected	
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans					-	-	-	-
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.			Intertidal habitats maintained however potential loss of terrestrial habitats; also space limited due to development		Set back of line will maintain intertidal habitats; however potential loss of terrestrial habitats; also space limited due to development	
Historic Environment								
Scheduled Monuments: Heavy anti-aircraft 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.					-			
	Historical assets protected.	Historical assets protected.			Historical assets will be at an increased risk of flooding.		Impact will depend on alignment line: however very limited space in the reach so likely to be an adverse impact.	
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		No resources known to be at risk.	
No detriment to water quality Sewage Treatment Works at Bedwick Chemical Treatment works; Active landfill sites					-			
	Assets protected.	Assets protected.			Assets at risk from increased flooding, with associated implications for water quality.		Asset protected as it is assumed managed retreat will not impact on either the sewage treatment works or the chemical works. However limited space to achieve realignment	
Air and Climate								
Policy is designed to adapt to or accommodate					-	-	-	
	Can not raise the height	Can not raise the height of defences			Natural evolution of the		Managed retreat will	

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 towards Sustainable Development					
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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – North extent of Severnside Works to Avonmouth Pier (BRIS 3)												
	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
Population and Human Health												
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.			Residential properties will be at an increased risk of flooding.			Some local adverse affects within retreated area, land behind protected; however scope to retreat defences in this reach currently limited by development.		
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	-			-	-	-	-	-	-	-		
	No assets known to be present.			No assets known to be present.			No assets known to be present.			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).							-					
	Limited residential properties present assets will be protected.			Assets will be protected.			Assets will be at an increased risk of flooding.			Some local adverse affects within retreated area, assets behind protected. Scope for retreat limited by industrial development		
Material Assets and Critical Infrastructure												
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 without affecting infrastructure		
Industrial, commercial and economic assets: Avonmouth industry including chemical processing plant Avonmouth port Fuel depots Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)												
	Assets will be protected.			Assets will be protected.			Assets will be at an increased risk of flooding.			Assets will be adversely affected by the realignment.		
Biodiversity, Flora 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 will occur			In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected			Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected		

National nature conservation designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.					-			
	Coastal squeeze will occur	Coastal squeeze will occur			In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected	Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected		
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.			In theory habitats will roll back, intertidal habitats maintained	Set back of line will maintain intertidal habitats		
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.					-			
	Historical assets protected	Historical assets protected			Historical assets at risk of increased flooding.	Historical assets protected.		
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.	No resources known to be at risk.		
No detriment to water quality Avonmouth STWs Active landfill sites					-			
	Assets protected.	Assets protected.			Assets at an increased risk of flooding, with implications for water quality.	Majority or assets protected; potential for some to be affected by the realignment.		
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 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 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.		

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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Bristol and Severnside - Avonmouth Pier to Netham Weir (BRIS 4)												
	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
Population and Human Health												
Residential Developments Bristol city Sned Park Sea Mills Shirehampton Avonmouth 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			-			-					
				Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be protected.			Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be at an increased risk of flooding.			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.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-	-	-	-	-	-	-		
				Limited recreational assets present. Recreational amenities are not at risk of flooding.			Recreational amenities are not at risk of flooding.			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)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			-			-	-				
				Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be protected.			Residential properties are not at risk of flooding with the exception of properties in Avonmouth. Properties in Avonmouth will be at an increased risk of flooding.			Some local adverse effects within retreated area; more widely properties will be protected		
Material Assets and Critical Infrastructure												
Critical infrastructure: M5 and M49 Avonmouth electricity substations Avonmouth Fire and Police stations Bristol electricity substations Bristol hospitals	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						-					









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 infrastructure in the centre of Bristol is not at risk from flooding. The M5 and M4 and Avonmouth area will be protected from flooding.			Critical infrastructure in the centre of Bristol is not at risk from flooding. The M4 and M5 and Avonmouth area will be at an increased risk of flooding.			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 and economic assets (including agricultural), and activities (including tourism)	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	●	●	●	-	▲	▲	▲-
		The centre of Bristol is not at risk from flooding. The Avonmouth assets will be protected from flooding under this option.			The centre of Bristol is not at risk of flooding. The Avonmouth assets will be at an increased risk of flooding under this option.			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 Woodlands unaffected by tidal flooding. Severn Estuary affected. Coastal squeeze will occur			In theory habitats will roll back and intertidal habitats will be maintained. However reach developed so scope for rollback limited. In addition terrestrial habitats will be affected			Impact will depend on alignment line: however very limited space in the reach; terrestrial habitats likely to be affected
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.			Intertidal habitats will be protected for as long as habitat can roll back. However space limited, loss of terrestrial habitats will occur			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		▲	▲	-	▲	▲	-






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 squeeze will result in loss of intertidal habitats	In theory habitats will roll back retaining intertidal habitats, however space limited due to development so some loss of habitats is likely to occur	Set back of line will maintain intertidal habitats however may affect terrestrial habitats, also space limited due to development				
Historic Environment								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Historic Parks and Gardens: King Weston House Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	▲
		Scheduled Monuments and Listed Buildings are not at risk of tidal flooding.	Scheduled Monuments and Listed Buildings are not at risk of flooding.	Features may be adversely affected if line 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 resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.				
No detriment to water quality	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.				
Air and Climate								
Policy is designed to adapt to or accommodate climate	N/A 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 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.	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. .			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 Development								
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 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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Bristol and Severnside - Netham Weir to Avon road (Eastern In Gordano) (BRIS 5)												
	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
Population and Human Health												
Residential: Bristol city Easton in Gordano 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			-	-	-	-	-	-	-	-	
				Residential properties are not at risk of flooding.			Residential properties are not at risk of flooding. A small number of properties in Easton in Gordano will be at an increased level of flooding.			Residential properties are not at risk of flooding; plus limited space to retreat defences		
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			-	-	-	-	-	-	-	-	
				Assets not at risk of tidal flooding.			Assets not at risk of tidal flooding.			Assets not at risk of tidal flooding; limited space for realignment.		
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 tributaries to the Severn Estuary, as 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 amenities are not at risk of tidal flooding.			Recreational amenities are not at risk of tidal flooding.			Recreational amenities are not at risk of tidal flooding; limited space for realignment		
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			-	-	-	-	-	-	-	-	
				Residential properties are not at risk of tidal flooding so no impact.			Residential properties are not at risk of tidal flooding so no impact.			Residential properties are not at risk of tidal flooding so no impact.		

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 critical infrastructure at risk of tidal flooding.			No critical infrastructure at risk of tidal flooding.			No critical infrastructure at 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 not at risk of flooding.			Assets not at risk of flooding.			Assets not at risk of flooding.
Biodiversity, Flora and Fauna								
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	-	-	-	-	-	-	
		Avon Gorge Woodlands is currently unaffected by tidal flooding and is not predicted to be at future risk. Severn site is remote from this reach			Avon Gorge Woodlands is currently unaffected by tidal flooding and is not predicted to be at future risk. Severn site is remote from this reach			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 may result in loss of intertidal habitats			Potential for habitat roll back in some areas ; however terrestrial sites may be at risk			Retreat the line would 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							
		All sites currently unaffected by tidal flooding; no impacts anticipated with HTL	All sites currently unaffected by tidal flooding; no impacts associated with this option			All sites currently unaffected by tidal flooding; retreat the line would adversely affect sites		
Historic Environment								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. Historic Parks and Gardens: Leigh Court, Arnos Vale Cemetery Bristol University Botanic Gardens Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	
		Scheduled Monuments and Listed Buildings are not at risk of tidal flooding.	Scheduled Monuments and Listed Buildings are not at risk of tidal flooding.			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 resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
No detriment to water quality	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it	-	-	-	-	-	-	-
		No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
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		
Contribute towards Sustainable Development								
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

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 Severnside- Avon road (Eastern In Gordano) to Portishead Pier (BRIS 6)												
	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
Population and Human Health												
Residential: Portbury Wharf, including new developments, and Sheepway Reduce significance of impact associated with flooding and erosion to people and property	N/A Advance the Line is considered to be an unsuitable policy for tributaries to the Severn Estuary, as it would reduce in-channel flood storage and water movement, potentially leading to greater flooding. It could also trigger erosion, rather than reduce it			●	●	●	▲	▲	▲	-		
				Residential assets protected.			Residential assets at risk from increased flooding.			Residential assets protected but some may be adversely affected by realignment.		
Recreational sites: Local facilities, open space and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	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			●	●	●	▲	▲	▲	▲		
				Sustrans route, leisure centre and some footpath networks. Assets protected.			Sustrans route, leisure centre and some footpath networks. Assets at an increased risk of flooding.			Sustrans route, leisure centre and some footpath networks. Overall assets protected potentially some local adverse effects due to realignment.		
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			●	●	●	▲	▲	▲	-		
	Residential assets protected.			Residential assets protected.			Residential assets at risk from increased flooding.			Residential assets protected but some may be adversely affected by realignment.		
Material Assets and Critical Infrastructure												
Industrial, commercial and economic assets: Dock Related Industry and Infrastructure – asset from adjacent Policy Unit within flood risk To manage the risk of	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			●	●	●	▲	▲	▲	●		

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							
		Loss of intertidal habitat due to coastal squeeze.			Habitats will roll back , intertidal habitats maintained			Set back of line will maintain intertidal habitats
Historic Environment								
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 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	●	●	●	▲	▲	▲	●
		Assets protected from tidal flooding.			Assets at an increased risk of tidal flooding.			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 resources known to be at risk.			No resources known to be at risk.			No resources known to be at risk.
No detriment to water quality 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 protected.			Asset at risk of coastal flooding with pollution potentially resulting.			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 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.	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 Development								
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			

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 result 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 – Portishead and Clevedon – Portishead Pier to swimming pool (PORT 1)								
	Advance the Line	Hold the Line			No Active Intervention			Managed Realignment
	0-20 20-50 50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20 20-50 50 - 100
Population and Human 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	Some residential properties at risk of flooding; flood risk will increase over time.	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.	Limited recreational assets including footpaths. They are not at risk of flooding.	Limited recreational assets including footpaths. They are not at risk of flooding.	Limited recreational assets including footpaths. They are not at risk of flooding but may be adversely affected due to realignment.				
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.	Residential properties along coast are not at risk of tidal flooding	Residential properties along coast are not at risk of tidal flooding	Residential properties are not at risk of flooding; realignment would therefore cause additional stress.				
Critical Infrastructure 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.	Lighthouse and electricity substations are not at risk of flooding.	Lighthouse and electricity substations are not at risk of flooding.	Lighthouse and electricity substations are not at risk of flooding.				
Industrial, commercial and economic assets:	-	-	-	-	-	-	-	-
	Limited assets not at risk of flooding.	Limited assets not at risk of flooding.	Limited assets not at risk of flooding.	Limited assets not at risk of flooding.				
Biodiversity, Flora 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 will occur	Habitats will roll back , intertidal habitats maintained	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	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes				
National nature conservation								

designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.	Coastal squeeze will occur	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.	-   Loss of intertidal habitat due to coastal squeeze.	- - - Habitats will roll back, intertidal habitats maintained. LNR behind defences on cliff top adverse effects unlikely	- Set back of line will maintain intertidal habitats; however terrestrial habitats inc LNR may be affected
Historic Environment				
Heritage Features: Listed Buildings and non-designated sites of historic interest. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.	- High number of non- designated archaeological features along this reach of coastline. Assets along coast are not at risk of tidal flooding.	- - - Assets along coast are not at risk of tidal flooding.	- - - Local historical assets along coast are not at risk of tidal flooding.	- Impact will depend on alignment. Historical assets along coast are not at risk of tidal flooding.
Water Environment				
Water resources are protected	- No resources known to be at risk.	- - - No resources known to be at risk.	- - - No resources known to be at risk.	- No resources known to be at risk.
No detriment to water quality	- No resources known to be at risk.	- - - No resources known to be at risk.	- - - No resources known to be at risk.	- No resources known to be at risk.
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 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 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 towards Sustainable Development				
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

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 – Portishead and Clevedon - swimming pool to southern extent of Esplanade Road (PORT 2)								
	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
Population and Human Health								
Recreational Sites: Woodhill Bay Swimming Pool and Marine Lake Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities	-	-	-	-	-	-	-	▲
	Recreational assets are not at risk of flooding.	Recreational assets are not at risk of flooding.			Recreational assets are not at risk of flooding.			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.	Residential properties along coast are not at risk of tidal flooding.			Residential properties along coast are not at risk of tidal flooding.			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.	Residential properties along coast are not at risk of tidal flooding.			Residential properties along the coast are not at risk of tidal flooding.			Residential properties are not at risk of flooding; realignment in this location will therefore have an adverse effect.
Critical Infrastructure 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.	Local commercial assets are not at risk of flooding.			Local commercial assets are not at risk of flooding.			No assets to be protected/affected by retreated line
Critical Infrastructure: Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-
	None present	None present			None present			None present
Biodiversity, Flora 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 will occur			Habitats will roll back , intertidal habitats maintained			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	Assuming the defences did not adversely affect the cliff and were located			Natural processes will maintain the exposure			Will depend on alignment; however likely that retreating the line will

of geological exposures throughout geological SSSIs (Land Use, Geology and Soils - including Geomorphology and Contaminated Land)	processes	behind it natural processes would be maintained.						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	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.	Loss of intertidal habitat due to coastal squeeze.	Habitats will roll back, intertidal habitats maintained. Terrestrial habitats possible affected			Set back of line will maintain intertidal habitats; however terrestrial be affected		
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.	-	-	-	-	-	-	-	-
	High number of non-designated archaeological features along this reach of coastline. Assets along coast are not at risk of tidal flooding.	Assets along coast are not at risk of tidal flooding.	Local historical assets along coast are not at risk of tidal flooding.			Impact will depend on alignment. Historical assets along coast are not at risk of tidal flooding.		
Water Environment								
No detriment to water resources	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
No detriment to water quality	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
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 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 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 towards Sustainable Development								
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
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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 – Portishead and Clevedon - southern extent of Esplanade Road to Ladye Point (PORT 3)												
	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
Population and Human Health												
Recreational sites: Golf Course Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities	-	-	-	-	-	-	-	-	-	▲		
	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along coast are not at risk of tidal flooding.	Recreational assets along the sea front (including the golf course) will be adversely affected due to realignment.
Residential: Redcliff Bay residential developments, West Hill, Walton in Gordano Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	-	-	▲		
	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.	Residential properties along the coast are not at risk of tidal flooding.; realignment will therefore have an adverse impact
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.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding.	Residential properties along coast are not at risk of tidal flooding. realignment would therefore cause increased stress to communities along coast
Material Assets and Critical Infrastructure												
Infrastructure: IRB, Petrol Storage Site Reduce significance of impact associated with flooding and erosion to critical infrastructure	-	-	-	-	-	-	-	-	-	▲		
	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact	Infrastructure is not at risk of tidal flooding.; realignment will therefore have an adverse impact
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	-	-	-	-	-	-	-	-	-	-		
	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Local commercial assets and land are not at risk of flooding.	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Local commercial assets are not at risk of flooding.
Biodiversity, Flora 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 will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur	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	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.	Natural processes will maintain the exposure	Natural processes will maintain the exposure	Natural processes will maintain the exposure	Natural processes will maintain the exposure	Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes

National nature conservation designations: Severn Estuary, Holly Lane, Walton Common and Gordano Valley SSSIs Reduce significance of impact 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.	Coastal squeeze will affect Severn Estuary SSSI. Gordano Valley unaffected	Gordano Valley affected by flooding under NAI. Intertidal habitats of Severn SSSI will roll back	Habitats will roll back, intertidal habitats maintained. Assume Gordano Valley far enough inland to be unaffected				
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.	The coastline will not erode back fast enough for intertidal habitats to roll back.	Set back of line will maintain intertidal habitats				
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.	-	-	-	-	-	-	-	
	Local historical assets are not at risk of flooding.	Local historical assets are not at risk of flooding.	Local historical assets are not at risk of flooding.	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.	Source protection zone 1 is not at risk of being flooded.	Source protection zone 1 is not at risk of being flooded.	Source protection zone 1 is not at risk of being flooded.				
No detriment to water quality	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.				
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 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 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 towards Sustainable Development								
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
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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 – Portishead and Clevedon - Ladye Point to Old Church Road (PORT 4)												
	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
Population and Human Health												
Recreational sites: Local facilities, footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.				-			-					
	Only western section of unit affected by flooding under NAI. Recreational assets will be protected.			Recreational assets will be protected.			Recreational assets will be adversely affected.					
Residential: Clevedon Reduce significance of impact associated with flooding and erosion to people and property							-					
	Residential properties in Clevedon will be protected.			Residential properties in Clevedon will be protected.			Residential properties in Clevedon will be at an increased risk of flooding.				Residential properties in Clevedon will be protected	
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)				-			-					
	Residential properties in Clevedon will be protected.			Residential properties in Clevedon will be protected.			Residential properties in Clevedon will be at an increased risk of flooding.				Residential properties in Clevedon will be protected.	
Material Assets and Critical Infrastructure												
Critical Infrastructure: Clevedon Hospital Reduce significance of impact associated with flooding and erosion to critical infrastructure				-			-					
	Hospital potentially at risk under NAI. Asset will be protected			Asset will be protected.			Asset will be at an increased risk of flooding.				Asset will be protected.	
Industrial, commercial and economic assets: Local commercial assets Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)	-			-	-	-	-	-	-	-		
	Land use is predominantly residential. Limited economic assets at risk from tidal flooding.			Land use is predominantly residential. Limited economic assets at risk from tidal flooding .			Land use is predominantly residential. Limited economic assets at risk from tidal flooding				Realignment may adversely affect some tourism assets along the seafront e.g. pier.	
Biodiversity, Flora 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 will occur			Limited potential for roll back of habitats due to development; intertidal habitats will be lost				Limited potential for realignment due to development; intertidal habitats will be lost	
Clevedon Shore 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			Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.			Natural processes will maintain the exposure				Will depend on alignment; however likely that retreating the line will leave the exposure subject to natural processes	

National nature conservation designations: Severn Estuary and SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	Coastal squeeze will occur	Coastal squeeze will occur	Coastal squeeze will occur because the coastline will not erode fast enough for habitats to roll back.	Habitats will roll back , intertidal habitats maintained				
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.	The coastline will not erode back fast enough for intertidal habitats to roll back	Set back of line will maintain intertidal habitats				
Historic Environment								
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	Local historical assets are not at risk of flooding.	Local historical assets are not at risk of flooding	Impact will depend on alignment line. It is assumed that the alignment will not move far inland. Historical assets are not at risk of flooding.				
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.	No resources known to be at risk.				
No detriment to water quality	-	-	-	-	-	-	-	-
	No resources known to be at risk	No resources known to be at risk	No resources known to be at risk	No resources known to be at risk				
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 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 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 towards Sustainable Development								
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
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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.

1.15 Kingston Seymour to Sand Bay Theme Area (KIN)

Policy Unit – Kingston Seymour to Sand Bay - Old Church Road to St Thomas' Head (KIN 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50-100	0-20	20-50	50-100	0-20	20-50	50-100	0-20	20-50	50-100
Population and Human 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.			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.			Impact will depend on alignment line. Some adverse local impacts for wider community benefit.	
Recreational sites: Local facilities, footpath network and open space Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.				-			-					
	Golf course south of Clevedon and network of footpaths across area will be protected.	Golf course south of Clevedon and network of footpaths across area will be protected.			Golf course south of Clevedon and network of footpaths across area will be protected.			Golf course south of Clevedon and network of footpaths across area will be adversely affected.			Impact will depend on alignment line. Some local adverse impacts for wider community benefit.	
Avoid/minimise environmental impacts 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.	Populations in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will reduce concern.			Populations in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will reduce concern.			Populations in south Clevedon and the villages including Wick St Lawrence and Kingston Seymour are at risk. Policy will not reduce concern.			Impact will depend on alignment line. Some local impacts for wider community benefit.	
Material Assets and Critical Infrastructure												
Industrial, commercial and economic assets: Agriculture Agricultural land, caravan and camping parks south of Clevedon. Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)				-			-					
	Agriculture main land use; assets protected.	Assets protected.			Assets at an increased risk of flooding.			Assets at an increased risk of flooding.			Impacts will depend on new line; some local impacts offset by wider benefits due to large area at risk.	
Critical Infrastructure: M5 Kingston Seymour STW Electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure							-					
	Critical infrastructure protected from flooding.	Critical infrastructure protected from flooding.			Critical infrastructure at an increased risk of flooding.			Critical infrastructure at an increased risk of flooding.			Impact will depend on alignment line. There may be impacts on the Kingston and Seymour STW (600m from the coast).	
Biodiversity, Flora 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 will occur	Habitats will roll back , intertidal habitats maintained			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 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.	Loss of intertidal habitat due to coastal squeeze.	Space for terrestrial and intertidal habitats to roll back			Set back of line will maintain intertidal habitats; plus sufficient space for terrestrial habitats		
Historic Environment								
Scheduled Monuments, Listed Buildings and non-designated sites of historic interest. 4 SAMs including Woodspring Priory and many listed buildings in villages. Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting.		-			-			
	Historical assets protected from flooding.	Historical assets protected from flooding.	Historical assets at risk of increased flooding.			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 resources known to be at risk.	No resources known to be at risk.			No resources known to be at risk.		
No detriment to water quality Clevedon Source Protection Zone Kingston Seymour STW					-			
	Protection of Clevedon source protection zone and of Kingston Seymour STW.	Protection of Clevedon source protection zone and of Kingston Seymour STW.	Clevedon source protection zone and Kingston Seymour STW at risk of tidal flooding and being adversely affected by saline intrusion.			Protection of Clevedon source protection zone and of Kingston Seymour STW.		
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 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 height of the defences will affect local landscape in terms of character (increasing presence in the	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		

	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 Development								
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 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 – Kingston Seymour to Sand Bay - St Thomas' Head to Middle Hope car park (Sand Point) (KIN 2)												
	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
Population and Human Health												
Isolated Residential properties of Middle Hope 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. MR not feasible due to topography; unit is located on steep headland		
		No properties at risk from tidal flooding via this unit			No properties at risk from tidal flooding via this unit							
Recreational sites: footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	N/A Due to high ground / hard geology ATL is not technically appropriate, option not considered	-	-	-	-	-	-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland		
		Footpaths on the Middle Hope headland and LNR not affected by flooding via this unit; access severed due to flooding to the rear of the unit (see PU?)			Footpaths on the Middle Hope headland and LNR not affected by flooding via this unit; access severed due to flooding to the rear of the unit (see PU?)							
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	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 residential properties at risk from tidal flooding via this frontage			No residential properties at risk from tidal flooding via this frontage							
Material Assets and Critical Infrastructure												
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 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 assets at risk			No assets at risk							
Critical Infrastructure: 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	-	-	-	-	-	-	-	-	N/A. MR not feasible due to topography; unit is located on steep headland		
		No critical infrastructure present.			No critical infrastructure present.							
Biodiversity, Flora 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.	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				
		Coastal squeeze will occur			Habitats will roll back , intertidal habitats maintained							
National nature conservation designations: Severn Estuary &	N/A Due to high ground / hard geology ATL is not technically appropriate,				-			N/A. MR not feasible due to topography; unit is located on steep headland				

Middle Hope SSSI Reduce significance of impact on nationally or locally designated conservation sites.	option not considered							
		Severn : Coastal squeeze will occur. Middle Hope – calcareous grassland interest on top of cliff so no impact			Habitats will roll back, albeit very slowly due to geology/topography so intertidal habitats maintained. Possible impact to calcareous grassland as cliff retreats			
Middle Hope SSSI Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs	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
		Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.			Natural processes will maintain the exposure			
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
		Loss of intertidal habitat due to coastal squeeze.			Topography will limit degree of rollback			
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.	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 historic environment assets will be impacted.			No historic environment assets will be impacted.			
Water Environment								
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
		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 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 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 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
		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 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

		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.				Unit not affected by tidal flooding; limited erosion. No impact		
Contribute towards Sustainable Development								
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 erosion and deposition will be affected			Natural processes will be allowed to operate			
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 require ongoing maintenance			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.

Policy Unit – Kingston Seymour to Sand Bay - Middle Hope car park to southern extent of Beach Road (KIN 3)												
	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
Population and Human Health												
Residential: Sand Bay. Kewstoke Holiday Camp Reduce significance of impact associated with flooding and erosion to people and property					-			-				
	Protected from flooding	Protected from flooding			Residential areas at increased risk from flooding			Large numbers of residential properties concentrated along coast potentially affected by retreating line				
Recreational sites: Local facilities, footpath network and seafront esplanade Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.					-			-				
	Existing assets protected	Assuming standard of protection maintained or increased recreation assets including the beach front will be protected			Flood risk will increase			Beach road and the public car parks along it may be affected.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)								-				
	Limited residential properties at risk/protected	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 Infrastructure and Material Assets												
Industrial, commercial and economic assets: Agriculture, Tourism/Commercial holiday and caravan parks Reduce significance of impact associated with flooding and erosion to industrial, commercial and economic assets (including agricultural), and activities (including tourism)								-				
	Existing assets will be protected	Local commercial assets are present such as holiday park and caravan parks will be protected.			Increased flood risk over time.			Negative impact on caravan parks, holiday park and potential loss of agricultural land. Wider benefit to areas behind line				
Critical infrastructure: M5 Two electricity substations Reduce significance of impact associated with flooding and erosion to critical infrastructure								-				
	Reduced risk of flooding for beach road. Path network could be developed.	Infrastructure will be protected.			Increased flood risk over time. This will not protect the electricity substations which are present in Sand Bay.			Beach road will be affected and electricity substations could be put at more risk.				
Biodiversity, Flora 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.				-			-					
	Loss of intertidal habitat	Coastal squeeze will occur.			Habitats will roll back, intertidal habitats maintained. Some restrictions due to development along the coast			Set back of line will maintain intertidal habitats; Some restrictions due to development along the coast				

National nature conservation designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			
	Loss of intertidal habitat	Coastal squeeze will occur			Habitats will roll back , intertidal habitats maintained	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 intertidal habitat due to coastal squeeze.			Habitats will roll back , intertidal habitats maintained	Set back of line will maintain intertidal habitats		
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.	-				-	-	-	-
	No historic environment assets that will be impacted on.	Historic environment assets protected. .			Flood risk will increase Limited historic environment assets that will be impacted .	Impact depends on alignment; potentially some local impacts but greater number of assets protected		
Water Environment								
Water resources are protected	-	-	-	-	-	-	-	-
	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 water resource assets at risk of being affected.		
No detriment to water quality								
	No known features at risk.	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.					-	-	-	
	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.	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 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 towards Sustainable Development								
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	Defences will require ongoing maintenance			No initial input required to deliver option and no ongoing maintenance	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 result of maintaining or raising the defences, but these can be mitigated at the design stage of a scheme.

Policy Unit – Kingston Seymour to Sand Bay - southern extent of Beach Road to Birnbeck Island (KIN 4)											
	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
Population and Human Health											
Residential: Weston Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography	
	Limited residential properties at risk/protected			Limited residential properties at risk/protected			Limited residential properties at risk/protected				
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	-	-	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography	
	Features not at flood risk now or under future scenarios. Unaffected by advance the line			Features not at flood risk now or under future scenarios.			Features not at flood risk now or under future scenarios.				
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-	-	-	-	-	-	-	-	-	N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography	
	Limited residential properties at risk/protected			Limited residential properties at risk/protected			Limited residential properties at risk/protected				
Material Assets and Critical Infrastructure											
Critical Infrastructure: Lifeboat Station To manage the risk of flooding and erosion to critical infrastructure.		-			-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	Advancing the line may have adverse effects on the lifeboat station.			Asset protected.			Lifeboat station will not be protected and will be at an increased risk of flooding.				
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		-			-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated 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 .	There are limited industrial, commercial and economic present within this reach ; no assets at risk from tidal flooding; no impact			There are limited industrial, commercial and economic present within this reach ; no assets at risk from tidal flooding; no impact			
Biodiversity, Flora and Fauna								
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	Coastal squeeze will occur			Habitats will roll back, all be it slowly due to elevated topography			
Spring Cove Cliffs SSSIs Reduce significance of impact associated with maintaining the visibility of geological exposures throughout geological SSSIs								N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Cliffs no longer exposed to natural erosive processes; exposure will become buried	Assuming the defences did not adversely affect the cliff and were located behind it natural processes would be maintained.			Cliffs will remain exposed to natural erosive processes			
National nature conservation designations: Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.		-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Coastal squeeze will occur	Coastal squeeze will occur			habitats will roll back all be it slowly due to elevated land behind			
Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-			-			N/A Managed realignment is considered to be an unsuitable policy for this Policy Unit. due to elevated topography
	Loss of intertidal habitat due to coastal squeeze.	Loss of intertidal habitat due to coastal squeeze.			Habitats will roll back all be it slowly due to elevated topography			
Historic Environment								
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.	No risk of tidal flooding via the frontage within this unit; no impact	No risk of tidal flooding via the frontage within this unit; no impact					
Water Environment								
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.	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 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 Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	No known features at risk.	No known features at risk.	No known features at risk.	No known features at risk.	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 Managed realignment is considered to be an unsuitable policy for this Policy Unit due to elevated topography
	Can not raise the height of the defences indefinitely.	Can not raise height of the defences indefinitely.	Can not raise height of the defences indefinitely.	Can not raise height of the defences indefinitely.	Natural evolution of the coast will accommodate climate change.	Natural evolution of the coast will accommodate climate change.	Natural evolution of the coast will accommodate climate change.	
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.	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.	The local landscape may erode faster (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.	The local landscape may erode faster (whether positive or negative depends on perception). May be a local change to landscape due to potential changes in vegetation condition and structure.	The local landscape may erode faster (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.	▲	▲	▲	▲	●	●	●	●
	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 process or erosion and deposition will be affected	Natural processes will be allowed to operate	Natural processes will be allowed to operate	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

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 Holms – Flat Holm (HOL 1)												
	Advance the Line			Hold the Line			No Active Intervention			Managed Realignment		
	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100	0-20	20-50	50 - 100
Population and Human Health												
Residential: Lighthouse provides isolated residency Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	-	-	-	-	-
	Limited residential properties at risk / protected. Lighthouse not at risk of flooding.			Limited residential properties at risk / protected. Lighthouse not at risk of flooding.			Limited residential properties at risk / protected. Lighthouse not at risk of flooding.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		
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 sites, apart from open ground.			Limited recreational sites, apart from open ground.			Limited recreational sites, apart from open ground.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-	-	-	-	-	-	-	-	-	-	-	-
	No residential properties at risk / protected.			No residential properties at risk / protected.			No residential properties at risk / protected.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		
Material Assets and Critical Infrastructure												
Critical infrastructure: Lighthouse, Landing Pier To manage the risk of flooding and erosion to critical infrastructure.		-	-	-	-	-	-	-	-	-	-	-
	Advancing the line would make assets redundant /inaccessible			Infrastructure not at risk of flooding.			Infrastructure not at risk of flooding.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		
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 economic assets (including agricultural), and activities (including tourism)	-	-	-	-	-	-	-	-	-	-	-	-
	No assets at risk.			No assets at risk.			No assets at risk.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		
Biodiversity, Flora 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.								-	-	-	-	-
	Loss of intertidal habitats			Currently no defences in place Coastal squeeze will occur. Loss of intertidal habitat			Currently no defences in place Natural process will continue to operate.			N/A High ground / hard geology precludes physical retreat of the line, option not considered		















Maintain and enhance Biodiversity Action Plan habitats and species in line with existing targets/plans		-						N/A High ground / hard geology precludes physical retreat of the line, option not considered
	Loss of intertidal habitat due to coastal squeeze.	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 impact on nationally or locally designated conservation sites.		-						N/A High ground / hard geology precludes physical retreat of the line, option not considered
	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 Environment								
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries and WWII anti aircraft batteries Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	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								
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	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			

No features of the human environment are at risk from 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 and 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 Holms – Steep Holm (HOL 2)												
	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
Population and Human Health												
Avoid/minimise environmental impacts which may have long term health impacts (including stress and anxiety associated with flood and erosion risk)	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	No residential properties at risk / protected.			No residential properties at risk / protected.			No residential properties at risk / protected.					
Residential: Isolated residency Reduce significance of impact associated with flooding and erosion to people and property	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Limited residential properties at risk / protected.			Limited residential properties at risk / protected			Limited residential properties at risk / protected					
Recreational sites: Local facilities and footpath network Reduce significance of impact associated with flooding and erosion to key community, recreational and amenity facilities.	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Limited recreational sites, apart from open ground.			Limited recreational sites, apart from open ground.			Limited recreational sites, apart from open ground.					
Material Assets and Critical Infrastructure												
Critical infrastructure: Landing Pier To manage the risk of flooding and erosion to critical infrastructure.		-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	Advancing the line would make assets redundant /inaccessible			Infrastructure not at risk of flooding.			Infrastructure not at risk of flooding.					
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 economic assets (including agricultural), and activities (including tourism)	-	-	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered		
	No assets at risk.			No assets at risk.			No assets at risk.					
Biodiversity, Flora 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.					-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered				
	Loss of intertidal habitats			Currently no defences in place Coastal squeeze will occur. Loss of intertidal habitat			Currently no defences in place Coastal squeeze will occur. Loss of intertidal and ultimately terrestrial habitat					
National nature conservation:		-			-	-	-	N/A High ground / hard geology				

Severn Estuary SSSI Reduce significance of impact on nationally or locally designated conservation sites.								precludes physical retreat of the line, option not considered
	Loss of intertidal habitats	Currently no defences in place Coastal squeeze will occur. Loss of intertidal habitat	Currently no defences in place Coastal squeeze will occur. Loss of intertidal and ultimately terrestrial habitat					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 habitats lost to coastal squeeze.			Loss of intertidal and ultimately terrestrial habitat due to coastal squeeze.			
Historic Environment								
Heritage: Scheduled Monuments: Palmerstonian Gun Batteries Listed Buildings and non-designated sites of historic interest Reduce significance of impact to scheduled and locally, regionally and nationally important cultural historic environment sites and their setting	-	-	-	-	-	-	-	N/A High ground / hard geology precludes physical retreat of the line, option not considered
	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								
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	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			

No features of the human environment are at risk from 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 and 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

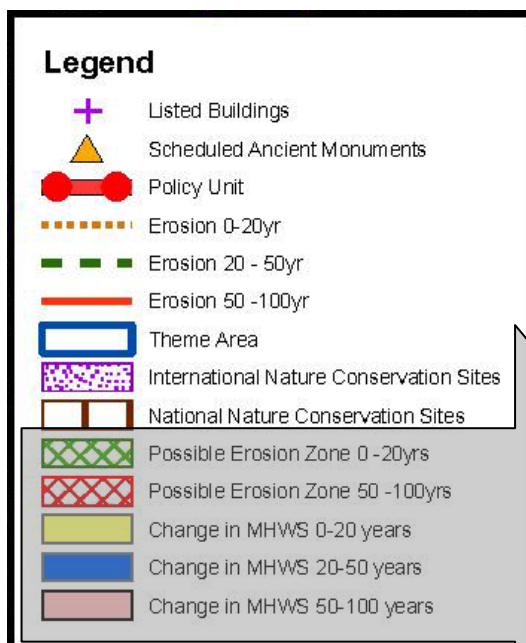
1.17.1 Understanding the Maps

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.

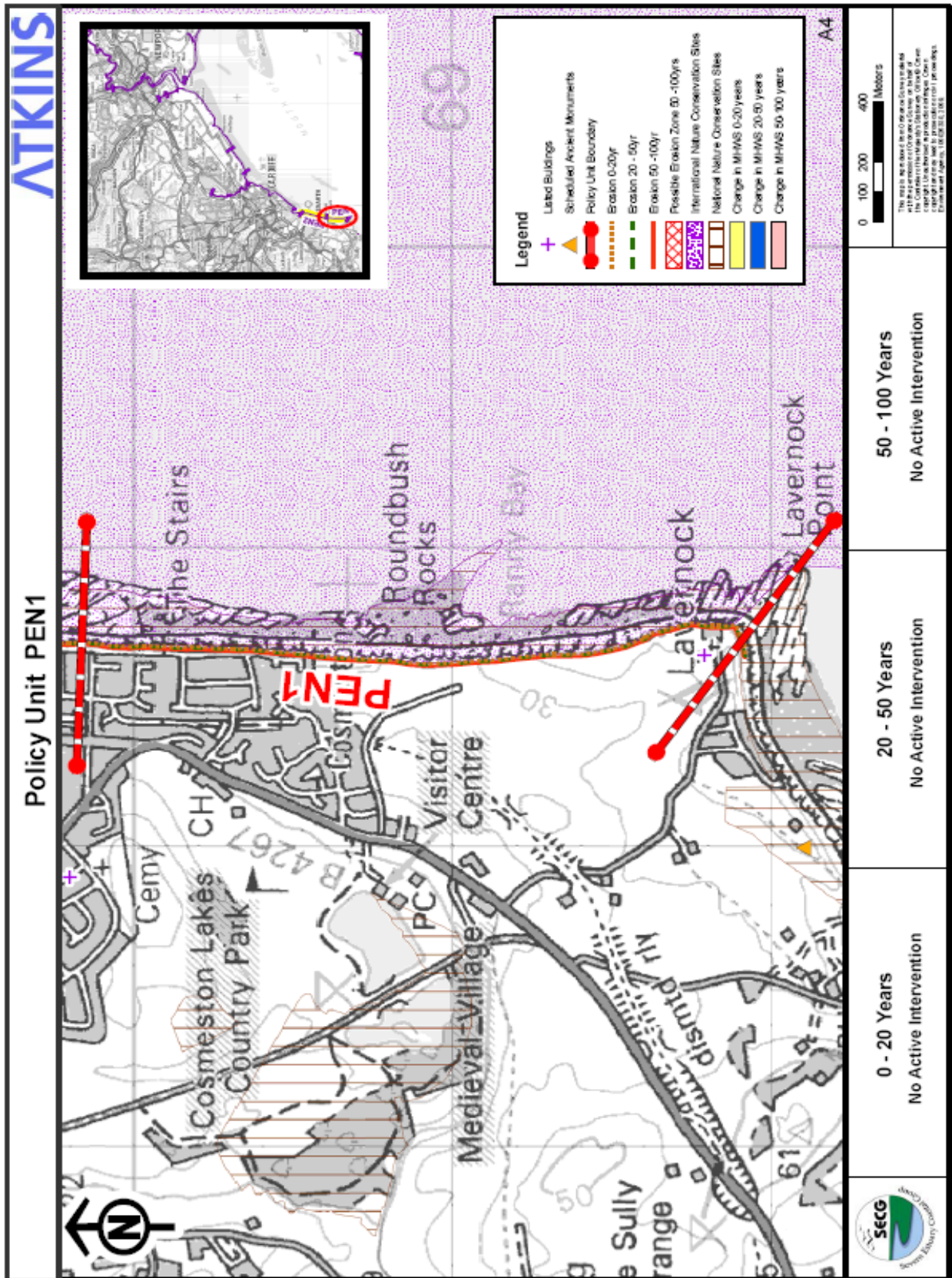


Shows what would happen under a No Active Intervention (NAI) policy

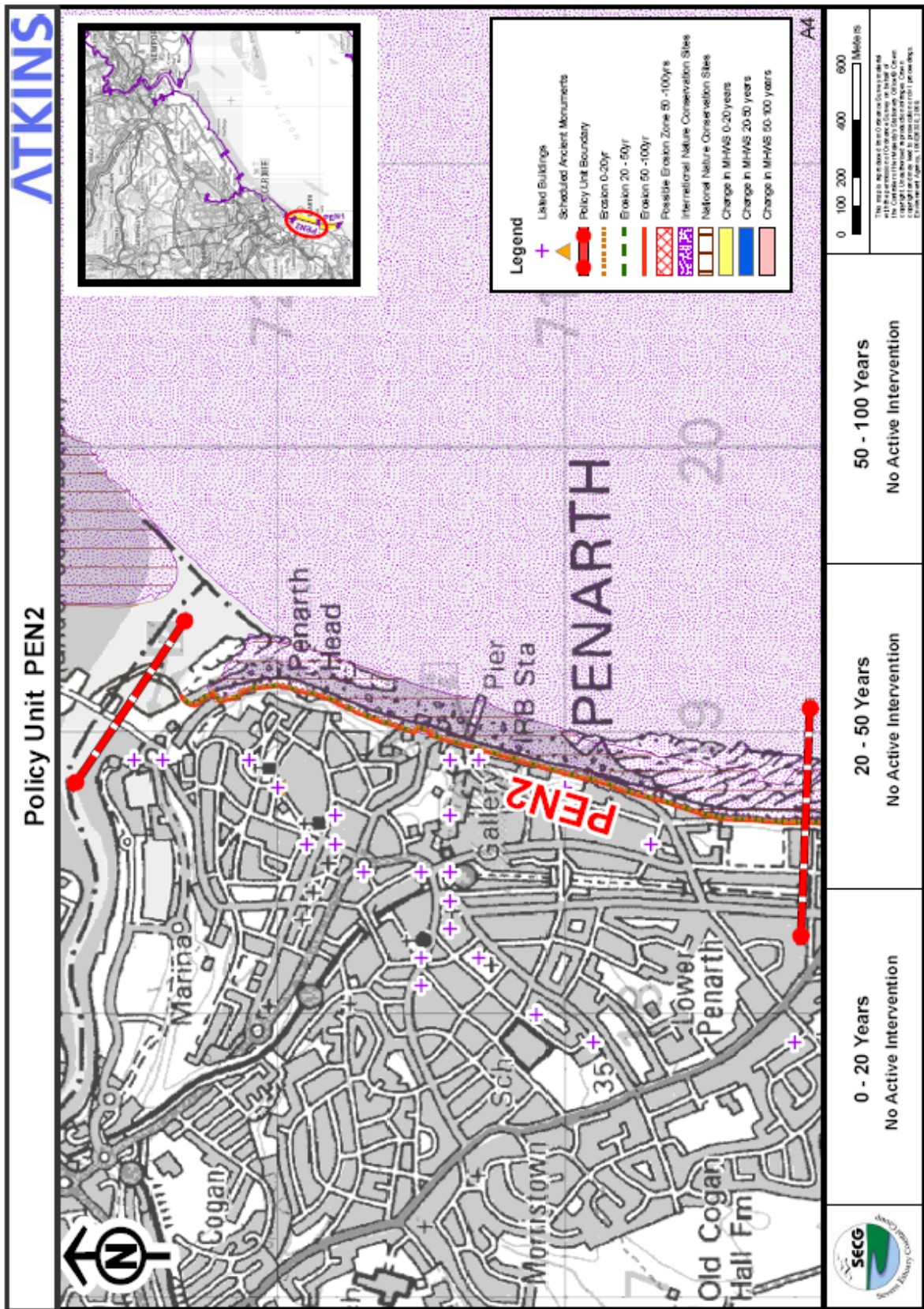
Small Inset Map

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 inter-linkages between Policy Units affected the choice of policy option can be found in **Appendix G** of the main SMP2 Report.

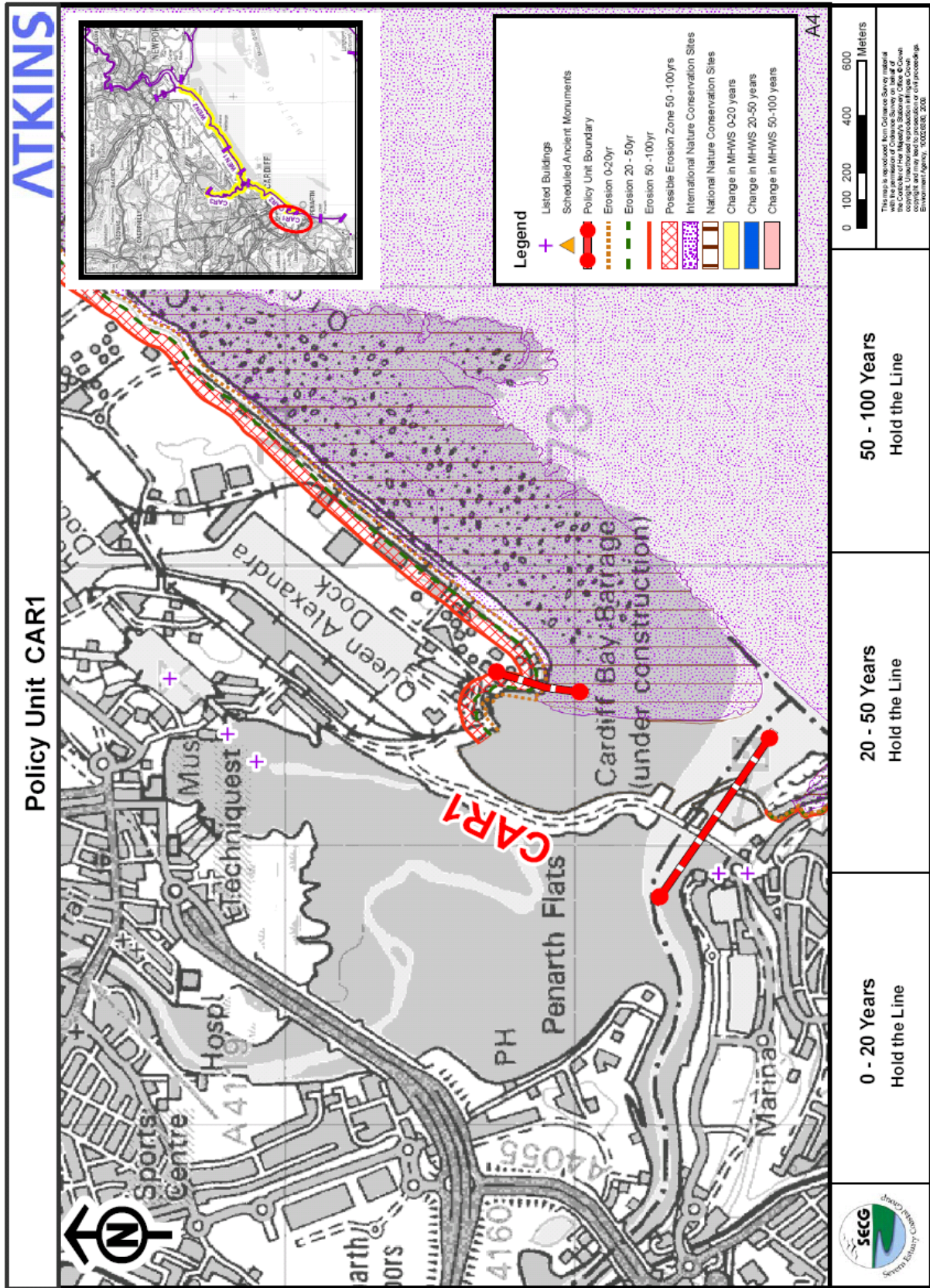
Policy Unit: PEN 1 – Lavernock Point to the shore south of Forest Road



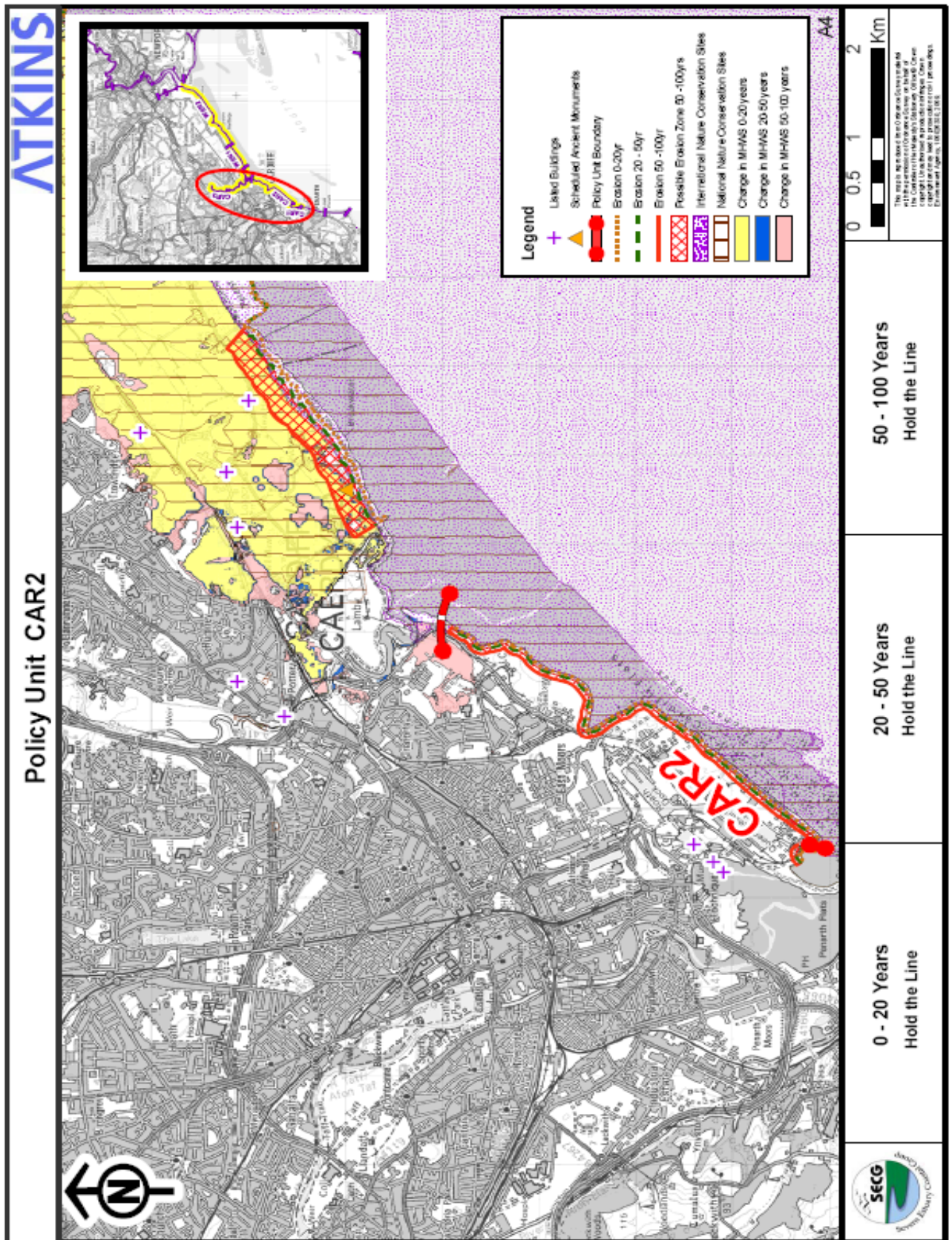
Policy Unit: PEN 2 - the shore south of Forest Road to Penarth Head



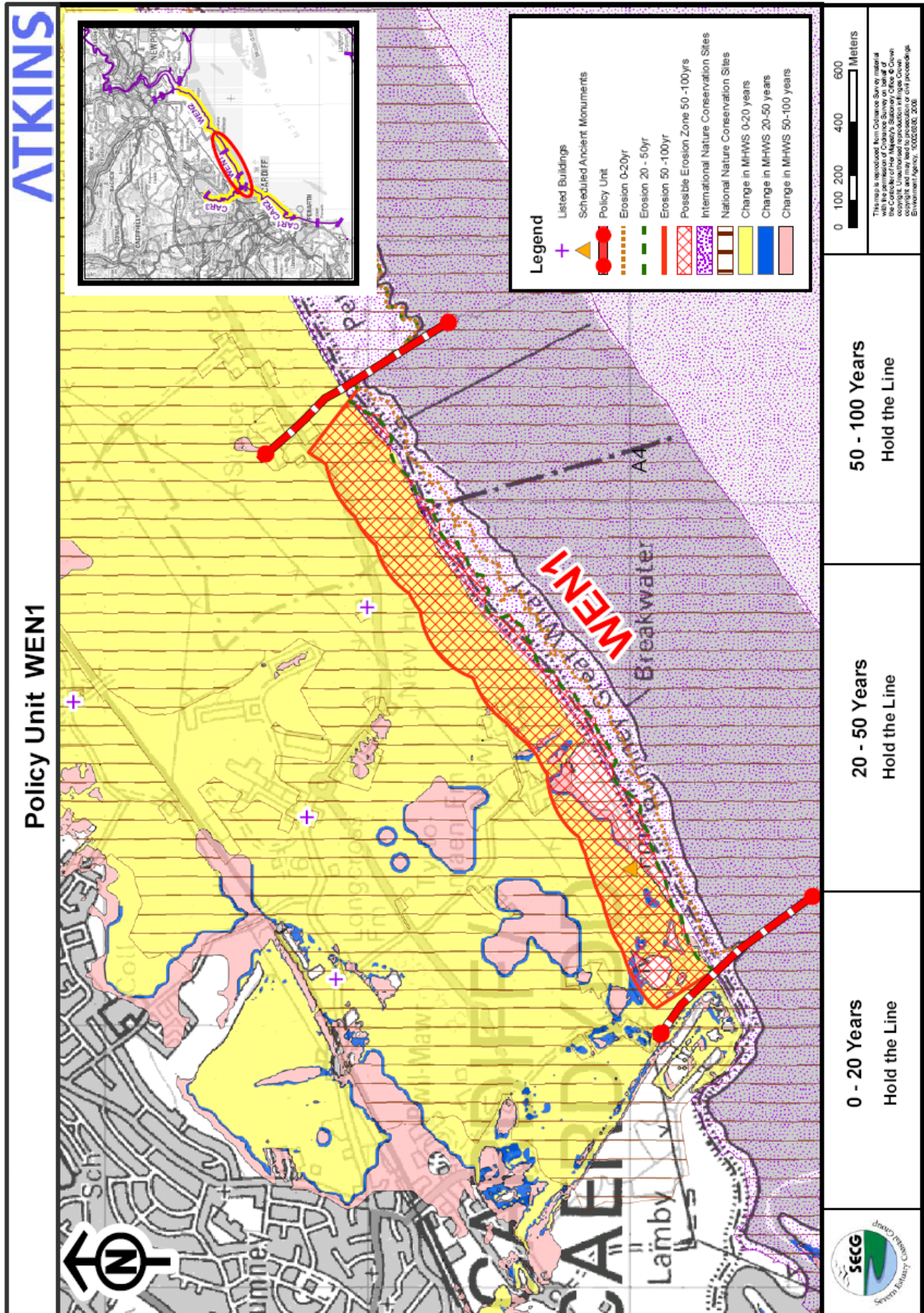
Policy Unit: CAR 1 – Cardiff Bay Barrage



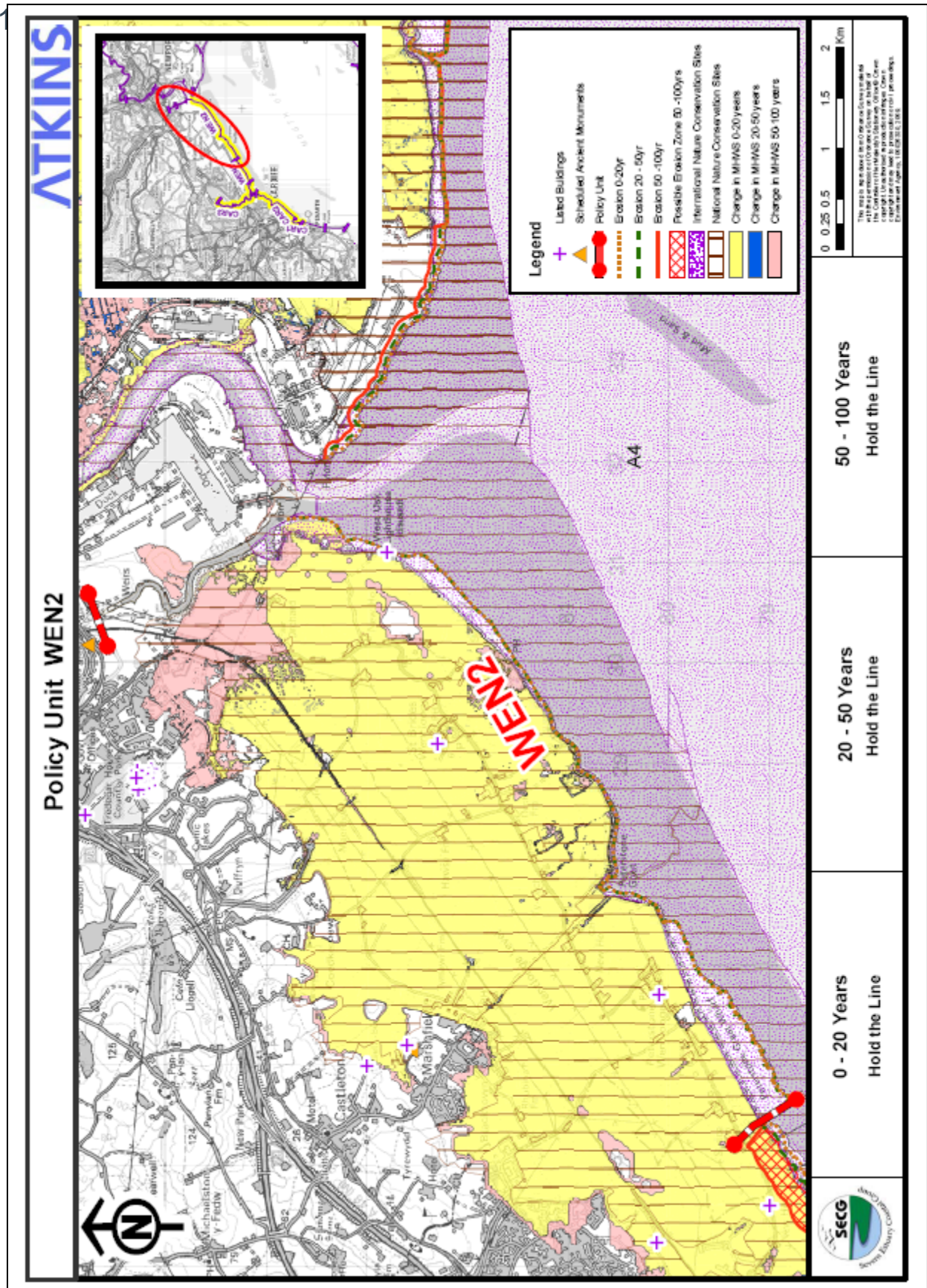
Policy Unit: CAR 2 – Western end of Cardiff Bay Barrage to mouth of River Rhymney at Rover Way



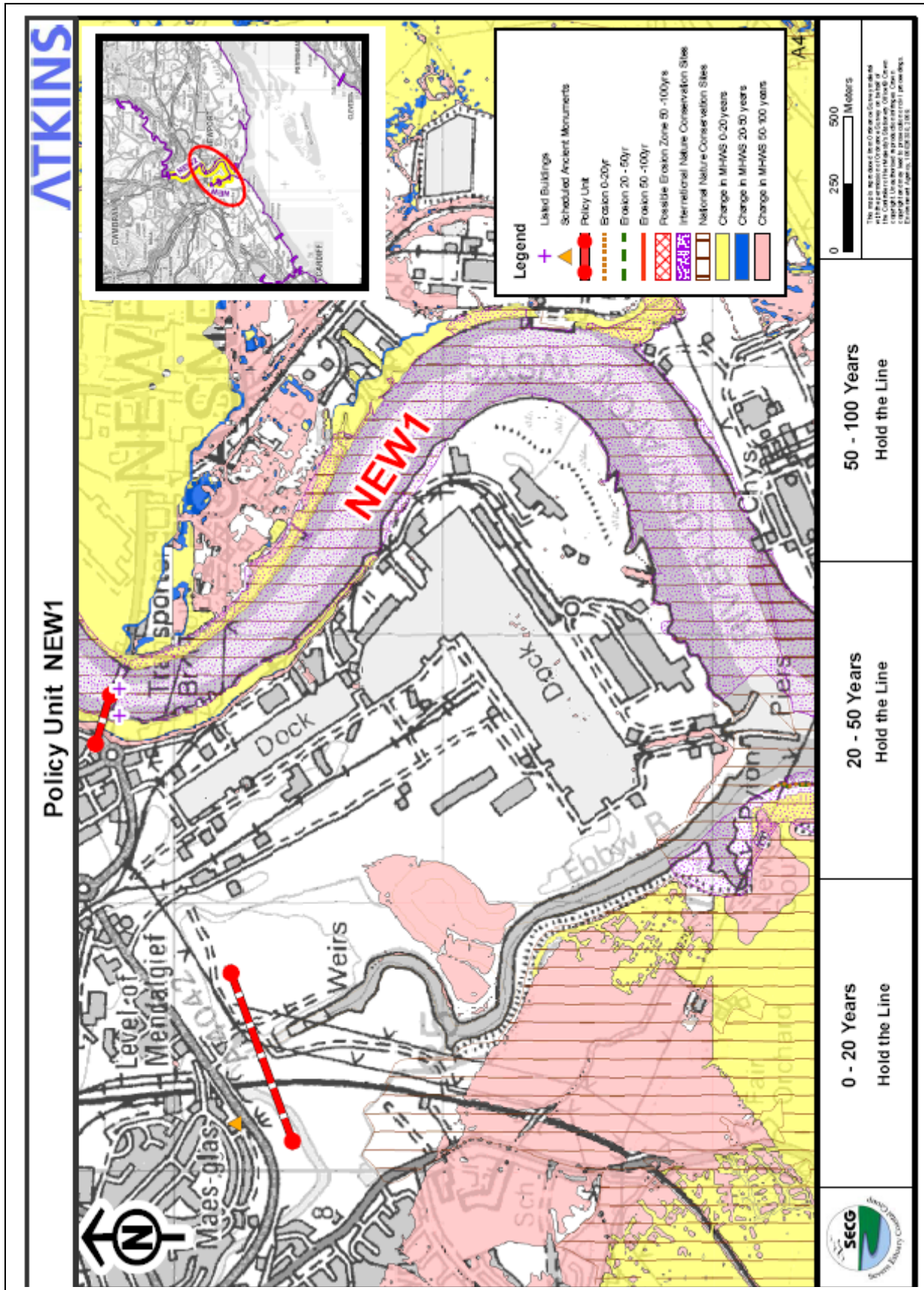
Policy Unit: WEN 1 - Lamby Way landfill site drain to Sluice House Farm (Tarwick Rhyne)



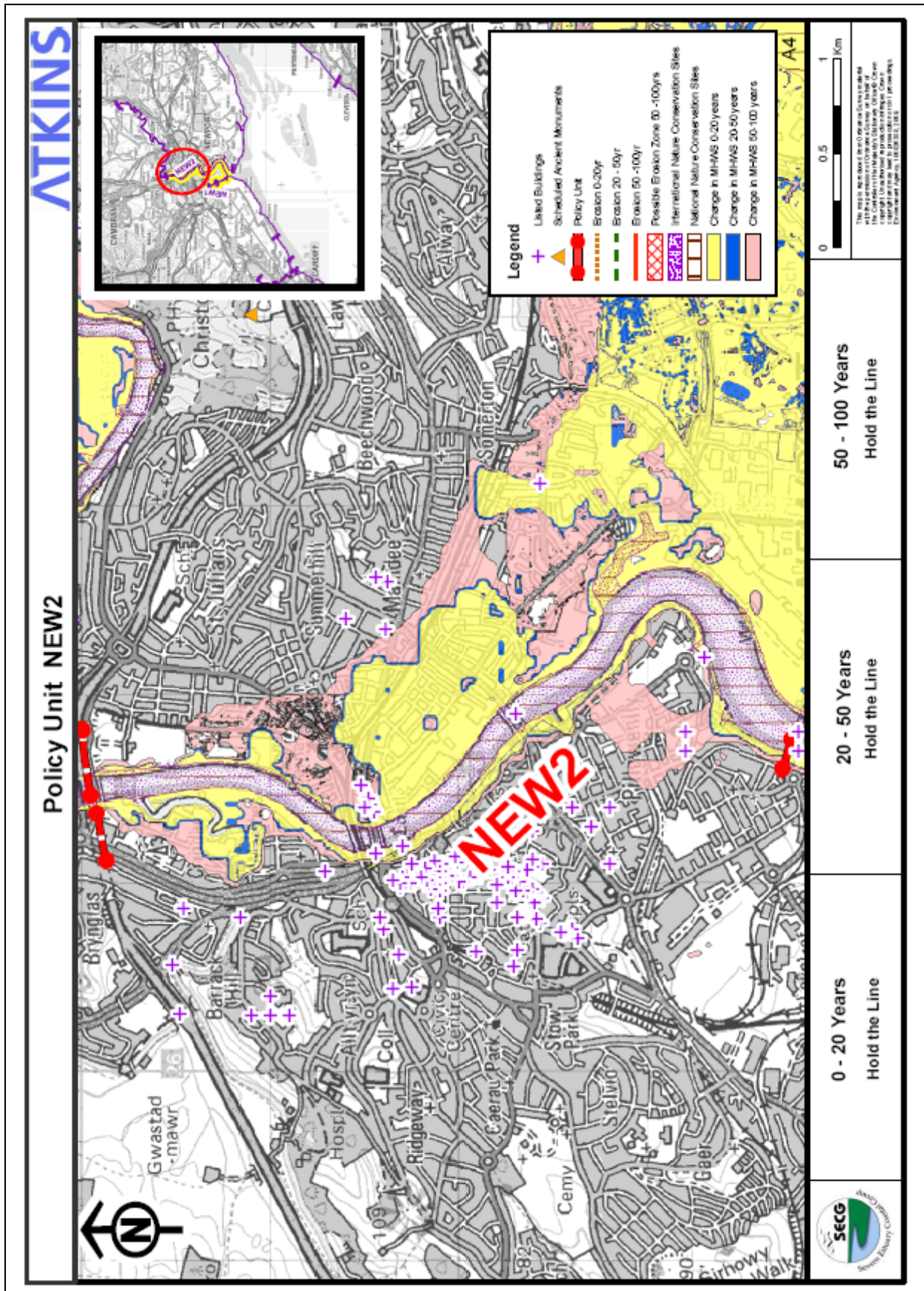
Policy Unit: WEN 2 - Sluice House Farm (Tarwick Rhyne) to the River Ebbw (west bank) at Maesglas Railway Bridge



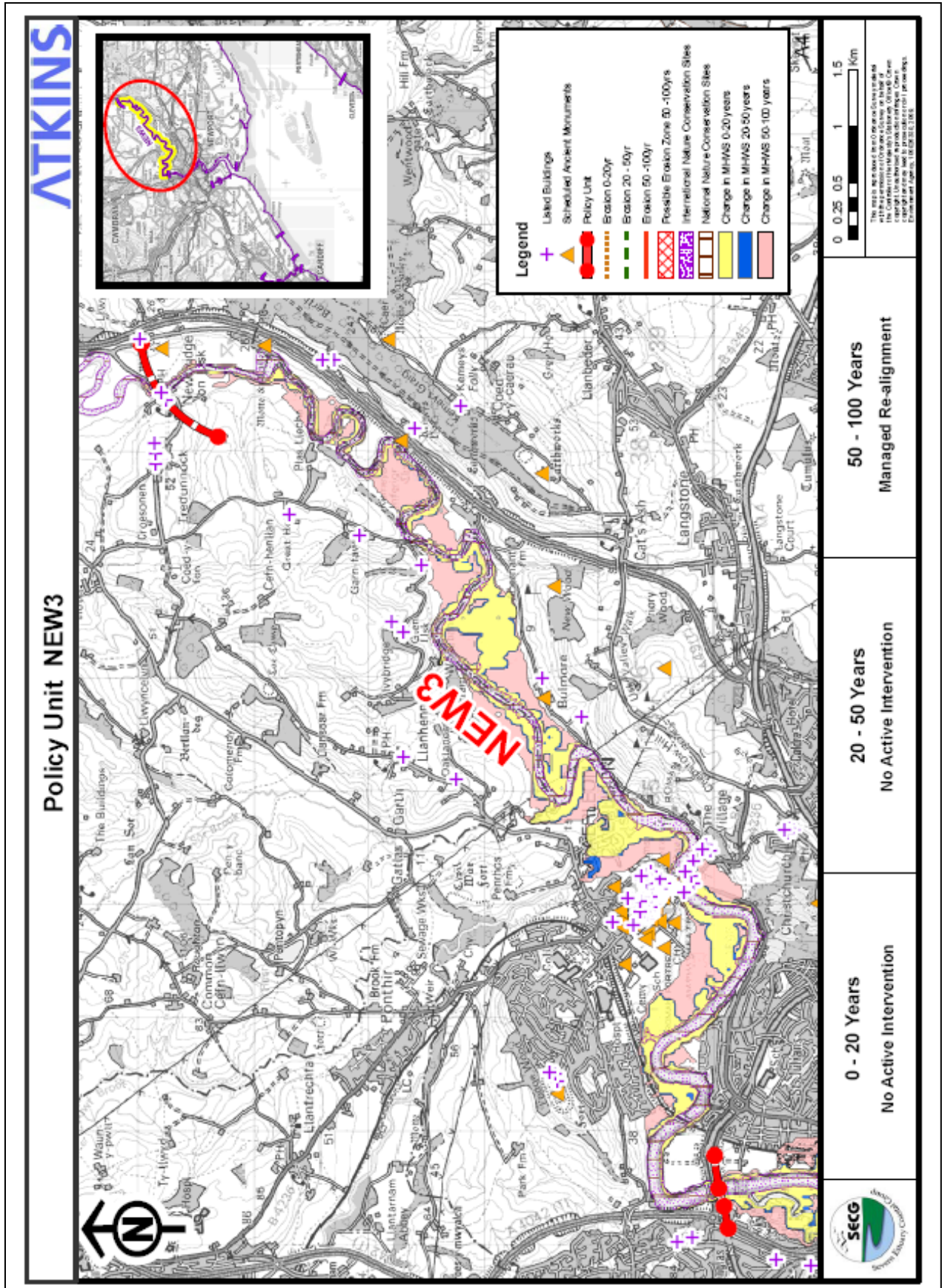
Policy Unit: NEW 1 – River Ebbw (east bank) at Maesglas Railway Bridge to River Usk at the transporter bridge (west bank)



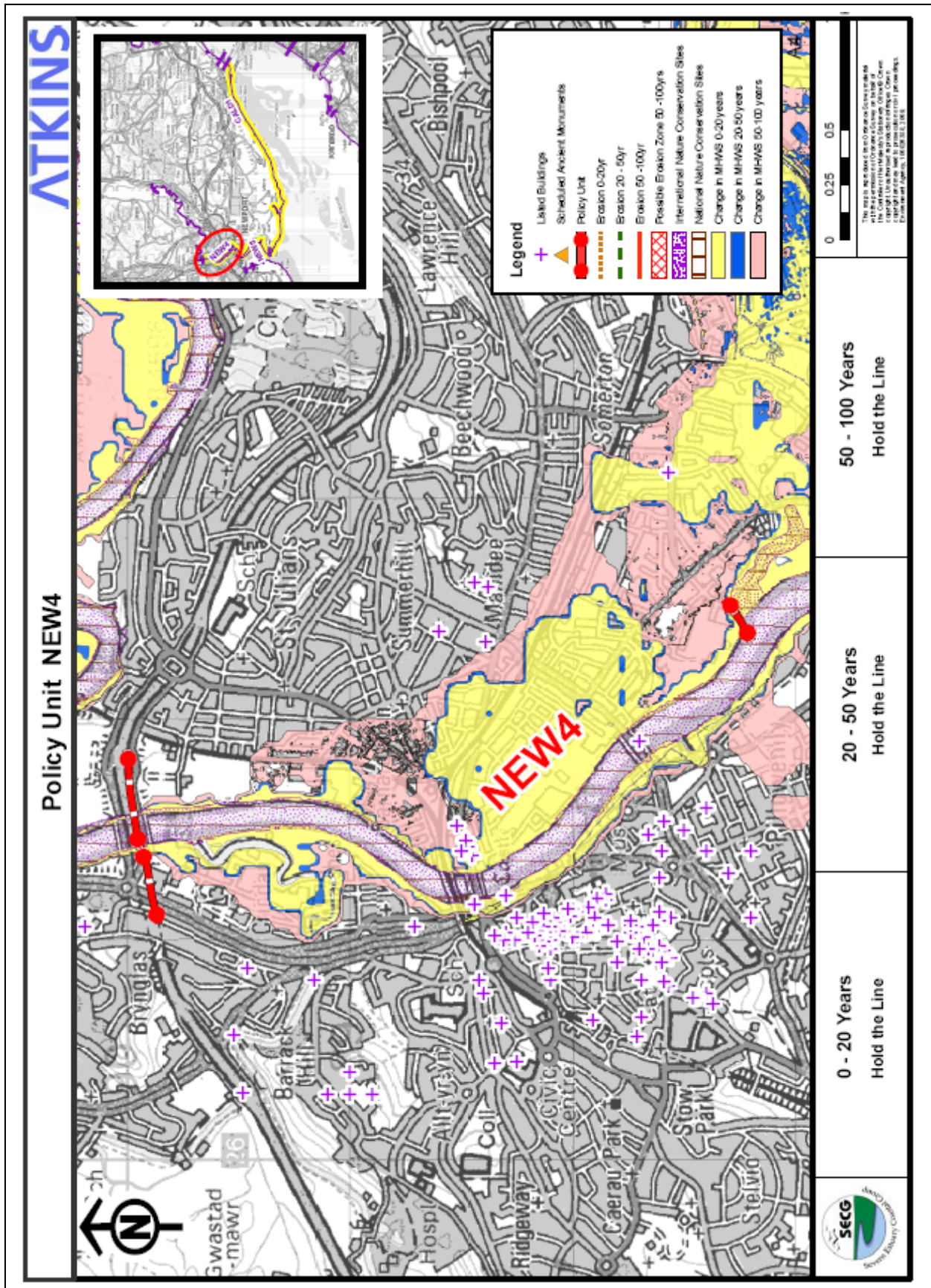
Policy Unit: NEW 2 - River Usk at the transporter bridge (west bank) to River Usk at M4 crossing (west bank)



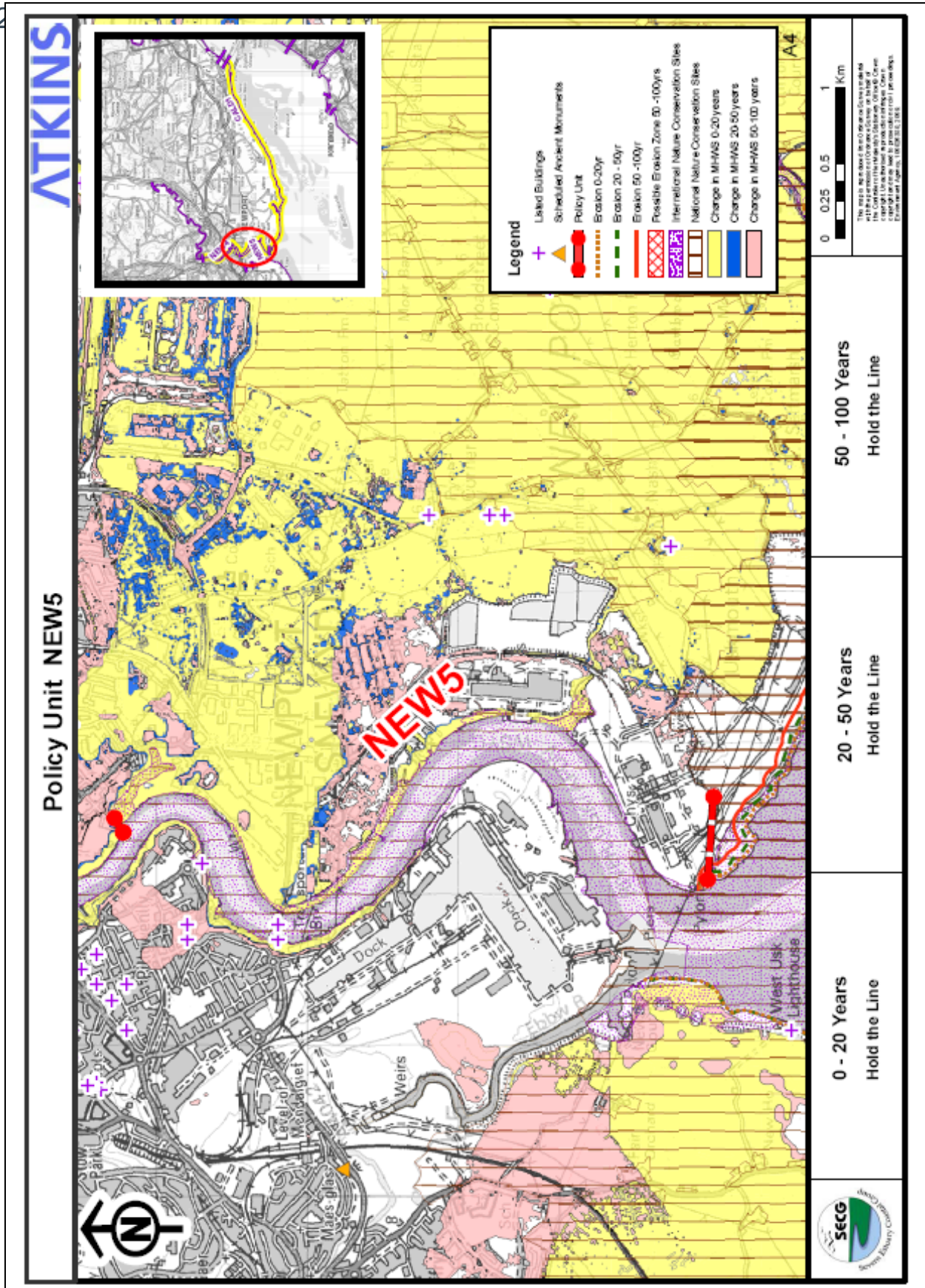
Policy Unit: NEW 3 - River Usk (both banks) from M4 crossing to Newbridge on Usk



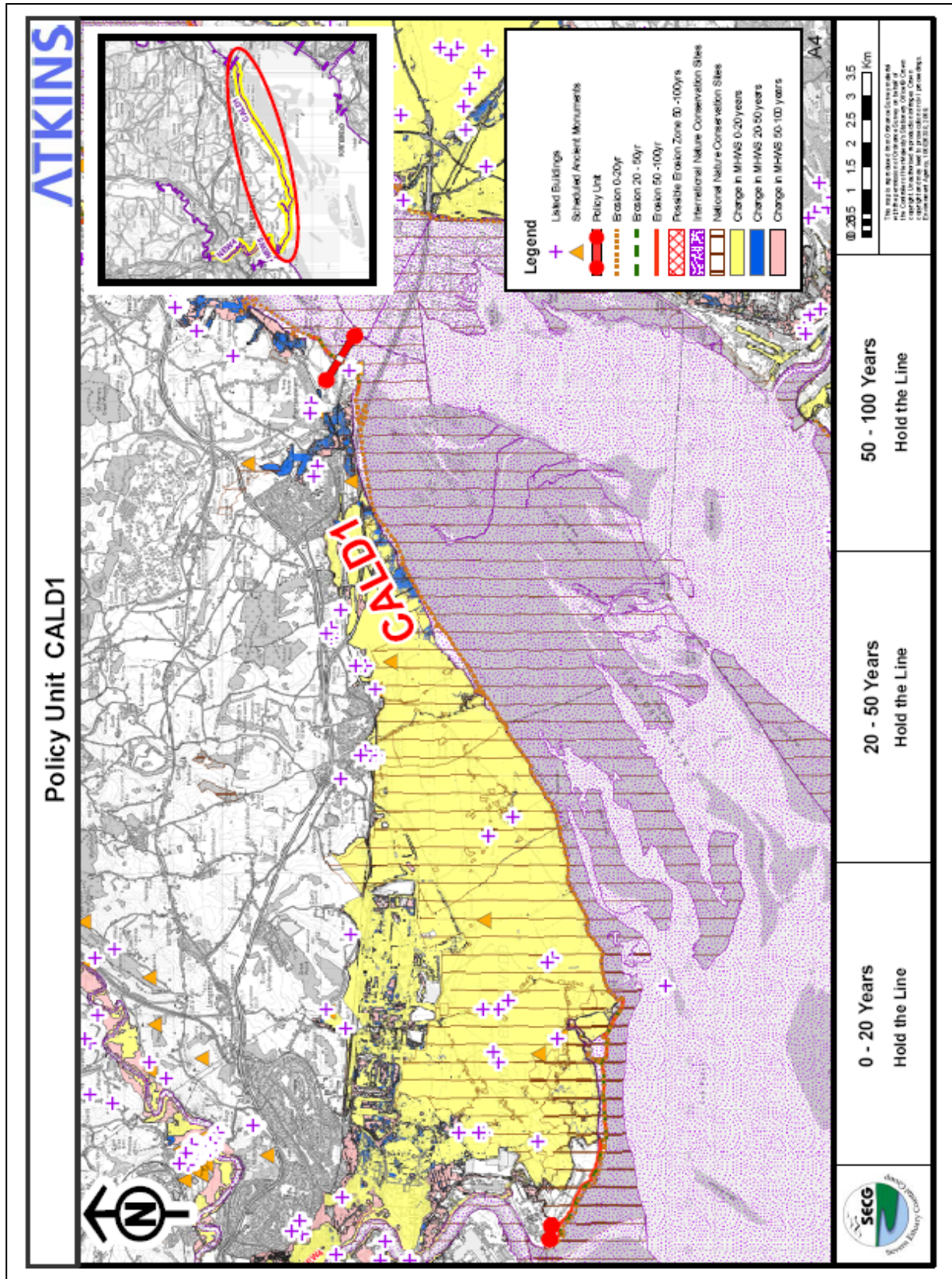
Policy Unit: NEW 4 - River Usk (east bank) at M4 crossing to Spytty Pill (north of A48 crossing)



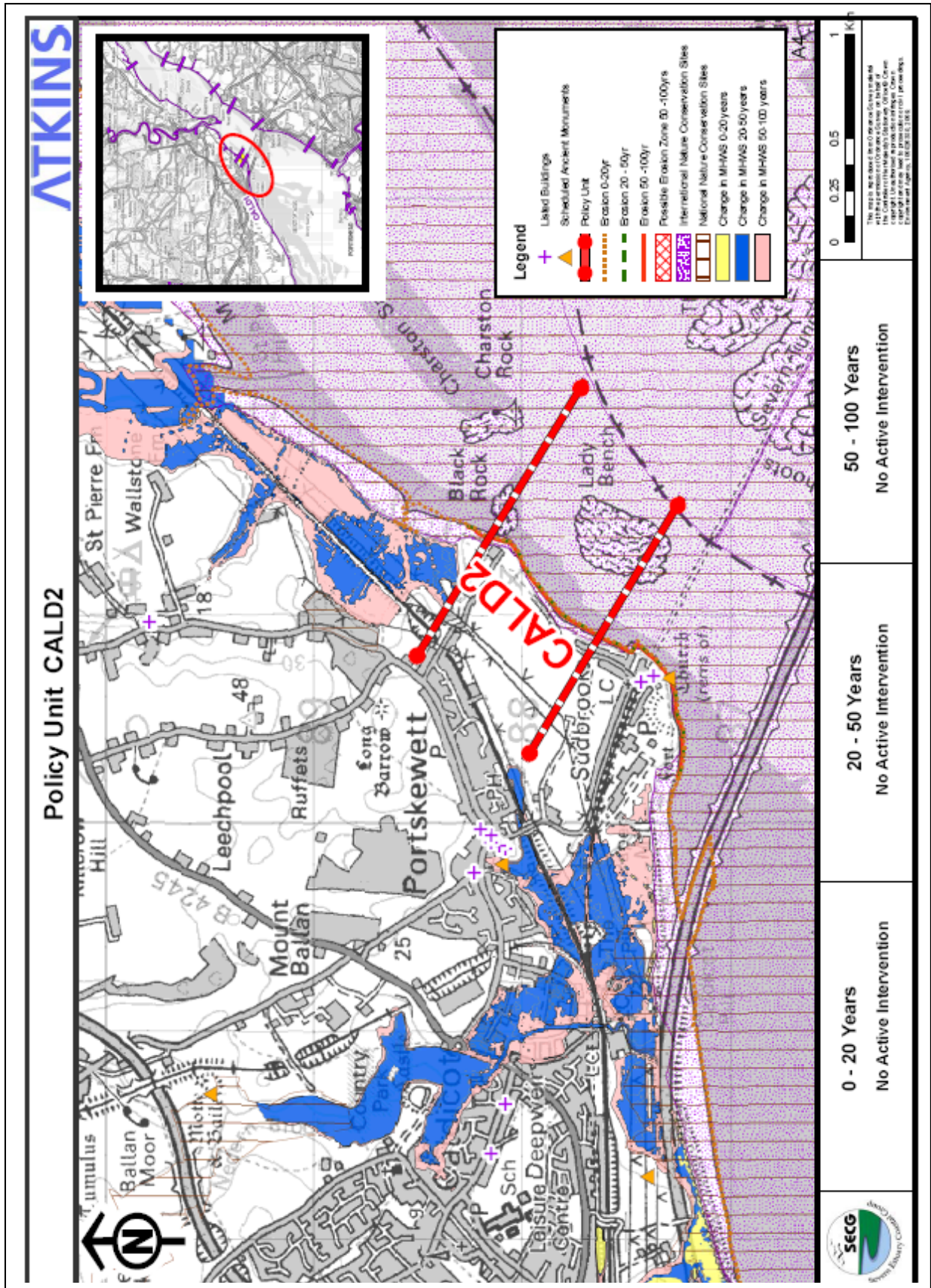
Policy Unit: NEW 5 - River Usk (East bank) at Spytty Pill (North of A48 crossing) to Uskmouth Power Station point



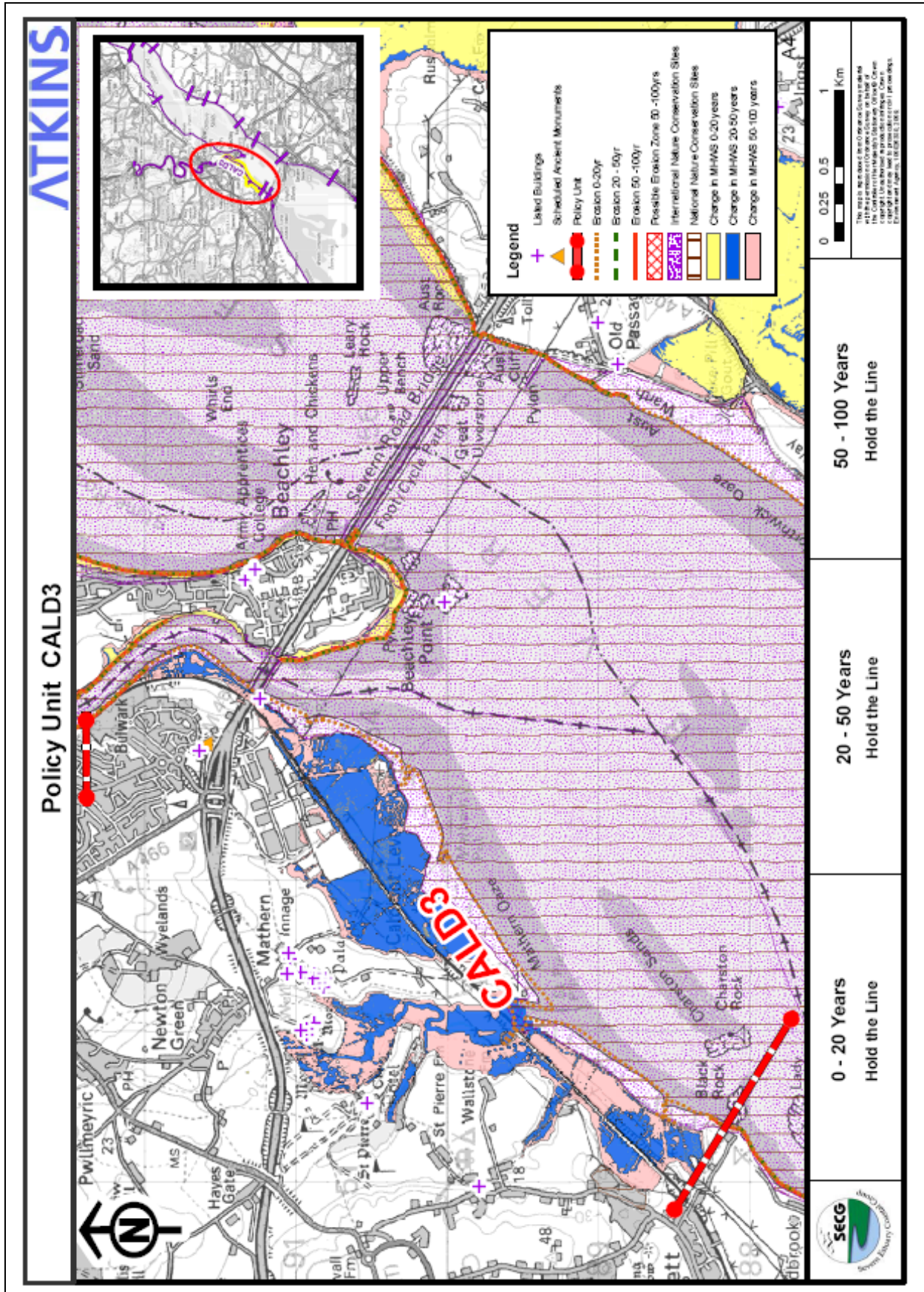
Policy Unit: CALD 1 - Uskmouth Power Station point to Sudbrook point (north of M4 Severn crossing)



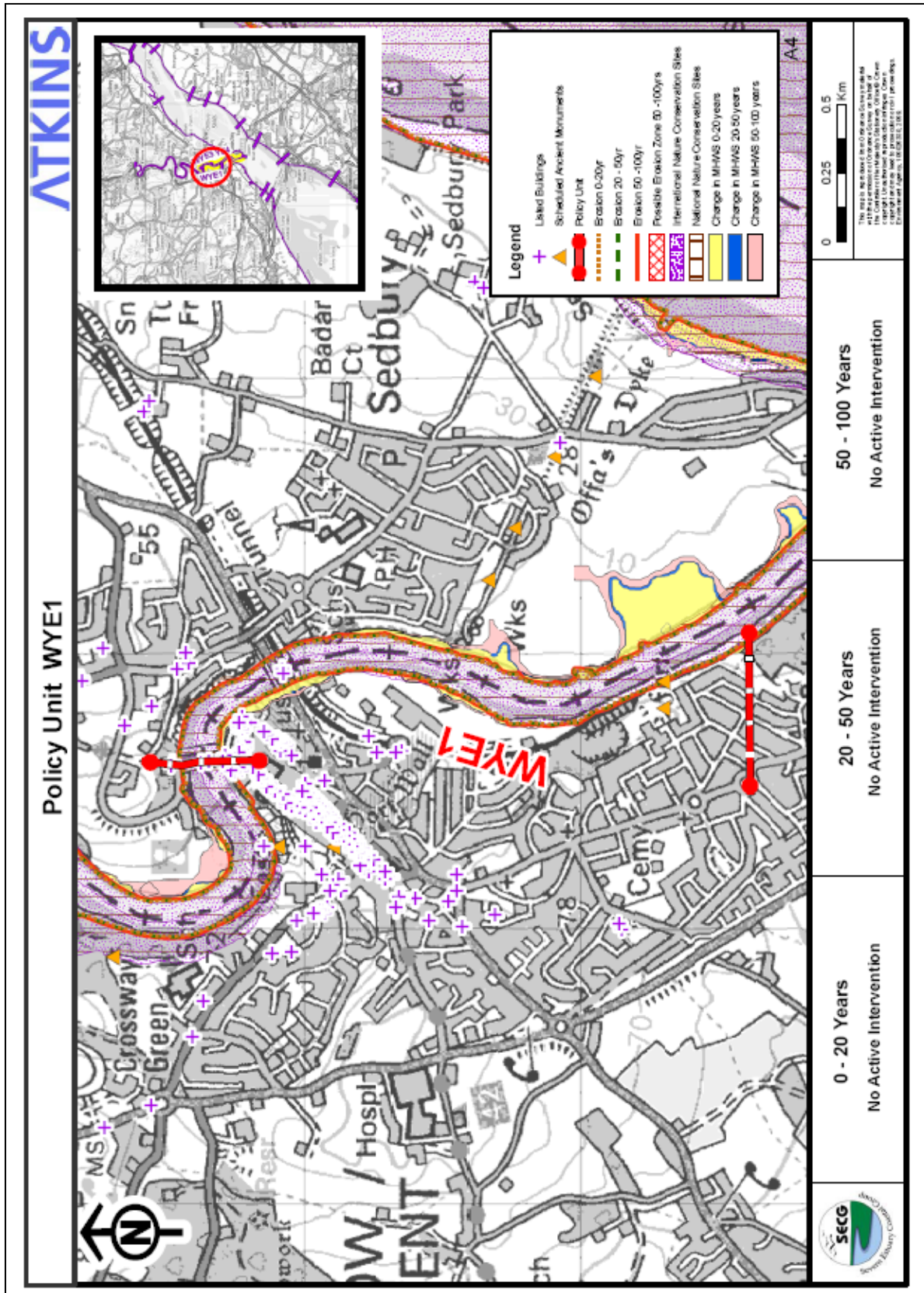
Policy Unit: CALD 2 - Sudbrook point (north of M4 Severn crossing) to Black Rock at Black Rock Road



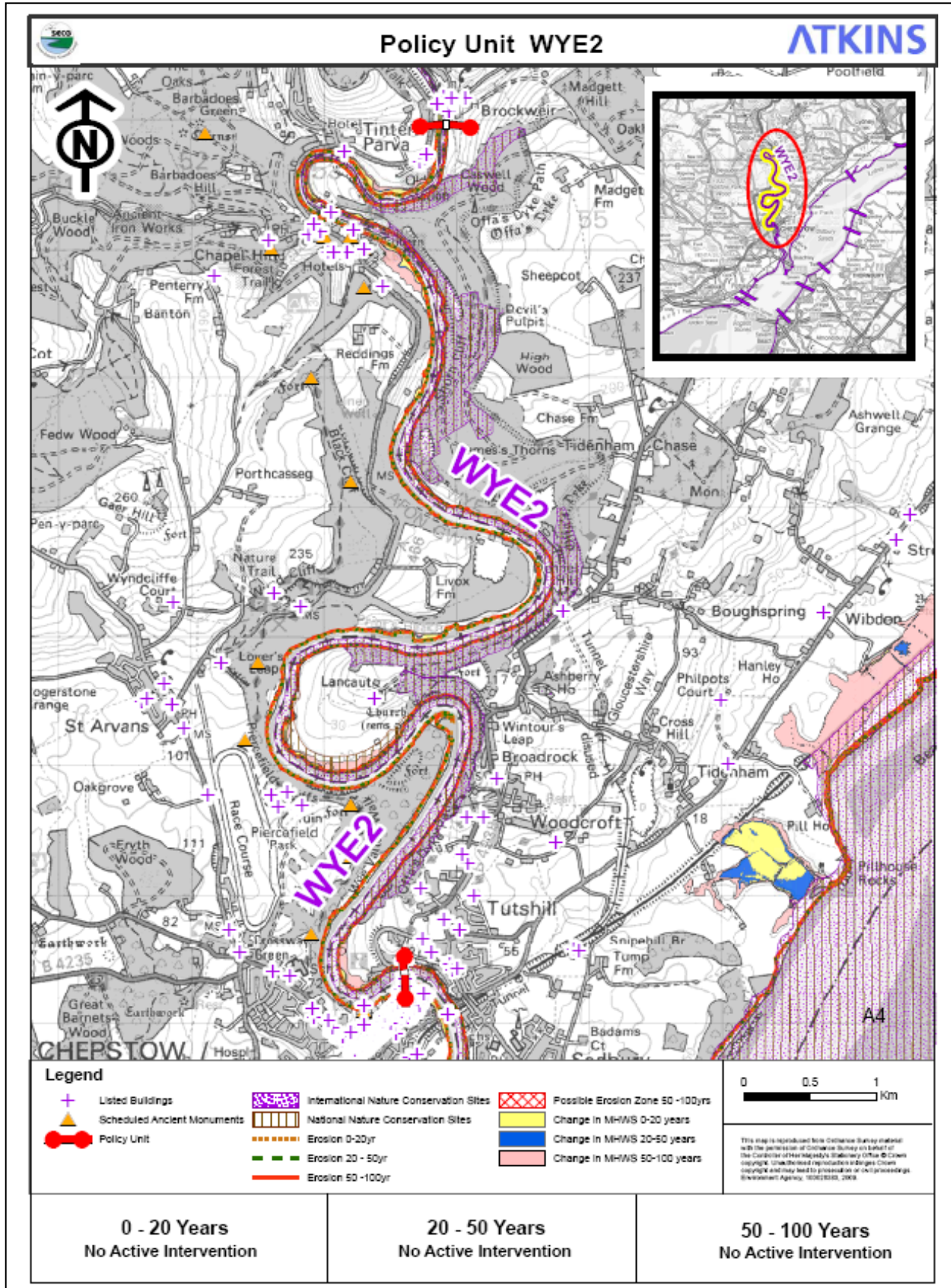
Policy Unit: CALD 3 - Black Rock at Black Rock Road to River Wye (West bank) at Park Redding, Thornwell



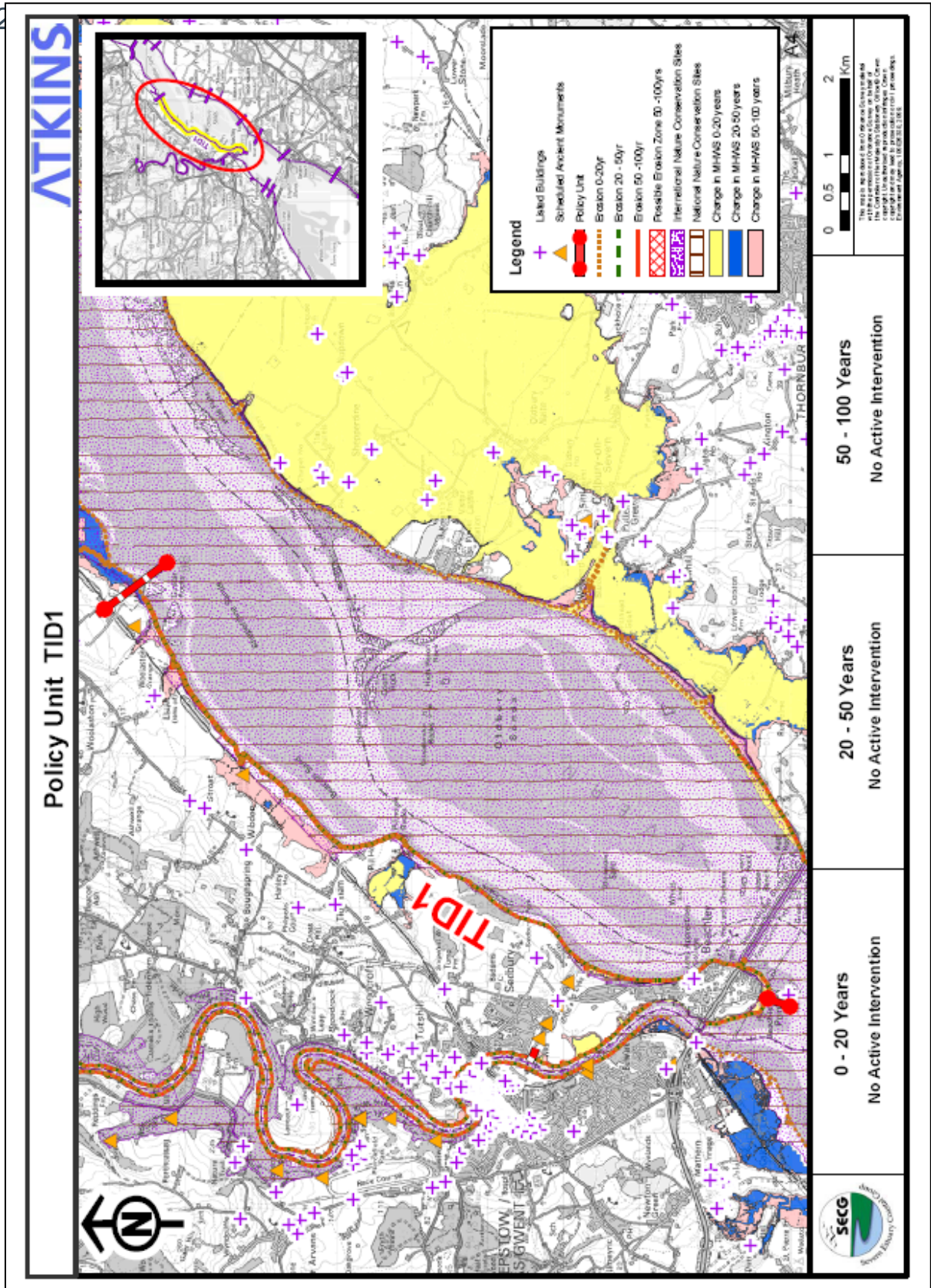
Policy Unit: WYE 1 - River Wye (West bank) at Park Redding, Thornwell to River Wye (West bank) at Alcove Wood, Chepstow



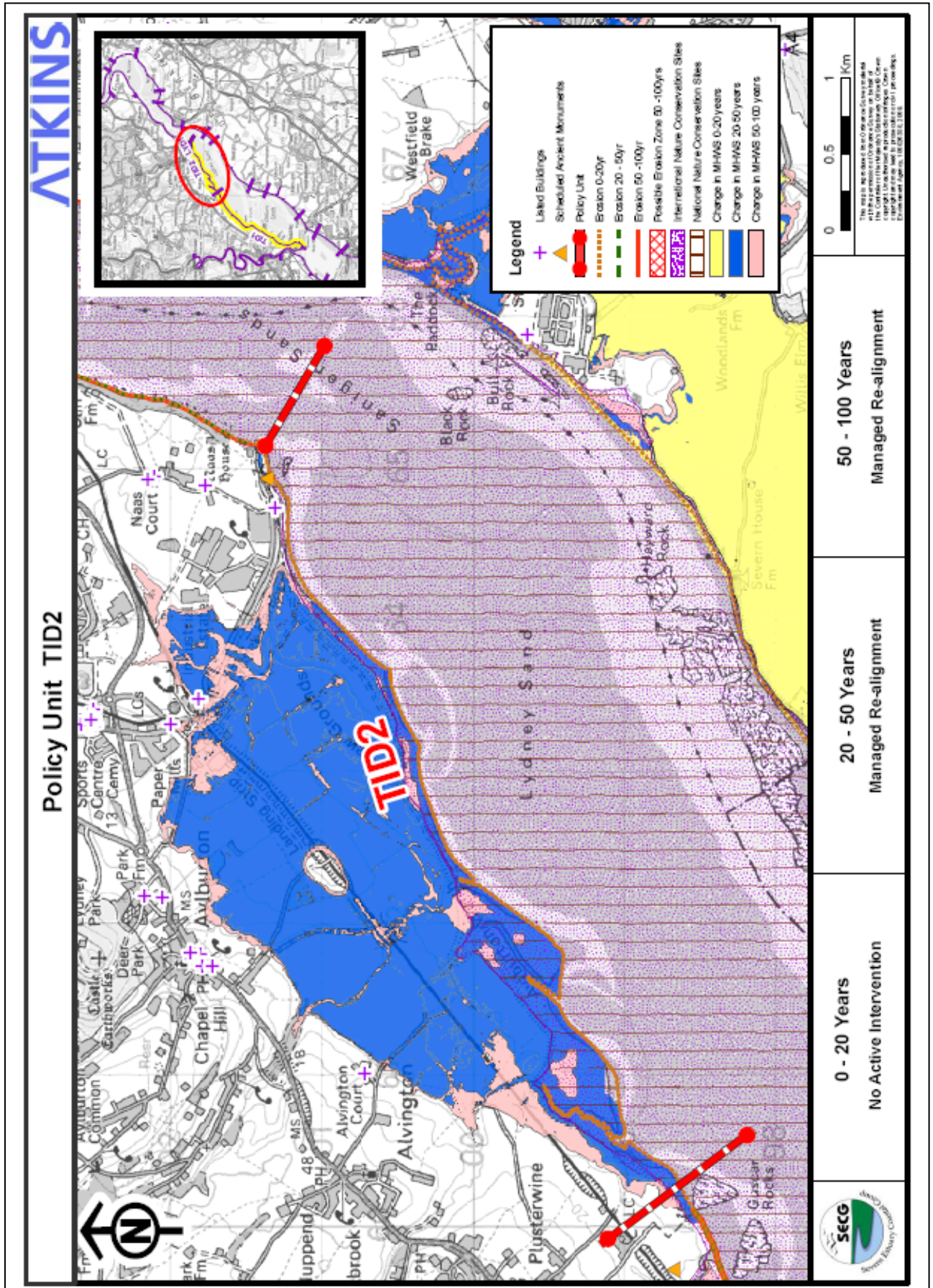
Policy Unit: WYE 2 – River Wye (West bank) at Alcove Wood, Chepstow to Bigsweir Bridge to Bridge Street Bridge, Sedbury (East bank)



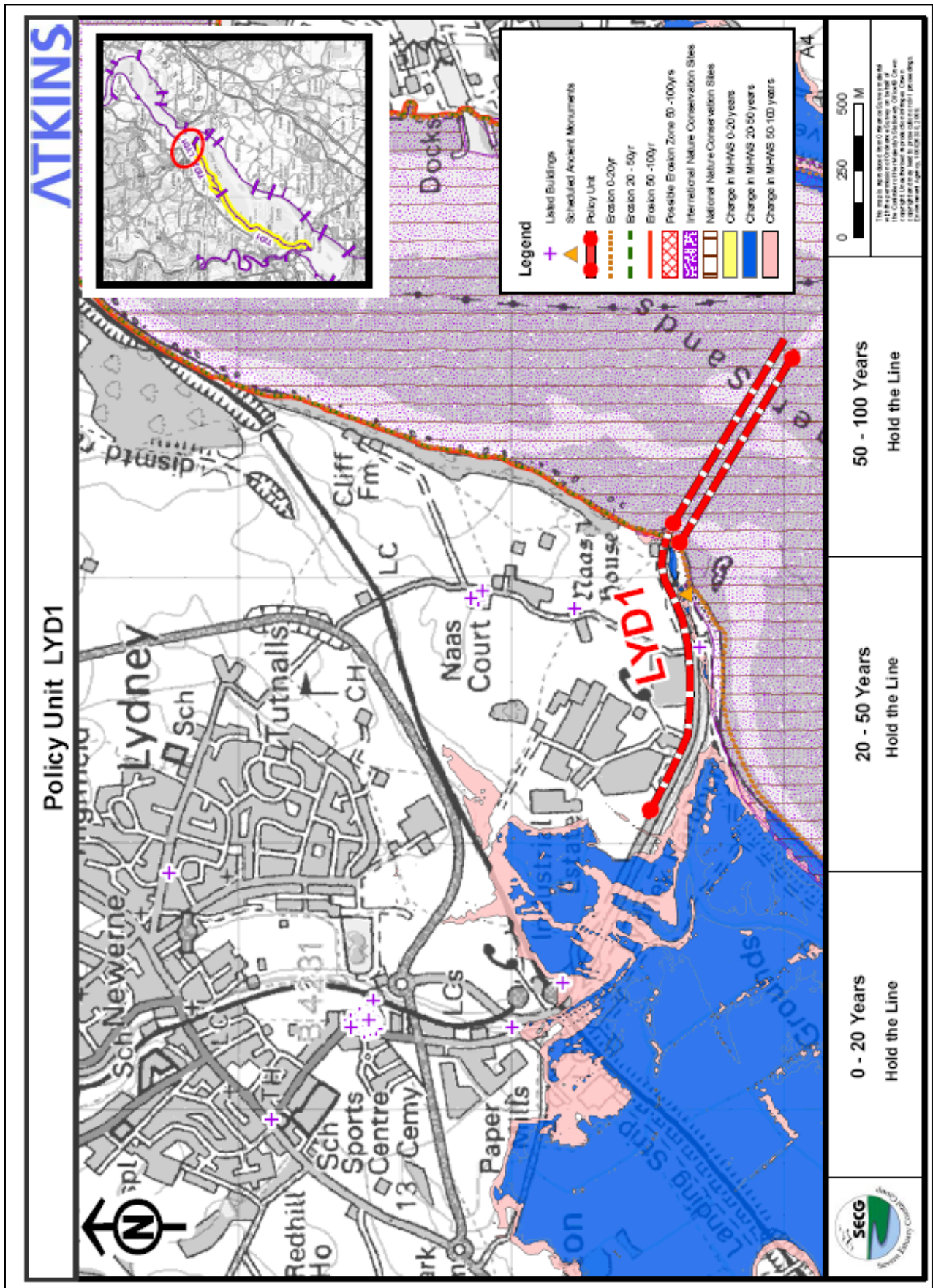
Policy Unit: TID 1 – The end of Beachley Road, Beachley Point to Guscar Rocks



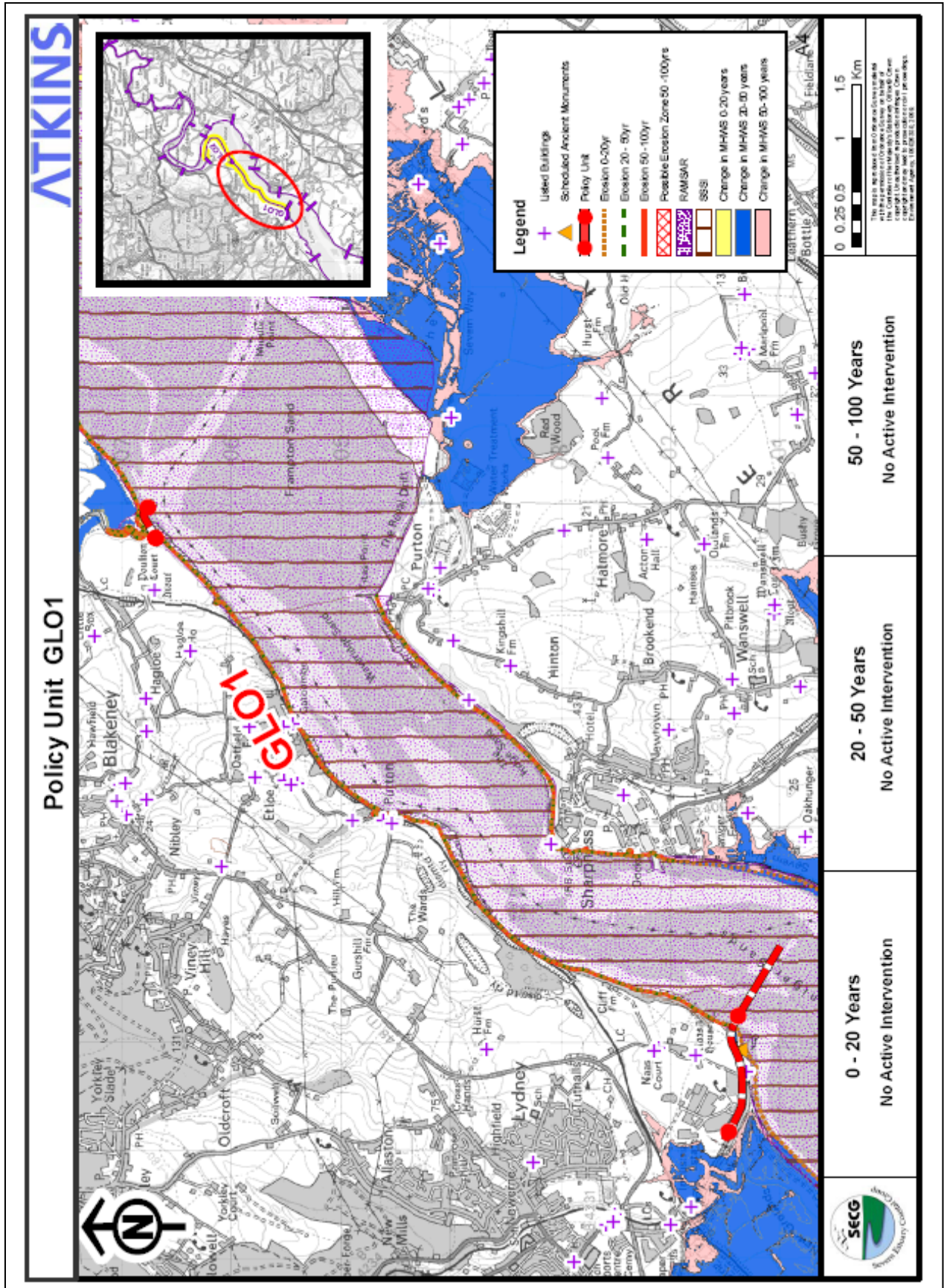
Policy Unit: TID 2 - Guscar Rocks to Lydney Harbour



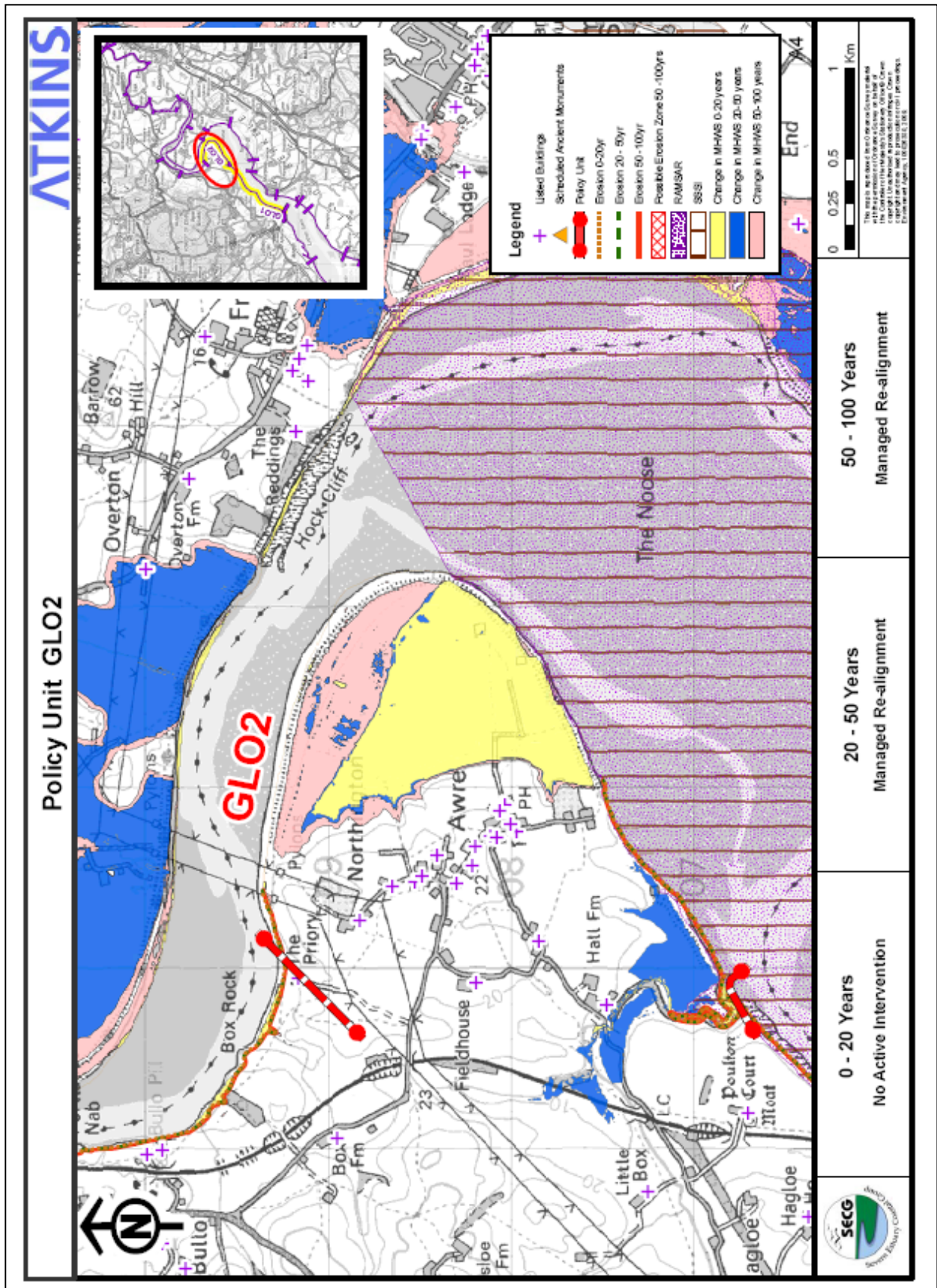
Policy Unit: LYD 1 – Lydney Harbour and basin



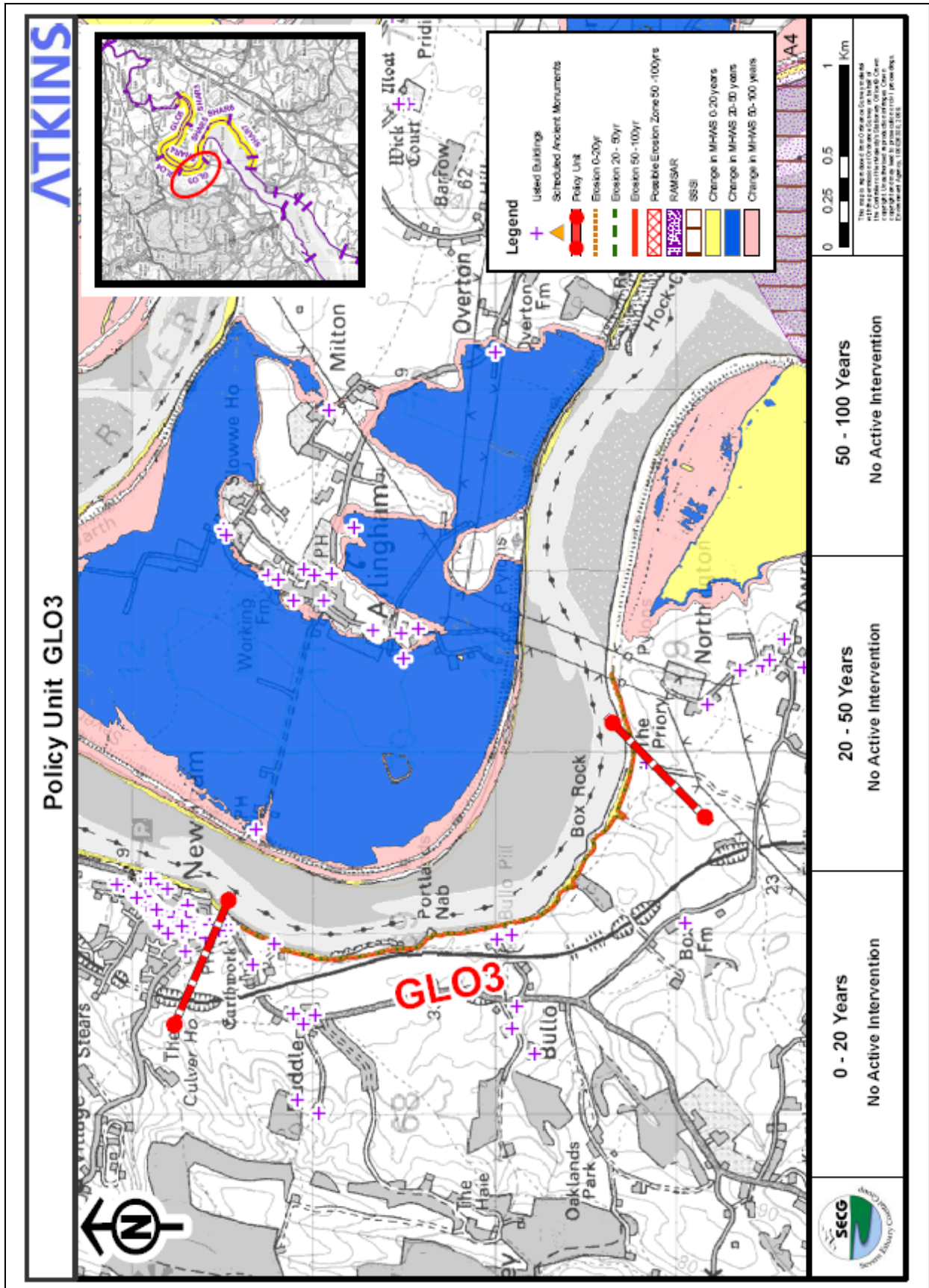
Policy Unit: GLO 1 – Lydney Harbour to Brims Pill (west bank of the Severn)



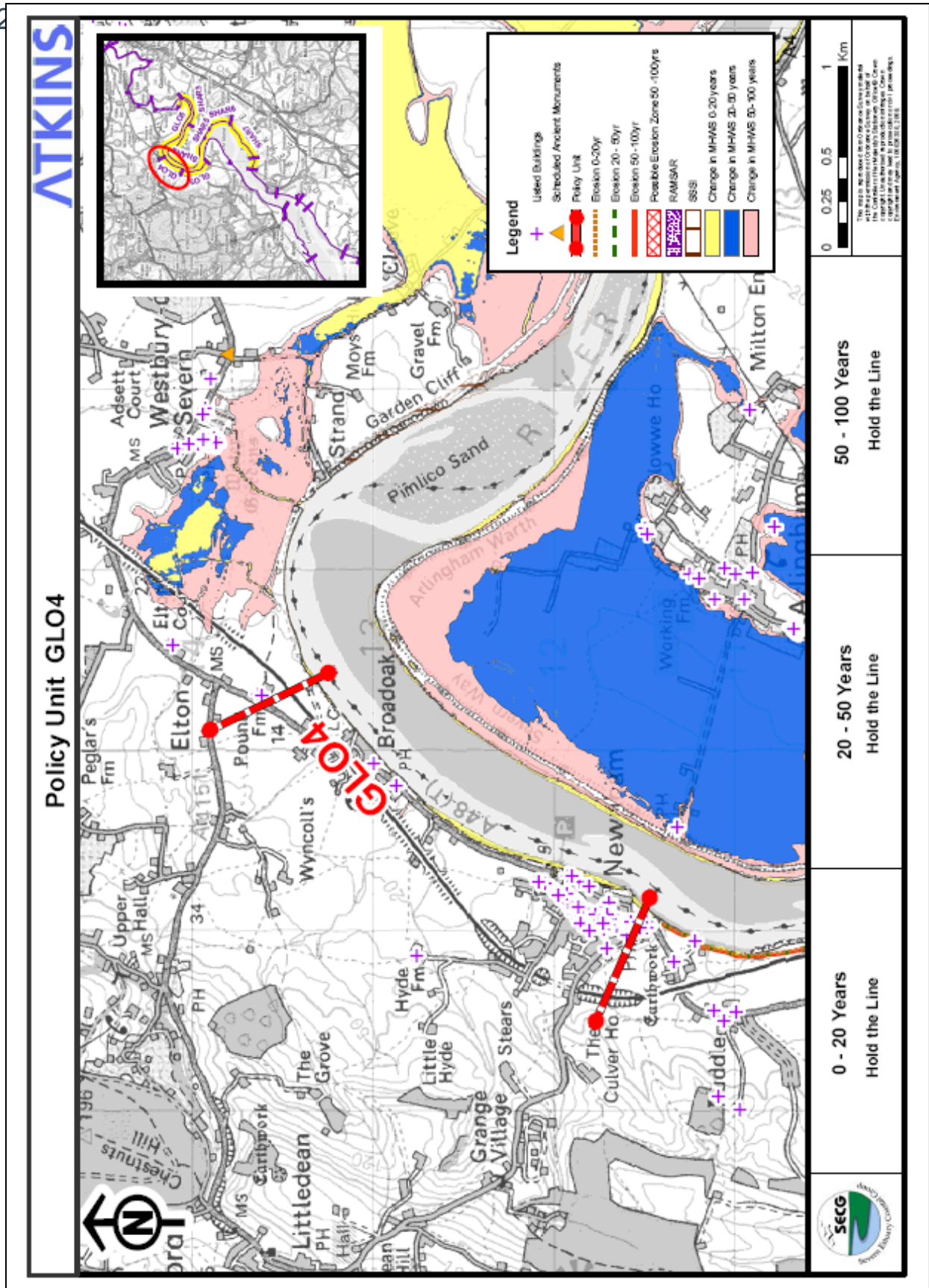
Policy Unit: GLO 2 – Brims Pill to Northington Farm (west bank of the Severn)



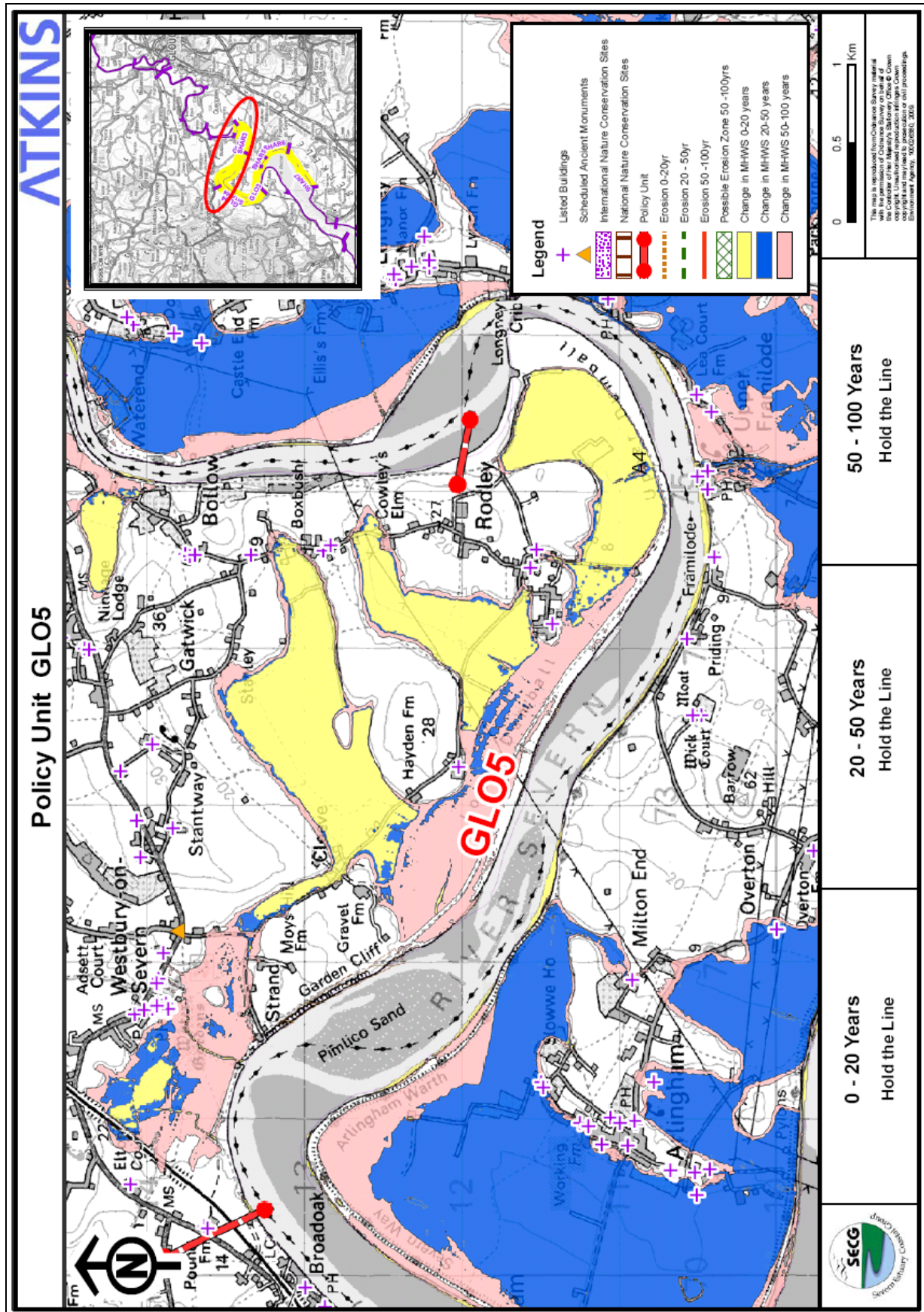
Policy Unit: GLO 3 – Northington Farm to Newnham Church (west bank of the Severn)



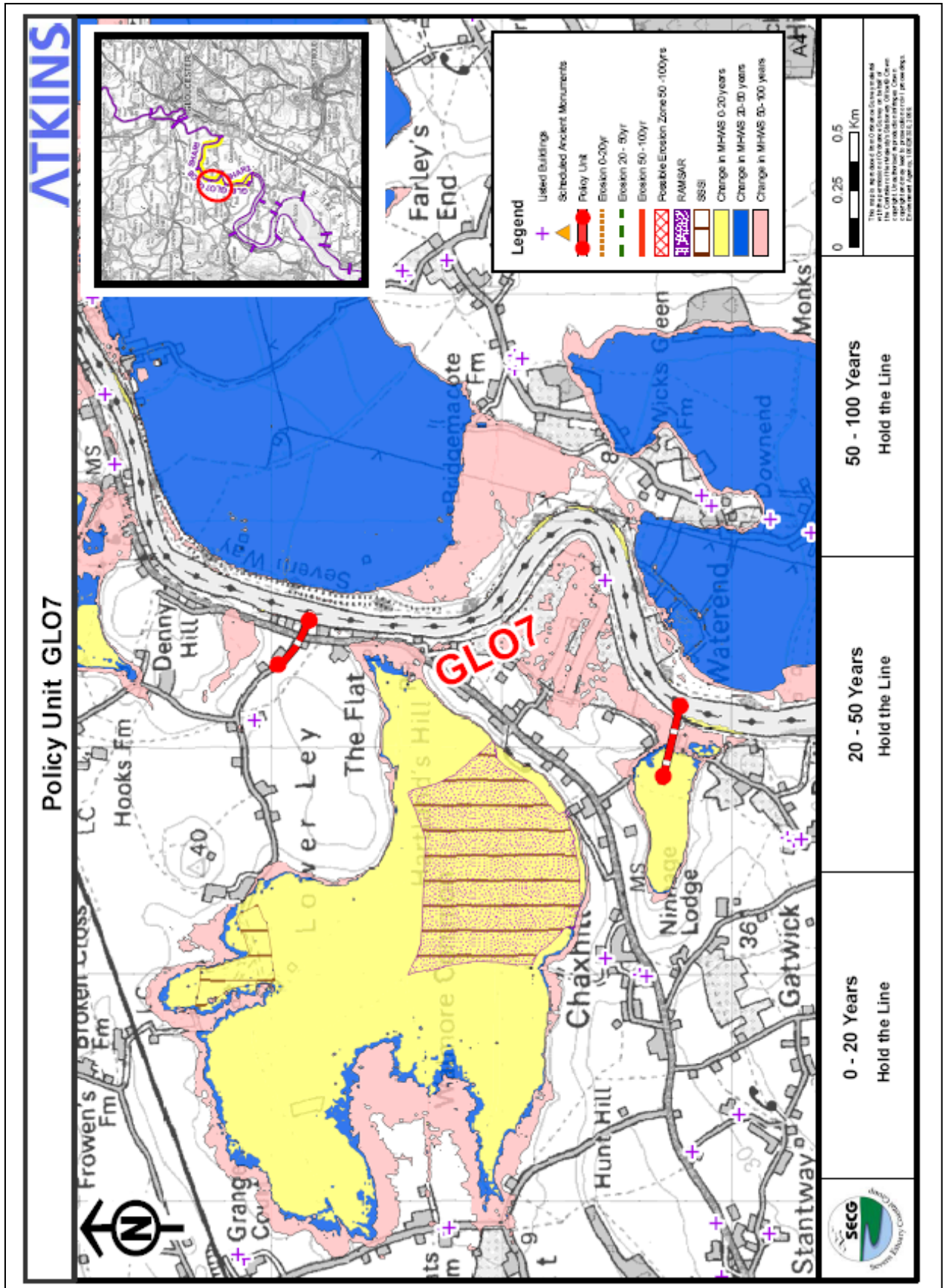
Policy Unit: GLO 4 – Newnham Church to the farm north of Broadoak (west bank of the Severn)



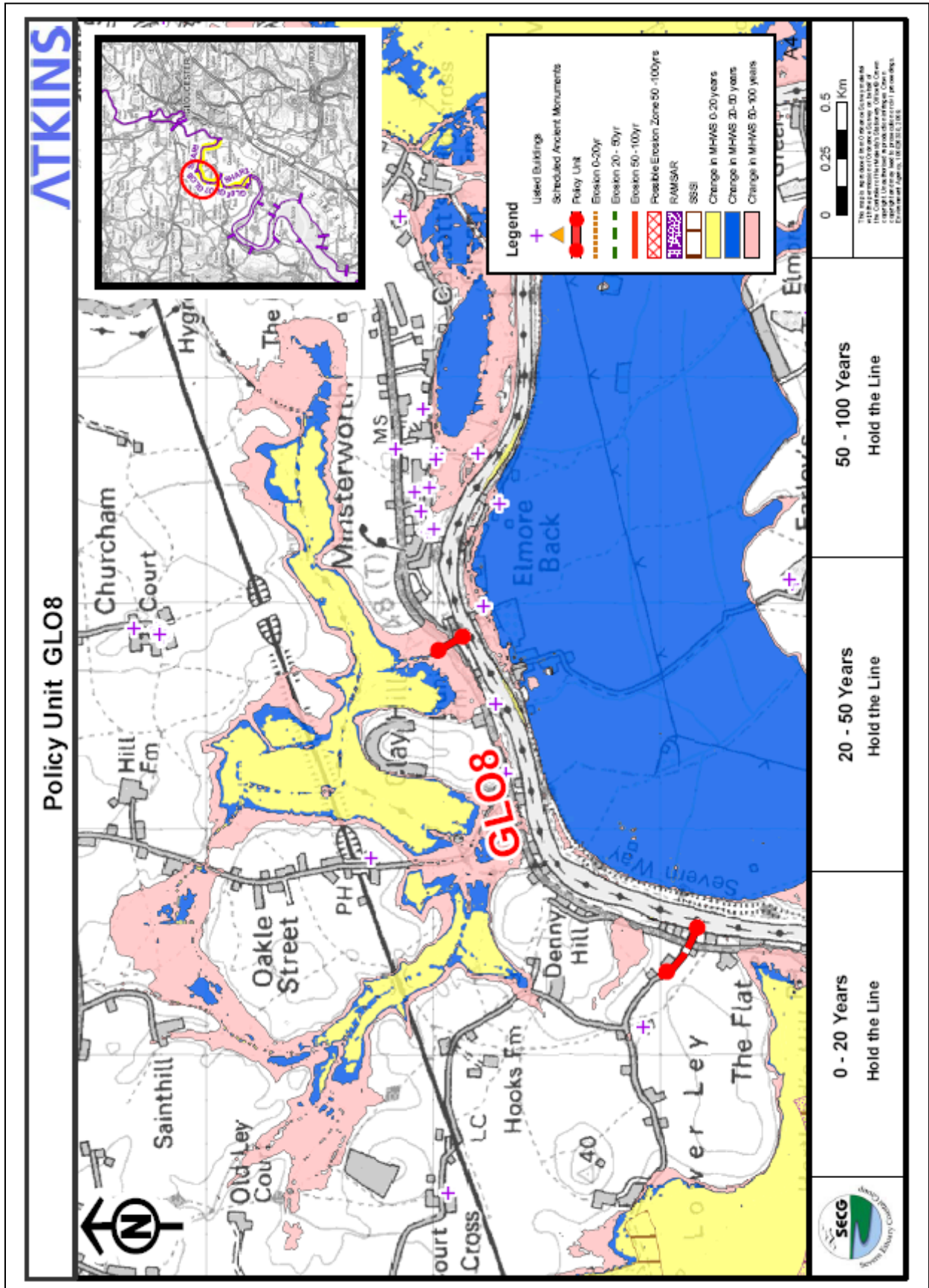
Policy Unit: GLO 5 – the farm to the north of Broadoak to Hill Farm, Rodley (west bank of the Severn)



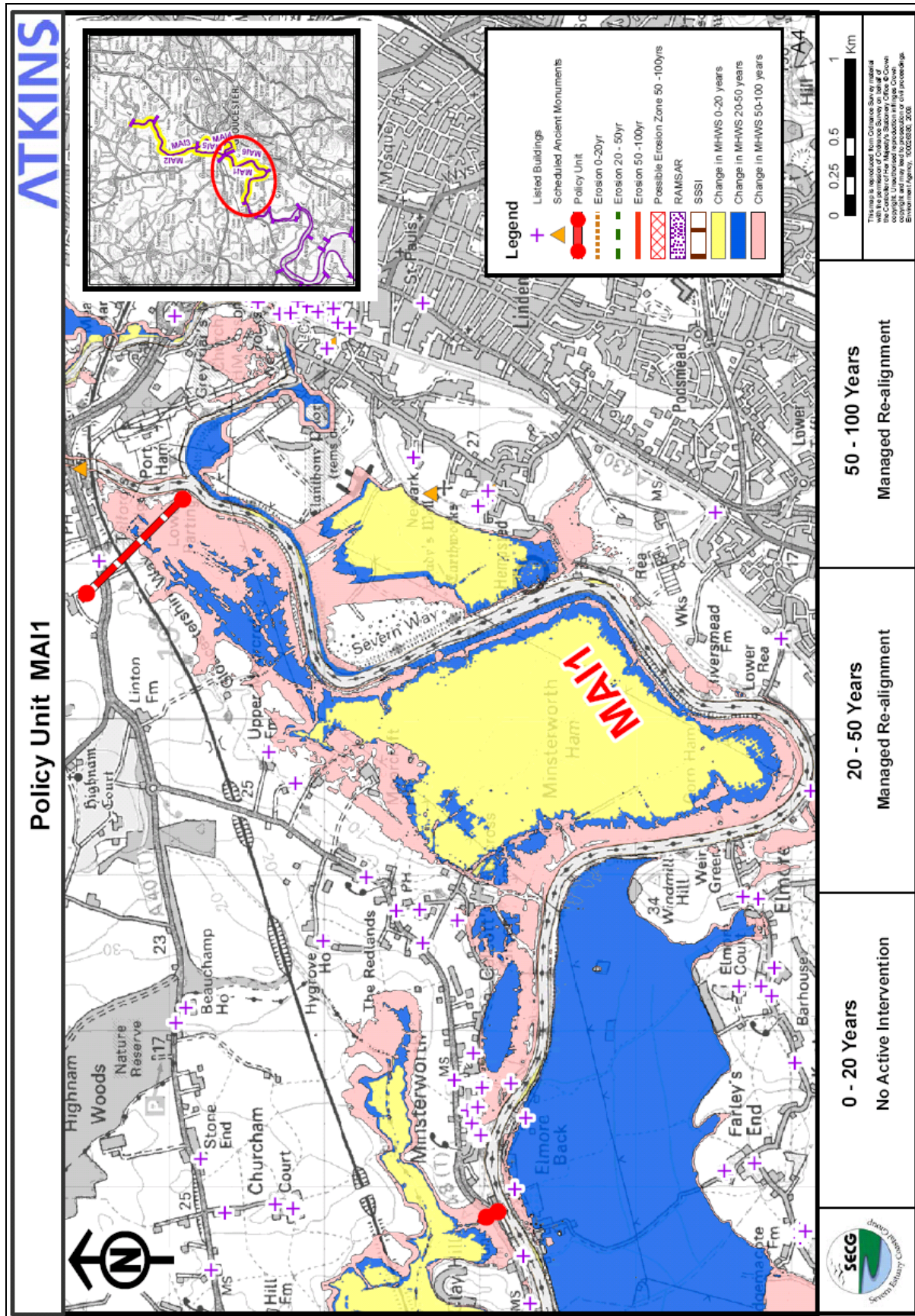
Policy Unit: GLO 7 – Goose Lane farm to Ley Road (west bank of the Severn)



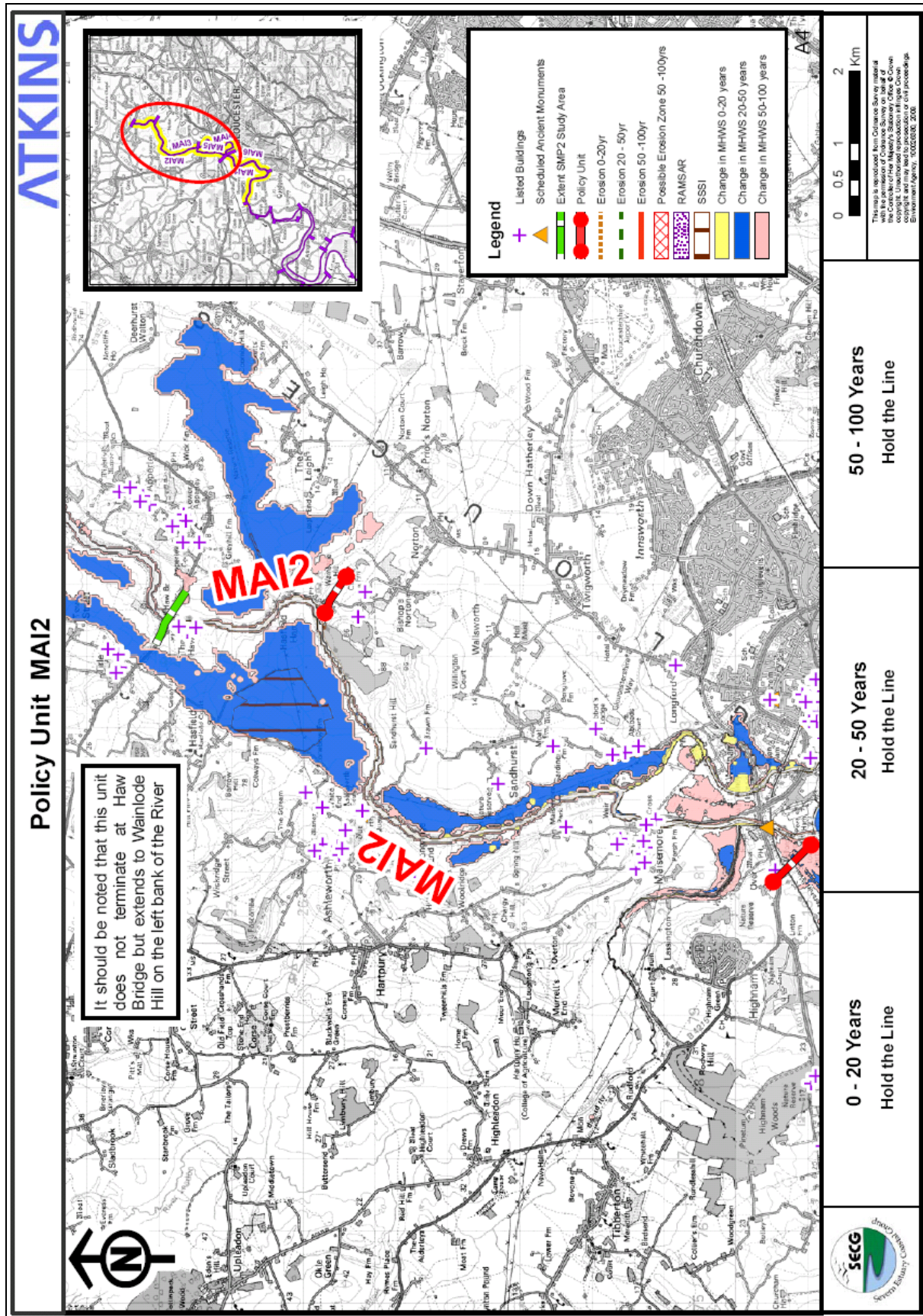
Policy Unit: GLO 8 – Ley Road to the drain from Long Brook (west bank of the Severn)



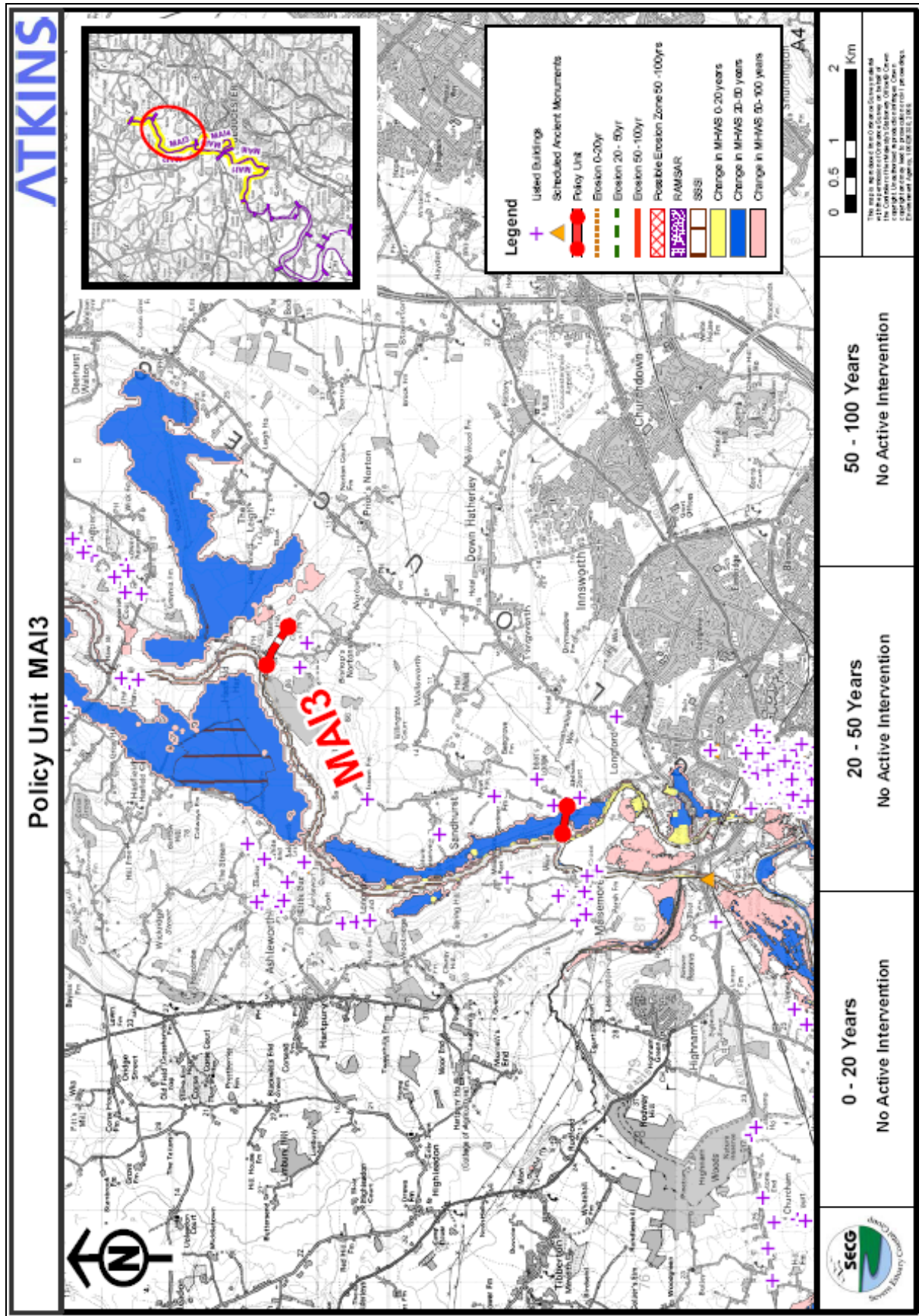
Policy Unit: MAI 1 – the drain at Long Brook to the railway/A40 bridge (west bank of the Severn)



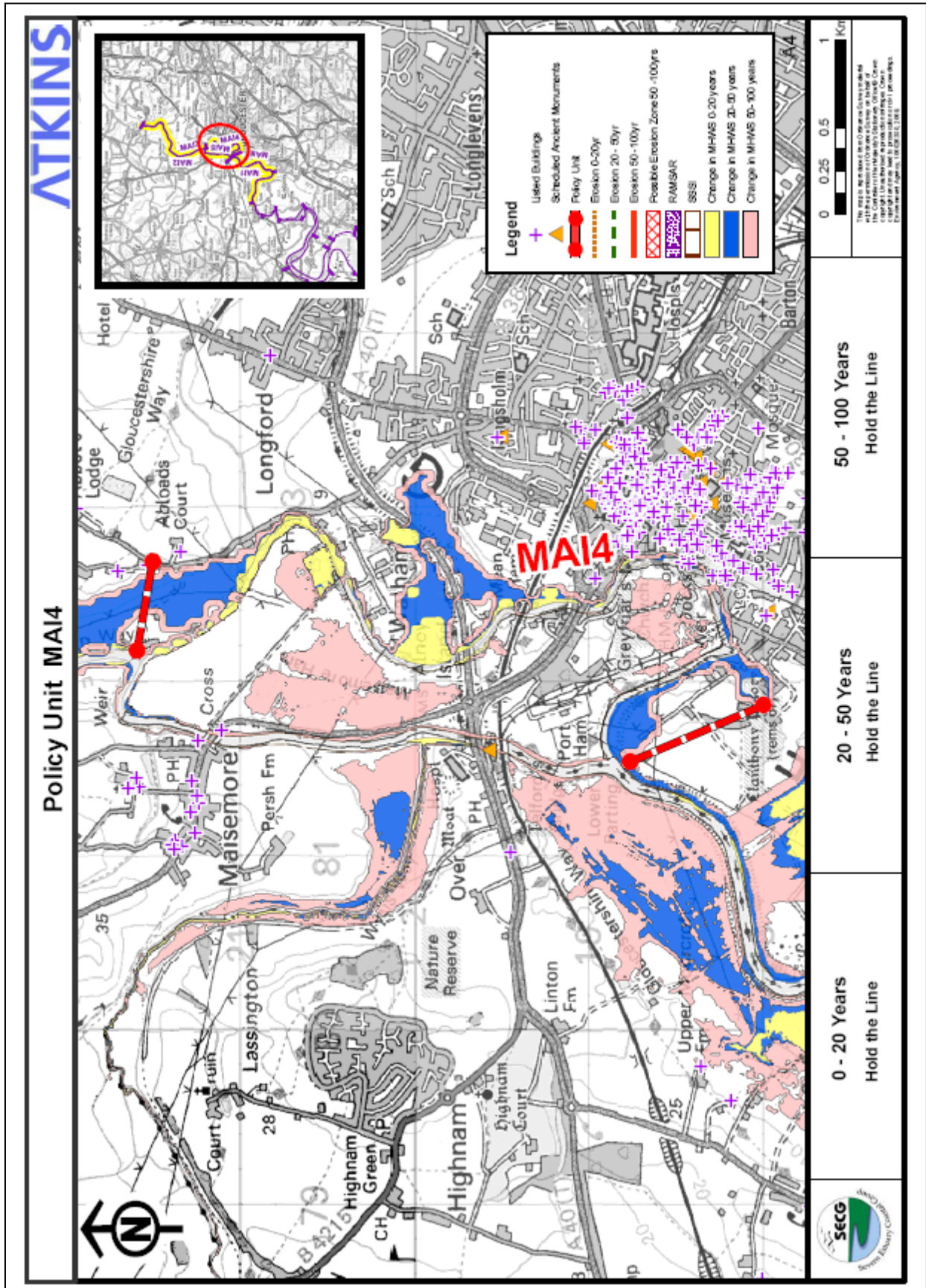
Policy Unit: MAI 2 – Railway/A40 bridge to Haw Bridge (west bank of the Severn, including the River Leadon) to Wainlode Hill (east bank)



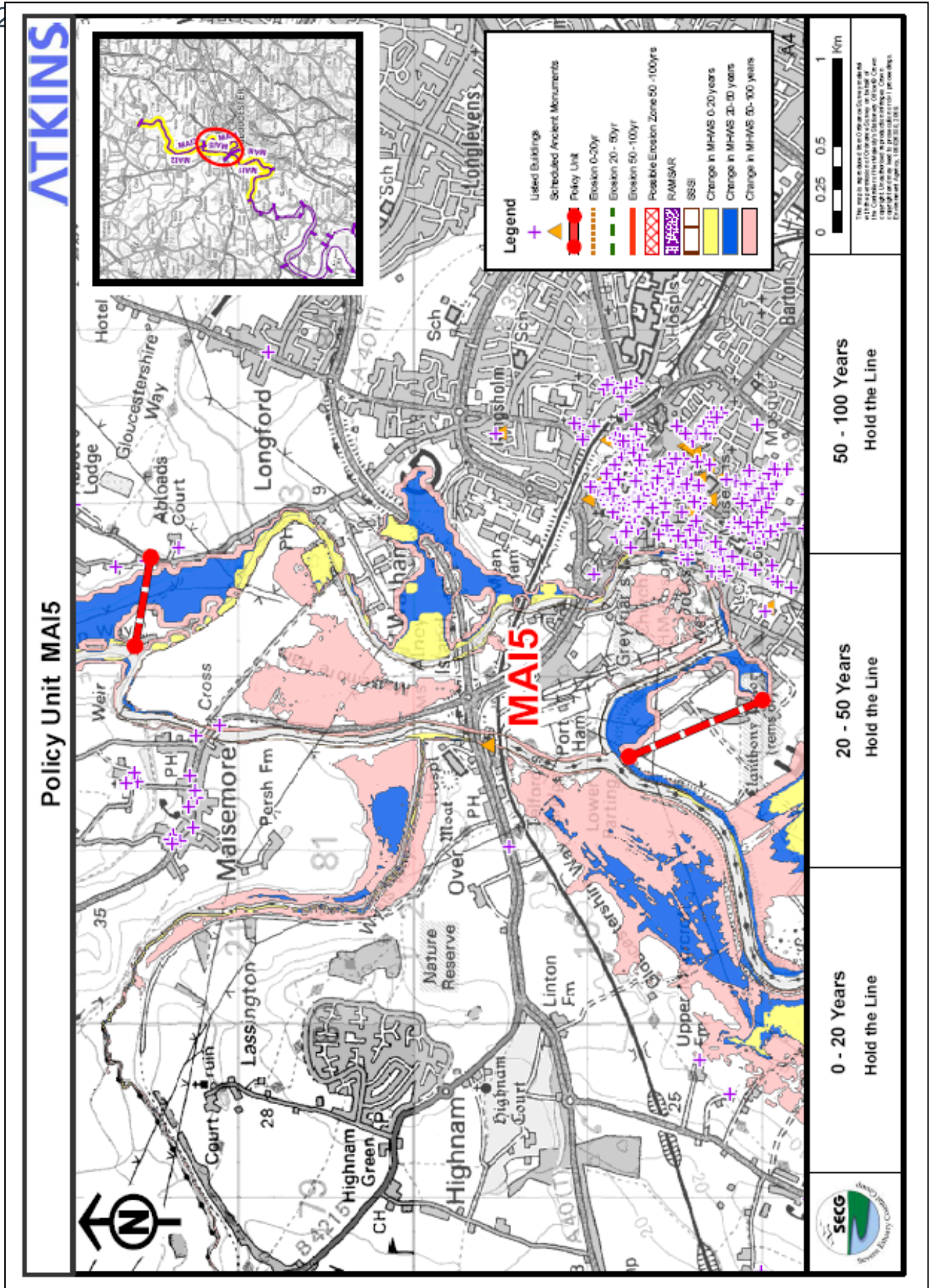
Policy Unit: MAI 3 - Haw Bridge (B4213) to Upper Parting (east bank of the Severn)



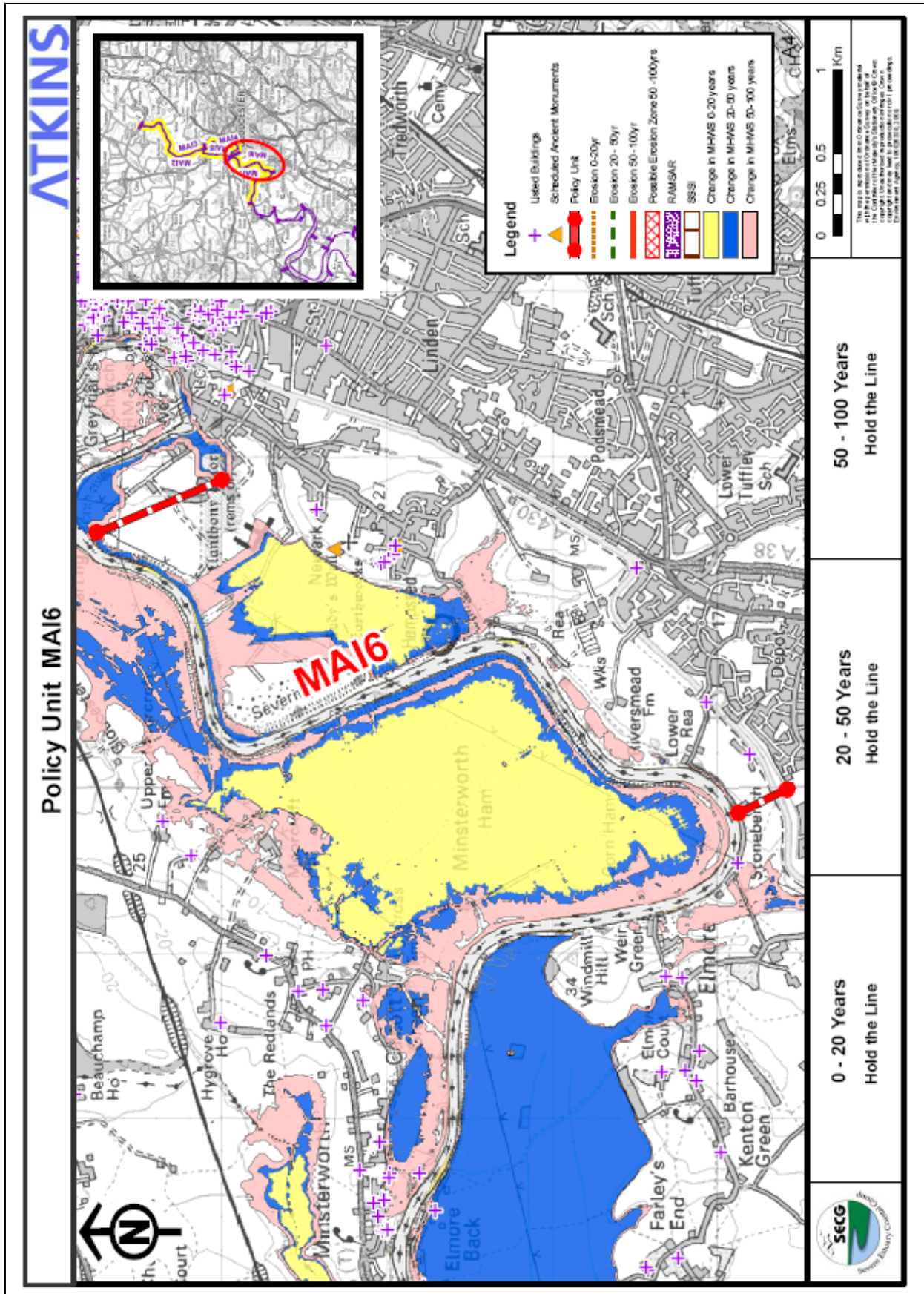
Policy Unit: MAI 4 – Upper Parting to Lower Parting (east bank of the River Severn)



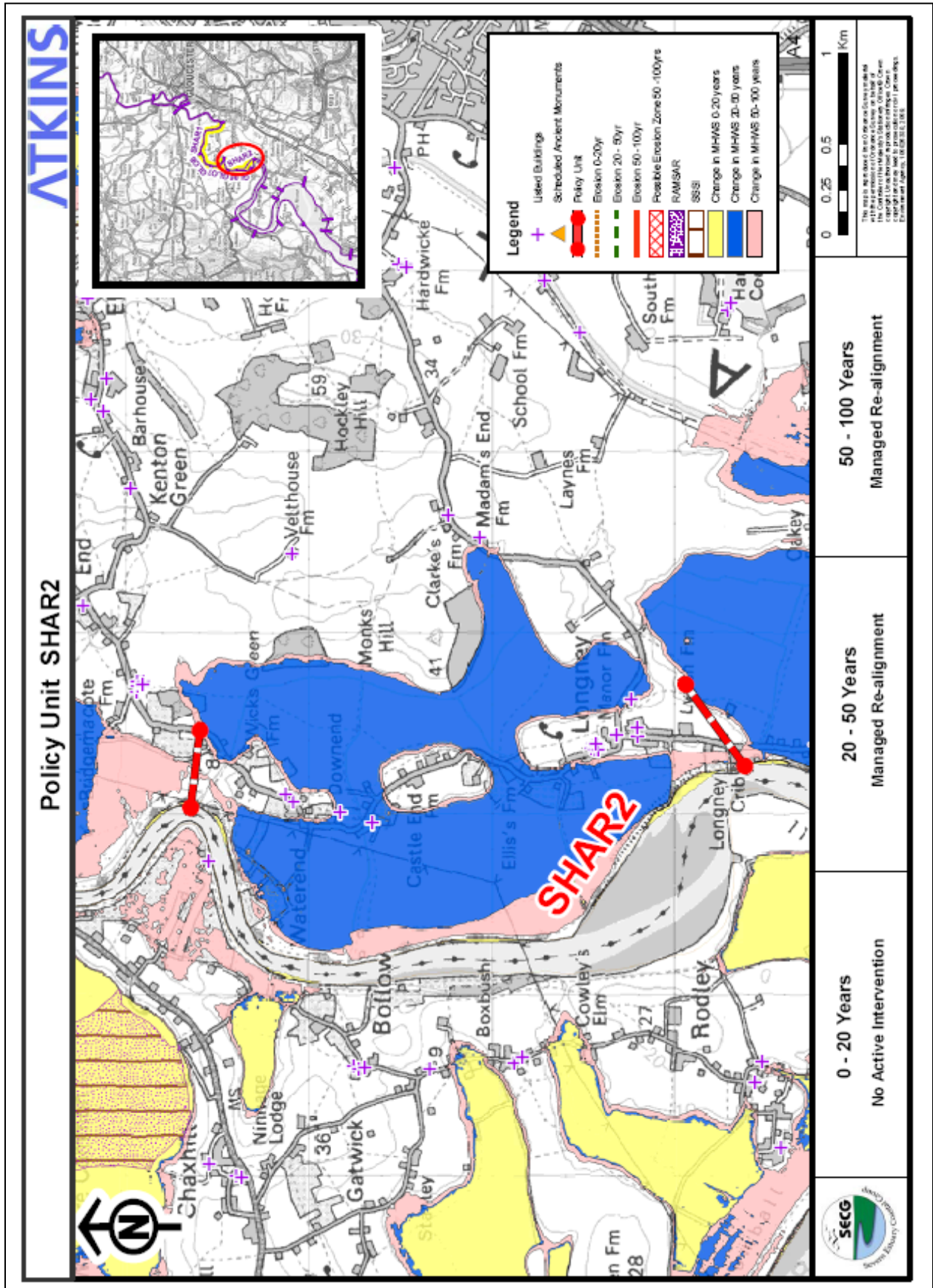
Policy Unit: MAI 5 – Alney Island



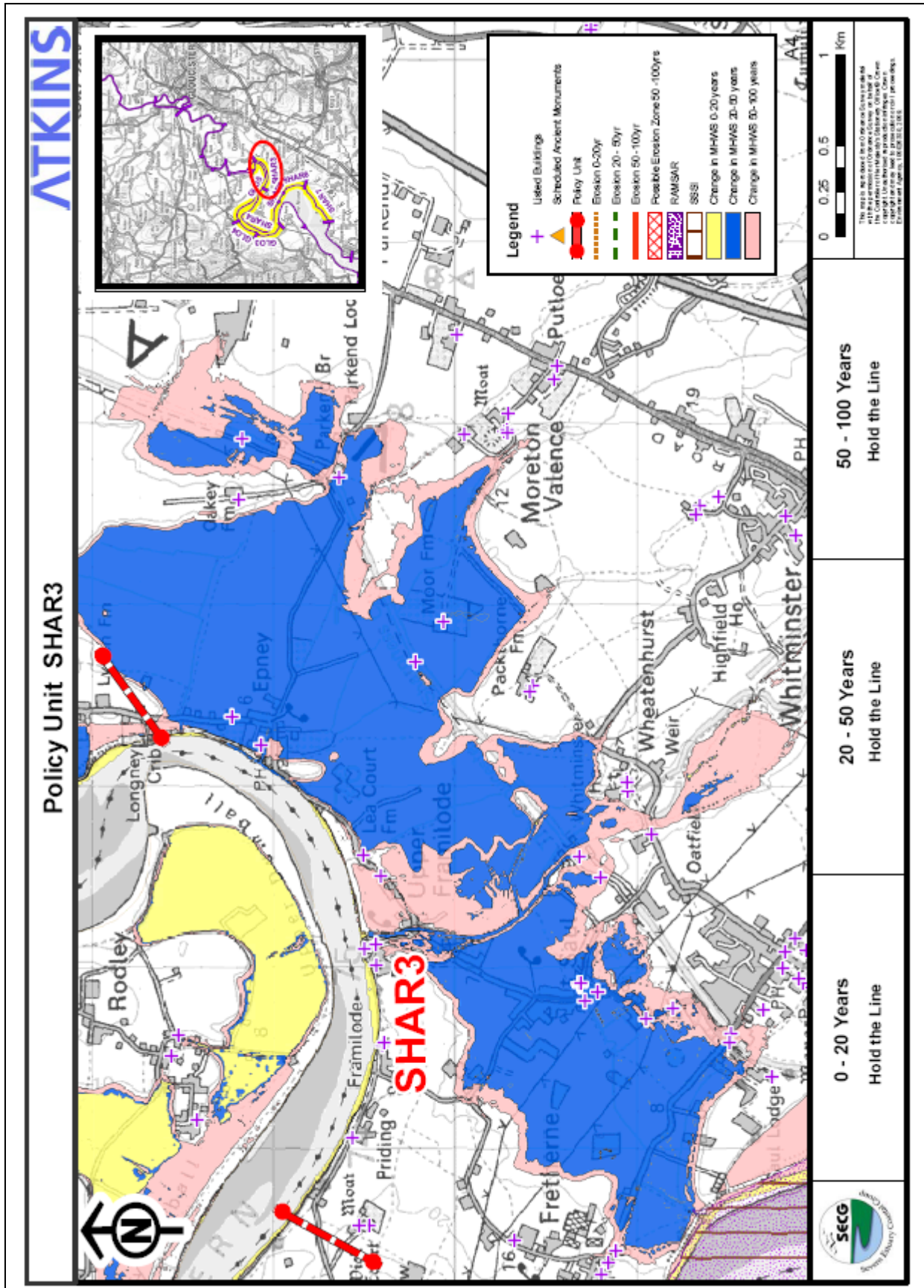
Policy Unit: MAI 6 – Lower Parting to Severn Farm (east bank of the River Severn)



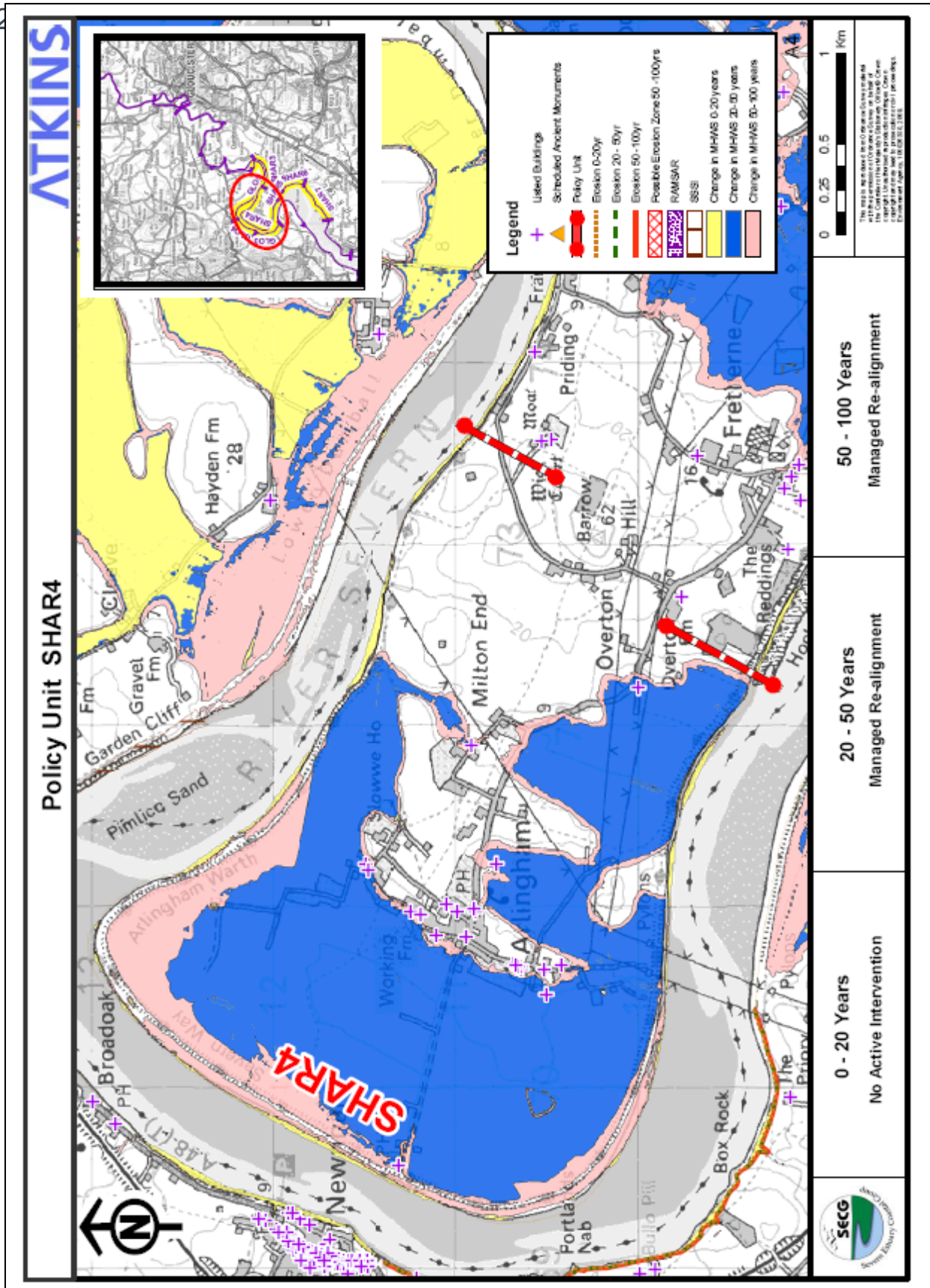
Policy Unit: SHAR 2 – Wick’s Green to Longley Green (east bank of the River Severn)



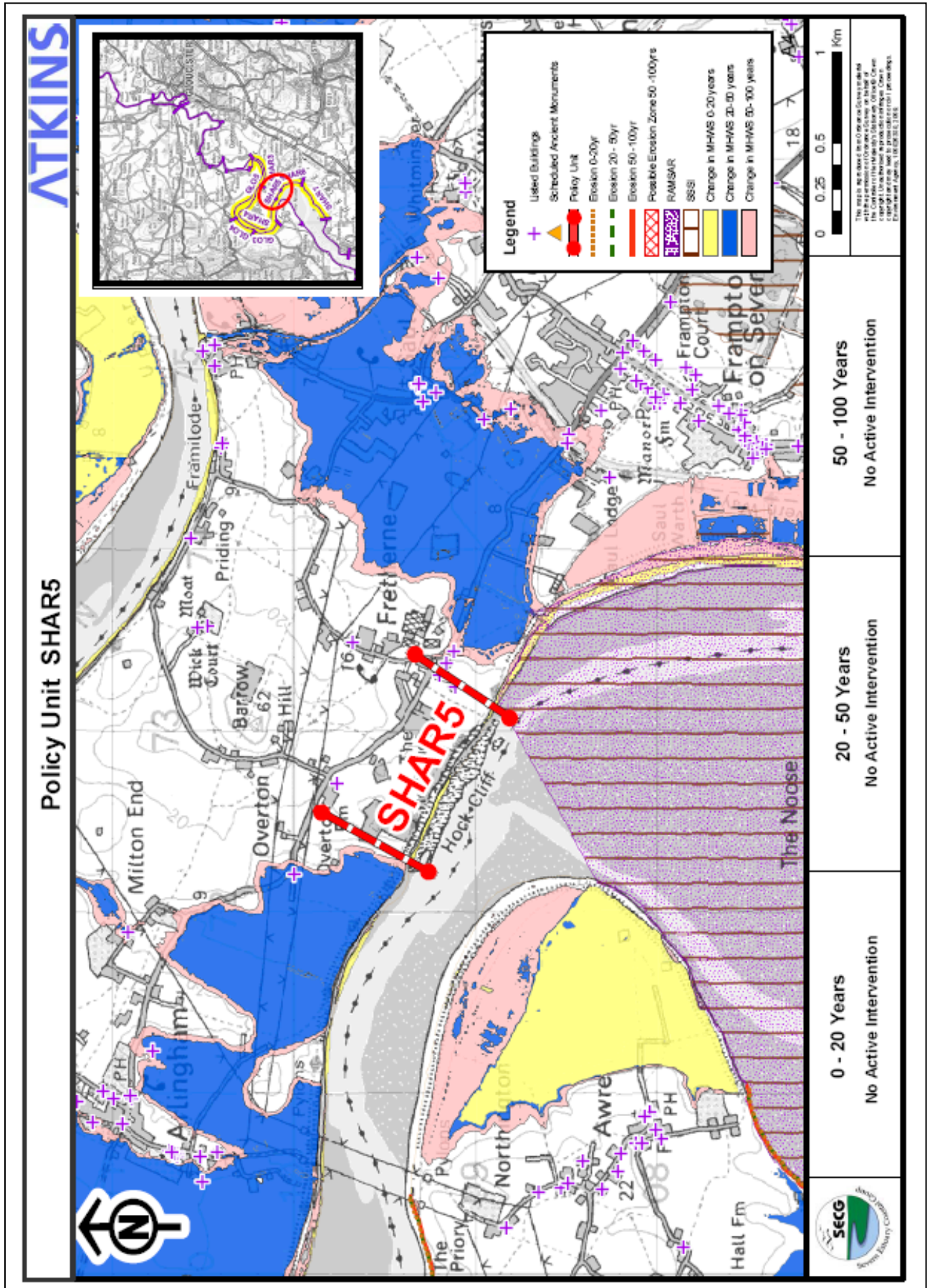
Policy Unit: SHAR 3 – Longley Green to Overton Lane (east bank of the River Severn)



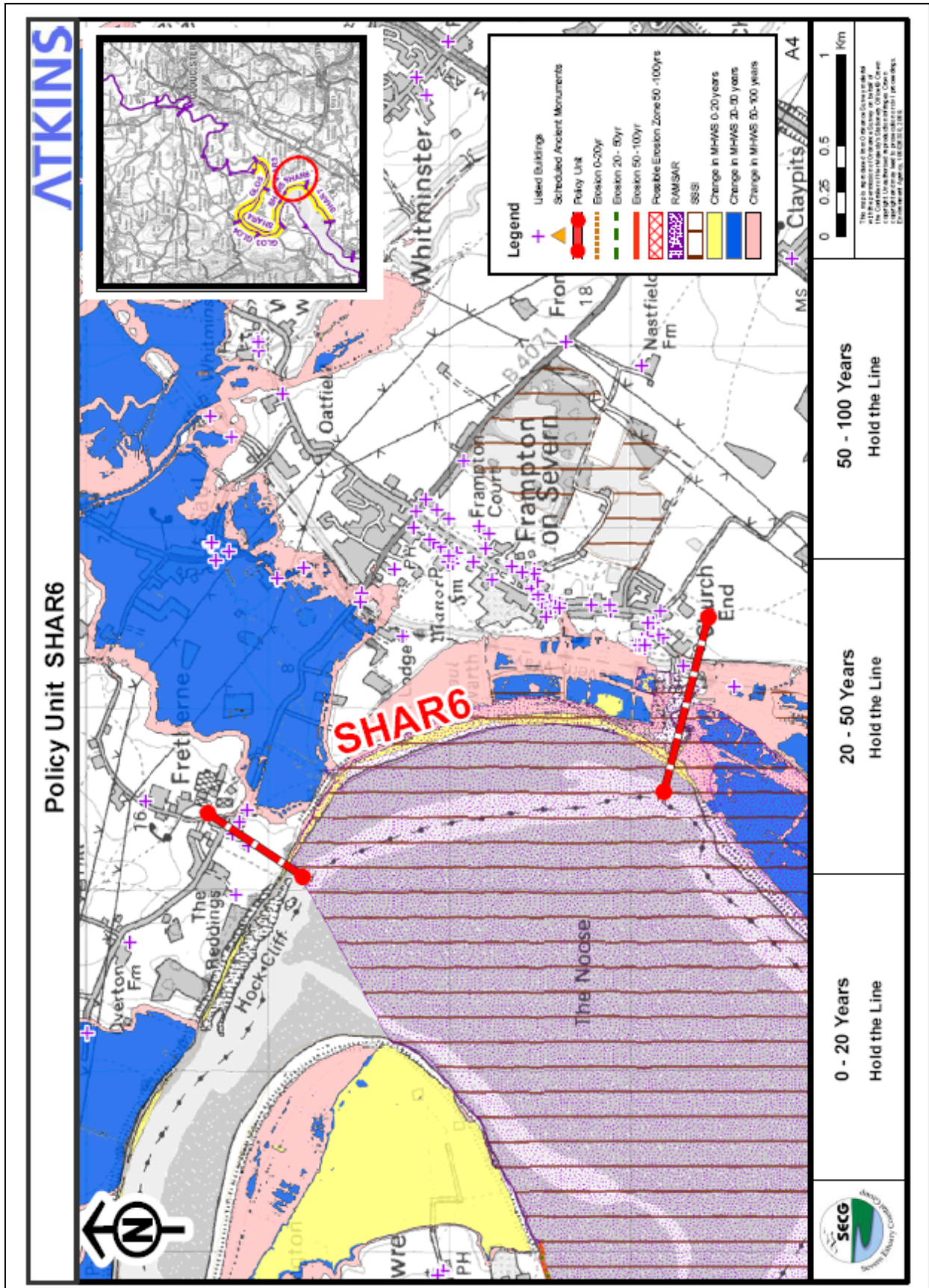
Policy Unit: SHAR 4 – Overton Lane to Hock Cliff (west bank of the River Severn)



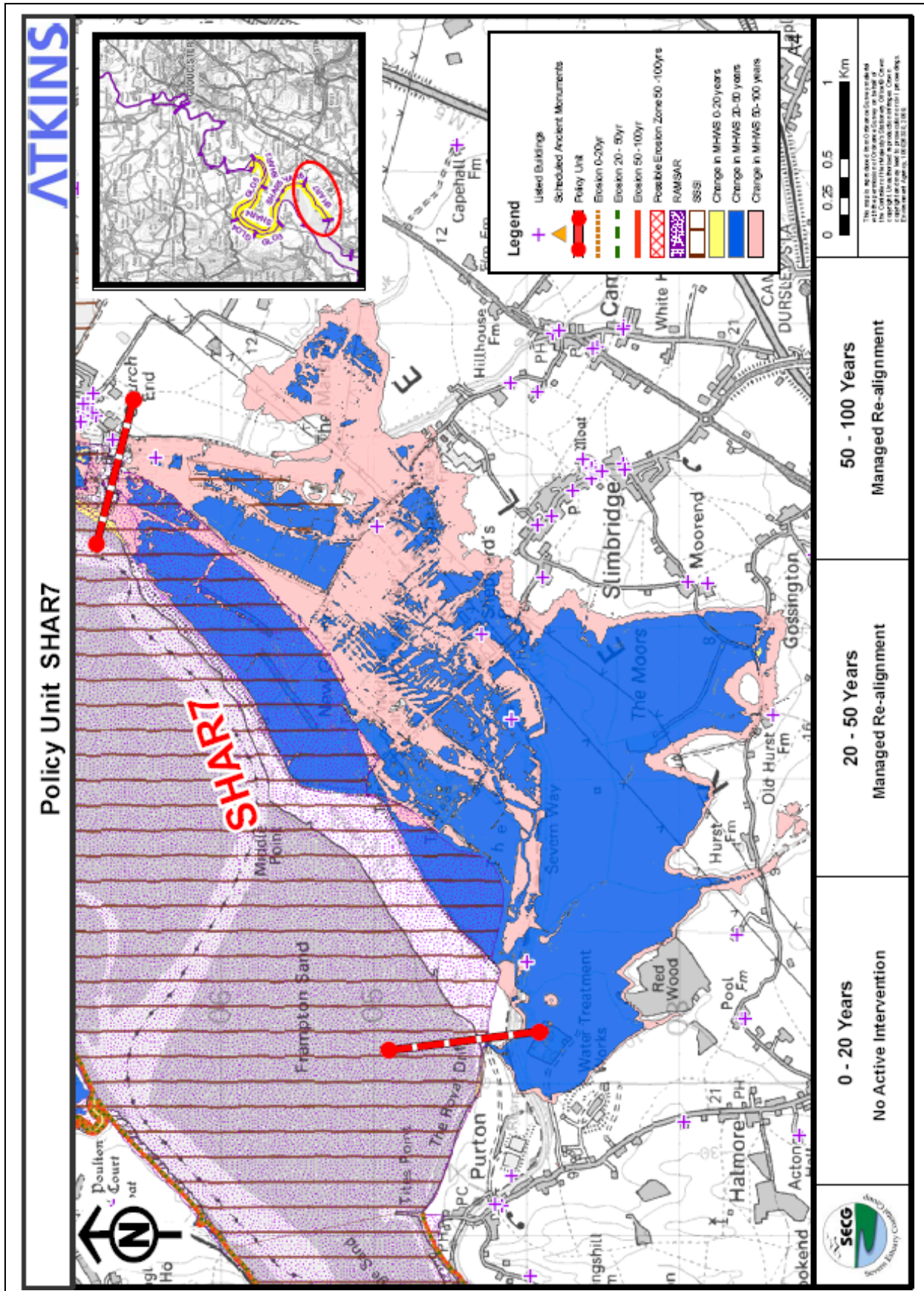
Policy Unit: SHAR 5 – Hock Cliff (west bank of the River Sever)



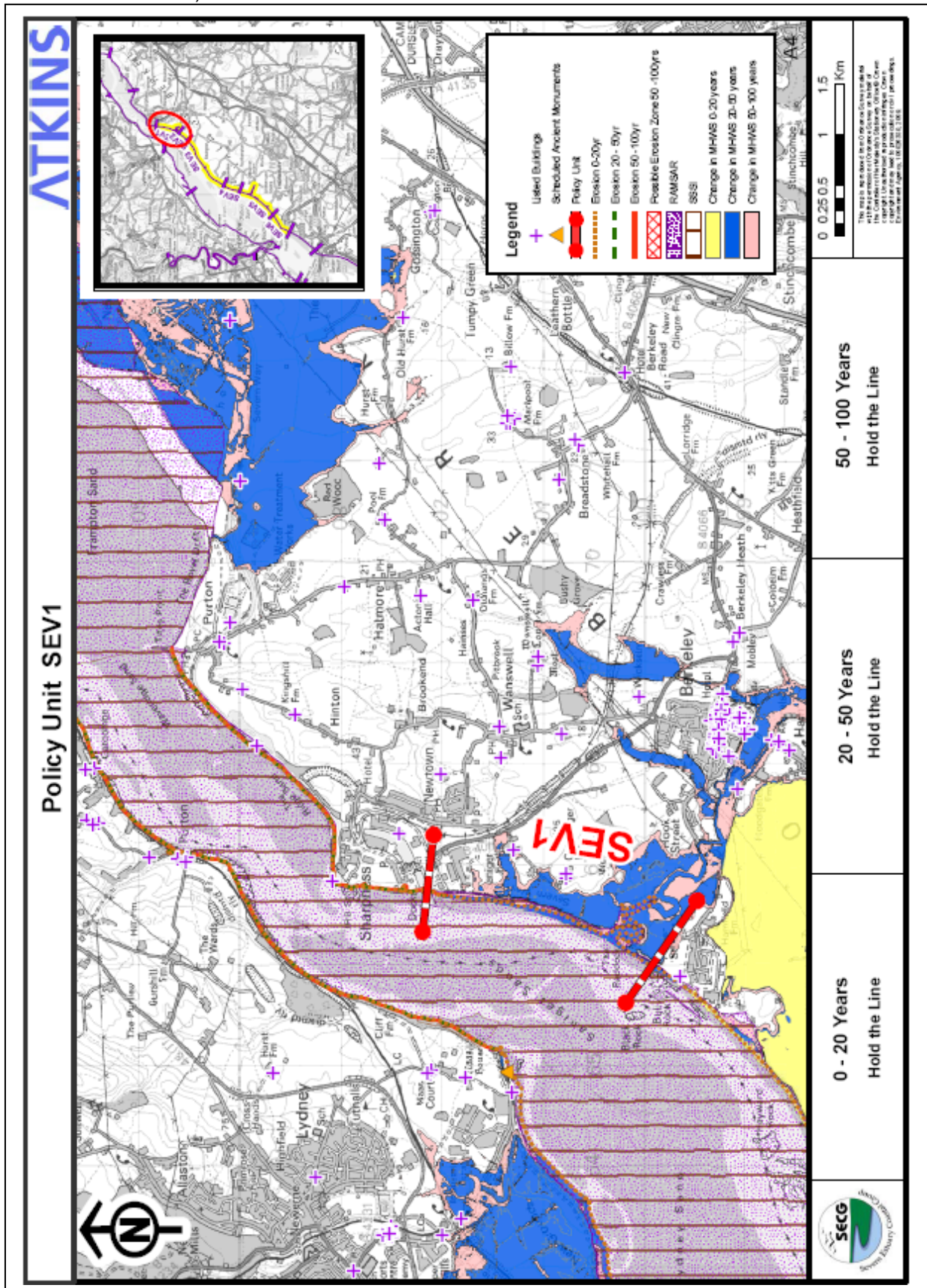
Policy Unit: SHAR 6 – Hock Cliff to Frampton Pill (west bank of River Severn)



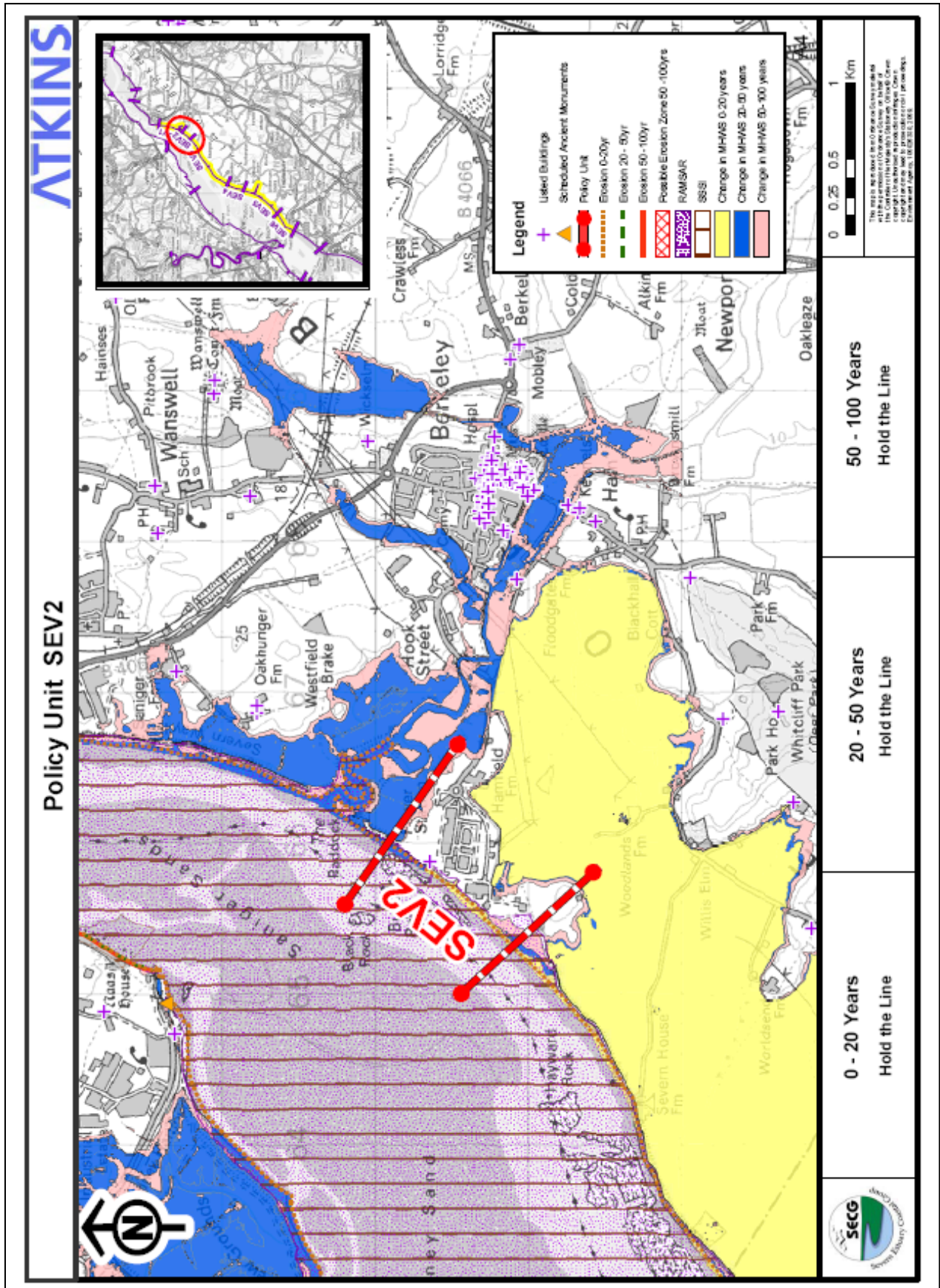
Policy Unit: SHAR 7 – Frampton Pill to Royal Drift outfall (west bank of the River Severn)



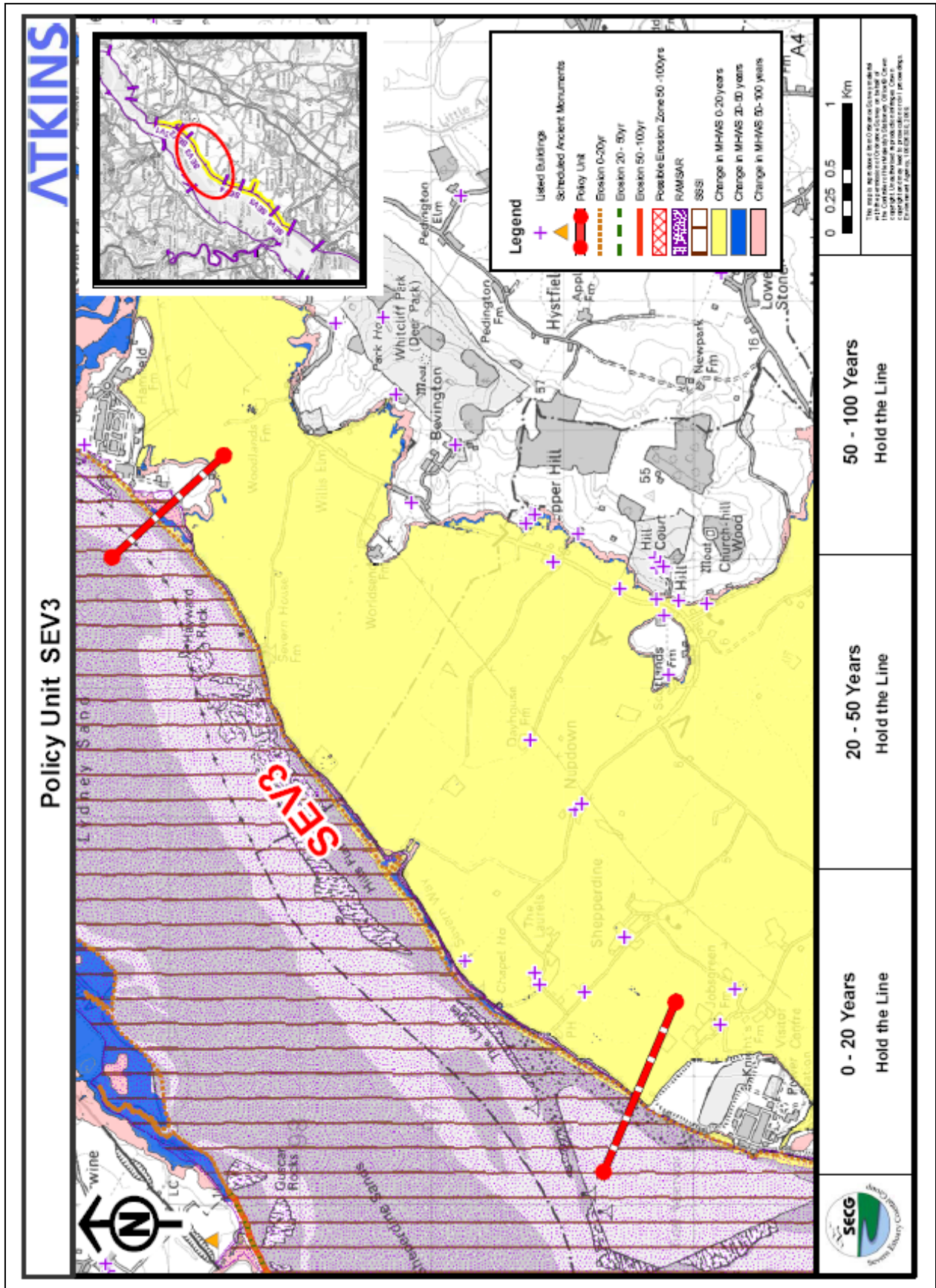
Policy Unit: SEV 1 – South of Sharpness Docks to Bull Rock (east bank of the River Severn)



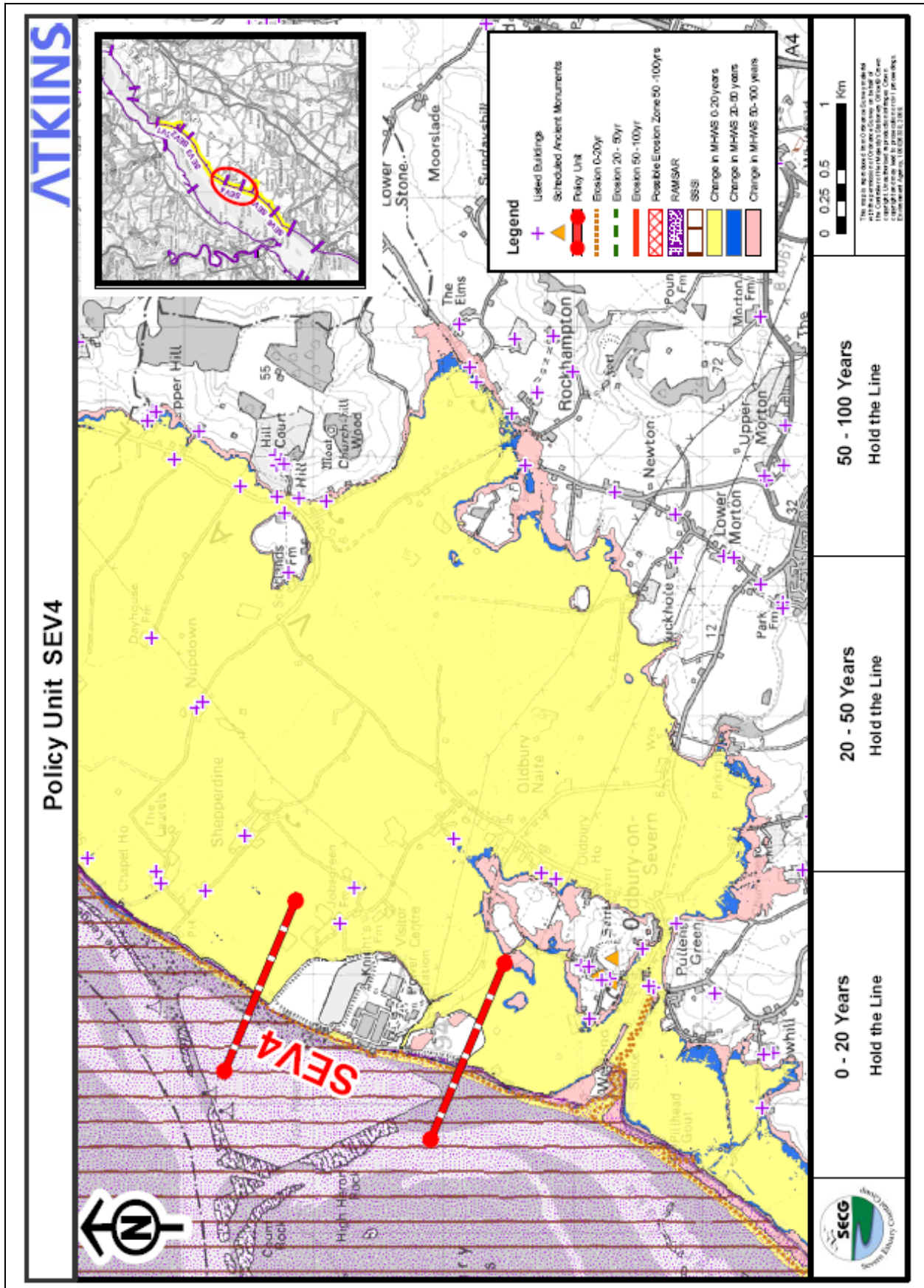
Policy Unit: SEV 2 – Bull Rock to southern boundary of Berkeley Power Station (east bank of the River Severn)



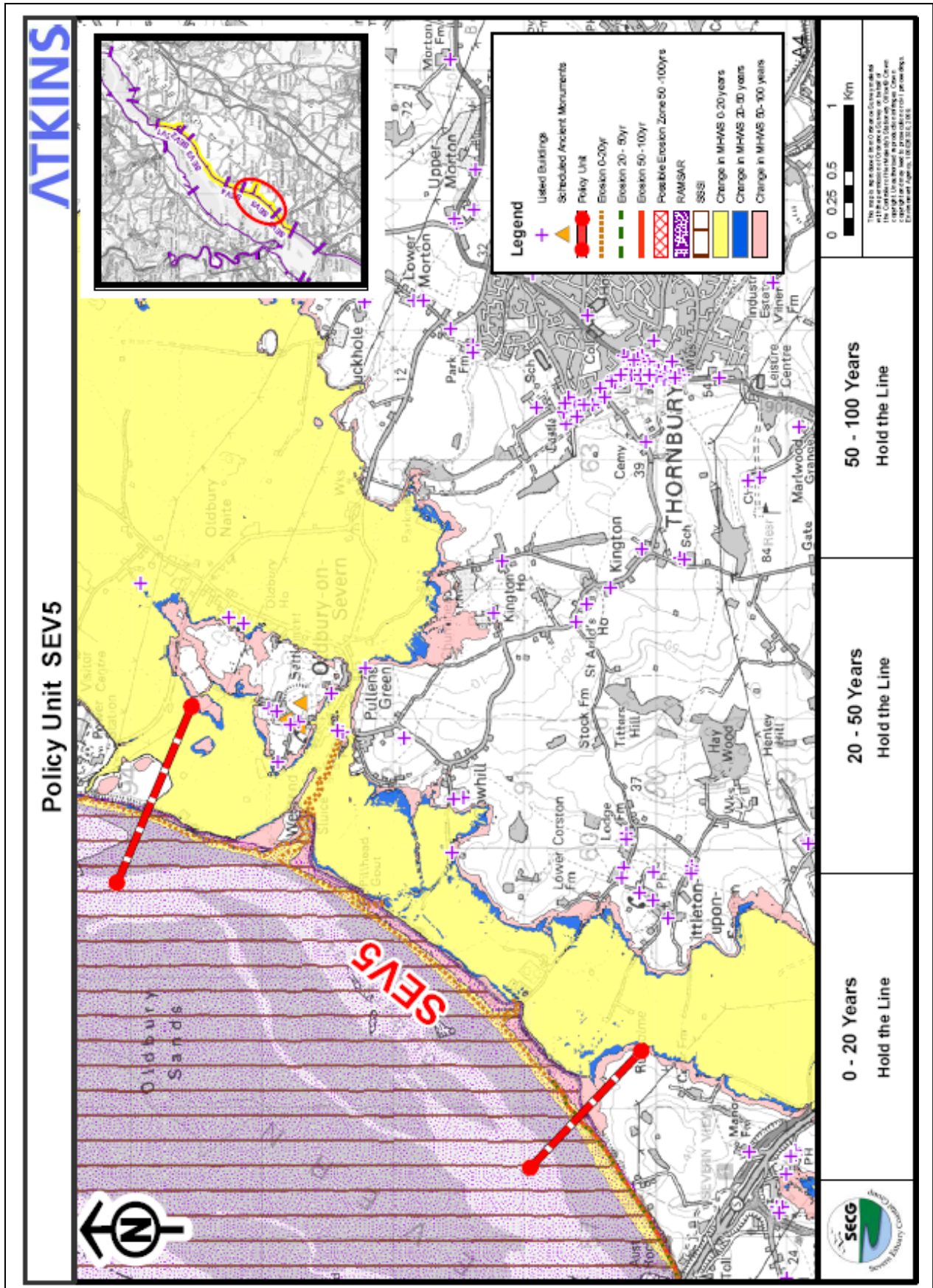
Policy Unit: SEV 3 – Southern boundary of Berkeley Power Station to Oldbury Power Station (east bank of the River Severn)



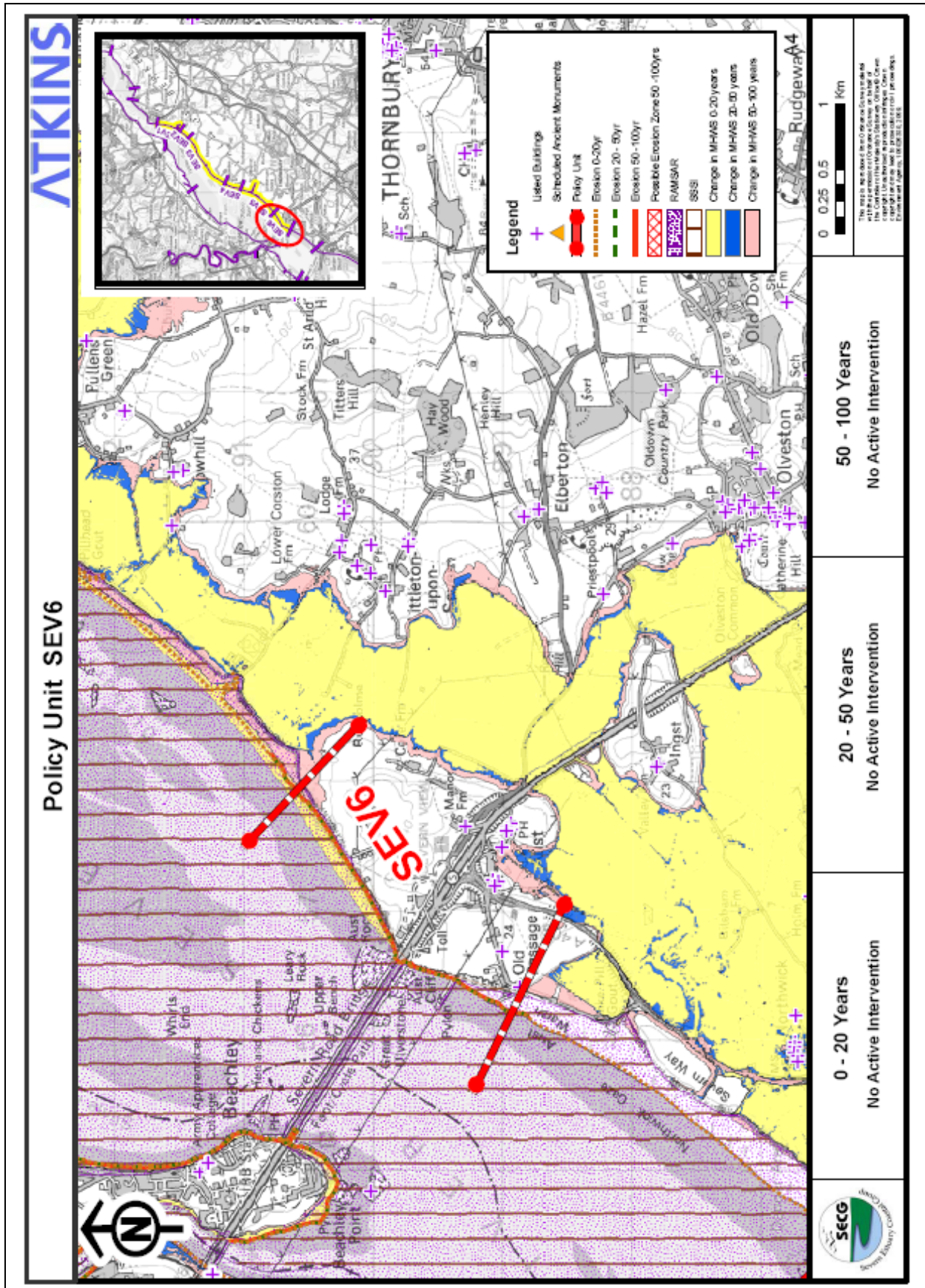
Policy Unit: SEV 4 – Oldbury Power Station (east bank of the River Severn)



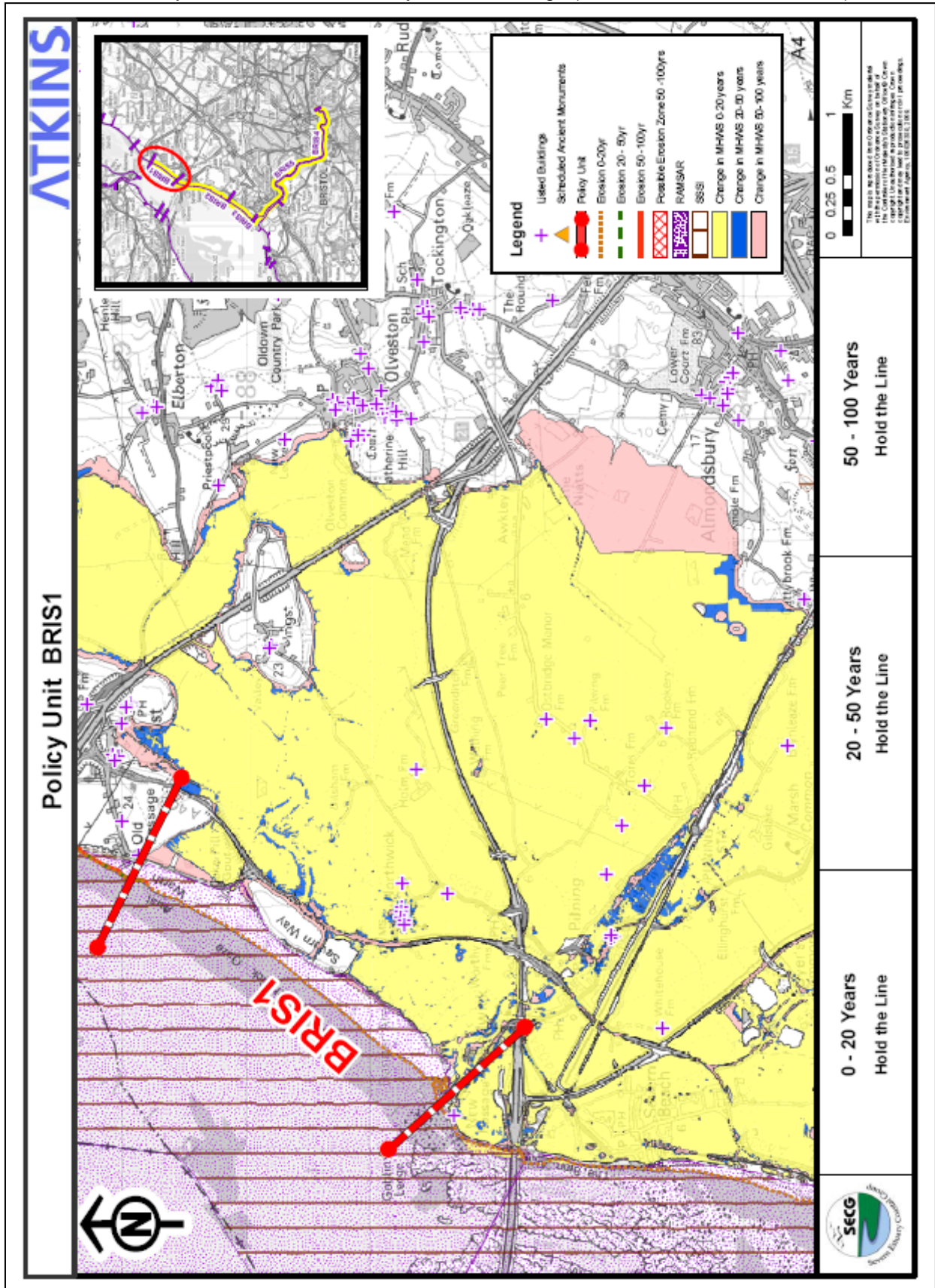
Policy Unit: SEV 5 – Oldbury Power Station to Littleton Warth (east bank of the River Severn)



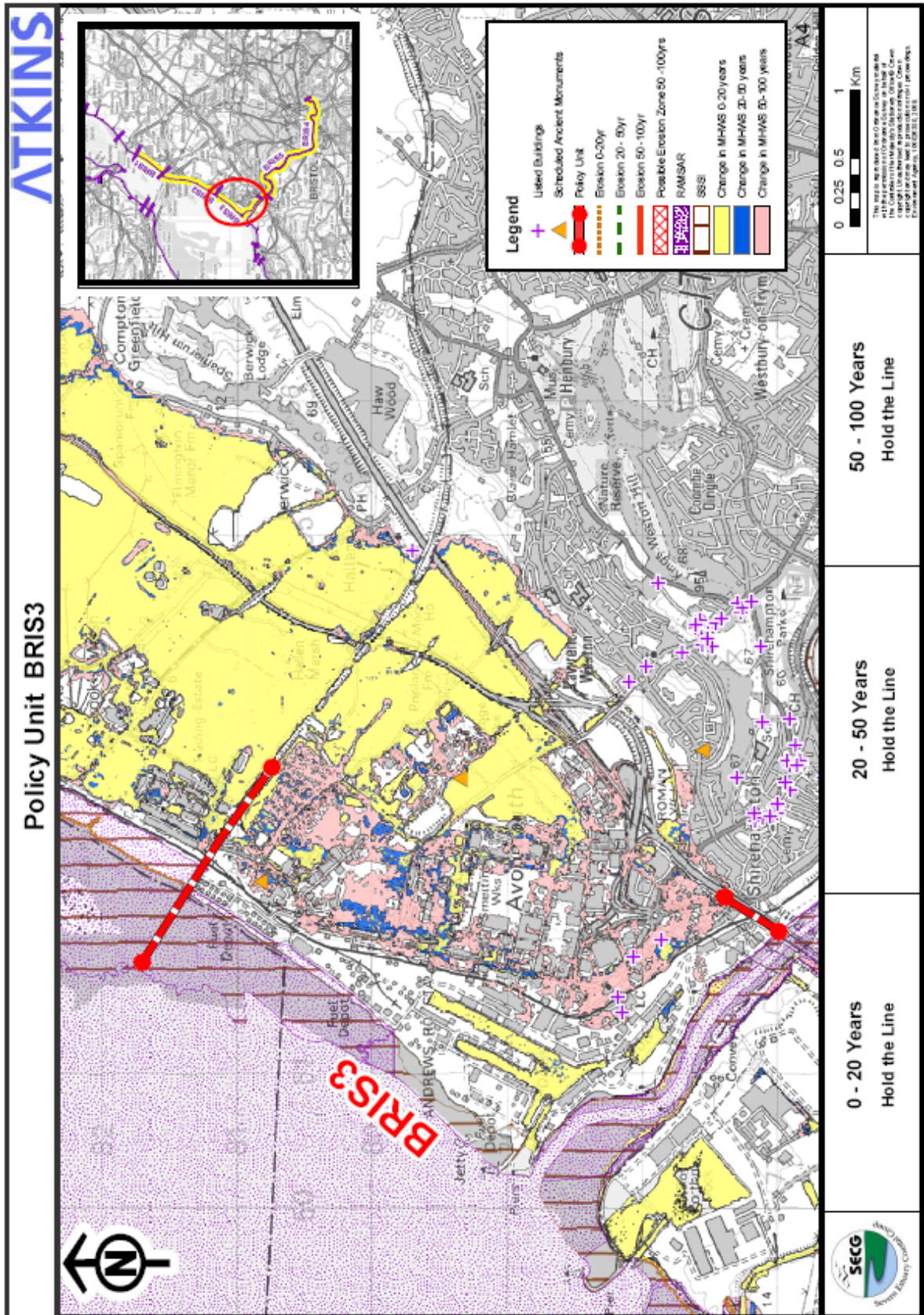
Policy Unit: SEV 6 - Littleton Warth to Aust Ferry (east bank of the River Severn)



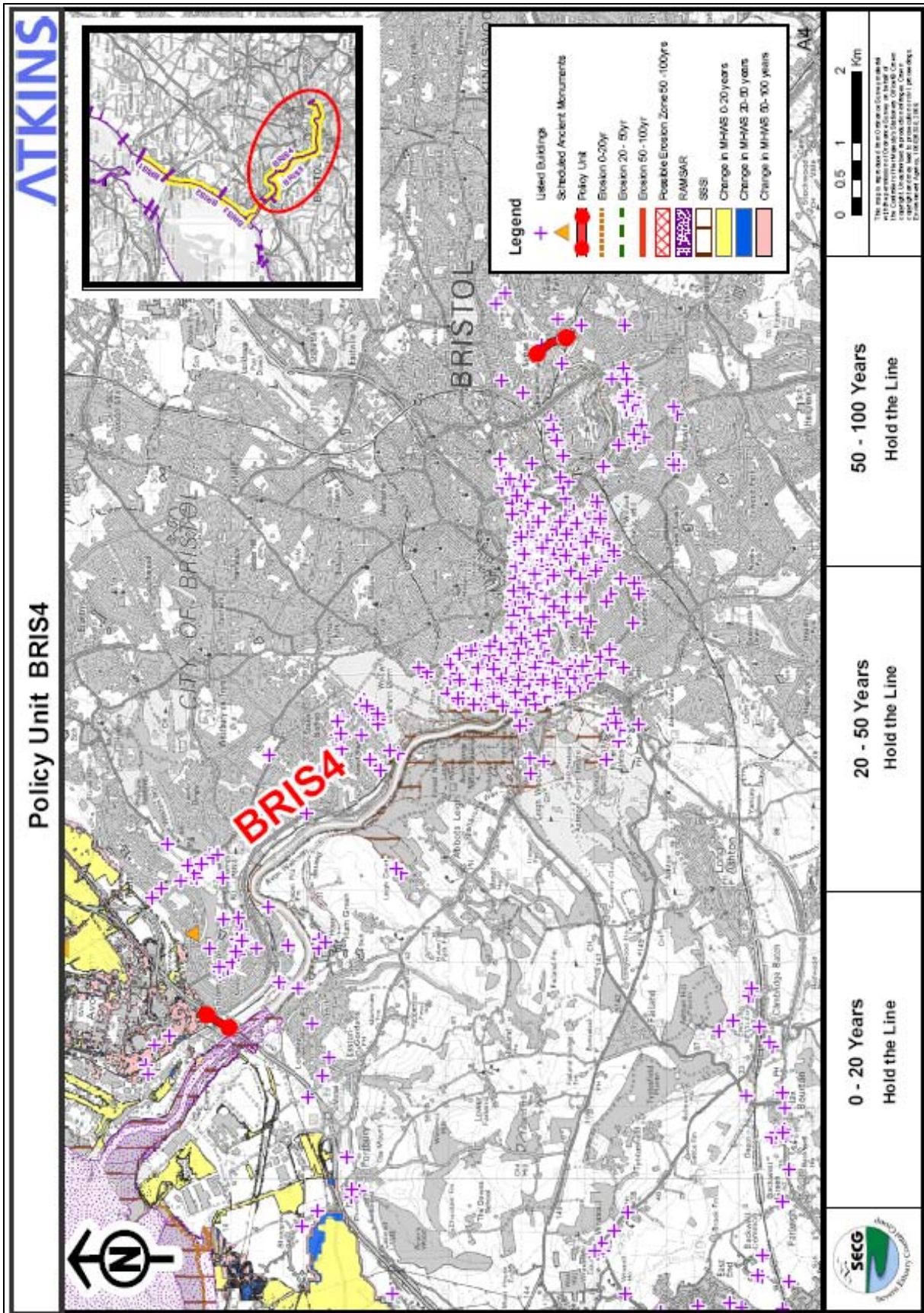
Policy Unit: BRIS 1 – Aust Ferry to New Passage (east bank of the River Severn)



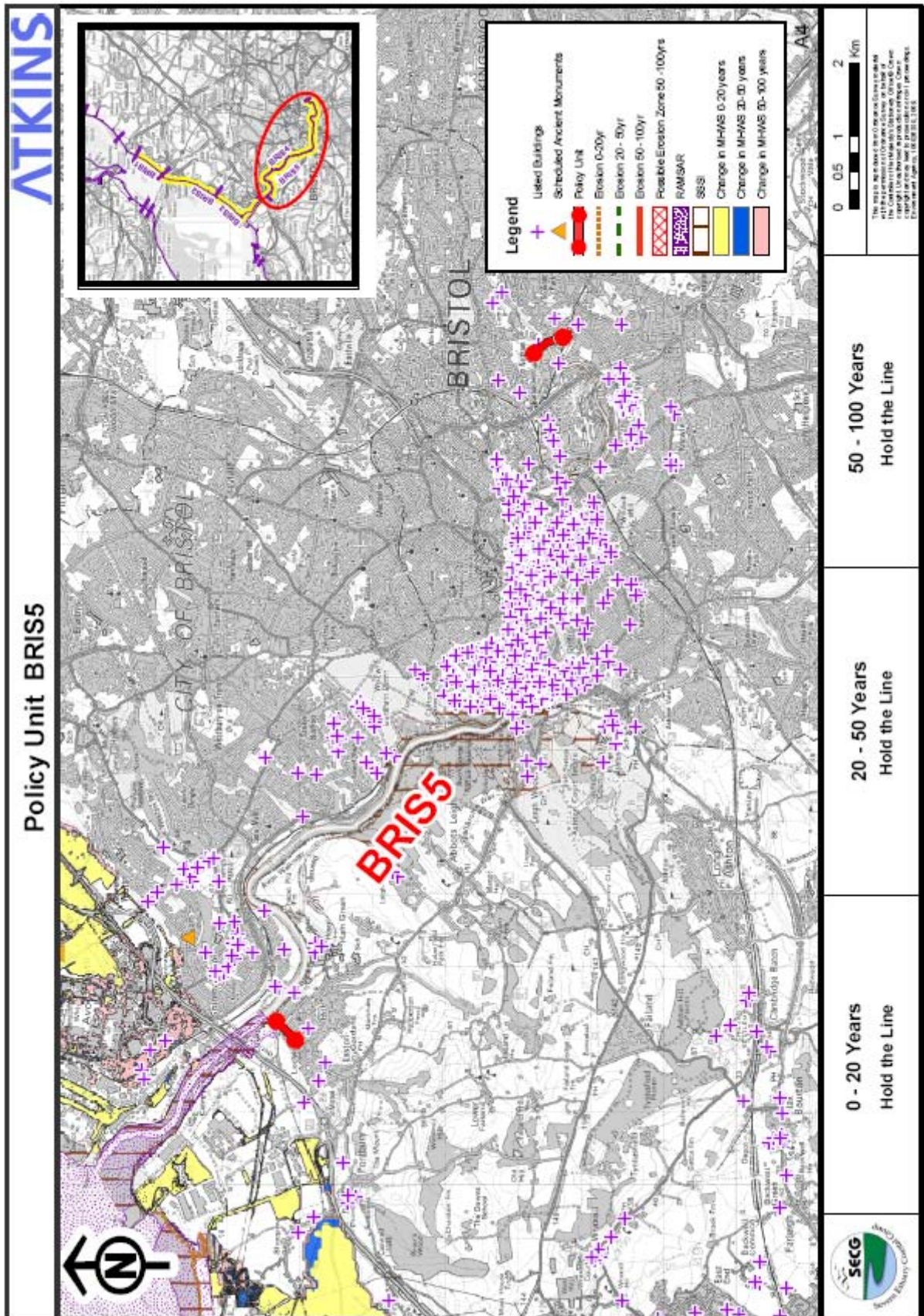
Policy Unit: BRIS 3 - Severnside Works, Nr Smoke Lane/ Chittinging Road (east bank of the River Severn) to Avonmouth Pier



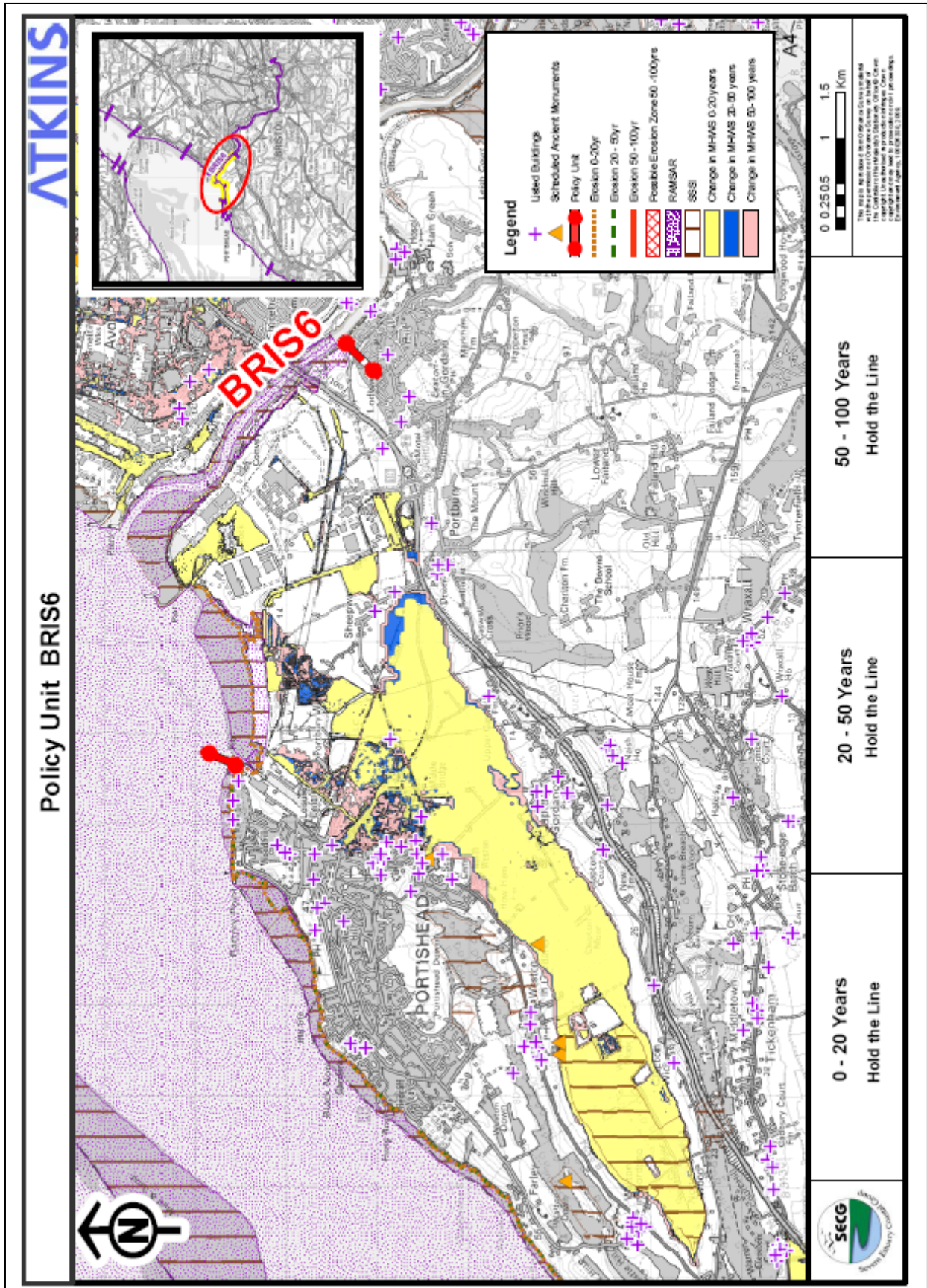
Policy Unit: BRIS 4 - Avonmouth Pier to Netham Weir (north bank of the River Avon)



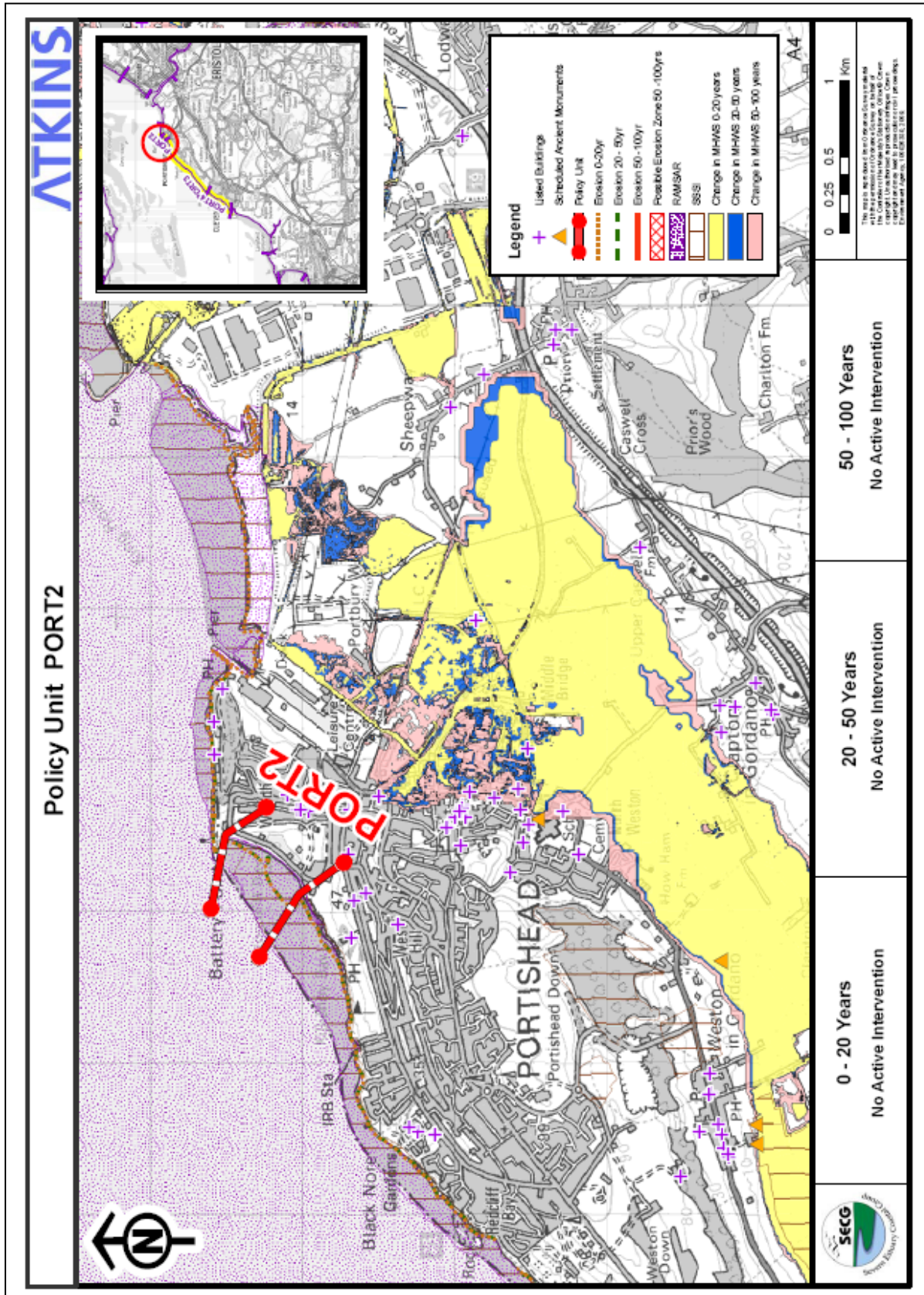
Policy Unit: BRIS 5 Netham Weir to Avon Road, Easton-in-Gordano (south bank of the River Avon)



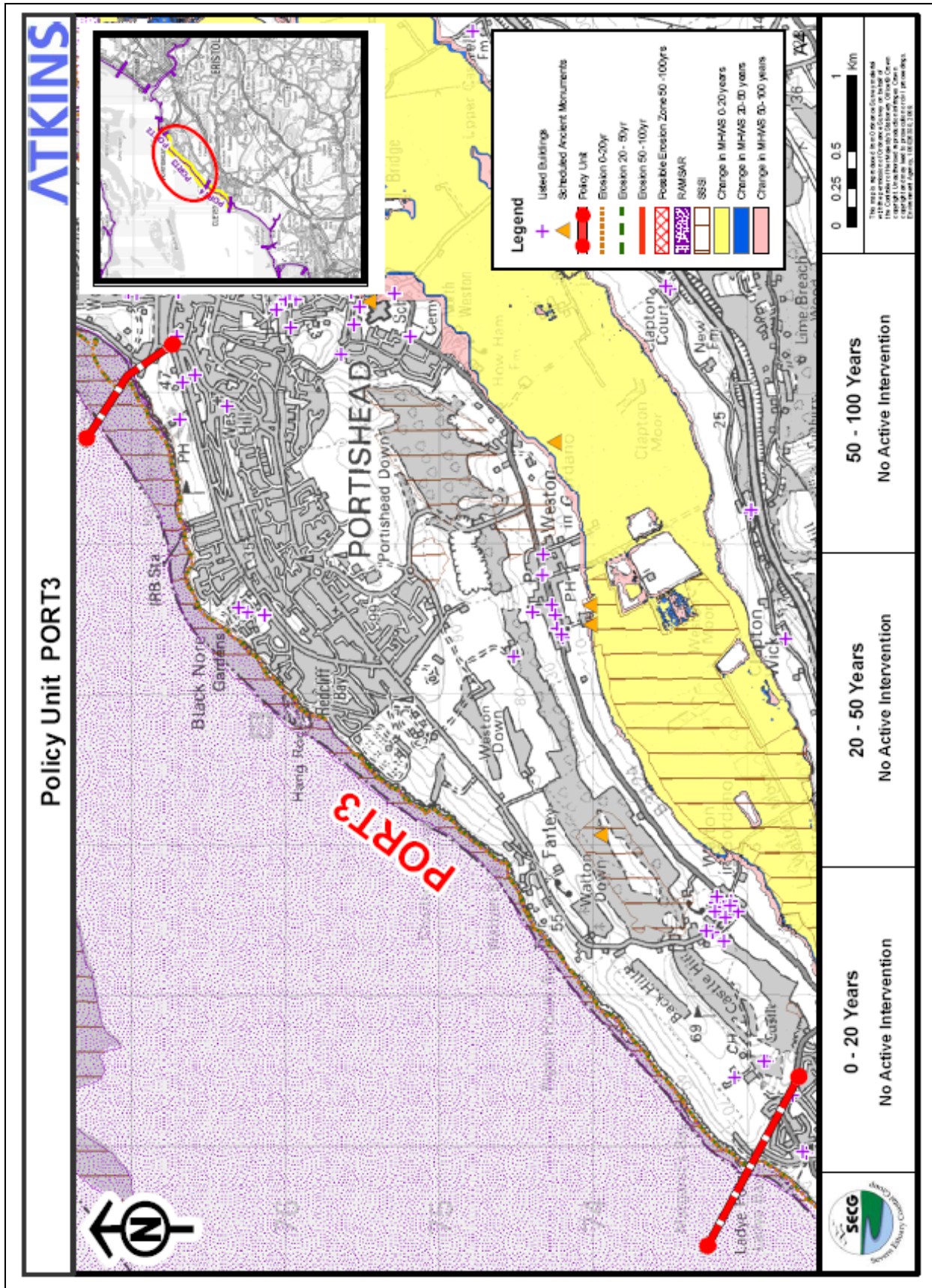
Policy Unit: BRIS 6 – Avon Road, Easton-in-Gordano (south bank of the River Avon) to Portishead Pier (east bank of the River Severn)



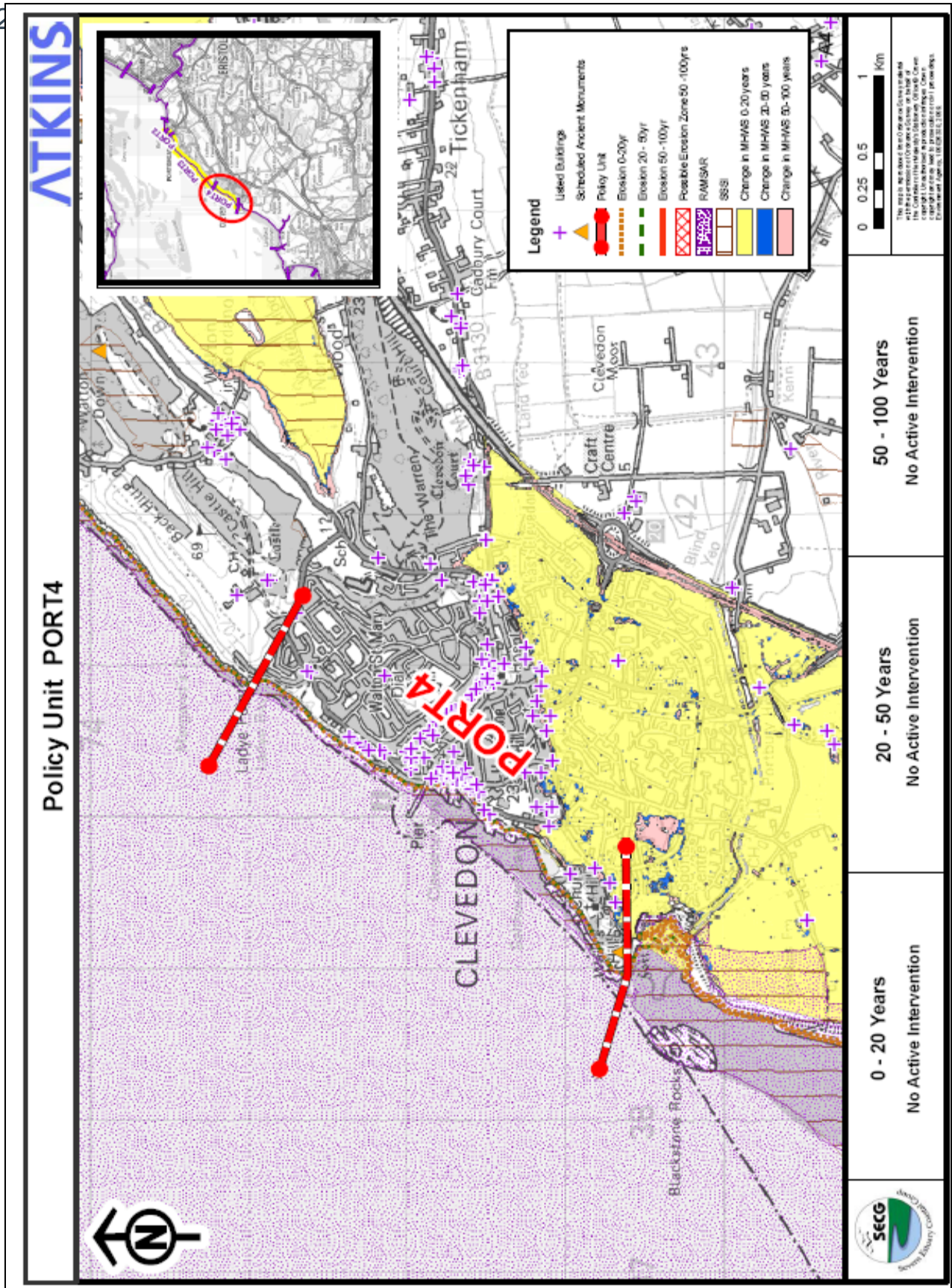
Policy Unit: PORT 2 - Swimming pool, Esplanade Road, Portishead to the end of Esplanade Road at Lake Road, Portishead (east bank of the River Severn)



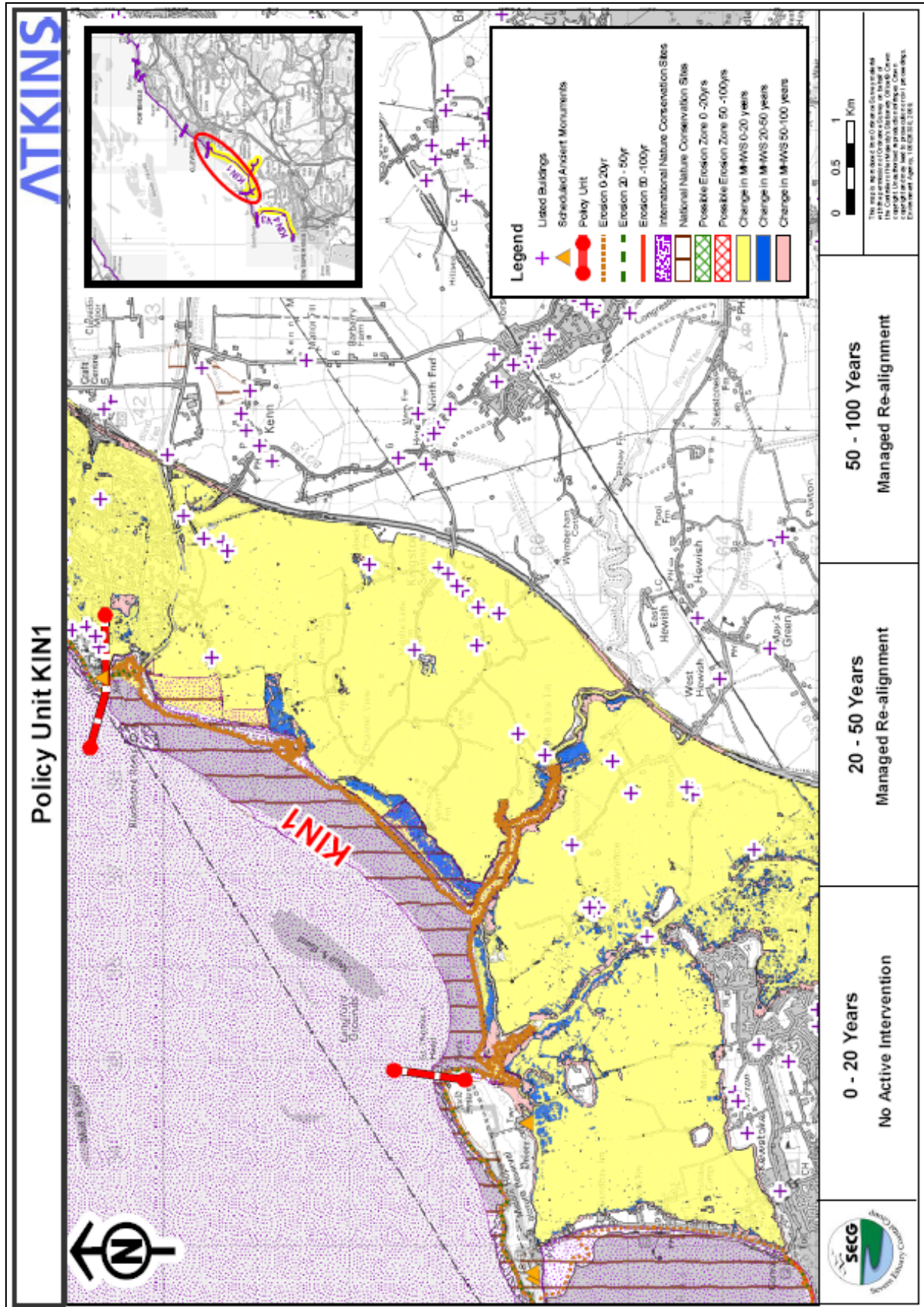
Policy Unit: PORT 3 - The end of Esplanade Road at Lake Road to Ladye Point (east bank of the River Severn)



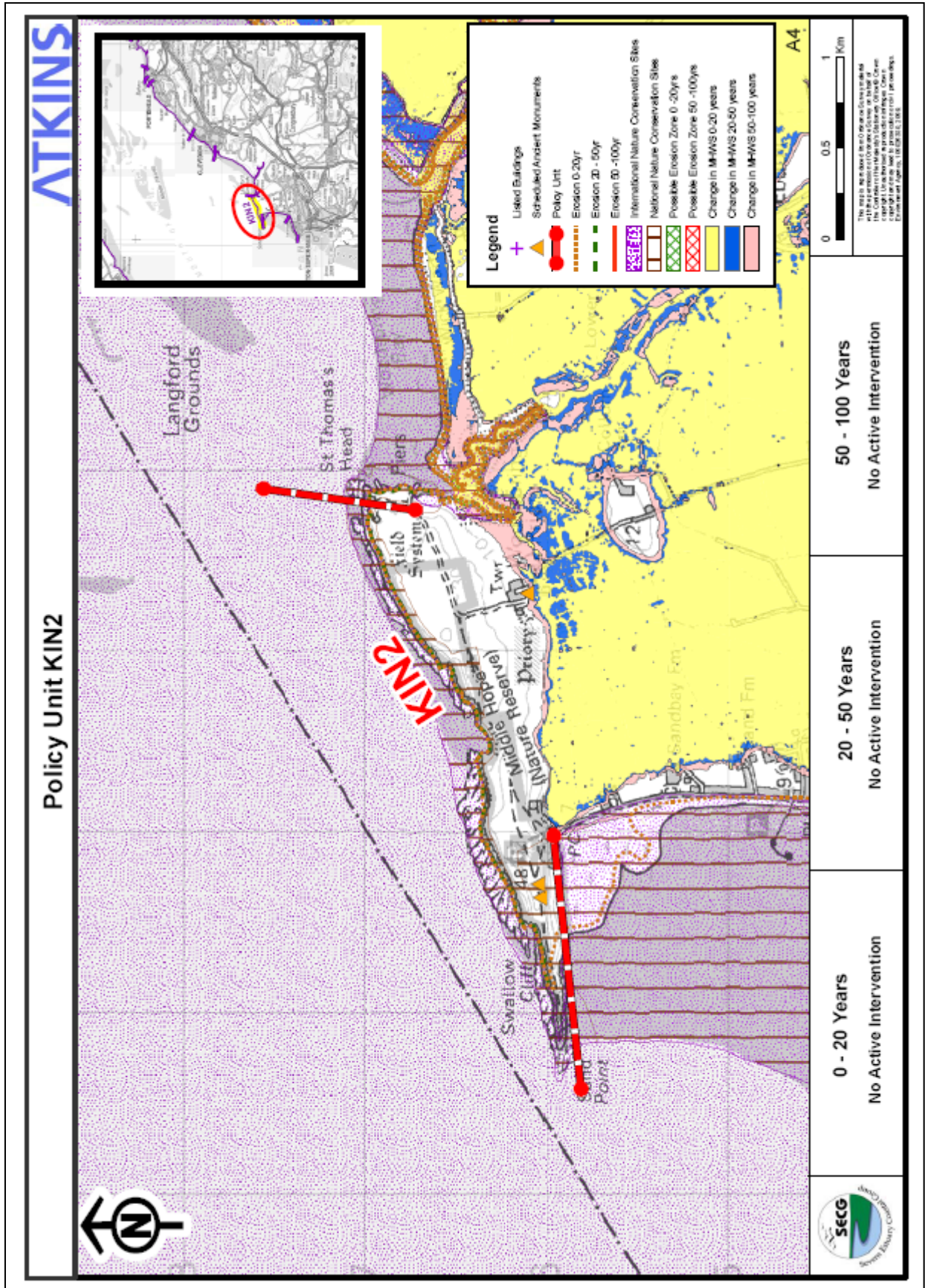
Policy Unit: PORT 4 - Ladye Point to Old Church Road, Clevedon (east bank of the River Severn)



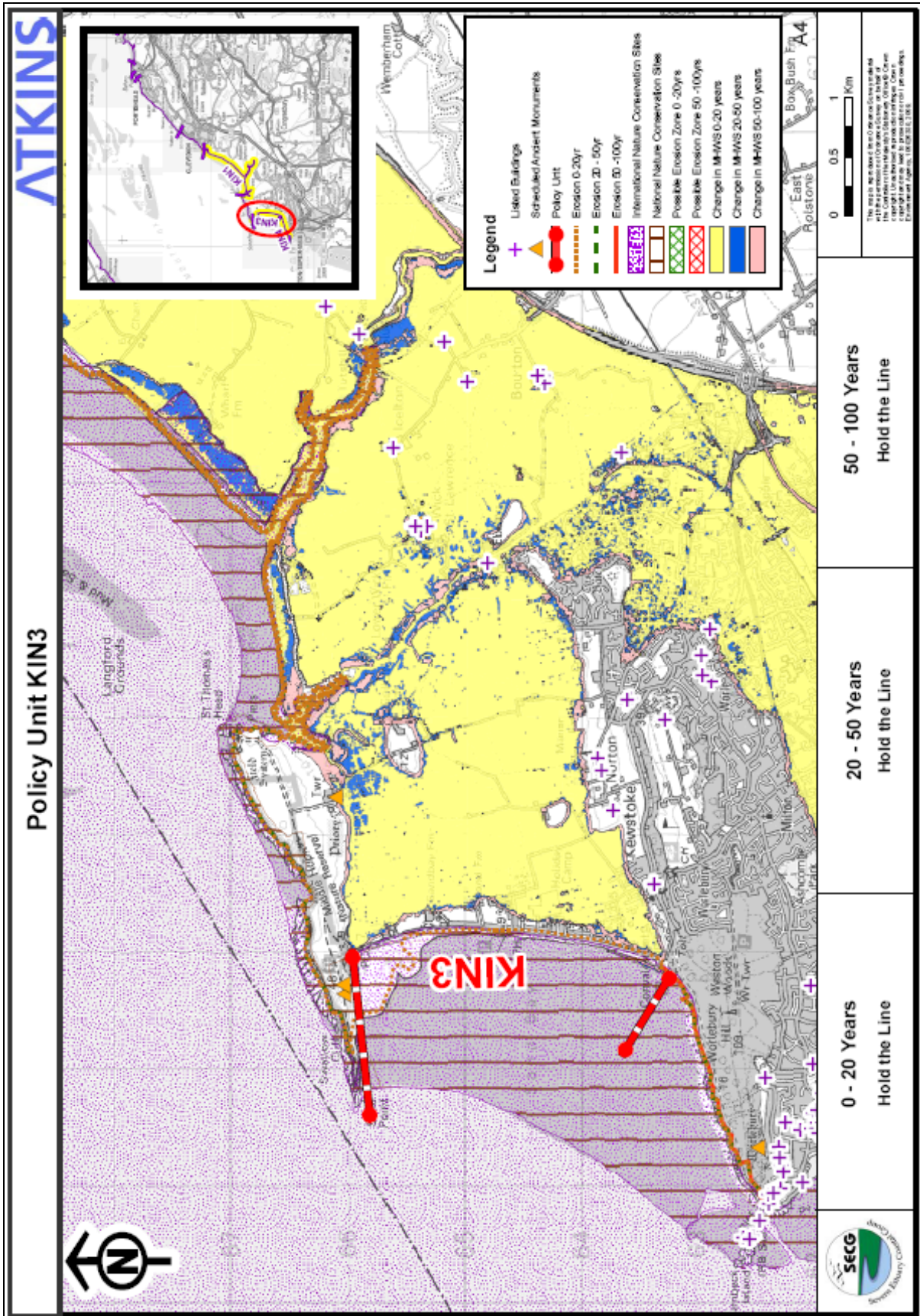
Policy Unit: KIN 1 - Old Church Road, Clevedon to St Thomas' Head (east bank of the River Severn)



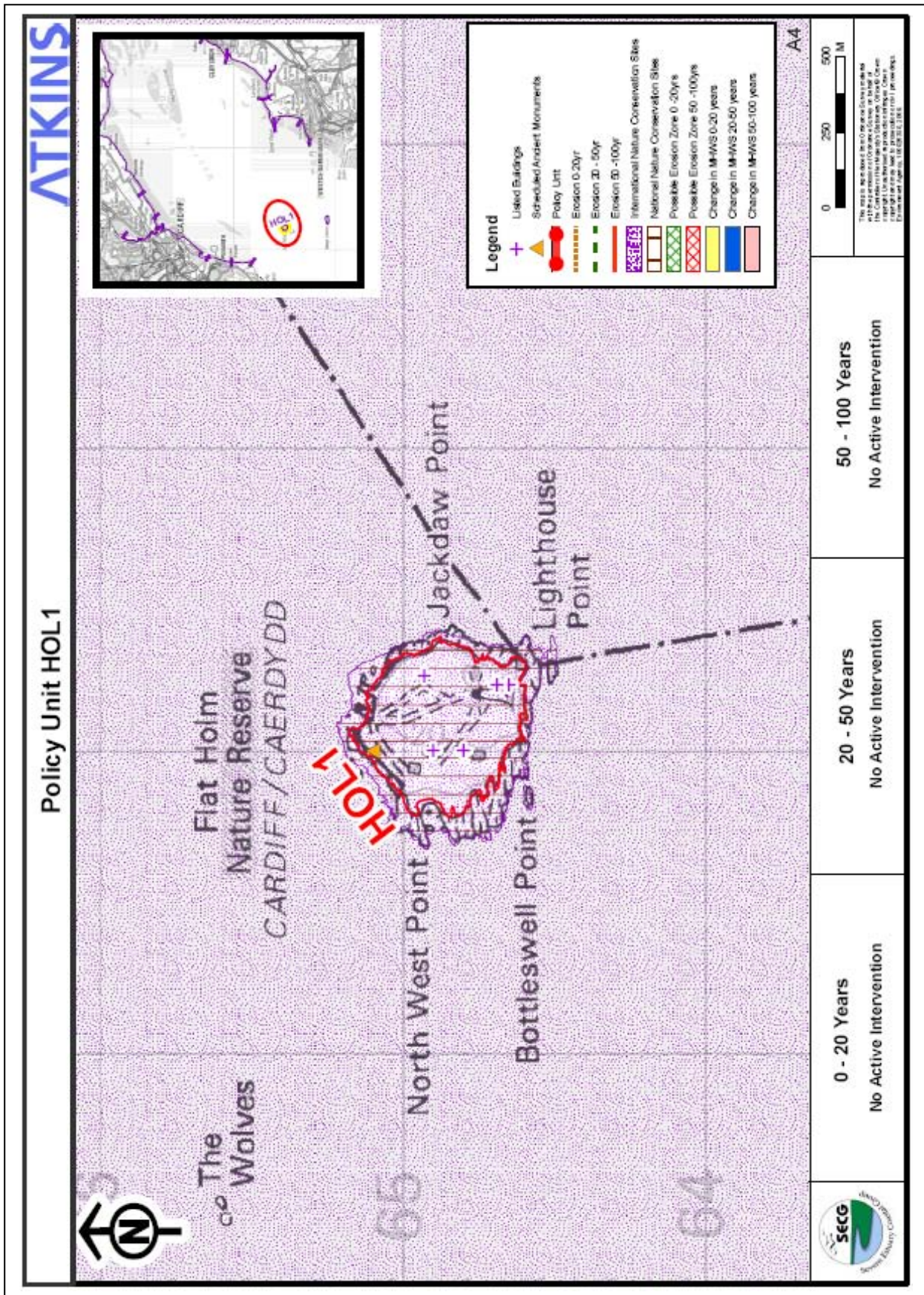
Policy Unit: KIN 2 - St Thomas' Head to Middle Hope car park at Sand Point (east bank of the River Severn)



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: HOL 1 – Flat Holm



Policy Unit: HOL 2 – Steep Holm

