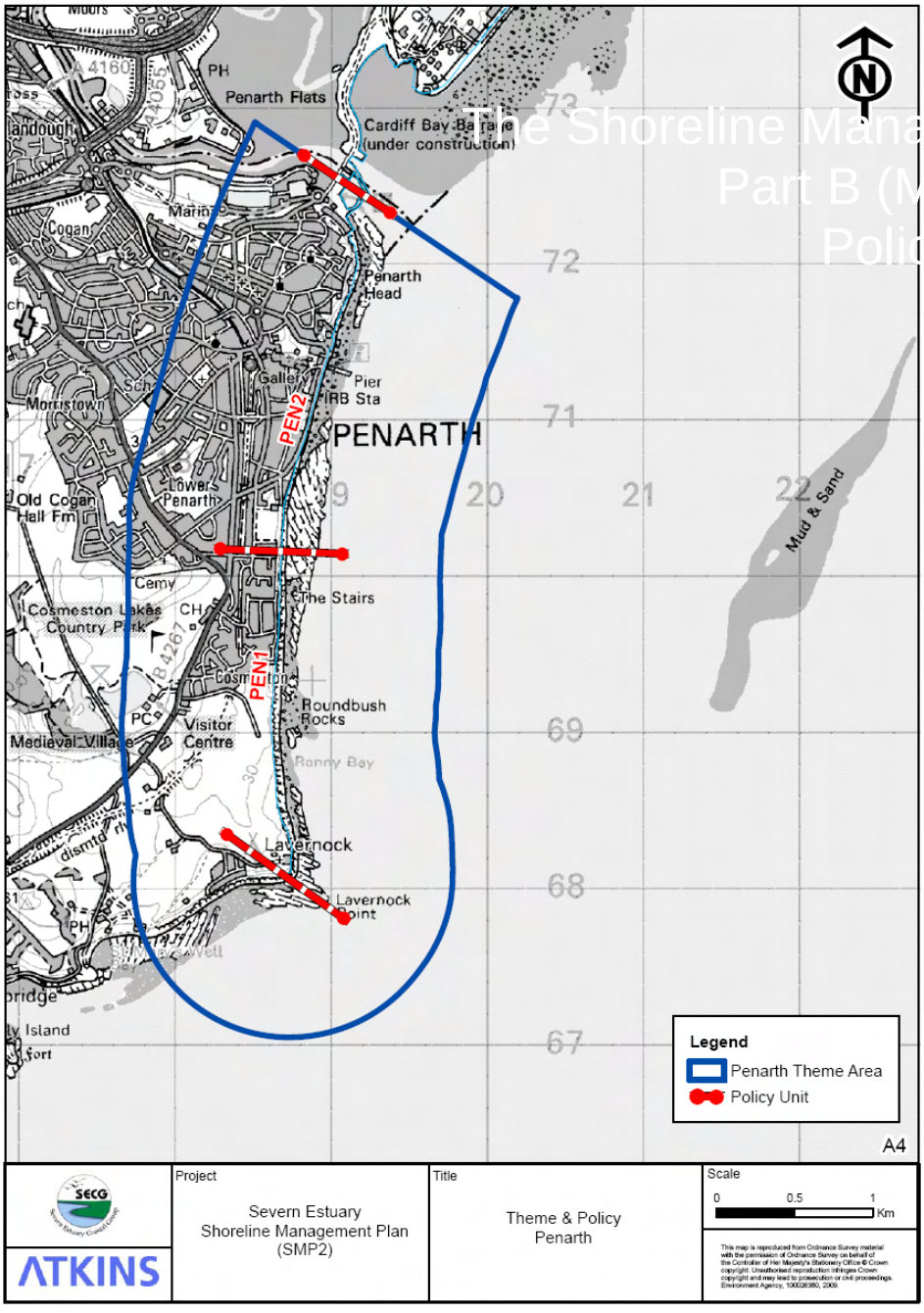
PENARTH

This Theme area contains the Policy Units ***PEN 1*** and ***PEN 2***.

It starts at ***Lavernock Point*** on the west shoreline of the Severn Estuary, in the Vale of Glamorgan, Wales and end at ***Penarth Head***.

The ***Key Policy Drivers*** in this area are:

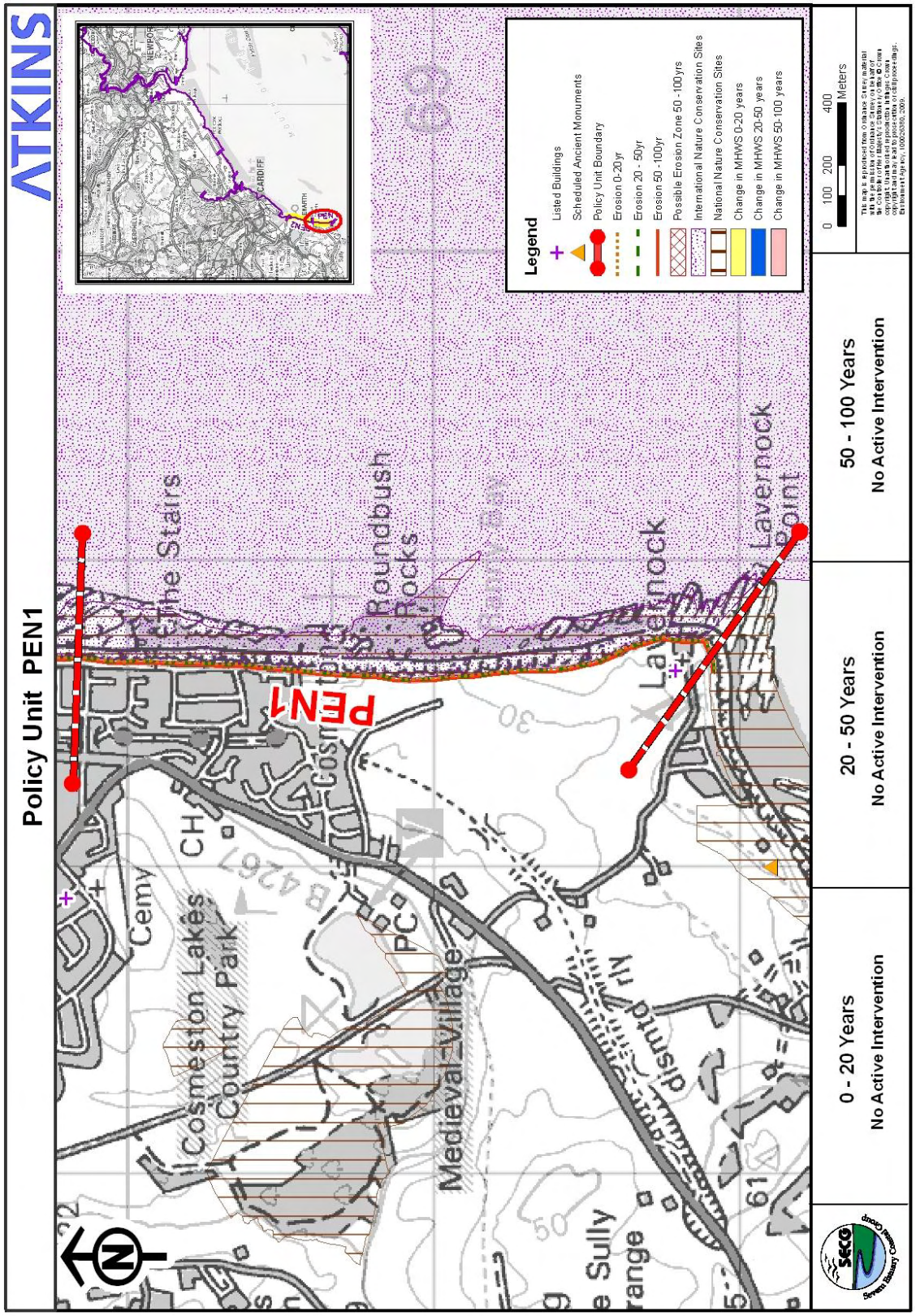
- international nature conservation sites;
- residential developments of Penarth.



The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

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



The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

Preferred Policies to Implement the Plan:

Epoch	Preferred Policy	Comments
0 to 20 years (2025)	**NAI**	The short term policy for this unit is **No Active Intervention.** This unit consists of a soft cliff coastline of Triassic mudstone. Lavernock Point is exposed to waves coming up the Bristol Channel. There are extensive areas of intertidal rock in Ranny Bay that provide some protection to the bottom (toe) of the cliff. There is evidence of slow erosion of the cliffs and shingle beach but the shoreline has changed little over the last 100 years. Current management practice is to allow the cliff face to evolve naturally. Given the low rates of erosion this practice should continue. The frontage in this Policy Unit is generally sheltered from ocean waves. High ground limits flooding from tidal sources during all three SMP2 epochs.
20 to 50 years (2055)	**NAI**	The medium term policy for this unit is **No Active Intervention**. High ground and hard geology limit flood and erosion risk to this unit in the medium term.
50 to 100 years (2105)	**NAI**	The long term policy for this unit is **No Active Intervention**. High ground and hard geology limit flood and erosion risk to this unit in the long term. Some, localised areas may be at risk in the longer term. This should be monitored and actions taken, if appropriate. Funding is not guaranteed.

Economics

Policy Unit	Existing SMP1 Policy	Time Period (epoch)			SMP2 Assessment	
		0-20	20-50	50-100	Preferred Plan Present Value Damages	Preferred Plan Present Value Defence Costs
PEN 1	Do Nothing	NAI	NAI	NAI	**£0m (PEN1-2 total)**	**£0.8m (PEN1-2 total)**

The preferred policy is economically viable for the linked Policy Units of PEN 1 and PEN 2. The costs and damages of the preferred policy in the table above relate to actions taken in all linked policy units.

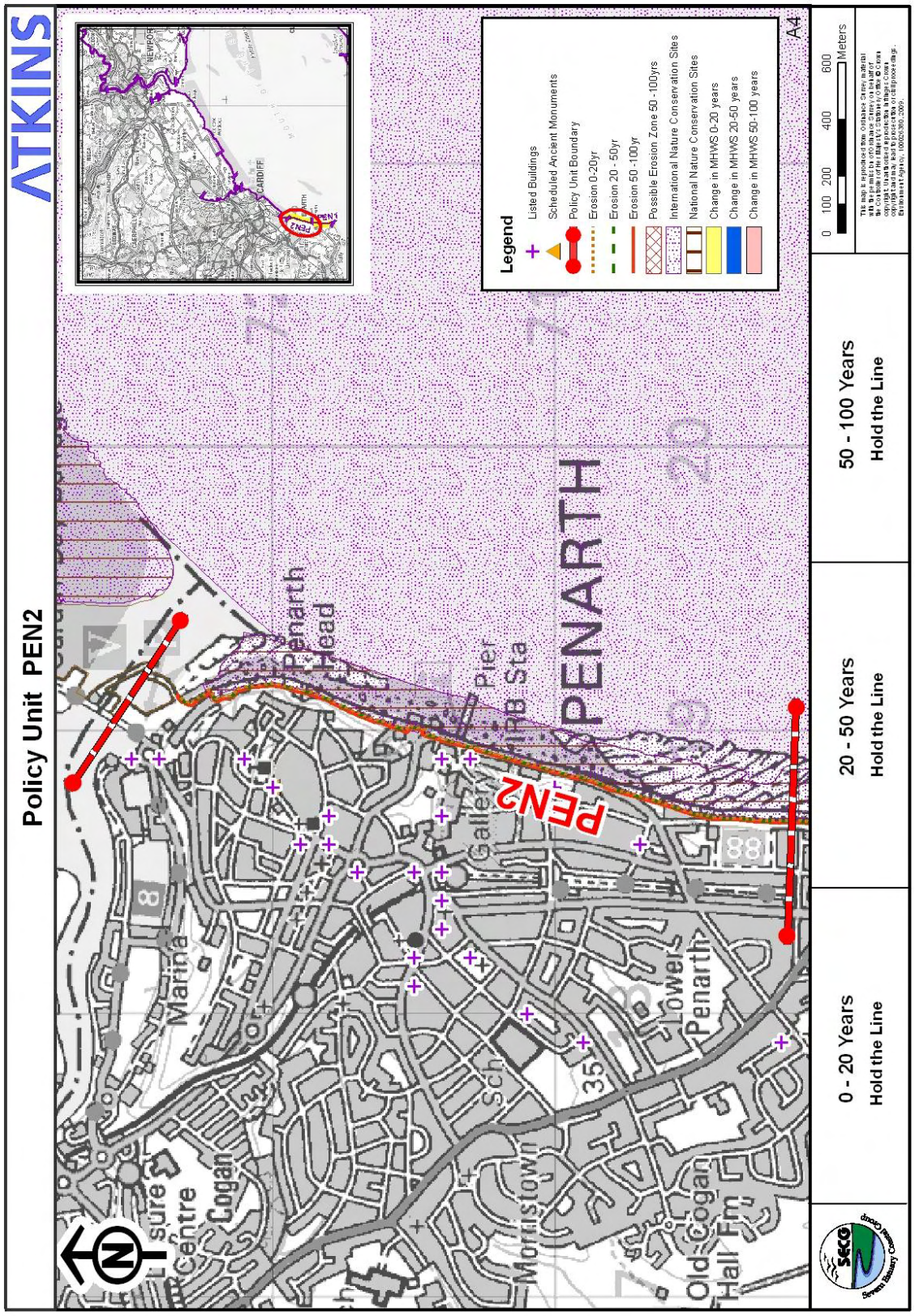
The benefit-cost ratio (BCR) of this policy is low. Where the BCR is low, schemes may be less likely to receive public funding and it may be necessary to find funding from other sources. .

Predicted Implication of the Preferred Plan for the PEN 1 Policy Unit

Time Period	Management Activities	Property, Land Use and Human Health	Nature Conservation – including Earth Heritage, Geology and Biodiversity	Landscape Character and Visual Amenity	Historic Environment	Amenity and Recreational Use
0 – 20 years	The cliffs will undergo limited erosion within this period. As a result erosion management activities will be limited.	High ground limits flood risk. Hard geology limits erosion.	A NAI policy will allow natural processes to dominate, protecting the integrity of the Penarth Coast SSSI.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment.	Limited erosion and flood risk will not impact on the amenity value, including the access to public footpaths, of the land.
20 – 50 years	The cliffs will undergo limited erosion within this period. As a result erosion management activities will be limited.	High ground limits flood risk. Hard geology limits erosion.	A NAI policy will allow natural processes to dominate, protecting the integrity of the Penarth Coast SSSI.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment.	Limited erosion and flood risk will not impact on the amenity value, including the access to public footpaths, of the land.
50 – 100 years	The cliffs will undergo limited erosion within this period. As a result erosion management activities will be limited.	High ground limits flood risk. Hard geology limits erosion.	A NAI policy will allow natural processes to dominate, protecting the integrity of the Penarth Coast SSSI. However geology/topography will limit rate of roll back.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment.	Limited erosion and flood risk will not impact on the amenity value, including the access to public footpaths, of the land.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

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



The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

Preferred Policies to Implement the Plan:

Epoch	Preferred Policy	Comments
0 to 20 years (2025)	**HTL**	The short term policy for this unit is **Hold The Line.** There is limited erosion or flood risk predicted for the majority of this policy unit during this epoch. There is some risk of wave overtopping along the Esplanade and at the Pier. HTL in this policy unit should focus on the key areas of risk (along the Esplanade), rather than on the whole length of the policy unit. How HTL is implemented in these short lengths of shoreline needs to be determined - an in-depth economic investigation will be needed. Where there are currently no defences, HTL is not intended to enable new defences to be built. Other ways of helping businesses and residents cope with any overtopping due to sea level rise should also be investigated. Localised slumping / erosion of the cliffs is not considered to be significant, but erosion rates should be monitored to confirm this. HTL does not guarantee funding to build or maintain current or future defences or to counter sea level rise.
20 to 50 years (2055)	**HTL**	The medium term policy for this unit is **Hold The Line**. There is limited erosion or flood risk predicted for the majority of this policy unit during this epoch. Wave overtopping along the Esplanade and at the Pier may increase with climate change. HTL in this policy unit should focus on the key areas of risk (along the Esplanade), rather than on the whole length of the policy unit. How HTL is implemented in these short lengths of shoreline needs to be determined - an in-depth economic investigation will be needed. Where there are currently no defences, HTL is not intended to enable new defences to be built. Potential impacts to the lifeboat station should be investigated. Other ways of helping businesses and residents cope with any overtopping due to sea level rise should also be investigated. Cliff erosion may occur but rates are not considered significant and active management is not likely to be needed. Erosion rates should be monitored to confirm this approach. HTL does not guarantee funding to build or maintain current or future defences or to counter sea level rise.
50 to 100 years (2105)	**HTL**	The long term policy for this unit is **Hold The Line**. There is limited erosion or flood risk predicted for the majority of this policy unit during this epoch. Wave overtopping along the Esplanade and at the Pier may increase with climate change. HTL in this policy unit should focus on the key areas of risk (along the Esplanade), rather than on the whole length of the policy unit. How HTL is implemented in these short lengths of shoreline needs to be determined - an in-depth economic investigation will be needed. Where there are currently no defences, HTL is not intended to enable new defences to be built. Potential impacts to the lifeboat station should be investigated – relocation / adaptation should be considered if climate change impacts are thought to be large. Other ways of helping businesses and residents cope with any overtopping due to sea level rise should also be investigated.

		Cliff erosion may occur but rates are not considered significant and active management is not likely to be needed. Erosion rates should be monitored to confirm this approach. HTL does not guarantee funding to build or maintain current or future defences or to counter sea level rise.

Economics

Policy Unit	Existing SMP1 Policy	Time Period (epoch)			SMP2 Assessment	
		0-20	20-50	50-100	Preferred Plan Present Value Damages	Preferred Plan Present Value Defence Costs
PEN 2	Do Nothing / HTL (or Realignment)	HTL	HTL	HTL	**£0m (PEN1-2 total)**	**£0.8m (PEN1-2 total)**

The preferred policy is economically viable for the linked Policy Units of PEN 1 and PEN 2. The costs and damages of the preferred policy in the table above relate to actions taken in all linked policy units. The benefit-cost ratio (BCR) of this policy is low. Where the BCR is low, schemes may be less likely to receive public funding and it may be necessary to find funding from other sources.

It is also recommended that additional economic investigations are carried out (see ***PART C - Action Plan***).

Predicted Implication of the Preferred Plan for the PEN 2 Policy Unit

Time Period	Management Activities	Property, Land Use and Human Health	Nature Conservation – including Earth Heritage, Geology and Biodiversity	Landscape Character and Visual Amenity	Historic Environment	Amenity and Recreational Use
0 – 20 years	The shoreline will undergo limited erosion and nuisance flooding is very limited within this period, and as a result management activities are likely to be limited.	Limited flood and erosion risk in the short term will not significantly impact on existing properties.	Works should take account of possible environmental impacts and the need for an EIA. HTL should allow natural processes to dominate in undefended areas, protecting the integrity of the Penarth Coast SSSI.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment.	Limited erosion and flood risk will not impact on the amenity value or recreational use of the land.
20 – 50 years	Nuisance flooding can be expected to increase as sea level increases. Management actions should be considered for areas at risk.	Flood risk will increase as sea level increases. More properties may be at risk from wave overtopping.	Works should take account of possible environmental impacts and the need for an EIA. HTL should allow natural processes to dominate in undefended areas, protecting the integrity of the Penarth Coast SSSI.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment in the medium term the esplanade and pier may require maintenance.	Flood overtopping risk will increase along coastal path, at the Pier and Esplanade.
50 – 100 years	Nuisance flooding can be expected to increase as sea level increases. Management actions should be considered for areas at risk or where cliff slumping increases.	Flood and erosion risk will increase as sea level increases. More properties may be at risk from wave overtopping. Properties at the north of the unit may be at risk to cliff erosion. The lifeboat launch station could be at risk from coastal squeeze and action may be needed to counter this.	Works should take account of possible environmental impacts and the need for an EIA. HTL should allow natural processes to dominate in undefended areas protecting the integrity of the Penarth Coast SSSI and allowing habitats to roll back so intertidal habitats and features will be maintained. Hard geology and existing developments will restrict the amount of roll back.	Limited erosion and flood risk will not significantly impact on existing landscape and visual amenity.	Limited erosion and flood risk will not impact on the historic environment, in the long term the esplanade and pier may require on-going maintenance.	Flood overtopping risk will increase along coastal path, at the Pier and Esplanade.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scales issues and policy implications, as reported therein.