C.4 SCENARIO REF: BASELINE CASE 1 – NO ACTIVE INTERVENTION

C.4.1 INTRODUCTION

This section describes the expected shoreline response assuming the scenario of “No Active Intervention”. This scenario has considered that there is no expenditure on maintaining or improving defences and that defences will therefore fail at a time dependent upon their residual life. The descriptions are based on the Flood mapping (Section C.2) and the No Active Intervention erosion maps (Section C.3).

Policy Unit	Location	NO ACTIVE INTERVENTION SCENARIO: Epoch (Years)		
		0-20 (2025)	20-50 (2055)	50-100 (2105)
DUR1	Durlston head to Durlston Cliff Flats	Durlston Bay is comprised of the 3 policy units DUR1, DUR2 and DUR3. All of these units are undefended (apart from DUR2) and comprise steep eroding cliffs and landsliding complexes which face due east, affording some protection from the prevailing wind and wave direction. There is only a limited beach to offer any protection against marine erosion. There was some cliff retreat mitigation works in 1988 and 2002 in order to increase drainage and stabilise the cliff line following rapid retreat towards several nearby residences, with rock revetment placed at DUR2 to protect the flats. Nearshore sediment transport is from south to north whilst offshore the transport is thought to be north to south transporting material out of the bay towards the English Channel. Due to the high cliffs there are no properties predicted to be at risk from flooding over the next 100 years. However cliff line retreat is estimated at 12m over the next 20 years for the whole of the bay but this will not impact on any properties. Given that DUR2 is a landsliding system, erosion of the cliff top is predicted as a precaution even though there is toe protection.	During the 20-50 year epoch erosion retreat is estimated to be a further 18m for the whole bay, with 25 properties now placed at risk from erosion within DUR1 and 2 properties in DUR2. Given that DUR2 is a landsliding system, erosion of the cliff top is predicted as a precaution even though there is toe protection. The headland at Peveril Point will erode back to the northwest and may begin to impact on several roads and property boundaries within policy unit SWA1 although the general plan shape of the bay is not predicted to change significantly over the next 50 years.	Erosion of the cliff line within Durlston Bay is predicted to increase by a further 30m for the entire cliff top length. A total of 48 properties will now be at risk from erosion in DUR1, a total of 5 properties in DUR 2 and a total of 24 properties in DUR3. Given that DUR2 is a landsliding system, erosion of the cliff top is predicted as a precaution even though there is toe protection. The bay is not predicted to change in plan shape significantly although the landslip areas are unpredictable and may impact on the local area. Peveril Head will erode from the south into SWA1 and thus begin to impact upon assets within this unit as it gradually begins to narrow in width and length. Due to the sediment transport direction, it is unlikely any significant beach will form at the cliff base within the bay.
DUR2	Durlston Cliff Flats			
DUR3	Durlston Cliff flats to Peveril Point			

SWA1	Peveril Point to Swanage Pier	This policy unit consists of the rocky headland at the south end of Swanage Bay from Peveril Point to the Swanage Pier. There is very little beach other than adjacent to Swanage Pier, which gradually diminishes eastwards towards the headland. East of the pier there are rock groynes backed by concrete seawall, several slipways and the Lifeboat station. The defences all have a residual life of approximately 30 years after which they are expected to deteriorate. There is not predicted to be any erosion within this unit over the next 20 years and as such there are no properties at risk of erosion or flooding in this epoch.	Over the next 30 years, the coastline is expected to erode by approximately 5m, following the failure of the defences after year 30. There are 10 properties at risk from erosion but none at risk from flooding in this unit, although there maybe some impacts to roads and property boundaries once the defences begin to fail. Erosion from the undefended section of coastline to the south of Peveril Head (policy unit DUR3) will begin to reduce the width of the headland from the south, potentially impacting on assets within SWA1 in the future.	During the 50-100 year epoch, further erosion of approximately 12m is predicted to occur as defences will no longer be effective. This will impact on 3 properties; however there are no properties at risk of flooding. The headland will have eroded up to 60m from the south due to cliff erosion within policy unit DUR3.
SWA2	Swanage Pier to Outfall Jetty	The majority of this policy unit is composed of sand, with exception of the southernmost section in which the beach narrows and more gravel and rock dominate. Timber groynes and a seawall protect the road that runs immediately adjacent to the shoreline. The beach was replenished in December 2005, which helps to protect the seawall from wave attack. Under the no active intervention scenario, there is no erosion predicted for the 0-20 year epoch because the defence has a residual life of approximately 30 years. After this time 10m of erosion may be expected for the north of the unit with approximately 5m of erosion to the southern half due to more resistant geology. During this time 13 properties will be at risk from erosion, whilst there are also 4 properties at risk from flooding.		If the beach replenishment programme were to be discontinued, and the hard structures allowed to deteriorate, then within 100 years, the seawall is predicted to breach and erosion of 35m is estimated for the northern half of the unit and approximately 16m for the southern half. This will impact upon an additional 44 properties and on one of the main access routes into Swanage. Some of the additional eroded material may drift northwards, although some of the fine sediment may be transported offshore. There continues to be 4 properties at risk from flooding.

SWA3	Outfall Jetty to Sheps Hollow	The soft Wealden cliffs that are found in the north of Swanage Bay gradually reduce in height within this policy unit. The sandy beach has various defence structures in place, including timber groynes and a seawall. The seawall in the central and northern areas of this unit, defending the toe of the cliff, is in need of repair in some parts. Further south, the seawall protects the road and property that run parallel with the shoreline. A replenishment programme was introduced to provide protection to the seawall against wave attack. There is no strong littoral drift of foreshore sediments along this frontage; several studies suggest there is a general south to north drift that operates within the bay, although short-term drift reversal takes place. There is no predicted erosion within this epoch, due to the seawalls and timber groynes having a residual life of approximately 30 years. The cliffs and seawall would continue to defend the land, therefore protecting all assets in this region. However, beach stocks would probably diminish, even with updrift erosion to SWA2, with sediment being transported in northward and offshore directions.	During this epoch current defences would fail, leading to cliff retreat of 12m with potential impacts on approximately 5 properties from erosion aswell as beach huts. The cliff erosion would supply sand and some flint to the beaches, but much of the eroded material would be fine sediment that would be transported offshore in suspension.	None of the current defences would be effective within this epoch, leading to a total cliff retreat of 42m from its present position. However this predicted retreat would impact on a further 44 properties and completely erode the current seafront road into Swanage town. Some of this eroded sediment may be moved northwards and act as a slight barrier to wave attack, but the majority of the fine sediment will be transported offshore.

SWA4	Sheps Hollow to Ballard Point	This stretch of coastline is comprised of two geologically different rock types, with Punfield Cove marking a divide between the resistant chalk cliffs of Ballard Cliff in the north (SWA5) and relatively soft Wealden Beds to the south of the unit. The sandy beach in front of the cliffs to the south of the unit gradually diminishes northwards, migrating into a rockier substrate at the toe of the chalk cliffs in SWA5. SWA4 is undefended and undeveloped. Erosion rates during this epoch are predicted to be up to 12m. Cliff mass movements in the soft Wealden Beds would be generated by toe erosion and steepening of the cliffs, combined with groundwater seepage and mudflows. Any material produced by such active landsliding would be moved offshore and transported in a northward direction. Given that this region is undeveloped, there are no assets at risk.	Erosion is expected to continue at a similar rate, with the cliff line retreating a further 18m landward during the 20-50 year epoch and a further 30m during the 50-100 year epoch. Material would be removed offshore and then transported northwards. There are no assets at risk.
SWA5	Ballard Point to Handfast Point	This policy unit stretches from Handfast Point, marking the sediment transport boundary, to Ballard point. It consists of near vertical, resistant chalk cliffs, measuring up to 50m in height, with a series of embayment's, stacks and arches cut along joint planes in the chalk. There are no developments, properties or infrastructure. Due to the nature of this unit, there are no defences present. Predicted erosion rates along this stretch of coast are approximately 5m in 20 years, a further 12m in 50 years and a further 23m in 100 years. There are no properties in this region at risk from erosion or flooding. It is believed that eroded material from the cliffs is broken down and the flint content contributes sediment to 'pocket' beaches along this coastline, with some of this coarse material moving from onshore to offshore locations.	

STU1	Handfast Point to the Warren	This policy consists of north-facing chalk cliffs, ranging up to 26m in height, extending from Handfast Point to Warren Wood. The abrupt change in orientation of the coastline at Warren Wood marks the junction of these resistant chalk cliffs, with the softer Tertiary sediments that is prevalent in STU2. There are no defences currently present along this stretch of shoreline. Predicted erosion rates along this stretch of coast are approximately 5m in 20 years, a further 12m in 50 years and a further 23m in 100 years. There is a net littoral movement eastwards which feeds a small supply of gravel to small inlet beaches at the base of the chalk cliffs, which is then transferred in a northern direction towards Redend Point (in STU2). This policy unit is undeveloped, so there is no property or infrastructure at risk.		
STU2	The Warren to Studland Sandspit	The majority of the policy unit is low lying with undefended soft cliffs. The only exception is below the Middle Beach car park, immediately north of Redend Point, in which there are gabions, rock armour and a short seawall in place. These are positioned here to protect the car park and café on the higher ground above the beach. Littoral drift in this area is in a northward direction, with erosion of the coastline feeding sediment to the Studland Peninsula, but with much of the clay, silt and fine sand fractions moving offshore as suspended load. This policy unit is broadly split into three distinct erosion bands, with erosion rates decreasing to the south. The northern section is estimated to retreat by up to 13m, except where there are defences in place at Middle beach carpark which will slow or stop erosion during this epoch. Erosion is also expected to occur south of Redend Point, but at a lower rate of 8m in 20 years, however there are no assets at risk. This erosion will provide an	The current defences north of Redend Point would be expected to have deteriorated within this epoch. Consequently, a cliff line retreat of approximately 19m is predicted in this area, which would have implications on the café just above the beach. Other impacts would be in the northern section of this unit, in which a further erosion of approximately 19m is predicted. Knoll Beach café and information centre, as well as half of the car park would be lost. Lowest erosion rates are expected south of Redend Point, with a further retreat of 7m; however there is no threat to property, infrastructure or assets. Net coastline recession in these southern beaches, will create an increased sediment supply northwards.	Continued cliff line erosion is expected across this entire policy unit, with the greatest erosion in the northern half of the unit. The northern section is predicted to retreat by 64m in total, which will lead to the complete loss of the car park and buildings at Knoll Beach. There would also be the loss of car park land further south at Middle Beach, in which a total rate of 51m is predicted within 100 years. The lowest erosion rates are expected in the southern most section of this unit, with up to 23m retreat predicted, although there would be no losses to any properties.

		increased sediment supply to STU3. Further south erosion will be lowest at approximately 5m in 20 years. The region which is currently defended below Middle Beach car park has a residual life of 20 years and will therefore not undergo erosion in this epoch. No properties are at risk at this time.		
STU3	Studland Sandspit	This policy unit encompasses a large majority of the Studland Bay. It is a relatively large, sandy beach, backed by an established dune system, with a weak to moderate northwards littoral drift. There are concerns that this region is showing evidence of a landward realignment, with potential to trigger increased erosion rates. There are no defences in this unit or properties at risk from erosion. The rate of erosion decreases from 0.7m a year in the south of the unit, resulting in 14m of erosion to 0.2m a year in the north, resulting in 4m of erosion by year 20. Erosion of the southern dune system would initially supply more material to the northern end of the unit.	Within 50 years, erosion would continue at a similar rate, with an additional 35m in the south and an additional 10m of erosion predicted for the northern tip by 2055. No properties would be at risk from these changes.	This frontage is predicted to continue to erode at a steady rate with 70m of erosion in total, predicted in the south and 20m of erosion in total predicted for the northern section over the next 100 years. Despite these changes in plan shape there would be no significant impacts to assets over this period. The sediment released from the eroding dunes would be transported northwards, feeding into the transport system around Poole Harbour entrance. There is uncertainty over sediment transport pathways within this area, although there are possible exchanges between Poole Harbour, Sandbanks and Studland.

STU4	Shell Bay	Shell Bay is largely an undefended stretch of coast. The only exception is at South Haven Point, at the northern end of the unit, which has a small rock revetment that provides protection to the vehicle ferry slipway. The beach consists largely of sand and is backed by a large dune system. There is a net north-westwards littoral drift along this sector. It is thought that the Studland Peninsula appears to be undergoing a degree of landward re-alignment, with Shell Bay subjected to varying accretion rates. There is a level of uncertainty about the future of this region. It is thought that there could be a prograding dune system that is predicted to accrete up to 9m in the next 20 years for the northern half of the unit. The southern tip of the unit is predicted to erode by 8m over this period. There are no properties at risk to erosion or tidal flooding during this epoch.	A similar rate of accretion is expected to continue between 20 and 50 years, with an additional 13m of accretion estimated for the dunes and a further loss of 3-12m estimated around the southern tip. This accretion at South Haven Point may impact on the ferry slipway, causing complications for vehicles wishing to access the Peninsula as it extends northwards. There are no properties at risk to erosion during this epoch but 5 properties become at risk to tidal flooding following deterioration of the defence located in PHB4.	Within 100 years, a total of up to 45m of seaward gain is predicted for the northern half of the unit. The southern tip of this unit is predicted to erode up to 40m. Sediment interactions between Studland Bay and the Poole Harbour ebb delta allow sediment to be transported both into the harbour and eastwards to Sandbanks. No properties are predicted to be at risk from erosion during this period. There are no properties at risk to erosion during this epoch but 5 properties remain at risk to tidal flooding following deterioration of the defence located in PHB4.
PHB1	The Islands (excluding Brownsea) Furzey, Green Round, Long Islands	This unit consists of the smaller islands within the south of Poole Harbour to include the Furzey, Green, Round and Long Islands. These islands are all undefended and have active and degraded cliffs made up of marsh sediments, sands and rock lithology which suffer from small scale mass movements and localised gulleying. Erosion is predicted to occur to all the islands at up to 8m during the next 20 years, with the exception of any	During the 20-50 year epoch erosion of the shoreline is expected to increase to a further 20m for all islands, although this is not predicted to place any properties at risk. Erosion to the shoreline behind saltmarsh is now predicted to occur, resulting in 12m of erosion during this epoch. There are no properties predicted to be at risk from tidal flooding.	Erosion rates will continue with an additional 40m of erosion during 50-100years. This will place 3 properties at risk on Round Island with significant erosion to the remaining islands within PHB1. During this time the mouth of the harbour is predicted to widen, in response to an increased tidal prism. There are no properties predicted

		shoreline protected by saltmarsh. This is not expected to affect any properties. There are no properties predicted to be at risk from tidal flooding.		to be at risk from tidal flooding.
PHB2	Brownsea Island (Eastern Defended Section)	These policy units cover Brownsea Island, the largest island within Poole Harbour. The east end of the island is covered by policy unit PHB2, with the remainder of the island covered by policy unit PHB3. Sediment transport is thought to be from west to east around the island. Much of the island is surrounded by steep sloped cliffs which are vegetated on the north side and more vulnerable to erosion on the south side of the island. On the northeast corner of the island is a lagoon fronted by a thin strip of land which was originally two thin spits. The only defended section of coastline is at the southeast corner of PHB2 where a 630m wall and some timber groynes offer some protection to Branksea Castle and several properties. These defences have a residual life of approximately 8 years and would therefore begin to deteriorate after this time, potentially impacting on the shoreline behind them with approximately 5m of erosion estimated. The remainder of the undefended island is predicted to erode by up to 8m. There are no properties predicted to be at risk to erosion, although there are 12 properties at risk to flooding all within the lagoon at PHB2.	Up to 20m of erosion is predicted over the next 30 years for the undefended shoreline. Approximately 17m of erosion is expected for the defended section of PHB2, impacting on 6 properties. The thin strip of land fronting the lagoon may breach with sea level rise allowing this area to become open to the sea.	Erosion will continue around the island in this epoch, with an additional 40m of retreat predicted for the undefended shoreline and 37m predicted behind the currently defended section of PHB2. There are no additional properties predicted to be at risk from tidal flooding, although an additional 4 are predicted to be at risk from erosion.
PHB3	Brownsea Island (Undefended Western Section)			

PHB4	South Haven Point to Hyde's Quay	This policy unit is largely undefended as it is composed of natural mudflats, saltmarsh, tidal inlets, sandy beaches and a vegetated shoreline. There is predicted to be some low level erosion of the mudflats and saltmarshes over the next 20 years, however this may be offset by natural migration inland. Erosion to higher land is predicted to be 6m during this epoch, with no impact to any assets. There is one property at risk of flooding.	The inter-tidal area will continue to erode at the seaward edge but should be offset by natural migration inland. Erosion of the higher land will continue with up to 20m expected during the 20-50 year epoch and up to 40m predicted between 50-100 years which will place a total of 3 properties at risk. There are 6 properties predicted to be at risk from flooding between 20-100 years. The tidal prism of the harbour is predicted to increase with sea level rise, with increased levels of material stored within the ebb and flood tidal delta. Additionally the entrance to the harbour may attempt to widen or deepen to accommodate the increased volume of water within the harbour, affecting the very east of this policy unit. Arne peninsula has the potential to become an island under a 1:200 year storm event by the end of the 100 year epoch.
PHB5	Hyde's Quay to Holton Point	This unit consists of both tidal and reclaimed marsh land which is backed by raised earth bank defences where the River Frome discharges into Poole Harbour. These defences are predicted to have a residual life of approximately 11-20 years, after which 20 properties would be at risk from tidal flooding. Some low level erosion of the mudflat and saltmarshes is predicted over the next 20 years. If defences fail, however, this may be offset by re-creation inland. Up to 6m of erosion is predicted at the higher land at Holten, in the far east of the unit. There are no properties at risk, although the railway line may become at risk.	Following deterioration of the flood defences in the first or second epoch, 163 properties would be at risk of tidal flooding in the 50-100 year epoch. In addition, mudflat and saltmarsh would continue to erode at the seaward edge but would have migrated inland and be fully established behind the former flood defences. Up to 18m of erosion is predicted at the higher land at Holten in the 20-50 year epoch, followed by an additional 38m in the 50-100 year epoch. There are no properties at risk, although a 500m section of railway line could be eroded by the last epoch.

PHB6	Lytchett Bay	Lytchett Bay is in the north west corner of Poole harbour largely composed of soft mud fringed by marshland and embankment. The embankments to the west are predicted to deteriorate in this epoch. This could create inter-tidal mudflat and saltmarsh behind the damaged defence to help offset saltmarsh losses on the north and west shore. To the south is the only opening to Poole harbour, with a railway bridge across it and Rockley Sands to the east. The bridge restricts sediment transport from the Sherford river resulting in a sediment sink. There are no properties predicted to be at risk from erosion, although 21 properties and the A35 are at risk of tidal flooding during this period.	All embankments will have failed by the end of the 20-50 year epoch, potentially flooding 480 properties, the A35 and a sewage works on the northern shore by the end of the last epoch. Inter-tidal coastal squeeze is expected to continue, although failure of defences and inter-tidal habitat creation should offset any losses. In addition, the potential inter-tidal habitat created after the first epoch, following defence failure on the west side of the unit, would be fully established and migrating inland with sea level rise.
PHB7	Rockley Viaduct to start of defence 681/2442	This unit has thin sandy beaches backed by low eroding cliffs which feed a small spit at the entrance to Lytchett Bay (PHB6). There is a net west to east drift of the cliff derived material and the shoreline here is largely undefended with defences only in front of Rockley caravan park. These have a residual life of approximately 5-10 years, after which 6m of erosion is expected by the end of this epoch. Erosion of the undefended sections is predicted to be up to 10m over the next 20 years. During this time no properties are predicted to be at risk from erosion or tidal flooding, although	Erosion is predicted to continue over the 20-50 year epoch with a further 25m of erosion along the shoreline. Continued cliff retreat would increase sediment supply to the cliff toe and also to beaches downdrift. Over the 50-100 year epoch, erosion of the cliff line is predicted to be a further 50m. There is one property predicted to be at risk from coastal erosion and one property predicted to be at risk from tidal flooding. There is also predicted to be significant loss of land to the Rockley Sands caravan site and carpark at the southern end of this unit.

		the sailing club at the north end of this unit is predicted to suffer from tidal flooding around its perimeter and erosion will affect the Rockley Sands caravan park.	
PHB8	Defence 681/2442 to Hamworthy Quay	This unit is largely low lying reclaimed land which is fronted by seawall, mudflats and sandy beach which has previously been renourished at Hamworthy in the south. Net drift is from west to east with much of the beach material derived from the eroding cliffs at Rockley. The western end of the unit is predicted to erode by up to 10m in this epoch, impacting on the carpark behind the shoreline. There are timber groynes at Hamworthy park beach backed by a concrete seawall, all of which have a residual life of approximately 8 years. After this period erosion of up to 6m is expected. The remaining frontage is backed by a walled defence, most of which has a residual life of approximately 15 years and is under various ownership. Erosion in the region of 3m is predicted here. At the very eastern end of the policy unit there is an undefended section of beach backed by grassland and a 615m long floodwall. This wall has a residual life of greater than 20 years, protecting the large residential area behind it. Still, there are 31 properties expected to be affected by tidal flooding at the end of this epoch following deterioration of the stone and concrete wall protecting	All of the defences are expected to deteriorate within 20 years, leaving the shoreline here vulnerable to erosion and flooding. The shoreline is predicted to retreat up to 25m in the 20-50 year epoch and a further 50m in the 50-100 year epoch. This will impact on the carpark to the west of the unit and place 67 properties at risk to erosion by 2055 and 78 by 2105. If the timber groynes fail, the beach width here may decrease due to the net drift of material east. This would increase the risk to flooding along the whole frontage with 462 properties and Hamworthy Park predicted to be at risk by 2105. The land at Hamworthy Park has the correct topography for inter-tidal habitat creation.

		Branskea Avenue.	
PHB9	Hamworthy Quays	This unit consists of reclaimed land that has been heavily developed into a series of quays, marinas and commercial developments. The unit is entirely defended by a concrete seawall and rock revetment with rock breakwaters protecting the marina in the southwest corner and another rock breakwater protecting a marina to the northeast within policy unit PHB11. Most of the concrete seawalls have a residual life of approximately 15 years; however the predicted life of the rock revetment is currently unknown. Once the concrete seawall fails, approximately 3m of erosion is predicted to occur within 20 years. There is no beach frontage within this unit and erosion is considered to be negligible if defences remain in place. However there are 58 properties or businesses in the north of the unit considered to be at risk from flooding.	During this epoch the remainder of the concrete seawall protecting many of the assets within this unit is expected to fail and deteriorate, although it is unknown how long the rock revetment and breakwaters may last. Once the defences fail, erosion of this unit will begin and is expected to be up to 18m during the 20-50yr epoch and a further 43m during the 50-100 year epoch. This will potentially impact on large areas of commercial land and 2 properties by 2055 and 40 properties by 2105. By the end of the 50-100 year epoch, the majority of the policy unit will be at risk to flooding affecting numerous commercial developments and 302 properties.
PHB10	Holes Bay (E, N & W)	This unit contains Holes Bay, a large tidal harbour with a narrow entrance which is largely reclaimed land and developed in most parts. It is fringed by mud and saltmarsh with a railway line protected by embankments bisecting the bay in the north. There are also a mixture of concrete defences and rock revetments to the east and an undefended section to the west. These defences have a residual life of approximately 11-20 years although the	All the defences around the bay are predicted to have deteriorated by the 20-50 year epoch, with the exception of those defences where residual life is unknown. Assuming these defences are not upgraded, tidal flooding is predicted to dramatically increase to affect 974 properties by 2105. Erosion is predicted to impact on 121 properties by 2105. In addition, there are pockets of land with the correct topography for mudflat and saltmarsh formation.

		rock revetment and concrete defences protecting the marina have an unknown residual life. Erosion within the bay is expected to be minimal over the next 20 years although there are 12 properties currently at risk to tidal flooding. Most of the properties affected are on the west side of the bay.	
PHB11	Town Quay	A significant number of commercial and residential property has developed within this unit, as well as several quays and marinas situated along the shoreline. There is only a very small section at the eastern boundary that has any discernable beach frontage. The entire stretch of the unit is defended by vertical concrete seawalls. Additionally, the larger marina at the eastern end of the unit is protected by a rock revetment breakwater. Residual life of these hard structures is approximately 20 years, although the quay walls residual life to the north of Poole Bridge is currently unknown. With the failure and deterioration of such structures, there is increased risk of tidal flooding, with current estimates of 641 properties at risk at the end of this epoch.	Within this period, the rock revetment breakwater and the quay walls are predicted to dramatically deteriorate. There is a 360m stretch at the eastern end of the unit for which 12m of erosion is predicted by 2050 and an additional 32m by 2102 impacting on a total of 85 properties. By 2102, the entire shoreline, with much of the development in the Old Town, would be at risk of flooding; 1757 properties, as well as all the quays and marinas and other major assets would be under threat.
PHB12	Parkstone Bay and Baiter Park	This unit consists of low-lying reclaimed land, with large intertidal mudflats. The majority of the unit is defended by rock revetments, with the exception of the eastern end which is defended by various stretches of wall. The defences have a residual life of between 8-16 years after which up to 5m of erosion is	Flooding continues to pose a threat, with up to 633 properties, as well as car parks and recreational areas in Poole Park at risk within 100 years. Erosion will continue with up to 17m predicted by 2050 and 37m predicted by 2102, placing a total of 5 properties at risk.

		predicted by the end of the unit for areas of higher ground. Most of this unit is relatively undeveloped with no risk to property from erosion. However, in the housing estate west of Baiter Park at the western end of this unit, there are 85 properties at risk of flooding by the end of this epoch.	
PHB13	Parkstone Yacht Club to Salterns Marina	This unit is heavily defended with various walls and revetments along the entire coastline, protecting both of the marinas and local property. Most of the defences have a residual life of up to 15 years, with the exception of the wall on the southern edge of the lagoon. The lagoon is protected by a seawall which has a residual life of 3-8 years, after which approximately 4m of erosion is expected by the end of this epoch, placing no properties at risk. Flooding poses a threat to approximately 51 properties as well as both marinas. Breaching of the lagoon seawall in this unit could occur, creating further risks to the sailing club as well as other property surrounding the lagoon.	All of the defences are predicted to deteriorate after 20 years allowing potential erosion of up to 14m during the 20-50 year epoch affecting 3 properties and a further 34m during the 50-100 year epoch affecting an additional 119 properties. There is an increased risk of flooding in this over this period, with up to 125 properties at risk. Particular risk is posed to the marinas and areas surrounding the lagoon.
PHB14	Salterns Marina to Lilliput Pier	This policy unit consists of shallow sand and intertidal mudflats, with a small section of vegetated cliff rising to 18m from its southern boundary. The majority of the unit is fronted by various seawalls in private ownership, with additional rock revetment in the southern half of the unit protecting the base of the cliff. There is a 70m section of undefended shoreline to the north of this unit. The remainder of the unit is	Further retreat of the cliff line is expected, with a 19m retreat in 50 years, impacting on 2 properties and 39m between 50-100 years, impacting on an additional 13 properties. This retreat would also erode the road parallel to the cliff by the end of this epoch. Flooding is calculated in this epoch, with particular risk to the northern end of the unit, with 8 properties at risk.

		defended, although these are expected to deteriorate after 3 years. Therefore, the unit is expected to erode by approximately 8m during this epoch. There are no properties at risk, although there is 1 property at risk from flooding in the southern end of the unit.		
PHB15	Whitley Lake	PHB15 consists of inter-tidal mudflats and sandflats, sheltered from direct wave attack by the Sandbanks Peninsula. The seawall protecting the Luscombe valley has a residual life of 1-5 years. Following defence failure, erosion is predicted to be 5m during this epoch. The remainder of the seawall protecting the inside of the Sandbanks Peninsula has a residual life of approximately 6-10 years. Here erosion is predicted to be approximately 3m by the end of the epoch. There are no properties at risk to erosion, although Shore Road will start to be eroded in places. Flooding poses the greatest risk to assets in this unit with 53 properties under threat.	Up to 17m of erosion is predicted in this epoch for the Luscombe Valley region and up to 13m for the Sandbanks Peninsula. There are no properties at risk from erosion, although the majority of Shore Road and Banks Road will be impacted upon. There is also a breaching risk to Sandbanks from the seaward side which would impact on properties in PBY1a. Any permanent breach would change the configuration of Poole Harbour, resulting in siltation of the existing channel as the ebb flow reduces. Tidal flooding poses the greatest risk to property in this unit, with 53 - 141 properties affected.	Erosion continues in this epoch with an additional 37m of erosion predicted in this epoch for the Luscombe Valley region and up to 31m for the Sandbanks Peninsula. There are now 9 properties at risk from erosion around Shore Road, along with the road itself. There remains a breaching risk to Sandbanks from the seaward side which would impact on properties in PBY1a and could make the Peninsula an island. Any permanent breach would change the configuration of Poole Harbour, resulting in siltation of the existing channel as the ebb flow reduces. Tidal flooding continues to pose the greatest risk to property, with 141 properties affected by the end of the epoch. There will also be greater flooding up the Luscombe Valley, and also increased impacts on local roads, some of which are major access routes.

PHB16	Whitley Lake to North Haven Point	PHB16 comprises the northern perimeter of the Sandbanks Peninsula. Due to the sediment transport pathways in operation, there are sand and gravel flood tidal deltas found immediately inside the entrance. This unit has a seawall that runs along much of this coastline, with exceptions of the region in the vicinity of the marina. The south-eastern end of the unit, near to the harbour entrance, is protected by rock revetment. The defences have a residual life ranging between 1 and 10 years. The majority of this unit besides the far eastern end is categorized as complex coastal processes in the supporting erosion maps. This is because the evolution of this unit is hard to predict given the different tidal forces and scour in operation. There is approximately 3m of erosion predicted for the far eastern end of the unit in this epoch, with no risk to property. Still, tidal flooding poses a significant risk to property and infrastructure on the Studland Peninsula. Once defences have failed, there are 13 properties at risk of tidal flooding, with additional risk to the marinas and landing piers.	The tidal flooding threat increases significantly to 188 properties at risk by the end of the last epoch. Other assets, for example the marina, main roads and various landing piers are also at significant risk. The majority of this unit besides the far eastern end is categorized as complex coastal processes in the supporting erosion maps. This is because the evolution of this unit is hard to predict given the different tidal forces and scour in operation. With regards to the far eastern end of the unit, there is an additional 13m of retreat predicted between the 20-50 year epoch and an additional 31m during the 50-100 year epoch. This would place 10 and 27 properties at risk from erosion respectively. PHB16 and PHB17 are at risk of becoming an island if Sandbanks were to permanently breach at PHB15, forming a new inlet.
PHB17	North Haven Point to Sandbanks Ferry Slipway	This unit stretches across the south-western tip of the Sandbanks Peninsula, flanking the entrance of Poole Harbour. The majority of the unit comprises no beach, with the only exception being south of the ferry slipway where there is a sandy, narrow beach. All tidal exchange occurs through this inlet generating strong ebb dominant tidal currents and sediment transport. The coastline is defended with rock revetments and a recurved seawall with a residual life of 1-5 years.	

		This unit is categorized as complex coastal processes in the supporting erosion maps. This is because the evolution of this unit is hard to predict given the different tidal forces and scour in operation. There is a slight risk of tidal flooding present within this unit. Currently, only one property is at risk, rising to 5 properties by 2102. There is no predicted erosion within this policy unit within the next 100 years. PHB16 and PHB17 are at risk of becoming an island if Sandbanks were to permanently breach at PHB15, forming a new inlet.		
PBY1a	Sandbanks Ferry to Bournemouth Boundary	This policy unit includes Sandbanks Peninsula which is a low lying sand spit, developed into a luxury residential area. This entire unit is heavily defended by a variety of structures. North of Shore Road there is a concrete groyne and a seawall protecting the cliffs. New rock groynes are in the process of being constructed between Branksome and Branksome Dene Chines. The rest of the spit is fixed in its current position by rock groynes, two short sections of seawall and a rock revetment at the southern most tip of the spit. The entire stretch of this unit has also undergone several beach replenishments, creating a wide sandy beach. The defences have a residual life ranging from 20 years for the rock groynes to 3 years for the timber groynes in the north. Sediment is predominantly transported eastwards; however longshore transport processes become more complex along the spit. The movement of sand is not only affected by wave action but also Hook Sand and the East Looe flood tidal channel. If timber groynes were allowed to	The continued erosion of the cliffs could lead to a loss of between 53m to 83m along this entire coastline from the Borough Boundary to Shore Road, consequently impacting on an additional 350 properties. The Sandbanks peninsula could be significantly affected, as the only access road would be cut off if predicted erosion was to transpire, and a breach formed through the spit. However, another scenario is that, due to an increased volume of sediment gained from the eroding cliff line, additional material could be introduced to the sediment transport system. Some of this supplementary sediment could be stored within the spit and/or the ebb-tide delta (Hook Sand).	With no active intervention, it is predicted that there would be erosion of between 140 - 170m. This would have considerable consequences on infrastructure and development, with a total of 403 properties at risk. In addition, if a secondary breach were to form at Sandbanks, this could have negative repercussions to navigation as the main channel would no longer have the required volume of water to flush sediment seaward. The other scenario is that, due to an increased volume of sediment gained from the eroding cliff line, additional material could be introduced to the sediment transport system. Some of this supplementary sediment could be stored within the spit and/or the ebb-tide delta (Hook Sand).

		deteriorate aswell as no further replenishment schemes implemented, the beach would experience decreases in cross-sectional area, and become increasingly narrower, as sediment is moved in an easterly direction around Poole Bay. The seawall would become progressively more vulnerable to attack and breaching, and therefore the base of the cliff more susceptible to erosion. Within 20 years, cliff retreat of up to 31m is predicted, impacting on 137 properties, the majority of which are located around Shore Road and the narrowed strip of the spit.		
PBY1b	Bournemouth Boundary to Point House Café	This policy unit has a high population density; therefore, there are a number of defence strategies in place. The entire 8.5 kilometres of beach frontage has a large concrete seawall and timber groynes at approximately 150-200m spacing, preventing erosion of the cliff line. In addition to the hard structural defences, there is also a long term replenishment scheme implemented, with several recharges and top-ups since 2005 to 2008. This has resulted in a large sandy beach along Bournemouth beach. The seawall and timber groynes in this policy unit have a residual life of less than 15 years with the wooden groynes at the boundary of PBY1a & PBY1b having a residual life of 2.5 years. If all replenishment schemes were discontinued and hard structures	With potential failure of defences in year 15, there would be increased transport of sediment, both alongshore and offshore, resulting in a narrowing of the beach. The reduction in beach volumes would lead to increased erosion of the cliffs and a landward recession. Within 20-50 years, there would be an additional retreat of 62m for the majority of the unit with additional 83m erosion in the west, resulting in an additional loss of 203 properties compared with the 0-20 year epoch. Within 50-100 years, there would be an additional 150m of erosion for the majority of the unit and additional 170m erosion in the west, resulting in an additional loss of 2483 properties. The erosion of the cliffs would contribute sediment to the beach; however this material would be removed relatively rapidly.	

		allowed to deteriorate, then the seawall would be susceptible to wave attack and could result in collapse at the end of this epoch. Therefore, the base of the cliff would be vulnerable to erosion, with a potential retreat of up to 10m within 20 years, causing 17 properties to be at risk. A retreat of 31m is predicted for the far western end of the unit. With the failure of the groynes, there would be an increased rate of sediment transport alongshore, primarily in an eastward direction.		
PBY2	Point House Café to Warren Hill	The majority of this unit is composed of gravel and sand, backed by a low-lying cliff on which sand dunes have formed. Coastal defences here consist of a combination of timber groynes with a negligible residual life and rock groynes which have a residual life of 29 years. In addition, the toe of the cliff around Double Dykes is defended by rock gabions. Sediment transport is from a westerly direction, therefore the recent recharges along the Bournemouth and Poole frontages, have led to an overall accretion of material in this policy unit. Still, with deterioration of the timber groynes and a discontinuation of sediment feed from the Bournemouth replenishment scheme, erosion of 35m in the next 20 years is predicted for the undefended section of this unit, which could impact on the road infrastructure at the westernmost end of the unit. There are no other assets at risk from erosion. With the combination of groyne	A retreat of 88m of the cliff line is predicted within 20-50 years under a no active intervention scenario which would result in greater losses to local roads and an additional 9 properties. Furthermore, there would be an increase in easterly sediment supply. By year 29, the rock groynes at Double Dykes will have reached the end of their residual life. This could leave the low lying land susceptible to breaching under a high magnitude storm event. There is 37m of erosion is predicted at this location (see Hengistbury Head Review, 2009).	By epoch 50-100, additional 175m erosion is expected for the majority of the unit and an additional 124m for the defended section at Double Dykes. This would have greater consequences on property and infrastructure, with an additional loss of 29 properties and further impacts on the roads and also the Solent Beach car park. Such erosion rates also significantly increase the risk of breaching of Double Dykes, subsequently cutting off the Headland making an 'island' headland. In addition, there would be a change in hydro-dynamics and geomorphology of Christchurch Harbour (see Hengistbury Head Review, 2009).

		deterioration and additional material available from the eroding cliffs, there would be increased sediment supply eastwards towards Hengistbury Head and into Christchurch Bay.		
PBY3	Warren Hill to Hengistbury Long Groyne	The entire stretch of the policy unit is backed by the soft headland cliffs, fronted by a beach consisting of a combination of gravels and sands. This policy unit is largely undefended, with the Long Groyne situated at the easternmost end of the unit at Hengistbury Head. This intercepts the littoral beach drift from west to east around Poole Bay. Consequently material has built up west of the Long Groyne, creating a large accreting beach and sand dune system. The long groyne has a residual life of approximately 10 years. Following failure of the defence, sediment would no longer be trapped at the eastern end of the unit, thus reducing the size of the beach, and creating potential erosion of the headland by 35m in 20 years. As a result there would be increased sediment transport around Hengistbury Head, resulting in the build up of the beach cross-sectional area at Mudeford Spit. No property is at risk in this unit.	The headland would continue to erode at a relatively rapid rate, retreating by 88m between year 20-50, and an additional 175m between year 50-100. Sand and shingle would continue to be transported around the Headland by longshore drift, leading to increases in beach volumes in Christchurch Bay aswell as the possible elongation of Mudeford Spit across the harbour entrance.	

CBY1	Hengistbury Long Groyne to Tip of Mudeford Quay	This policy unit consists of Mudeford Quay spit and the far east end of Hengistbury Head which forms the boundary between Poole and Christchurch Bay. The spit has been categorized as complex coastal processes in the supporting erosion maps. This is because the future evolution of the spit will be dictated by a number of varying factors such as, sea level rise, wave attack and sediment input. The spit fronts low-lying tidal flats and marsh and is composed of a mixture of sand and gravel. There are rock groynes along the seaward face of the spit and a rock revetment protecting the tip of the spit. The main body of the spit is relatively low lying at approximately 2.5mOD. Sediment transport along the spit is from the south to the north forming distinct groyne bays, reducing the transport of material northwards to the tip. Periodic recycling works are required to maintain levels and reprofile the existing beach. The Long Groyne built at Hengistbury Head greatly reduces the volume of sediment naturally carried around the headland from Poole Bay and thus sediment supply to the spit is limited. The Long Groyne has a residual life of 10 years. Following failure of the defence, the volume of sediment carried around the headland into Christchurch	The defences along Mudeford Sandspit are all expected to require rebuilding or maintenance within the next 20 years with the exception of the concrete retaining wall which is predicted to deteriorate after approximately 30 years. If these defences are not repaired to a suitable standard there would be a greater possibility of breaching from a single storm event, although the large supply of sand from Poole Bay, given the deterioration of the Bournemouth defences and the Long Groyne, would help to build a larger cross-sectional area. The spit may also attempt to roll back over the low lying hinterland in response to rising sea levels. The northern tip of the spit would continue to extend northwards to Avon beach, extending the adjacent sand flats and causing navigation difficulties. Approximately 2 properties would be affected by tidal flooding aswell as numerous beach huts. Deterioration of the Long Groyne would increase the sediment supplied to the sandbank but the loss of protection from the groyne would be detrimental to the nearby cliffs and could even result in a breach at Double Dykes (see Hengistbury Head Review, 2009). Erosion of Hengistbury Head during this epoch is predicted to be up to 70m with no properties affected by this erosion.	All the defences would have failed by year 50 resulting in potential roll back of the spit and increased elongation of the tip. Spit growth is predicted to dominate over the next century, affording some protection to the beaches of Avon and Friars Cliff. The supply of sediment from Poole Bay will continue to increase (provided sediment supply isn't terminated by a breach at Double Dykes); thereby increasing the barrier cross-section and providing much needed protection against sea level rise and increased storminess. Still, cycles of breaching and re-sealing could still occur. The impacts of tidal flooding would affect 2 properties by 2105, aswell as numerous beach huts. Erosion at Hengistbury Head will be up to 158m, with no properties at risk. The chance of a breach at Double Dykes will increase (see Hengistbury Head Review, 2009).

		Bay would greatly increase, having a positive affect on the cross-sectional area of Mudeford Spit but a potentially damaging affect on the cliffs at Hengistbury Head as the protecting beach is narrowed and eroded away. Erosion at Hengistbury Head is predicted to be 18m over this epoch with no properties at risk. Much of the material transported northwards along the spit will accrete at the tip extending across the entrance to Christchurch Harbour reducing the width and depth of 'The Run'. There are 2 properties at risk to tidal flooding over the next 20 years aswell as numerous beach huts on the spit itself.		
CHB1	Harbour Side of Mudeford Spit	The harbour side of Mudeford sandspit is managed in the policy unit CHB1 but is largely reliant on the seaward side of the spit (CBY1) for its management policies. The unit is composed of fine mud and sand which is relatively stable due to the low current and wave activity within the harbour. There is a small section of revetment at the harbour mouth which has a predicted residual life of approximately 20 years and is used to stabilise the spit here and provide some protection to the 'Black House'. There is also a section of rock revetment, approximately 200m in length, at the south end of the unit adjoining Hengistbury Head. This section has a residual life of	Within 20 years the rock revetment is predicted to deteriorate, potentially compromising the stability of the spit at the harbour entrance and at the neck adjacent to the headland. The tidal prism within the harbour would increase with sea level rise, encroaching on low lying marsh land. It is expected that the level of sediment contained within the harbour would also increase due to additional input from the Rivers Avon and Stour, thereby increasing the ebb tidal delta adjacent to the harbour entrance. This may have some beneficial effects to the surrounding beaches assuming the delta is not dredged, although navigation would now become increasingly difficult if	During the 50-100 year epoch all defences along the harbour would have failed leaving the spit vulnerable to breaching from the seaward side. However, assuming the Long Groyne at Hengistbury Head has failed, sediment feed would build the cross-sectional area of the spit, providing increased protection. The tip of the spit is predicted to extend northwards with no active intervention, moving the harbour entrance further to the north. This could cause increased erosion to properties along the Friars Cliffs frontage as wave diffraction

		approximately 10 years but at present is situated in an area of very little change. The greatest risk posed to this unit is from tidal flooding whereby the majority of the spit would be flooded by a 1 in 200 yr event, affecting a properties and the majority of beach huts along the spit.	not impossible for larger vessels and wave diffraction patterns may change, impacting on downdrift beaches. The majority of the spit would be flooded by a 1 in 200 yr event, affecting a property and the majority of beach huts along the spit.	patterns change. The majority of the spit would be flooded by a 1 in 200 yr event, affecting a property and the majority of beach huts along the spit.
CHB2	Southside of Christchurch Harbour	These policy units include the majority of Christchurch Harbour and largely consist of low lying marsh and mudflats. The marshes at Stanpit Marsh will gradually become more saline over this epoch. There are no assets at risk from erosion although there is one property at risk from tidal flooding over the next 50 years in CHB3.		During the 50-100 year epoch the risk to tidal flooding will increase to affect two additional properties in CHB2. There is the potential for properties to be flooded in Wick from CHB2 and for properties to undergo fluvial and tidal flooding at Purewell adjacent to CHB3. The marshes at Stanpit Marsh would migrate landwards onto the recreation ground with sea level rise. The tidal prism within the harbour would also increase in proportion to sea level rise. If the defences along Mudeford sandbank spit are not upgraded or maintained there is an increased risk of breaching which would potentially open up the harbour to increased wave attack. This could impact on the low lying marshland and the Hengistbury Head nature reserve particularly as this management unit is currently undefended. There may be erosion of the golf course within CHB3, impacting on the
CHB3	Stanpit and Grimbury Marshes			

				residential area behind it. Over the long term there may be problems with navigation in The Run, particularly if a permanent breach occurred at Double Dykes, to the west of Hengistbury Head, thereby reducing the volumes of water required to flush sediment out of the harbour via the current channel.
CHB4	Mudeford Town Frontage	The northeast corner of the estuary consists of the policy units CHB4 and CHB5. These units are composed of estuarine mudflats backed by low lying residential land which is defended by various private defences, mainly walls with a residual life of approximately 20 years. The harbour entrance is protected by the Mudeford quay wall and a seawall on the east side. The quay wall is expected to have a residual life of approximately 10 years whilst the seawall is expected to last at least 20 years before it requires maintenance. Deterioration of the defences will put 47 properties at risk of tidal flooding in CHB4 and 35 properties at risk of tidal flooding in CHB5 over this epoch.		As the tidal prism of the harbour increases the risk of tidal flooding would be even greater during the 50-100 year epoch with 343 properties at risk in CHB4 and 124 properties at risk in CHB5. All of the defences are now expected to have failed, impacting on the residential area to the north of the harbour. If the harbour wall is breached and not repaired, there may be a risk of the main harbour entrance channel widening to the north, leaving the harbour more vulnerable to increased wave attack. Still, sediment input from updrift should increase natural protection against a breach.
CHB5	Mudeford Quay			
CBY2	Mudeford Quay to Chewton Bunny	The policy unit for CBY2 stretches from Mudeford, where the entrance to Christchurch Harbour (also known as 'The Run') forms the western boundary of the policy unit, to the most eastern rock groyne at Highcliffe. The frontage	All of the defences are predicted to have deteriorated by this epoch. A further 12 properties may be at risk aswell as an additional 27 caravans and a coastguard training centre. Assuming all sea defences are no longer effective, erosion	Erosion would continue along the whole policy unit, retreating an additional 73m by 2105. This would have a serious impact on local properties and assets as the cliff line retreats beyond Avon

		at Highcliffe is heavily defended by an alongshore buried revetment and 12 rock armour groynes. The beach here is predominately shingle, with a base of sand exposed at low water, which fronts steep vegetated cliffs that are now relatively stable due to the protection from the defences. The buried revetment here is expected to fail after 15 years, whilst the effectiveness of the groynes may be compromised after 10-20 years. Further west the beach becomes wider and is largely sand with patches of shingle and backed by low lying dunes. This stretch of beach is undefended for approximately 700m between Highcliffe and Friars Cliff. The vegetated cliffs begin to reduce in height from Steamer Point towards Friars Cliff where the beach is backed by seawall and intersected with timber groynes. The residual life of these timber groynes is between 3-10 years whilst the concrete seawall at the back of the beach may fail after 10 years. Further south at Avon beach, the sandy beach becomes wider towards Christchurch Harbour entrance and is backed by a low seawall with timber and rock groynes. The timber groynes are expected to fail within 2-15 years, the rock groynes within 10 years and sections of the seawall may begin to deteriorate after 20 years. Over this 20 year period a club house, beach huts, public toilets, information centre, 20 caravans and 3 properties may be at	of the cliff line would be relatively constant throughout the whole unit at approximately 1.1m per year. This would lead to between 23 – 28m of erosion along this policy unit. Eroded material will be transported in an easterly direction, feeding CBY3. Assuming the entrance to Christchurch Harbour is no longer dredged, the extensive sand flats here may extend northeast, affording some protection to the adjacent coastline from incoming wave attack. There would continue to be 9 properties affected by tidal flooding.	Run Road in the west and Wharncliffe Road at Highcliffe, placing an additional 227 properties and 40 caravans at risk to erosion. Eroded material would be transported in an easterly direction, feeding CBY3. The potential flood risk by year 100 would continue to be to 9 properties.

		risk from erosion. The shoreline is predicted to retreat between 2m up to 7m over the next 20 years. Eroded material will be transported in an easterly direction, feeding CBY3. If the harbour wall at Mudeford breaches, 9 properties would be affected by tidal flooding.		
CBY3	Chewton Bunny to start of defence at Barton-on-Sea	This policy unit is dominated by undefended soft eroding cliffs which periodically suffer from both marine and groundwater induced cliff slumps along the entire length of the frontage. The policy units either side of this unit are dominated by heavily engineered rock armour sea defences leaving the beach here starved of alongshore sediment. There is a sand and shingle beach fronting the cliffs, which is extensively submerged at high water leaving the cliff base vulnerable to wave attack. The principle erosion mechanism is mass movements due to the high clay content within the cliff which feed large volumes of material onto the back of the beach. Much of this fine material is carried offshore in suspension leaving behind shingle and sand deposits. Over the next 20 years the cliff line is expected to retreat by approximately 21m, affecting 10 caravans, chalets and lodges within the erosion zone. This is predicted to increase by an additional 32m within the next 20-50 years, affecting 1 property and up to 81 caravans, chalets and lodges with a further 224m of retreat between 50-100 years affecting a total of 262 properties and a total of 573 caravans, chalets and lodges by year 100. The breakwater at the western end of the policy unit is predicted to have a residual life of 15 years. Once this has failed, sediment may be released from CBY2, feeding CBY3 and thus building a more protective beach. No properties or assets will be at risk from tidal flooding over this period due to their elevated position on the cliff top.		
CBY4	Start of defence at Barton-on-Sea to Barton Golf Course	The stretch of coastline at Barton-on-Sea is heavily defended with continuous rock armour revetment and five rock armour groynes approximately 50m in length normal to the shoreline. These have acted to interrupt the dominant west to east sediment transport direction and reduce erosion of the soft clay and sand cliffs which back the defences. Historic cliff management intervention has involved a variety of techniques to stabilise the cliffs, despite this several cliff re-activations have occurred. There is a narrow sand and	During the 20-50 year epoch the revetment is expected to progressively deteriorate. Due to slumping, the cliff top edge will continue to erode at a similar rate to epoch 0-20 yrs. To the western end of the unit erosion would be 53m for the 20-50 year epoch, whilst the central and eastern section would undergo between 27m and 39m. The rock groynes are all predicted to have failed by this epoch, which may result in the accelerated deterioration of the alongshore revetment, as the protection in front of the revetment is compromised. 7	Unless they are maintained or rebuilt all of the defences will have deteriorated by this epoch, providing no or very little protection to the beach and cliff base. The erosion of the cliff top will continue at the same rate with the east and west ends of the unit worse affected. Accelerated erosion at the west end could lead to a potential retreat of an additional 220m, whilst the central section of cliff could retreat by an additional 72m, increasing to

		shingle beach in front of the revetment which is largely submerged at times of high water. Despite the rock revetment at the foot of the cliff having a residual life of approximately 10 years, the cliff top is expected to continue to retreat over the next 20 years by 16m along the central section, increasing to 22m at the western end due to cliff slumping. The rock groynes are predicted to begin to fail after 20 years and may therefore allow an increase in sediment transport to the east. During this epoch 1 property, 2 cafes and a hotel will be affected by erosion within the next 20 years. There are no properties at risk to tidal flooding.	properties, 2 cafes and a hotel are now predicted to be at risk from erosion. The beach frontage would still be fed with material from the adjacent policy unit to the west but this is likely to be transported further east if there are no cross shore structures to retain the sediment in situ. Due to the high cliffs there is no risk from tidal flooding.	131m in the east of the unit. A total of 324 properties, 2 cafes, 2 hotels, a shop and public toilets would now be at risk to erosion. There is no risk from tidal flooding.
CBY5	Barton Golf Course to Hordle Cliff	This policy unit is backed by steep eroding sand and mud cliffs which gradually decrease in height and become more vegetated towards Milford at the eastern end of the unit. The cliffs are intersected by the Walkford Brook at Becton Bunny and comprise soft and highly erodible Tertiary materials. The upper beach in front of the cliffs is largely made of coarse shingle whilst the lower beach is a mix of sand and shingle. The shoreline along this unit is entirely undefended and vulnerable to erosion, particularly the soft cliffs to the western end of the unit. Sediment transport is from west to east, although the influx of sediment from the west is limited by the rock armour defences which protect Barton-on-Sea. Erosion mapping along this unit predicts the shoreline to have retreated between 8 to 29m during the 0-20 epoch, 28 to 43m during the 20-50 epoch and 72m during the 50-100 epoch affecting one property and the southern edge of Barton golf course. There are no properties at risk to tidal flooding along this unit.		
CBY6	Hordle Cliff to Hurst Spit	This policy unit is fronted by a mixed sand and shingle beach which varies in width above MLWS from approximately 40m in the east to 120m in the west. The majority of this unit is backed by seawall with additional rock armour protecting the central section and timber groynes along the eastern section at approximately 30m intervals. The	All of the defences are predicted to have failed by the end of this epoch. An additional 50m of erosion is expected along this frontage during the 20-50 year epoch with an additional 85m in 50-100 years. All of the timber groynes are predicted to have failed after 10 years, thus increasing the rate of transport eastwards, potentially feeding Hurst Spit. Sediment released from the foreshore and the cliffs would be rapidly eroded and fed alongshore (shingle and sand) and offshore (fine sand and clays). The removal of this material would leave the cliffs susceptible to further mass movement events and would place 40 properties, a café, bowling club, a set of public toilets, the two car	

		direction of sediment transport along this unit is from west to east, however the numerous cross shore structures along this frontage act to reduce this transportation and stabilise the beach here. Towards the central and western end of the unit the beach is backed by eroding cliffs which are afforded some protection both by the beach and the seawall/revetment. Some sections of the seawall are predicted to fail within 2 years either side of the White House, whilst the remaining sea walls only have a residual life of up to 10 years. The rock armour groynes to the east are expected to deteriorate after 5 years and therefore allow an increase in alongshore sediment transport out of the unit, potentially feeding Hurst Spit (CBY7). The undefended western end of the unit is predicted to retreat up to 16m affecting a number of beach huts and a car park. There is 29m of erosion predicted in this epoch for the shoreline east of the White House, impacting on Hurst Road west and east car parks. There are no properties at risk to tidal flooding over the next 20 years given that the rock revetment in CBY7, protecting Sturt Pond has a residual life of 50 years.	parks to the west of the White House and Park Lane Road at risk to erosion within the 20-50 year epoch. During the 50-100 year epoch the number of properties at risk to erosion would increase by 484 and those at risk to tidal flooding, following a breach of the rock revetment protecting Sturt Pond in CBY7, would be 146 properties.

CBY7	Hurst Spit	Hurst Spit has been categorized as complex coastal processes in the supporting erosion maps. This is because the future evolution of the spit will be dictated by a number of varying factors such as, sea level rise, wave attack and sediment input. Without regular sediment renourishment, the performance and effectiveness of the shingle barrier spit would be compromised in response to sea level rise and the severity and frequency of storm events. Reduction in crest level and width of the spit would increase the risk of overwashing and breaching. The rock revetment to the west of the unit would continue to be effective in this epoch. Still, with increased sediment delivery from the cliffs in Christchurch Bay, the cross-sectional area of the spit could start to build, providing protection against storm attack.	Overwashing and breaching would continue in the 50-100 year epoch, with particular risk to the western end of the unit, when the defence starts to deteriorate. Under a severe breaching or sluice overwashing event, the higher water levels would reduce the effectiveness of existing defences throughout the western Solent, eventually resulting in widespread flooding of low-lying areas. Following deterioration of the rock revetment protecting Sturt Pond, 146 properties would be at risk of flooding in CBY6. With increased sediment input from the eroding cliffs in Christchurch Bay, the spit may reach an equilibrium in 50-100 years, whereby it builds a wider, more dissipative, well sorted beach that is subject to rollover through overwashing and breaching events but will naturally re-seal and re-form given the longshore drift from the west.