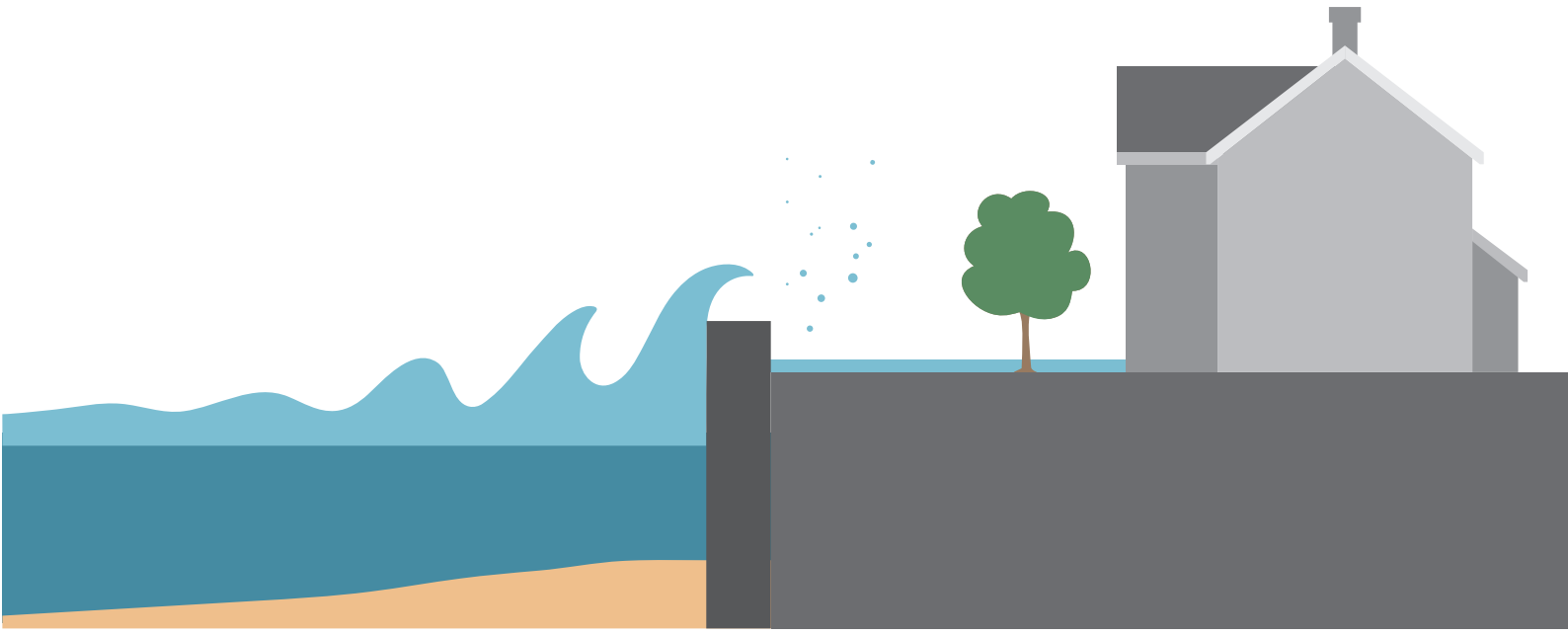
Jersey Shoreline Management Plan

January 2020



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Glossary of Terms and Abbreviations

Term	Definition
Adaptive Management (AM)	A policy to proactively manage and mitigate coastal flood or erosion risk. The policy will be delivered through various management schemes / initiatives depending on the level of risk and the circumstances. This could include improving the standard of flood protection for an existing sea defence, constructing new defences, raising awareness of local flood risk or recommending property level flood protection.
Advance the Line (ATL)	New sea defences are built seaward of existing defences. This policy will only be implemented in areas where there is a significant risk of coastal flooding or erosion, or where it will deliver additional benefits for the community, environment and economy, such as creating a new amenity space.
Bern Convention	A binding international legal instrument in the field of nature conservation, known as the Bern Convention on the Conservation of European Wildlife and Natural Habitats.
Coastal Defence	Structures built at the coastline to protect against both coastal erosion and flooding from coastal sources.
Coastal National Park	The Jersey Coastal National Park is a varied landscape where these is a vibrant and harmonious relationship between people and nature. Historic buildings and archaeological landscapes are conserved, as well as flora and fauna.
Coastal Management Area (CMA)	Six process areas which divide the Jersey coastline, with similar coastal erosion and flood risk issues, to inform policy decisions which support holistic, sustainable and coast effective management solutions for the future.
Coastal Management Unit (CMU)	36 units which divide the Coastal Management Areas to determine management policies at a small scale, providing a sustainable strategy for the future which considers the local impacts of coastal erosion and flooding.
Conservation	The protection of the environment and resources to prevent exploitation and destruction.
De-facto defences	Buildings or other features which act to reduce flood risk without that being their primary function.
Department for Environment, Food and Rural Affairs (DEFRA)	The government department in the UK and Northern Ireland which is responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities.
Epoch	A particular period in time.
Erosion	The loss of land or encroachment by the sea through a combination of natural forces e.g. wave attack, slope processes, high groundwater levels.
Flooding	Inundation by water caused by breaches, overtopping of defences or inadequate or slow drainage of rainfall or underlying ground water levels.
Geographic Information Systems (GIS)	Software which allows the spatial display and interrogation of geographical information such as ordance survey mapping and aerial photography.
Habitats Directive	EC Directive 92/43 on the Conservation of natural habitats and of wild fauna and flora.
Hazard	A situation with the potential to result in harm. A hazard does not necessarily lead to harm.
International Union of Conservation of Nature (IUCN) Red List	A comprehensive inventory of the global conservation status of biologicial species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies, which are relevant to all species and all regions around the world. It is recognised as the most authoritative guide to the stauts of biological diversity.

Term	Definition
Key Stakeholder	A person or organisation with a major interest in the preparation of, and outcomes from, a shoreline management plan. This includes agencies, authorities, organisations and private bodies with significant responsibilities or ownerships that affect the overall management of the shoreline in a plan.
Listed Building	Buildings that have been recognised for their significance to Jersey's heritage; they have a special interest that is of public importance, either historical or architectural interest, or archaelogical or cultural significance. The process of listing buildings is carried out by the Department of Growth, Housing and the Environment, acting on the advice of Jersey Heritage.
Maintain the Defence Line (MTDL)	Existing coastal defences are maintained. The level of flood protection may decrease in some locations over time due to climate change. This policy will generally be applied where the existing defences provide a reasonable standard of flood protection or prevent erosion of the shoreline.
No Active Intervention (NAI)	A policy decision to not invest in coastal defences or maintenance work. The shoreline is left to naturally evolve without intervention. This policy will generally be applied to natural areas of the coastline which are currently undefended.
National Oceanography Centre (NOC)	A marine science research and technology institution, regarded as the UK's largest institution for integrated sea level science, coastal and deep ocean research and technology development.
Overtopping	Water that flows over the crest of a coastal structure, such as a seawall, due to powerful wave action.
Policy	In the context of the SMP, policy refers to the shorline management options of No Active Intervention, Maintain the Defence Line, Adaptive Management and Advance the Line.
Ramsar Site	Designated sites under the "Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat" 1971. The objective of this designation is to prevent the progressive encroachment into, and the loss of wetlands.
Residual Risk	The risk which remains after risk management and mitigation. It may include risk due to very severe storms (above the design standard of the defences) or risks from unforseen hazards.
Revetment	Coastal protection structure made with stones/rock laid on a sloping face.
Scour	Removal of underwater material by waves or currents, especlally at the toe of a coastal defence structure.
Seawall	A structure built along the coastline to prevent erosion and damage by wave action.
Shoreline Management Plan (SMP)	A non-statutory plan which provides an assessment of the risks associated with coastal flooding and erosion, presenting a policy framework to reduce these risks to the community, environment and economy using a sustainable approach.
Sustainable Development	Defined in the 1987 Brundtland Report as "development which meets the needs of the present, without compromising the ability of future generations to meet their own needs". In the context of this Shoreline Management Plan, sustainable development will be based on a balance in the requirements of the community, environment and economy which will be reflected in the management of the coastline for the next 100 years.
Natural Sites of Special Interest (SSI)	Places that are considered to be of public importance because of their special zoological, ecological, botanical or geological interest. They are given legal protection as the best examples of natural heritage, and their selection is based on scientific criteria which is explained in the Biodiversity Strategy for Jersey.
Setback	Prescribed distance landward of a coastal feature (e.g. the line of existing defences).

Term	Definition
Stakeholder	A person or organisation with an interest in the preparation of this document or affected by the policies produced. This broad interpretation has been taken to include agencies, authorities, organisations and private persons.
Still Water Levels	The average water surface elevation, excluding local variation due to waves, but including the effects of tides and storm surges.
Strategic	Used to describe the undertaking of any process in a holistic manner taking into account of all associated impacts, interests of other parties and considering the widest possible set of potential options for the solution of a problem.
Toe Structure	Material, usually large boulders, placed at the base of a sea defence structure like a seawall to prevent wave scour.

1. Introduction

The Jersey Shoreline Management Plan (SMP) is a high-level document which provides an Island-wide assessment of the risks associated with flooding and erosion from coastal sources. This document sets out a policy framework to manage these risks to the community, environment and economy of Jersey in a sustainable manner over the next 100 years (up to 2120).

The plan provides a broad assessment of the risks to Jersey as an Island, and specific advice for the management of coastal defences to provide a resilient coastline. It identifies methods to deliver policies which will support long-term adaptive coastal defence in Jersey. Through this, the SMP will support the long-term strategic framework for Jersey including the Common Strategic Policy (2018-22), the Government Plan (2020-23) and Future Jersey, the Island's 20 year community vision. The SMP will also feed into the Island Plan review process, forming part of the baseline evidence for coastal processes and future coastal change. This will support the next iteration to be adopted and published in 2021 as the Island Plan (2021-30).

The Common Strategic Policy identifies five strategic priorities which focus key areas of policy for development on the Island (Figure 1-1). These strategic priorities support the outcomes of Future Jersey, the Island's first long term community vision, which serves as a guide for government, businesses, community organisations and individual Islanders to create an ideal future for Jersey. The vision for Future Jersey is divided into ten outcomes, across the three themes of community, environment and economy (Figure 1-2).

Figure 1-1: The Five Common Strategic Priorities (2018-22) outlined in the Common Strategic Policy[1]

[1] Government of Jersey (2018) *Proposed Common Strategic Policy (2018-22).* Available from: http://statesofjersey.newsweaver.com/icfiles/2/75101/168349/348587/49e663ea73bb6d73746cefa5/proposed-csp-sep-2018-digital-copy_3.pdf [Accessed 15 April 2019]

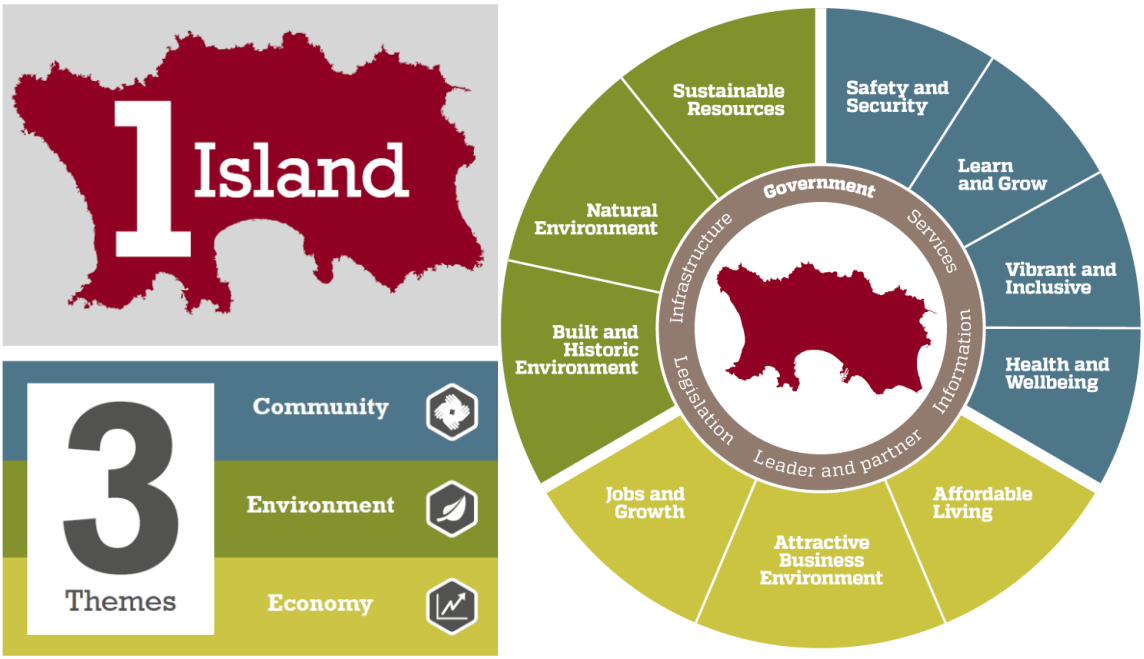


Figure 1-2: Outcomes for Future Jersey, the Island's First Long Term Community Vision[2]

The development of the SMP has been carried out broadly in line with Flood and Coastal Erosion Management (FCERM) in England, developed by the Environment Agency. As an independent island state, the plan does not need to strictly follow the guidance set by England, and this SMP is distinct to Jersey and the requirements of the unique coastline.

This SMP document has been developed by the Government of Jersey, with special thanks to the National Oceanography Centre (NOC) for providing expert input on future sea conditions, climate predictions and resilience, and shoreline management.

1.1 SMP Aims and Principles

The aim of the SMP is to provide a proactive and climate resilient management plan for coastal activity in Jersey. This will reduce risks to the community, environment and economy over 100 years, across three management epochs which broadly correspond to the following time periods:

- Present day (2020-2040);
- Medium Term (2040-2070); and
- Long Term (2070-2120).

The plan provides a long-term vision which is able to demonstrate that defence decisions made in the present day will not be detrimental today and in the future. Implementing a management plan which considers policies over three management epochs facilitates the transition of policy and preparation and planning for any changes in policy. This enables provision of resilient management actions to deliver present day policies which protect existing communities against coastal flooding, and future policies which support sustainability and climate resilience, considering the predicted impact of rising still water levels on socio-economic development. The plan is sufficiently flexible to adapt to future changes on the Island in terms of legislation, politics, community needs and scientific understanding.

To achieve the overarching aim 10 objectives were set by the Government of Jersey:

1. To define the Island-wide risks from flooding and coastal erosion to the community, environment and economy;
2. To clearly prioritise flood and coastal erosion risks in line with the delivery of Future Jersey;

[2] Government of Jersey (2017) *Future Jersey (2017-2037).*Available from: https://www.gov.je/government/planningperformance/futurejersey/Pages/index.aspx [Accessed 15 April 2019]

3. To identify opportunities to maintain and improve Jersey's community, environment and economy through the management of these risks;
4. To identify the preferred policies in terms of socio-economic and environmental impact for managing risk over the next century, taking into consideration the consequences of putting policy options into practise;
5. To assess the level of resourcing required to implement the preferred policy option;
6. To implement a procedure that monitors the effectiveness of the chosen policies and any change within the natural and built environment influenced by, or of influence to, the policy (or schemes delivering the policy);
7. To inform land use planning policy, which takes account of the risks and chosen policies, discouraging inappropriate new development in areas of high hazard exposure now and in the future;
8. To promote adaptive development in existing built-up areas.
9. To ensure policy and management activities comply with Island legislation and conservation requirements;
10. To expose knowledge gaps in current understanding of flood and coastal erosion hazards and produce an action plan to address these gaps.

Following adoption of the SMP, the Government of Jersey will implement the Action Plans, based on recommendations in Section 11, including developing outline designs for the development of schemes to support the preferred policies.

The plan is also intended to inform wider strategic planning; although it does not set policy for anything other than coastal defence management, it will act as baseline evidence for other Island strategies and plans that are developed in the future. It will support the work of Island-wide management frameworks such as Future Jersey, whilst providing localised knowledge of the key issues in each area of the Island. The plan will inform and feed into the development of land use planning set out in the Island Plan (which will be reviewed in 2020/21) and the Integrated Coastal Zone Management Plan. It will also provide evidence for other coastal policy documents, such as the Jersey Ports Masterplan (anticipated 2020) and Emergency Plans (currently under review) to deal with responses to flood events.

The plan will supersede the existing Sea Defence Strategy[3]; therefore, it is imperative to incorporate review cycles to feed into the appropriate budgeting cycles for coastal defence. Due to its positioning in Jersey's planning and strategy setting hierarchy, the review cycle of the SMP will need to align with future updates of the Island Plan beyond 2020/21 i.e. around 2028/29 to suit the Island Plan review cycle, while the delivery of the SMP through the Sea Defence Strategy will need to be planned and reviewed annually through the capital programme budgeting process.

1.2 SMP Process Objectives

The objectives of the SMP process (as distinct from the Government of Jersey's specific objectives for management of the coast) are as follows:

- To provide an understanding of the coastline, its processes and values;
- To define, the risks to the community, environment and economy of Jersey over the next 100 years;
- To identify the likely consequence of different management policies;
- To identify the preferred policies for managing risks or creating opportunity for sustainable management;
- To examine the consequences of implementing the preferred policies in terms of the objectives for management;
- To set out procedures for monitoring the effectiveness of the SMP policies;
- To inform key stakeholders so that future development of the shoreline can take due account of the risks and preferred SMP policies; and,
- To acknowledge and, where relevant, comply with international and national nature conservation legislation and biodiversity obligations.

[3] Transport and Technical Services (2015) *Periodic Update to Sea Defence Strategy.* Available from: https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/R%20Periodic%20update%20to%20Sea%20Defence%20Strategy%2020150923%20JM.pdf [Accessed 15 April 2019]

1.3 Policies

Four management policies have been considered for implementation within the SMP, following the policy option appraisal approach (Section 3). The impact of each policy option on the risk of flooding and coastal erosion, the community, the environment and the economy has been considered in the appraisal process.

The following four policy options have been considered:

- No Active Intervention – a policy decision to not invest in coastal defences or maintenance work. The shoreline is left to naturally evolve without intervention. This policy will generally be applied to natural areas of the coastline which are currently undefended;
- Maintain the Defence Line – existing coastal defences are maintained. The level of flood protection may decrease in some locations over time due to climate change. This policy will generally be applied where the existing defences provide a reasonable standard of flood protection or prevent erosion of the shoreline;
- Adaptive Management – a policy to proactively manage and mitigate coastal flood or erosion risk. The policy will be delivered through various management schemes / initiatives depending on the level of risk and the circumstances. This could include improving the standard of flood protection for an existing sea defence, constructing new defences, raising awareness of local flood risk or recommending property level flood protection; and,
- Advance the Line – new sea defences are built seaward of existing defences. This policy will only be implemented in areas where there is a significant risk of coastal flooding or erosion, or where it will deliver additional benefits for the community, environment and economy, such as creating a new amenity space.

Although the potential impact of each policy option has been considered at each location around the Island, No Active Intervention has generally been selected where there are no existing coastal defences. It is the intention of the Government of Jersey to maintain all existing coastal defences as a minimum.

Through the implementation of these policies, the SMP will aim to build and maintain sea defences which provide a standard of protection to prevent coastal flooding from a 1:200 year return period event. This will permit the Government of Jersey to design all defences to this standard. During subsequent implementation of policies with defence schemes, however, further appraisal of the technical options available, the costs of implementation, and feedback from stakeholder engagement may result in the construction of defences to a lower standard of protection. This is an acceptable approach, in line with the objectives of the SMP, and will allow the Government to respond to the prevailing shoreline conditions and climate science nearer to the time. It also means that defences will be designed to allow for future adaptation to increase the standard of protection, as necessary. This proportionate approach aligns with the principles of sustainable development, and will result in a scheduled, periodic review of the risks associated with flooding and coastal erosion to the Island, at a frequency expected to be every 10 years.

1.4 Structure of the SMP

The management intent and policies presented in this SMP are the result of collating and interpreting information from all available studies associated with the Jersey coastline. To draw all of this information together and provide clarity for different audiences, the documentation of the SMP is provided in a number of parts. It is composed of the SMP itself, a series of supporting appendices, and all key contributing data is collated in a geographical information system (GIS) and database, allowing information to be taken forward in implementing the plan for future users.

1.4.1 SMP Report Structure

This document provides the plan for the future management of the Jersey coastline, and the policies required to support the implementation of the management intent. This is intended for the general readership, and is the main tool for communicating the future management of the Island's coastline. The report includes justifications for the decision-making process, though it does not provide all of the information behind the recommendations, which is contained in other documents. The plan is presented in ten parts:

Section 1	Introduction	Provides details on the aims, objectives, principles, structure, background and development of the Shoreline Management Plan.
Section 2	Basis for Development of the Plan	Provides a broad overview of Jersey, describing the concepts of seeking sustainable policies and an understanding of the development of policies for the different areas of the Island.
Section 3	Policy Option Appraisal Approach	Provides an understanding of the policy option appraisal process, demonstrating robust policy development to confirm the selection of the preferred policies for each area of the Island to provide management of coastal flood and erosion risk along the coastline for the next 100 years. This section also includes definitions of the four management policies which have been considered, and an explanation of the economic assessment.
Sections 4-9	Policy development and the preferred plan for each Coastal Management Area	The Jersey coastline has been divided into six Coastal Management Areas (CMAs), and the policy development is discussed for each CMA in its own section: • South Coast (CMA1; Section 4) • Grouville Bay (CMA2; Section 5) • St Catherine's (CMA3; Section 6) • North Coast (CMA4; Section 7) • St Ouen's Bay (CMA5; Section 8) • St Brelade (CMA6; Section 9) Each CMA section starts with a discussion of the key features along the coastline. The CMAs have then been split into 36 smaller, manageable Coastal Management Units (CMUs). The process of developing the policy for each CMU is explained, giving an understanding of why decisions have been made based on the associated activities of each unit, and the future predicted behaviour of the coast is explained in terms of flood risk and coastal erosion. The implications of the preferred policies on each CMU are discussed, together with an assessment of the impact on the community, environment and economic objectives which comprise the option appraisal process, and results from the economic assessment.
Section 10	Policy Summary of the Preferred Plan and Implications	Provides a brief summary of the policies specified for each of the CMAs, and brings together the overall plan, highlighting the most important issues for future management of the Jersey coastline.
Section 11	Next Steps / Recommendations	The emerging priority recommendations arising from the SMP, which should be actioned following confirmation and publication of the plan. These recommendations will inform the development of the Action Plans.

1.4.2 The Supporting Appendices

The supporting appendices provide all of the information required to develop and support the SMP policies, ensuring there is clarity in the decision-making process and that the rationale behind the policies being promoted is transparent and understandable. This information is largely of technical nature and is provided in four appendices:

A	Stakeholder and Engagement Communications Plan	Details of the stakeholder engagement process, together with information arising from the consultation and communications process.
B	Hydraulic Modelling Report	Includes reports on coastal processes, hydrology, and mapping of future coastal flooding and erosion risks.
C	Policy Development and Multi-variate Assessment	Provides detail on the development of the policy options and objectives, with the tables used to assess which policies achieve the objectives set for each length of the coast.
D	Economics Report	Presents the economic analysis undertaken in support of the preferred plan.

1.4.3 GIS and Database

The SMP provides a future management framework, as it is acknowledged that the current understanding of the coast can be improved, addressing the areas of uncertainty that are currently present within the information. Not only will knowledge of the coastline evolve, but the use of the coastline will change over time.

All supplementary information used in the SMP is recorded in a GIS and database provided to the Government of Jersey. This information is recorded with the SMP, so that the management plan can be updated as new information is developed. This will allow for new information to be compared with the existing knowledge base to inform future coastal management decisions.

1.5 The Plan Development Process

The approach to shoreline management in this plan has been developed to align with the requirements of Jersey, based on a review of other approaches adopted in the UK and by other independent Island states. The plan therefore reflects the specific governance structure of the Government of Jersey, the unique nature of the Island and the specific coastal hazards for Jersey. The development of the plan has involved collation of all existing information regarding coastal erosion and flood risk to Jersey and definition of CMAs and CMUs to outline policies and management intent.

The production of the SMP has been undertaken by AECOM under the direction of the Government of Jersey and has been independently reviewed by NOC. The Government of Jersey's Shoreline Climate Resilience Group (SCRG) and other stakeholders have been consulted during the preparation of the plan; refer to Appendix A for details in the Stakeholder and Engagement Communications Plan.

The SMP development process has sought involvement from a number of organisations and individuals, including elected representatives, with a three-month period of consultation on the full Draft Plan from July to September 2019. The main activities completed in producing this SMP have been:

- Analysis of coastal processes, existing coastal defences and future coastal change for baseline evidence to support and provide recommendations for the existing management plan;
- Development of policies which consider different approaches to shoreline management across three management epochs;
- Development and analysis of issues and objectives for specific coastal areas, assets and themes, to determine the definitions of the CMAs and CMUs;
- Agreement of objectives with the Government of Jersey and stakeholders, and from this determining possible policies for each CMU;

- Examination of the economic assessment of each policy option and assessment of the implications for the community, environment and economic objectives for Jersey; and,
- Determination of the preferred plan and policies through review with the Government of Jersey, prior to compiling the SMP draft document.

This has been followed by:

- Consultation on the proposed plan and policies;
- Consideration of responses and finalising the SMP; and,
- The finalisation of next steps / recommendations.

1.6 Review Cycle

The SMP requires a formal review cycle to ensure information is updated, and that the preferred plan and policies remain appropriate in the future. The cycle allows for the policies to be updated in the management epochs, and support the Common Strategic Priorities, Future Jersey and changes to wider strategic planning on the Island to ensure a holistic approach to management of coastal defence, infrastructure, spatial planning policy and socio-economic development.

The intention is that the SMP will be reviewed every 10 years, following the release of the first plan in 2019. This frequency may be adjusted in light of a specific extreme event or the availability of significant new information such as new climate projections. The reviews may include changes to policy to the relevant management epoch, where the understanding of the coastline has changed. For management epoch 3 the review will fall at the same time as it starts. It is therefore suggested that the 50-year review of the SMP also considers resetting of the management epoch relative to the present-day period. This will continue sustainable and collaborative management of Jersey's shoreline.

2. Basis for Development of the Plan

2.1 Historical and Current Perspective

2.1.1 Physical Structure of the Coast

The Jersey coastline has changed over time to become what we see today, influenced by geology, coastal processes and human interaction. The Island encompasses a diverse range of natural features, the interactions between which have combined to create the unique character of the coastline. These physical features of the coastline can influence the way we choose to develop the urban environment inland and can determine the types of coastal defences which are appropriate for defending against coastal erosion and flooding.

The coast is dynamic, and change is predicted to influence the boundary between land and sea over the next 100 years. Climate change is predicted to cause rising still water levels, which will cause increased wave heights and increased severity and occurrence of storms. This will increase the risk of coastal flooding on the Island in the future, which is summarised in Appendix B, and forms the majority of the basis for developing this SMP.

The SMP will ensure that the impact of the interactions between the physical structure of the coast and the processes taking place are considered. This includes the influence of coastal defences on coastal processes such as those which determine erosion rates and beach levels. Within the management plan, potential sediment pathways are considered within the risk of coastal erosion, and the SMP provides guidance for managing these interactions at a local scale and Island-wide level.

2.1.2 Environment

The natural and historical environment of Jersey is recognised through several national and international conservation designations, presented in Figure 2-1. Along the coastline there are 17 ecological and 22 geological Sites of Special Interest (SSIs), and the southeast coast is recognised internationally as a Ramsar site. Several parts of the coastline are also recognised as part of the Coastal National Park, which encompasses ecologically sensitive and valuable areas of the coastline.

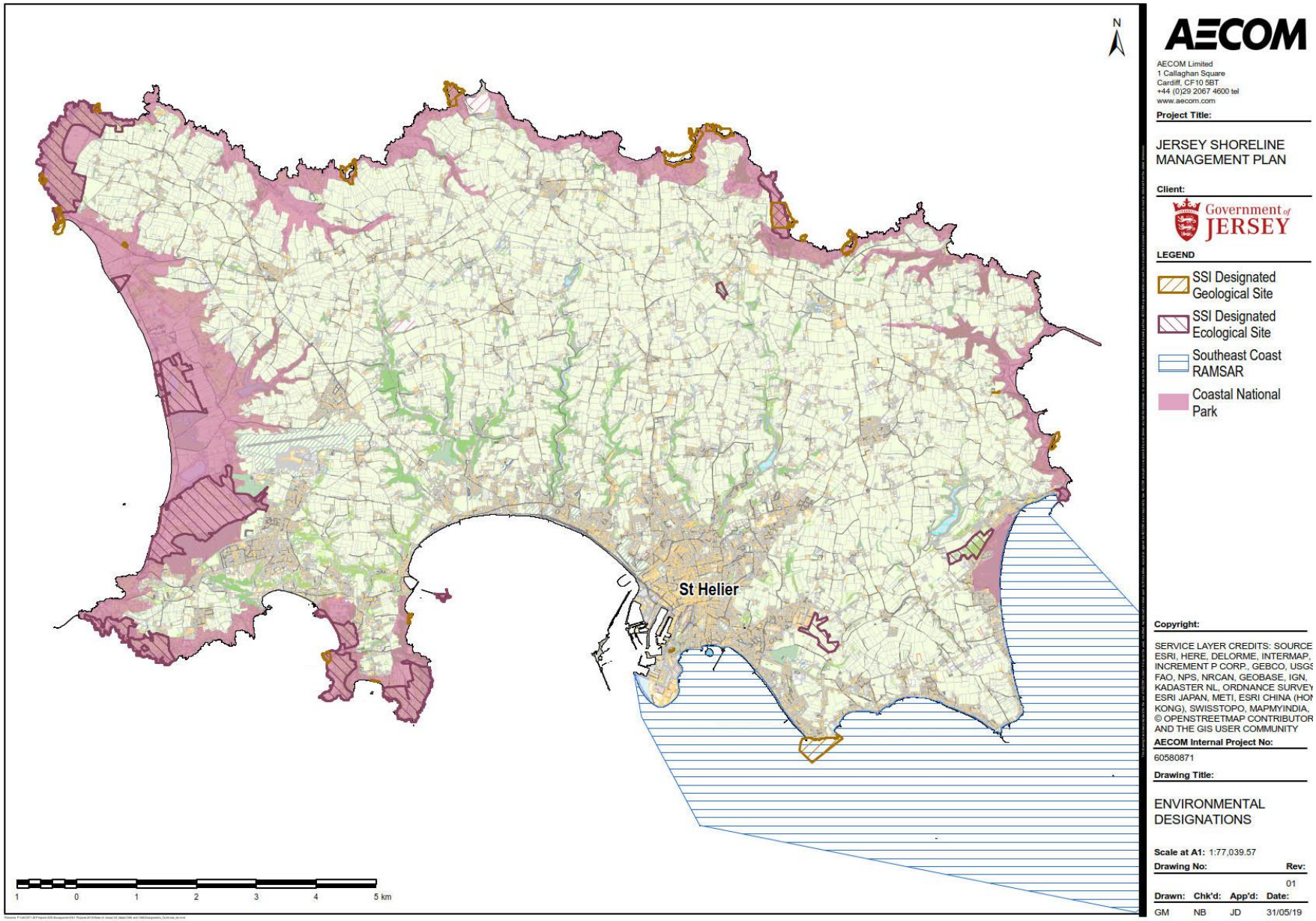


Figure 2-1: Environmental Designations in Jersey

Geology

The Jersey coastline is diverse in geology, and creates a landscape which is highly valuable, and draws in visitors. The Government of Jersey Countryside Character Appraisal (which is due to be updated by the end of 2019 as part of the Island Plan review process and will extend to seascape) defines the underlying solid and drift geology across the Island, and is discussed with respect to coastal erosion in Appendix B Cliffs are most prominent along the north and southwest coastlines of the Island, with elevated cliffs on the north coast made from hard volcanic rocks and granite. Those in the southwest are characterised by metamorphic granite and deports of porphyritic granite. Other headlands on the coast are less extensive and southeast and west areas of the coastline are composed of softer geology.

The 22 Geological SSIs located around the coastline are highlighted in the Biodiversity Strategy for Jersey, as having special geological interest and local protection, and are therefore considered in the SMP.

Ecology

The geographical position of Jersey, combined with a favourable climate, has resulted in a natural environment which is ecologically diverse and home to a mix of flora and fauna which is only found in the Channel Islands. Through the commitment to the Convention of Biological Diversity, Jersey's agreed responsibilities to protect biodiversity are highlighted in the Biodiversity Strategy for Jersey, which lists all the rich, diverse habitats found on the Island. The priorities of the Biodiversity Strategy are supported through the Island Plan, which includes policies to conserve and enhance biological diversity (see Section 2.3.1).

In order to protect the biodiversity of Jersey, 17 sites have been listed as Ecological SSIs – considered to be the best examples of ecology on the Island. They comprise 560 hectares of land, 5% of Jersey's land area, and are predominantly located along the coastline. For example, Atlantic Dry (Maritime) heathland is a key habitat in the Biodiversity Strategy for Jersey and can be found in both Noirmont and Portelet Common. This also has protected status under the EC Habitats Directive and is listed in Resolution No.4 of the Bern Convention.

The designation of much of the coastline as the Coastal National Park exemplifies the varied natural landscape which is present at the coast. Furthermore, the coastal waters around Jersey are internationally recognised under the Ramsar Convention, with the southeast Coast of Jersey composed of 32.1km^2 of inter-tidal habitat.

The management intent of the SMP will seek to reduce interference to these sites, whilst ensuring that they are sufficiently protected in line with the objectives of the Biodiversity Strategy.

Heritage

Activity on the Island has led to the development of over 4,000 culturally significant, historical sites and listed buildings – a range of which are located around the coastline. The historic landscape of the coast demonstrates the extent of human occupation, and the different ways in which the coast has been used in Jersey's history. These sites are legally recognised as sites which are significant to Jersey's heritage and contribute to the character of the Island through Island identity and have also become attractions to the community and visitors. Considering the importance of these sites is critical to managing the heritage value of the Island for future generations.

Heritage sites on the Island include the anti-tank walls. Although these walls were originally built with a very unique purpose, they now act as historical structures which prevent coastal flooding and erosion in some locations. This type of history is important in understanding the development of the Island, and the way in which our use of the coastline has changed over time. As such, it is the intention of the SMP to consider all opportunities to sustain the heritage value of all historic assets on the Island.

Landscape

All of the above aspects contribute to the unique landscape value of the Jersey coastline. The landscape quality draws together many activities associated with the coastline, providing a valuable asset to Islanders and the tourist economy.

2.1.3 Community

Community priorities and values affect the way the Island is used and appreciated, and the potential for future change. Developing a management plan which supports these community values in the long-term is key to achieving community acceptance, and achieving a sustainable SMP. This refers to key urban areas of the coastline, such as St Helier, as well as open space for agriculture and recreation, and residential and commercial properties which are situated along the coastline.

There are a number of coastal activities which are essential to the community on the Island. Jersey is reliant on ferry services, for both travel and commercial imports and exports. Major port, fishing and sailing activities are centred at St Helier, along with St Aubin's Harbour, and a number of small bays on the north coast including Bouley Bay and Bonne Nuit Harbour, and the east coast including Gorey Harbour and St Catherine's Bay. Coastal access to beaches such as St Ouen's Bay also provides an array of recreational activities, and access to the heritage sites discussed in Section 2.1.2 provides cultural value to the community.

There are large settlements located around the coastline, which rely on the local road networks for access to other parts of the Island; in areas of the south coast, these roads are at risk from coastal flooding and erosion. This has the potential to impact business continuity, access to homes, schools and amenities. Protecting these assets is integral to the future of Jersey; the SMP includes an appreciation for the interaction between these features, and their cumulative value to the community, in the assessment of the objectives in the policy option appraisal process.

2.1.4 Economy

Protecting the economic activity of the Island is a priority of the SMP, to support the Common Strategic Policy and the policies for economic growth detailed in the Island Plan. To maintain a sustainable and diverse economy, each sector which relies on facilities at the coast needs to be considered within the SMP to ensure there is opportunity for growth.

The largest business sector in terms of contribution to Gross Value Added (GVA) is the financial services sector, which accounted for 40% of the GVA in 2017. The performance of the financial sector has been central to the Island's economy since 1998. The financial hub for Jersey is located in St Helier and the SMP is required to provide policies which protect the continued growth of the financial sector there.

Both the open countryside and the coast of Jersey form a significant part of the Island's attraction to both residents and visitors, and a proportion of the visitor economy to Jersey relies on coastal tourism with unique coastal attractions such as La Corbiere Lighthouse and Mount Orgueil Castle, and an array of popular beaches. The SMP will promote policy decisions which ensure the sustainability of access to these sites, with the potential to enhance their value in the future. A proportion of visitors arrive through the Port of St Helier, further exemplifying the need for developing a plan which considers the future of St Helier.

Areas of the south coast around St Helier and Havre des Pas have been highlighted in the Island Plan for regeneration and / or development, which could influence future economic activity. Safeguarding these areas against coastal flooding and erosion through consideration in the SMP will be essential to supporting the Island Plan policies, and driving a sustainable economy forward.

2.2 Sustainable Policy

This SMP identifies how the coastline of Jersey can be managed sustainably, adapting to coastal flood and erosion risk for the next 100 years, with an understanding of the challenges caused by climate change and rising still water levels. This includes delivering wider benefits to the community, environment and economy as part of the SMP policies.

In 1987, the Brundtland Report defined sustainable development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs"[4]. The concept of sustainability is adopted throughout Jersey's planning policy framework, particularly in the need to provide a co-ordinated response to environmental challenges that are predicted to impact development on the Island. It is therefore essential to develop a management plan which reduces pressure from coastal change, and benefits future development, considering natural processes, ecology, businesses and the financial sector, education, recreation, transport and homes.

[4] United Nations (1987) *Our Common Future.* Report of the World Commission on Environment and Development.

One of the aims of the SMP is to identify policies which will manage risk with minimal impact to the environment and socio-economic development. For example, the most environmentally sustainable approach to managing the coastline is to not intervene, and let it respond in a dynamic way to the natural processes occurring. However, in some locations where there is a risk of coastal erosion and flooding, to not defend the coastline would be unsustainable for nature conservation and amenity, economic activity, future growth and the livelihoods of Islanders. As such, the Government of Jersey is committed to maintaining all existing coastal defences to minimise the potential impacts to the community, environment and economy in a responsible manner. This includes maintaining historical structures.

Notwithstanding commitments to maintain existing defences, the Government also advocates an adaptive approach to managing defences for long term sustainability benefits. This means alternative management solutions such as implementing property level resilience, increasing flood awareness and flood warning systems is more appropriate in some locations where altering the coast would have a detrimental effect on the sustainability of the plan, or affect other parts of the coastline i.e. implementation of improved defences is undertaken in a phased and balanced manner.

England will publish a new FCERM strategy in 2020. The Environment Agency intends to move away from a 'resistive' approach to coastal management to improve resilience, accepting that in some locations, settlements will need to be moved away from the coast to reduce the risks of coastal flooding and erosion. This will clearly have difficulties associated with it, not least in socio-economic and psychological terms for land and property owners. There are justifications for Jersey to follow the strategy laid out in this SMP, but to also do things differently compared to England, including:

- Jersey has a different funding approach for coastal defences compared to England and, with due diligence, is more able to support building new defences where there is significant risk to communities;
- The Island is small; losing land and moving settlements away from the coast would not be a practical solution, as there are agricultural land assets, open space and environmental designations inland, which are critical to the Island's resources and productivity; and,
- Maintenance of the coastal fringe is essential to protect residential, business and tourism assets, which are critical to the Island's functioning and economy.

It is recognised that in the longer term, settlement relocation could be discussed alongside other options, though this is not proposed as part of this plan. Resilience is recognised and incorporated in the SMP, as in England, within the policy option of Adaptive Management (see Section 1.3). For example, raising awareness of flooding and coastal erosion risk to the community will highlight the need for potential implementation of mitigation measures for properties in the future. Linking this to the planning policy framework will show where the resilience of communities will be improved.

2.3 Current Management Plans

2.3.1 Revised 2011 Island Plan (2014)

The Revised 2011 Island Plan[5] sets out the spatial planning policy for the Island, seeking to meet development needs whilst protecting the character, heritage and ecological assets of the Island, including the coastline. The plan highlights threats to the coastline from climate change, and the importance of future policies associated with coastal defence considering the character of the land.

The Island Plan policies given in Table 2-1 have been identified as key policies in supporting the preferred policy options.

[5]States of Jersey (2014) *Revised 2011 Island Plan*. Available from: http://consult.gov.je/portal/policy/pd/ip2011?_ga=2.137166898.362601110.1555321701-791367157.1539612691 [Accessed 17 April 2019]

Table 2-1: Island Plan policies relevant to the SMP development

Policy	Description
SP 4	**Protecting the Natural and Historic Environment** – including Jersey's biodiversity and heritage assets (archaeology, historic buildings, structures and places).
SP 5	**Economic Growth and Diversification** – protecting employment land and development opportunities for new and existing employment.
NE 1	**Conservation and Enhancement of Biological Diversity** – encouraging opportunities to conserve wildlife.
NE 6	**Coastal National Park** – encouraging conservation and enhancement of the natural beauty, wildlife and cultural heritage of the National Park.
NE 8	**Access and Awareness** – encouraging and enhancing access to and awareness of the coast and countryside.
HE 1	**Protecting Listed Buildings and Places** – preservation of the architectural and historic character and integrity of Listed buildings and places, and their settings.
SCO 4	**Protection of Open Space –** protecting existing open space provision.
TT 1	**Protection of the Island's Footpath and Cycle Network** – preventing the loss and enabling the future development of these networks.
TT 13	**Protection of the Highway Network** – supporting the definition and function of the Island Highway Network.
MR 1	**Supply of Aggregates** – protection of the sites which provide the Island's permitted reserves of aggregates.

2.3.2 Future Jersey

Future Jersey[6], the Island's long term vision, sets out the aims and objectives for development of the community, economy and environment in the long term, which align with the objectives of the SMP. Each of the ten objectives has a number of associated progress indicators, which identify ongoing actions. Four of the objectives listed in Table 2-2 are related to protecting the infrastructure and environment of Jersey for the future, which exemplifies the importance of maintaining the coastal defences around the Island.

Table 2-2: Future Jersey Objectives relevant to the SMP policy development

Objective	Description
Built and Historic Environment	Protect heritage buildings and places to retain the character of the Island.
Health and Wellbeing	Promoting good wellbeing, quality of life and opportunities to live longer and more active lives.
Natural Environment	Protecting the unique and natural environment for future generations by supporting the natural habitats, countryside and coastline.
Sustainable Resources	Managing and using Jersey's natural resources responsibly to provide for future generations.

[6]Government of Jersey (2018) *Future Jersey*. Available from: https://www.gov.je/government/planningperformance/futurejersey/Pages/index.aspx [Accessed 17 April 2019]

2.3.3 Integrated Coastal Zone Management Strategy

The Integrated Coastal Zone Management Strategy (2008)[7] sets out the method of sustainably managing the coastline of Jersey. The strategy introduces a number of aims and objectives with expected outcomes, to measure the success of the strategy. One of the aims is to identify the potential threats to Jersey's coastal zone posed by climate change and consider appropriate actions for safety, well-being and economic interests of coastal communities. The aims and objectives of the SMP are likely to help meet this aim, through identifying the threats of flood risk and coastal erosion.

2.4 Previous Coastal Studies

A number of coastal studies and strategies have been developed for Jersey to assess and improve the coastal defences and management policy. The key documents in outlining the management of Jersey's coastline have been summarised below.

2.4.1 Jersey Coastal Management Study (1991)

HR Wallingford (1991)[8] completed an assessment of coastal defence condition and performance, which identified key coastal cells and processes, as well as the environmental conditions which influence the coastline. The risk of flooding from overtopping was determined, and used to recommend area for improving defences.

2.4.2 Coastal Defence Asset Management (2002)

This assessment by HR Wallingford (2002) built on the previous coastal management study to outline recommendations for future defence works to maintain or increase the current standard of protection. This report was adopted as the Government of Jersey Sea Defence Strategy, which mapped coastal defences around the Jersey coastline, and formed a database for Jersey's coastal defence asset management. Recommendations were also provided for future improvements up to 2012.

2.4.3 Climate Change, Jersey: Effects on Coastal Defences (2007)

As an update to the previous studies, HR Wallingford (2007)[9] produced this report on the potential consequences of climate change on flooding and coastal erosion in Jersey, to inform long term planning up to 2080. This was the first study on coastal management in Jersey to look at adaptive management for climate resilience, rather than basic maintenance of defences.

2.4.4 Sea Defence Strategy (2015)

The Sea Defence Strategy[3] sets out the commitment to the development and delivery of sea defences around the Jersey coastline. It was updated in 2015 to detail the plan for capital investment and ongoing maintenance. It also outlines the changes to sea defences which will require adaption based on predicted impacts of climate change, and to highlight the actions needed to reduce flood risk at St Helier.

2.5 Development of Policy

2.5.1 Defining the Coastal Management Areas

Previous work by HR Wallingford (2007) divided the coastline into process units. The boundaries for the process units were driven by physical coastal processes, representing sections of the coast to be considered in impact assessments of policies, new works and existing infrastructure.

These process units have been redefined as Coastal Management Areas (CMAs) to provide a suitable mechanism to facilitate appraisal of policy options, including combining previous process units 1a and 1b (St Aubin and St Clement) to form the CMA 1 South Coast, as the flood risk impacts are similar. This strategic approach was required to ensure that future management provides holistic, sustainable and cost effective solutions for similar areas of the coastline. Six CMAs have been defined for the Jersey coastline (Table 2-3 and Figure 2-2).

[7] States of Jersey (2008) *Integrated Coastal Zone Management Strategy.* Available from: https://www.gov.je/Environment/ProtectingEnvironment/SeaCoast/Pages/ICZM.aspx [Accessed 17 April 2019]
[8] HR Wallingford (1991) *Jersey Coastal Management Study,* Report EX 2490.
[9] HR Wallingford (2007) *Climate Change, Jersey: Effects on Coastal Defences,* Report EX 5516.

Table 2-3: Overview of the Coastal Management Areas

Coastal Management Area	Geographic Extent	Area Characteristics
1 – South Coast	Eastern end of Portelet Beach to La Rocque	• St Helier is the capital of Jersey, a key residential and urban centre • Port of St Helier is a key commercial port and ferry terminal • St Aubin's harbour is a key leisure and fishing harbour • Residential and commercial properties are predicted to be at risk from flooding from both overtopping and still water levels • Areas of undefended cliffs and defended coastline • Part of southeast Coast Ramsar site • Several ecological and geological SSIs, including Noirmont Common
2 – Grouville Bay	La Rocque to the northern end of Mont Orgueil Castle land	• Gorey tidal harbour • La Rocque leisure craft harbour • Mostly defended coastline, up to Mont Orgueil Castle • Small areas of flood risk from overtopping and still water levels • Mont Orgueil Castle provides historical and cultural significance • Part of southeast coast Ramsar site
3 – St Catherine's	Northern end of Mont Orgueil Castle land to La Coupe	• Small areas of flood risk and coastal erosion • High value electricity substation at Archirondel Tower • St Catherine's Bay & Breakwater
4 – North Coast	La Coupe to Le Pulec	• Rozel leisure and fishing harbour • Bonne Nuit harbour • Large areas of undefended cliffs and small defended bays • Ronez coastal quarry • Bouley Bay harbour • Greve de Lecq harbour
5 – St Ouen's Bay	Le Pulec to Gorselands	• Large defended bay that is a popular recreation location • Undefended natural headlands • Several ecological and geological SSIs, including Les Mielles Nature Reserve
6 – St Brelade	Gorselands to the eastern end of Portelet Beach	• Areas of undefended cliffs • St Brelade's Bay, Portelet Bay, Beauport Bay and Ouaisne Bay are popular beach locations • La Cotte de St Brelade geological SSI • Several ecological SSIs, including Portelet Common

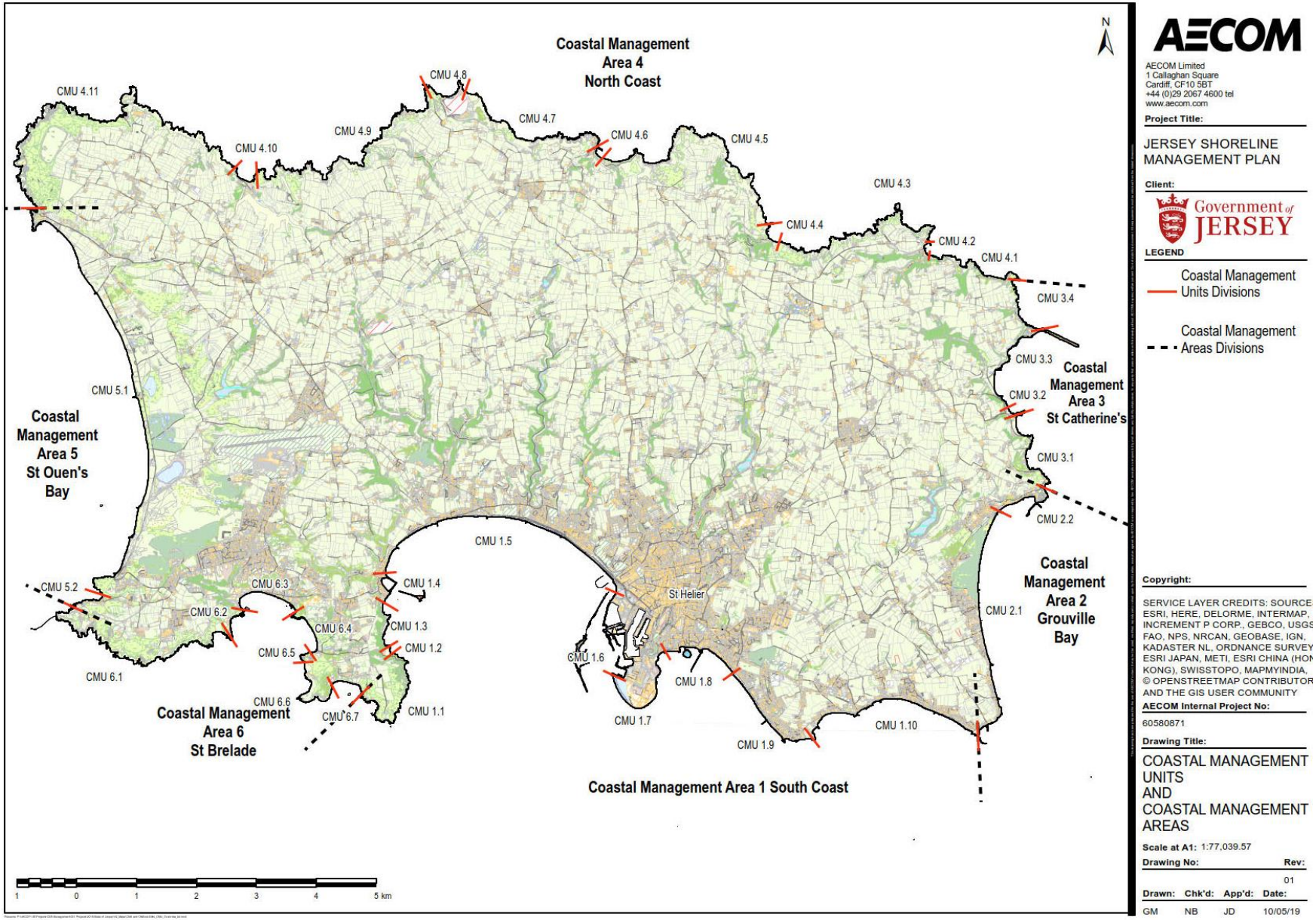
2.5.2 Defining the Coastal Management Units

To ensure that management policies within the SMP are robust and sustainable at a local level, the CMAs were split into smaller CMUs. This helps to accommodate the local scale variations in present day land use, future land use and redevelopment, land ownership, coastal defence asset types and coastal flood and erosion risk management that exists within each CMA. The use of the CMUs enables flexibility to refine strategic decisions based on the CMAs such that they are appropriate on a local scale.

CMUs are defined as management units with consistent themes that help to facilitate and rationalise policy identification and appraisal. The following information was used to define and agree the CMU boundaries with the Government of Jersey:

- Draft SMP management policies;
- Current coastal defence assets and standards of protection;
- Coastal processes;
- Flood zones and mapping;
- Assets in potential flood and / or erosion risk zones;
- Land use and ownership;
- Cultural and environmental designations;
- Opportunities and constraints; and,
- Historical and current issues or concerns.

In total 36 CMUs were created along the Jersey coastline (Figure 2-2). Sections 4 to 9 provide a detailed policy appraisal for each CMU within the relevant CMA, identifying how the preferred policy option meets SMP objectives according to the assessment criteria, following the policy option appraisal approach in Section 3.



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JERSEY SHORELINE MANAGEMENT PLAN

Client:

Government of JERSEY

LEGEND

Coastal Management Units Divisions

Coastal Management Areas Divisions

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GM	NB	JD	10/05/19

Figure 2-2: Coastal Management Areas and Coastal Management Units

3. Policy Option Appraisal Approach

This section outlines the process of policy development and appraisal for the coastline of Jersey. This demonstrates that the SMP has undergone a robust policy development process to confirm selection of preferred policies for managing coastal flood and erosion risk along the coastline for the next 100 years.

3.1 Comparison of Management Policies for Jersey

Four management policies have been considered for implementation in different areas of the Jersey coastline within the SMP. The physical structure of the coastline, the risk of flooding and coastal erosion, and land use of the Island all influence which management policies can be implemented.

3.1.1 Description of the physical structure and key features of the Island of Jersey

The coastline of Jersey provides an important part of the Island's character, and the variation in its physical structure provides a challenge in ensuring the most appropriate management policies are chosen.

There are large areas of natural coastline, particularly the north and southwest coasts which are characterised by steep granite cliffs and coastal heath. The south, southeast and west coast are characterised by shallow, gently sloping shore profiles with large intertidal areas which are exposed at low tide. The bays in these areas are important for recreational activities with significant population and assets, and therefore require appropriate management and protection compared to more natural areas of the coastline with no or less assets at risk. The Port of St Helier and the outlying harbours are key coastal locations for both recreational and commercial uses. Access to these locations should be maintained in any management policy.

The town of St Helier is the economic centre for the Island, and a key area for regeneration and development in Jersey in the future. The protection of the assets here is important, and further development of the town should be considered in the chosen management policy, as well as any implications on other economic development around the Island driven by St Helier.

There are several important ecological and geological sites around the Island which are recognised with designations, including the Coastal National Park and southeast coast Ramsar site, presented in Figure 2-1, along with listed buildings and sites of historical importance. The chosen management policy in these areas should not impact the value of these sites, but should provide protection where necessary.

3.1.2 Description of the 'No Active Intervention' policy

Under the 'No Active Intervention' policy, there will be no investment by the Government of Jersey in coastal defences or maintenance work. Unprotected shorelines will naturally evolve from their current state without intervention. This policy will generally be applied to natural areas of the coastline which are currently undefended, such as where sediments from cliffs are allowed to erode to feed beaches or to allow beach and dune systems to naturally adjust to changing conditions of climate change. The implementation and maintenance of private defences by third parties may be permitted within certain coastal management units according to the level of flooding and erosion risk, and subject to prevailing Jersey laws and regulations. Further details on private defences are provided in the relevant CMUs, as detailed in sections 4 to 9.

3.1.3 Description of the 'Maintain the Defence Line' policy

Under the 'Maintain the Defence Line' policy, existing coastal defences are maintained. The level of flood protection may decrease over time as flood risk increases due to the changing coastal processes and impacts of climate change. This policy will generally be applied where the existing defences provide a reasonable standard of flood protection or prevent erosion.

3.1.4 Description of the 'Adaptive Management' policy

Under the 'Adaptive Management' policy, coastal flood and erosion risk will be proactively managed. The policy will be delivered through various management schemes / initiatives depending on the level of risk and the circumstances. This could include improving the standard of flood protection for an existing sea defence, constructing new defences, raising awareness of local flood risk or recommending property level flood protection.

In areas of the coastline where flooding and coastal erosion is predicted to cause minimal economic damage to assets, but where there is still a residual risk to the community, there is an opportunity for a considered risk approach to management. For example, community awareness schemes rather than hard defences could be implemented as a form of adaptive management in the first instance. The risks of this measured approach would be considered carefully to avoid detriment to the community in the short term. This policy could be applied to areas of Jersey where there is sufficient risk of flooding or coastal erosion that cannot be prevented by maintaining the defences to the current standard of protection, and where it is economically unfavourable to construct new defences with a higher standard of protection. It may also be implemented in areas where there are currently no coastal defences, and where the risk of flooding and coastal erosion is predicted to cause damage to the community, environment or economy at some stage in the future.

3.1.5 Description of the 'Advance the Line' policy

Under the 'Advance the Line' policy, new sea defences are built seaward of existing defences. This policy will only be implemented in areas where there is a significant risk of coastal flooding or erosion, or where it will deliver additional benefits for the community, environment and economy, such as creating a new amenity space. This policy is distinguished from 'Adaptive Management' as a standalone policy option to make the type of adaptation clear.

3.2 Policy Option Assessment Scoring and Criteria

This assessment approach considers the relative merits and appropriateness of each of the four policy options using a simple, consistent, and systematic scoring routine. For each CMU, each policy option is scored for each epoch against 21 objectives in four core themes of defence, community, environment and economy. The objectives are in line with those set out in Section 1.1, and have been developed to align with the Island Plan Policies set out in Table 2-1, the objectives of Future Jersey in Table 2-2 and the Common Strategic Priorities. The four core themes are outlined below:

1. The Defence objectives reflect the engineering of coastal defences, to assess the ability of the policy option to provide defence against flooding and coastal erosion, and feasibility of the policy option with regards to technical implementation, cost and maintenance.
2. The Community objectives reflect the value of the coastline to the community and stakeholders, in terms of services provided by the coastal infrastructure, to assess the ability of the policy option to maintain access to coastal services.
3. The Environment objectives reflect the importance of the natural environment of Jersey, to assess the impact of the policy options on natural environmental and heritage designations, as well as the landscape character of Jersey and the provision of natural resources.
4. The Economy objectives reflect the potential for improvements to the business environment of Jersey. They consider the potential of the policy options to provide opportunities for businesses to prosper and generate economic growth and support land allocation and residential and commercial development on the Island.

The scoring of each policy option is completed on a 3 point (0, 1, 2) basis, with 0 points indicating that the policy option would not support the objective and may be detrimental, and is given a 'red' classification, 1 point is equivalent to an 'amber' classification and 2 points indicating the policy option would have a positive impact on the objective, given a 'green' classification. The scores for each objective are added together within each of the four core themes. Each core theme has an equal weighting to remove bias where there is an unequal number of objectives in each theme. The scores from each theme are added together, and the policy option with the highest overall score has been selected as the preferred policy option. To demonstrate the approach, a worked example has been included for CMU 1.6, St Helier, below.

Sections 4 to 9 detail the preferred policy for each epoch at each CMU, showing the coastal flood and erosion risk, explaining how the preferred policy option meets the objectives and how the preferred policy will be implemented. The 21 objectives in the four core themes, their full assessment criteria and the full scoring for each CMU are presented in C.

Objective Scoring

Each column represents one objective in the four themes, scored according to the assessment criteria, using Green (2 points, positive impact), Amber (1 point) and Red (0 points, negative impact).

Weighting

Within each theme, the scores for the objectives are added together and divided by the maximum possible score for the theme, multiplied by 0.25 to give each theme a percentage score with an equal weighting.

Overall Score

The maximum score for each theme is 25%, and the theme scores are added together in the Overall Score column. The policy option with the highest overall score is the preferred policy option (highlighted row).

Epoch

In each row, each policy option is scored for each epoch. Below is an explanation of the scoring for epoch 1.

CMU1.6: St Helier		Defence						Community							Environment								Economy				
Epoch	Policy Option	Erosion Risk	Flood Risk	Relative Cost	Maintenance	Technical Feasibility	Defence Score %	Community Acceptance	Stakeholder Objectives	Social Responsibility	Coastal Access	Travel Infrastructure	Health and Wellbeing	Community Score %	Ecology andGeology	Heritage	Landscape	Coastal Processes	Water Quality	Natural Resources	Carbon Emissions	Environment Score %	Opportunity	Business Environment	Other Infrastructure	Economy Score %	Overall Score %
Epoch 1 Present Day (2020-2040)	No Active Intervention						20.00%							0.00%								12.50%				0.00%	32.50%
	Maintain the Defence Line						25.00%							14.58%								16.67%				4.17%	**60.42%**
	Adaptive Management						17.50%							10.42%								12.50%				12.50%	52.92%
	Advance the Line						12.50%							8.33%								5.36%				12.50%	38.69%
Epoch 2 Medium Term (2040-2070)	No Active Intervention						20.00%							0.00%								12.50%				0.00%	32.50%
	Maintain the Defence Line						22.50%							2.08%								8.93%				0.00%	33.51%
	Adaptive Management						17.50%							14.58%								12.50%				20.83%	**65.42%**
	Advance the Line						12.50%							8.33%								5.36%				20.83%	47.02%
Epoch 3 Long Term (2070-2120)	No Active Intervention						22.50%							6.25%								10.42%				0.00%	39.17%
	Maintain the Defence Line						20.00%							14.58%								14.58%				20.83%	**70.00%**
	Adaptive Management						15.00%							10.42%								12.50%				20.83%	58.75%
	Advance the Line						12.50%							8.33%								5.36%				20.83%	47.02%

Scoring for Epoch 1

Defence

Maintain The Defence Line scores the highest, as it is the policy option with the most positive impacts on the objectives, and presents less risk to coastal erosion and flooding than No Active Intervention.

Community

Maintain the Defence Line scores the highest, as it is the policy option most likely to be accepted by the community and stakeholders and maintain access to coastal infrastructure.

Environment

Maintain the Defence Line scores the highest as it is the policy option most likely to maintain protection of designated sites and resources, and will produce less carbon emissions than Adaptive Management and Advance the Line.

Economy

Adaptive Management and Advance the Line score the highest, as they present the most opportunities for the business environment and development policies.

3.3 Economic Assessment

As part of the policy option assessment scoring to determine the relative cost of each policy option, an economic assessment was undertaken (Appendix D). This demonstrates the economic viability of the preferred policy options and potential delivery of the schemes.

This is demonstrated by a damage assessment, which determines the potential flooding and coastal erosion damages that would occur over the next 100 years under the Present Management Scenario. This includes direct damages to properties (residential and non-residential), and indirect damages (including vehicles, roads and evacuation costs). As part of this damage assessment, a qualitative assessment has also been undertaken to assess the impacts of flooding that cannot be easily quantified, including the potential impact of flooding on port functionality, energy security and recreation. A business disruption assessment has also been completed to determine the impacts of flooding on business continuity, in the form of Gross Value Added (GVA) figures.

The damage assessment has been undertaken in line with Flooding and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG, 2010), developed by the Environment Agency for England, and the Multi-Coloured Manual (MCM). However, the damage values have been uplifted by 24% to account for the differences in land value between Jersey and England, as proposed in the Building Cost Information Service (BCIS, 2015).

As part of the economic assessment, the benefits of implementing the preferred policy options at each CMU have been established. These benefits are based on the direct and indirect damages avoided by the management policy. In addition, the costs of implementing the policy options have been established. This gives a benefit cost ratio, which provides a rational and systematic framework for assessing the advantages and disadvantages of the preferred policy option.

As it is the intent of the Government of Jersey to maintain all existing defences as a minimum, economic benefits (and benefit cost ratios) have only been calculated where the preferred policy option is Adaptive Management or Advance the Line. For each CMU where Adaptive Management or Advance the Line has been selected as the preferred policy option, an economic summary is provided which includes the number of properties predicted to be at risk of flooding and coastal erosion over the next 100 years, and the economic benefits and costs of implementing the plan. The benefits and costs for CMUs are presented in whole life terms that incorporate UK Treasury Green Book discount factors over the 100-year appraisal period and result in values being expressed in ‘Present Value’ terms. The total PV cost of implementing the SMP over 100 years is approximately £79 million.

In cash terms, with no discounting, the cost of delivering the SMP is approximately £198 million over the 100 years. The majority of the money is proposed to be spent in the second and third epochs, approximately £84.5 and £77 million, respectively, resulting in approximately £36.5 million forecast to be spent in the first epoch.

Further detail about the methodology for determining the potential economic damages of flooding and coastal erosion, benefits of the preferred policies and costs of implementing these policies can be found in Appendix D.

4. Coastal Management Area 1 – South Coast (CMA1)

Coastal Management Area 1 encompasses the coastal area of St Aubin and St Clement, along the southern coastline of Jersey. This includes the capital of St Helier, the key residential and urban centre for the Island, and a significant commercial port with ferry terminal and marina facilities. This area is a driver for future development, recognised in the Island Plan. Throughout this area there are residential and commercial properties at risk of flooding, which presents challenges in management as it is important to the community to maintain access to the coast, and access to travel infrastructure on both land and sea. Figure 4-1 shows the risk of flooding and coastal erosion at the South Coast, and Figure 4-2 shows the selected policies for each CMU.

Table 4-1: Coastal Management Area 1 - South Coast

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
1.1	**Noirmont Common (3900m)**	Undefended	• Natural coastal habitat • Forms key coastal heathland habitat, linking to Portelet Common (CMU6.6) • Noirmont Common Ecological SSI, listed within the Biodiversity Strategy for Jersey	✗	✔
1.2	**Belcroute Bay (170m)**	Vertical granite seawall; 100m	• Noirmont Manor heritage site and Grade III listed building	✗	✔
1.3	**La Housse (1100m)**	Vertical masonry wall; 100m	• Natural coastline, Belcroute Geological SSI	✗	✔
1.4	**St Aubin's Harbour (2750m)**	Vertical granite seawall; 700m	• Key leisure and fishing harbour • Nine listed buildings with cultural and heritage value	✔	✗
1.5	**St Aubin's Bay (5300m)**	Sloping masonry seawall, vertical granite wall, vertical concrete wall and anti-tank concrete wall; 4900m	• Popular recreational bay • Key road infrastructure (La Neuve Route/Victoria Avenue) located behind the bay • Ten listed buildings with cultural and heritage value	✔	✗
1.6	**St Helier (8700m)**	Quay walls; 3800m	• Capital of Jersey, residential and urban centre of the Island • Key commercial and ferry port • Under management of the Government of Jersey and the Ports of Jersey • Principal location for economic growth	✔	✗
1.7	**La Collette (2300m)**	Sloping granite seawall and rock revetments; 2000m	• Industrial area of reclaimed land	✗	✗
1.8	**Havre Des Pas (3100m)**	Vertical granite wall and sloping granite wall; 1500m	• Popular recreational location, including Havre des Pas Bathing Pools • Largely residential area	✔	✗
1.9	**La Greve D'Azette (2400m)**	Sloping masonry wall; 1900m	• Largely residential area • Green Island Geological SSI	✔	✔
1.10	**Le Hocq / Pontac (4000m)**	Vertical granite wall and sloping granite wall; 2100m	• Largely residential area	✔	✔

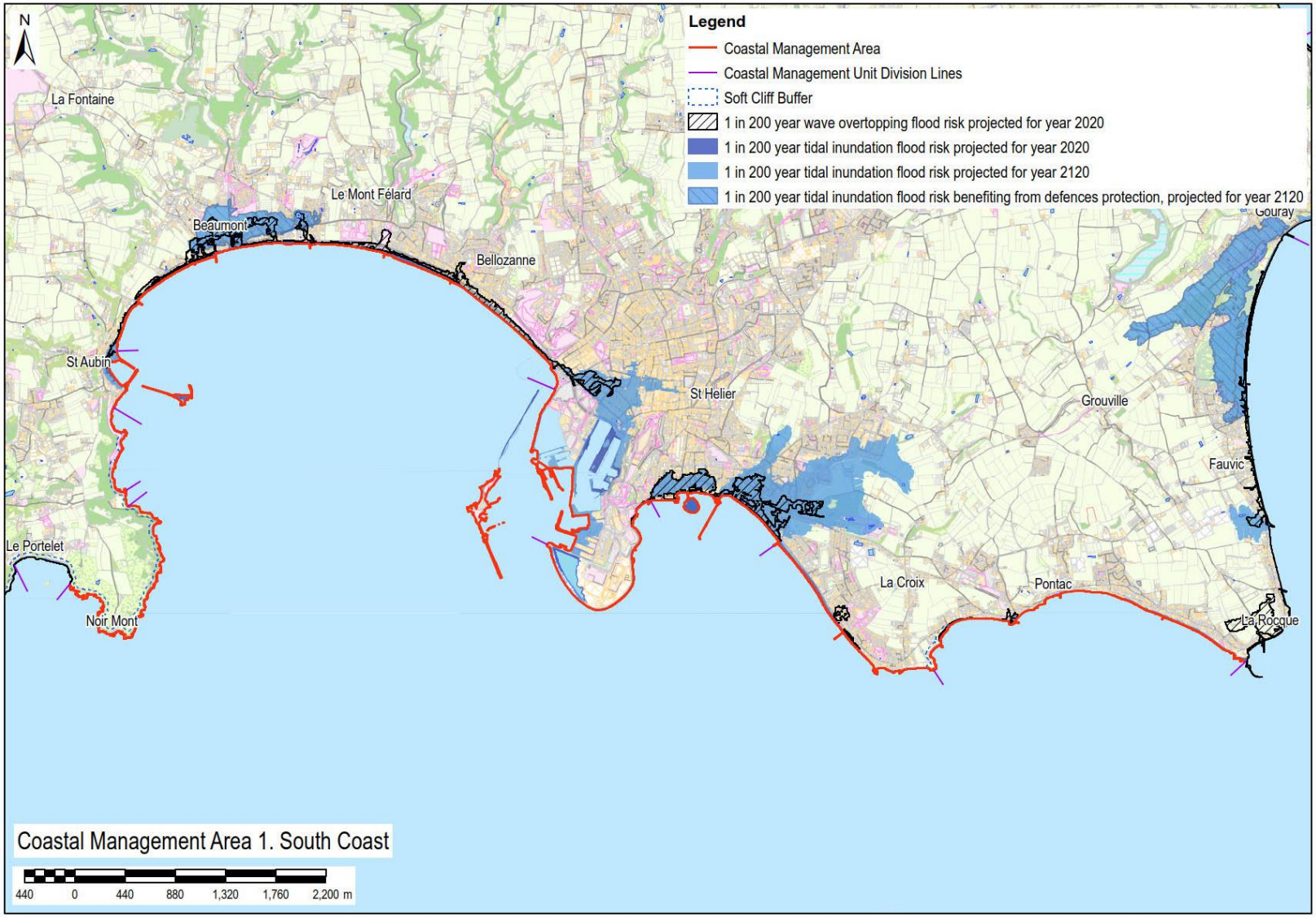


Figure 4-1: Coastal Flooding and Erosion Risk for Coastal Management Area 1 – South Coast

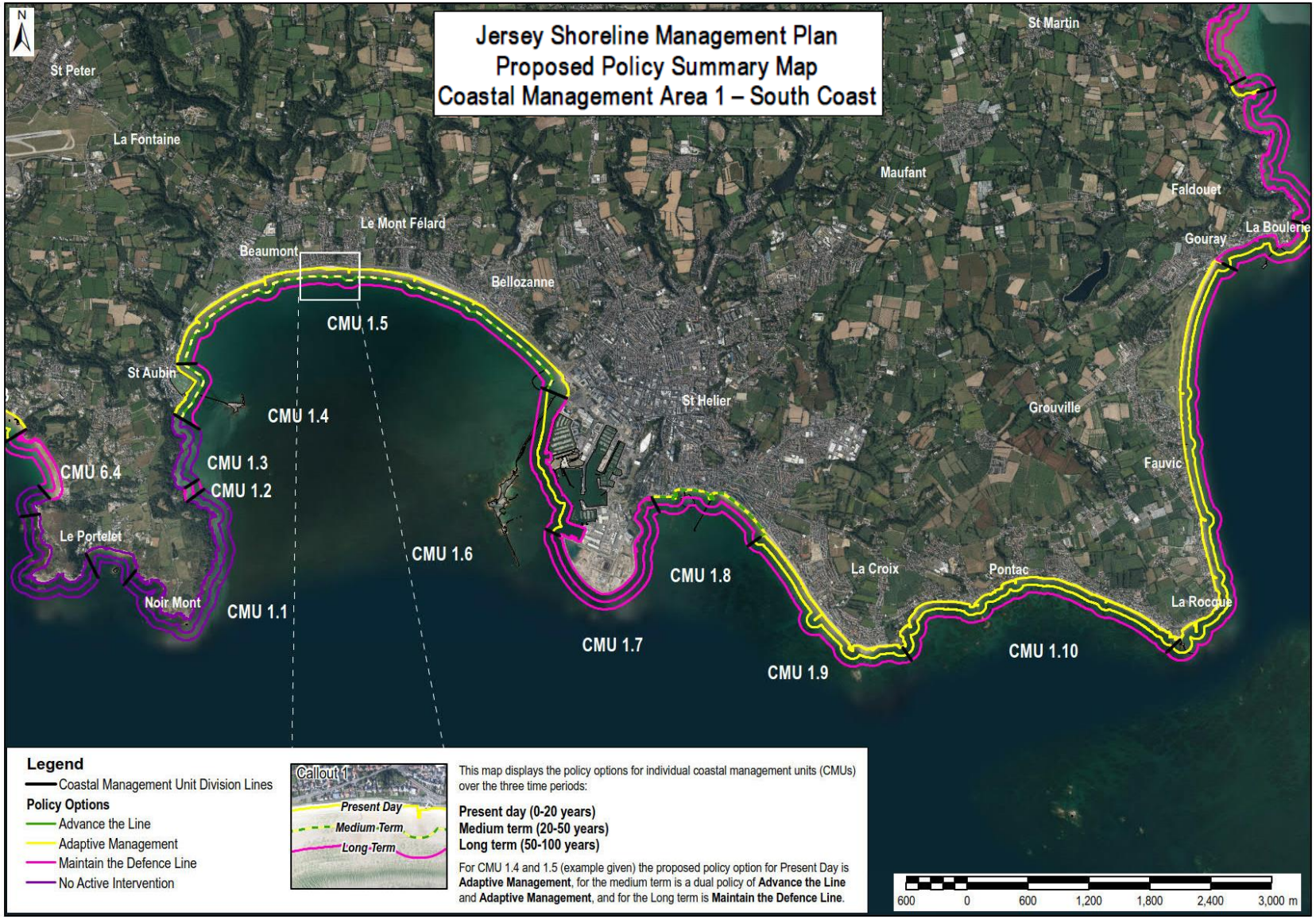


Figure 4-2: Policy summary for Coastal Management Area 1 - South Coast

4.1 Coastal Management Unit 1.1 (Noirmont Common)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 1.1 (Noirmont Common) spans from the eastern end of Portelet Beach to the northern end of Noirmont Common. Though the unit is undefended, there is negligible flood and coastal erosion risk and no properties or critical infrastructure assets are at risk. The policy options considered in CMU 1.1 are scored against the objectives in Appendix C (Table 4-1). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The preferred policy recognises the natural and environmental importance of Noirmont Common, the coastline of which is composed of both hard and soft cliffs which are part of the south-west headland heaths. Noirmont Common forms part of the Coastal National Park, and is a listed Ecological SSI under the protection of the State of Jersey; protecting SSI land to support the natural environment is one of the listed outcomes in the Future Jersey. It is composed of coastal heathland which is a key habitat in the Biodiversity Strategy for Jersey, and contains Atlantic Dry (Maritime) heathland which is listed in both Resolution No.4 of the Bern Convention and Annex 1 of the EC Habitats Directive.

The management intent will maintain the status of ecological processes and the landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline. It supports policies SP 4, NE 1, NE 8 and SCO 4 in the Island Plan, recognising the importance of Noirmont Common to the community, in terms of maintaining the current level of coastal access. This also contributes towards the Future Jersey objective of promoting health and wellbeing through continued recreation in the area.

This policy is anticipated to have negligible impact on the economic objectives, as Noirmont Common is a natural habitat with significant environmental value, and therefore limited opportunities for economic development.

Figure 4-3: Aerial view of the picturesque coastal landscape at Noirmont Common (CMU 1.1)[10]

[10] Birds on the Edge (2019) *Noirmont Common.* Available from: http://www.birdsontheedge.org/wild-jersey/sites/portelet-noirmont-common/ [Accessed 23 May 2019]

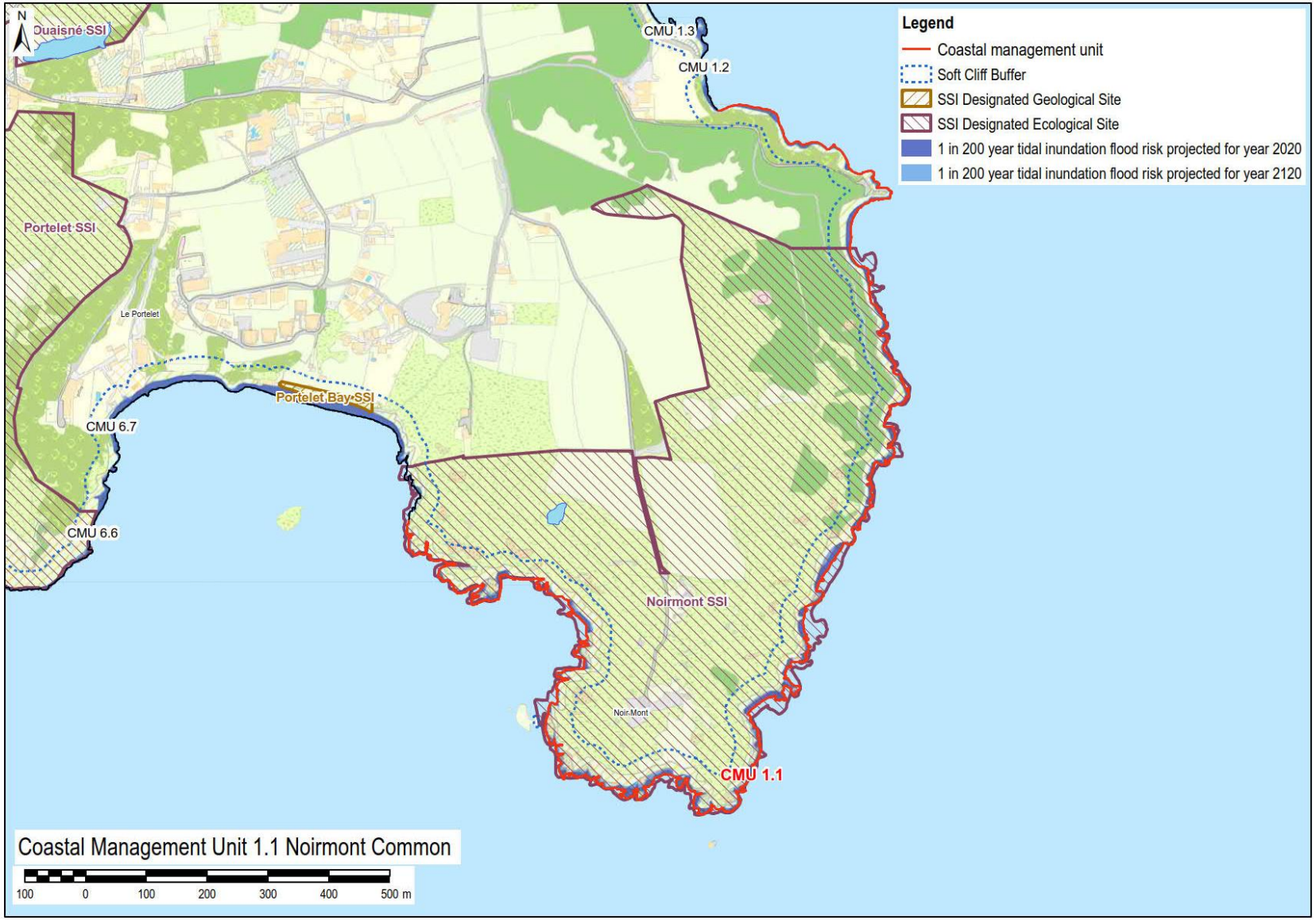


Figure 4-4: Coastal Flooding and Erosion risk at CMU1.1 (Noirmont Common)

4.2 Coastal Management Unit 1.2 (Belcroute Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 1.2 (Belcroute Bay) comprises the coastline directly in front of Noirmont Manor; the coastline is defended by a vertical, masonry wall, and there is negligible flood and coastal erosion risk to the properties and transport infrastructure. The policy options considered in CMU 1.2 are scored against the objectives in Appendix C (Table 4-2). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy will maintain the defences to provide consistent flood defence to Noirmont Manor as a heritage site and Grade III Listed Building, with cultural and landscape value. The management intent will maintain the value of Noirmont Manor, maintaining the defences to provide consistent flood defence, without introducing new infrastructure which could compromise the heritage value of the coastline; supporting policies SP 4 and HE 1 of the Island Plan to give high priority to the Island's natural and historic environment. This will also recognise the importance of Belcroute Bay to the community, and maintain the current level of coastal access.

The preferred policy is anticipated to have negligible impact on the economic objectives; however continued maintenance of the coastal defences supports the Future Jersey objective to protect the built and historic environment, which includes protecting listed buildings and other heritage assets.

Figure 4-5: Vertical masonry wall at Belcroute Bay (CMU 1.2)

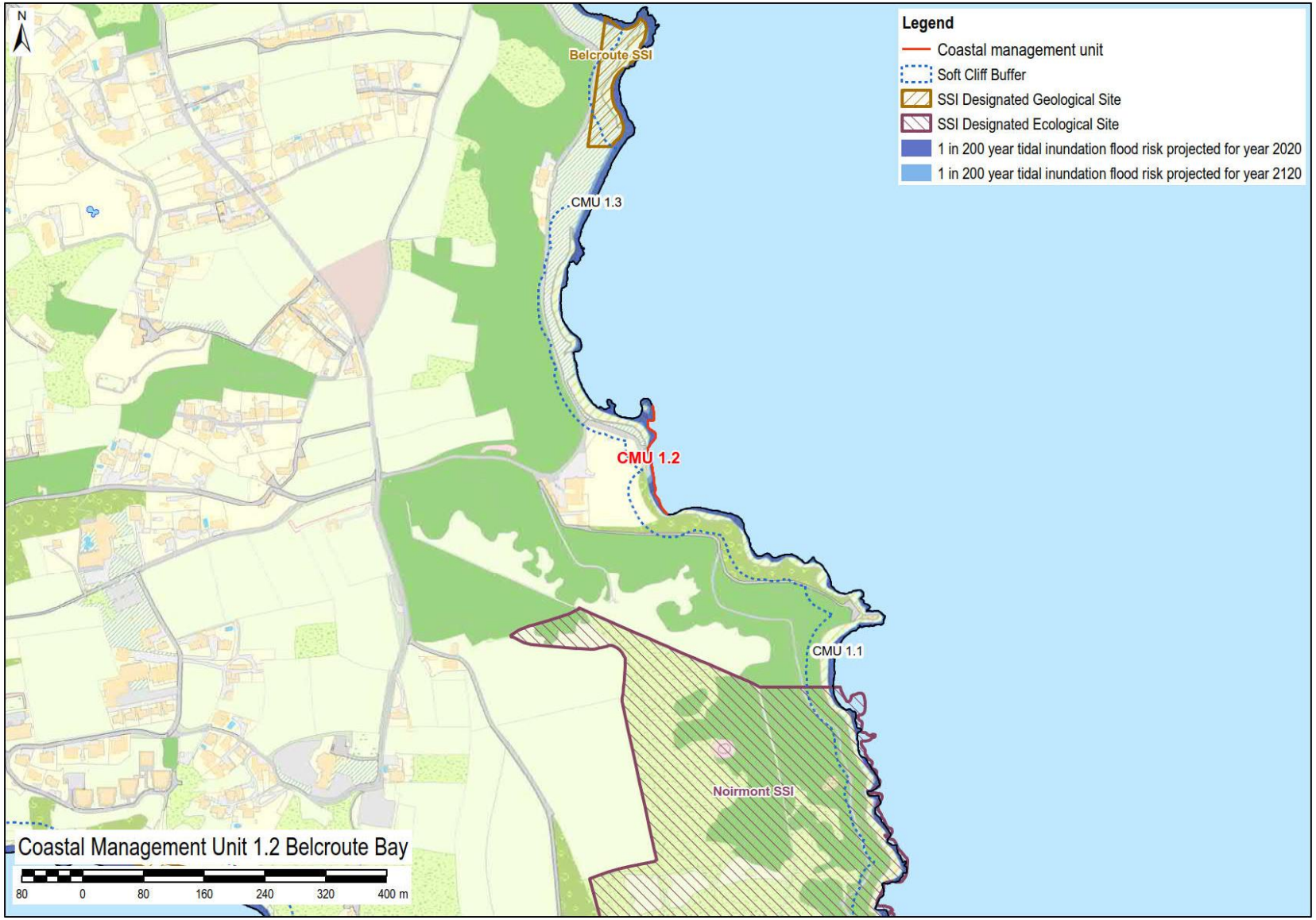


Figure 4-6: Coastal Flooding and Erosion risk at CMU1.2 (Belcroute Bay)

4.3 Coastal Management Unit 1.3 (La Housse)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 1.3 (La Housse) spans from Belcroute Bay to the southern end of the coastal defences at Pebble Beach, at St Aubin's Harbour. Though the unit is mostly undefended, there is negligible flood and some coastal erosion risk but no properties or critical infrastructure assets are at risk. The policy options considered in CMU 1.3 are scored against the objectives in Appendix C (Table 4-3). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The preferred policy recognises the natural and environmental importance of La Housse; the area includes Belcroute Geological SSI, which contains important sediments from two glacial and an interglacial period. The policy management intent will maintain the status of ecological and geological processes and the landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline. This will support the Future Jersey objective to support the natural environment, protecting the land of Belcroute SSI, and giving priority to its protection in line with Policy SP 4 of the Island Plan.

The preferred policy is anticipated to have negligible impact on the economic objectives as La Housse is an area of natural coastline with limited opportunities for economic development.

Figure 4-7: View of the coastline at CMU 1.3 (La Housse)

Figure 4-8: Coastal Flooding and Erosion risk at CMU1.3 (La Housse)

4.4 Coastal Management Unit 1.4 (St Aubin's Harbour)

Preferred Policy Option			
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**		**Epoch 3: Long Term 2070-2120**
Adaptive Management	Adaptive Management	Advance the Line	Maintain the Defence Line

Coastal Management Unit 1.4 (St Aubin's Harbour) comprises the coastline in front of the old town of St Aubin, including St Aubin's Harbour and Breakwater, and St Aubin's Fort ecological SSI. The area is partially defended by masonry coastal defences, but properties behind the harbour are still subject to overtopping flood risk and flooding from still water levels from a 1:20 year flood event in the present day. The policy options considered in CMU 1.4 are scored against the objectives in Appendix C (Table 4-4).

The preferred policy for this unit is **Adaptive Management** for epoch 1. This will include implementing a community awareness scheme to reduce and enable better preparation for the impacts of flooding on the community, and implementing some new coastal defences to a 1:200 year standard of protection. In epoch 2, the management intent is a dual policy of **Adaptive Management** and **Advance the Line**; this will involve improving all the existing defences to a 1:200 year standard of protection as a minimum. In some areas, the defence line will be advanced further out to sea where necessary. The preferred policy option will be **Maintain the Defence Line** for epoch 3, involving proactive maintenance of the new and existing defences by to 2120.

The dual policy here in epoch 2 ensures that the area around St Aubin's Harbour is protected from the impacts of flooding, and provides an opportunity for moving the defence line forward where it is both appropriate for the community, and serves a purpose. This purpose could be providing better protection where the flood risk is greater, and more land for business development and economic growth – which could support Island Plan Policy SP 5. This has the potential to beneficially impact the wider economy, developing business opportunities here to support the urban environment.

The preferred policy recognises the importance of St Aubin's Harbour as a key recreational attraction for leisure and fishing, and hence any coastal defences implemented in epoch 1 would be complimentary to the existing facilities, and access to the frontage (supporting Policy NE 8), helping to encourage community and stakeholder ambitions. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure during storm events. In epoch 2 a more comprehensive sea defence scheme along the entirety of the frontage could be developed that would provide the longer term protection from overtopping and still water level flood risk, which includes raising the standard of protection to 1:200.

There are nine listed buildings with heritage value along Le Boulevard, mostly Grade III and IV residential properties. The management intent will provide protection to these properties, benefitting the cultural and heritage value of the area without introducing new infrastructure which could interfere with the coastline in the present day. Improving the defences to a 1:200 year standard of protection in epoch 2 will minimise the impact of flooding on these assets, and provides time to integrate the defence into the community aspirations. This supports the Future Jersey objective to support the built and historic environment, which includes protecting listed buildings and other heritage assets, and the Island Plan policies SP 4 and HE 1.

The number of properties at risk from flooding at St Aubin's Harbour are shown for each return period event in Table 4-2, with the benefits and costs for the preferred policy option also calculated.

Table 4-2: Economic Assessment Summary - CMU 1.4 (St Aubin's Harbour)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	0	0	0	22	13,457	7,419	1.81
1:20	9	11	19	53			
1:75	11	15	27	66			
1:200	16	22	32	67			

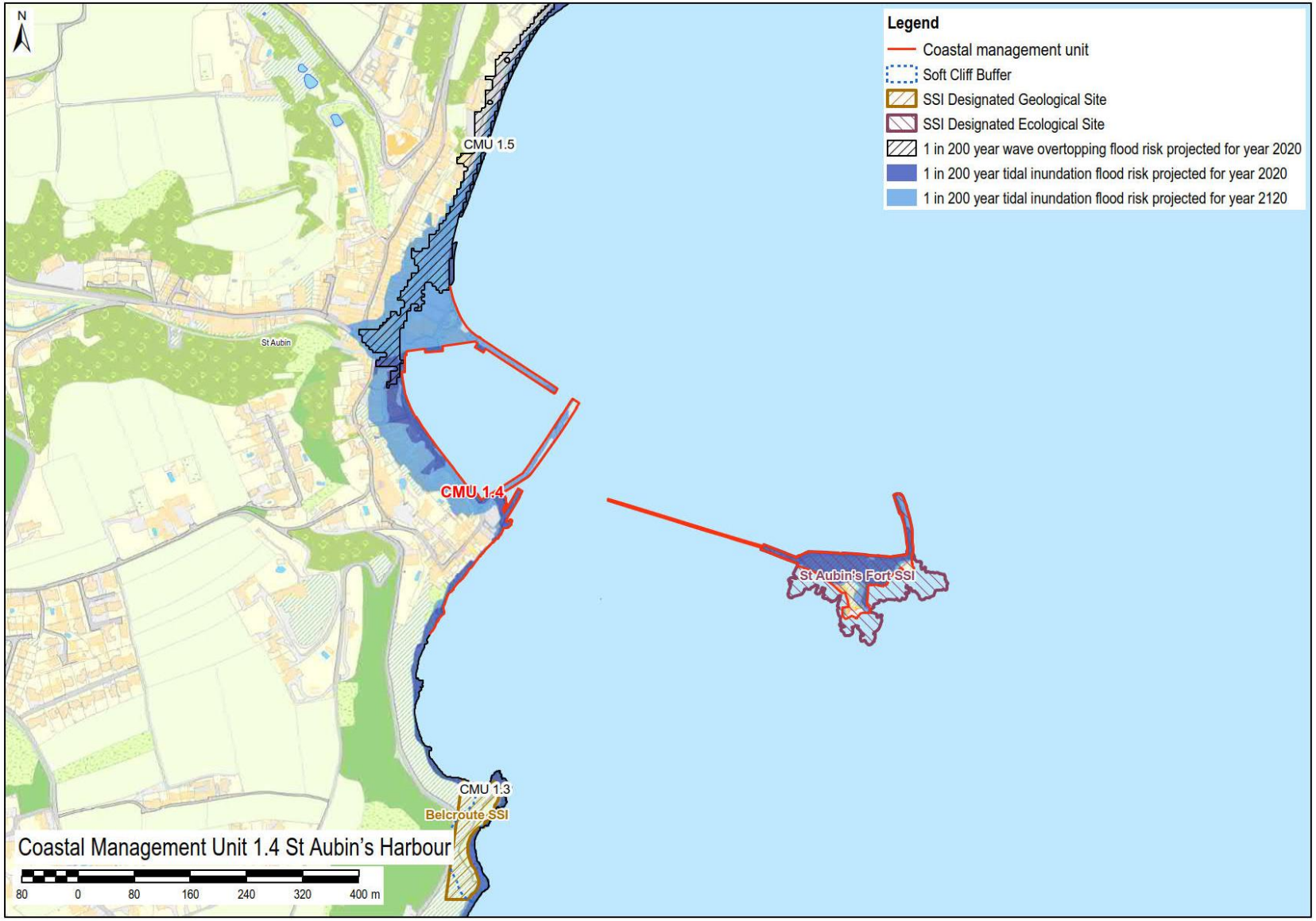


Figure 4-9: Coastal Flood risk at CMU1.4 (St Aubin's Harbour)

Figure 4-10: Existing coastal defences at St Aubin's Harbour (CMU 1.4)

Figure 4-11: St Aubin's Harbour (CMU 1.4)

4.5 Coastal Management Unit 1.5 (St Aubin's Bay)

Preferred Policy Option			
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**		**Epoch 3: Long Term 2070-2120**
Adaptive Management	Adaptive Management	Advance the Line	Maintain the Defence Line

Coastal Management Unit 1.5 (St Aubin's Bay) spans from the northern end of St Aubin's Harbour to the eastern end of St Aubin's Bay defences at St Helier. There are a range of defences along the coastline but it is still subject to overtopping flood risk, particularly at Beaumont and Milbrook from a 1:1 year flood event in the present day. La Neuve Route Victoria Avenue is also predicted to be at risk of flooding from still water levels in epoch 2 from a 1:200 year flood event, due to rising still water levels. The policy options considered in CMU 1.5 are scored against the objectives in Appendix C (Table 4-5).

The preferred policy for this unit is **Adaptive Management** for epoch 1. This will include implementing a community awareness scheme to reduce and enable better preparation for the impacts of flooding on the community, and implementing some new coastal defences to a 1:200 year standard of protection. In epoch 2, the management intent is a dual policy of **Adaptive Management** and **Advance the Line**; this will involve improving all the existing defences to a 1:200 year standard of protection as a minimum. In some areas, the defence line will be advanced seaward where necessary. The preferred policy option will be **Maintain the Defence Line** for epoch 3, involving proactive maintenance of the new and existing defences to 2120. The new recurve wall at Gunsite (Figure 4-13) Is a good example of how adaptive management might look in this coastal management unit.

The dual policy here ensures that the entirety of St Aubin's Bay is protected from the impacts of flooding, and provides an opportunity for moving the defence line forward where it is both appropriate for the community, and serves a purpose. This purpose could be providing better protection where the flood risk is greater, and more land for business development and economic growth – which could support Island Plan Policy SP 5. This has the potential to beneficially impact the wider economy, developing business opportunities here to support the urban environment in St Helier particularly.

The preferred policy option recognises the importance of St Aubin's Bay as a popular recreational location, with residential areas situated behind the bay, and hence any sea defence scheme would be complimentary to these features. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure during storm events. In epoch 2, implementing coastal defence structures along the entirety of the frontage would provide longer term protection from overtopping and still water level flood risk, at a 1:200 year standard of protection. This would protect the road infrastructure along the La Neuve Route and Victoria Avenue, supporting Island Plan Policy TT 13, with a potential to improve the Island's footpath and cycle network to support policy TT 1. There are ten listed buildings with heritage value along La Route de la Haule, and the management intent will provide protection to these sites to protect the cultural and heritage value, though any defences will be in keeping with the character of the coastline. Implementing some coastal defences in epoch 1, and a further scheme in epoch 2, will minimise the impact of flooding on these assets, and provides time to integrate the defence into the community aspirations. This is also important in terms of the Future Jersey objectives, and the Island Plan policies SP 4 and HE 1.

The number of properties at risk from flooding at St Aubin's Bay are shown for each return period event in Table 4-3, with the benefits and costs for the preferred policy option also calculated.

Table 4-3: Economic Assessment Summary - CMU 1.5 (St Aubin's Bay)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	3	4	4	5	21,559	15,528	1.39
1:20	13	18	19	101			
1:75	19	20	21	144			
1:200	20	26	26	171			

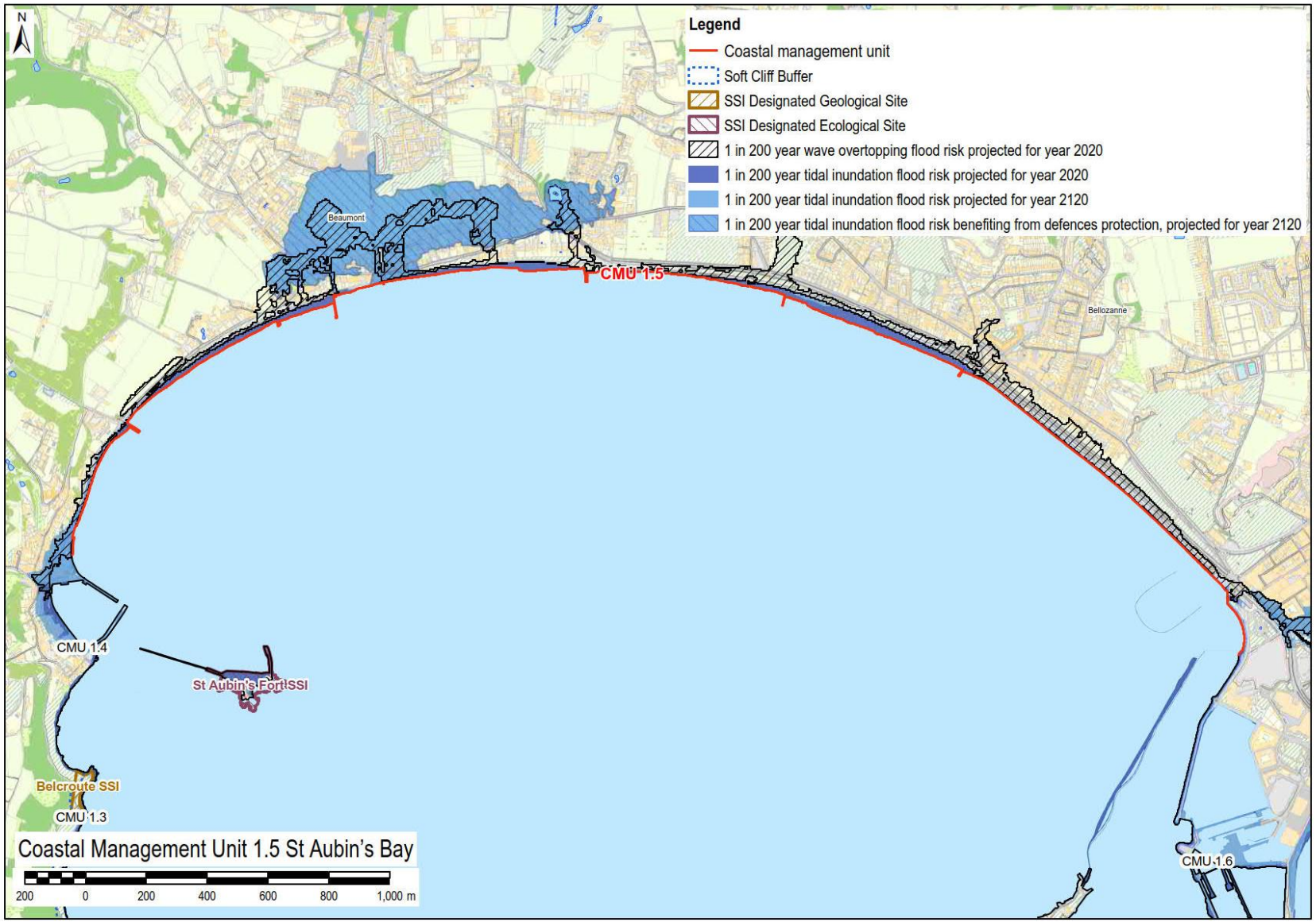


Figure 4-12: Coastal Flooding and Erosion risk at CMU1.5 (St Aubin's Bay)

Figure 4-13: Recurve wall design at Gunsite, St Aubin's Bay (CMU 1.5)

Figure 4-14: Sloping masonry wall at St Aubin's Bay (CMU 1.5)

4.6 Coastal Management Unit 1.6 (St Helier)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 1.6 (St Helier) comprises the coastline in front of the town of St Helier. This includes the key commercial and ferry port of St Helier, which has significant infrastructure for the transport of goods to and from Jersey. Areas around the Port of St Helier are subject to flooding from a 1:1 year flood event in the present day. The policy options considered in CMU 1.6 are scored against the objectives in Appendix C (Table 4-6).

The preferred policy option for this unit is **Maintain the Defence Line** for epoch 1, **Adaptive Management** in epoch 2 followed by **Maintain the Defence Line** in epoch 3. This policy option will involve no changes being implemented to the infrastructure around the Port in the present day, and then new defence structures implemented in 2040 to a 1:200 year standard of protection to manage the flood risk; these defences will be maintained up to 2120. It should be noted that this management approach does not currently include for any works that the Ports of Jersey may undertake by 2040. The new defences in 2040 could be implemented at a setback alignment behind the Port of St Helier (in the absence of an integrated defence alignment between the Government of Jersey and Ports of Jersey), with a potential plan for this defence line shown in Figure 4-15. While this setback alignment would leave residual flood risk in front, this should be managed by the Ports of Jersey and will not be funded by the Government of Jersey. The only residual flood risk in the present day will impact the area managed by the Ports of Jersey.

The preferred policy recognises the importance of St Helier as the residential and urban centre of Jersey, which acts as an economic driver for all development across the Island. The development of St Helier is a principal focus of land-use planning and development within the Island Plan, supporting Policy SP 5 to provide economic growth and diversification. The delivery of development projects in St Helier will benefit from these defences, providing protection to the reclaimed land of the St Helier Waterfront, and protecting the connection between the town and the seafront. Furthermore, the defences will protect the transport infrastructure which is vital to St Helier – including roads, footpaths and cycle networks (supporting policies TT 1 and TT 13).

Implementing new coastal defences in epoch 2 will protect the qualities and value that the town already possesses, and support the development of new opportunities in these locations. This is also highlighted in the Future Jersey, in the objectives of creating an attractive business environment, creating jobs and growth and protecting the built and historic environment. There are hundreds of listed buildings within St Helier; the defences built from 2040 onwards will be designed with consideration to visual appearance, contributing to the overall aesthetic of the town and in keeping with the historic built environment, to reflect the cultural development of St Helier, and supports the Island Plan policies SP 4 and HE 1.

Introducing new defences in the epoch 2 provides time to integrate the defence into community aspirations, and can be built to fit with stakeholder needs in line with new development in these regeneration areas. This also has the potential to facilitate opportunities for further development in the future. Some heritage sites within St Helier are located close to the Port, and would be situated in front of the new setback defence alignment. This has the potential to conflict with the aforementioned policies in the Island Plan, and requires investigation and innovative solutions to be developed to ensure that all heritage assets are protected where possible.

The number of properties at risk from flooding at St Helier are shown for each return period event in Table 4-4, with the benefits and costs for the preferred policy option also calculated.

Table 4-4: Economic Assessment Summary - CMU 1.6 (St Helier)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	6	10	11	243	109,708	3,617	30.33
1:20	48	69	123	621			
1:75	76	107	288	813			
1:200	127	202	387	1078			

Figure 4-15: Port of St Helier (CMU 1.6)

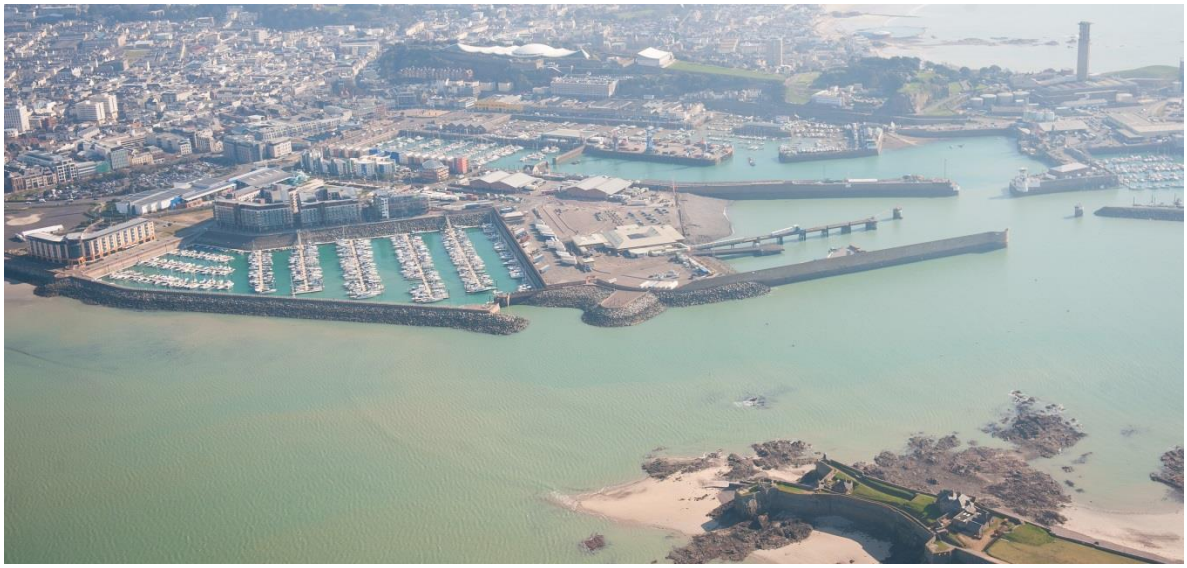


Figure 4-16: Aerial view of the coastline at St Helier (CMU 1.6)

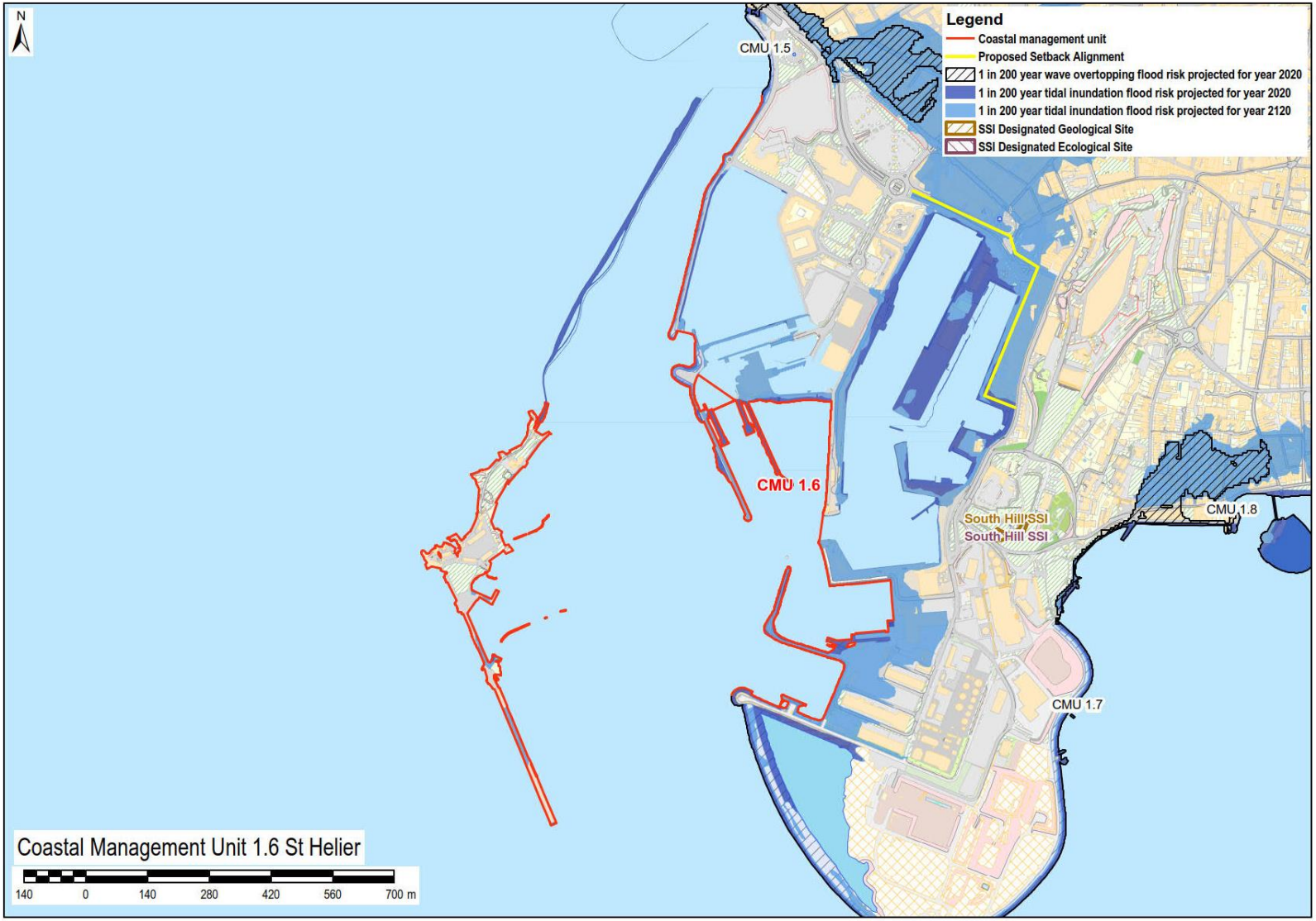


Figure 4-17: Coastal Flood risk at CMU1.6 (St Helier)

4.7 Coastal Management Unit 1.7 (La Collette)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 1.7 (La Collette) comprises the reclaimed land of La Collette, next to the port of St Helier. There is negligible risk of flooding and coastal erosion to La Collette. The policy options considered in CMU 1.7 are scored against the objectives in Appendix C (Table 4-7). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises that La Collette is an industrial area with some commercial properties which house potentially hazardous materials – such as Gas and oil terminals, LPG manufacturing plant, power station, energy recovery facility and bus depot. Defences will be maintained here to provide long term protection from flood risk which is driven from higher still water levels.

The coastline at La Collette forms part of the southeast coast Ramsar site, and South Hill Geological SSI site behind La Collette, which provides ecological value to the natural environment. The management intent is to provide maintained protection to this site up to 2120, to minimise the impact of flooding on these environmental assets. This will support the Future Jersey objective to support the natural environment, and the Island Plan Policy SP 4.

La Collette is highlighted in the Island Plan as a potential area for regeneration, forming part of the town of St Helier, and could provide economic growth in support of Island Plan Policy SP 5. The preferred policy option has the greatest potential to support this, providing continued protection to facilitate further industrial development throughout the plan period. Although the Buncefield restrictions[11] have reduced the potential for development at La Collette, the management intent will provide maintained protection to hazardous materials which are stored here. This will support the delivery of broader outcomes and business opportunities in the urban environment in St Helier, and could beneficially impact other infrastructure in the area and wider area through the redevelopment.

[11] The Buncefield restrictions were developed following explosions at the Buncefield Oil Storage Depot in Hertfordshire, England. The restrictions were designed to limit development in areas with hazardous materials, to prevent such incidents reoccurring.

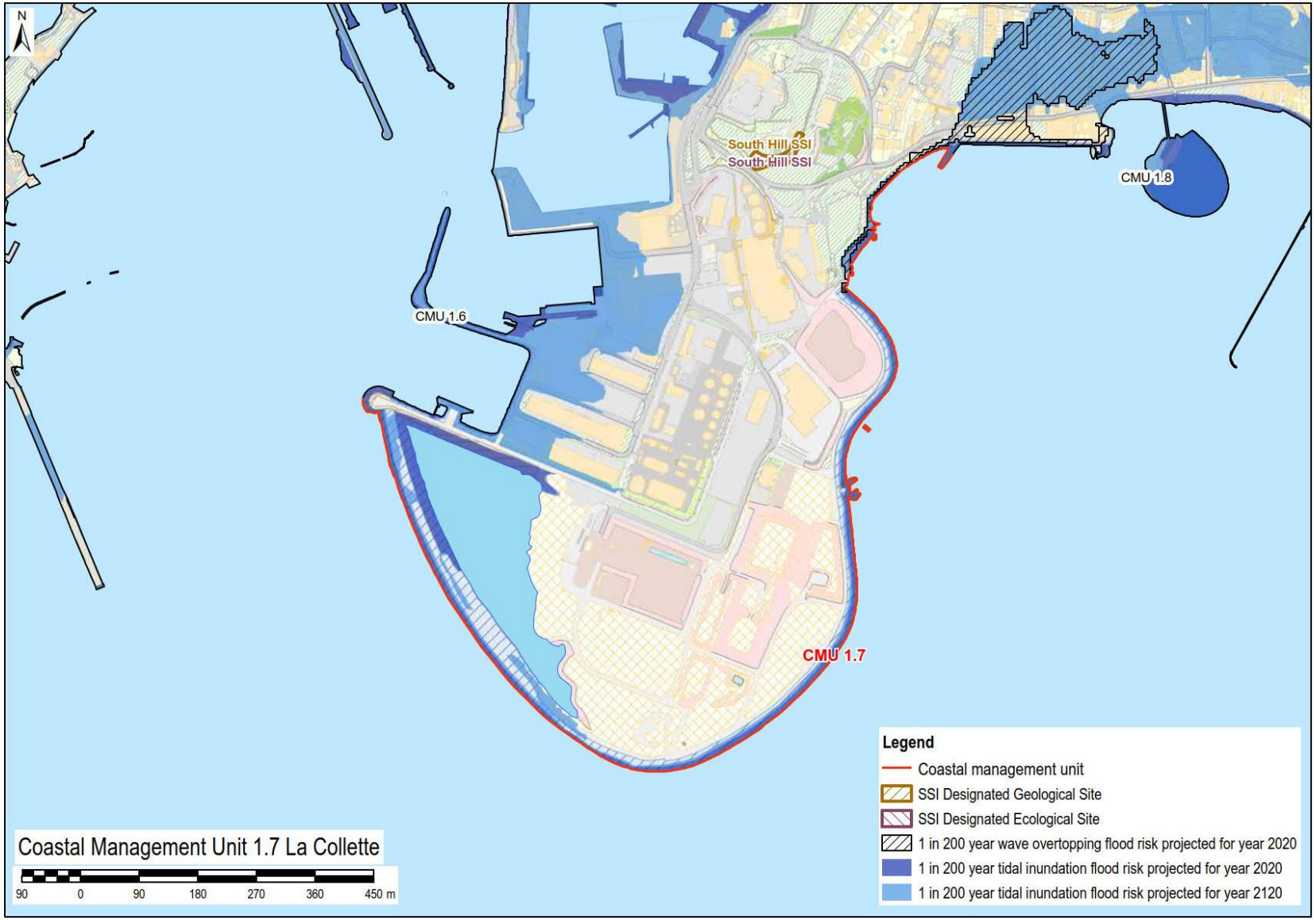


Figure 4-18: Coastal Flood risk at CMU1.7 (La Collette)

4.8 Coastal Management Unit 1.8 (Havre des Pas)

Preferred Policy Option			
Epoch 1: Present Day 2020-2040		**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management	Advance the Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 1.8 (Havre des Pas) has a range of defences at the coastline but is still subject to overtopping flood risk along the promenade from a 1:1 year flood event in the present day. Residential areas stretching inland as far as Bagot Road are predicted to be at risk of flooding from still water levels from a 1:200 year flood event in the present day. In this location, some flow routes are limited by the presence of de-facto defences in the form of properties. The policy options considered in CMU 1.8 are scored against the objectives in Appendix C (Table 4-8). The preferred option for this unit is a dual policy of **Adaptive Management** and **Advance the Line** in epoch 1. This will involve improving the defences to a 1:200 year standard of protection in the present day, and in some localised areas at Havre des Pas the defence line could be advanced into the sea. The seaward advance distance would be based on the findings of appropriate engineering and environmental assessments and be subject to public consultation. The preferred policy option for epochs 2 and 3 will be **Maintain the Defence Line**, up to 2120.

The preferred policy option recognises the importance of Havre des Pas as a popular beach location which includes the Havre des Pas Bathing Pool, and hence any sea defence scheme would be complimentary to the existing facilities at the promenade, and access to the frontage, helping to support community and stakeholder ambitions. This would also support Island Plan Policy NE 8 and provide health and wellbeing benefits in support of the Future Jersey objective. Coastal defences developed in epoch 1 along the entirety of the frontage would provide long term protection from flood risk driven by both overtopping and still water levels.

The coastline here forms part of the southeast coast Ramsar site, inland ecological SSI La Rue des Prés is located here, and there are over 30 listed buildings with heritage value. The management intent is to provide protection to these sites in a way which integrates defences into the coastline, meeting community aspirations. This will benefit the cultural and heritage value of the area, supporting the Future Jersey objectives and the Island Plan policies NE 1, NE 6, SP 4 and HE 1.

The preferred policy option has the greatest potential to support plans and opportunities for economic growth in Havre des Pas, as it is recognised in the Island Plan as a small urban centre. Providing better protection to businesses will facilitate opportunities for investment. This will support the delivery of broader outcomes and business opportunities in the urban environment in St Helier, and could beneficially impact other infrastructure in the area and wider area through the redevelopment.

The number of properties at risk from flooding at Havre des Pas are shown for each return period event in Table 4-5, with the benefits and costs for the preferred policy option also calculated.

Table 4-5: Economic Assessment Summary - CMU 1.8 (Havre des Pas)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	39	56	56	694	276,084	6,636	41.60
1:20	157	188	189	893			
1:75	264	261	848	1002			
1:200	357	331	918	1080			

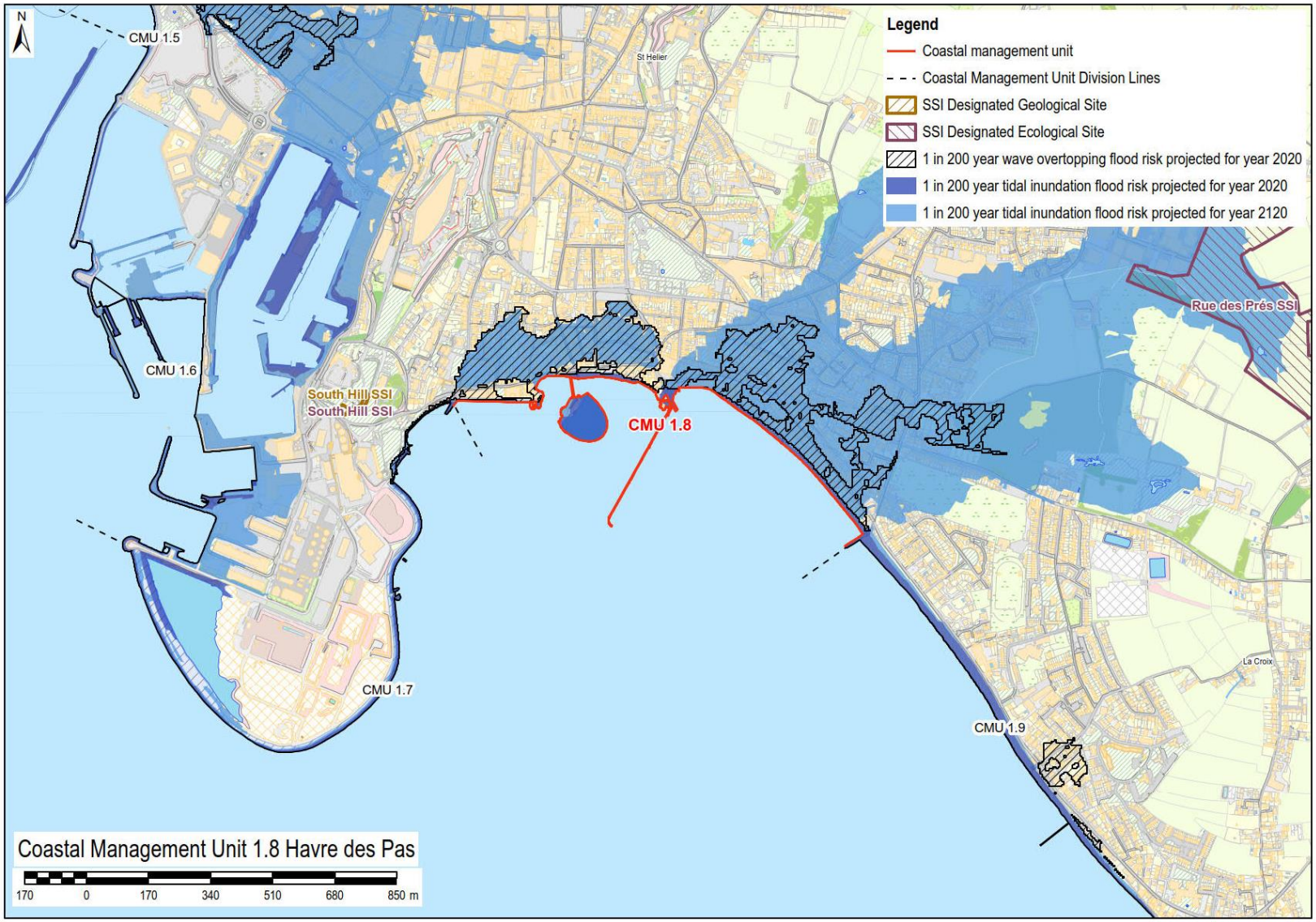


Figure 4-19: Coastal Flooding and Erosion risk at CMU1.8 (Havre des Pas)

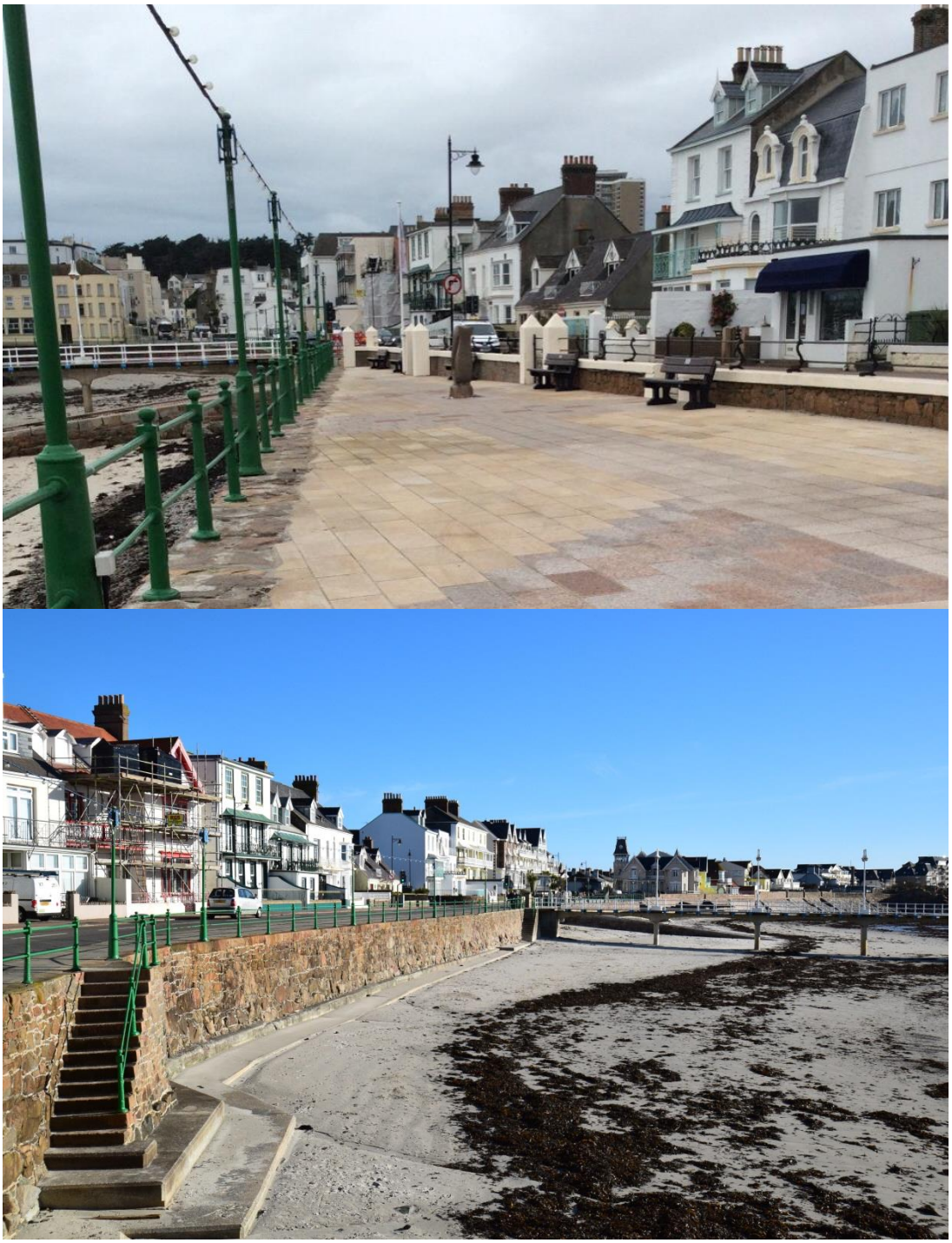


Figure 4-20: Existing coastal defences at Havre des Pas (CMU 1.8)

4.9 Coastal Management Unit 1.9 (La Greve d'Azette)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 1.9 (La Greve d'Azette) has a range of defences protecting against the risk of coastal flooding and erosion, though it is still subject to overtopping flood risk at La Mare from a 1:200 year flood event in the present day. This flood risk is expected to continue into the future due to rising still water levels. The policy options considered in CMU 1.9 are scored against the objectives in Appendix C (Table 4-9). The preferred policy option for this unit is **Adaptive Management** in epochs 1 and 2 and **Maintain the Defence Line** in epoch 3, up to 2120.

This will involve implementing community awareness schemes during the epoch 1 to reduce and enable better preparation for the impacts of flooding on the community, and then engaging with the community about ways to improve the defences to a 1:200 year standard of protection, in locations where assets are at risk, in epoch 2 and maintain it in the future up to 2120. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure during storm events. In epoch 2 a more comprehensive sea defence scheme along the frontage of La Mare could be developed that would provide the longer term protection from flood risk.

The coastline here forms part of the southeast coast Ramsar site, and there are 11 listed buildings with heritage value, as well as Green Island Geological SSI – a site with excellent exposures of geological deposits such as loess and glacial head. Improving the defences to a 1:200 year standard of protection in epoch 2 will minimise the impact of flooding on these environmental assets, and provides time to integrate the defence into the community aspirations. This supports the Future Jersey objectives to support the built and historic environment and the natural environment, and the Island Plan policies SP 4, NE 1 and HE 1. The preferred policy option has potential to support plans and opportunities for economic growth by providing better awareness of flooding in the present day, and protection to businesses in epoch 2, facilitating investment opportunities.

The number of properties at risk from flooding at La Greve d'Azette are shown for each return period event in Table 4-6, with the benefits and costs for the preferred policy option also calculated. The Benefit Cost Ratio is low as there are few properties at risk, though new coastal defences would need to be built along the length of the frontage.

Table 4-6: Economic Assessment Summary - CMU 1.9 (La Greve d'Azette)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	0	0	0	1	710	5,398	0.13
1:20	0	0	1	1			
1:75	0	1	1	1			
1:200	1	1	1	1			

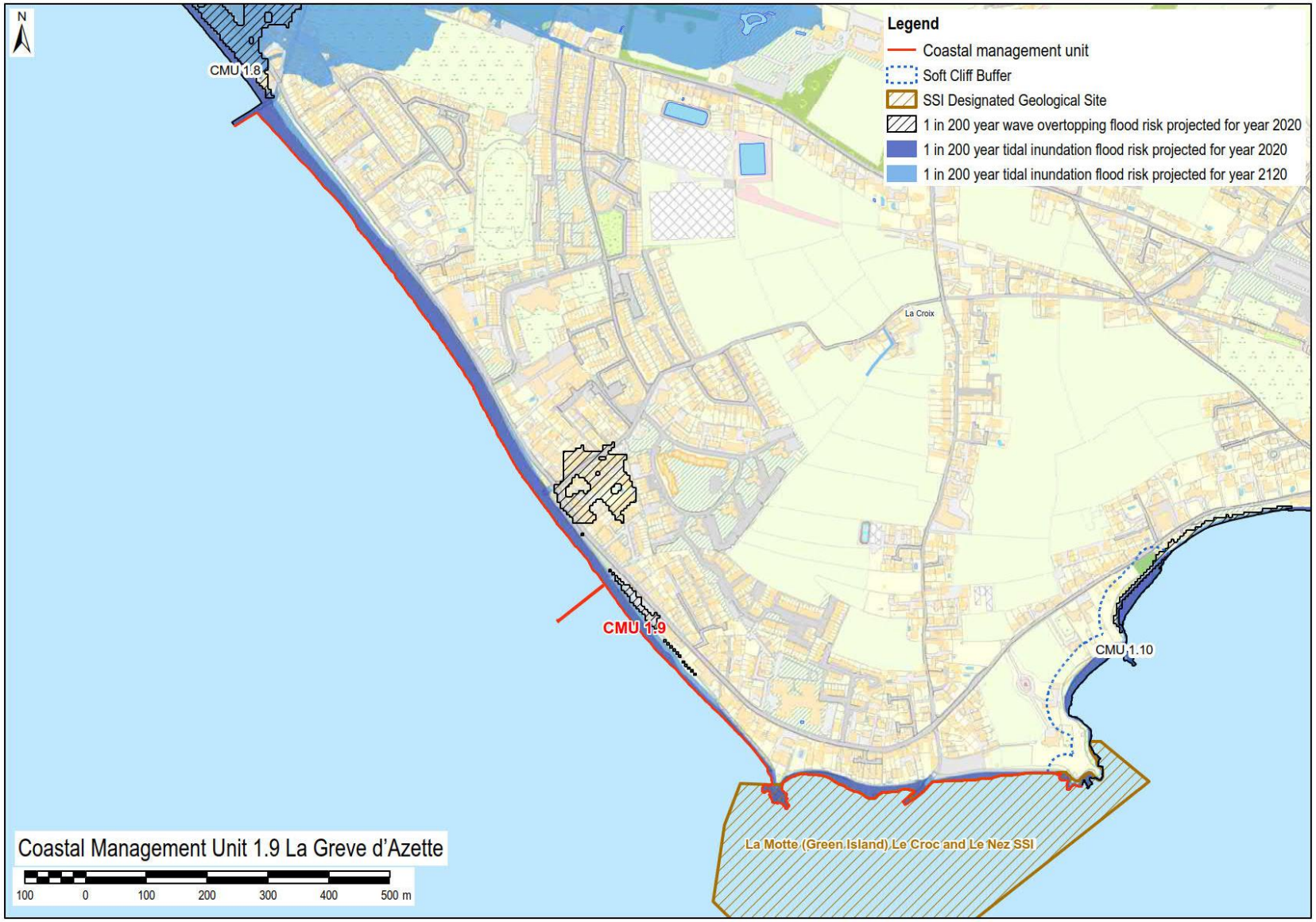


Figure 4-21: Coastal Flooding and Erosion risk at CMU1.9 (La Greve d'Azette)

Figure 4-22: Coastline at La Greve d'Azette (CMU 1.9)

4.10 Coastal Management Unit 1.10 (Le Hocq / Pontac)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 1.10 (Le Hocq / Pontac) has a range of coastal defences but is still subject to overtopping flood risk at Le Hocq from a 1:1 year flood event in the present day. Le Hocq is also predicted to be at risk of flooding from still water levels in epoch 3 from a 1:200 year flood event, due to rising still water levels. Between Green Island and Le Hocq, there is risk of erosion due to the soft geology, according to the analysis in Appendix B, which suggests a whole island annual average rate of erosion of 0.3m per year from visual analysis of the historic aerial imagery between 2003 and 2017.

The policy options considered in CMU 1.10 are scored against the objectives in Appendix C (Table 4-10). The preferred policy option for this unit is **Adaptive Management** in epochs 1 and 2 and **Maintain the Defence Line** in epoch 3, up to 2120. This will involve implementing community awareness schemes during epoch 1 to reduce and enable better preparation for the impacts of flooding on the community, and then engaging with the community to improve the defences to a 1:200 year standard of protection in epoch 2. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure at La Grande Route de la Cote during storm events. In epoch 2 new defences along the frontage at Le Hocq could provide long term protection from flood risk. These works would then be maintained in epoch 3 to the required standard of protection.

The coastline forms part of the southeast coast Ramsar site, and there are over 30 listed buildings that have heritage value. The management intent is to improve the defences to a 1:200 year standard of protection in epoch 2 to minimise the impact of flooding on these environmental assets, and provides time to integrate the defence into the community aspirations. This supports the Future Jersey objectives to support the built and historic environment and the natural environment, and the Island Plan policies SP 4 and HE 1. The preferred policy option has the greatest potential to support plans and opportunities for economic growth by providing better awareness of flooding in the present day, and protection to businesses here in epoch 2 to facilitate opportunities for investment.

The number of properties at risk from flooding at Le Hocq / Pontac are shown for each return period event in Table 4-7, with the benefits and costs for the preferred policy option also calculated. The Benefit Cost Ratio is low as there are few properties at risk, though new coastal defences would need to be built along the length of the frontage.

Table 4-7: Economic Assessment Summary - CMU 1.10 (Le Hocq / Pontac)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	2	2	2	2	4,524	5,536	0.82
1:20	3	3	3	3			
1:75	3	4	4	4			
1:200	4	4	4	4			
Erosion	0	0	1	4			

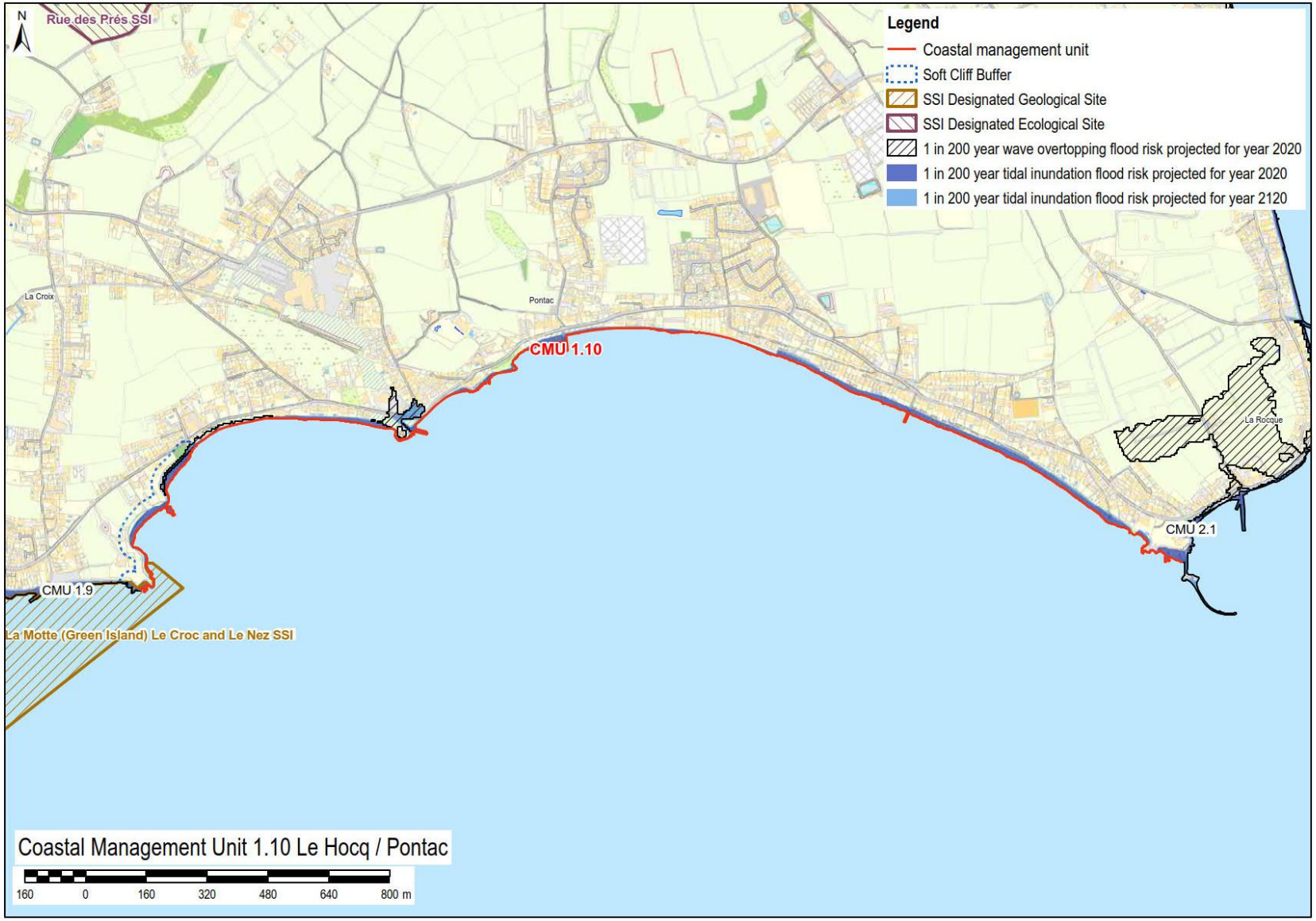


Figure 4-23 :Coastal Flooding and Erosion risk at CMU1.10 (Le Hocq / Pontac)

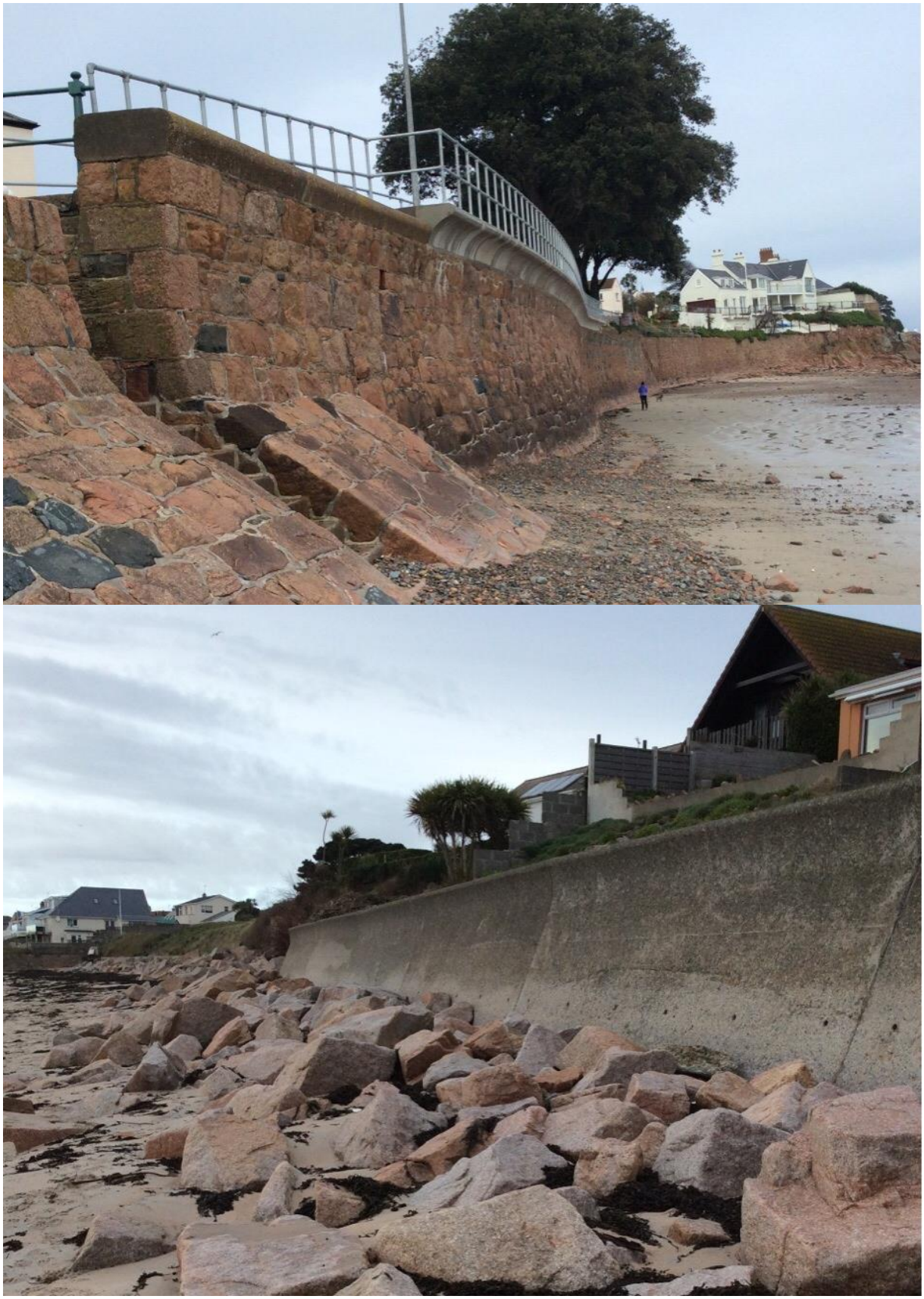


Figure 4-24: Existing defences at Le Hocq / Pontac (CMU 1.10)

5. Coastal Management Area 2 – Grouville Bay (CMA2)

Coastal Management Area 2 encompasses the coastal area of Grouville Bay, extending up to Mont Orgueil Castle. This includes popular recreational locations such as Gorey Harbour and La Rocque Harbour. Most of the coastline is defended, and there are small areas of flood risk across the area. Mont Orgueil Castle provides historical and cultural value to the area, and there are also several sites of ecological and geological importance such as Grouville Marsh SSI, which require protection from flooding. The coastline is also part of the southeast coast Ramsar site. Figure 5-2 shows the risk of flooding and coastal erosion at Grouville Bay, and Figure 5-3 shows the selected policies for each CMU.

Table 5-1: Coastal Management Area 2 - Grouville Bay

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
2.1	**Royal Bay of Grouville (5370m)**	Multiple defences including vertical granite wall and sloping granite wall; 4000m	• La Rocque Harbour • Jersey Royal Golf Club • Grouville Marsh Ecological SSI • Large residential areas	✔	✗
2.2	**Gorey Harbour (2190m)**	Sloping granite wall; 100m	• Gorey Harbour • Mount Orgueil Ecological SSI	✔	✔

Figure 5-1: Grouville Bay Coastline

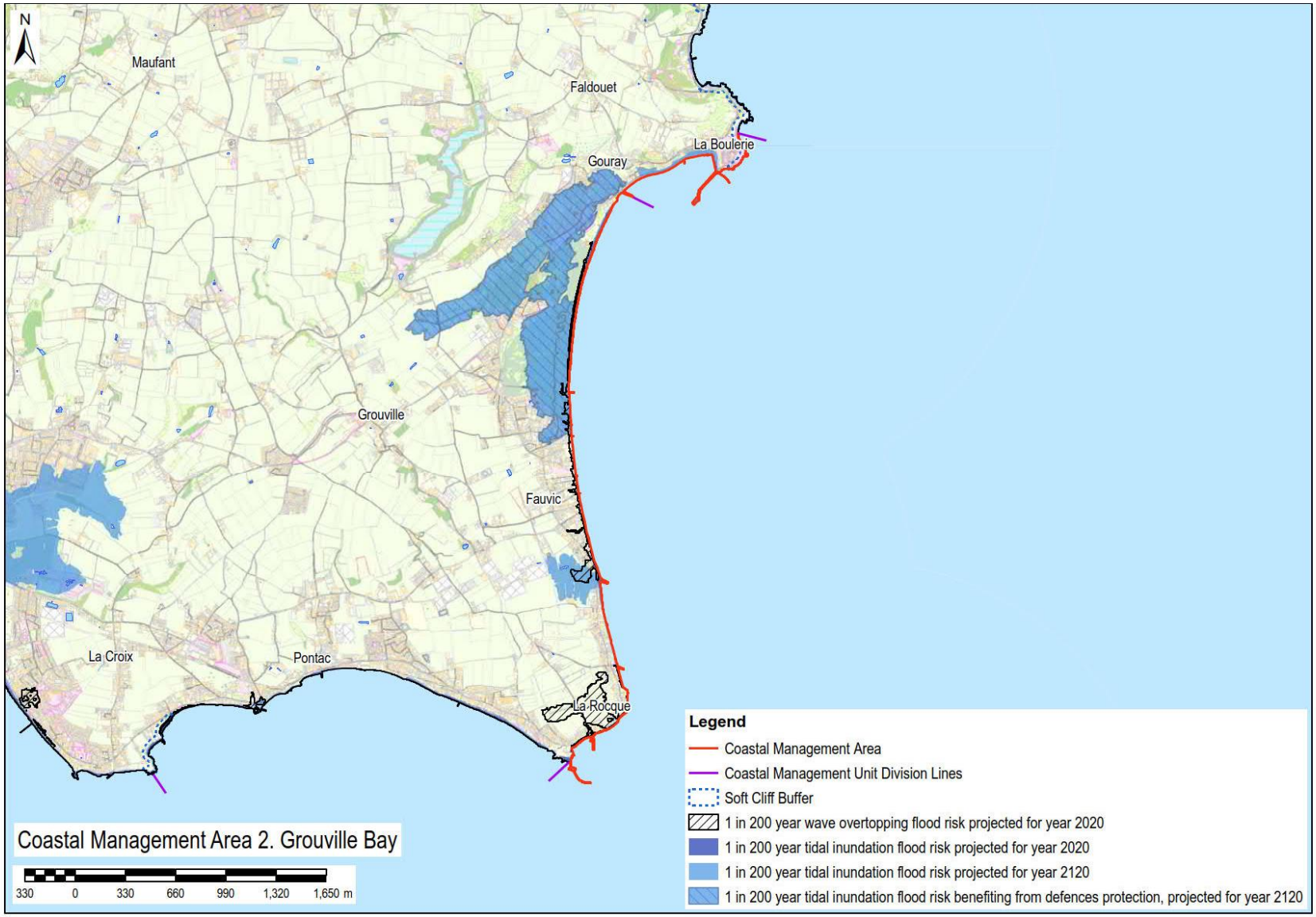


Figure 5-2: Coastal Flooding and Erosion risk at Coastal Management Area 2 – Grouville Bay

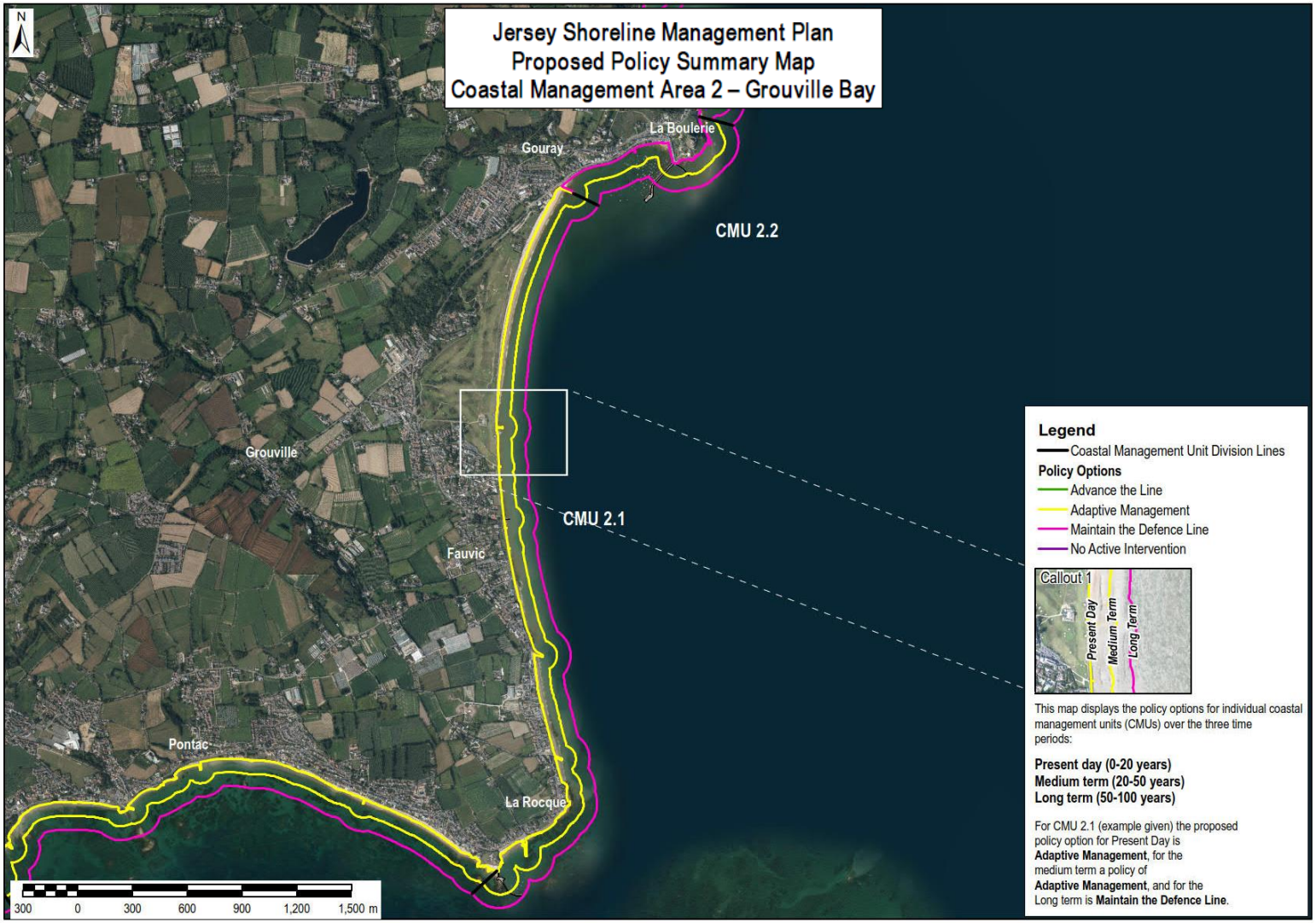


Figure 5-3: Policy summary for Coastal Management Area 2 - Grouville Bay

5.1 Coastal Management Unit 2.1 (Royal Bay of Grouville)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 2.1 (Royal Bay of Grouville) encompasses the east coast of Jersey, from La Rocque to Gorey Harbour. There is no risk of coastal erosion, though it is subject to flood risk from overtopping flood risk at La Rocque and Le Hurel from a 1:20 flood event in the present day. Le Hurel is also predicted to be at risk of flooding from still water levels in epoch 3 from a 1:200 year flood event, due to rising still water levels. The policy options considered in CMU 2.1 are scored against the objectives in Appendix C (Table 4-11).

The preferred policy option for this unit is **Adaptive Management** in epochs 1 and 2 and **Maintain** in epoch 3, up to 2120. This will involve implementing community awareness schemes during epoch 1 to reduce and enable better preparation for the impacts of flooding on the community, and then engaging with the community about ways to improve the defences to a 1:200 year standard of protection in epoch 2. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure during storm events. In epoch 2 the defences along the frontage would be improved to provide long term protection from flood risk.

The coastline here forms part of the southeast coast Ramsar site, and is included in the Coastal National Park; Grouville Marsh ecological SSI is also situated in the area, behind the Royal Jersey Golf Club. La Rocque Harbour, a popular recreational harbour with cultural value, is situated at the start of the CMU. The management intent is to provide protection to these sites in the present day, benefitting the cultural and heritage value of the area without introducing new infrastructure which could compromise the character of the coastline. Improving the defences to a 1:200 year standard of protection in epoch 2 will minimise the impact of flooding on these environmental assets. This supports the Future Jersey objective to support the natural environment, which includes protecting SSIs and the coastline, and Island Plan policies SP 4, NE 1 and NE 6. The preferred policy option has the greatest potential to support plans and opportunities for economic growth by providing better awareness of flooding in the present day, and protection to businesses here in epoch 2 to facilitate opportunities for investment.

The number of properties at risk from flooding along the Royal Bay of Grouville are shown for each return period event in Table 5-2, with the benefits and costs for the preferred policy option also calculated. The predicted Benefit Cost Ratio is low as there are very few properties at risk, new coastal defences would need to be built along the length of the frontage.

Table 5-2: Economic Assessment Summary - CMU 2.1 (Royal Bay of Grouville)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	0	0	0	1	2,336	7,760	0.30
1:20	1	1	1	4			
1:75	3	4	4	317			
1:200	6	8	8	340			

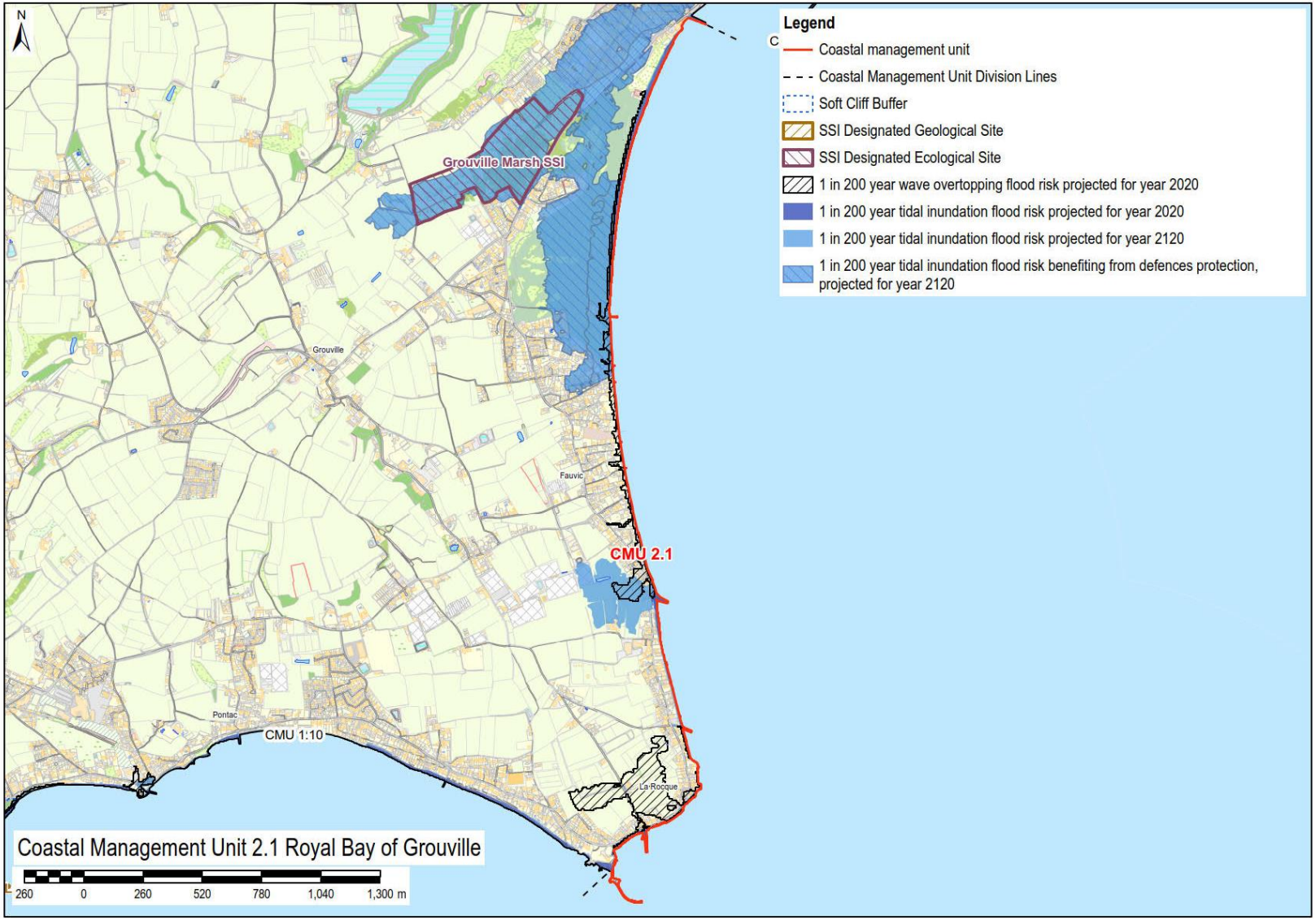


Figure 5-4: Coastal Flooding and Erosion risk at CMU 2.1 (Royal Bay of Grouville)

Figure 5-5: Views of the coastline at the Royal Bay of Grouville (CMU 2.1)

5.2 Coastal Management Unit 2.2 (Gorey Harbour)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 2.2 (Gorey Harbour) is constrained to the coastline in front of Gorey Harbour and Mont Orgueil Castle. Gorey Harbour is partially defended by a vertical granite wall and there is limited risk of coastal erosion, but is still subject to flooding from still water levels in the present day from a 1:1 year flood event. The policy options considered in CMU 2.2 are scored against the objectives in Appendix C (Table 4-12).

The preferred policy option for this unit is **Maintain the Defence Line in** epoch 1, **Adaptive Management** in epoch 2, and **Maintain the Defence Line** in epoch 3. This will involve proactively maintaining the existing defences to the current standard of protection up to 2040, and then improving the defences to a 1:200 year standard of protection, and maintaining the new defences up to 2120.

The preferred policy recognises the environmental and heritage importance of Gorey Harbour, and Mont Orgueil Castle as an Ecological SSI, and intends to maintain the status of ecological and geological processes and the landscape value of the area, without introducing new infrastructure in the present day when it is not necessary. This will also recognise the importance of Gorey Harbour to the community, in terms of maintaining the current level of coastal access, and contribution to health and wellbeing through recreation in the area. Improving the defences to a 1:200 year standard of protection in the epoch 2 will minimise the impact of flooding on these assets, and provides time to integrate the defence into the community aspirations.

The preferred policy is anticipated to have negligible impact on economic objectives; however continued maintenance of the coastal defences has the potential to secure contributions from stakeholders in supporting the Future Jersey objectives to support the built and historic environment and natural environment, which includes protecting heritage assets, SSIs and the coastline. This is also a part of Policy SP 4 in the Island Plan, which seeks to give high priority to the protection of the Island's natural and historic environment, and HE 1 to protect listed buildings and places Improving protection to Gorey Harbour in the future also has the potential to secure contributions from stakeholders, by protecting the recreational value of the site.

The number of properties at risk from flooding at Gorey Harbour are shown for each return period event in Table 5-3, with the benefits and costs for the preferred policy option also calculated.

Table 5-3: Economic Assessment Summary - CMU 2.2 (Gorey Harbour)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	1	1	1	5	3,517	2,679	1.31
1:20	1	1	5	22			
1:75	1	5	8	38			
1:200	4	5	13	34			

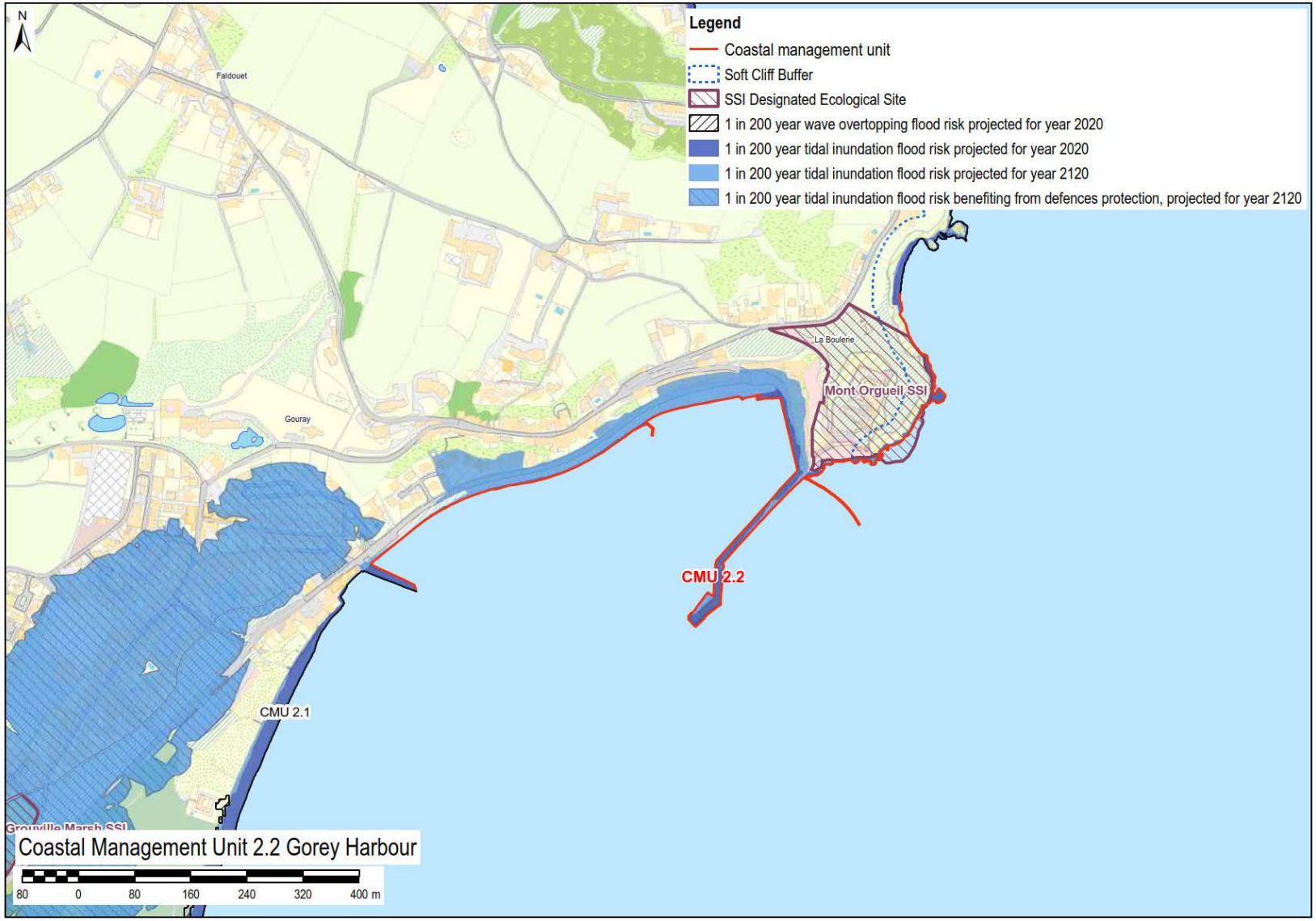


Figure 5-6: Coastal Flooding and Erosion risk at CMU 2.2 (Gorey Harbour)

Figure 5-7: Gorey Harbour (CMU 2.2)

6. Coastal Management Area 3 – St Catherine's (CMA3)

Coastal Management Area 3 encompasses most of the coastline of the Parish of Saint Martin, extending from Mont Orgueil Castle to La Coupe. This includes popular locations such as Anne Port Bay, Archirondel Tower and St Catherine's Breakwater. The coastline forms part of the Coastal National Park, and there are several heritage sites of historical significance, St Catherine's Tower which is a Grade I listed building. There are small areas of flood risk from overtopping close to Archirondel Tower, which will impact the determination of the preferred policy option. Figure 6-1 shows the risk of flooding and coastal erosion at St Catherine's, and Figure 6-2 shows the selected policies for each CMU.

Table 6-1: Coastal Management Area 3 - St Catherine's

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
3.1	**La Route de la Cote (2650m)**	Sloping granite wall and near vertical granite wall; 500m	• Anne Port Bay Geological SSI	✔	✔
3.2	**Archirondel Tower (500m)**	Low vertical concrete wall; 150m	• Archirondel Tower heritage site • Archirondel electricity substation	✔	✗
3.3	**St Catherine's Bay (4100m)**	Sloping granite wall and vertical granite wall; 650m	• St Catherine's Breakwater • Key agricultural land	✔	✗
3.4	**La Coupe (1900m)**	Vertical granite wall and near vertical granite wall; 240m	• La Coupe Point • Key agricultural land	✗	✔

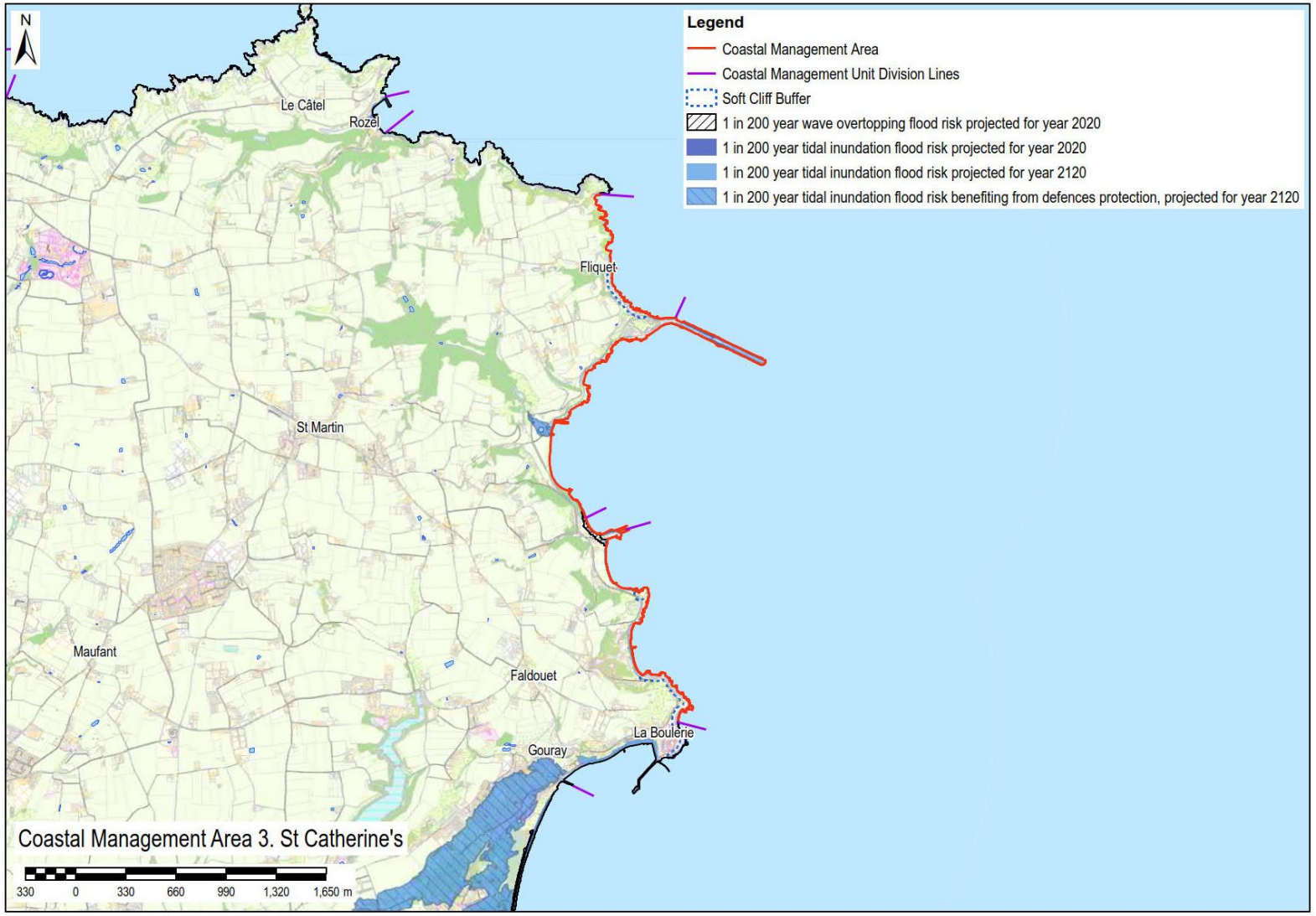


Figure 6-1: Coastal Flooding and Erosion risk at Coastal Management Area 3 - St Catherine's

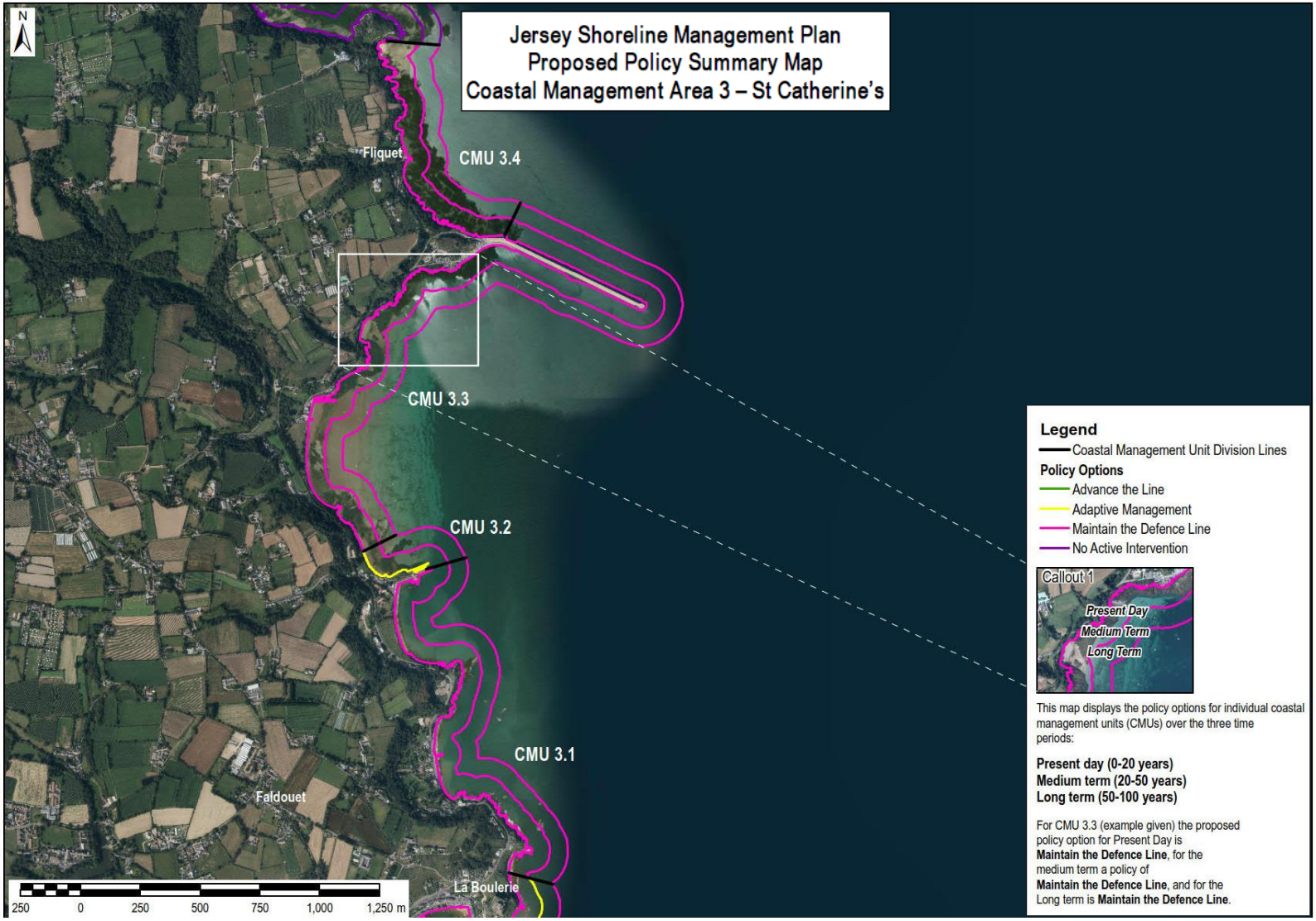


Figure 6-2: Policy summary for Coastal Management Area 3 - St Catherine's

6.1 Coastal Management Unit 3.1 (La Route de la Cote)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 3.1 (La Route de la Cote) extends from Mont Orgueil Castle to Archirondel Tower; there is negligible flood risk as there are coastal defences in the form of a sloping granite wall and a near vertical granite wall at Anne Port, and a vertical wall south of Archirondel Tower. The risk of flooding via the Anne Port slipway will continue to be mitigated by the Government of Jersey's maintenance programme. However, there is a risk of coastal erosion due to the soft geology, as identified in Appendix B. The policy options considered in CMU 3.1 are scored against the objectives in Appendix C (Table 4-13).

The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs up to 2120. However, as there are assets at risk of erosion, the implementation and maintenance of privately funded defences is permitted, subject to Government planning policy and regulations. This is only justified in providing protection to existing assets, and should not be used to encourage new development behind the road. The preferred policy will prevent coastal erosion from impacting the commercial properties at the coastal area in front of La Route de la Cote, to provide long term protection complimentary to the existing coastal access and travel infrastructure, helping to support community and stakeholder ambitions.

The coastline here includes Anne Port Bay Geological SSI, and forms part of the Coastal National Park. There are four listed buildings with heritage value, including Victoria Tower, a Grade I listed Anglo-Jersey military structure constructed in 1837. The management intent provides protection to these sites in the present day and into the future, and the new infrastructure introduced will be suitable to the cultural value of the coastline. Providing consistent protection to these historic assets supports the Island Plan policies SP 4 and HE 1, and the Future Jersey objective to protect the built and historic environment. The preferred policy option has the greatest potential to support plans and opportunities for economic growth by providing better protection to the commercial properties at the coastline, and could facilitate opportunities for investment.

Figure 6-3: Existing coastal defences at the coastline in front of La Route de la Cote (CMU 3.1)

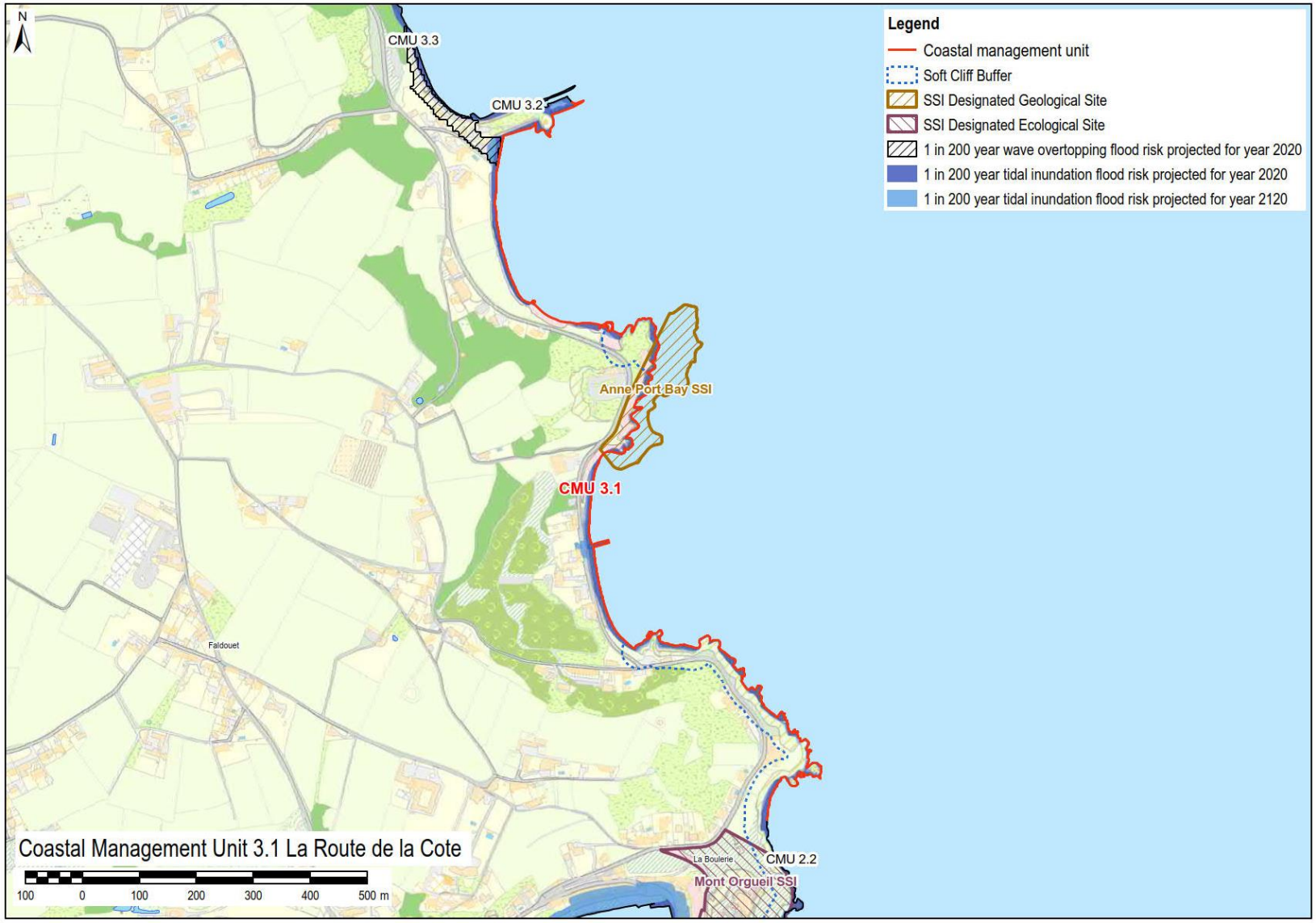


Figure 6-4: Coastal Flooding and Erosion risk at CMU 3.1 (La Route de la Cote)

6.2 Coastal Management Unit 3.2 (Archirondel Tower)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 3.2 (Archirondel Tower) comprises the coastline in front of the electricity substation next to Archirondel Tower, and includes the coastal defences north of Archirondel Tower. The unit is completely defended and there is no risk of coastal erosion, but is subject to overtopping flood risk from a 1:1 year flood event in the present day. The policy options considered in CMU 3.2 are scored against the objectives in Appendix C (Table 4-14). The preferred policy option for this unit is **Adaptive Management** in epoch 1, and **Maintain the Defence Line** for epochs 2 and 3, up to 2120. This is intended to reduce the flood risk to Archirondel electricity substation, which is valued for providing electricity to the Island, receiving electricity from the Channel Islands Electricity Grid interconnectors Normandie 1 and 2. The coastal defences implemented here will provide long-term protection to this critical infrastructure, and improve the energy security of Jersey.

Archirondel Tower is a Grade I listed Anglo-Jersey military structure, one of 23 Conway towers built between 1778 and 1801, and one of only three towers constructed with a gun battery at the foot of the tower. Any new defence infrastructure implemented will be integrated into the coastline as much as possible, to retain the cultural and heritage value of the historic environment and support community and stakeholder ambitions. The preferred policy has the greatest potential to support economic objectives; providing protection to the substation and consequently improving energy security has the potential to secure contributions, providing sustainability to the utilities infrastructure of the Island.

The number of properties at risk from flooding at Archirondel Tower are shown for each return period event in Table 6-2, with the benefits and costs for the preferred policy option also calculated. There are only a few properties at risk of flooding, which is reflected in the Benefit Cost Ratio, however the qualitative assessment of Archirondel substation presented in Appendix D shows that the benefits of implementing coastal defences here will be protecting critical infrastructure for electricity supply across Jersey.

Table 6-2: Economic Assessment Summary - CMU 3.2 (Archirondel Tower)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	1	1	1	1	396	1,223	0.32
1:20	1	1	1	1			
1:75	1	2	2	2			
1:200	2	2	2	2			

Figure 6-5: Coastal Flood risk at CMU 3.2 (Archirondel Tower)

Figure 6-6: Coastline at Archirondel Tower (CMU 3.2)

6.3 Coastal Management Unit 3.3 (St Catherine's Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 3.3 (St Catherine's Bay) currently benefits from flood defences in some areas because the defences are higher than the still water levels, and there is no risk of coastal erosion. The policy options considered in CMU 3.3 are scored against the objectives in Appendix C (Table 4-15). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy will proactively maintain the existing defences to be complimentary to the existing tourist facilities at St Catherine's Bay, particularly the rocky coves on the coastline and St Catherine's Breakwater. This acknowledges the needs of the community and stakeholders, as well as contributing to health and wellbeing benefits driven by coastal access. Both the road infrastructure and the agricultural land behind the coastal defences benefit from flood protection, therefore the management intent will maintain the provision of natural resources on the Island and contribute towards increased food security. The risk of flooding via the RNLI slipway will continue to be mitigated by the Government of Jersey's maintenance programme.

The coastline at St Catherine's Bay forms part of the Coastal National Park, and there are 20 heritage and listed buildings located here as well as the breakwater; the preferred policy will provide benefit the heritage and landscape value of the area, maintaining the defences to provide consistent flood defence, supporting Policy SP 4 of the Island Plan in giving priority to the protection of the natural and historic environment, HE 1 to protect listed buildings and places, and NE 6 to conserve the Coastal National Park.

Figure 6-7: Coastal defences at St Catherine's Bay (CMU 3.3)

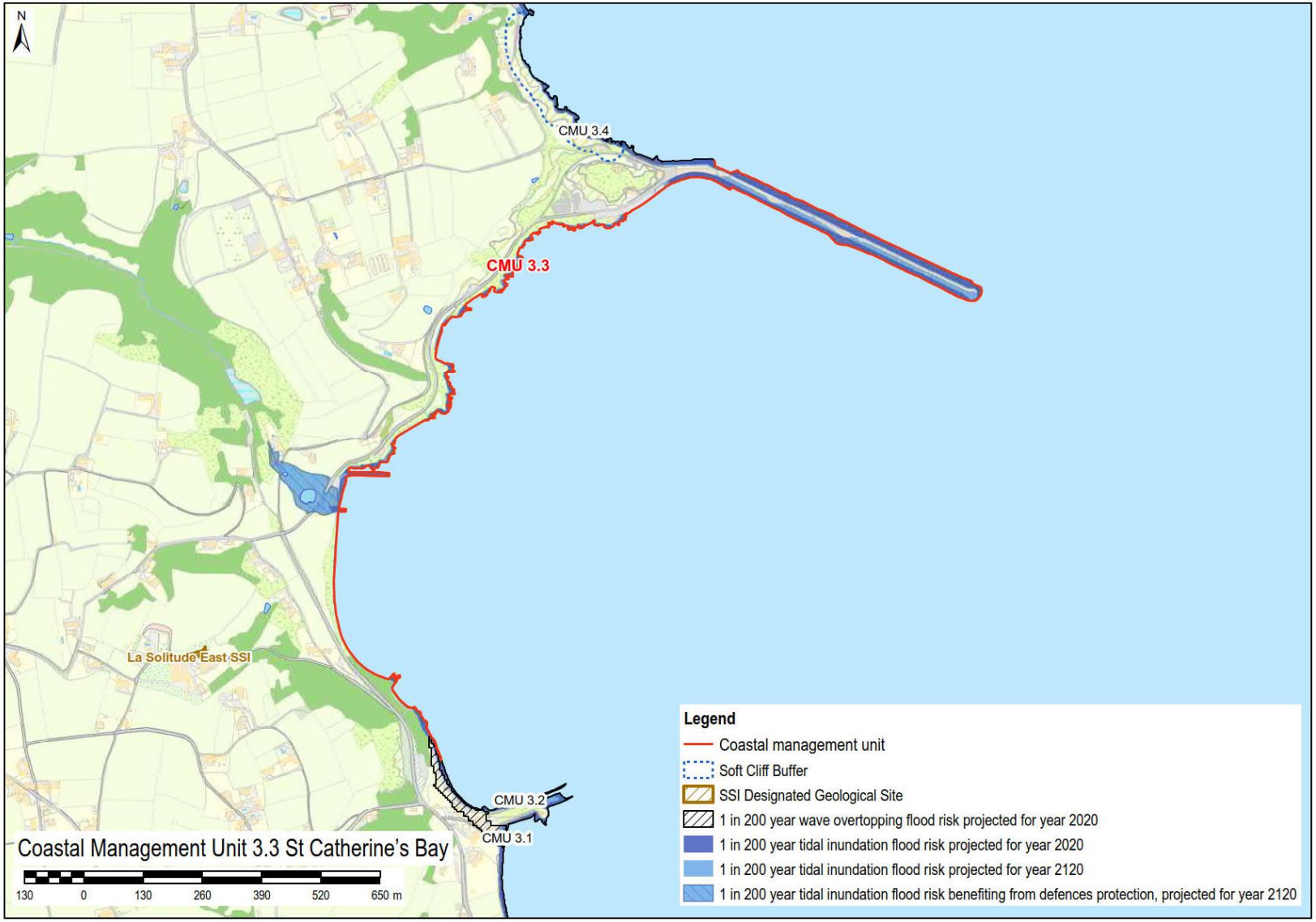


Figure 6-8: Coastal Flooding and Erosion risk at CMU 3.3 (St Catherine's Bay)

6.4 Coastal Management Unit 3.4 (La Coupe)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 3.4 (La Coupe) extends from St Catherine's Breakwater to the car park at La Coupe. The unit is partially defended and there is negligible flood and coastal erosion risk. The policy options considered in CMU 3.4 are scored against the objectives in Appendix C (Table 4-16). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy will provide maintained flood protection to residential properties in the area, helping to support community and stakeholder ambitions; this will also maintain the current level of coastal access and protect the road infrastructure. The coastline forms part of the Coastal National Park and there are eight listed buildings with heritage value, including the Telegraph Cable hut which is illustrative of the early history of electric telegraph communication between Jersey and the rest of the world. The management intent of the maintenance schedule will provide consistent flood protection to benefit the heritage value here, and will include the mitigation of flood risk via the Fliquet slipway. This will support the Future Jersey objective to protect the built and historic environment, and the natural environment, without impacting the landscape value of the coastline.

The preferred policy is not anticipated to have any impact on the economic objectives; however continued maintenance of the coastal defences has the potential to secure contributions from stakeholders in supporting the Island Plan policies SP 4, HE 1 and NE 6.

Figure 6-9: Coastal defences at La Coupe (CMU 3.4)

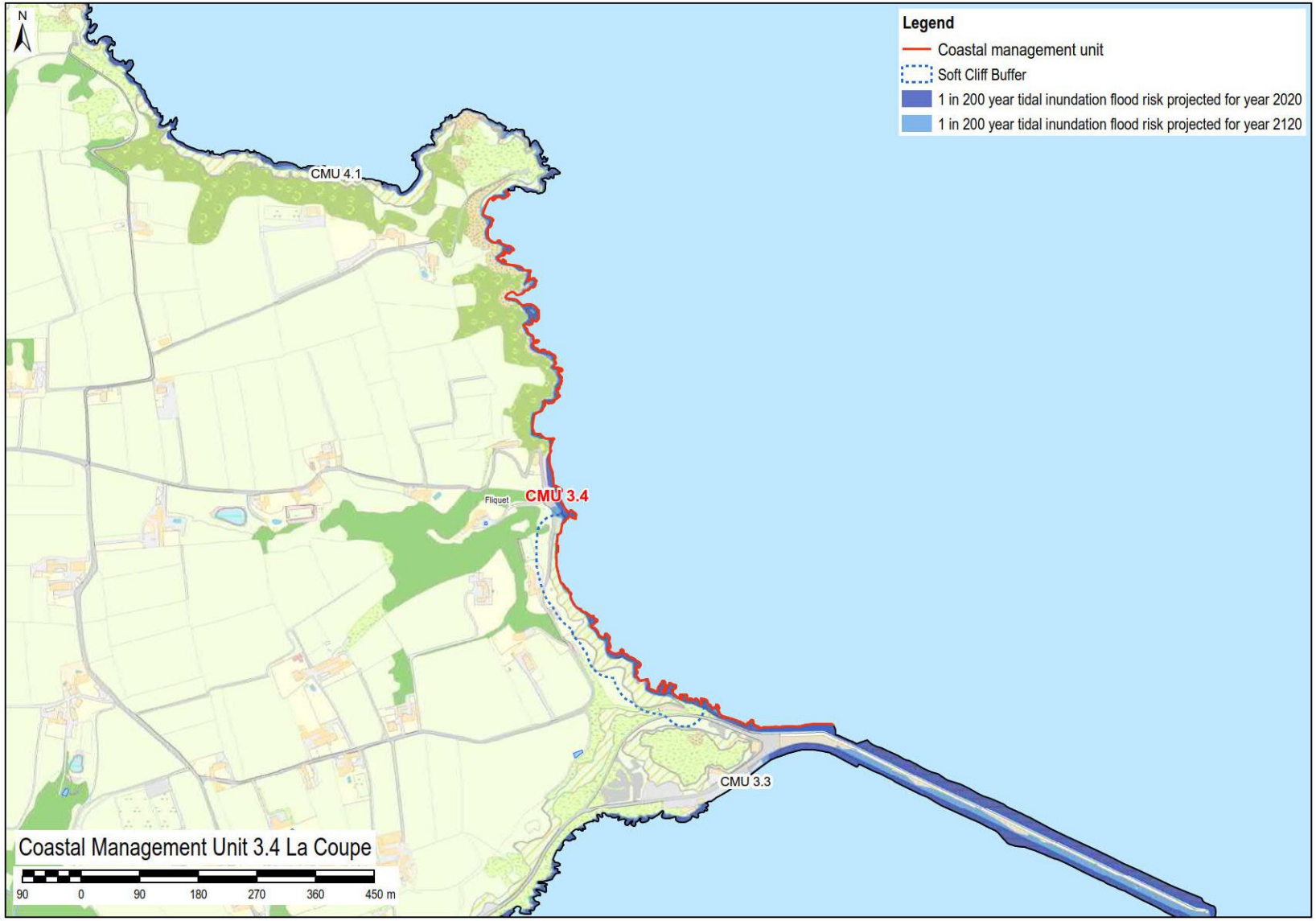


Figure 6-10: Coastal Flooding and Erosion risk at CMU 3.4 (La Coupe)

7. Coastal Management Area 4 – North Coast (CMA4)

Coastal Management Area 4 encompasses the entire North Coast of the Island. The coastline is mostly composed of undefended cliffs, with four small defended bay areas: Rozel Bay, Bouley Bay, Bonne Nuit and Greve de Lecq, and some undefended bays including the popular Plemont Bay. Ronez Quarry is also located along the north coast, and is an important location for mineral resources on the Island. There are several ecological and geological SSIs along the coastline's cliffs and headlands, highlighting the natural value of the north coast, including L'Etaccquerel Fort and Les Hurets ecological SSIs which both support important lizard species on the Island. There is very little flood risk and limited areas with erosion risk across the north coast; as such the preferred policy options are to maintain defences where they already exist, and no active intervention in undefended areas. Figure 7-2 shows the risk of flooding and coastal erosion at the North Coast, and Figure 7-3 shows the selected policies for each CMU.

Table 7-1: Coastal Management Area 4 - North Coast

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
4.1	**La Coupe to Rozel Bay (3120m)**	Undefended	• Rural area • Key agricultural land	✗	✗
4.2	**Rozel Bay (510m)**	Vertical granite wall; 290m	• Rozel leisure harbour, managed by the Ports of Jersey • Recreational facilities	✔	✗
4.3	**Le Catel (8000m)**	Undefended	• Rural area • Key agricultural land • L'Etaccquerel Fort Ecological SSI	✗	✗
4.4	**Bouley Bay (720m)**	Sloping granite wall and vertical granite wall; 330m	• Bouley Bay leisure harbour • Popular pebbled beach • Recreational facilities	✔	✗
4.5	**Egypt (7400m)**	Undefended	• Several Ecological and Geological SSIs including Bouley Bay and Les Hurets Ecological SSI • Rural area • Key agricultural land	✗	✔
4.6	**Bonne Nuit (530m)**	Slightly sloping granite wall; 125m	• Natural fishing harbour • Recreational facilities	✔	✔
4.7	**La Perruque (5100m)**	Undefended	• Rural area • Key agricultural land	✗	✗
4.8	**Ronez Quarry (1500m)**	Undefended	• Large quarry exports, important economic driver for Jersey	✗	✗
4.9	**Crabbé (8200m)**	Undefended	• Rural area • Key agricultural land	✗	✗
4.10	**Greve de Lecq (840m)**	Vertical granite wall; 340m	• Popular beach location • Recreational facilities	✔	✗
4.11	**Plemont (12.5km)**	Undefended	• Rural area • Key agricultural land	✗	✗

Figure 7-1: Aerial view across the North Coast (CMA 4)

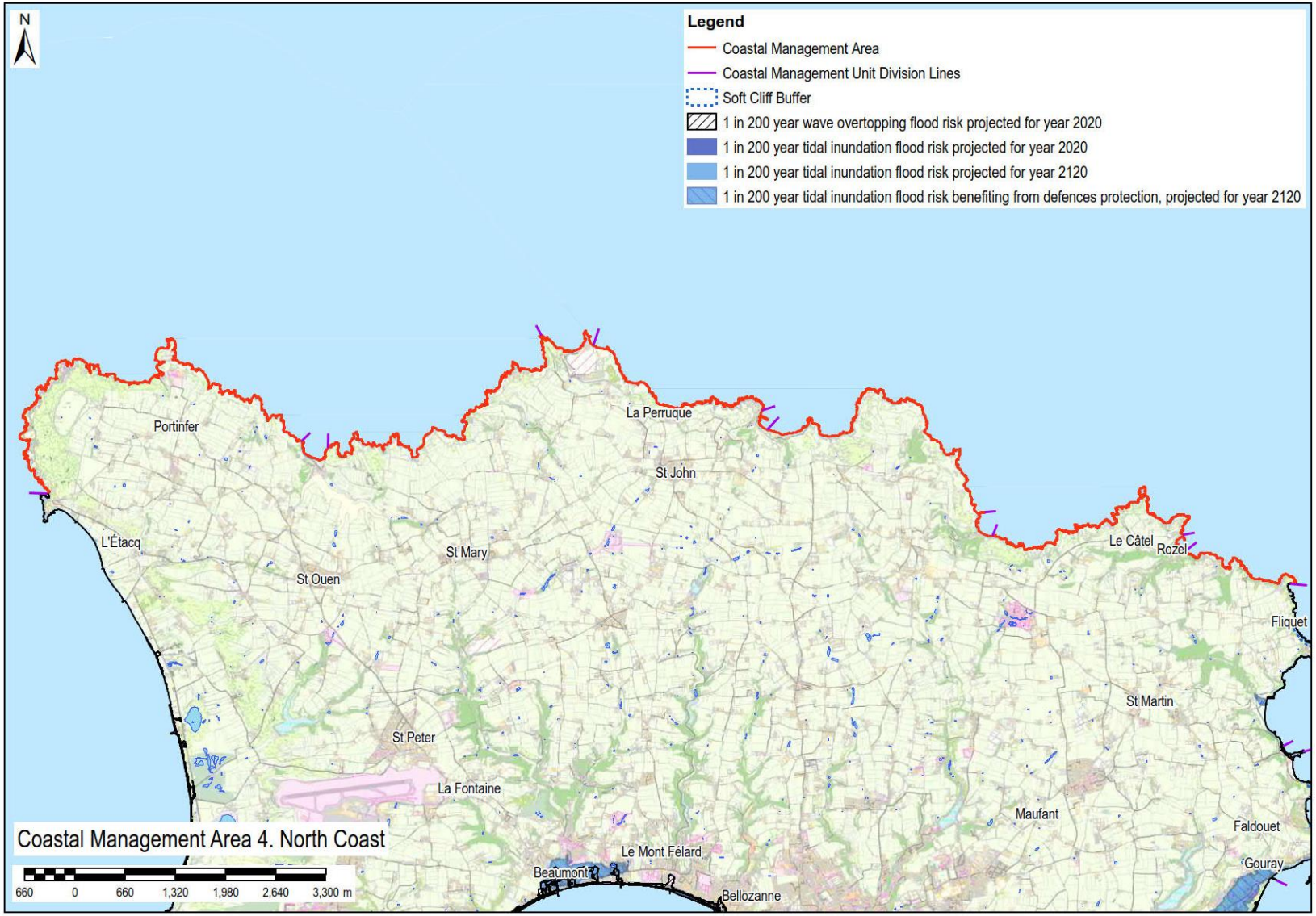


Figure 7-2: Coastal Flooding and Erosion risk at Coastal Management Area 4 - North Coast

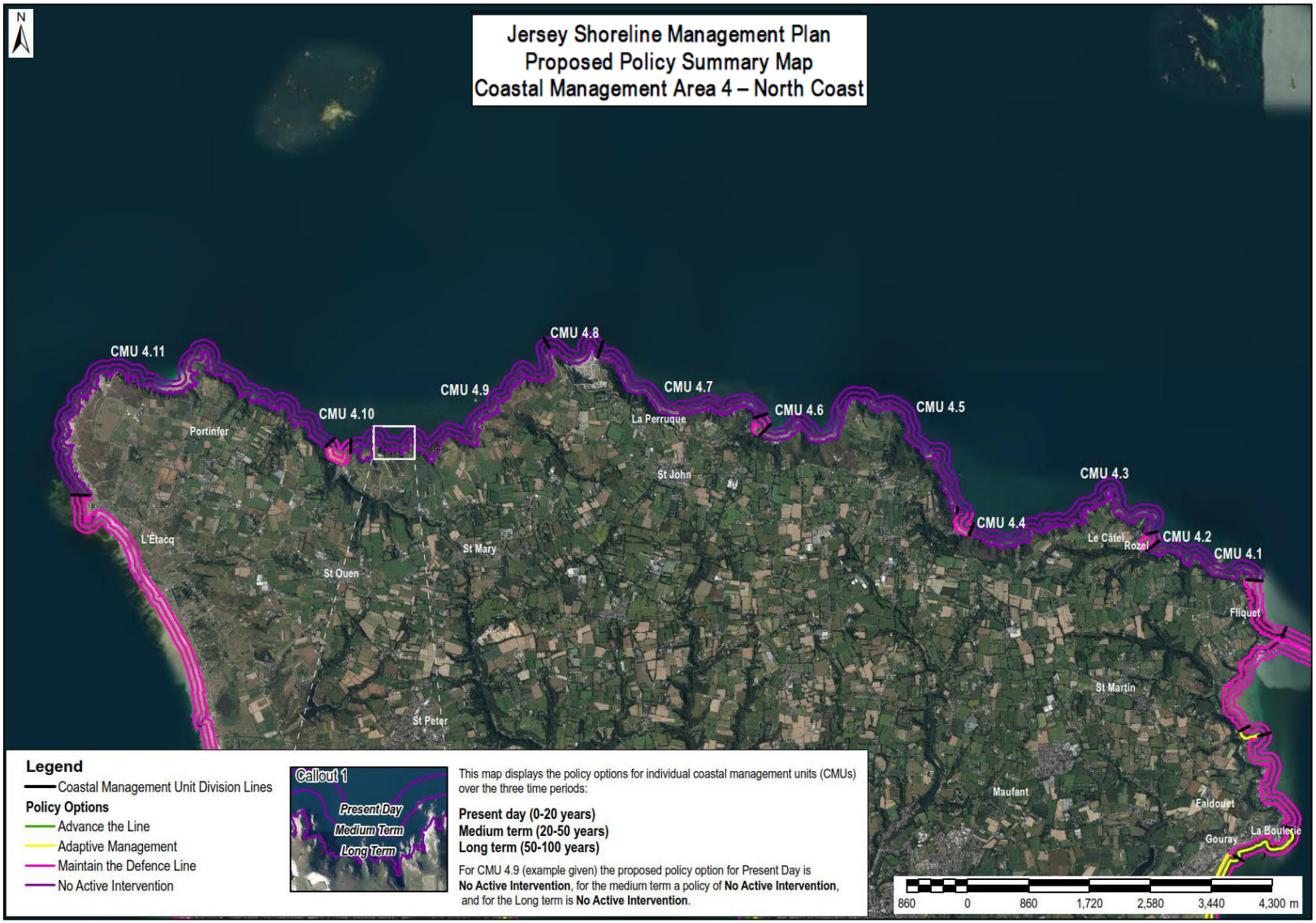


Figure 7-3: Policy summary for Coastal Management Area 4 - North Coast

7.1 Coastal Management Unit 4.1 (La Coupe to Rozel Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.1 (Le Coupe to Rozel Bay) extends from La Coupe to Rozel Bay. The unit is mostly undefended, with the exception of a small gabion basket protecting pedestrian access to Le Saie, and there is negligible flood and coastal erosion risk. The policy options considered in CMU 4.1 are scored against the objectives in Appendix C (Table 4-17). The preferred policy option for this unit is **No Active Intervention** for all three epochs. In order to maintain the pedestrian access at Le Saie, the maintenance of the gabion basket here is permitted, though no further coastal defences should be implemented along La Coupe to Rozel Bay.

The coastline here forms part of the Coastal National Park, and the preferred policy option recognises the status of the ecological processes taking place, as well as the landscape value of the area, within the management intent which will prevent the implementation of any new infrastructure which could compromise the character of the coastline. This is in line with the Future Jersey, as it prioritises the natural environment, and links to policies SP 4 and NE 6 of the Island Plan.

The preferred policy is anticipated to have negligible impact on the economic objectives as it is a natural landscape with limited opportunities for economic development.

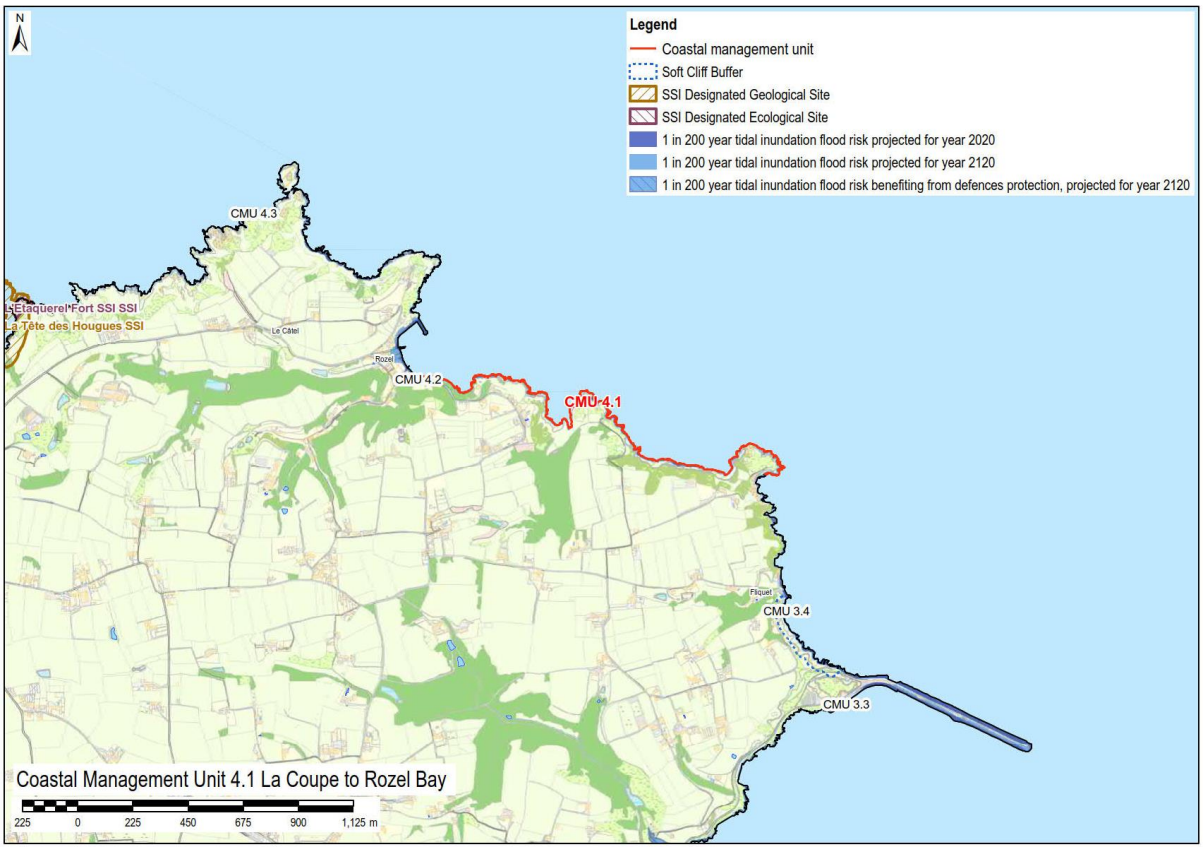


Figure 7-4: Coastal Flood risk at CMU 4.1 (La Coupe to Rozel Bay)

7.2 Coastal Management Unit 4.2 (Rozel Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 4.2 (Rozel Bay) comprises the coastline in front of Rozel Bay; it is partially defended, and there is limited flood risk and negligible coastal erosion risk to the properties and recreational infrastructure. The policy options considered in CMU 4.2 are scored against the objectives in Appendix C (Table 4-18). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The defences at Rozel Bay are mostly privately owned to the south, and managed by the Ports of Jersey to the north. The scheduled maintenance of the defences in the north will be carried out by the Ports of Jersey. No properties are predicted to be at risk of coastal flooding from the 1 in 200 year tidal inundation event in 2020. By 2120, seven properties are predicted to be at risk of coastal flooding from the 1 in 200 year tidal inundation event. The preferred policy is intended to maintain the value of recreation at the bay and harbour, with maintenance of the defences designed to ensure it remains complimentary to the recreational facilities and allows access to the frontage to support community and stakeholder ambitions. The policy should be reviewed when the SMP is next updated in consultation with Ports of Jersey, to maintain continuity with long term management objectives for harbour assets, and also with private defence owners.

The coastline here forms part of the Coastal National Park, and there are eight listed buildings with heritage value; the management intent will maintain the heritage and cultural value, by providing a consistent flood defences without compromising the coastline and the services provided at the harbour with new infrastructure.

The preferred policy is anticipated to have negligible impact on the economic objectives; however continued maintenance of the coastal defences has the potential to secure contributions from stakeholders in supporting the Future Jersey objective to protect the natural environment, which includes protecting the coastline. This also supports Island Plan policies SP 4 and HE 1.

Figure 7-5: Rozel Bay (CMU 4.2)

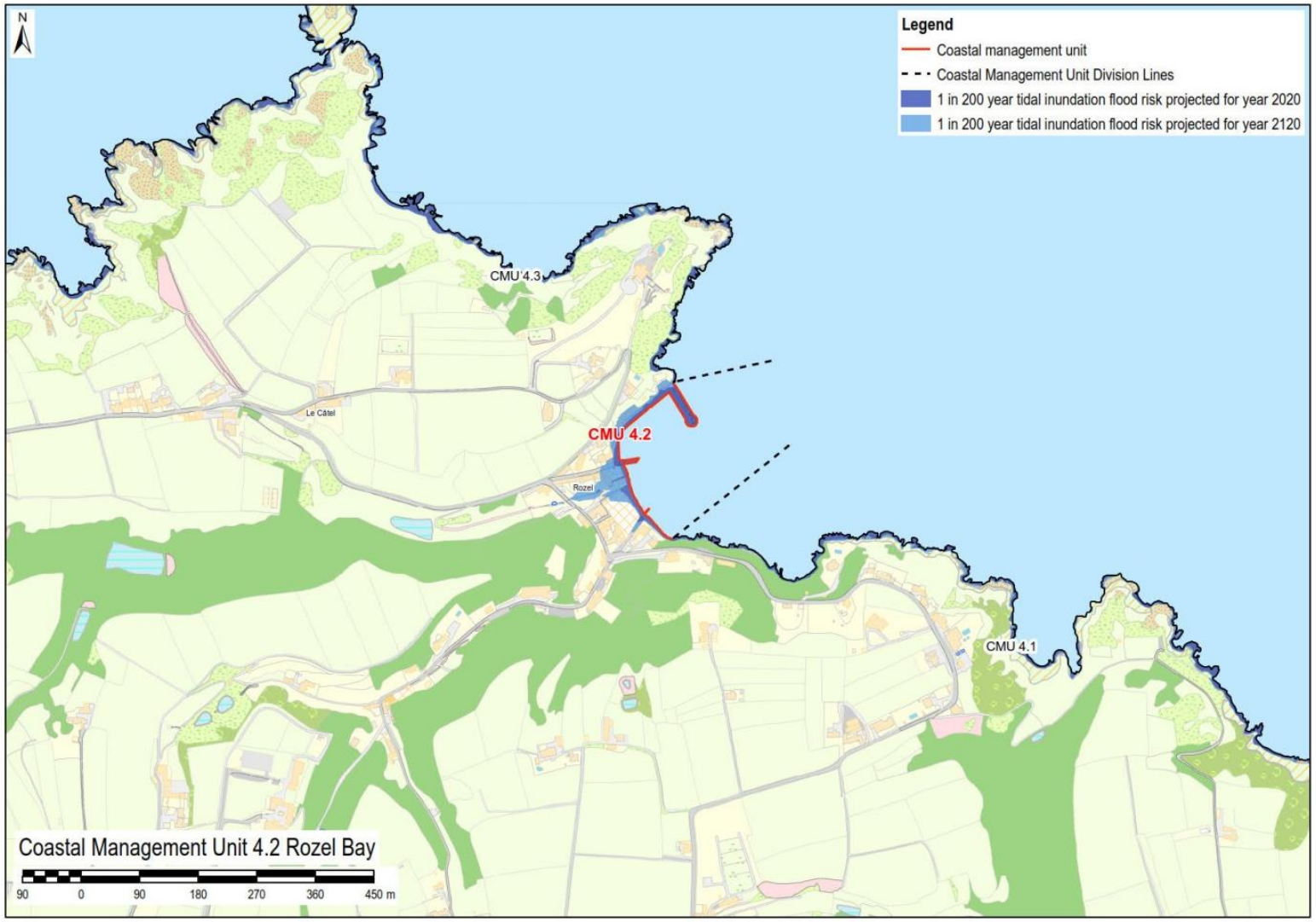


Figure 7-6: Coastal Flood risk at CMU 4.2 (Rozel Bay)

7.3 Coastal Management Unit 4.3 (Le Catel)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.3 (Le Catel) extends from the northern end of Rozel Bay, to the eastern end of Bouley Bay. Though the unit is undefended, there is negligible flood and coastal erosion risk the policy options considered in CMU 4.3 are scored against the objectives in Appendix C (Table 4-19). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The preferred policy recognises the natural and environmental importance of the coastline to the community. L'Etaccquerel Fort Ecological SSI, an important site which supports fragmented populations of wall lizards, is located here, L'Islet Geological SSI is also present and is an important geological site with exposures of recently deposited wind-blown loess over igneous grey and purple, flow-banded ignimbrites. The coastline also forms part of the Coastal National Park, and there are also a number of listed buildings which provide heritage value. The management intent will maintain the landscape value of the area, with no new defences to be implemented which will prevent interference with the ecological processes. This will also maintain the current level of coastal access, and contribution to health and wellbeing through access to open green space. This supports the Future Jersey objective to protect the natural environment, which includes protecting SSIs, and Policy SP 4 in the Island Plan, which seeks to give high priority to the protection of the Island's natural and historic environment, as well as NE 1 to conserve and enhance biodiversity.

The preferred policy is anticipated to have negligible impact on the economic objectives as it is a natural landscape with limited opportunities for economic development.

Figure 7-7: View of the coastline at Le Catel (CMU 4.3)

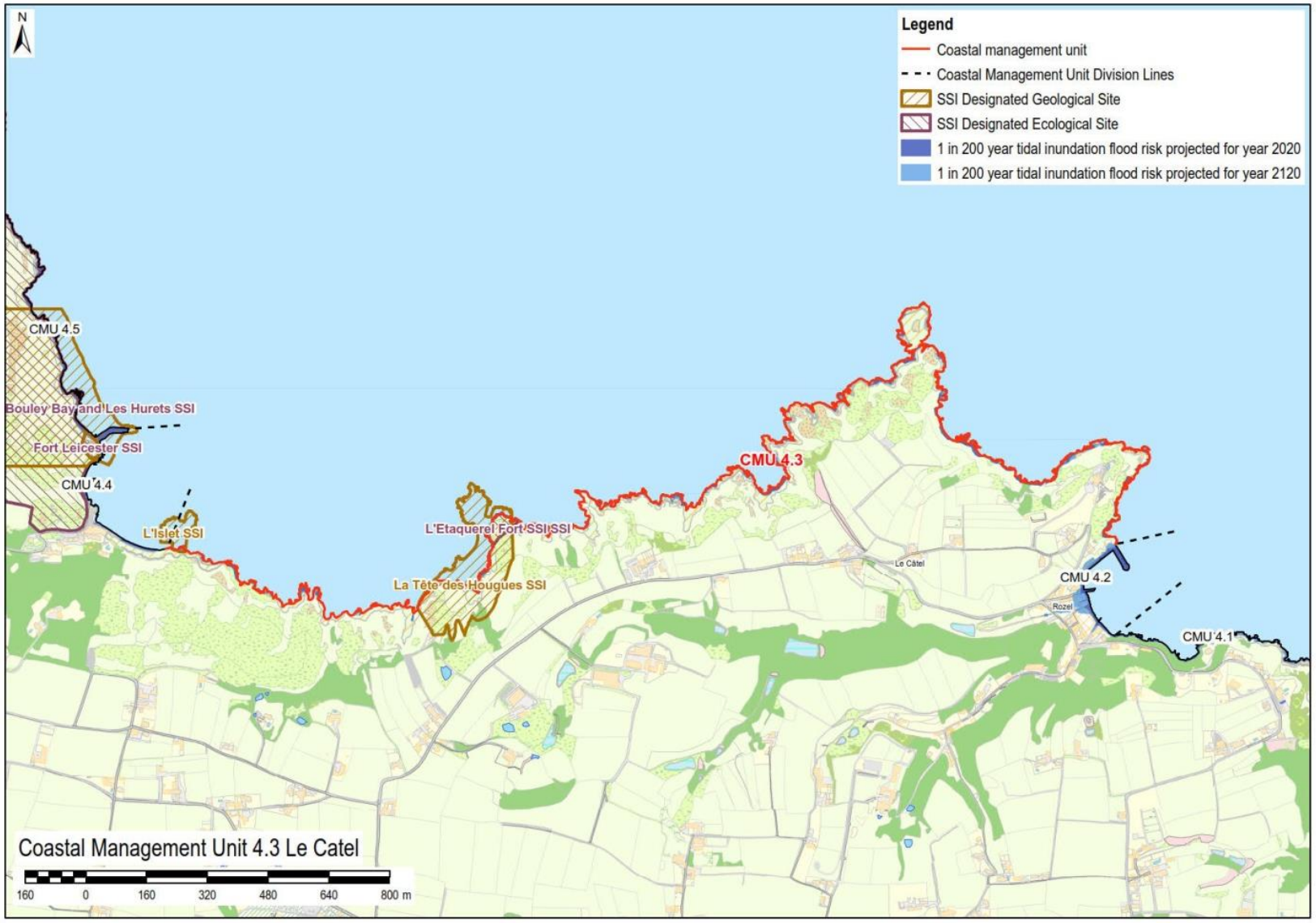


Figure 7-8: Coastal Flood risk at CMU 4.3 (Le Catel)

7.4 Coastal Management Unit 4.4 (Bouley Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 4.4 (Bouley Bay) comprises the coastline in front of Bouley Bay, extending to Fort Leicester; there are a range of defences at the coastline, and there is negligible flood and coastal erosion risk to the properties and recreational infrastructure. The policy options considered in CMU 4.4 are scored against the objectives in Appendix C (Table 4-20). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises the importance of Bouley Bay for recreation, popular for swimming, kayaking, boating and home to Bouley Bay dive centre. The maintenance scheme will be complimentary to this, maintaining the current access to the frontage to support community and stakeholder ambitions, and provide a consistent contribution to health and wellbeing. The risk of flooding via the Bouley Bay slipway will continue to be mitigated by the Government of Jersey's maintenance programme.

The coastline here forms part of the Coastal National Park; the management intent will maintain the ecological and cultural value of Bouley Bay, supporting the Future Jersey and Island Plan objectives to protect the natural environment by providing consistent defence at the coastline without implementing new defences which would interfere with the bay's recreational facilities.

Figure 7-9: Coastal defences at Bouley Bay (CMU 4.4)

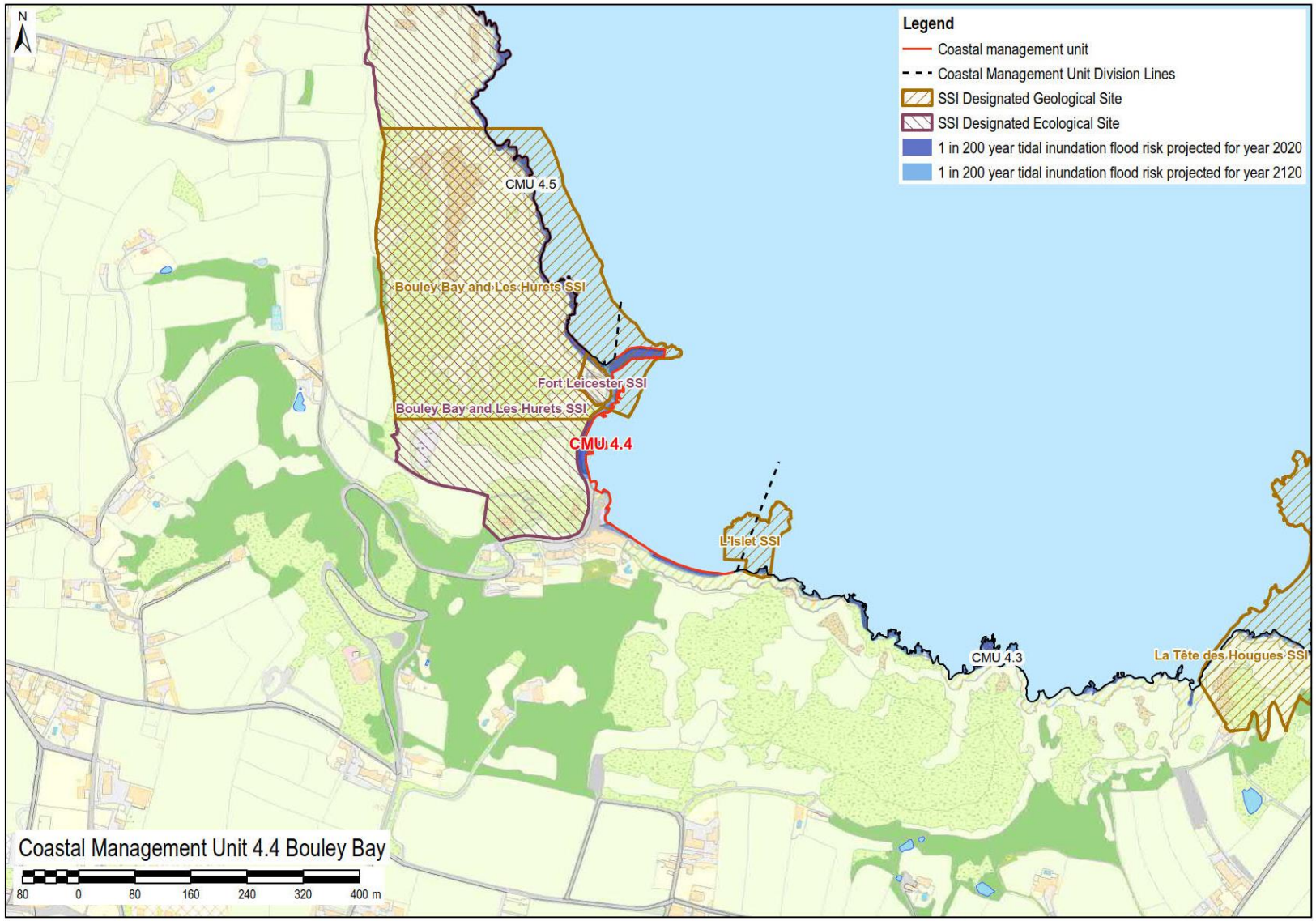


Figure 7-10: Coastal Flood risk at CMU 4.4 (Bouley Bay)

7.5 Coastal Management Unit 4.5 (Egypt)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.5 (Egypt) comprises the coastline from Fort Leicester to Bonne Nuit Harbour. The unit is undefended, though there is negligible flood risk. There is a risk of coastal erosion due to the soft geology, as identified in Appendix B, which is predicted to impact Cheval Roc Residential and Nursing Home, and potentially both Les Nouvelles Charrières and Les Charrières de Bonne Nuit roads.

The policy options considered in CMU 4.5 are scored against the objectives in Appendix C (Table 4-21). The preferred policy option for this unit is **No Active Intervention** for all three epochs. This will involve allowing natural processes to continue up to 2120, and the implementation of new defences will not be carried out by the Government of Jersey. However, at the coastline directly in front of the residential and nursing home, and neighbouring properties, the implementation and maintenance of privately funded assets is permitted, subject to Government planning policy and regulations. This is only justified in providing protection to existing assets, and should not be used to encourage new development in the area.

The preferred policy recognises the environmental importance of the coastline of which is composed predominantly of hard rock geology. There are several Ecological and Geological SSIs located within this unit, including Bouley Bay and Les Hurets Ecological SSI which consists of a variety of habitats, primarily coastal heath and maritime cliff. The Jersey Biodiversity Action Plan species of Wall lizards (*Podarcis muralis*) can be found here, and is listed in Annex II (Strictly Protected Fauna Species) of the Bern Convention. Atlantic Erica-Ulex heath is listed in the Bern Convention and Annex I of the EU Habitats directive, and is a key habitat in the Biodiversity Strategy for Jersey.

The management intent will maintain the status of ecological processes and the landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline. This recognises the importance of the SSIs to the community, supporting the Future Jersey objective to protect the land of SSIs and the coastline, as well as Policy SP 4 and NE 1 in the Island Plan.

The preferred policy is anticipated to have negligible impact on the economic objectives as it is a natural landscape with limited opportunities for economic development.

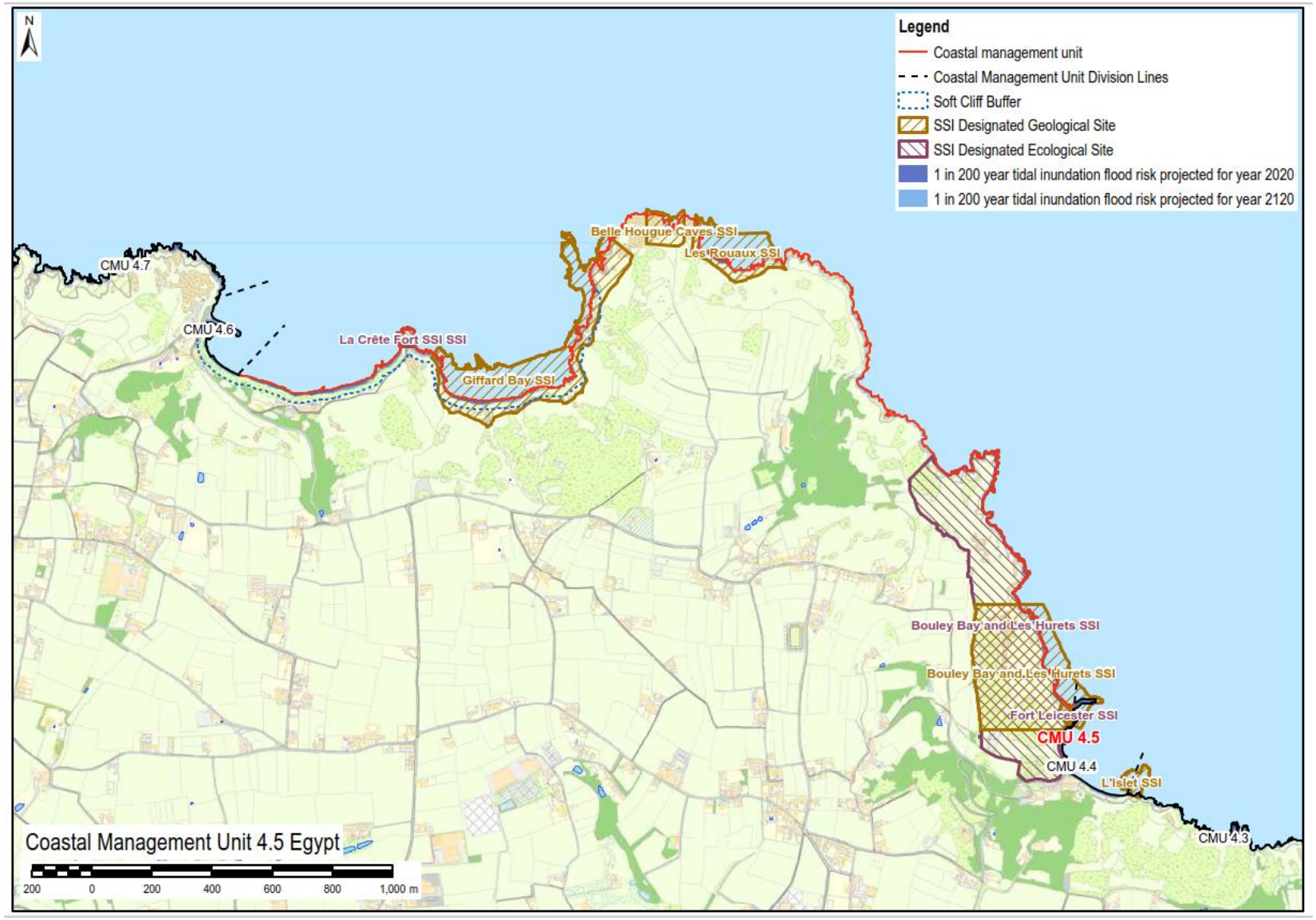


Figure 7-11: Coastal Flooding and Erosion risk at CMU 4.5 (Egypt)

7.6 Coastal Management Unit 4.6 (Bonne Nuit)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 4.6 (Bonne Nuit) comprises the coastline at Bonne Nuit. In this unit there are a range of defences at the coastline, with one property at risk of flooding and limited risk of coastal erosion due to reduced wave exposure. The policy options considered in CMU 4.6 are scored against the objectives in Appendix C (Table 4-22). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises the importance of Bonne Nuit Harbour for recreation including leisure fishing, swimming, kayaking, boating and hosting events such as the harbour festival every summer. The maintenance scheme for the defences will consider the existing facilities, including the mitigation of flood risk via the Bonne Nuit slipway. This will ensure access to the frontage is maintained, supporting community and stakeholder ambitions. This supports the Island Plan Policy NE 8, to encourage access to the coastline.

The coastline here forms part of the Coastal National Park, and there are four of listed buildings with heritage value – including the structure of Bonne Nuit Harbour itself, which is a Grade I listed building. The management intent will maintain the heritage and cultural value, maintaining the defences to provide consistent flood defence, without introducing new infrastructure which could compromise the character of the harbour.

The preferred policy is anticipated to have negligible impact on the economic objectives; however continued maintenance of the coastal defences has the potential to secure contributions from stakeholders in supporting Policy SP 4 of the Island Plan, which seeks to give high priority to the protection of the Island's natural and historic environment.

Figure 7-12: Coastal defences at Bonne Nuit (CMU 4.6)

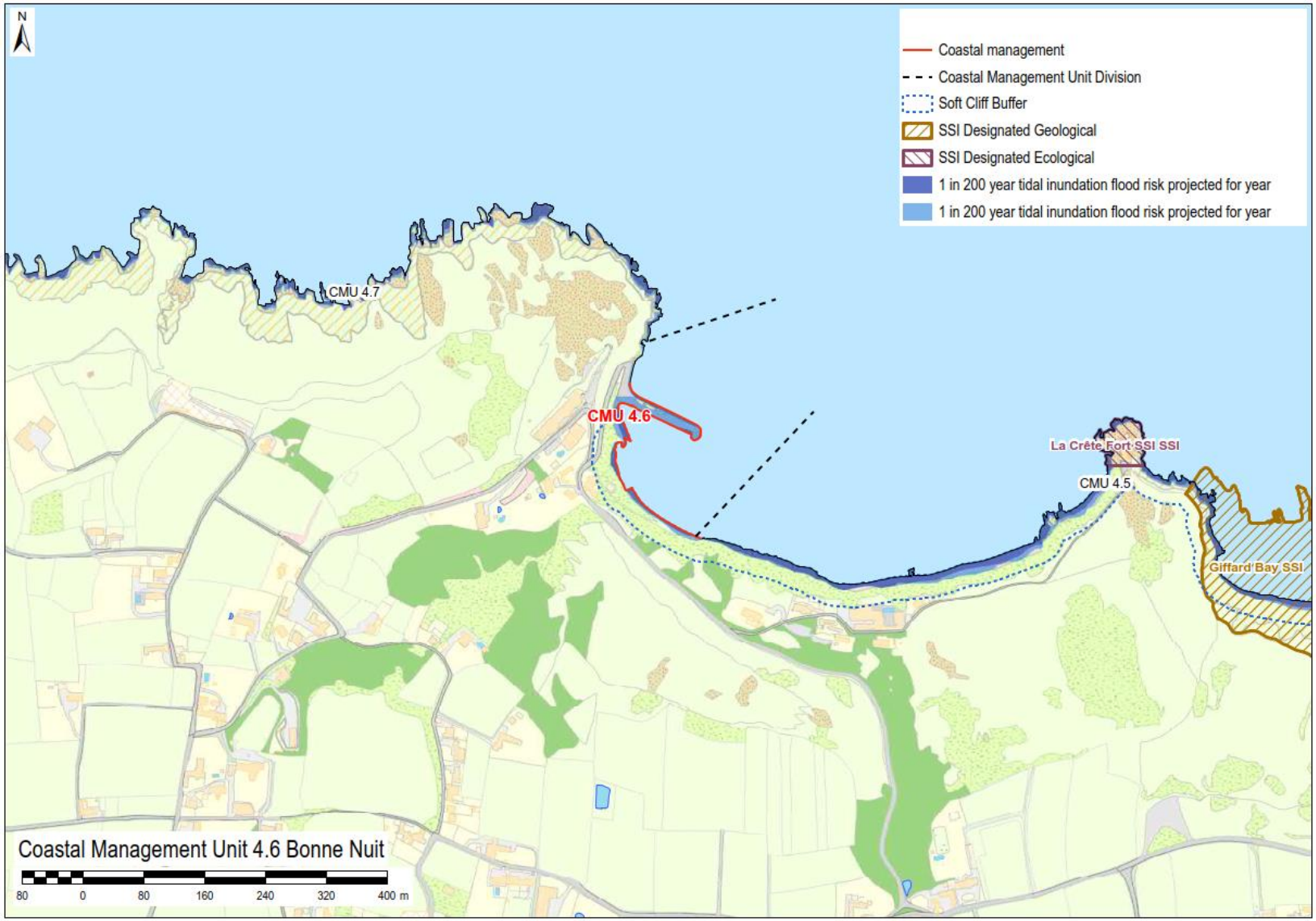


Figure 7-13: Coastal Flood risk at CMU 4.6 (Bonne Nuit)

7.7 Coastal Management Unit 4.7 (La Perruque)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.7 (La Perruque) spans from Bonne Nuit Pier to Ronez quarry. Though the unit is undefended, there is negligible flood and coastal erosion risk. The policy options considered in CMU 4.7 are scored against the objectives in Appendix C (Table 4-23). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The coastline at La Perruque is composed entirely of hard geology cliffs, and forms part of the Coastal National Park; the preferred policy recognises the natural landscape, and will maintain the status of the of ecological processes and the landscape value of the area, without introducing new infrastructure. This will support the natural environment, which includes protecting the coastline. This is also a part of Policy SP 4 in the Island Plan, which seeks to give high priority to the protection of the Island's natural and historic environment.

The preferred policy is anticipated to have negligible impact on the economic objectives as it is a natural location with limited opportunities for economic development.

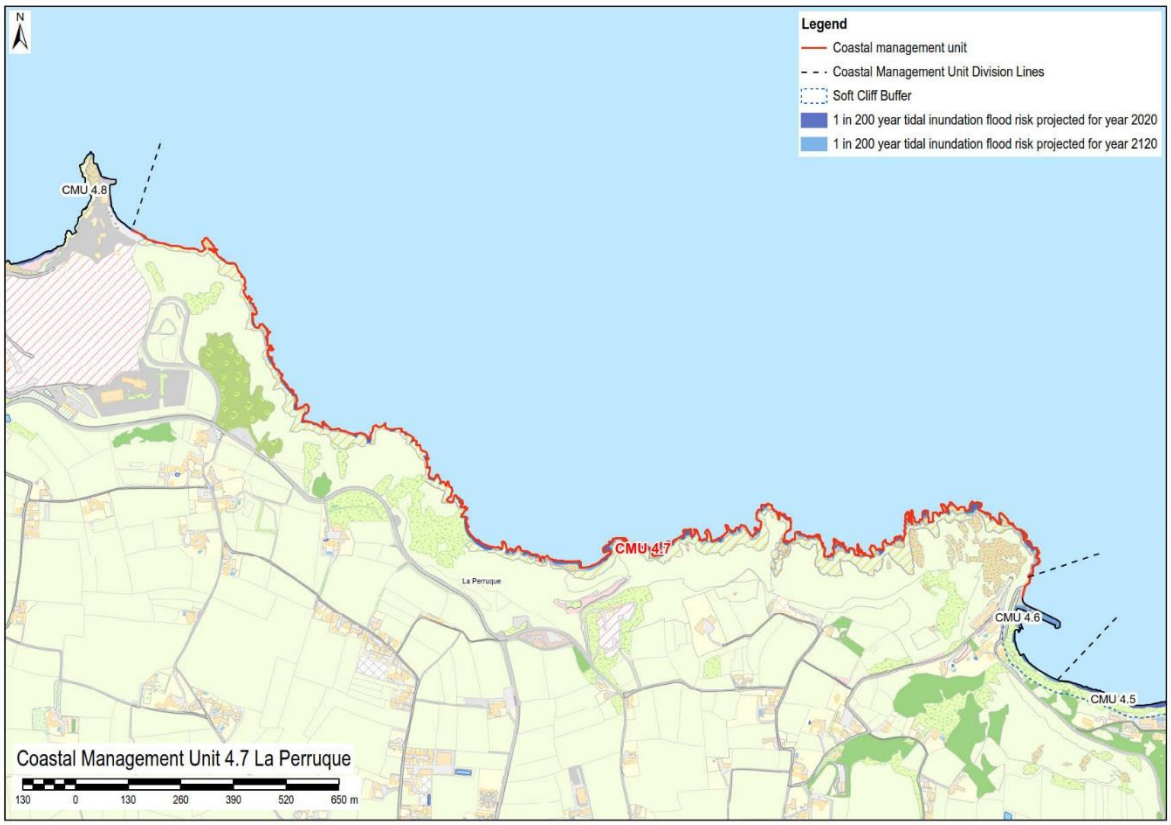


Figure 7-14: Coastal Flood risk at CMU 4.7 (La Perruque)

7.8 Coastal Management Unit 4.8 (Ronez Quarry)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.8 (Ronez Quarry) comprises the coastline in front of Ronez Quarry. Though the unit is undefended, there is negligible flood and coastal erosion. The policy options considered in CMU 4.8 are scored against the objectives in Appendix C (Table 4-24). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The coastline is composed entirely of hard geology cliffs, and forms part of the Coastal National Park. The area is valued for quarry exports; Ronez Quarry provides important natural resources to Jersey, which is recognised in the Island Plan. Ronez Ltd has plans to extend the operational area of the quarry to allow for the extraction of further reserves in and around the quarry. The preferred policy option will benefit this natural resource provision, allowing changes to be made to the coastline by Ronez Ltd. This would also not hinder any plans to develop an all-weather port at Ronez quarry in the long term, and supports Policy MR 1 of the Island Plan to protect the supply of aggregates on the Island.

The management intent will maintain the status of the processes at Ronez Quarry and the coastal access. It will provide an opportunity for the economic expansion of the quarry, which will support the delivery of broader business outcomes for the Island.

Figure 7-15: Ronez Quarry (CMU 4.8)

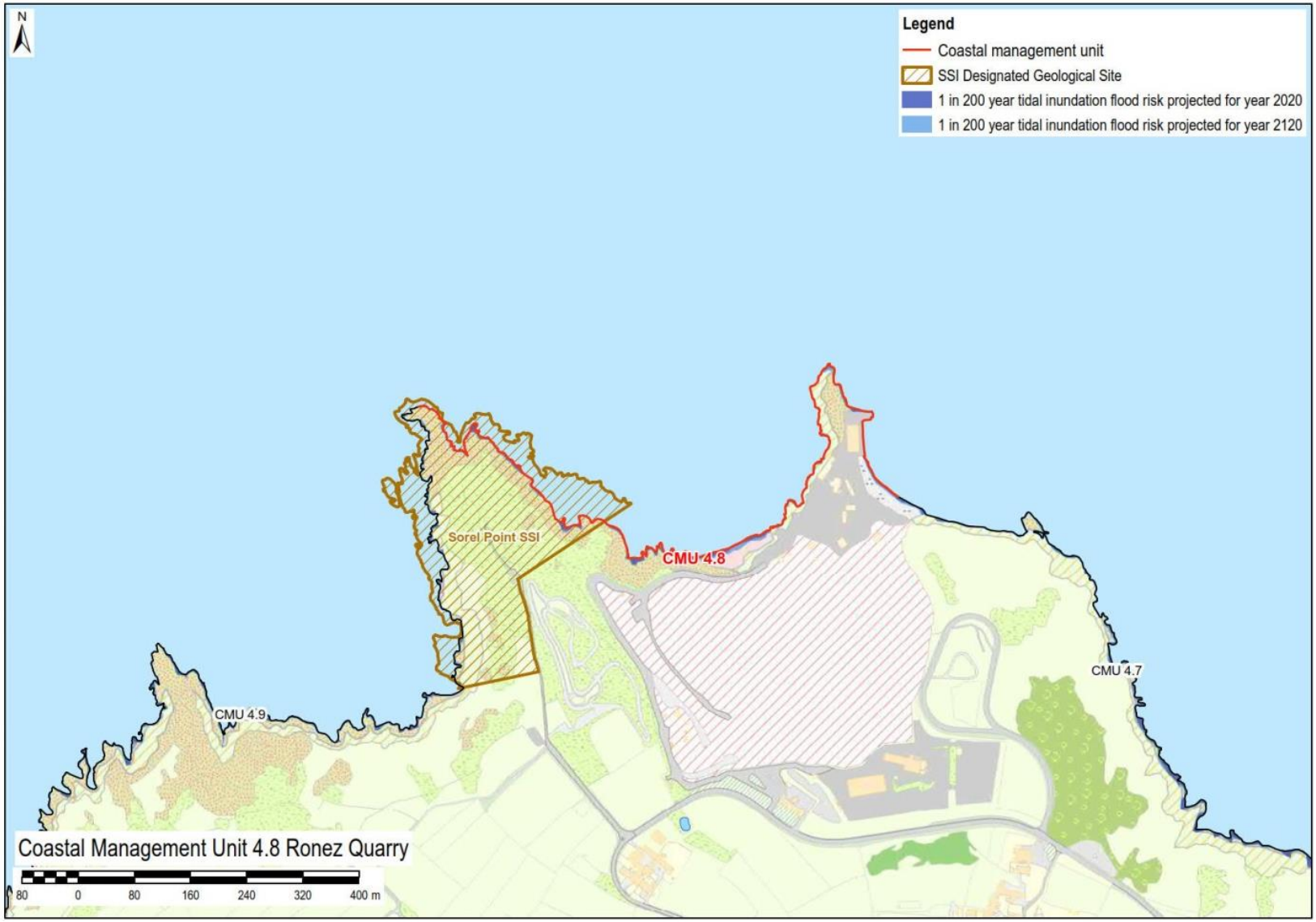


Figure 7-16: Coastal Flood risk at CMU 4.8 (Ronez Quarry)

7.9 Coastal Management Unit 4.9 (Crabbé)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.9 (Crabbé) extends from Ronez quarry to Greve de Lecq Beach. Though the unit is undefended, there is negligible flood and coastal erosion risk and no properties or critical infrastructure assets are at risk. The policy options considered in CMU 4.9 are scored against the objectives in Appendix C (Table 4-25). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The coastline is composed entirely of hard geology cliffs, and forms part of the Coastal National Park. Both Sorel Point Geological SSI (internationally recognised for igneous geology) and Ile Agois Geological SSI are located here. The preferred policy recognises the environmental importance of the coastline to the community, as the management intent will maintain the status of ecological processes and the landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline. This will also maintain the current level of coastal access, and support the Future Jersey objective to support the natural environment, which includes protecting the coastline, and supports the Island Plan policies SP 4, NE 6 and NE 8.

The preferred policy is anticipated to have negligible impact on the economic objectives as it is a natural location with limited opportunities for economic development.

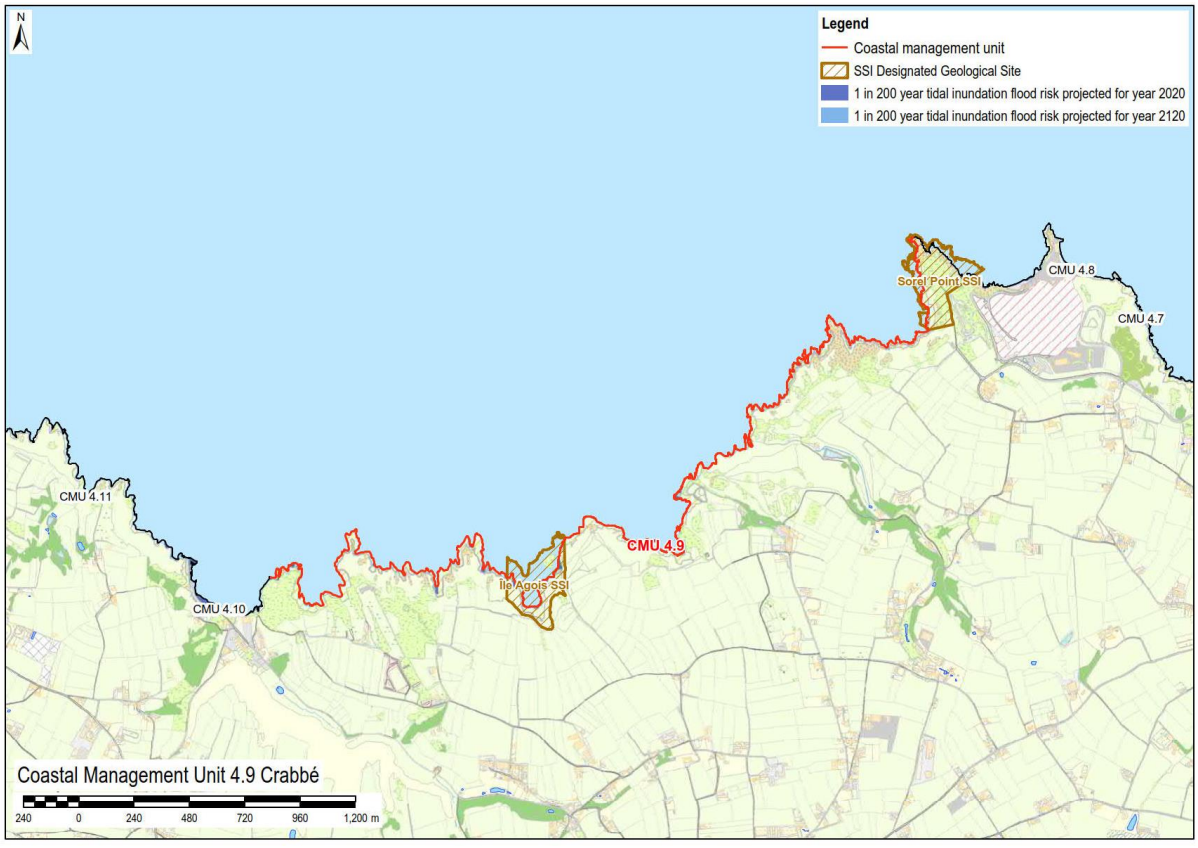


Figure 7-17: Coastal Flood risk at CMU 4.9 (Crabbé)

7.10 Coastal Management Unit 4.10 (Greve de Lecq)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 4.10 (Greve de Lecq) comprises the coastline at Greve de Lecq Beach. In this unit there are a range of defences at the coastline, and there is negligible flood and coastal erosion risk to the properties and recreational infrastructure. The policy options considered in CMU 4.10 are scored against the objectives in Appendix C (Table 4-26). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises Greve de Lecq as a popular sandy beach, therefore the coastal defences will be maintained to protect the visitor economy and retain access to the frontage, which is important for the Island Plan Policy NE 8 and supports community and stakeholder ambitions. The coastline here forms part of the Coastal National Park, and there are 5 listed buildings with heritage value, including Greve de Lecq Barracks (a Grade III listed building). The management intent will maintain the heritage and cultural value, of these sites, maintaining the defences to provide consistent flood defence and supporting the Island Plan policies SP 4, NE 6, and HE 1.

The preferred policy is anticipated to have negligible impact on the economic objectives, as there are limited opportunities for economic development at Greve de Lecq.

Figure 7-18: Coastline at Greve de Lecq (CMU 4.10)

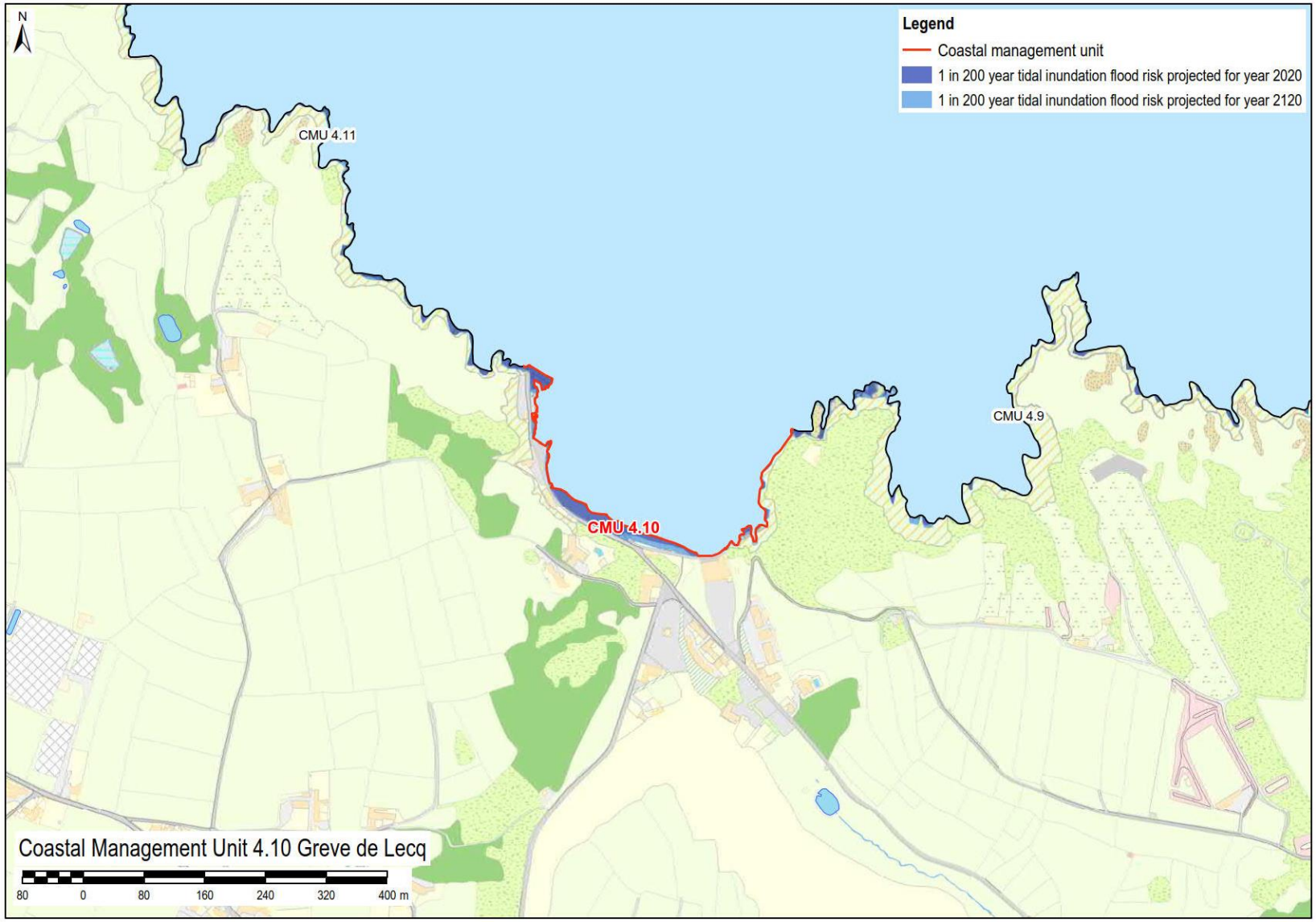


Figure 7-19: Coastal Flood risk at CMU 4.10 (Greve de Lecq)

7.11 Coastal Management Unit 4.11 (Plemont)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 4.11 (Plemont) extends from Greve de Lecq pier to Le Pulec. Though the unit is undefended, there is negligible flood and coastal erosion risk. The policy options considered in CMU 4.11 are scored against the objectives in Appendix C (Table 4-27). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The coastline is composed entirely of hard geology cliffs, and forms part of the Coastal National Park. There are several geological and ecological SSIs located within this unit. Notably Les Landes de l'Est, which is the largest single block of maritime heathland in the Channel Islands and supports some species which are unique to the site. Atlantic Dry (Maritime) heathland has a limited global distribution on the north Atlantic coasts of Europe, and is listed for special attention under Annex I of the EC Habitats Directive. Maritime heath, cliff and slope located here are also listed as key habitats In the Biodiversity Strategy for Jersey. The management intent to prevent the implementation of new defences supports the Future Jersey outcome of protesting SSI land to support the natural environment. This is also a part of Policy SP 4 in the Island Plan, which seeks to give high priority to the protection of the Island's natural and historic environment, and supports Policy NE 6.

This policy is anticipated to have negligible impact on the economic objectives, as Plemont is a natural landscape with significant environmental value, and therefore limited opportunities for economic development.

Figure 7-20: View of the coastline at Plemont (CMU 4.11)

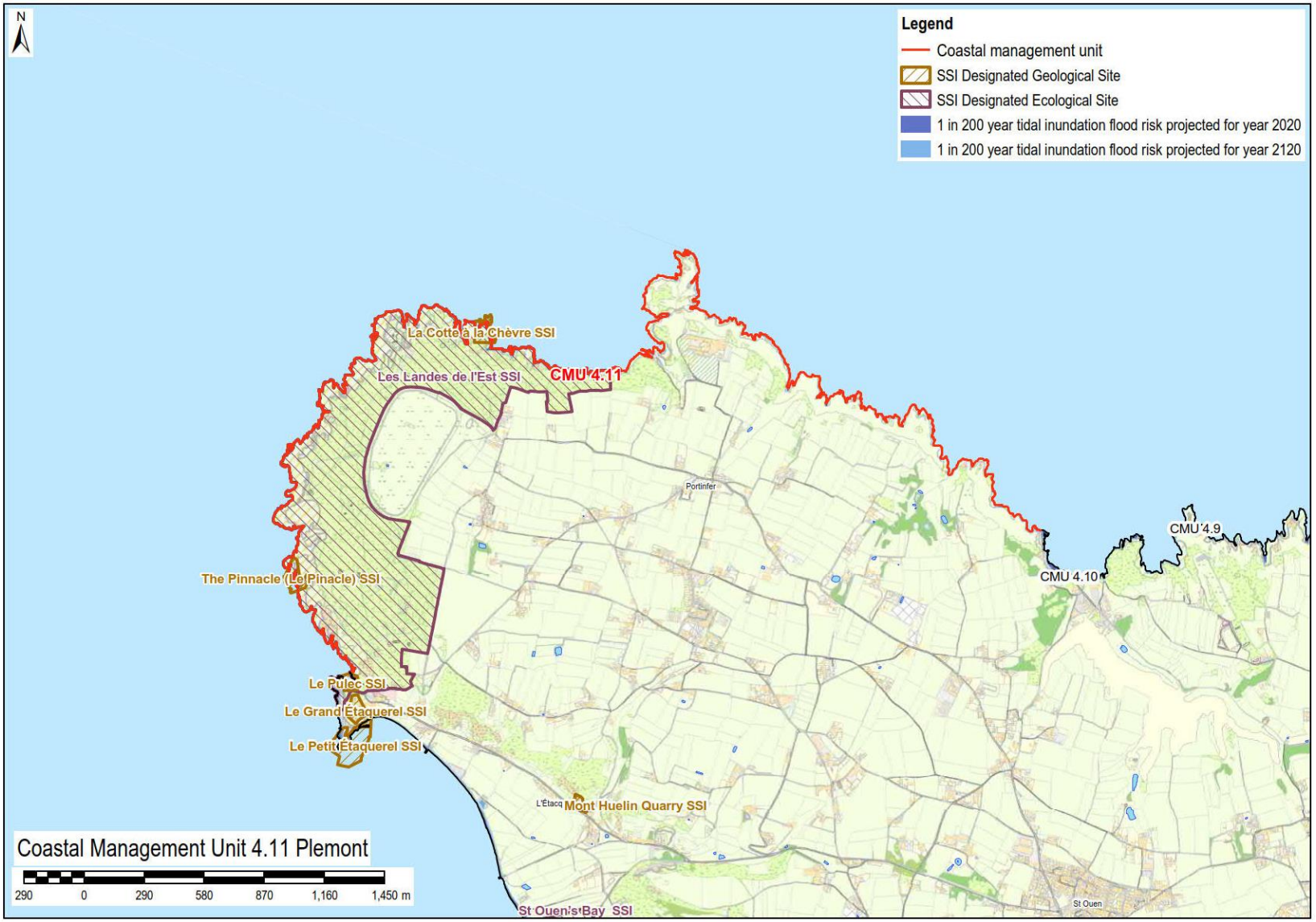


Figure 7-21: Coastal Flood risk at CMU 4.11 (Plemont)

8. Coastal Management Area 5 – St Ouen's Bay (CMA5)

Coastal Management Area 5 comprises the west coastline of the Island, along St Ouen's Bay. The coastline is a distinct sweeping bay which features a range of coastal defences, and an undefended natural headland to the south. St Ouen's Bay is important to the local community, particularly for coastal access and tourist facilities such as water sports. Similarly, Petit Port to the south of the area is highly valued for coastal activities and the aesthetic value of the landscape. There are several ecological and geological SSIs which provide important coastal dune habitats and Les Mielles Nature Reserve which forms part of the Jersey National Park, and several listed buildings with heritage value. The National Trust for Jersey Wetland Centre is also located at the coastline, in front of Les Mielles Nature Reserve. Jersey International Airport is located inland of St Ouen's Bay, and provides key infrastructure for travel to and from Jersey. Figure 8-1 shows the risk of flooding and coastal erosion at St Ouen's Bay, and Figure 8-2 shows the selected policies for each CMU.

Table 8-1: Coastal Management Area 5 - St Ouen's Bay

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
5.1	**St Ouen's Bay (9300m)**	Sloping granite wall, vertical granite wall with toe structure, granite revetments, and anti-tank wall ; 5900m	• Les Mielles and La Moye Golf Courses • Popular tourist location, particularly for watersports • Les Mielles Nature Reserve • The National Trust for Jersey Wetland Centre • Les Blanches Banques Ecological SSI • Several listed buildings with cultural and heritage value	✔	✗
5.2	**Petit Port (800m)**	Sloping granite revetments and vertical granite wall; 120m	• Petit Port beach, popular beach location	✗	✗

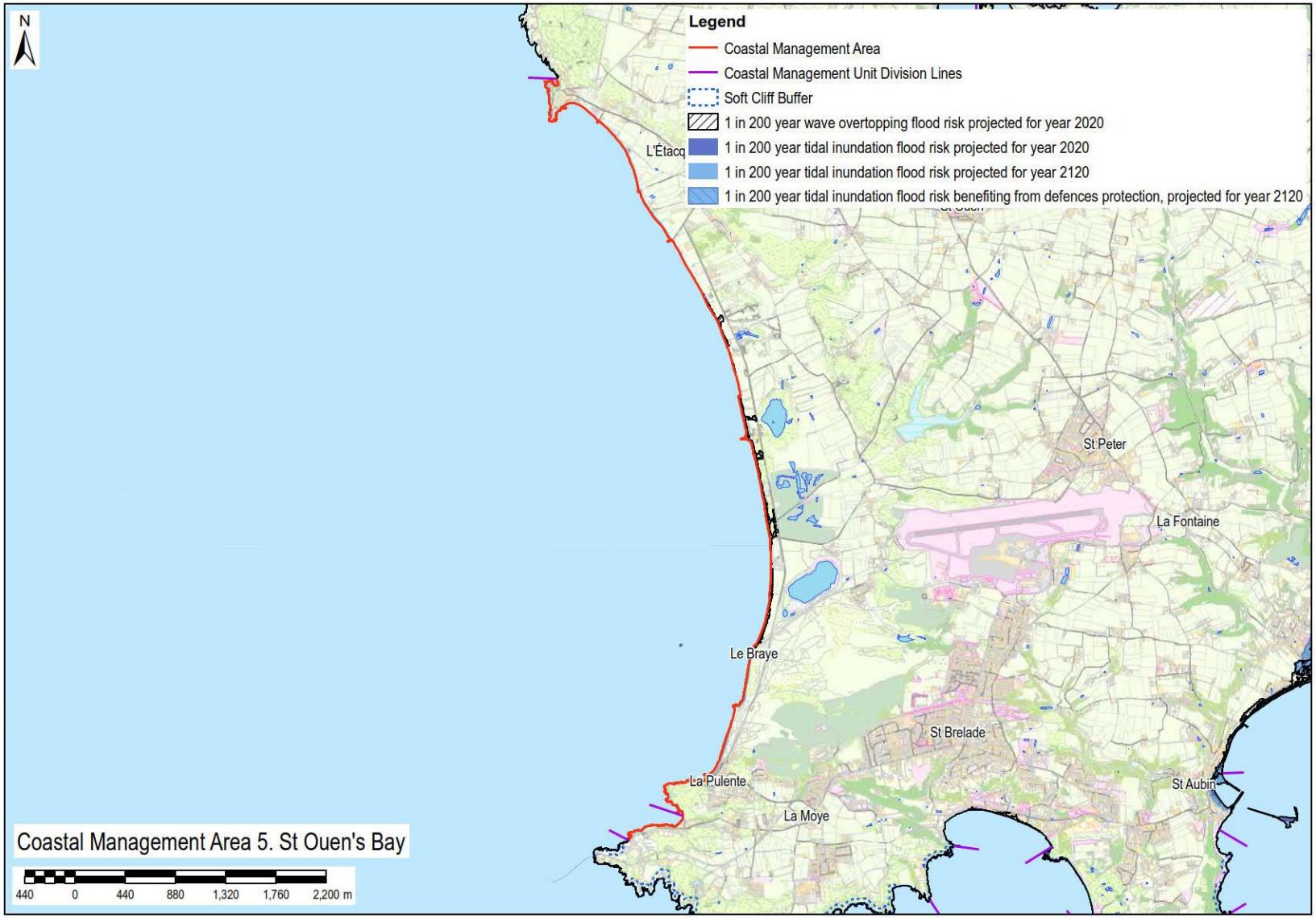


Figure 8-1: Coastal Flooding and Erosion risk at Coastal Management Area 5 - St Ouen's Bay

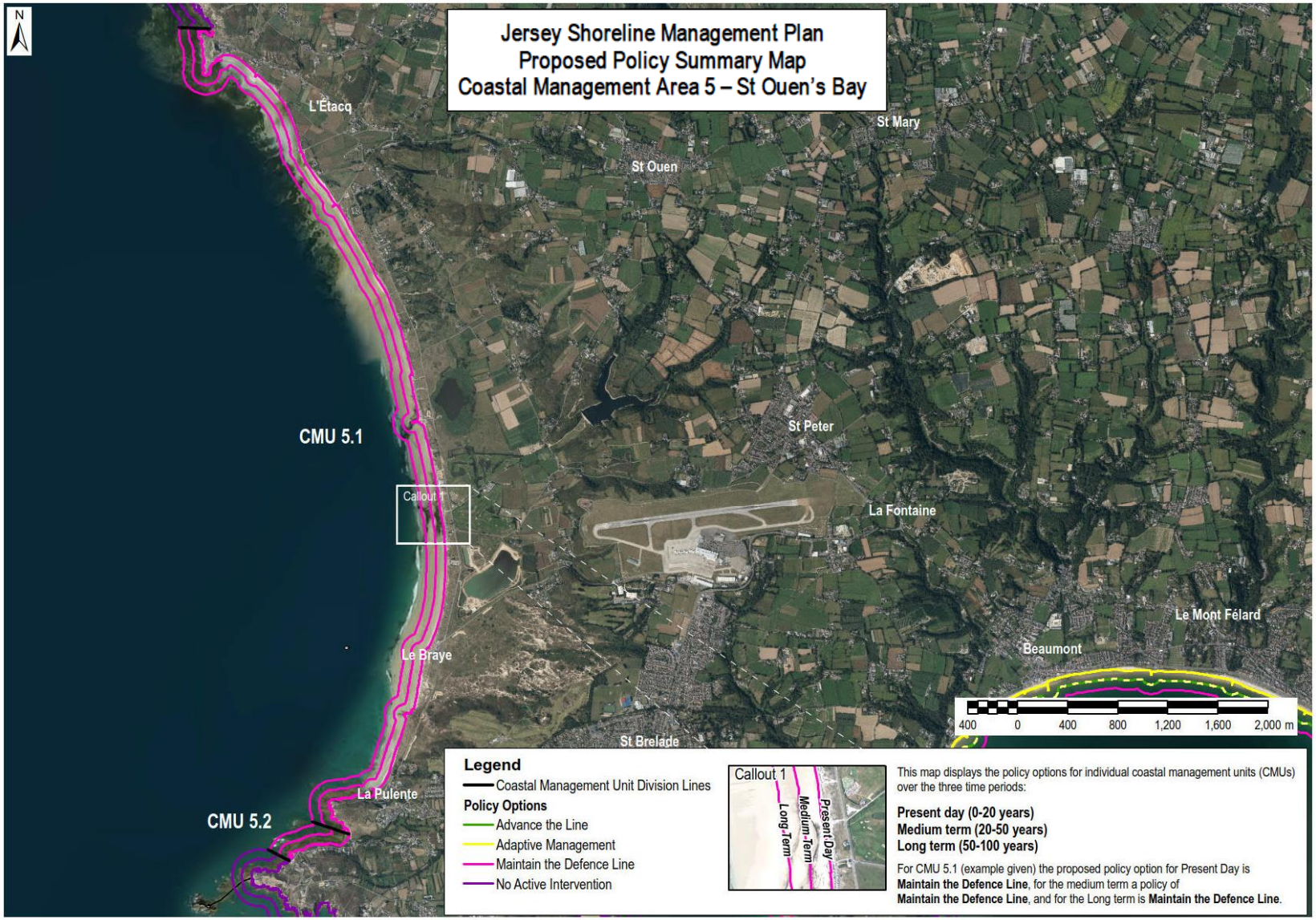


Figure 8-2: Policy summary for Coastal Management Area 5 - St Ouen's Bay

8.1 Coastal Management Unit 5.1 (St Ouen's Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 5.1 (St Ouen's Bay) is the largest coastal management unit, which covers the full length of Jersey's west coast, from the headland at Le Pulec, to Petit Port Beach and is defended by a range of coastal defences. There is no risk of coastal erosion, although some areas of the bay are subject to overtopping flood risk from a 1:1 year flood event in the present day, with few assets and no critical infrastructure at risk. The policy options considered in CMU 5.1 are scored against the objectives in Appendix C (Table 4-28). The preferred policy option for this unit is **Maintain the Defence Line** in all three epochs, up to 2120.

The preferred policy option recognises the importance of St Ouen's Bay for recreation and tourism, and hence no new defences will be constructed to interfere with the existing access to the coastal frontage, or the recreational facilities, supporting both community and stakeholder ambitions. Coastal access here is also important for water sports such as surfing, including access to Watersplash which is home to the Jersey Surf Club.

There are important assets located here such as Les Mielles Golf Course, La Moye Golf Course, Les Mielles Nature Reserve and the National Trust for Jersey Wetland Centre. There are several ecological and geological SSIs behind St Ouen's Bay, including Les Blanches Banques – a species rich dune grassland which supports an IUCN (International Union of Conservation of Nature) Red List species (*Formica pratensis*, a wood ant), which is now extinct in Britain. Combined with three other Ecological SSIs, this site forms a significant proportion of the Island's remaining coastal dune system, which is listed as a key habitat in the Biodiversity Strategy for Jersey, and forms part of the Coastal National Park. There are also a number of heritage sites and listed buildings located along the coastline at St Ouen's Bay – including Kempt Tower, Lewis' Tower, La Tour Carree and the Barge Aground.

The protection of these SSIs, listed buildings and key habitats will aim to achieve the objective set in the Future Jersey to support the natural environment, and gives priority to the protection of these sites in line with policies SP4, NE 1, NE 8 and HE 1. The management intent will also benefit natural resource provision, providing protection to Simon Sand and Gravel Ltd, which is located here at the foot of Mont a la Brune. This will support policy MR 1 and the sustainable resources objective within the Future Jersey.

The preferred policy option has the greatest potential to support economic objectives, with a high potential to secure contributions from businesses in the area. The policy option could support broader business opportunities such as growth of tourist facilities, and has the potential to support the Island Plan through the protection of natural and mineral resources.

Managed Realignment (under the SMP's Adaptive Management policy) has not been determined as the most appropriate policy option for St Ouen's Bay. Previous studies, between 1995 and 2001, reviewed the feasibility of managed realignment in this location, and concluded it would not be a viable option to implement. The studies considered three options for managed realignment:

1. **Do Nothing**: this would be achieved through an uncontrolled failure of the whole wall structure i.e. removing all maintenance activity and avoiding any intervention to repair wall damage;
2. **Full Retreat of the Central Bay**: this would involve removing a large, continuous, section of the wall structure in a controlled manner; and
3. **Retreat of Selected Frontages**: for this option only specific, separate, small lengths of the wall structure would be removed in a controlled manner.

The merits of each of the options were evaluated. Each option was predicted to incur high economic costs, and significant, intangible costs. Namely, these were heritage, environmental and recreational costs related to the loss of historic buildings and structures, saline habitats, fresh water habitats associated with St Ouen's Pond and beach access. Although each option demonstrated some economic and environmental benefits, these were not tangible, and were outweighed by costs. Since the existing area has seen very little development and landscape changes since the studies were completed, it would be appropriate to re-evaluate Managed Realignment at St Ouen's Bay again within the next SMP review cycle in 2029.

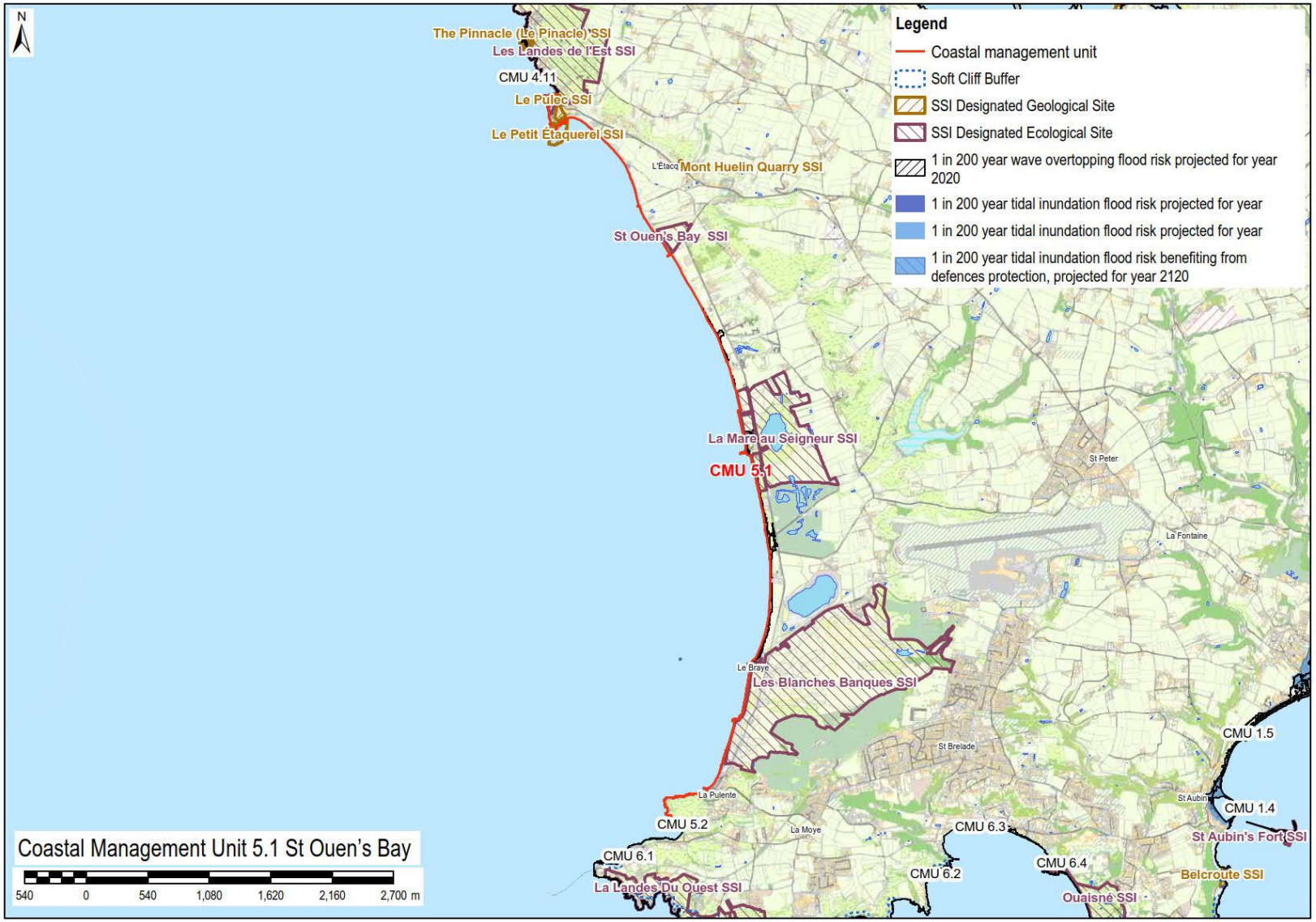


Figure 8-3: Coastal Flood risk at CMU 5.1 (St Ouen's Bay)

Figure 8-4: Coastal defences along St Ouen's Bay (CMU 5.1)

Figure 8-5: View of the coastline at St Ouen's Bay (CMU 5.1)

8.2 Coastal Management Unit 5.2 (Petit Port)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 5.2 (Petit Port) includes Petit Port Beach, and an area of the coastline in front of Rue de Grouet; there are a range of defences at the coastline, and there is negligible flood and coastal erosion risk. The policy options considered in CMU 5.2 are scored against the objectives in Appendix C (Table 4-29). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises the importance of maintaining Petit Port for the community; hence the maintenance scheme of the existing defences will be complimentary to the access to the frontage, helping to support community and stakeholder ambitions. Maintaining the beach will also maintain the contribution to health and wellbeing through coastal access, supporting the Island Plan Policy NE 8.

The coastline forms part of the Coastal National Park; the management intent will maintain the ecological and cultural value by providing consistent flood defence, without introducing new infrastructure which could compromise the character of the coastline. This will support the Future Jersey and Island Plan Policy SP 4, in protecting the natural environment.

Figure 8-6: Coastal defences at Petit Port (CMU 5.2)

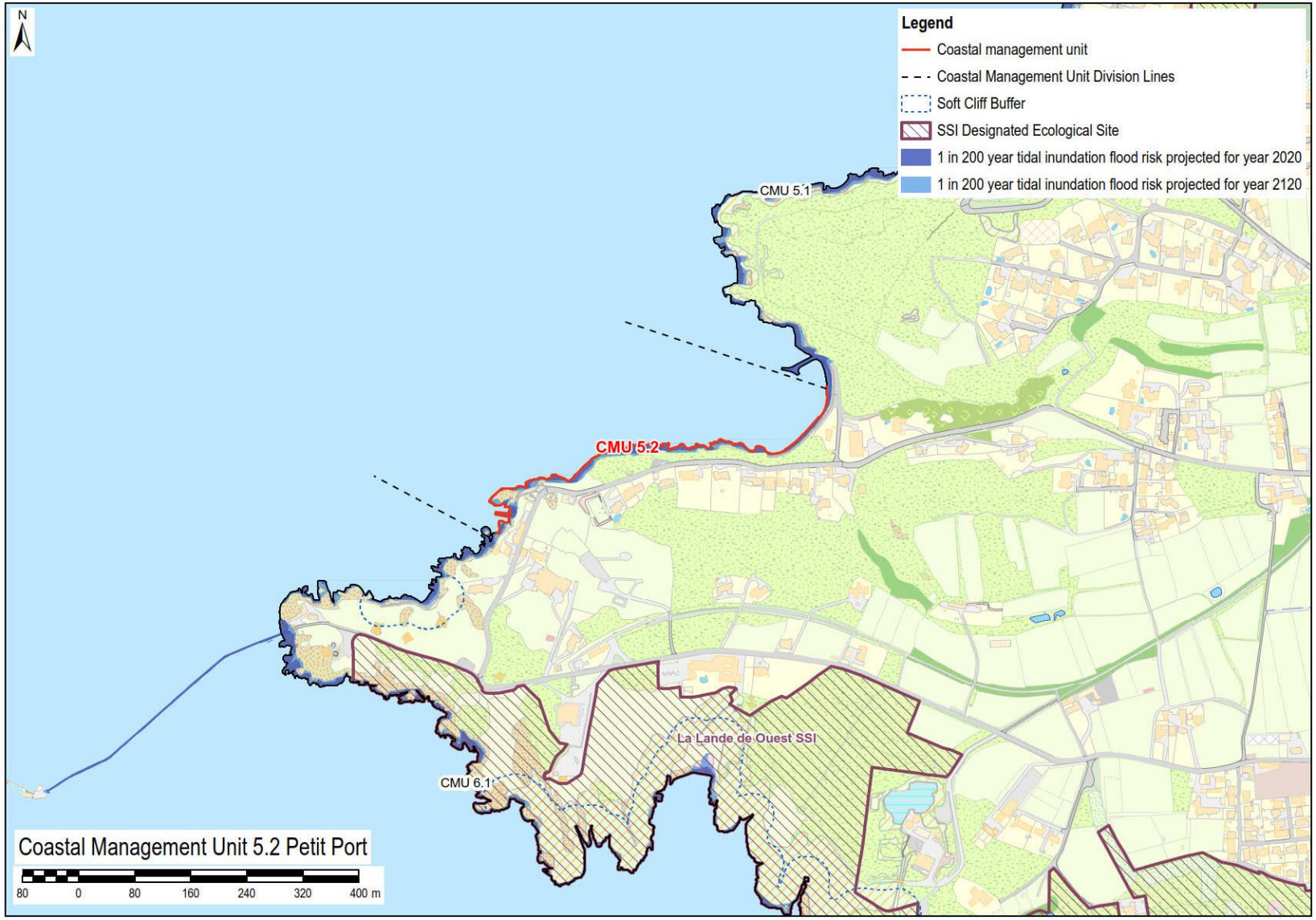


Figure 8-7: Coastal Flooding and Erosion risk at CMU 5.2 (Petit Port)

9. Coastal Management Area 6 – St Brelade (CMA6)

Coastal Management Area 6 extends from the southwestern corner of the Island, from the causeway leading to La Corbiere Lighthouse to the eastern end of Portelet Beach. There are large areas of undefended cliffs along the coastline comprising of hard and soft geology, and the undefended bays of Beauport Bay and Portelet Bay, as well as defended bays which are popular beach locations – including St Brelade's Bay. There are several Ecological and Geological SSIs located within this area, including Portelet Common which is a key heathland habitat within the Biodiversity Strategy for Jersey, which provides health and wellbeing benefits as a key area of open green space on the Island. Figure 9-1 shows the risk of flooding and coastal erosion at St Brelade, and Figure 9-2 shows the selected policies for each CMU.

Table 9-1: Coastal Management Area 6 - St Brelade

Coastal Management Unit (Approximate Length)		Existing Infrastructure (Approximate length)	Key Characteristics	Subject to Flooding	Subject to Erosion
6.1	**Gorselands (8500m)**	Undefended	• Beauport beach • La Lande du Ouest Ecological SSI	✗	✔
6.2	**Les Creux (1080m)**	Undefended	• Soft geology coastline • Private residential area	✗	✔
6.3	**St Brelade's Bay (1500m)**	Vertical granite wall, sloping granite wall with granite toe structure and RC anti-tank wall; 970m	• Popular beach location • Seven listed buildings with cultural and heritage value, including St Brelade's Tower and Carlyon House	✔	✔
6.4	**Ouaisne Bay (1500m)**	RC anti-tank wall; 670m	• Ouaisne Ecological SSI • Several heritage sites, including old Smuggler's Inn	✔	✗
6.5	**La Cotte de St Brelade (430m)**	Undefended	• Geological SSI, and Jersey's most popular Paleolithic site	✗	✔
6.6	**Portelet Common (2000m)**	Undefended	• Natural coastal habitat • Forms key coastal heathland habitat, linking to Noirmont Common (CMU1.1) • Ecological SSI, listed within the Biodiversity Strategy for Jersey	✗	✔
6.7	**Portelet Beach (760m)**	Undefended	• Popular beach location • Recreational facilities, including Portelet Bay Café • Portelet Bay Geological SSI	✗	✔

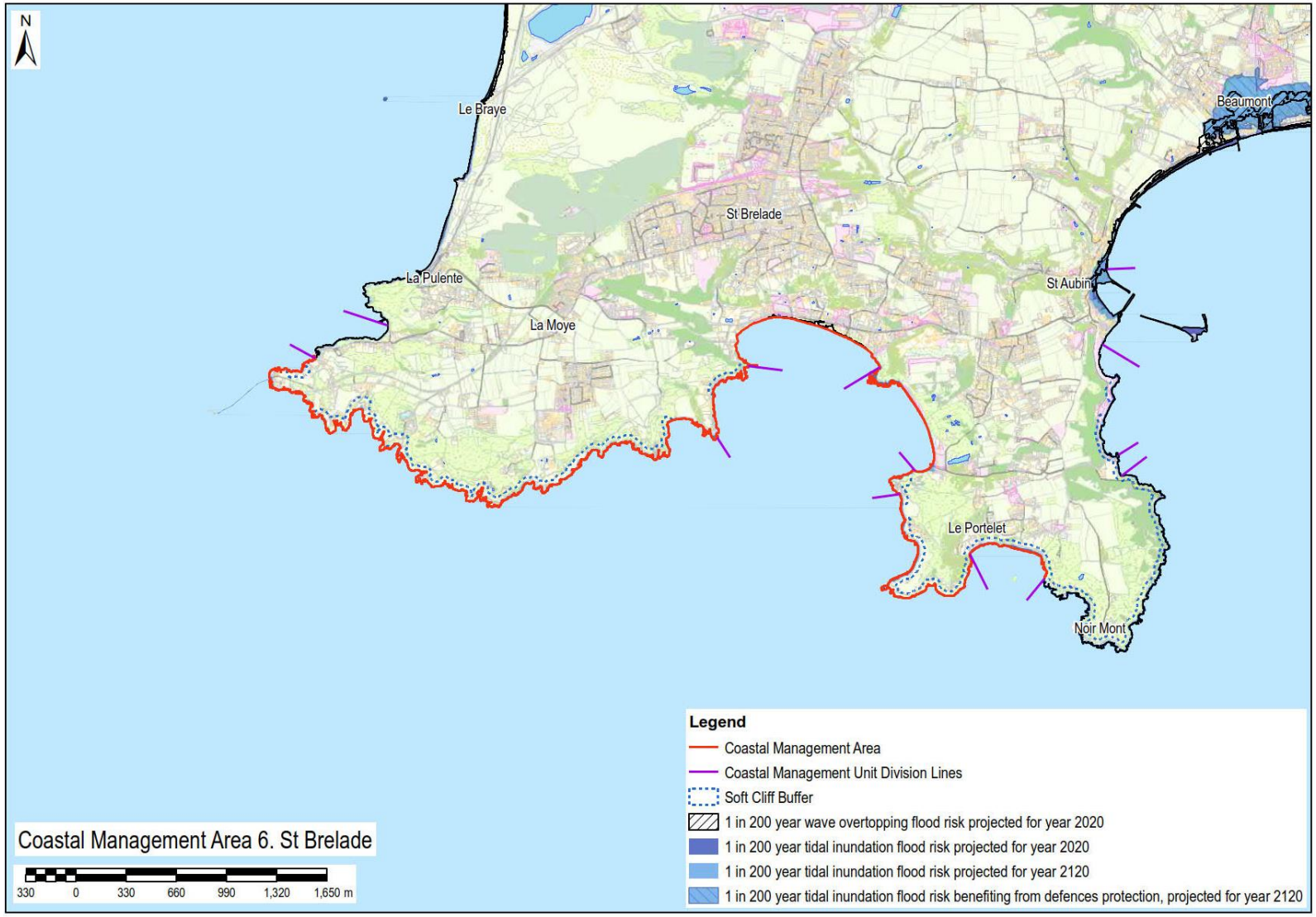


Figure 9-1: Coastal Flooding and Erosion risk at Coastal Management Area 6 - St Brelade

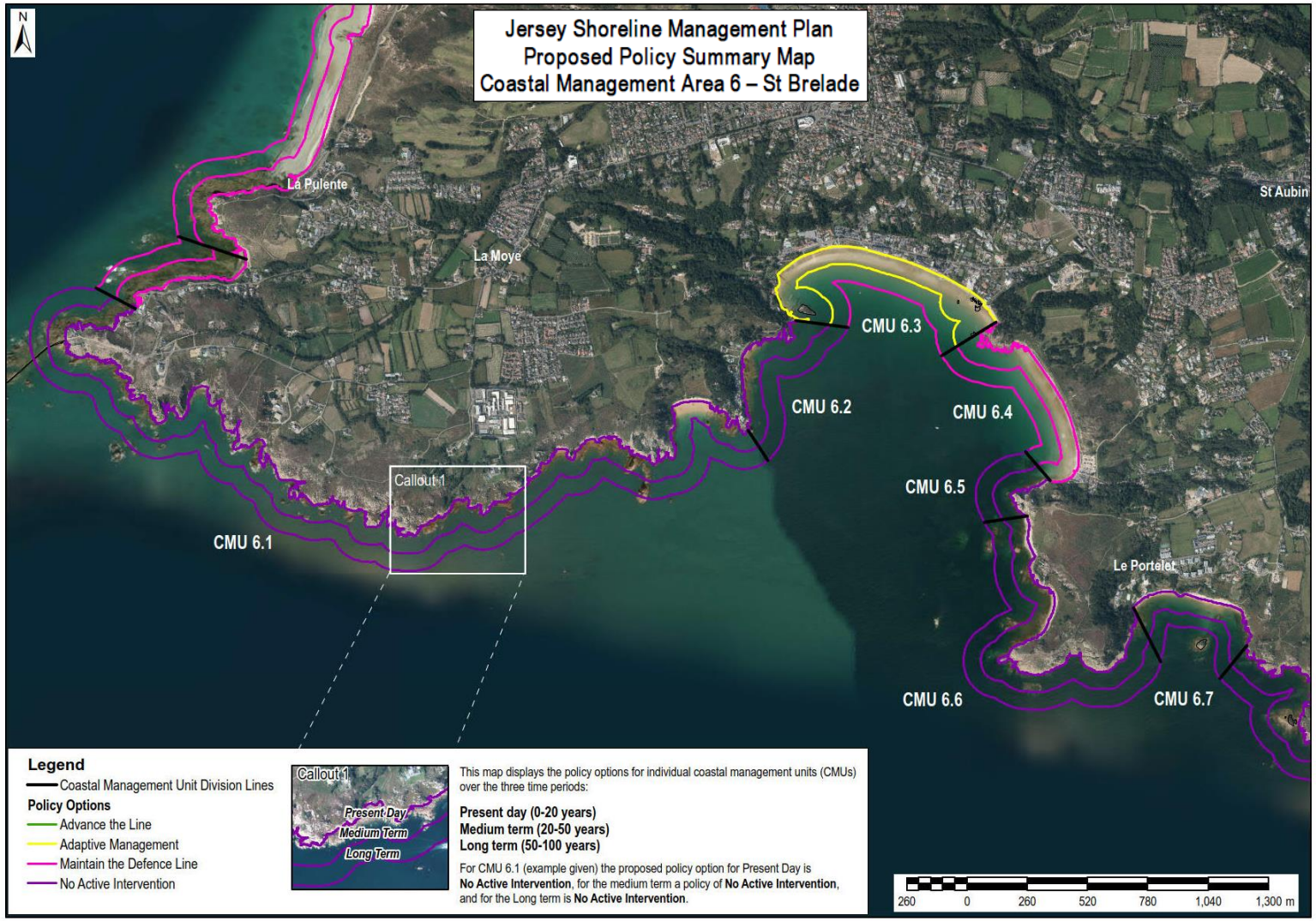


Figure 9-2: Policy summary for Coastal Management Area 6 - St Brelade

9.1 Coastal Management Unit 6.1 (Gorselands)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 6.1 (Gorselands) is predominantly an area of hard and soft cliff coastline which extends from the headland at Gorselands, to the eastern end of Beauport Beach. Though the unit is undefended, there is negligible flood and coastal erosion risk. The policy options considered in CMU 6.1 are scored against the objectives in Appendix C (Table 4-30). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The preferred policy recognises the importance of the natural coastline, including Beauport Beach. La Lande du Ouest Ecological SSI is located within this unit, and contains Maritime heathland which is listed under Annex 1 of the EC Habitats Directive, and is a key habitat in the Biodiversity Strategy for Jersey, forming part of the Coastal National Park. There are 16 heritage sites on or behind the coastline within this unit, including several military structures which are Grade II listed buildings.

The policy management intent will maintain the heritage and landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline, supporting the Future Jersey objective to protect the built and historic environment and the natural environment, complying with Policy SP 4 and HE 1 of the Island Plan. This will also recognise the importance of Gorselands to the community, in terms of maintaining the current level of coastal access to Beauport Beach to support Policy NE 8, and contribution to recreation here, supporting the Future Jersey objectives for health and wellbeing.

The preferred policy is not anticipated to have any impact on the economic objectives as it is a natural, designated landscape with high environmental value and limited opportunities for economic development.

Figure 9-3: Beauport Beach, part of the coastline at Gorselands (CMU 6.1)

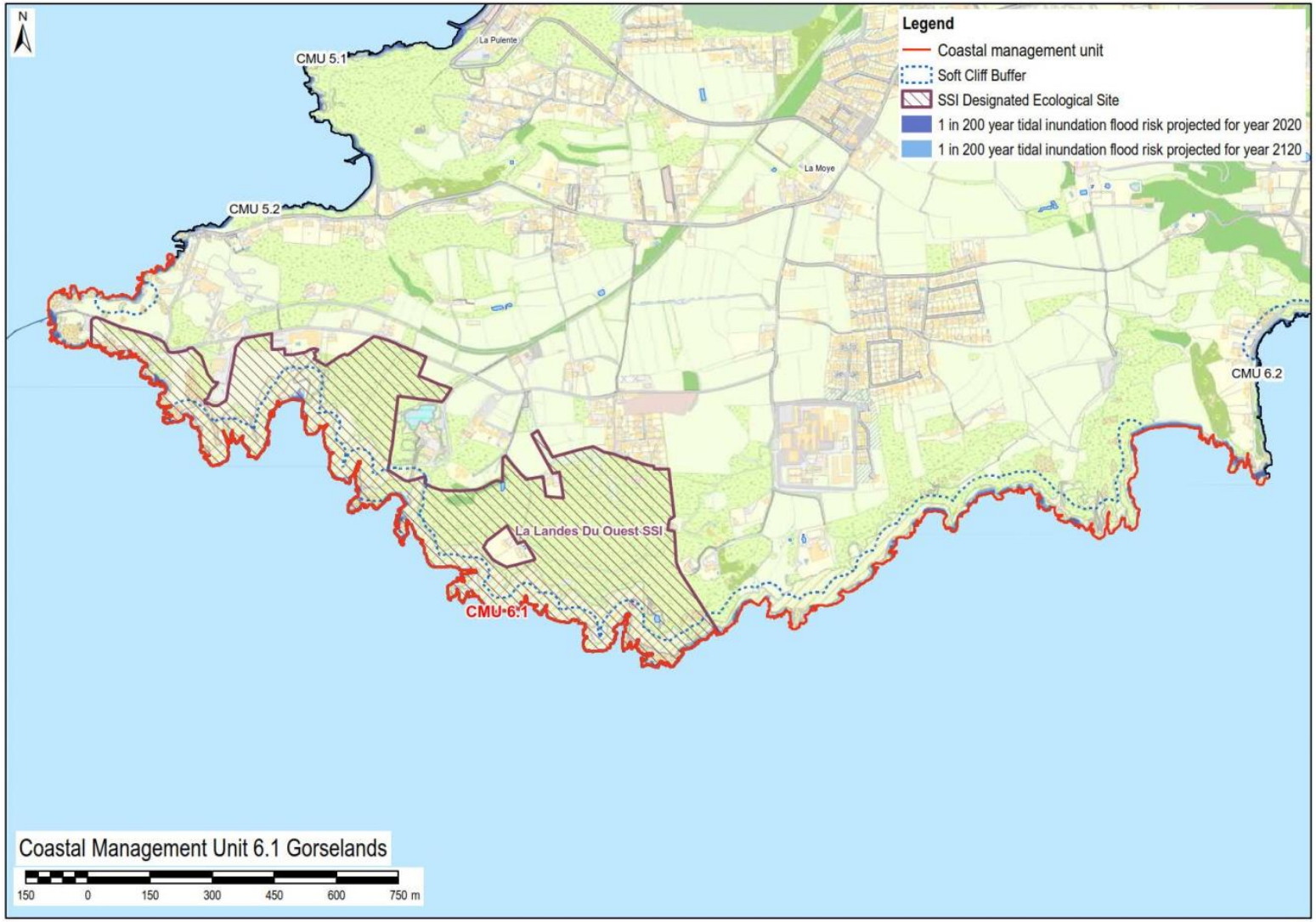


Figure 9-4: Coastal Flooding and Erosion risk at CMU 6.1 (Gorselands)

9.2 Coastal Management Unit 6.2 (Les Creux)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 6.2 (Les Creux) extends from the eastern end of Beauport Beach, to the pier at the western end of St Brelade's Bay. This unit is mostly undefended though there are some private defences at Chemin des Creux to protect against erosion, and there is negligible flood risk. The beach is composed of soft geology, and is at risk of coastal erosion according to the analysis in Appendix B. A buffer zone has been created around the soft cliffed areas of the coastline, including Les Creux.

The policy options considered in CMU 6.2 are scored against the objectives in Appendix C (Table 4-31). The preferred policy option for this unit is **No Active Intervention** in all three epochs. This will involve allowing natural processes to continue, and no new defences will be implemented by the Government of Jersey. However, as there are assets at risk of erosion (Chemin des Creux Road and two properties behind), the implementation and maintenance of privately funded defences is permitted, subject to Government planning policy and regulations. This is only justified in providing protection to existing assets, and should not be used to encourage new development behind the road.

The preferred policy recognises the natural importance of the coastline which forms part of the Coastal National Park, maintaining the landscape to protect the natural environment and support the Future Jersey and Island Plan policies SP 4 and NE 6.The management intent provides residents at Les Creux with an opportunity to protect Chemin des Creux Road, to avoid negative impacts of erosion on the travel infrastructure.

The preferred policy is anticipated to have negligible impacts on the economic objectives as it is a predominantly small residential area with limited opportunities for economic development.

Figure 9-5: Rocky coastline at Les Creux (CMU 6.2)

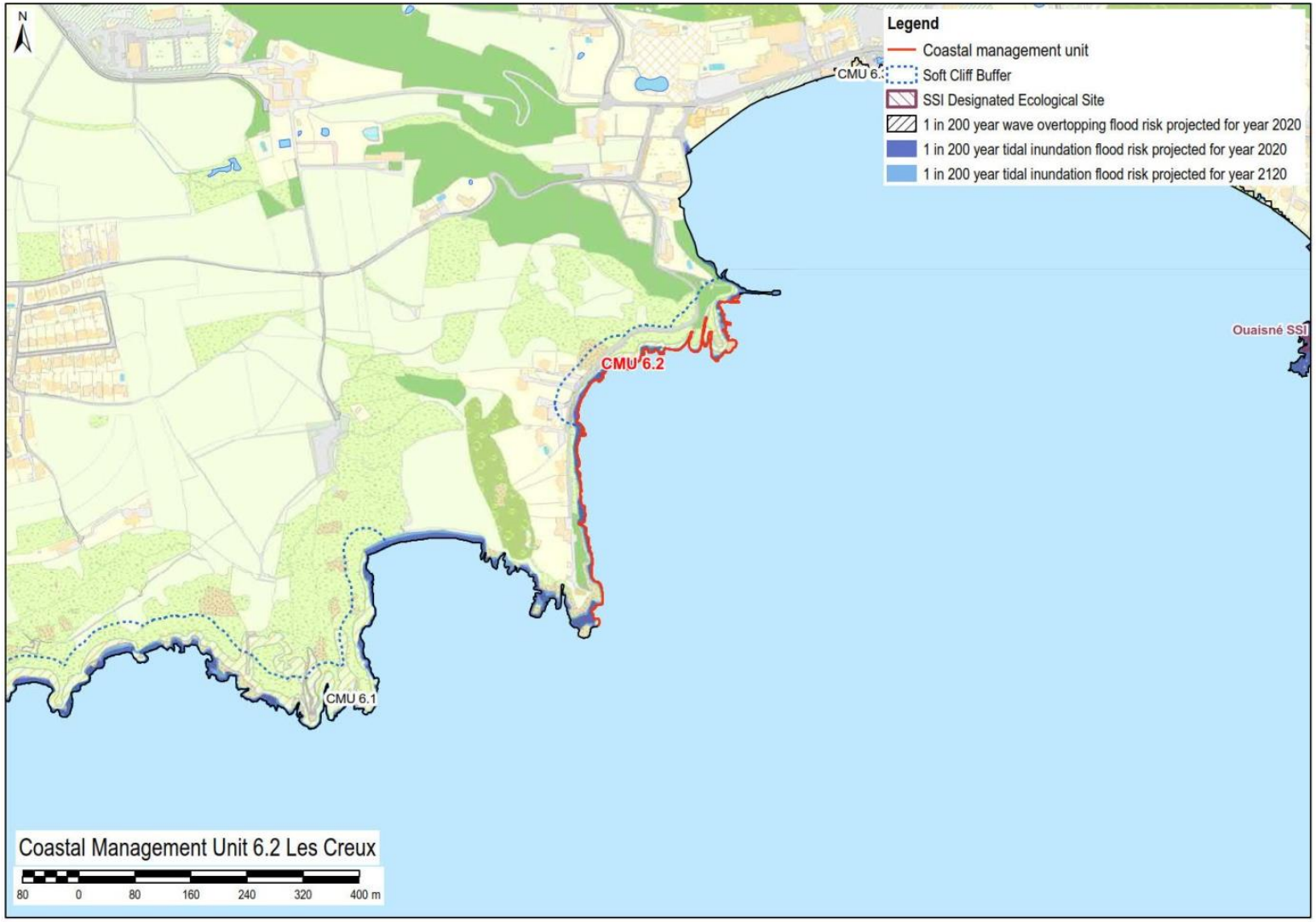

N
Legend
Coastal management unit
Soft Cliff Buffer
SSI Designated Ecological Site
1 in 200 year wave overtopping flood risk projected for year 2020
1 in 200 year tidal inundation flood risk projected for year 2020
1 in 200 year tidal inundation flood risk projected for year 2120
CMU 6.
CMU 6.2
Ouaisné SSI
CMU 6.1
Coastal Management Unit 6.2 Les Creux
80 0 80 160 240 320 400 m

Figure 9-6: Coastal Flooding and Erosion risk at CMU 6.2 (Les Creux)

9.3 Coastal Management Unit 6.3 (St Brelade's Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line

Coastal Management Unit 6.3 (St Brelade's Bay) comprises the coastline of St Brelade's Bay, a popular beach location. It has a range of defences protecting the bay from coastal erosion, but it is still subject to overtopping flood risk from a 1:75 year flood event in the present day, affecting one property behind La Route de la Baie. This flood risk is expected to continue into the future due to rising still water levels. The policy options considered in CMU 6.3 are scored against the objectives in Appendix C (Table 4-32). The preferred policy option for this unit is **Adaptive Management** in epochs 1 and 2 and **Maintain the Defence Line** in epoch 3, up to 2120. This will involve implementing community awareness schemes during epoch 1 to reduce and enable better preparation for the impacts of flooding on the community, and then engaging with the community about ways to improve the defences to a 1:200 year standard of protection in epoch 2 and maintain it in the future up to 2120.

The preferred policy option recognises the importance of St Brelade's Bay as a popular beach location, named the third best-rated beach in 2019 at the UK Trip Advisor Traveller's Choice Awards, and hence any sea defence scheme would be complimentary to the existing recreational facilities, and access to the frontage, helping to support community and stakeholder ambitions. Improved signage regarding overtopping flood risk in the present day could be positioned in key areas to make coastal users aware of impacts to access and travel infrastructure during storm events, improving the standard of protection of the defences in epoch 2 to provide the longer term protection from flood risk.

There are seven listed buildings here with heritage and cultural value; the management intent will. Improve the defences to a 1:200 year standard of protection in epoch 2 will minimise the impact of flooding on these environmental assets, and provides time to integrate the defence into the community aspirations. Protecting these assets will support the plans of both the Future Jersey and the Island Plan policies SP 4 and HE 1, in giving priority to the protection of the Island's natural and historic environment, including the protection of listed buildings.

The preferred policy option has the greatest potential to support plans and opportunities for economic growth by providing better awareness of flooding in the present day, and protection to the seaside businesses, which rely on steady tourism, in epoch 2, facilitating investment into the tourist economy here.

The number of properties at risk from flooding in St Brelade's Bay are shown for each return period event in Table 9-2, with the benefits and costs for the preferred policy option also calculated. The predicted Benefit Cost Ratio is low as there are very few properties at risk, new coastal defences would need to be built along the length of the frontage.

Table 9-2: Economic Assessment Summary - CMU 6.3 (St Brelade's Bay)

Return Period Event	Number of Properties at risk				Whole Life Preferred Policy Option Benefits (£k)	Whole Life Preferred Policy Option Cost (£k)	Benefit Cost Ratio
	2020	2040	2070	2120			
1:1	0	0	0	0	207	3,737	0.06
1:20	0	1	1	1			
1:75	1	4	4	4			
1:200	3	6	6	6			

Figure 9-7: Coastal Flooding and Erosion risk at CMU 6.3 (St Brelade's Bay)

Figure 9-8: Coastal defences located at St Brelade's Bay

9.4 Coastal Management Unit 6.4 (Ouaisne Bay)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line

Coastal Management Unit 6.4 (Ouaisne Bay) extends from the headland at the western end of St Brelade's Bay to La Cotte de St. Brelade. Ouaisne Bay is currently defended and there is very limited flood risk and negligible coastal erosion risk. The policy options considered in CMU 6.4 are scored against the objectives in Appendix C (Table 4-33). The preferred policy option for this unit is **Maintain the Defence Line** for all three epochs.

The preferred policy recognises the importance of maintained flood protection of the commercial properties at the coastline, along Le Mont du Ouaisne, hence the maintenance scheme will be complimentary to the existing facilities, helping to support community and stakeholder ambitions, and will continue to include mitigation of flood risk via Ouaisne slipway. No properties are predicted to be at risk of coastal flooding from the 1 in 200 year tidal inundation event in 2020. By 2120, a single property is predicted to be at risk of coastal flooding from the 1 in 200 year tidal inundation event.

Ouaisne Ecological SSI is located behind Ouaisne Bay, which is one of the most important locations in Jersey for reptiles and amphibians and is listed under the EC Habitats Directive with special priority given to the fixed dunes in the area. It is also listed as a key local habitat in the Biodiversity Strategy for Jersey, and forms part of the Coastal National Park. There are several heritage sites located here: Old Smuggler's Inn (a Grade 4 listed buildings) and La Montee du Ouaisne Slipway and a military structure (Grade 2 and Grade 3 listed structures respectively).The management intent will maintain the geological, heritage and cultural value, maintaining the defences to provide consistent flood defence, without introducing new infrastructure which could compromise the character of the coastline. This will support the Future Jersey and the Island Plan policies SP 4, NE 1 and HE 1 by protecting the land of SSIs, and listed buildings and other heritage assets.

Figure 9-9: RC anti-tank wall at Ouaisne Bay (CMU 6.4)

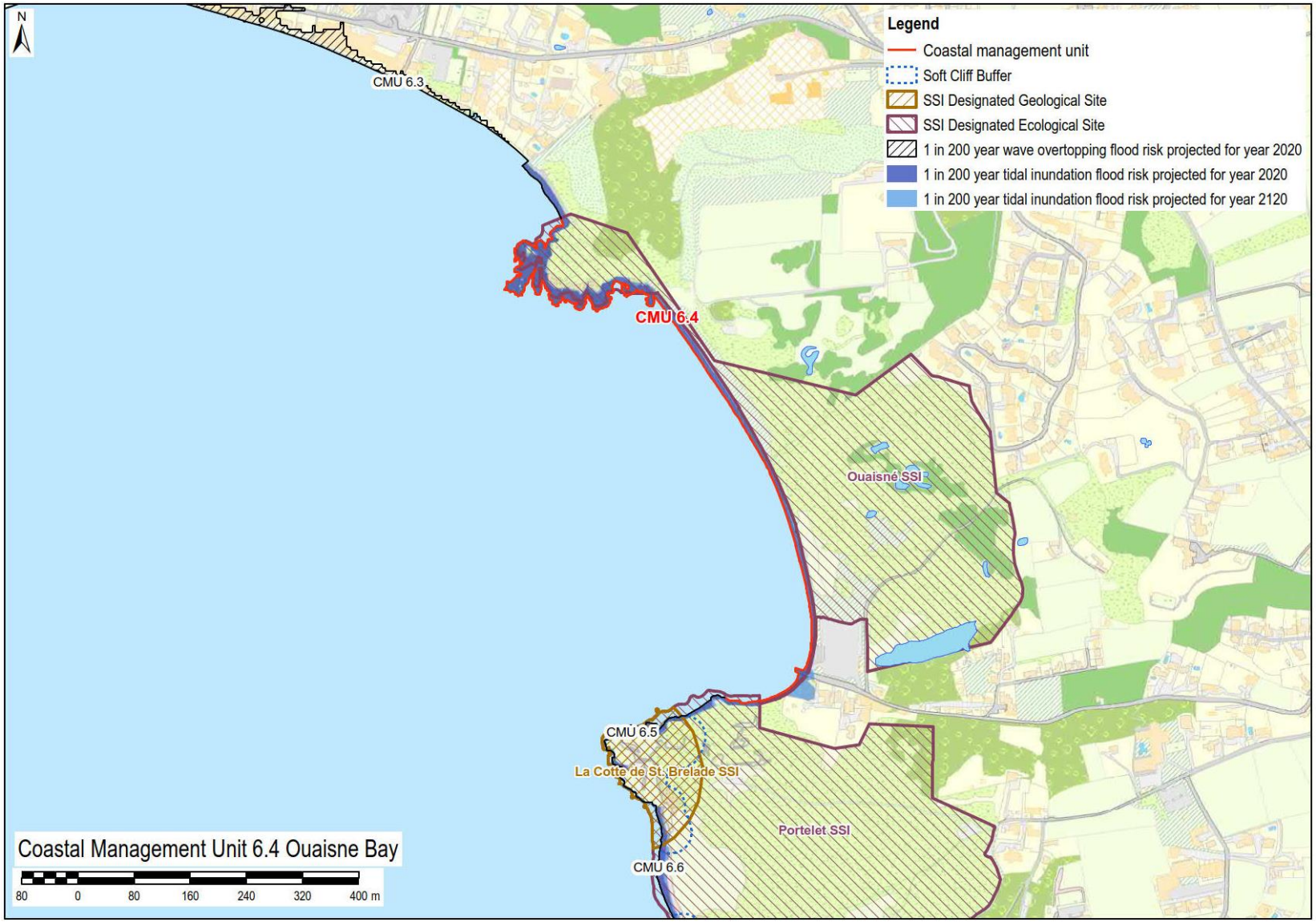

N
CMU 6.3
CMU 6.4
Ouaisné SSI
CMU 6.5
La Cotte de St. Brelade SSI
Portelet SSI
CMU 6.6
Legend
Coastal management unit
Soft Cliff Buffer
SSI Designated Geological Site
SSI Designated Ecological Site
1 in 200 year wave overtopping flood risk projected for year 2020
1 in 200 year tidal inundation flood risk projected for year 2020
1 in 200 year tidal inundation flood risk projected for year 2120
Coastal Management Unit 6.4 Ouaisne Bay
80 0 80 160 240 320 400 m

Figure 9-10: Coastal Flooding and Erosion risk at CMU 6.4 (Ouaisne Bay)

9.5 Coastal Management Unit 6.5 (La Cotte de St Brelade)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 6.5 (La Cotte de St Brelade) comprises the headland coastline in which La Cotte de St Brelade is located. This unit benefits from a recently constructed defence and there is negligible flood and coastal erosion risk.

The policy options considered in CMU 6.5 are scored against the objectives in Appendix C (Table 4-34). The preferred policy option for this unit is **No Active Intervention** for all three epochs. This will involve allowing natural processes to continue up to 2120, and no new defences will be implemented by the Government of Jersey. However, the implementation and maintenance of defences funded by Jersey Heritage / Société Jersiaise is permitted, subject to Government planning policy and regulations, to provide protection to the heritage value of La Cotte de St Brelade.

The preferred policy recognises the natural and environmental importance of La Cotte de St Brelade as a historic site and a Geological SSI which is Jersey's most important Palaeolithic site. The planned development by Jersey Heritage here supports the Future Jersey and Policy SP 4 of the Island Plan, protecting the SSI and the coastline as a significant historical site in the natural environment of Jersey. Any new infrastructure introduced will be intended to add to the value of La Cotte de St Brelade, with the potential to improve the contribution to health and wellbeing in the area by improving coastal access to the area, working towards Policy NE 8.

This is anticipated to have negligible impacts on economic objectives as a natural and historical site with limited opportunities for economic development.

Figure 9-11: La Cotte de St Brelade (CMU 6.5)[12]

[12] Jersey Heritage (2019) *La Cotte de St Brelade.* Available from: https://www.jerseyheritage.org/ice-age-key-sites/la-cotte-de-st-brelade- [Accessed 23 May 2019]

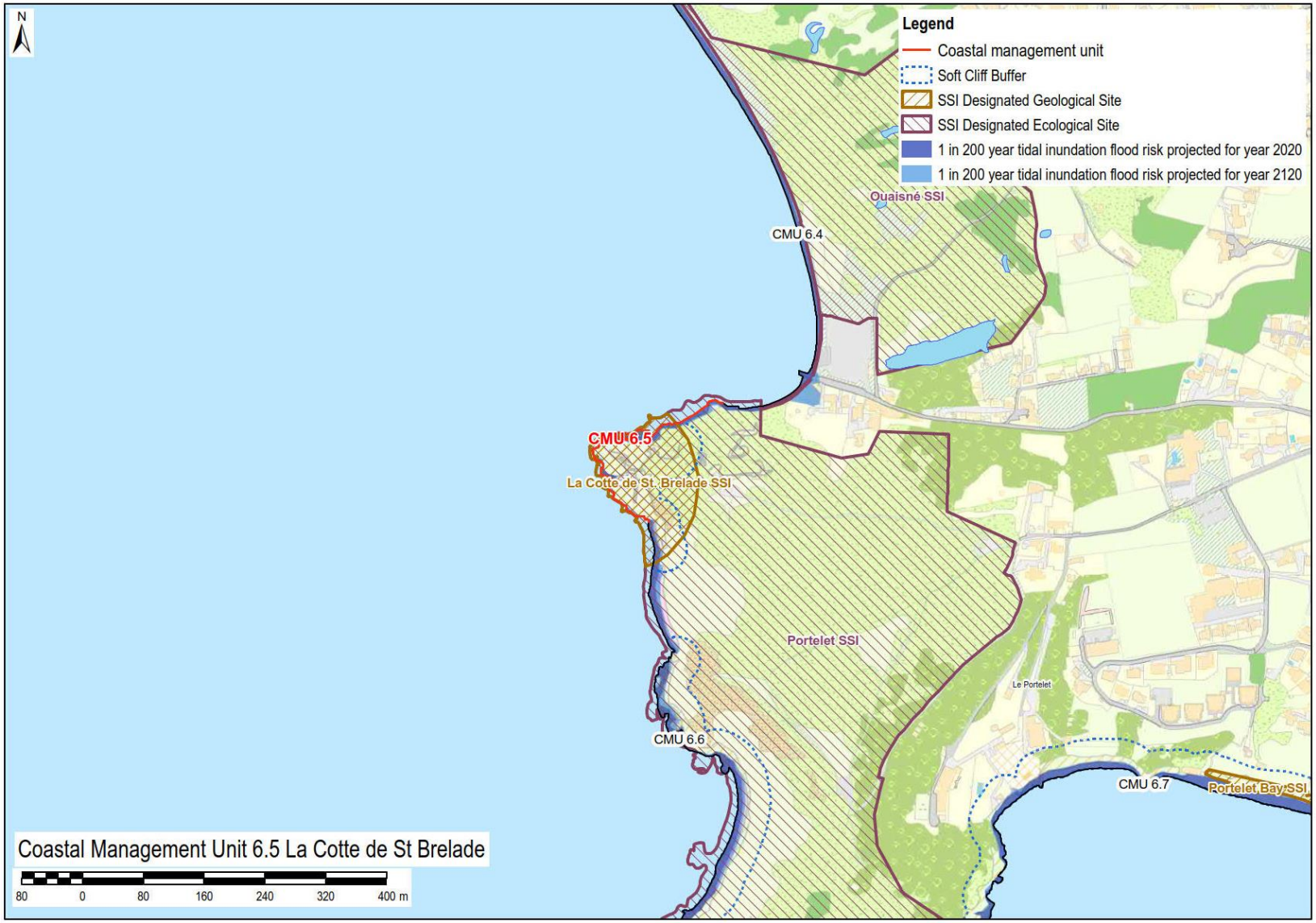


Figure 9-12: Coastal Flooding and Erosion risk at CMU 6.5 (La Cotte de St Brelade)

9.6 Coastal Management Unit 6.6 (Portelet Common)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 6.6 (Portelet Common) spans from La Cotte de St Brelade to the eastern end of Portelet Beach. Though the unit is undefended, there is negligible flood and coastal erosion risk and no properties or critical infrastructure assets are at risk. The policy options considered in CMU 6.6 are scored against the objectives in Appendix C (Table 4-35). The preferred policy option for this unit is **No Active Intervention** for all three epochs.

The preferred policy recognises the natural and environmental importance of Portelet Common, the coastline of which is composed of soft and hard cliffs which are part of the south-west headland heaths. Portelet Common forms part of the Coastal National Park, and is a listed ecological SSI under the protection of the State of Jersey; protecting SSI land to support the natural environment is one of the listed outcomes in the Future Jersey It is composed of coastal heathland which is a key habitat in the Jersey Biodiversity Strategy, and contains Atlantic Dry (Maritime) heathland which is listed in both Resolution No.4 of the Bern Convention and Annex 1 of the EC Habitats Directive.

The policy management intent will maintain the status of ecological processes and the landscape value of the area, without introducing new infrastructure which could compromise the character of the coastline. This will also maintain the health and wellbeing services provided through the large open green space, supporting the Future Jersey objectives to protect the natural environment and promote good health and wellbeing, and the Island Plan policies SP 4, NE 1, NE 8 and SCO 4. This policy is anticipated to have negligible impact on the economic objectives, as Portelet Common is a natural habitat with significant environmental value, and therefore limited opportunities for economic development.

Figure 9-13: View of the coastline from Portelet Common (CMU 6.6)

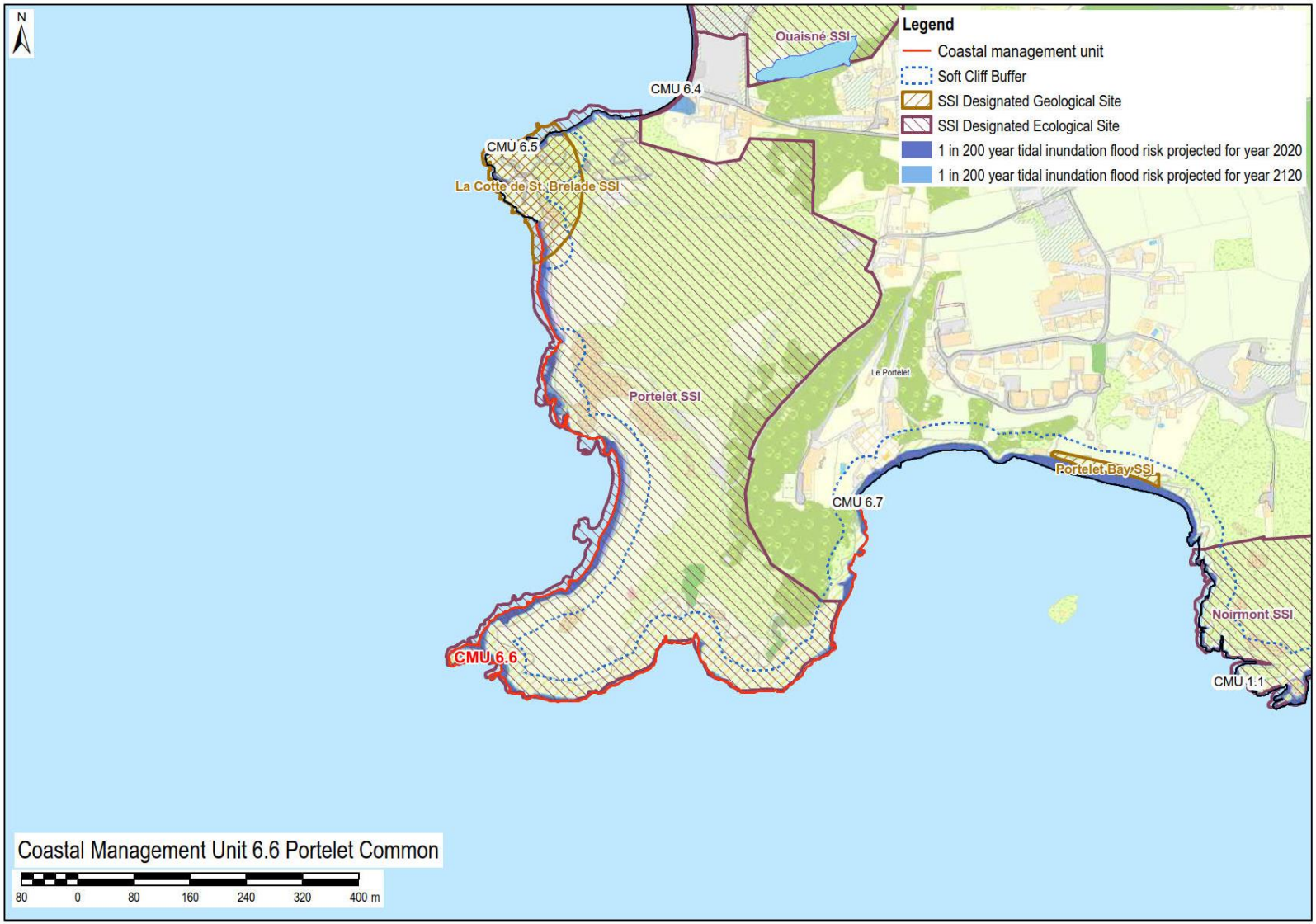


Figure 9-14: Coastal Flooding and Erosion risk at CMU 6.6 (Portelet Common)

9.7 Coastal Management Unit 6.7 (Portelet Beach)

Preferred Policy Option		
Epoch 1: Present Day 2020-2040	**Epoch 2: Medium Term 2040-2070**	**Epoch 3: Long Term 2070-2120**
No Active Intervention	No Active Intervention	No Active Intervention

Coastal Management Unit 6.7 (Portelet Beach) comprises the coastline at Portelet Beach. This unit is currently undefended though there is negligible flood risk. The beach is composed of soft geology, and is at risk of coastal erosion according to the analysis in Appendix B.

The policy options considered in CMU 6.7 are scored against the objectives in Appendix C (Table 4-36). The preferred policy option for this unit is **No Active Intervention** for all three epochs. This will involve allowing natural processes to continue, and no new defences will be implemented by the Government of Jersey. However, as there are assets at risk of erosion, the implementation and maintenance of privately funded defences is permitted, subject to Government planning policy and regulations. This would only be justified to provide protection to existing assets, and should not be used to encourage new development behind Portelet Beach.

The preferred policy recognises the natural importance of the coastline at Portelet Beach. Portelet Bay Geological SSI is located behind Portelet Beach, and the coastline forms part of the Coastal National Park. The management intent will maintain the landscape value of the area, to support the Future Jersey objective to protect the natural environment and the Island Plan Policy SP 4. Providing an opportunity for privately funded defences has the potential to reduce the impacts of coastal erosion on commercial properties in the area, supporting stakeholder needs.

The preferred policy is anticipated to have negligible impact on economic objectives as it is a natural beach landscape with limited opportunities for economic development.

Figure 9-15: Portelet Beach (CMU 6.7)

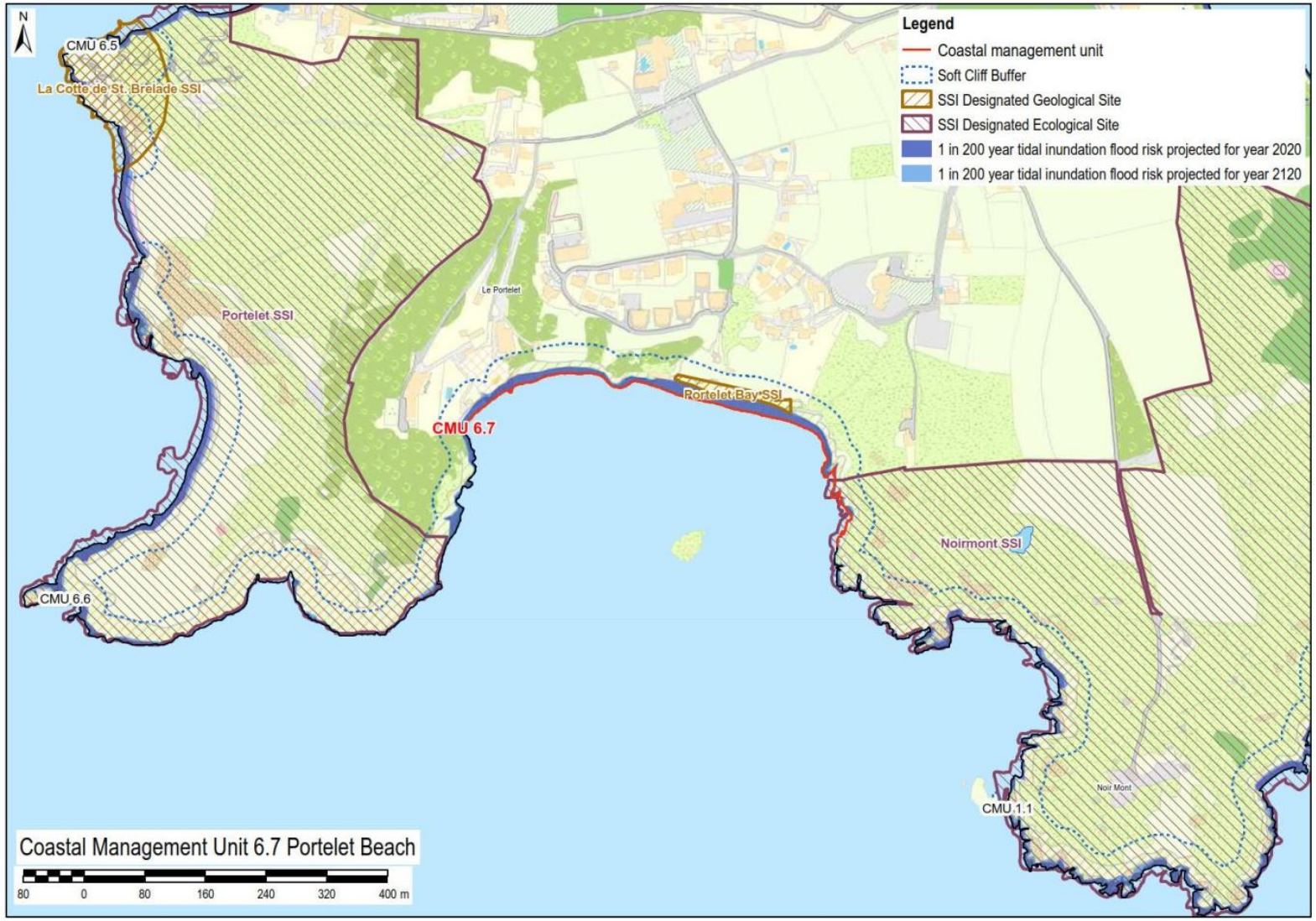

N
CMU 6.5
La Cotte de St. Brelade SSI
Portelet SSI
Le Portelet
Portelet Bay SSI
CMU 6.7
Noirmont SSI
CMU 6.6
Noir Mont
CMU 1.1
Legend
Coastal management unit
Soft Cliff Buffer
SSI Designated Geological Site
SSI Designated Ecological Site
1 in 200 year tidal inundation flood risk projected for year 2020
1 in 200 year tidal inundation flood risk projected for year 2120
Coastal Management Unit 6.7 Portelet Beach
80 0 80 160 240 320 400 m

Figure 9-16: Coastal Flooding and Erosion risk at CMU 6.7 (Portelet Beach)

10. Policy Summary of the Preferred Plan and Implications

This SMP has highlighted the importance of selecting and implementing appropriate coastal policies at a local level to support decision making. Through these management policies, the SMP will aim to sustain key infrastructure on the Island, including roads, cycle networks and port transport links, and properties. The SMP also recognises the importance of the natural and historic environment, in creating a picturesque landscape which gives Jersey much of its coastal character.

The policies focus on implementing new and maintaining existing coastal defence infrastructure where there are significant risks from coastal flooding and erosion to communities, and particularly where this risk is predicted to increase following predicted rising still water levels in the future. Where there are no risks, the management intent looks to maintain existing coastal defences, or leave the coastline to evolve naturally where there are none. Recognition of the risks to Jersey's coastal communities provides a long-term plan for resilience, allowing the coast to gradually adapt to future change, rather than reliance on reactive or piecemeal approaches to respond to climate change.

This section of the SMP provides a summary of the preferred plan and the preferred policy options to implement that plan (as outlined in sections 4 to 9). It aims to emphasise the implications of the preferred plan at each of the Coastal Management Units, based on the assessment against the four themes: Defence, Community, Environment and Economy. It incorporates the key messages and overwhelming support for the draft policies gathered from public consultation in summer 2019. These are summarised in Section 10.3.

Each of the 36 CMUs identified in sections 4 to 9 has a summary of anticipated implications of the plan set out using the four themes identified above.

10.1 Policy Summary Map

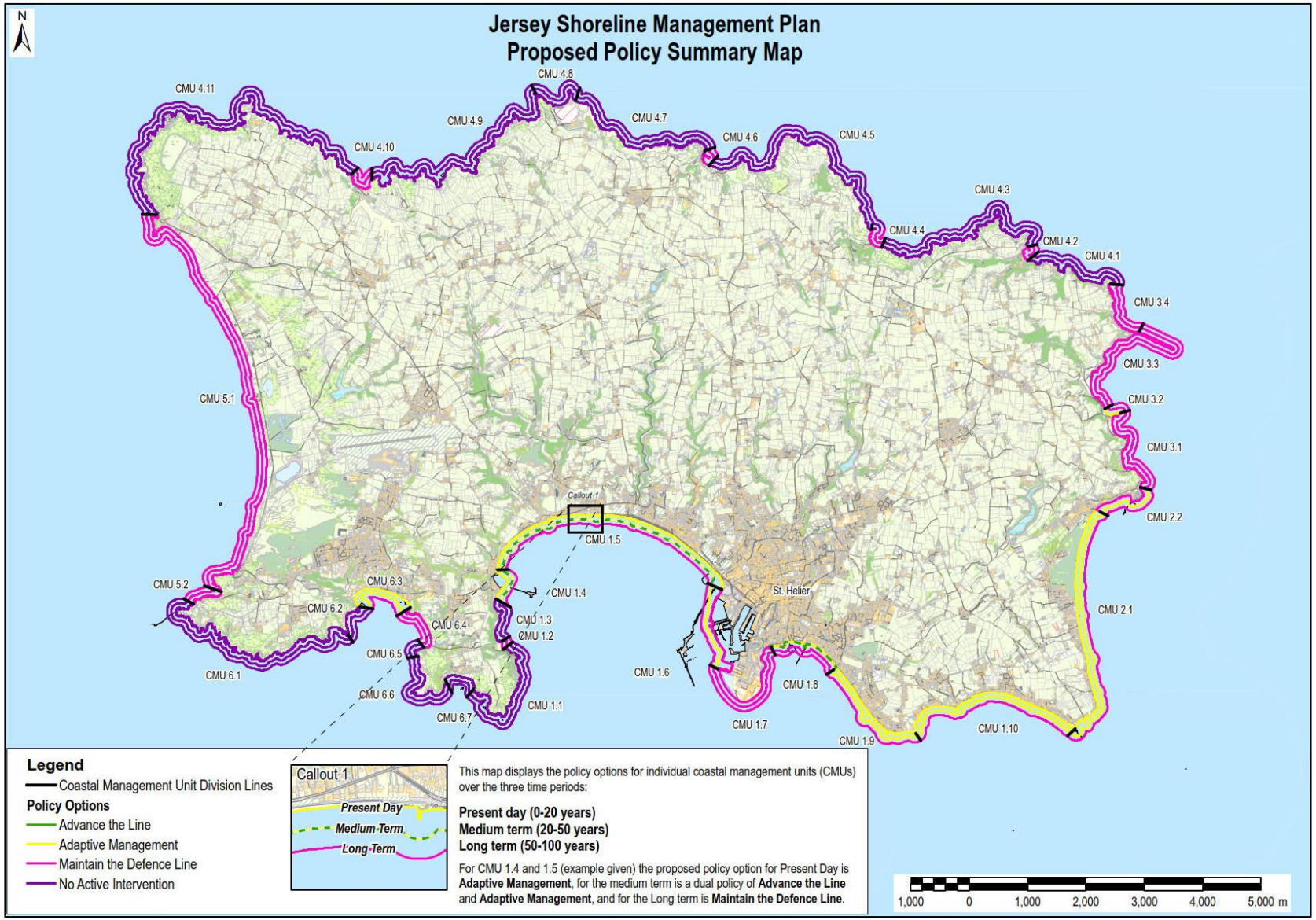


Figure 10-1: Jersey Island-Wide Policy Summary Map

10.2 Policy Summary Tables

These tables present the preferred policy options for each Coastal Management Unit, across each epoch.

Table 10-1: Summary of Preferred Options for Coastal Management Area 1 – South Coast

Coastal Management Unit (CMU)		Preferred Policy Option				Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070		Epoch 3: Long Term 2070-2120	
1.1	**Noirmont Common**	No Active Intervention	No Active Intervention		No Active Intervention	As a natural landscape and undeveloped area of the coastline, important heathland habitat and Ecological SSI with no significant predicted risk of flooding or coastal erosion up to 2120, Noirmont Common will be allowed to naturally evolve from its current state without intervention to the coastline.
1.2	**Belcroute Bay**	Maintain the Defence Line	Maintain the Defence Line		Maintain the Defence Line	The existing defences at Belcroute Bay will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120.
1.3	**La Housse**	No Active Intervention	No Active Intervention		No Active Intervention	La Housse is a natural area of the coastline which contains Belcroute Geological SSI. As there is no significant predicted risk of flooding or coastal erosion up to 2120, it will be allowed to naturally evolve from its current state without intervention to the coastline.
1.4	**St Aubin's Harbour**	Adaptive Management	Adaptive Management	Advance the Line	Maintain the Defence Line	There is a risk of overtopping flood risk to St Aubin's Harbour in the present day from a 1:1 year event, and risk from still water levels from a 1:75 year event. Adaptive management in the form of a community awareness scheme and implementation of new coastal defences to a 1:200 year SoP in the present day will reduce the impacts associated with flooding and engage the community. Further protection will be provided to the coastline in epoch 2, advancing the defence line seaward in localised areas, and if beneficial to the Government and the community.
1.5	**St Aubin's Bay**	Adaptive Management	Adaptive Management	Advance the Line	Maintain the Defence Line	There is a risk of overtopping flood risk to St Aubin's Bay in the present day from a 1:200 year event, and risk from still water levels from a 1:200 year event in epoch 3. Adaptive management in the form of a community awareness scheme and implementation of new coastal defences to a 1:200 year SoP in the present day will reduce the impacts associated with flooding and engage the community. Further protection will be provided to the coastline in epoch 2, advancing the defence line seaward in localised areas, and if beneficial to the Government and the community.

Coastal Management Unit (CMU)		Preferred Policy Option				Summary Policy Justification
		Epoch 1: Present Day 2020-2040		Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
1.6	**St Helier**	Maintain the Defence Line		Adaptive Management	Maintain the Defence Line	St Helier is at risk of flooding from still water levels from a 1:200 year flood event in the present day at the port, though in the future the flood risk is predicted to affect a greater area. In epoch 2, adaptive management in the form of implementing a setback defence alignment behind the port will protect the town from flooding, to a 1:200 year SoP. The development of any defences in front of this alignment will be the responsibility of the Ports of Jersey and will not receive any funding from the Government of Jersey.
1.7	**La Collette**	Maintain the Defence Line		Maintain the Defence Line	Maintain the Defence Line	The existing defences at La Collette will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120.
1.8	**Havre des Pas**	Adaptive Management	Advance the Line	Maintain the Defence Line	Maintain the Defence Line	The promenade at Havre des Pas is at risk of overtopping flood risk from a 1:1 year flood event in the present day, and residential areas such as Bagot are predicted to be experience flooding from still water levels from a 1:200 year event in the present day. Adaptive management will be implemented in the form of improving the defences to a 1:200 year SoP, and localised areas where the defence line will, if beneficial to the Government and the community, be advanced seaward.
1.9	**La Greve d'Azette**	Adaptive Management (Community Awareness Scheme)		Adaptive Management	Maintain the Defence Line	There is a risk of overtopping flood risk to La Greve d'Azette in the present day from a 1:1 year event. Adaptive management in the form of a community awareness scheme in the present day will reduce the impacts associated with flooding and engage the community to improve the defences to a 1:200 year SoP in epoch 2.
1.10	**Le Hocq / Pontac**	Adaptive Management (Community Awareness Scheme)		Adaptive Management	Maintain the Defence Line	There is a risk of overtopping flood risk to Le Hocq / Pontac in the present day from a 1:1 year event, and risk from still water levels from a 1:200 year event in epoch 3. Adaptive management in the form of a community awareness scheme in the present day will reduce the impacts associated with flooding and engage the community to improve the defences to a 1:200 year SoP in epoch 2.

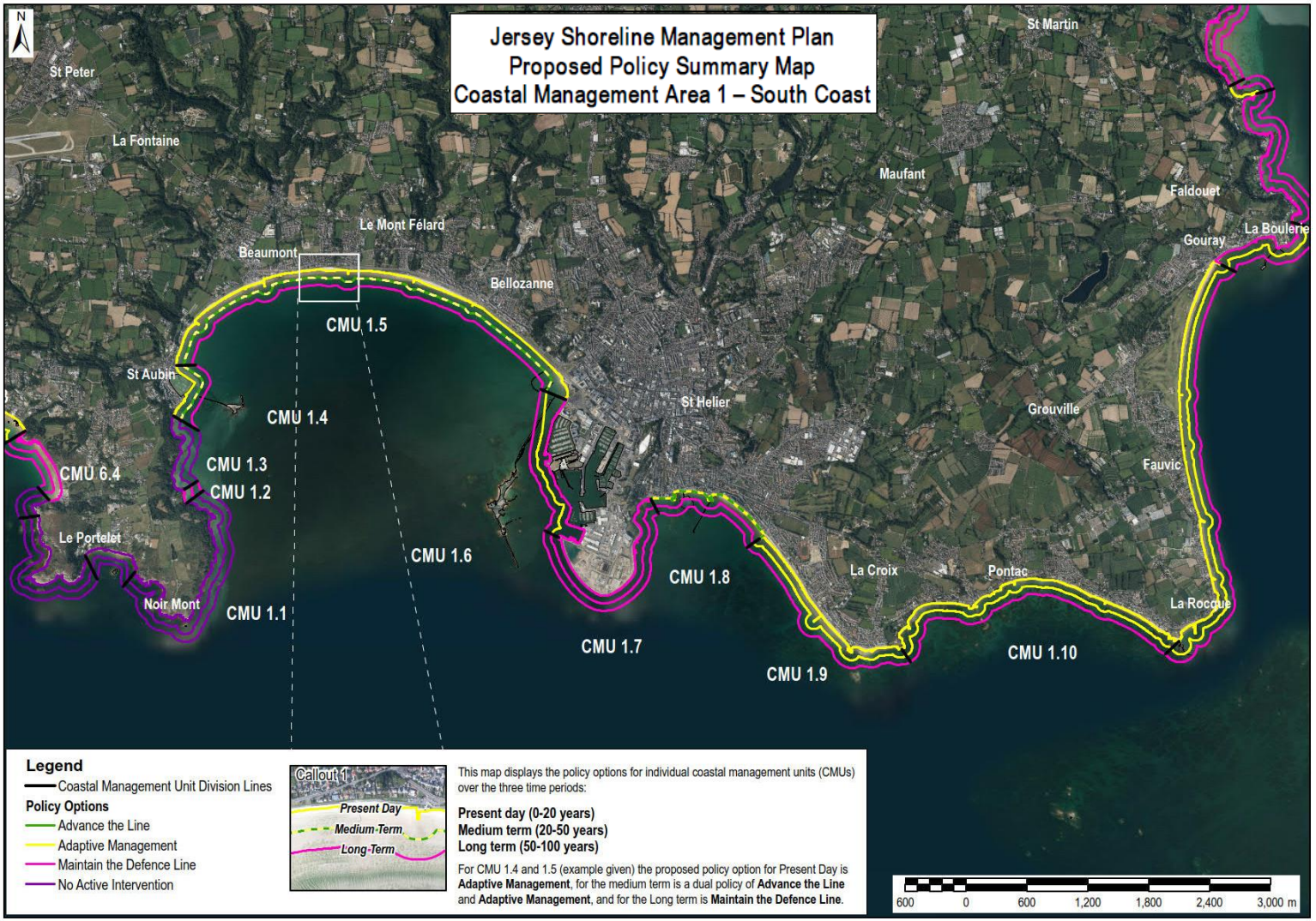


Figure 10-2: Policy summary for Coastal Management Area 1 - South Coast

Table 10-2: Summary of Preferred Options for Coastal Management Area 2 – Grouville Bay

Coastal Management Unit (CMU)		Preferred Policy Option			Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
2.1	**Royal Bay of Grouville**	Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line	There is a risk of overtopping flood risk to the Royal Bay of Grouville in the present day from a 1:1 year event, and risk from still water levels from a 1:200 year event in epoch 3. Adaptive management in the form of a community awareness scheme in the present day will reduce the impacts associated with flooding and engage the community to improve the defences to a 1:200 year SoP in epoch 2.
2.2	**Gorey Harbour**	Maintain the Defence Line	Adaptive Management	Maintain the Defence Line	Gorey Harbour is currently defended from flood risk, though it is predicted to be at risk of flooding from still water levels from a 1: 200 year flood event in epoch 2. The existing defences will be proactively maintained up to 2040, when adaptive management will be implemented in the form of improving the defences to a 1:200 year SoP.

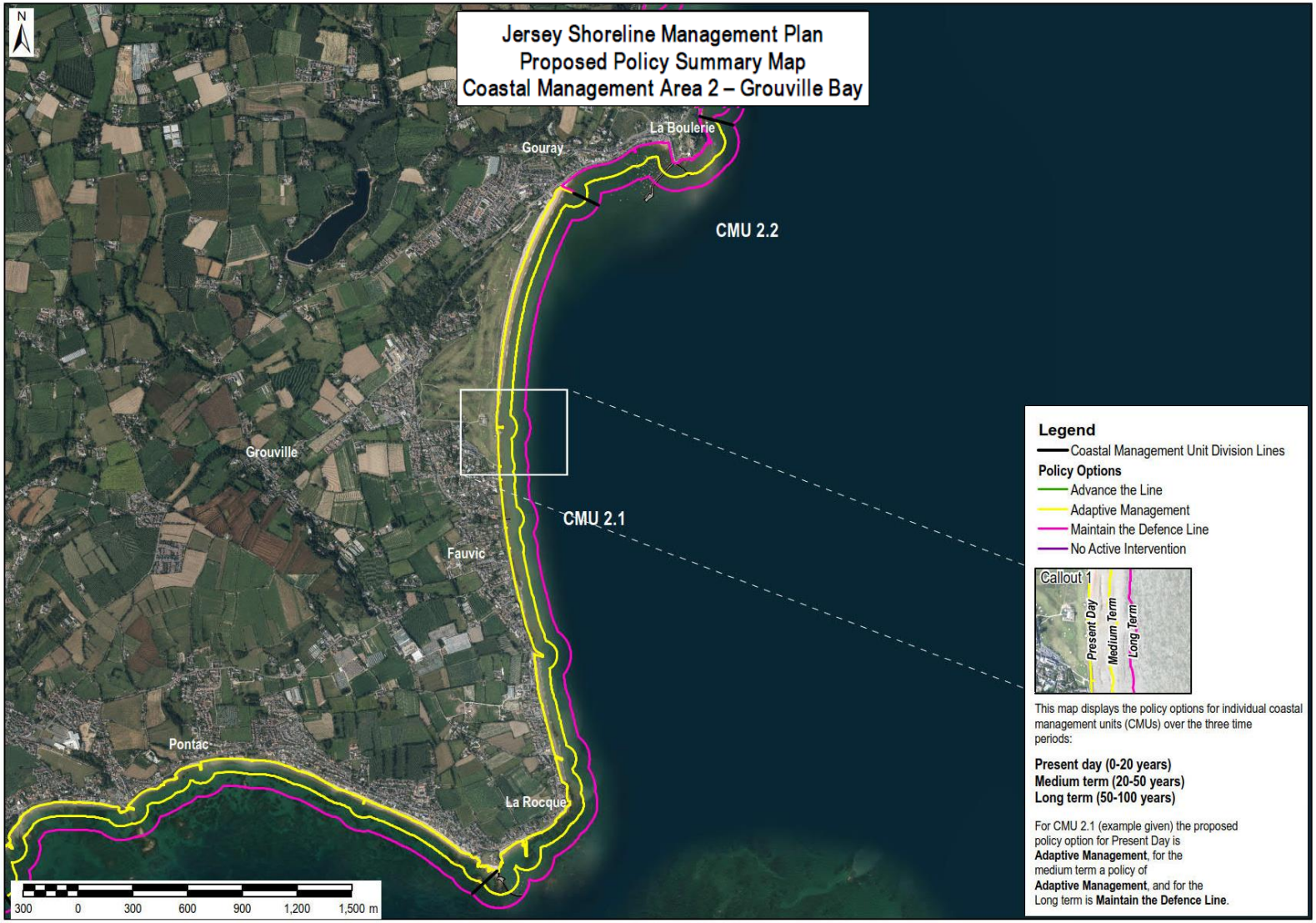


Figure 10-3: Policy summary for Coastal Management Area 2 - Grouville Bay

Table 10-3: Summary of Preferred Options for Coastal Management Area 3 – St Catherine's

Coastal Management Unit (CMU)		Preferred Policy Option			Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
3.1	**La Route de la Cote**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	There is no predicted flood risk at La Route de la Cote, although there is a small risk of coastal erosion predicted to take place on the soft geology coastline. Privately owned defences will be permitted to defend existing assets only, with no funding from the Government of Jersey.
3.2	**Archirondel Tower**	Adaptive Management	Maintain the Defence Line	Maintain the Defence Line	The Archirondel electricity substation is at risk of overtopping flood risk from a 1:1 year flood event in the present day. Adaptive management will be implemented in the form of improving the defences to a 1:200 year SoP.
3.3	**St Catherine's Bay**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at St Catherine's Bay will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120.
3.4	**La Coupe**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at La Coupe will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120.

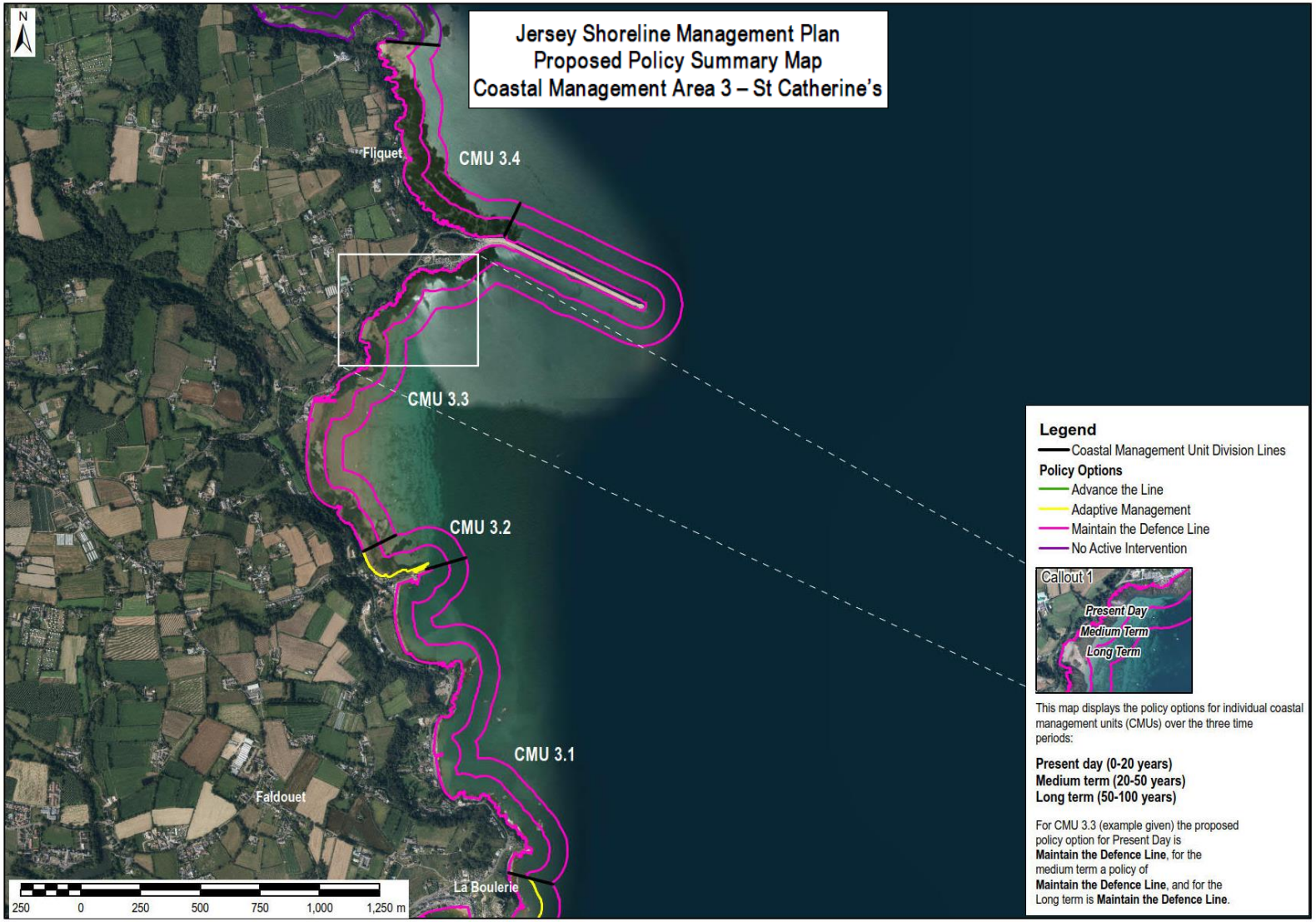


Figure 10-4: Policy summary for Coastal Management Area 3 - St Catherine's

Table 10-4: Summary of Preferred Options for Coastal Management Area 4 – North Coast

Coastal Management Unit (CMU)		Preferred Policy Option			Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
4.1	**La Coupe to Rozel Bay**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with no significant predicted risk of flooding or coastal erosion up to 2120, La Coupe to Rozel Bay will be allowed to naturally evolve from its current state without intervention to the coastline.
4.2	**Rozel Bay**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing Ports of Jersey defences at Rozel Bay will be maintained to support Port activities; the maintenance plans of the private defences are unknown. As there is limited risk of flooding and negligible coastal erosion predicted up to 2120, this Ports maintenance (and potential private maintenance) is expected to be sufficient for the properties and the recreational activities.
4.3	**Le Catel**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with environmental importance and no significant predicted risk of flooding or coastal erosion up to 2120, Le Catel will be allowed to naturally evolve from its current state without intervention to the coastline.
4.4	**Bouley Bay**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at Bouley Bay will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120, allowing for recreational activities to continue.
4.5	**Egypt**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with environmental importance and no significant predicted risk of flooding up to 2120, Egypt will be allowed to naturally evolve from its current state without intervention to the coastline. Although there is a small risk of erosion, this will only affect Cheval Roc Residential and Nursing Home, and potentially both Les Nouvelles Charrières and Les Charrières de Bonne Nuit Roads. Privately owned defences will be permitted to defend existing assets only, with no funding from the Government of Jersey.
4.6	**Bonne Nuit**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at Bonne Nuit will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120, allowing for recreational activities to continue.

4.7	**La Perruque**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with no significant predicted risk of flooding or coastal erosion up to 2120, La Perruque will be allowed to naturally evolve from its current state without intervention to the coastline.
4.8	**Ronez Quarry**	No Active Intervention	No Active Intervention	No Active Intervention	Ronez Quarry is an area of exposed hard geology cliffs, providing important natural resources to Jersey. Ronez Quarry will be allowed to naturally evolve from its current state without defence intervention to the coastline, allowing the existing quarry activities to continue.
4.9	**Crabbé**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with no significant predicted risk of flooding or coastal erosion up to 2120, Crabbé will be allowed to naturally evolve from its current state without intervention to the coastline.
4.10	**Greve de Lecq**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at Greve de Lecq will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120, allowing for recreational activities to continue.
4.11	**Plemont**	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with no significant predicted risk of flooding or coastal erosion up to 2120, Plemont will be allowed to naturally evolve from its current state without intervention to the coastline.

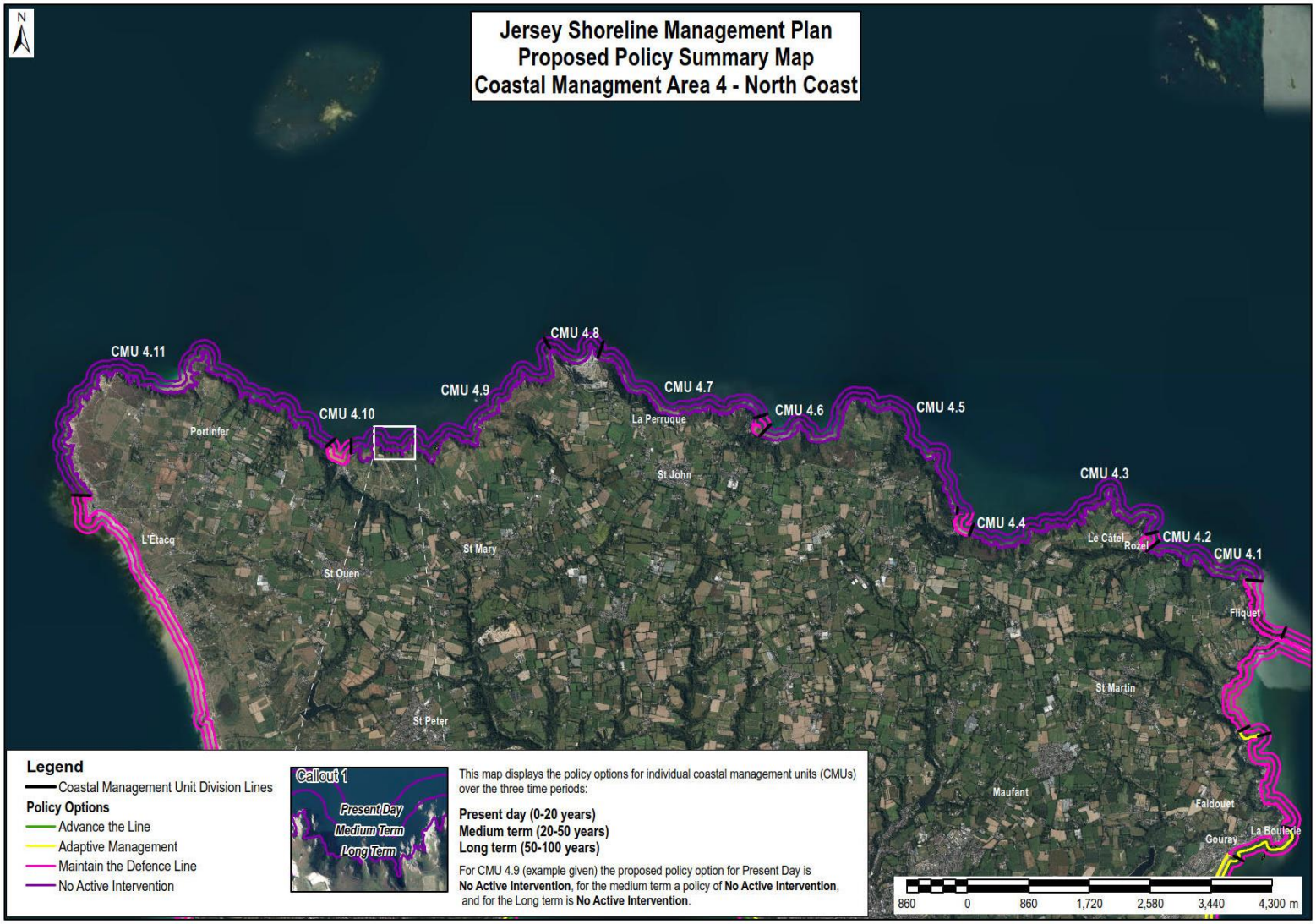


Figure 10-5: Policy summary for Coastal Management Area 4 - North Coast

Table 10-5: Summary of Preferred Options for Coastal Management Area 5 – St Ouen's Bay

Coastal Management Unit (CMU)		Preferred Policy Option			Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
5.1	**St Ouen's Bay**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences along St Ouen's Bay will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120, allowing for tourism and recreational activities to continue.
5.2	**Petit Port**	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at Petit Port will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120, allowing for recreational activities to continue.

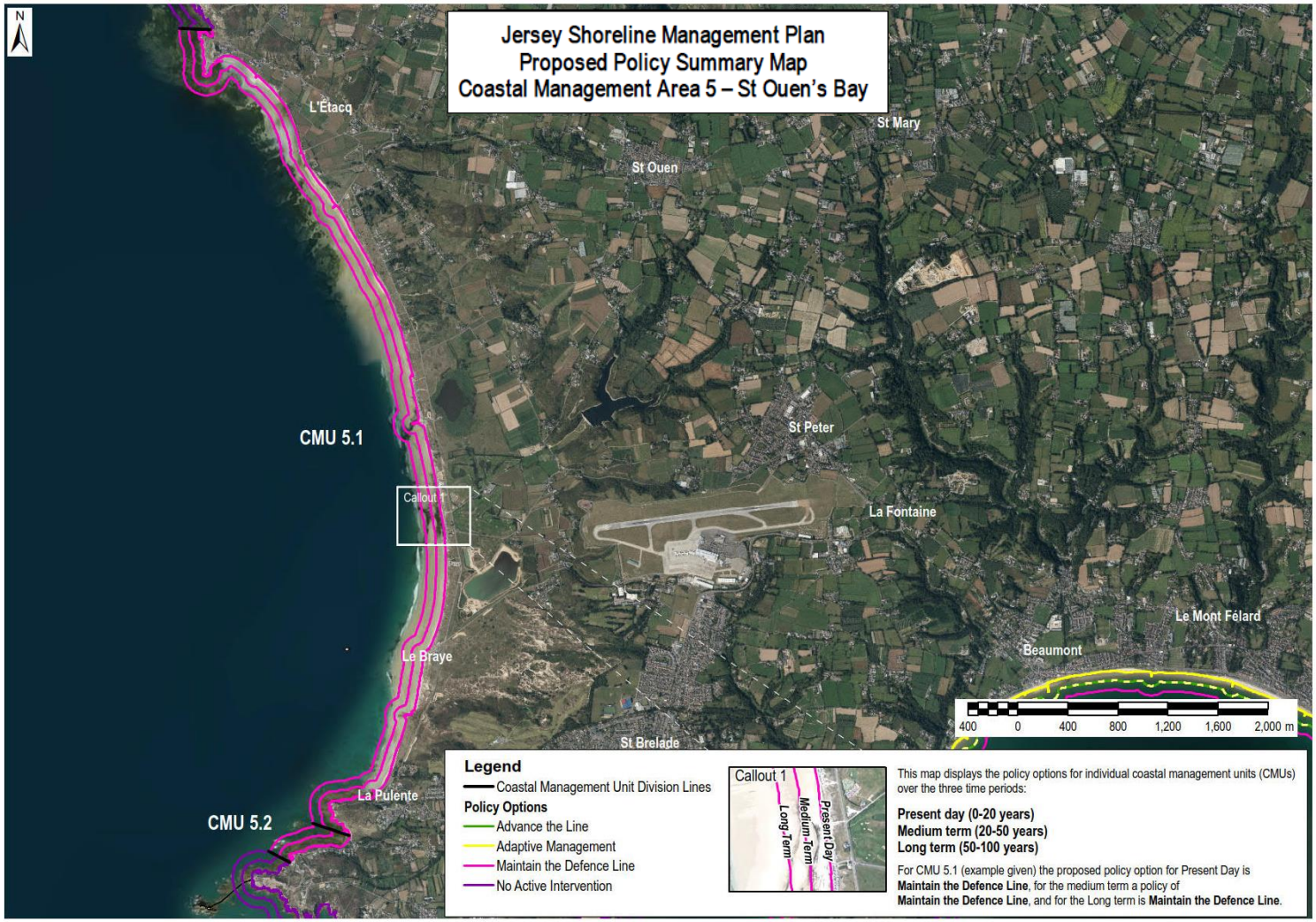


Figure 10-6: Policy Summary for Coastal Management Area 5 - St Ouen's Bay

Table 10-6: Summary of Preferred Options for Coastal Management Area 6 – St Brelade

Coastal Management Unit (CMU)		Preferred Policy Option			Summary Policy Justification
		Epoch 1: Present Day 2020-2040	Epoch 2: Medium Term 2040-2070	Epoch 3: Long Term 2070-2120	
6.1	Gorselands	No Active Intervention	No Active Intervention	No Active Intervention	As an undeveloped area of the coastline with no significant predicted risk of flooding or coastal erosion up to 2120, Gorselands will be allowed to naturally evolve from its current state without management.
6.2	Les Creux	No Active Intervention	No Active Intervention	No Active Intervention	There is little infrastructure at Les Creux therefore it will be allowed to naturally evolve from its current state without management. There is no predicted flood risk up to 2120; although there is a small risk of erosion, this will only affect private properties behind Chemin des Creux road which is a private road. Privately owned defences will be permitted to defend existing assets only, with no funding from the Government of Jersey.
6.3	St Brelade's Bay	Adaptive Management (Community Awareness Scheme)	Adaptive Management	Maintain the Defence Line	There is a risk of overtopping flood risk to St Brelade's Bay in the present day from a 1:1 year event Adaptive management in the form of a community awareness scheme in the present day will reduce the impacts associated with flooding and engage the community to improve the defences to a 1:200 year SoP in epoch 2.
6.4	Ouaisne Bay	Maintain the Defence Line	Maintain the Defence Line	Maintain the Defence Line	The existing defences at Ouaisne Bay will be proactively maintained, as there is no significant predicted risk of flooding or coastal erosion up to 2120.
6.5	La Cotte de St Brelade	No Active Intervention	No Active Intervention	No Active Intervention	As an important archaeological site with no significant predicted risk of flooding or coastal erosion up to 2120, La Cotte de St Brelade will be allowed to naturally evolve from its current state without management. However, the implementation and maintenance defences funded by Jersey Heritage is permitted, to provide protection to the heritage value of La Cotte de St Brelade.
6.6	Portelet Common	No Active Intervention	No Active Intervention	No Active Intervention	As a natural landscape and undeveloped area of the coastline, important heathland habitat and Ecological SSI with no significant predicted risk of flooding or coastal erosion up to 2120, Portelet Common will be allowed to naturally evolve from its current state without intervention to the coastline.
6.7	Portelet Beach	No Active Intervention	No Active Intervention	No Active Intervention	As a natural beach location, the coastline at Portelet Beach will be allowed to naturally evolve from its current state without management. There is no predicted flood risk up to 2120; although there is a risk of erosion, privately owned defences will be permitted to defend existing assets only.

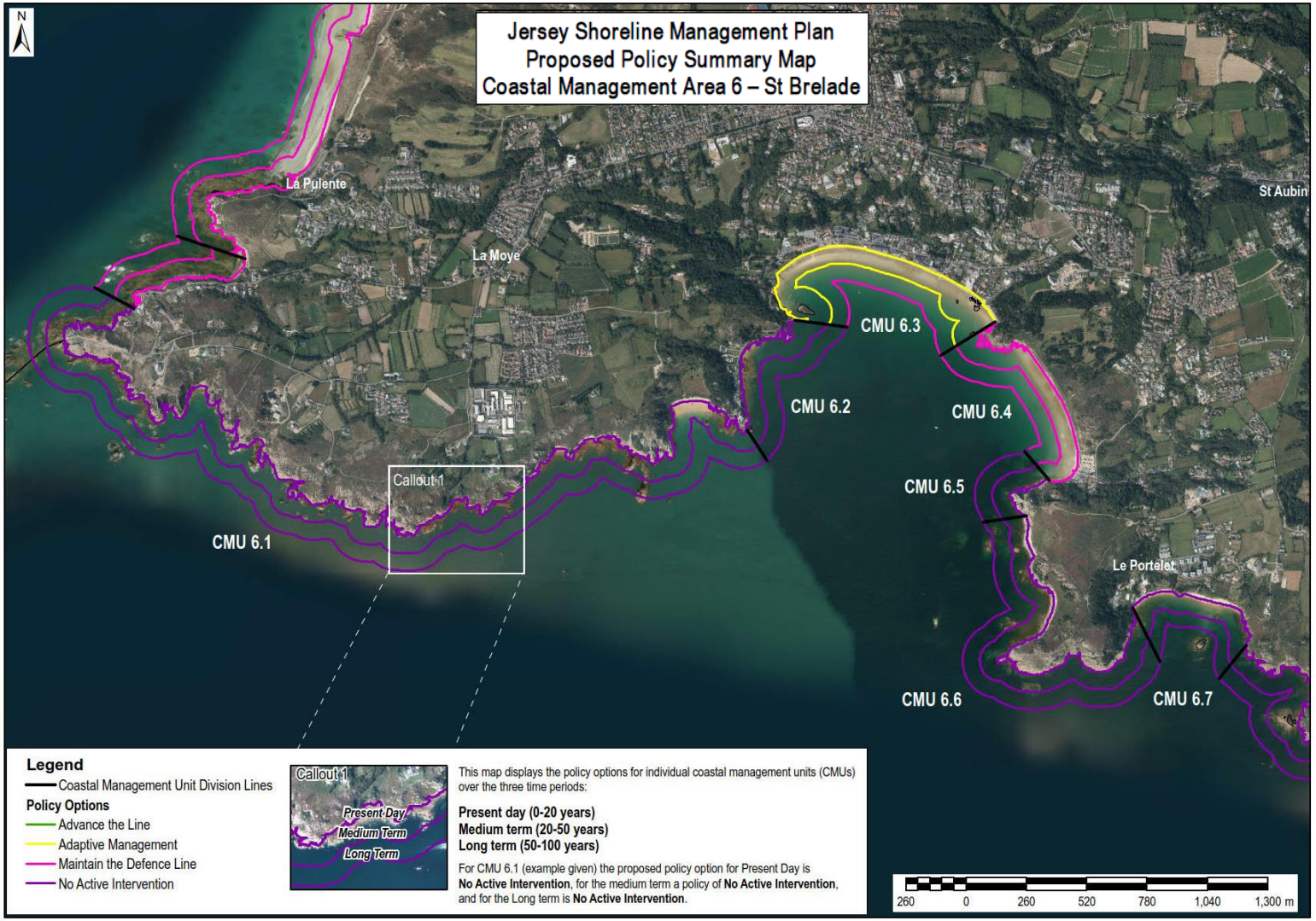


Figure 10-7: Policy summary for Coastal Management Area 6 - St Brelade

10.3 Public Consultation Key Messages

The Draft SMP was made publicly available for comment from organisations and individuals, during a three-month period of consultation from July to September 2019. The public were able to comment on all aspects of the Draft Plan via the Government of Jersey webpage, email and at a week-long roadshow of events held in the community. In order to encourage public response, information about the Draft SMP and the consultation period was advertised on social media (Facebook, Twitter, LinkedIn and YouTube), in the Jersey Evening Post and through televised news segments.

The roadshow was attended by 419 people. A total of 82 comments were received on the Draft Plan; generally, the feedback received was extremely positive. The questionnaire asked respondents whether they supported or opposed the proposed policies and 85% of respondents gave their support. Engagement with the Draft SMP and consultation was also measured through the overview of social media engagement. Across three channels (Facebook, Twitter and LinkedIn), the campaign reached 129,880 individuals with 733 link clicks. The Government of Jersey webpages which corresponded to the Draft Plan were viewed by 2,068 individuals.

Following the consultation period, all comments were compiled and reviewed. Where required, a response was provided for each comment (see the consultation response log in Appendix A). Three further changes were made to the SMP to incorporate feedback where appropriate:

- A specific response was provided to answer 5 individual queries received via questionnaires regarding managed realignment at St Ouen's Bay, and the multiple queries raised on the subject during the roadshow. This explanation as to why it was not considered as a feasible option can be found within Section 8.1;
- The policy options proposed in the Draft SMP were finalised following their positive reception, with only one out of the 36 policies for each CMU being changed as a result of the feedback (at Havre des Pas, Section 4.8) i.e. demonstrating overwhelming support for the proposed draft policies; and,
- The Non-Technical Summary was produced to provide a concise and simplified summary of the development process of the SMP and the recommendations for the future management of the coast. This also explains the policies in some more simple terms, to provide response to some of the comments raised in the consultation and received through correspondence from the public.

See Appendix A for further detail regarding the outcome of the public consultation.

10.4 Policy Summary Implications

Table 10-7 summarises the potential implications of the preferred plan; this should be read in conjunction with the policy summary map in section 10.1, the policies listed in section 10.2 and the key messages from public consultation in section 10.3.

This summary is based on the evidence presented in sections 4 to 9 of the SMP and in the Appendices and a projection of likely consequences in each management unit resulting from the implementation of the recommended policy.

Table 10-7. Policy implementation implications by theme.

Coastal Management Unit		Theme			
		Defences	Community	Environment	Economy
1.1	Noirmont Common	No impact on defences, as there is negligible risk of flooding and coastal erosion and there are currently no coastal defences in place.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits	No impact on environmental designations, landscape or coastal processes.	No impact as no changes are proposed.
1.2	Belcroute Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.		Maintains protection of heritage sites. No impact on landscape or coastal processes.	
1.3	La Housse	No impact on defences, as there is negligible risk of flooding and coastal erosion.		No impact on environmental designations, landscape or coastal processes.	
1.4	St Aubin's Harbour	Improved defences to protect against coastal flooding, to be maintained until 2120. Potential to provide a greater level of protection through advancing the defence line forward in localised areas in epoch 2.	Protects coastal leisure activities. Advance the line provides the potential to improve community access to the coast.	Improved protection of heritage sites. Potential impact on landscape.	Opportunities for economic growth and development.
1.5	St Aubin's Bay				
1.6	St Helier	Localised flood risk at the Port of St Helier in the present day. Improved defence through the implementation of coastal defences from epoch 2.	Minimal impact on Port access in the present day. Improved defence in epoch 2 will protect community access to the port and other infrastructure.	Improved protection of heritage sites.	Supports the development of new opportunities in St Helier, creating a more attractive business environment.
1.7	La Collette	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains protection of commercial and industrial property.	Maintains protection to environmental designations. No impact on landscape or coastal processes.	Potential for industrial development.
1.8	Havre des Pas	Improved defences to protect against coastal flooding, to be maintained until 2120. The defence line will be advanced in localised areas of the coastline to provide a greater level of protection in epoch 1.	Protects coastal leisure activities. Advance the line provides the potential to improve community access to the coast.	Improved protection of heritage sites and environmental designations.	Opportunities for economic growth and development.
1.9	La Greve d'Azette	Defences will be improved and maintained to protect against flood risk from epoch 2. Minimal risk of coastal flooding in the present day.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.		

1.10	Le Hocq / Pontac	Defences will be improved and maintained to protect against flood risk and coastal erosion from epoch 2. Minimal risk of coastal flooding in the present day.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.		
2.1	Royal Bay of Grouville		Protects coastal leisure activities and community access to the coast for recreation, health and well-being benefits.	Improved protection of environmental designations. Potential impact on landscape and coastal processes.	Opportunities for economic growth and development. Opportunities for economic growth and development.
2.2	Gorey Harbour	Localised flood risk at Gorey Pier in the present day. Improved defence through the implementation of coastal defences from epoch 2.	Protects coastal leisure activities and community access to the coast for recreation, health and well-being benefits.	Improved protection of environmental designations and heritage sites. Potential impact on landscape and coastal processes.	
3.1	La Route de la Cote	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	No impact as no changes are proposed.
3.2	Archirondel Tower	Improved defences to protect against overtopping at Archirondel electricity substation.	Meets the needs of JEC in protecting Archirondel electricity substation.	Improved protection of Archirondel Tower.	Limited potential for economic growth.
3.3	St Catherine's Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains access to the coast and other infrastructure.	Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	No impact as no changes are proposed.
3.4	La Coupe		Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.		
4.1	La Coupe to Rozel Bay	No impact on defence, as there is negligible risk of flooding and coastal erosion. Maintenance of defences to protect pedestrian access only at Le Saie.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	No impact on environmental designations, landscape or coastal processes.	
4.2	Rozel Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.		Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	
4.3	Le Catel	No impact on defence, as there is negligible risk of flooding and coastal erosion, and there are currently no coastal defences in place.		No impact on environmental designations, landscape or coastal processes.	
4.4	Bouley Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.		Maintains protection of environmental designations. No impact on landscape or coastal processes.	
4.5	Egypt	Minimal risk of coastal erosion. Implementation of privately funded assets to protect existing assets will be subject to Government planning policy and regulations.	Potential for impacts to the community where there is a minimal risk of erosion.	No impact on environmental designations or coastal processes. Potential minor impacts on landscape due to minimal risk of erosion.	
4.6	Bonne Nuit	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefitse.	Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	No impact as no changes are proposed.

4.7	La Perruque	No impact on defence, as there is negligible risk of flooding and coastal erosion, and there are currently no coastal defences in place.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	No impact on environmental designations, landscape or coastal processes.	No impact as no changes are proposed.
4.8	Ronez Quarry		Meets the needs of Ronez Ltd with plans to extend the operational area of the quarry at the coastline.		Potential for growth of Ronez Quarry.
4.9	Crabbé		Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.		No impact as no changes are proposed.
4.10	Greve de Lecq	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	No impact as no changes are proposed.
4.11	Plemont	No impact on defence, as there is negligible risk of flooding and coastal erosion, and there are currently no coastal defences in place.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	No impact on environmental designations, landscape or coastal processes.	No impact as no changes are proposed.
5.1	St Ouen's Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.		Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	
5.2	Petit Port				
6.1	Gorselands	No impact on defence, as there is negligible risk of flooding and coastal erosion, and there are currently no coastal defences in place.		No impact on environmental designations, landscape or coastal processes.	
6.2	Les Creux	Minimal risk of coastal erosion. Implementation of privately funded assets to protect existing assets will be subject to Government planning policy and regulations.	Potential for impacts to the community where there is a minimal risk of erosion.	No impact on environmental designations or coastal processes. Potential minor impacts on landscape due to minimal risk of erosion.	
6.3	St Brelade's Bay	Defences will be improved and maintained to protect against flood risk and coastal erosion from epoch 2. Minimal risk of coastal flooding in the present day.	Protects coastal leisure activities and community access to the coast.	Potential impact on landscape.	Opportunities for economic growth and development.
6.4	Ouaisne Bay	Existing defences to be maintained over the 100 year plan period to minimise risks.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	Maintains protection of environmental designations and heritage sites. No impact on landscape or coastal processes.	No impact as no changes are proposed.
6.5	La Cotte de St Brelade	Potential for defences to be implemented by Jersey Heritage / Société Jersiaise, subject to Government planning policy and regulations.	Potential for Jersey Heritage / Société Jersiaise to make changes to the coastline which are appropriate for the community.	Potential for Jersey Heritage / Société Jersiaise to improve protection of La Cotte de St Brelade.	
6.6	Portelet Common	No impact on defence, as there is negligible risk of flooding and coastal erosion, and there are currently no coastal defences in place.	Maintains access to the coast and other infrastructure for recreation, health and well-being benefits.	No impact on environmental designations, landscape or coastal processes.	No impact as no changes are proposed.

6.7	Portelet Beach	Risk of coastal erosion affecting assets on Portelet Bay. Implementation of privately funded assets to provide protection will be subject to Government planning policy and regulations.	Potential for impacts to the community where there is a minimal risk of erosion.	Potential loss of Portelet beach, impacting Portelet Ba SSI, landscape and coastal processes.	Potential impacts to assets on Portelet Bay.

11. Next Steps / Recommendations

The SMP has developed a coastal management strategy for Jersey for the next 100 years, through the selection of appropriate management policies, following baseline studies to understand the risk of flooding and coastal erosion to the Island. The plan has also identified where the understanding of these processes could be improved to support policy decisions that will be made in the future in the next iteration of the SMP.

The next step of the SMP process is to implement the plan. This will continue to involve stakeholder and community engagement as it becomes part of the Island planning framework in Jersey. Table 11-1 outlines the emerging priority recommendations arising from the SMP, which should be actioned after the final SMP has been published. An indication of timescale is included in the table, so that priorities are clear.

Table 11-1: Recommendations for actions

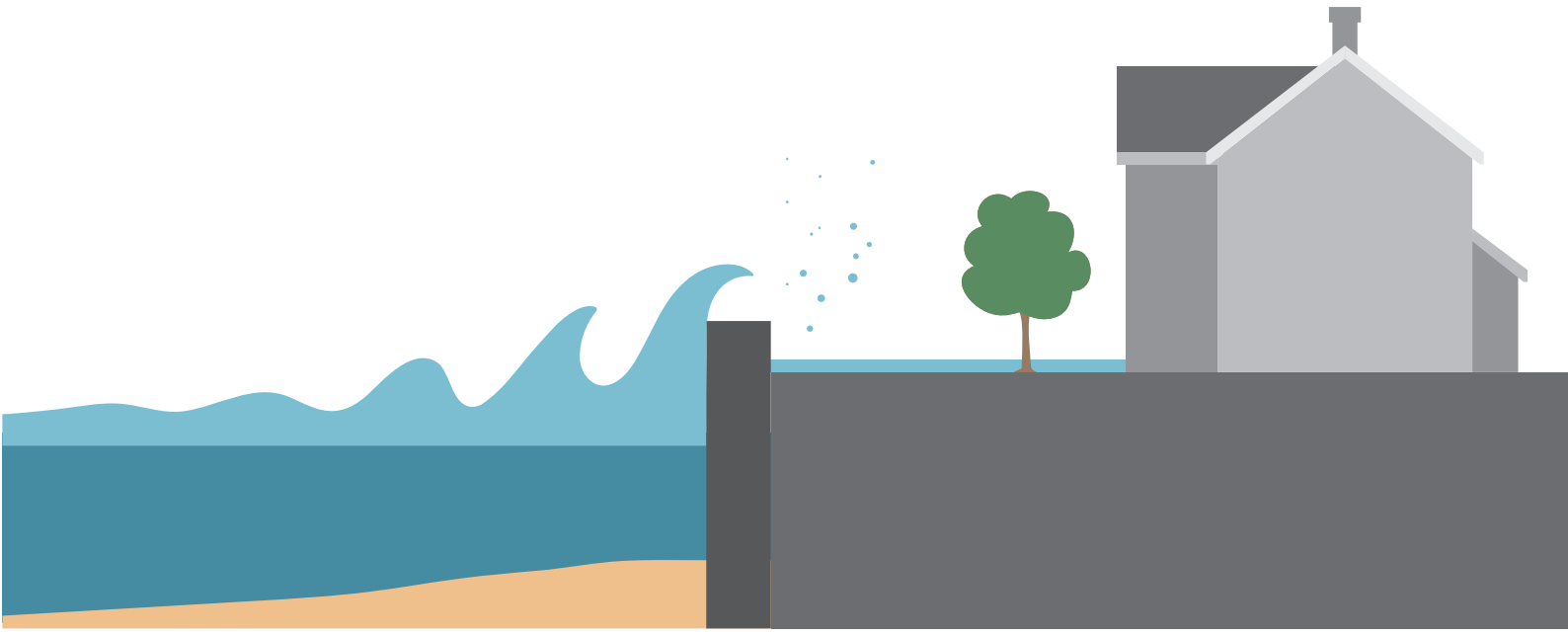
Subject	Recommendations	Provisional Implementation Programme
Implementation of the SMP	1. Implement the SMP policies for epoch 1.	Programme for Adaptive Management policies in epoch 1 - within one year.
	2. Development of a flood management scheme for St Helier (CMU1.6), to be implemented in epoch 2. This will support the management intent of Adaptive Management, and will be designed to consider both coastal and inland flood risk (pluvial).	Within 10 years.
	a. Feasibility Study of alignment options, review and map infrastructure and environmental constraints. This should be undertaken alongside Economic Assessment task 5 i.e. engaging stakeholders and potential beneficiaries.	Within 10 – 15 years.
	b. Scheme development – full option appraisal of alignment options to identify and development preferred scheme.	Within 10 – 15 years.
Baseline Process Understanding	1. Develop a coastal monitoring programme.	Within two years.
	a. Undertake beach monitoring to establish reference baseline surveys for annual monitoring according to recognised standards / best practice. Compare with previous surveys and analysis undertaken.	Within one year and annual surveys.
	b. Periodic review and analysis of measured water levels for climate change monitoring.	At SMP review and scheme development
	c. Create ‘extreme weather database’ to record meteorological and sea conditions prior to, during and after storm events. Observations should include photos, videos, and measurements of change against known features. Must include beach observations. Subject to identification of resources.	Within one year
	d. Aerial photos and DTMs acquired from annual island survey are reviewed for evidence of erosion, supported by site observations (photographs and notes recorded). Observations via routine structural	At SMP review and scheme development

	inspections and any reported / observed displacement of cliff material as a result of storms and / or heavy rainfall.	
	2. Integrated catchment model of surface water and sub-surface water. This would update the findings of the SMP on pluvial flooding and provide a record and review of capacity of existing Surface Water piped network.	Within three years.
	3. Develop a Catchment Flood Management Plan. This can cover the whole island and/or selected, key catchments identified by the SMP to contribute to existing and predicted inland flooding. Extreme rainfall analysis should be revisited when historic daily rainfall data (2004 to 2014 and pre-1983) at Jersey Airport becomes available.	Within five years.
Economic Assessment	1. Detailed appraisal of the schemes for each of the priority areas, to refine the costs of schemes and further develop the business case for funding and implementation of the plan. This will include a more comprehensive assessment of the risks and deliverability of the schemes, as well as a greater confidence and refinement of the whole life maintenance costs.	As directed by the Programme (developed in 1. of the SMP Implementation)
	2. Develop the assessment of indirect flood damages by carrying out quantitative assessments of damages associated with critical infrastructure, tourism and recreation.	Within one year.
	3. Undertake a detailed GVA assessment to fully understand the potential business disruption caused by flooding in St Helier, showing the benefits of SMP implementation to the local economy.	Within two years.
	4. Assess the potential breach risks at key locations on the Island to develop a detailed business case for schemes.	Within one year.
	5. Explore sources for funding contributions, negotiating with potential partners and beneficiaries to of the plan.	Within one year.
Policy Framework Review	1. Review the current legislative framework which the SMP will support, for example the Island Plan and drainage laws for Jersey.	Immediately
	2. Integrate management policies for the SMP into Island Plan Review and the revised planning policy byelaws.	Immediately

Jersey Shoreline Management Plan

January 2020

Summary



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Summary

This summary is a description of the Jersey Shoreline Management Plan (SMP). It provides recommendations for the future management of the coastline. The SMP has been finalised following three months of consultation between July and September 2019. The draft SMP was available on the Government of Jersey's webpage for public comment. Feedback was given by questionnaire, email and in person during community roadshow events. The feedback was generally positive, with 85% of respondents supporting the management policies. In total 419 individuals attended the roadshow events and 82 comments were received.

Introduction

The Jersey SMP details the management intent for the Island's coastline over the next 100 years (up to 2120). The aim is to prevent and manage the effects of coastal erosion and flooding. The impact of climate change on rising sea levels over time has been assessed. The plan considers risks to the community, environment and economy of Jersey. It takes into account the coastal defences that are around the Island. It looks at how they might need to be improved to provide better protection where needed. There are three time periods, which are called epochs:

- Present day (2020-2040);
- Medium Term (2040-2070); and
- Long Term (2070-2120).

There is a management option for each time period. The option is the best one for the shoreline, nearby communities and infrastructure. This makes it easier for the Government of Jersey to plan how to put improvements in place.

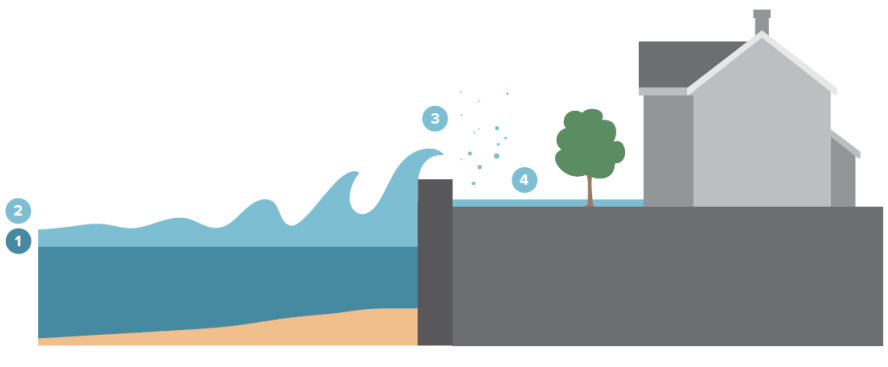
The option can change in the future in light of new scientific research. It can also change if there are changes in Island politics and legislation. The aim is to protect the shoreline from coastal flooding to a 1:200 year return period event. This is a storm event which is predicted to occur, on average, once every 200 years. Construction will depend on the cost of defences and feedback from stakeholder engagement. All defences will be designed so that they can be adapted in the future. This means they will protect against higher intensity storm events if necessary. We will review the risks will every 10 years to ensure an appropriate level of protection.

Assessing flood and coastal change

The risk of coastal erosion and flooding has been assessed for the next 100 years using hydraulic modelling, historic maps and beach surveys. This shows the areas of the coastline which are likely to flood and where erosion is likely to occur. Appendix B provides further information about the hydraulic modelling and explains historic erosion and changes in beach level.

Flood risk

Coastal flood risk comes from still water levels and wave overtopping as shown below. Island-wide flood maps show areas at risk of flooding. The future impact of climate change on flood risk was assessed using the UK National Oceanography Centre guidance. The 50th percentile results for the IPCC 'RCP8.5' climate change emission scenario ("business as usual") have been used. This gives a resulting sea level rise prediction of 0.83 metres by 2120.



1. **Still Water level** – the level of water if all wave and wind action were to cease
2. **Storm surge** – a rising of the sea level as a result of wind and atmospheric pressure changes associated with a storm
3. **Wave overtopping** – where a wave exceeds the height of a coastal defence
4. **Flooding** – the coverage or submerging of normally dry land with a large amount of water

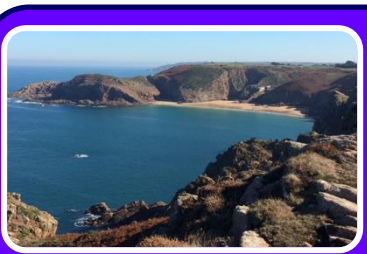
Coastal erosion risk

Coastal erosion risk was assessed by looking at aerial photographs between 2003 and 2017. An annual average rate of erosion of 0.3 metres per year was observed between 2003 and 2017 at Portelet. This was used to project a future erosion buffer zone around the coastline. This was only applied to areas of soft geology where there are no coastal defences, which would be less resistant to coastal erosion. A future erosion buffer zone of 30 metres over the next 100 years was applied in specific, soft geology areas. The erosion buffer identifies areas of the coastline with assets that have the potential to be at risk in the future.

Beach surveys were analysed to check for significant changes in beach levels. This is important because lower beach levels may increase the rate of coastal erosion and could lead to damage to coastal defences. Details of coastal erosion and beach change is in Appendix B.

Policy options

Four policy options were considered to manage flooding and coastal erosion risks. Each policy option has advantages and disadvantages depending on the area of coastline. See Section 3.1 for further detail about each policy option.



No Active Intervention (NAI)

A policy decision to not invest in coastal defences or maintenance work. The shoreline will be left to naturally evolve without intervention. This policy will generally be applied to natural areas of the coastline which are currently undefended.

Where this policy is applied, there will be no changes to the coastline.

Maintain the Defence Line (MTDL)

Existing coastal defences are maintained. The level of flood protection may decrease in some locations over time due to climate change resulting in sea level rise. This policy will generally be applied where the existing defences currently provide a reasonable standard of flood protection or prevent erosion of the shoreline.

Where this policy is applied, existing defences will be maintained only.

Adaptive Management (AM)

A policy to proactively manage and mitigate coastal flood or erosion risk. The policy will be delivered through various management schemes / initiatives depending on the level of risk and the circumstances. This could include improving the standard of flood protection for an existing sea defence, constructing new defences, raising awareness of flood risk to local communities or recommending flood protection for individual properties.

Where this policy is applied, the risk will be considered, and defence schemes will be designed to suit local circumstances. This policy will, therefore, look different for each part of the coastline where it is applied.

Advance the Line (ATL)

New sea defences are built seaward of existing defences. This policy will only be implemented in areas where there is currently a significant risk of coastal flooding or erosion, or where it will deliver additional benefits for the community, environment and economy, such as creating a new amenity space.

Where this policy is applied, localised areas of defences will be built a distance seaward of those existing structures. This policy will look different for each part of the coastline where it is applied, because the distance seaward may vary.

Appraisal of policy options

Policy options were selected for the coastline in the three time periods up to 2120. The policy selection followed a policy option appraisal process. The relative merits of each policy were considered. This included the impacts on existing structures, the community and the environment. An assessment of the economic costs and benefits of each option took place.

Coastal Management Areas & Coastal Management Units

To assess the best option for the different parts of the coastline, the coastline was divided into smaller units. The coastline was divided into six Coastal Management Areas (CMAs). Each CMA has similar risks of flooding, coastal erosion and levels of development (see Table 2-3 for the characteristics of each CMA). These CMAs were further subdivided into 36 Coastal Management Units (CMUs). The policy options were set at the CMU level so that the management intent is appropriate at a local scale.

The coastal management units were defined by various factors. These included coastal processes, flood and erosion risk, land ownership and cultural and environmental designations. See Section 2.5.2 for the full list of information that was used to define the CMU boundaries.

Policy option assessment

Each of the policy options was considered for each CMU. The merits were assessed against 21 objectives. The objectives compliment the objectives of the SMP, and align with the Common Strategic Policy and the Island Plan. The 21 objectives were split into four themes of defence, community, environment and economy. See Section 3.2 for further details on each of these themes.

The policy options were scored against the objectives for each CMU. This provides an indication of whether the policy would result in a positive or negative impact. The scores for each of the objectives were added together, and the policy option with the highest overall score selected.

An example of the scoring process is provided in Section 3.2. The assessment criteria for each objective (as well as the scoring for each CMU) is provided in Appendix C.

Economic assessment

The economic costs and benefits of each policy option were assessed. This was to understand which options would be practical and achieve a net positive change for the local area. An initial damage assessment was calculated. This shows the potential cost of flooding and coastal erosion damages over the next 100 years. It assumes that the Government of Jersey will continue to maintain the existing defences.

The calculation of the benefits was based on the damages that would be avoided by implementing the policy options . For example, raising the height of the defence to prevent flooding damages. The cost of building and maintaining defences as part of the management plan was calculated to provide a benefit-cost ratio. The total cost was estimated at £198 million over 100 years. The total benefits of £2.6 billion and the ratio of benefits to the costs being 5.54. This means that the benefits are 5 times greater than the costs. More detail of the economic assessment is provided in Section 3.3, and the full economic assessment comprises Appendix D.

Summary of final policies

The proposed policies for each CMU during each time period are shown below. For more detail on the implications of the policies on each CMU, please see Sections 4-9. A more detailed summary and map are provided in Section 10.

KEY:

NAI: No Active Intervention
MTDL: Maintain the Defence Line
AM: Adaptive Management
ATL: Advance the Line

Coastal Management Unit (CMU)		Preferred Policy Option			Subject to flooding	Subject to erosion
		Present day 2020-2040	Medium term 2040-2070	Long term 2070-2120		
1.1	Noirmont Common	NAI	NAI	NAI	✗	✓
1.2	Belcroute Bay	MTDL	MTDL	MTDL	✗	✓
1.3	La Housse	NAI	NAI	NAI	✗	✓
1.4	St Aubin's Harbour	AM	AM / ATL	MTDL	✓	✗
1.5	St Aubin's Bay	AM	AM / ATL	MTDL	✓	✗
1.6	St Helier	MTDL	AM	MTDL	✓	✗
1.7	La Collette	MTDL	MTDL	MTDL	✗	✗
1.8	Havre des Pas	AM / ATL	MTDL	MTDL	✓	✗
1.9	La Greve d'Azette	AM	AM	MTDL	✓	✓
1.10	Le Hocq / Pontac	AM	AM	MTDL	✓	✓
2.1	Royal Bay of Grouville	AM	AM	MTDL	✓	✗
2.2	Gorey Harbour	MTDL	AM	MTDL	✓	✓
3.1	La Route de la Cote	MTDL	MTDL	MTDL	✓	✓
3.2	Archirondel Tower	AM	MTDL	MTDL	✓	✗
3.3	St Catherine's Bay	MTDL	MTDL	MTDL	✓	✗
3.4	La Coupe	MTDL	MTDL	MTDL	✗	✓
4.1	La Coupe to Rozel Bay	NAI	NAI	NAI	✗	✗
4.2	Rozel Bay	MTDL	MTDL	MTDL	✓	✗
4.3	Le Catel	NAI	NAI	NAI	✗	✗
4.4	Bouley Bay	MTDL	MTDL	MTDL	✓	✗
4.5	Egypt	NAI	NAI	NAI	✗	✓
4.6	Bonne Nuit	MTDL	MTDL	MTDL	✓	✓
4.7	La Perruque	NAI	NAI	NAI	✗	✗
4.8	Ronez Quarry	NAI	NAI	NAI	✗	✗
4.9	Crabbé	NAI	NAI	NAI	✗	✗
4.10	Greve de Lecq	MTDL	MTDL	MTDL	✓	✗
4.11	Plemont	NAI	NAI	NAI	✗	✗
5.1	St Ouen's Bay	MTDL	MTDL	MTDL	✓	✗
5.2	Petit Port	MTDL	MTDL	MTDL	✗	✗
6.1	Gorselands	NAI	NAI	NAI	✗	✓
6.2	Les Creux	NAI	NAI	NAI	✗	✓
6.3	St Brelade's Bay	AM	AM	MTDL	✓	✓
6.4	Ouaisne Bay	MTDL	MTDL	MTDL	✓	✗
6.5	La Cotte de St Brelade	NAI	NAI	NAI	✗	✓
6.6	Portelet Common	NAI	NAI	NAI	✗	✓
6.7	Portelet Beach	NAI	NAI	NAI	✗	✓

Next Steps

The recommended actions to implement the SMP are listed in Section 11. These actions include specific tasks. They include further coastal monitoring and a more detailed economic assessment. The proposed policies will be implemented in epoch 1 in the relevant CMUs, as follows:

- *No Active Intervention*: no change to the coastline in these areas;
- *Maintain the Defence Line*: there will be no change to the coastline. Defences will continue to receive regular and emergency maintenance;
- *Adaptive Management / Advance the Line*: a detailed design and stakeholder engagement programme will be developed in 2020. Defence schemes will be constructed by 2040.

The SMP and policies will be reviewed in 10 year cycles; the next review of the SMP is expected in 2029.