1 Business case template: supported change

Template: LIT 73921 Published: 14/03/2025

Audience: Environment Agency

Swanage Beach Coastal Protection Scheme
Outline Business Case

Project type: Supported change

Assurance route: National Project Assurance Service (NPAS)

Project stage: Outline Business Case

Date: 8th January 2026

Version: C01

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Financial Scheme of Delegation (FSoD) approvals

Section 1: all projects should complete this section

1.1

Project name (Enter project name exactly as it appears on AIMS PD PoL)	Swanage Beach Coastal Protection Scheme
SOP Project Code	
Start date (dd/mm/yyyy)	09/03/2023
End date (dd/mm/yyyy)	30/10/2028
For FSoD team use only	
FSoD reference	
FSoD date (dd/mm/yyyy)	

1.2

Items approved under Section A	**Items approved under Section C6/C7/C11**	**FSoD Ref**	**Date** (dd/mm/yyyy)	**Amount Requested** (£k)	**Approval amount** (£k)	**Current Total Approval** (£k) (for FSoD team use)
OBC						
	BCUR 1					
Add rows as required						
Total project cost (£k) (Estimated at SOC & OBC, actual at FBC) (£k)						
Whole Life Cash Cost (£k)						

* SOC / OBC / FBC / single stage business case

1.3

Lead assurer	**Post title**	**Assurance confirmation**			**Date** (dd/mm/yyyy)
		RED ☐	AMBER ☐	GREEN ☐	

1.4

Information to be highlighted to the Approving Officer

1.5

If the business case contains sensitive or commercial information or data that should be restricted (see Government Security Classifications) please tick the box.	☐

1.6

FSoD approver name(s)	**Post title**	**Attach emailed approval** (not email address)	**Date** (dd/mm/yyyy)

1.7

FSoD schedule	Description	Check relevant box
A1	Projects (including FCRM or Navigation revenue)	☐
A2	FCRM or Navigation capital projects	☐
Name and FSoD ref of approved strategy (A2) if applicable		
A4	FCRM capital projects led by LA, IDB and other RMAs	☐
T2	Corporate Property Projects / acquisitions	☐

1.8

For FSoD team use only:

Section 2: only Environment Agency-led projects should complete this section

2.1		
	SOP Project Code	
	Programme	
	National team name	
	Area name	
	Function	

2.2	**Role**	**Name**	**Post Title**	**% time on project**
	Project Sponsor			
	Project Executive			
	Project Manager			

2.3	**Required level of Environmental Impact Assessment (EIA) from programme**	**N/A** ☐	**Low** ☐	**Medium** ☐	**High** ☐

Section 3: only other RMA-led projects should complete this section

3.1	**RMA reference number**	SCH3249

3.2	**Assurance and endorsement from Risk Management Authority**	
	I confirm that this business base meets our guidelines, quality assurance requirements, environmental obligations and Defra investment appraisal conditions. All internal approvals, including member approval, have been completed. I apply to the Environment Agency for capital grant and local levy in the sum of £4,040,000 (Grant Claim Value).	
	Name of RMA Project Executive	Jack Wiltshire
	Date of endorsement (dd/mm/yyyy)	
	Attach emailed endorsement (not email address)	
	Version approved	

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1 Executive Summary

1.1 Introduction

This Outline Business Case (OBC) seeks approval for £4,007k of Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) to deliver the detailed design and capital construction of a flood defence to reduce the risk of coastal flooding and erosion across the Swanage Beach frontage.

1.2 Strategic Case

The Swanage Beach Coastal Protection Scheme is a scheme led by Dorset Council to address the increasing risks of coastal erosion and flooding along the Swanage seafront. The project area spans from the Mowlem Theatre in the south to Shep's Hollow in the north, encompassing key coastal infrastructure such as seawalls, groynes, and the Banjo Pier. The primary objective is to maintain the 0.33% AEP Standard of Protection (SoP) established by the 2005/06 beach recharge scheme, which is now under threat due to asset deterioration and declining beach levels. Without intervention, over 110 properties and vital public amenities are at risk.

The scheme aligns with national and regional strategies, including the National Flood and Coastal Erosion Risk Management Strategy (2020), the Poole and Christchurch Bays Shoreline Management Plan (2011), and the Poole Bay FCERM Strategy (2014). These documents advocate for a "Hold the Line" policy, emphasising the need to maintain existing defences and adapt to climate change. The Swanage Local Plan (2017) and the Dorset Council Local Plan (2021) further reinforce the importance of protecting the town's coastline, which is vital to its tourism-driven economy. The project also seeks to align with the Bournemouth, Christchurch, and Poole (BCP) Council's beach recharge programme to optimize resources and reduce costs.

Historically, Swanage has implemented various coastal defences since the early 20th century, including seawalls, timber groynes, and beach nourishment. However, recent assessments show that many of these structures are nearing the end of their service life. The 2023 asset condition survey by JBA Consulting revealed that without active intervention, the seawall could fail as early as 2029, leading to accelerated erosion and significant damage to the town. The "Do Minimum" scenario highlights the inadequacy of current defences, projecting severe shoreline retreat and infrastructure loss over the next century.

Environmental, heritage, and visual considerations are integral to the scheme. The project area intersects with multiple designated ecological and heritage sites, requiring careful planning and mitigation. Preliminary assessments indicate that, with appropriate measures, the scheme will not significantly impact these sensitive areas. Additionally, the project offers opportunities to enhance the seafront's visual appeal and public access, aligning with the Dorset Area of Outstanding Natural Beauty (AONB) Management Plan.

Key risks include funding uncertainties, landowner opposition, and alignment with BCP's next round of beach recharge at Bournemouth. However, the project team has proactively engaged stakeholders and developed a robust OBC to secure approval and funding. The scheme represents a critical investment in Swanage's long-term resilience, environmental protection, and economic sustainability.

1.3 Economic Case

The Swanage Beach coastal protection project aims to mitigate coastal flooding and erosion over a 100-year period. A comprehensive appraisal process was conducted to identify the most suitable intervention, guided by Critical Success Factors (CSFs) derived from project objectives and HM Treasury's Green Book. These CSFs included flood and erosion risk management, cost-effectiveness, carbon management, buildability, affordability, regulatory compliance, and enhancement of beach amenities. A longlist of 11 options was developed and assessed using a Multi-Criteria Analysis (MCA), with four options shortlisted for further evaluation.

The shortlisted options included: (1) Do Nothing, (2) Beach Recharge with a New Control Structure, (3a) Beach Recharge with Rock Armour Underpinning, and (3b) Beach Recharge with Sheet Pile Underpinning. Technical, environmental, and economic appraisals were conducted. Option 3a emerged as the lowest carbon solution with option 2 offering enhanced protection through a terminal groyne. Environmental assessments highlighted varying impacts, with Option 2 offering landscape and amenity benefits, albeit with some ecological concerns.

Economic analysis over a 100-year appraisal period showed all options were viable, with Option 2 achieving the highest benefit-cost ratio (BCR) of 5.35. However, due to funding rules, a 20-year duration of benefits was also considered. Under this shorter horizon, Option 2 had the highest BCR (11.87) and Net Present Social Value (NPSV), making it the preferred option.

Following this, Option 2 was refined through outline design, reducing material quantities and costs. This led to a revised PV whole-life cost of £4,435k from the previous £5,203k and an updated BCR of 13.92 from the previous 11.87, reaffirming its strong value for money. The proposal meets all strategic objectives and demonstrates high economic, environmental, and social returns.

1.4 Commercial Case

Dorset Council (DC) will deliver the Swanage Beach Recharge project using a procurement strategy that ensures compliance with Public Contract Regulations and achieves value for money. The approach combines internal and external resources to meet operational, financial, and social objectives. Key procurement drivers include professional and consulting services, recharge operations, control structure construction, site investigations, and public engagement.

Two procurement routes are considered: open tendering for specific contracts or using approved frameworks. The project will proceed in two phases: Phase I (April 2026–Dec 2027) for planning, design, and permissions, and Phase II (Jan–Apr 2028) for construction and beach recharge.

Commercial arrangements include procuring the designer under the TEPS contract and appointing a principal contractor via open tender. Significant efficiencies will be achieved by aligning with the larger BCP scheme, such as free use of the sinker pipe and shared dredged material. An efficiencies register will track cost-saving measures and innovative ideas throughout the project.

1.5 Financial Case

The total Whole Life Cash Cost for the scheme is estimated at £4,657k. This OBC is seeking £4,007k Cash in funding to cover scheme development costs over the first three years following OBC approval, spanning financial years 2025–26 to 2027–28. This funding will support the scheme through to the construction phase and includes a 60% Optimism Bias with an embedded risk allowance.

1.6 Management Case

The management of the Swanage Beach Coastal Protection Scheme is structured around clear governance, defined responsibilities and coordinated project delivery, with Dorset Council acting as the lead client supported by BCP Council through a public sector cooperation agreement, and specialist consulting engineers appointed for scheme design and technical oversight. A detailed programme sets out key milestones from committee approval and NPAS funding in March 2026 through designer and contractor procurement, statutory consultations, detailed design, and construction between January and February 2028. Stakeholder engagement led by the Dorset Coastal Forum is embedded throughout, supported by Equality Impact Assessment considerations and ongoing communication with affected residents and businesses. The scheme delivers significant long-term benefits, including maintaining the 0.33% AEP Standard of Protection, protecting over 110 properties, enhancing beach amenity, and supporting environmental resilience, with structured change-management processes ensuring collaboration across DC, BCP, the EA, Natural England and other partners. Risk management follows an established FCERM framework, with clear ownership, early identification, mitigation planning and continuous review, informed by lessons from previous coastal schemes. Contract management will be undertaken by DC with TEPS-appointed consultants providing design assurance and BCP Council supporting recharge-related interfaces. Assurance will follow the EA's IAAS process with all stages embedded within the project timeline, while post-project evaluation will focus on the performance of the new rock groyne control structure. Contingency arrangements including a 60% optimism bias, alignment with the BCP recharge programme and committed DC and

Local Levy funding ensure core outputs can still be delivered in the event of cost escalation, delay or partial project failure.

1.7 Recommendation

It is recommended that this OBC for Swanage Beach Coastal Protection Scheme is recommended for the approval of the sum of £4,007k of the flood defence grant in aid funding to progress the project to detailed design of the preferred option and construction.

2 Strategic case

2.1 Introduction

Swanage is a coastal town situated on the southern coast of Dorset. The project site is located within the Poole and Christchurch Bay Shoreline Management Plan (sometimes referred to as the 'Two Bays SMP') and extends along the Swanage seafront, encompassing the beach and foreshore area. The southern boundary of the site is located near the southern end of Shore Road, adjacent to the Mowlem Theatre, while the northern boundary is approximately 60 meters north of the steps at Shep's Hollow, as illustrated in Figure 2-1. The site includes several structures, such as sea walls, access steps, outfalls, slipways, groynes, and a pier.

Dorset Council (DC) is seeking approval of this OBC to develop a scheme aimed at preventing further deterioration of the seawall. The proposed plan focuses on maintaining the functionality of the beach and groyne to mitigate the risk of coastal flooding and erosion. Continued deterioration of the seawall could result in its failure, leading to the loss of principal amenity areas and over 110 residential and non-residential properties to erosion.

Figure 2-1: Location and features plan of Swanage Beach

2.2 Strategic context

2.2.1 National Flood and Coastal Erosion Risk Management Strategy 2020

This strategy sets out the long-term vision for managing flood risk and coastal change in England, by improving the resilience of the nation to the year 2100.

The aim of the strategy is for Risk Management Authorities to work with partner organisations to deliver on three long-term ambitions to manage future risk and investment needs. They are:

- Climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change.
- Today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change.
- A nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change and know their responsibilities and how to take action.

The project team have used the aims and objectives of the strategy to focus the project objectives and ensured that the team worked in partnership and that adaptation and carbon emissions are considered as part of the appraisal.

2.2.2 The Poole and Christchurch Bays shoreline management plan (SMP) (2011) review sub-cell 5F, section 4, PDZ 4

This SMP acknowledges the critical importance of preserving the town's viability, heritage, and community aspects. It prioritizes flood reduction and protection of the town centre, adhering to the policy of 'Hold the Line for all epochs.' The Poole & Wareham FCERM Strategy, finalized in December 2014, advocates for collaboration with other operating authorities and continued defence and necessary adjustments, particularly in response to rising sea level.

2.2.3 Pool Bay, Poole Harbour & Wareham FCERM Strategy (2014)

The Poole Bay, Poole Harbour, and Wareham FCERM Strategy (Environment Agency, 2014a) reaffirmed the SMP policy for Swanage Bay established in 2011. The strategy concluded that the preferred approach for the area is to maintain the defences along Swanage seafront for the next century. For the cliff section at North Swanage and The Pinnacles, the strategy recommends a "Do Nothing" approach, with a brief transition to Managed Realignment in between. This sustain policy assumes:

- The SoP will remain as established by the 2005/6 coast protection scheme. According to the 2005 Swanage Beach Management Plan (BMP), this scheme

was designed to offer a 0.33% AEP SoP over a 50-year lifespan, incorporating timber groynes, beach recharge, and seawall maintenance
- In the short term, spanning the first 20 years up to around 2033, efforts will focus on beach recycling and the upkeep of the groynes and seawall.
- In the medium term (approximately 2033 to 2063), the short-term measures will persist and be supplemented by a recharge in 2033, with additional recharges occurring every seven years thereafter. Note that the 2005 BMP initially assumed recharges would only be needed every 20 years.
- In the long term (approximately 2063 to 2113), the measures implemented during the medium term will persist. However, the frequency of top-up recharges will increase to every five years, with an anticipated 50% increase in recharge volume each time. Additionally, the northernmost 630 meters of seawall along the Swanage frontage is expected to be replaced after approximately 75 years, around 2088.

The Strategy was written in 2014 and thus is over 10 years old (10 years is the normal frequency for refreshing a FCERM Strategy). The project team contacted the Local Environment Agency (EA) Senior Coastal Advisor on the 15th of January 2025 and confirmed that even though it is technically over the 10-year period now. The Strategy is expected to be refreshed later in 2025 but would not anticipate the strategic direction for intervention at Swanage beach to change much beyond the currently agreed approach. This was also recently reviewed in the SMP refresh process, and no changes were proposed.

2.2.4 The Swanage Local Plan (2017)

The Swanage Local Plan highlights climate change, flood risk, and coastal change management as key challenges facing the town. It recognises Swanage's vulnerability to the effects of climate change, such as rising sea levels, landslips, increased flooding, and beach erosion, all of which could significantly impact the town and its economy. The plan also emphasises the vital role tourism plays in the local economy, particularly the importance of the beach in attracting visitors. A new policy within the plan ensures that existing open spaces in Swanage, including the area covered by this project, will be protected in accordance with current policies. Additionally, the plan outlines other initiatives that will shape the town's future development, including the designation of a Coastal Change Management Area, which this project supports.

2.2.5 The Dorset Council Local Plan 2021

The Dorset local plan is currently being developed, building off the guidance in the 2023 DC level 1 strategic flood risk assessment (SFRA). This scheme is included in the Dorset Local Plan as a future development. The DC Local Development Scheme 2025 outlines the schedule for preparing new development plan documents, with the Dorset Local Plan being the primary document to be produced.

2.2.6 The Beach Management Plan 2020

This BMP covers the central part of the Swanage Bay coast, extending from The Mowlem to the south, northwards to Shep's Hollow which is the same extent for this project. The BMP provides a review and update of the existing BMP first produced by Halcrow in March 2005 as part of the 2005/6 Swanage Beach Recharge Scheme (Halcrow, 2005). The key objective of the BMP which the primary objective of the project has been linked to is to manage the risk of coastal erosion and flooding by ensuring that an adequate beach is maintained in combination with the hard defence/control structures, such that the 0.33% Annual Exceedance Probability (AEP)) SoP of the 2005/6 Swanage Beach Recharge Scheme is retained. The BMP outlines an Action Plan comprising activities categorized under management, monitoring, maintenance, and future studies or research. This plan is designed to guide the ongoing and future management of the BMP area.

2.2.7 Bournemouth Poole and Christchurch Council Scheme

The Bournemouth, Christchurch and Poole (BCP) Council is currently preparing for a new phase of its beach recharge programme, scheduled for implementation during the 2027/2028 period. As part of this initiative, the council plans to utilise a newly identified dredging site, for which it holds an independent dredging licence. This site will serve as the primary source of sediment for the Swanage beach nourishment activities

This Outline Business Case (OBC) aims to strategically align with the BCP Council's beach recharge project to maximise efficiency and cost-effectiveness. By coordinating efforts, the project stands to benefit from shared construction resources, optimised use of dredged materials, and streamlined procurement processes. These synergies not only enhance the overall affordability of this OBC but also underscore the critical importance of aligning timelines and logistics with the BCP initiative.

2.2.8 Swanage Town Coastal Protection Scheme

The central section of the Swanage Bay (Swanage Bay is bounded by Peveril Point to the south and Headfast Point to the north) coastline has experienced relatively limited coastal flooding. In contrast, more severe issues have been recorded further south along the Swanage Town frontage, where wave overtopping is a frequent problem. To manage the risk of winter storm flooding, the EA has deployed temporary flood barriers each winter since 2018. Although these barriers help to dissipate wave energy, Storm Ciarán in November 2023 displaced several concrete blocks, highlighting their limitations.

To provide a more robust and long-term solution, the Swanage Town Coastal Protection Scheme is currently in development. This scheme covers the coastal area adjacent to Swanage Town and overlaps by approximately 50 metres with the Swanage Beach Coastal Protection Scheme (this OBC) near the Mowlem Theatre, as shown in Figure 2-2. This overlap reflects a coordinated strategy to tackle flood and erosion risks along the Swanage Bay frontage through two interconnected projects that share a common boundary.

Figure 2-2: Swanage Beach Coastal Protection Scheme and Swanage Town Coastal Protection Scheme Extents Showing Boundary Overlapping Area

2.3 Current Arrangements

2.3.1 Defence History

Over the past two centuries, various coastal defence measures have been implemented along the Swanage Beach frontage to combat flooding and erosion. Key developments include:

2.3.1.1 **Early 20th Century Seawall Construction (1904–1920s):**

In response to beach sand loss in the late 19th century, a seawall was built along Shore Road between the Mowlem and Ulwell Stream outfall in 1904. This wall was later extended seawards during Shore Road widening in the 1920s. Around the same time, irregular sections of seawall were constructed along the cliff base north of the Ulwell Stream outfall.

2.3.1.2 **Groyne Field Installation (1929–1931):**

The vertical seawall likely accelerated beach erosion at its base. To counteract this, a groyne field was installed to help retain beach material.

2.3.1.3 1960s Coastal Protection Enhancements:

Purbeck District Council assumed responsibility for the New Swanage section, repairing and rebuilding of the ad hoc private seawall, extending the wall up to The Pines Hotel and supporting this with the construction of timber groynes in 1962 to aid retention of beach levels in this area to Shep's Hollow.

2.3.1.4 **Outfall Jetty Construction (1993):**

The Outfall Jetty, also known as the "Banjo Pier," was built at the bay's southern end as part of the Swanage Flood Alleviation Scheme. It is now maintained by the EA.

2.3.1.5 Beach Recharge Scheme (2005–2006):

This major project included:

- Removal of 19 old timber groynes north of the Banjo Pier and two older groynes between the Mowlem and Banjo Pier.
- Installation of 18 new timber groynes north of the Banjo Pier.
- Placement of approximately 130,000m³ of beach recharge sediment.
- Installation of a flushing system at the Outfall Jetty.
- Repairs to sections of the seawall and access steps.

2.3.1.6 Slope Stabilisation Measures (20th Century–2017):

Private landowners implemented various slope stabilisation efforts along the New Swanage coast (north of Shore Road) to address ongoing stability issues. The most recent was a scheme by the Pines Hotel owners, constructed between 2015 and 2017, following emergency slope stabilisation works in 2013.

2.3.2 Current Defences

The Swanage Beach coastal frontage is made up different coastal assets which comprises of beach, timber groynes, seawall and promenade and the cliff area slope stabilisation. The frontage also has a Pier known as Banjo Pier, several beach access steps, slipways and non-formalised outfalls.

The current defence arrangements are in place to continue to provide the SOP offered by the 2005/2006 scheme.

In 2023, JBA Consulting carried out a visual asset condition assessment of the coastal structures along the Swanage Beach frontage to inform the development of the

project's options appraisal. This assessment followed the EA's T98 Condition Assessment guidelines. The primary aims were to evaluate the remaining service life of the structures and to identify any critical defects requiring attention within the scheme. The inspection concluded that most of the defences were in fair condition, although the estimated residual life varied across the structures. The condition assessment report can be found in Appendix B.

2.3.3 Existing Maintenance Regime

In 2020, DC updated the Beach Management Plan for Swanage Beach. This revision included the implementation of monitoring plans with beach level alerts and actions to manage flood and erosion risks, as the beach serves as the primary coastal defence for the town.

As outlined in Section 5 of the BMP, the current maintenance activities encompass annual visual inspections of all structures along the beach frontage by qualified engineers. Additionally, DC and private asset owners undertake ad hoc maintenance of various structural elements as required, guided by regular monitoring and visual inspections.

2.3.4 Previous Investments

A beach nourishment scheme was undertaken in Swanage Bay in 2005 and 2006 with an estimated cost of £2.2M. This included placing 130,000m^3 of material from Poole Harbour channel across 1.3 km of coastline and constructing eighteen timber groynes at this time. The BMP undertaken in 2005 alongside the nourishment project projected that 40,000m^3 of material would be required every ca. 20 years. Under this estimation, the first re-nourishment would be due around 2025. The BMP was updated in 2020 based on assessments of beach monitoring and modelling.

2.4 Case for Change

Although, the current defence arrangements were put in place to maintain the SoP provided by the 2005/2006 scheme, the asset deterioration overtime and gradual loss of beach material has meant that the required SoP will continue to reduce without any active intervention.

There have been significant storm events since the supporting strategy highlighted in section 2.2.3 was published in 2014. These storm events have increased the risk of coastal flooding and erosion along the majority of the Swanage Bay, particularly from the Mowlem northwards. This is evident by the declining beach levels, temporary exposures of the seawall toe after storm events and increased overtopping. Some of the consequences of these storm events are shown in Appendix C – Past Flooding and Erosion Events.

2.4.1 Do Minimum Implication

Recent storm events have caused significant erosion damaging the existing seawall and exposing the toe of the defences. This has increased the risk of structural failure. While the beach tends to recover somewhat after storms, it does not return to its original levels, and overall beach levels have continued to decline over time.

The coastal structures along the frontage have undergone multiple reconstructions and modifications, with records dating back to the 1920s and the most recent significant works completed in 2005/2006. As a result, the condition and remaining lifespan of these structures vary considerably across the area.

A condition assessment by JBA Consulting in March 2023 estimated the residual life of the seawall under a low maintenance regime to range from 40 years in the south to 20 years in the north. Although the process showed varying time to reach failure for different structures, the continued beach level decline means that failure of the seawall could occur at any time. Factors such as major storm events, successive storms, and climate change impacts such as sea level rise could all influence these projections.

The loss of the beach would expose the toe of the seawall, making it vulnerable to collapse. If the seawall fails, natural coastal erosion will accelerate, causing the coastline to retreat rapidly. Without the seawall, storm events would likely intensify this process, significantly hastening the rate of retreat and eventually the loss of most of the developed Swanage Town area.

2.4.2 Baseline Erosion Risk

The baseline erosion risk highlights the potential risk of what could happen if there is no active intervention now. An assessment of erosion rates in the project area was conducted to support this business case. Projected erosion and associated damages were estimated for the years 2034, 2044, 2074, and 2124 using modelled erosion contour lines. Figure 2-3 illustrates the predicted coastal retreat over 5, 15, 45, and 95 years following the anticipated failure of the seawall.

It is assumed that the seawall will fail in 2029. Erosion rates were calculated using two different exponents 0.5 and 1.0 to account for variability in erosion progression. For the damage assessment, the exponent of 1.0 was applied to reflect long-term sea level rise, indicating that the rate of coastal retreat is expected to be proportional to the rate of sea level rise. A comprehensive analysis of erosion rates and associated damages, which forms the basis for the economic evaluation, is presented in the Economic Appraisal Report located in Appendix D.

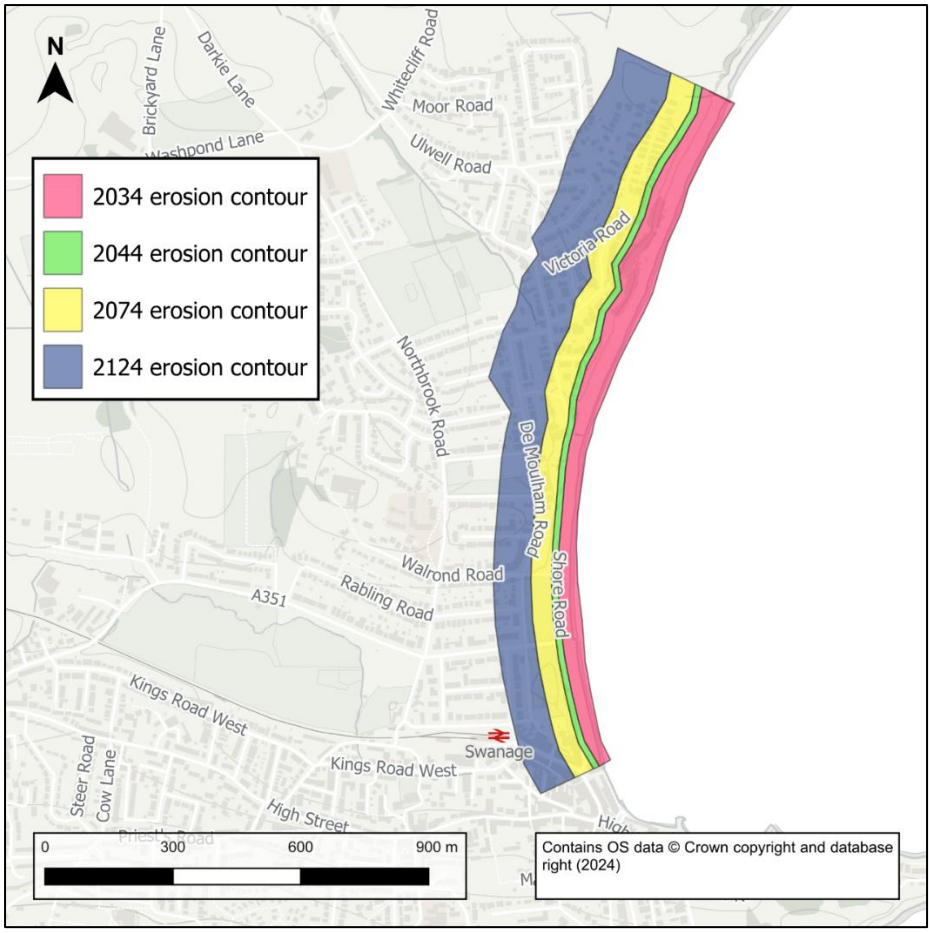

Figure 2-3: Swanage Beach erosion contours

We have clearly demonstrated the necessity of this project as a proactive measure to prevent the adverse impacts associated with the current coastal management practices. Without intervention, these existing arrangements are projected to lead to significant long-term coastal erosion and an undesirable realignment of the shoreline at Swanage, posing risks to the natural environment, local infrastructure and amenities, and community resilience.

2.5 Environmental and Other Considerations

2.5.1 Ecology

The project considers five statutory designated sites within the scheme boundary (see Figure 2-4), these include

- the Solent and Dorset Coast SPA,
- Studland to Portland SAC,
- Isle of Portland to Studland Cliffs SAC,
- Purbeck Coast MCZ and
- Purbeck Ridge (East) SSSI.

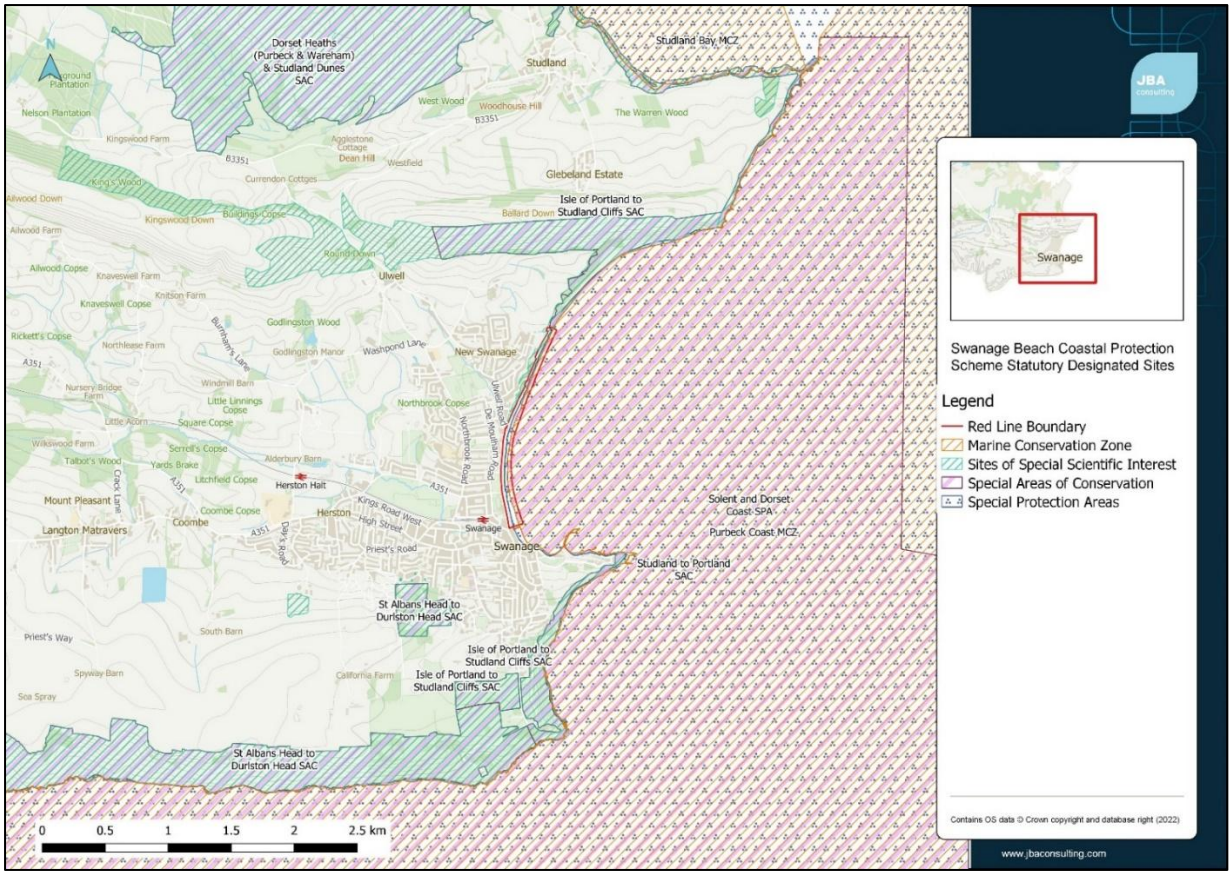

Figure 2-4: Statutory designation within 2km of the scheme (Defra Magic Map)

There are also seven locally designated non-statutory sites within a 2km search area of the scheme boundary. These include the Dorset Wildlife Trust reserve, Peveril Point and the Downs Local Nature Reserve (LNR), a habitat restoration site and four Sites of Importance in Nature Conservation (SINC). These designations are shown in Figure 2-5.

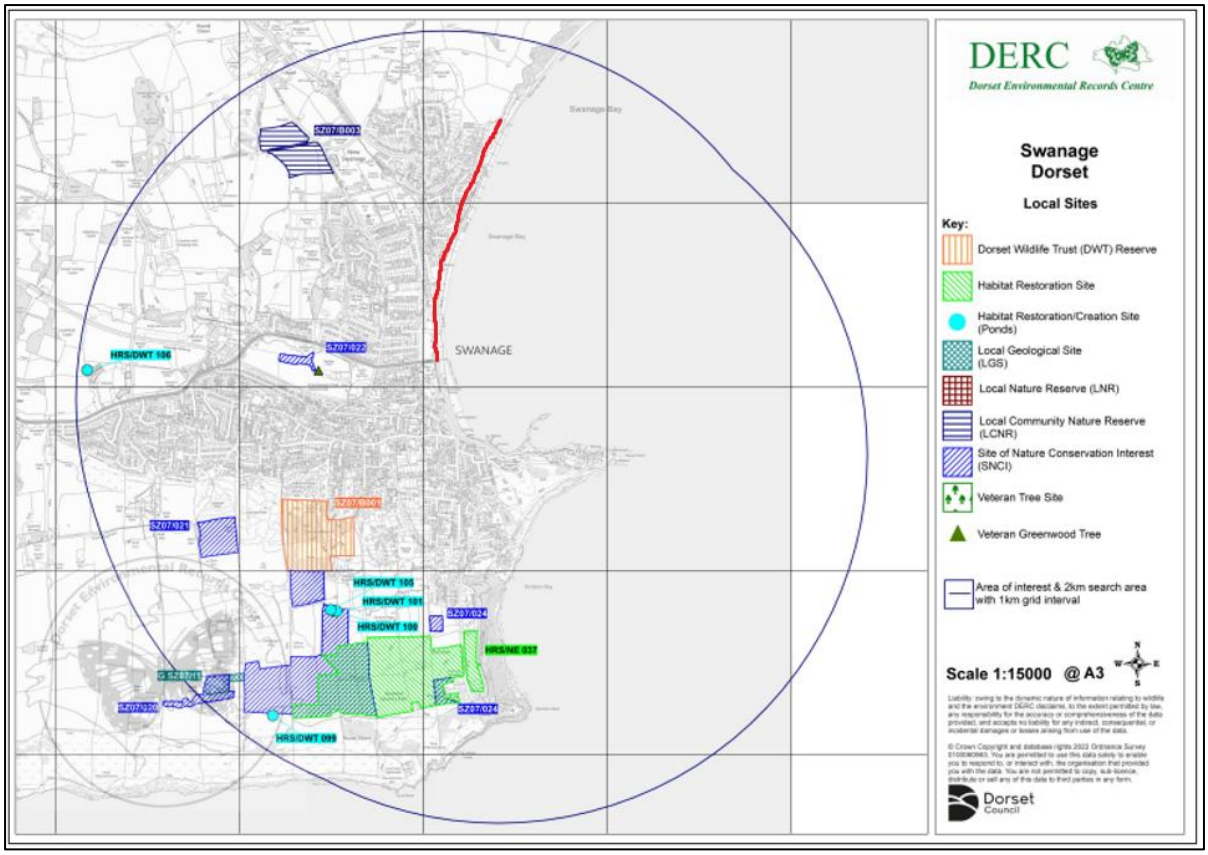

Figure 2-5: Non-statutory designated sites within 2km of the scheme from Dorset Environmental Records Centre (DERC, 2022)

A Preliminary Ecological Appraisal (PEA) was undertaken by JBA in 2023 (Appendix E1) to determine the presence of, and use of the site by protected and notable species and habitats.

An Inshore Inland Fisheries Report was produced by JBA in 2023 (Appendix E2), in conjunction with the PEA in relation to this project. The nearest catchment associated with the scheme has the potential to support a number of eurytopic and rheophilic coarse fish species, Brown Trout and European Eel. A Marine Biotope and Environmental Management Report was produced by JBA in June 2023 (Appendix E3). High numbers of nesting black seabream were found within the site; black sea bream nests are a protected feature of the Purbeck Coast marine conservation Zone (MCZ).

Due to the site's hardstanding surface, it is considered unlikely to support terrestrial habitats suitable for reptiles or amphibians. No invasive non-native species were identified during the PEA desk study and no species were recorded during the site survey of the scheme boundary.

2.5.2 Heritage and archaeology

The scheme area contains 38 Grade II Listed Buildings, predominantly situated in the southern part within the Swanage Conservation Area. Most of these buildings are

located in Swanage town and are either not visible from the scheme area due to the surrounding terrain and structures or are too far away to affect their setting (Appendix E4). The King Alfred Memorial (1153297) is the only building directly adjacent to the scheme's redline boundary, making it the sole Listed Building considered to potentially be impacted by the works. The designated heritage assets are shown in Figure 2-6.

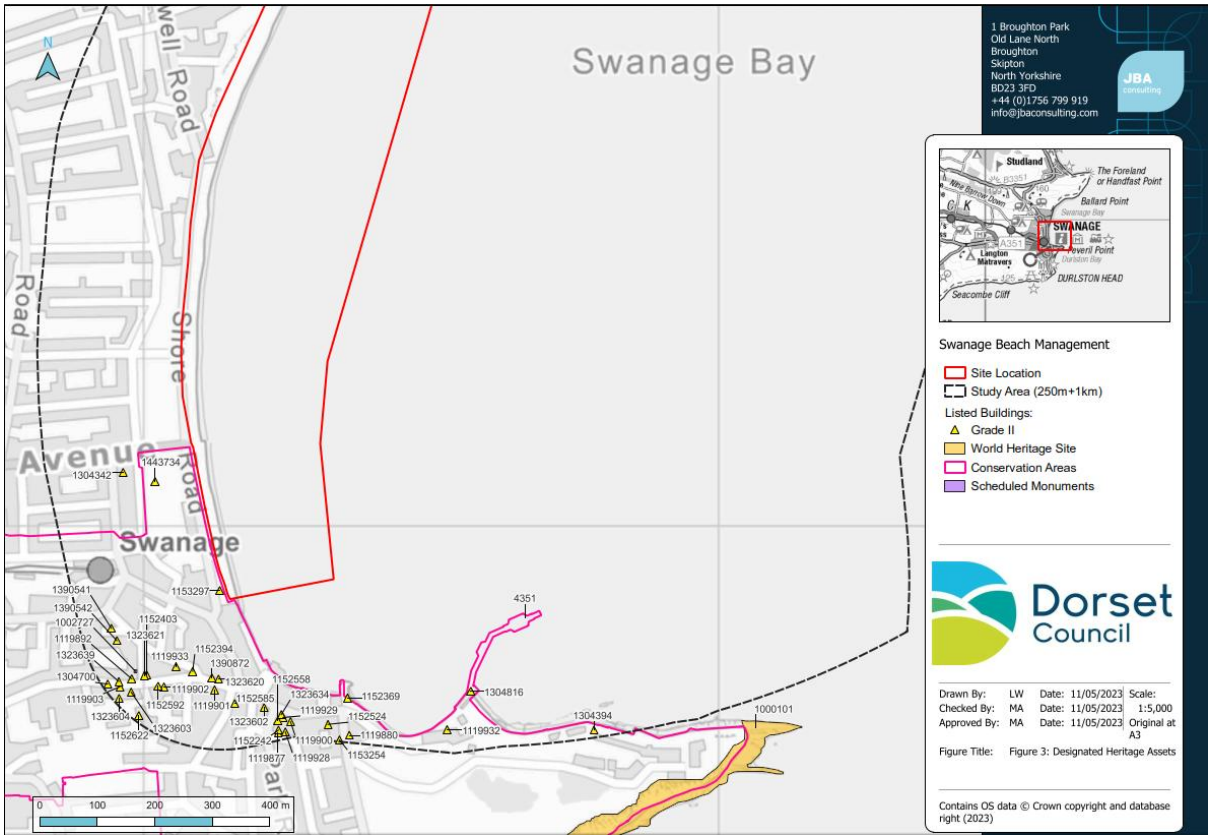

Figure 2-6: Designated heritage assets

The archaeological potential for all periods across the scheme is deemed to be negligible. The very few findspots which are within or in close proximity to the scheme contain no further information on their provenance and are likely to be unstratified stray finds.

Although there are a number of wrecks recorded as being within the study area, their exact locations are currently unknown. Additionally, the historic wooden groynes and Second World War defence related assets within the scheme boundary have either been removed or are currently unlocated. No remains were noted in previous works within the area to complete beach replenishment and given the previous replenishment, any archaeological deposits or remains are likely to have been disturbed or buried beneath imported sand.

The northern portion of the scheme is partially within the Dorset and East Devon Coast World Heritage Sites (WHS) (1000101) and given the significance of the WHS, the

Archaeological Advisor to DC will be consulted to understand if there are any concerns.

2.5.3 Landscape and Visual

A Landscape and Visual Baseline assessment was undertaken by JBA in June 2023 (Appendix E5) to provide an overview of the landscape and visual baseline of Swanage Beach and to consider the potential effects of the scheme during construction and operation on the landscape character, landscape designations, local landscape features, public realm, and visual amenity.

The character of the scheme and surrounding area is dominated by the urban nature of Swanage and its coastal setting. A 'multi-layered' landscape and townscape where public and privately owned space sit at varying levels e.g. beach hut terraces, natural landforms, terraced and sloping greenspaces. This allows for a varied physical and visual experience of the coastline. The buildings within Swanage limit the views to the sea from much of the town. From the Swanage seafront there are panoramic views across Swanage Bay, with spectacular views of a characterful town in a dramatic landscape setting. Tourist amenities and residential properties along the seafront benefit from the attractive sea views. Temporary concrete wave barriers have been trialled in winter months in three locations across the seafront, including Gee White's Café, in the south, by The Square and between Mowlem Centre and Shore Road to the north. These temporary concrete flood defences are visually intrusive and are not a long-term solution to managing coastal flood risk in Swanage.

There is the potential, aligned with the Dorset Area of Outstanding Natural Beauty Management Plan strategies, for the completed scheme to improve the character and physical appearance of the landscape character seafront. This may occur where the proposal removes, repairs, or reconstructs existing structures such as groynes or outfalls within the beach. In turn, this may have the potential to improve pedestrian access in these locations.

2.5.4 Traffic and Transport

Shore Road passes through the scheme boundary. The eastern extents of Walrond Road and Victoria Avenue and small sections of Upwell Road, Station Road and Institute Road fall within the scheme boundary. The South West Coast Path National Trail and Dorset Footpaths (SE3/21, SE3/17 and SE3/13) also pass through the site.

There is potential for the proposals to impact the local road network during construction, due to increased traffic volume, construction vehicles requiring access to the coastal front and the requirement for a site compound. The operation of vehicles for the scheme has the potential to cause disruption to local road networks.

The South West Coast Path will temporarily require limited access to the public during scheme works, and diversions of the footpath would require implementation during this period.

2.5.5 Air Quality, Noise and Waste

Potential air quality and noise sensitive receptors principally comprise residential properties located in the area surrounding the scheme area, as well as users of the local facilities. The scheme area is not located within or in close proximity to an Air Quality Management Area or a Noise Important Area.

2.5.6 Regulatory and Consenting

A Water Framework Directive (WFD) Screening and Scoping Assessment has been carried out (Appendix E6), identifying potential impacts on biological quality, hydromorphological quality, physico-chemical quality and chemical quality, as well as on protected sites. The assessment concluded that the scheme has the potential to be WFD compliant. However, it also highlighted the need for a full impact assessment during the next stage, as part of the detailed design development, to confirm compliance.

Stages 1 and 2 Habitats Regulation Assessments (HRAs) were undertaken for the scheme (Appendix E7). It concluded that certain effects on qualifying features of the Studland and Portland SAC, Isle of Portland SAC and Solent and Dorset Coast SPA could not be screened out without appropriate mitigation/avoidance strategies put in place. Some of the potential adverse effects identified include:

- Invasive Non-native species spread during construction
- Direct habitat loss through sedimentation and smothering
- Physical disturbance to some of the qualifying features.
- Water pollution or changes in water quality and
- Hydrodynamic changes

The stage 2 HRA assessment concluded that the scheme will not have an adverse impact upon the qualifying features of the SAC. The works will not be directly within the SAC and no access routes will pass through the SAC. Therefore, there are no likely significant effects of introducing invasive non-native species (INNS) to the SAC site. No impacts upon the qualifying features, either alone or in combination with any other plans or projects, providing the following mitigation measures are implemented:

- Industry standard pollution prevention measures.
- The works will take place outside of the black seabream nesting season (April and May) The construction programme is not currently known at this stage, but it is anticipated that the works will be programmed carefully to help mitigate any impacts on features of designated sites. It is estimated that the works will be phased over the course of approximately 4 months, with likely construction taking place in Autumn and Winter. The detailed works programme will be subject to confirmation with the contractor in collaboration with stakeholders including DC and Swanage Town Council, this will include the identification of the site compound area.
- Biosecurity measures will be followed as appropriate to prevent introduction of INNS. As industry standard practice these measures are not considered to be

avoidance or reduction measures for a European site in the context of the Conservation of habitats and species regulations (2019, as amended).

At this stage, the project with appropriate mitigation measures will not result in Likely Significant Effects (LSE) on these designated sites, particularly regarding disturbance, water quality, and habitat alteration. However, a full Appropriate Assessment (AA) may be required at the next stage to ensure compliance with the Habitats Regulations.

Due to the importance of the Purbeck Coast MCZ, an MCZ screening was undertaken (Appendix E8). This concluded that the scheme will not have an adverse impact upon the MCZ either alone or in combination with any other plans or projects. Significant impacts are not anticipated; however, the following precautionary measures shall be implemented:

- Impacts on habitats will be minimised by the implementation of best construction practices including industry standard pollution prevention measures, particularly addressing the risks of fuel and concrete spills.
- Sediment Placement and Profiling: Importing and distributing new sediment along the foreshore to restore beach levels and enhance coastal protection.
- Monitoring and Assessment: Conducting bathymetric surveys, grab sampling, and sediment transport analysis to inform the BMP.
- Groyne Maintenance long-term: Evaluating and adjusting groyne structures to optimise sediment retention.
- Environmental Considerations: Implementing mitigation measures to minimise ecological impacts on marine habitats and species. For example, scheme works should be undertaken outside of the Black seabream (Spondyliosoma cantharus) nesting season (April and May) to minimise disturbance to Black seabream excavated nests in the seabed.

At this stage, the project with appropriate mitigation measures will not result in Likely LSE on the MCZ; however, a further MCZ assessment will be required at the next stage to ensure compliance.

A request for an Environmental Impact Assessment (EIA) screening opinion was submitted to DC (Appendix E10), which concluded on the 3rd of June 2025 that a statutory EIA is not required for the scheme. Similarly, a screening opinion has been requested from the Marine Management Organisation (MMO) and currently awaiting MMO's response to the request. The feedback received from MMO will be considered and implemented at the next stage of the project before an MMO licence application is submitted.

2.6 Main Risks

The main risk to the project is inadequate funding from an unsuccessful FCERM GiA bid. This would cause the project to be put on hold until further funding is acquired. The project team have worked to minimise this risk by developing a scheme with a good Partnership Funding (PF) score and a high benefit cost ratio.

Due to construction activities needing to be carried out within private land, there is a risk of private landowners opposing the scheme. Mostly at the Ocean Bay slipway and the north beach. The project team have looked to limit through early engagement with the public and continued engagement for future project stages.

As outlined in the BMP Action Plan, the initial step for future beach recharge projects is to conduct a monitoring and mapping study of the adjacent SAC and its designated features, in consultation with Natural England. This study may take longer than anticipated, potentially impacting the overall project timeline. The monitoring and mapping study is currently underway and scheduled to be completed by year 2026/2027 prior to the beach recharge.

There is also a risk that the scheme will become unaffordable if it is not aligned with the BCP recharge schemes. The project team has continued to mitigate this through liaison with BCP around their planned programme of works to ensure project alignment.

A detailed project risk register can be seen in Appendix F.

2.7 Constraints

The key project constraints are listed in Table 2-1 below

Table 2-1: Project constraints

Theme	Constraint
Programme	Any procurement or construction proposal that will seek to align this project with BCP plans will require significant legal input and allocated time in the whole life programme of this project. If the pre-construction phase of the project is not carried out in a timely manner, it may negate the possibility of doing a joined project with significant cost consequences.
Legal requirements and permissions	The project team will need to engage early with statutory consultees to ensure any consents, licences, permits and any other statutory constraints are considered as part of project development as early as possible.
Funding	The EA's capital programme has been reduced from 6 to 5 years. As a consequence, 26/27 has been scrapped. It is uncertain whether there will be another capital programme and, if so, the form and allocation it would have. This will have an impact on the project as it might not get the funding required in a timely manner to align with the BCP.

2.8 Dependencies

2.8.1 Wider BCP Recharge Activity

Due to BCP dredging licence and the source of the beach material for this project, it was identified that there are lots of efficiencies to be gained in timing the beach recharge activity of this project with the wider BCP recharge activity. An example of this efficiency is the cost of mobilising and demobilising the sinker pipe. As BCP will also be using the sinker pipe, this project would only incur cost for the transfer of the pipes from the BCP scheme to Swanage Bay. Throughout the development of this OBC, the project team have continuously liaised with the BCP coastal team to ensure that these efficiencies can be realised. This liaison will continue until construction is completed.

2.8.2 Swanage Town Scheme

This project is closely linked to the Swanage Town Scheme (see Figure 2-2). The proposed rock groyne and beach recharge by the Mowlem at Shore Road will provide a consistent SoP across Swanage Town. Throughout project development the project teams have worked closely together to provide a joined-up approach to investment in the protection of Swanage.

The Swanage Town Scheme is also dependent on EA's approval of this scheme's (Swanage Beach Coastal Protection Scheme) application for GiA funding and securing the required Partnership Funding.

2.9 Opportunities

The key project opportunities are listed in Table 2-2 below

Table 2-2: Project opportunities

Theme	Constraint
Programme	There is an opportunity to gain some efficiencies such as cost savings on mobilisation and demobilisation by aligning this project timeline with BCP plans for dredging and other recharge activities in the area.
Funding	An opportunity to have a joined project with other authorities within the sediment cell has been proposed to gain more efficiencies.

2.10 Investment Objectives

2.10.1 Objective definition

Based on a review of the strategic factors influencing project development that have been covered in this section, project objectives were prepared by the project team that

included DC, JBA Consulting, Swanage Town Council, and the EA with approval from the project board.

2.10.2 Primary objective

The primary objective for the OBC is linked to the strategy and BMP which was to sustain the standard of service provided by the 2005/2006 scheme which was a 0.33% AEP SoP. The primary objective was therefore set as:

- Manage the risk of coastal erosion and flooding by ensuring that an adequate beach is maintained in combination with the hard defence/control structures, such that the 0.33% AEP SoP of the 2005/6 Swanage Beach Recharge Scheme is retained.

2.10.3 Secondary objectives

In addition to the primary objective, secondary objectives, which have lower weighting to the primary objective have been defined as follows.

- Optimise the frequency, timing, quantity, and source of future beach recharge to provide the best value for money, reduce whole life cost and carbon.
- Protect and enhance the natural environment.
- Support the tourism and economy of the town by providing the opportunity to improve the amenities of the beach.

3 Economic case

3.1 Introduction

The primary objective of this project is to reduce the risk of coastal flooding and erosion across Swanage Bay over a 100-year appraisal period. To ensure the most appropriate option was taken through as the preferred option, a detailed options appraisal was undertaken.

The appraisal approach was initially discussed and agreed with DC and the EA as a sustain Standard of Service (SOS) project as stated in the strategy. This was later changed to a Supported Change project as defined by the FCERM-AG (Environment Agency, 2022) as the project developed and more information became available. The project appraisal approach modification was informed by strategic consultation with the Swanage Town Scheme, which identified the necessity for the installation of a terminal groyne adjacent to the Mowlem. This structural intervention was deemed essential to mitigate coastal flooding and erosion risks by the Mowlem and was therefore integrated into this project overall design.

3.2 Critical success factors

Critical Success Factors (CSF) are the attributes that the proposal must have if it is to achieve successful delivery of its objectives (HM Treasury, 2022). The CSF are the agreed measurement criteria against which the longlisted options were appraised.

The CSF were derived from the project objectives. In addition to the five basic CSF that apply to all proposals (provided in the FCERM Appraisal Technical Guidance), two other CSF have been added, as shown in Table 3-1 below.

1 Business case template: supported change

Audience: Environment Agency

Table 3-1: Swanage Beach coastal protection scheme critical success factors

Project Objectives	Number	Critical Success Factor (CSF)	Green Book Five Basic CSF	Description
Manage the risk of coastal erosion and flooding by ensuring that an adequate beach is maintained in combination with the hard defence/control structures, such that the 0.33% AEP SoP of the 2005/6 Swanage Beach Recharge Scheme is retained.	1	Manage Flood and Erosion Risk	Strategic Fit and Business Need	Potential to offer 0.33% AEP SoP against erosion and flooding such that the 2005/6 Swanage Beach Recharge Scheme is retained.
Optimise the frequency, timing, quantity, and source of future beach recharge to provide the best value for money, reduce whole life cost and carbon.	2a	Cost Effective	Potential Value for Money	Has the potential to be the most cost effective.
	2b	Carbon Management		Low carbon cost and considers methods for managing any associated carbon cost.
	2c	Buildability	Supplier Capacity and Capability	Risks during construction, operation and maintenance could be managed effectively.

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Project Objectives	Number	Critical Success Factor (CSF)	Green Book Five Basic CSF	Description
	2d	Affordability	Potential affordability	Is attractive to third-party funders and enables contributions to be sought.
Protect and enhance where possible the natural environment	3	Regulatory Consenting	Potential Achievability	Compliant with regulatory framework (Planning, HRA, WFD, MMO etc.).
Support the tourism and economy of the town by providing the opportunity to improve amenities of the beach	4	Beach Amenities		Does not negatively impact amenities of the beach that will further promote tourism thereby improving the economy of the town.

3.3 Longlist options

The longlist appraisal was built upon the outputs from different sources. The initial longlist was collaboratively reviewed, added to and re-appraised considering new guidance, information and policy.

The longlist appraisal considered the following information sources:

- Beach Management Plan (Dorset Council, 2020),
- Stakeholder Engagement Information including, EA, DC and Swanage Town Council,
- Expert judgement from relevant specialists from JBA (e.g. Environmental, Engineering, Contractor etc.) and others (e.g., the Early Supplier Engagement (ESE) Contractor),
- FCERM Appraisal Technical Guidance (FCERM-AG) (Environment Agency, 2022), and
- The Green Book (HM Treasury, 2022).

Two generic options are applicable to a supported change project. These are:

- Do Nothing to manage flood or erosion risks, and
- Options to carry out an agreed strategy

Table 3-2 below identifies a range of different options to carry out the agreed strategy. This formed the longlist of options.

Table 3-2: Swanage Beach scheme longlist options

Options	Type	Description
1	No Active Intervention/Do Nothing	No active intervention.
2	Beach Recharge with New Control Structure	This option involves the addition of dredged offshore material to the beach to increase the level of the beach.
3	Beach Recharge and Underpin Vulnerable Sections	This option involves underpinning vulnerable sections of the seawall toe through seawall underpinning works in combination with the beach recharge in Option 2.
4	Upgrade Existing Groynes	This option involves upgrading the existing timber groynes to maintain the retention of

Options	Type	Description
		sediment on the beach at the required levels.
5	New Groynes	This option involves constructing new groynes to maintain the retention of sediment on the beach at the required levels.
6	Beach Recycling	This option involves recycling beach material from areas of deposition to areas of erosion to increase beach levels in those areas.
7	Rock revetment	The option involves placing rock armour protection at the toe of the structures to reduce impact and deterioration of the sea walls.
8	Replacing the Seawall	This option involves constructing new seawall along the frontage to a crest level that will support the required SoP.
9	Offshore Breakwaters	This option involves reducing wave action along the frontage by constructing single or multiple offshore breakwaters.
10	Nature Based Solution	This option involves incorporating nature-based solutions in combination with the existing defences.
11	New Control Structure(s) e.g., groynes	This option involves the addition of new control structure(s) to support retention of beach levels at different sections of the frontage.

A qualitative assessment of each of the longlist options to highlight strengths, weaknesses, opportunities, and Threats (SWOT) was undertaken. SWOT was undertaken with the PESTLE framework (Political, Economic, Social, Technical, Legal, and Environment). This is shown in Appendix G.

3.3.1 Multi-Criteria Analysis

A multi-criteria analysis (MCA) was undertaken where the longlist options were screened against the project objectives, and CSFs, and a RAG status (Red - does not meet CSF, Amber - has the potential to meet CSF, Green - meets CSF) was applied. A decision as to whether these options are shortlisted was made based on performance against the CSFs. The MCA was developed and assessed by the Project Team, consisting of DC, EA (Funding and Partnership), and JBA Consulting. The MCA was also reviewed by other stakeholders including Swanage Town Council.

Options that didn't meet all the CSFs (with one or more red) were discounted except the 'Do Nothing' option which was taken forward to serve as the baseline option. The summary of the longlist appraisal is given in Figure 3-1 below.

Options	Critical Success Factors (Red = does not meet CSF, Amber = has the potential to meet CSF subject to more information, green =	
Do Nothing This option assumes there is no intervention involving maintenance going forward. Groynes will deteriorate, beach loss will be rapid, and seawalls will deteriorate over time, eventually failing. Failure of defences will result in a significant increase in erosion risk (cliff erosion). **Shortlisted - as economic baseline**	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Beach Recharge and New Control Structure This option involves the addition of dredged offshore material to the beach to increase the level of the beach. It also involves the addition of a new control structure to support the retention of beach levels. **Shortlisted**	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Beach Recharge and Underpinning Vulnerable Sections This option involves beach recharge and underpinning vulnerable sections of the seawall toe through seawall underpinning works. **Shortlisted**	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Upgrading Existing Groynes This option involves upgrading the existing timber groynes to maintain the retention of sediment on the beach at the required levels. **Shortlisted**	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
New Groynes This option involves the construction of new groynes to maintain the retention of sediment on the beach at the required levels.	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Beach Recycling This option involves recycling beach material from areas of deposition to areas of erosion to increase beach levels in those areas.	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Rock Revetment This option involves placing rock armour protection on the foreshore in front of the existing defences	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Replacing the Seawall This option involves constructing a new seawall along the frontage to a crest level that will support the required standard of protection.	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Offshore Breakwaters This option involves reducing wave action along the frontage by constructing single or multiple offshore breakwaters.	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
Nature-Based Solutions This option involves replacing the existing defences with nature-based solutions	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	
New Control Structure This option involves the addition of new control structure(s) to support the retention of beach levels at different sections of the frontage. **Shortlisted**	1. Manage Erosion Risk	2c. Buildability
	2a. Cost	2d. Affordability
	2b. Carbon	3. Regulatory
	4. Beach Amenities	

Figure 3-1: Summary of MCA

The shortlisted options are shown in Table 3-3 below.

Table 3-3: Summary of shortlisted options

Option	Type	Description	Reason
1	No Active Intervention/Do Nothing	No active intervention.	Carried forward as the baseline against which to compare other options.
2	Beach Recharge and New Control Structure	This option involves the addition of dredged offshore material to the beach to increase the level of the beach and the construction of a new control structure at the Mowlem Theatre	Potential to maximise benefits based on project objectives. Issues with HRA could be resolved with appropriate mitigation/compensation, and all other objectives delivered successfully.
3	Beach Recharge and Underpinning Vulnerable Sections	This option involves underpinning vulnerable sections of the seawall toe through seawall underpinning works.	Difficulties around existing structures during underpinning can be managed through design. Issues with HRA could be resolved with appropriate mitigation/compensation, and all other objectives delivered successfully.
4	Upgrading Existing Groynes	This option involves upgrading the existing timber groynes to maintain the retention of sediment on the beach at the required levels.	The option is unlikely to be a stand-alone solution due to insufficient beach. In combination with other options, e.g., beach recharge, there is potential to maximise potential benefits of existing infrastructure and offer significant carbon and environmental benefits.
11	New Control Structure(s)	This option involves the addition of new control structure(s) to support the retention of beach levels at different sections of the frontage.	High carbon cost could be negated by reduction/ offsetting and has the potential to achieve project objectives in combination with other measures.

3.4 Technical appraisal of shortlisted options

Upon the agreement of the shortlist, the options were developed into concept designs. Following this, comprehensive technical, environmental, economic, and sustainability appraisals were conducted on the shortlisted options. This section details the technical appraisal of the shortlisted options.

3.4.1 No Active Intervention / Do Nothing

This option serves as the baseline from which options are appraised. This option means that all capital and maintenance expenditure on flood and erosion defence assets and existing flood and erosion management practices would cease. The coastal defence assets would deteriorate rapidly and eventually fail. Failure of the

defences would lead to erosion of the cliffs resulting in property and infrastructure losses. Although this option was taken forward to the shortlist for appraisal purpose, it does not achieve most of the CSF.

3.4.2 Option 2 – Beach recharge with New Control Structure

This option involves the placement of dredged material to the beach to increase the level of the beach and resilience against wall failure and wave overtopping flooding and the construction of a new control structure at the Mowlem Theatre. The sediment will be graded to provide an equivalent to the existing beach material to ensure that Swanage Beach continues to perform under wave and local hydrodynamic conditions.

The current BMP requires a minimum crest level of 1.2mAOD at the sea wall to offer the 0.33% AEP SoP against beach drawdown. However, for the purpose of costing, an overfill crest level of 2.1mAOD with a design slope of 1:20 was used to provide an allowance for long term beach losses prior to the next beach recharge. At this stage of design (concept design), it was assumed that the volume of beach recharge required through this option would be the difference between the overfill design beach and the most recent survey, requiring approximately 66,400 m3 allowing for 15% of losses during construction

Storm induced waves propagate into Swanage Bay from a south easterly direction, causing littoral drift to transport sediment from south to north. During winter periods, beach levels can be drawn down near the Mowlem, leaving it vulnerable to scour. This option involves placing a terminal groyne at the southern end of the scheme area by the Mowlem to reduce longshore losses from the south of the area and provide additional flood protection. The groyne would be constructed from rock armour and aligned and orientated to afford protection to the most southerly section of the beach.

3.4.3 Option 3 - Beach recharge and underpinning vulnerable sections

This option involves underpinning vulnerable sections of the seawall toe in addition to beach recharge. A review of the BMP and historic information of the seawall identified section of the seawalls that have not been previously underpinned and classed as vulnerable sections of the wall that could be undermined.

This option was split into 2 sub-options as detailed below.

- Option 3a: Sheet pile underpinning of vulnerable sections - In addition to beach recharge, this option considers underpinning vulnerable sections of the existing seawall with sheet piles to reduce the risk of undermining of the wall. The area between the sheet piling and existing wall will be filled with a C20/25 mass concrete to form a plug to reduce the risk of the existing wall foundation material from being eroded.
- Option 3a: Rock armour underpinning of vulnerable sections - This involves the use of appropriate rock grading to underpin vulnerable sections of the existing seawall to reduce undermining of the seawall in addition to beach recharge.

3.4.4 Option 4 - Upgrading existing groynes

Option 4 is to carry out remedial works on the existing groynes on the frontage. An asset inspection undertaken in April 2023 identified components of the groynes that could be replaced to ensure the efficiency of the groynes and increase their residual life. This includes works such as plank replacement and sacrificial pile rubbing strips.

Although, this option was shortlisted, further analysis during the concept design, including more detailed seawall failure year analysis, indicated that this option would not manage erosion risks due to seawall failure occurring in 2029 before any major intervention occurs in 2036. As such, this option would not achieve the primary project objective as well as CSF 1, 2a and 4. Option 4 was therefore discounted from further analysis and shortlist options appraisal.

3.4.5 Option 11 - New control structures

Option 11 is to construct a new control structure at the Mowlem Theatre. Storm induced waves propagate into Swanage Bay from a south easterly direction, causing littoral drift to transport sediment from south to north. During winter periods, beach levels can be drawn down near the Mowlem, leaving it vulnerable to scour. This option involves placing a terminal groyne at the southern end of the scheme area by the Mowlem to reduce longshore losses from the south of the area. The groyne would be constructed from rock armour and aligned and orientated to afford protection to the most southerly section of the beach.

3.5 Environmental assessment

An environmental appraisal of the shortlisted options was undertaken by environmental discipline experts (see Appendix E11). The environmental appraisal includes consideration of heritage, ecology, high-level BNG screening, landscape and visual and geomorphology.

The environmental disciplines' review of the shortlist of options indicates a consensus that Option 1 - Do Nothing should not be taken forward. There are, however, varying impacts across disciplines of Options 2, 3a, 3b, and 11, each providing their own merit. The key environmental impact of all Options is summarised in Table 3-4.

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Table 3-4: Environmental appraisal summary for each shortlisted option

Options	Key Negative Effects	Key Positive Effects
Do Nothing	Loss of heritage features and conservation area. Loss of sediment and changing composition will result in changes to the invertebrate community and fish populations exploiting the intertidal area for foraging. Loss of features of interest, properties, and green spaces, plus impact on views and an altered relationship between town and sea.	Loss of sediment and changing composition may benefit Black Sea Bream which nest on sandy substrate.
Option 2 - Beach Recharge and New Control Structure	Possible negative impacts on fish (namely Black Sea Bream) if sediment is delivered from a dredging vessel. Sediment recharge may utilise a dredging vessel which may cause disturbance to benthic habitats and designated sites including nesting Black Sea Bream and Mearl beds (a key MCZ	Recharge (where periodically repeated) will retain and slightly improve landscape character, high quality views from private and public spaces, and access to and along the beach in some locations. The combination of these options will have a larger working footprint and longer construction programme; therefore, it is likely that impacts to the species and

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Options	Key Negative Effects	Key Positive Effects
	feature). Further surveying is required. Construction will result in noise, vibration, and visual disturbance. Construction mitigation will be required to prevent impacts of tern species. This option will have a larger working footprint and longer construction programme; therefore, it is likely that impacts to the species and designated features detailed for these options may increase in magnitude due to construction related impacts. Whilst rock is a natural material, this would introduce a new, uncharacteristic feature into the beachscape.	designated features detailed for these options may increase in magnitude due to construction related impacts. Specific construction mitigation will need to be devised with consideration to timings of works which could affect the designated features of the Solent and Dorset Coast SPA.
Option 3 - Beach Recharge and Underpinning	Possible negative impacts on fish (namely Black Sea Bream) if sediment is delivered from a dredging vessel. Sediment recharge may utilise a dredging vessel which may cause disturbance to benthic habitats and designated sites including nesting Black seabream and Mearl beds (a key MCZ feature). Further surveying is required. Construction will result in noise, vibration, and visual disturbance. Construction mitigation will be required to prevent impacts of tern species.	Recharge (where periodically repeated) will retain and slightly improve landscape character, high quality views from private and public spaces, and access to and along the beach in some locations.

Options	Key Negative Effects	Key Positive Effects
Option 11 – New Control Structure	The new control structure may have a permanent negative impact on the settings of the King Alfred Memorial and the Swanage conservation area. It may be visible in long views from the World Heritage Site (WHS) causing a negative impact, but it is likely that the impact would be minimised as the structure should blend in with the existing sea defences when viewed at that distance. Permanent loss of littoral mixed sediment habitat and additional temporary losses. Noise and visual disturbance plus potential impacts on foraging tern species in proximity and sediment mobilisation may impact foraging in open water.	Void spaces within the rock armour control structure can provide refuge and food sources, possible changes in adjacent abiotic conditions may result in greater exploitable habitat. New control structure not considered to be entirely uncharacteristic. It will result in localised change to the landscape character and views but not notably negative and no widespread landscape or visual impacts. Additional benefits from limiting loss of sand at Swanage Beach. Habitat features for marine fauna and flora should be integrated within design.

1 Business case template: supported change

Audience: Environment Agency

3.6 Appraisal of economic, sustainability and carbon

3.6.1 Carbon costs

As part of the options appraisal, a comparison of the whole life carbon (WLC) of the shortlisted options was undertaken. This comparison considers the carbon emissions associated with the construction, operation, and decommissioning phases of each option over the 100-year appraisal period. The Environment Agency ERIC Carbon Modelling Tool was used to assess the carbon footprint to provide a high-level breakdown of the WLC for all the options as shown in Table 3-5.

Table 3-5: A breakdown of carbon assessment for each option

Stage	Option 2	Option 3a	Option 3b	Option 11
Capital carbon tCO2e)	51,140	50,713	51,069	51,451
Operational carbon (tCO2e)	6,491	6,340	7,012	6,535
Replacement carbon (B4) (tCO2e)	139,059	138,760	139,391	139,928
Refurbishment carbon (B5) (tCO2e)	8,740	8,641	8,887	8,740
Demolition carbon (C) (tCO2e)	8,933	8,844	9,032	8,974
Whole Life carbon (tCO2e)	216,640	215,576	218,468	217,908

The WLC for each option was assessed based on all the interventions from year 0 to year 100. Scheme Option 2 is the lowest carbon solution followed closely by Option 3a. All options have comparable WLC, due to the similarity in future interventions. There is a marginal difference in carbon tonnage between Scheme Option 2 and 3a, however; this is not significant enough to differentiate a preferred option on the basis of whole-life carbon.

3.6.2 Carbon damages and benefits

The carbon damages associated with the Do Nothing option were assessed through the Environment Agency Carbon Impacts Tool. The Carbon Impacts Tool presents the carbon damages avoided (benefits) as a result of the options. This also acknowledges that all the options have the same benefit (due to the same SoP). This

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is calculated as the cost of carbon resulting from the erosion loss of residential and non-residential properties, based on the assumption that properties will be demolished prior to being eroded. The cost of the carbon emissions as a result of this demolition is converted into an economic cost using carbon values from the Department of Business, Energy & Industrial Society (UK Government, 2023). The tool uses the count of residential properties, and the total area of non-residential properties lost within 20 years (medium term loss) and between 21 and 100 years (long term loss). The carbon cost of this loss is then discounted to present day to calculate a present value carbon benefit.

A breakdown of the residential and non-residential properties lost in each time period is shown in Table 3-6 and Table 3-7 respectively.

Table 3-6: Residential property carbon cost

Time period	Residential count	Residential carbon avoided (tCO2e)	Residential carbon benefit (£k)
Medium term loss	117	269	55,989
Long term loss	772	1,776	149,975

Table 3-7: Non-residential property carbon cost

Time period	Non-residential area (m^2)	Non-residential carbon avoided (tCO2e)	Non-residential carbon benefit (£k)
Medium term loss	11,474	298	62,070
Long term loss	17,874	465	39,252

From this, the present value of carbon avoided due to erosion loss by delivering the scheme at Swanage beach is calculated. This is shown in Table 3-8.

Table 3-8: Present value carbon cost

Time period	Carbon emissions avoided (tCO2e)	Erosion carbon benefits (£k)
Medium term loss	567	118,059
Long term loss	2,240	189,227
Total	2,808	307,285

The values above present the carbon benefit associated with the project. This would be a carbon benefit that could be claimed by any of the short list options given all the options offer the same SoP. The carbon assessment (the Carbon Modelling Tool, Carbon Calculator and Carbon Impacts Tool) is in Appendix H.

3.6.3 Benefits

A coastal erosion analysis was conducted using predicted erosion contours to determine when properties would be lost under a Do Nothing scenario.

Economic damages and benefit calculations were undertaken in accordance with the FCERM-AG (Environment Agency, 2022), Multi-Coloured Manual (Penning-Rowsell, E. et al., 2013), Multi-Coloured Handbook (Flood Hazards Research Centre, 2024), and Treasury Green Book (HM Treasury, 2022).

The Strategy identifies an expenditure profile for the recommended management options over a 10-year period (2014 to 2024), within the context of a 100-year overall plan. Therefore, the economic assessment was carried out over a 100-year appraisal period and has a base date of January 2026.

The combined quantitative benefit over the 100-year appraisal period is shown in Table 3-9. As all of the proposed options were designed to extend the existing level of protection by 100 years, the benefit provided by each option is the same. This benefit consists of the property benefits, the carbon benefits, and the recreational benefits. Scheme benefits are equal to the 'Do Nothing' damages as the options are designed to protect the area from erosion damage over the entire appraisal period.

Table 3-9: Total combined PV benefit

Property benefit (£k)	Carbon benefit (£k)	Recreational benefit (£k)	Total Benefit (£k)
96,465	307	7,260	104,003

3.6.4 Costs

Whole life costs were estimated in March 2024 based on the concept design drawings developed at shortlist stage. The whole life costs incorporate all costs associated with the scheme over the working life of the structures, including appraisal, construction, future construction, and maintenance costs. The whole life costs for both the shortlisted options and the preferred option are in Appendix D.

A collaborative bottom-up pricing exercise involving DC and JBA was undertaken to develop the pre-construction cost. This comprises detailed design, project management, procurement and engagement, site investigations and surveys, planning, and administration costs.

The capital construction cost was developed through engagement with an ESE Contractor, using latest price estimates from recent similar schemes and market tested rates for key materials.

The capital construction cost covers construction of the works, staff, welfare, offices, site running costs, plant, labour, compounds and access. Others include security, temporary works, insurance, contractor owned risk, overheads, profit, contract administration, design support and landowner compensation costs. The capital costs

of a new seawall and groynes replacement were based on using the EA Long Term Costing Tool which was last published in 2021 (Environment Agency, 2021). A 20% uplift was added to this cost to account for inflation (based on Construction Output Price Indices between 2021 and 2024). The cost estimate of constructing a new seawall was based on 930m defence length, and wall height of 3.8mAOD and constructing a new groyne field comprising 18no groynes that were each 47m in length and 4m in height.

Operation and maintenance costs were calculated using the EA's Long Term Costing Tool (Environment Agency, 2021).

The overall project risk contingency at shortlist stage is based on the project risk percentage and optimism bias. An optimism bias of 30% was applied to the pre-construction, construction, and operation and maintenance costs. 60% optimism bias was applied to future costs. A lower optimism bias was used for construction, operation and maintenance and design costs due to increased confidence in these cost assumptions following consultation on the proposed works with the ESE contractors.

The breakdown of the present value costs over the 100-year appraisal period for each option is provided in Table 3-10.

Table 3-10: Summary of PV options costs over 100-year appraisal period (£k)

Option	Description	Appraisal PV Cost (£k)	Capital PV Cost (£k)	Future PV Cost (£k)	Optimism Bias	Whole-Life PV Cost (£k)
1	Do Nothing	-	-	-	-	-
2	Beach Recharge and New Control Structure	610	3,217	9,037*	6,564	**19,429**
3a	Beach Recharge with Rock Armour underpinning	988	3,106	10,606	7,591	**22,293**
3b	Beach Recharge with Sheet pile underpinning	702	5,448	11,088	8,492	**25,729**
11	New	224	1,355	11,549	7,403	**20,530**

Option	Description	Appraisal PV Cost (£k)	Capital PV Cost (£k)	Future PV Cost (£k)	Optimism Bias	Whole-Life PV Cost (£k)
	Control Structure					

The appraisal PV cost for the purpose of option's appraisal is made up of all the pre-construction cost (detailed design, Dorset Council costs, procurement and engagement costs, site investigation, management and supervision) except the OBC cost which was subsequently added to the preferred option. The OBC cost was excluded from the options' appraisal cost as it is common to all the options with the same value.

3.6.5 Economic summary

An economic summary of each option, including PF score, the maximum eligible FCERM GiA funding and the funding gap, over a 100-year duration of benefits is provided in Table 3-11.

Table 3-11: Options economic summary (100-year appraisal period and duration of benefits).

	Option 2	Option 3a	Option 3b	Option 11
PV Property benefit (£k)	96,465	96,465	96,465	96,465
PV Recreation benefit (£k)	7,260	7,260	7,260	7,260
PV Carbon benefit (£k)	278	278	278	278
Total benefit (£k)	**104,003**	**104,003**	**104,003**	**104,003**
Initial PV costs (£k)	3,827	4,094	6,150	1,579
Future PV costs (£k)	9,037	10,608	11,088	11,549
Optimism bias (£k)	6,564	7,591	8,492	7,403
Total costs (£k)	**19,429**	**22,293**	**25,729**	**20,530**
Net Present Value (£k)	84,574	81,710	78,274	83,473
Benefit/cost ratio	**5.35**	**4.67**	**4.04**	**5.07**
Max eligible GiA (£k)	12,241	12,241	12,241	12,241
GiA funding gap (£k)	3,844	5,269	7,675	3,626
Public sector contribution (£k)	650	650	650	650
Adjusted PF score (%)	**69**	**60**	**52**	**67**

Option 2 has the highest benefit cost ratio (5.35) and adjusted PF score (69%); this is due to the option having the lowest Present Value costs over the appraisal period. As mentioned previously, the results of the 100-year appraisal period Partnership Funding calculations are provided for reference only, as the duration of benefits for each option must be capped when future costs reach 20% of upfront costs.

The results of the 100-year appraisal period and duration of benefits Partnership Funding calculation show that while the options are economically viable, securing GiA funding would not be possible as the duration of benefits is greater than the time period where intervention increases future costs to more than 20% of initial capital costs. In order to better understand the funding viability of the options Table 3-12 shows the period in which required intervention increases future costs to be greater than 20% of the initial proposed capital costs. Future costs that exceed 20% of the initial capital costs are highlighted in red.

Table 3-12: Present value Initial costs and 2036 and 2046 intervention costs

	Option 2	Option 3a	Option 3b	Option 11
Initial costs	3,827	4,094	6,150	1,579
2036 costs	204	204	204	2,373
2046 costs	4,337	4,337	4,337	2,170

From Table 3-12, the first intervention (2036) cost for required groyne remediation is less than 20% of capital costs for Option 2, Option 3a and Option 3b. Option 11 requires additional beach recharge interventions at 2036, which increases this intervention cost to greater than 20% of the initial capital cost. Therefore, this option will not secure longer-term funding using GiA due to the 20% cap.

The economic appraisal summary for a 20-year duration of benefit is therefore provided in Table 3-13.

Table 3-13: Options economic summary (20-year duration of benefits)

	Option 2	Option 3a	Option 3b
PV Property benefit (£k)	58,383	58,383	58,383
PV Recreation benefit (£k)	3,269	3,269	3,269
PV Carbon benefit (£k)	94	94	94
Total benefit (£k)	**61,746**	**61,746**	**61,746**
PV Initial costs (£k)	3,827	**4,094**	**6,150**
PV Future costs (£k)	144	**138**	**138**
Optimism bias (£k)	1,232	**1,310**	**1,929**
Total costs (£k)	**5,203**	**5,543**	**8,223**

	Option 2	Option 3a	Option 3b
Net Present Value (£k)	56,543	56,203	53,523
Benefit/cost ratio	**11.87**	**11.14**	**7.51**
GiA funding gap (£k)	629	962	3,602
Public sector contribution (£k)	650	650	650
Remaining funding gap (£k)	0	312	2,952
Adjusted PF score (%)	100	94	63

Table 3-13 shows that over a 20-year duration of benefit, Option 2 is the most economically viable option with a BCR of 11.84 and adjusted Partnership Funding score of 100%

3.7 Preferred option

The decision rule detailed in the FCERM-AG (2022) has been adopted in identifying the preferred option. The outcome of each stage in the decision-making process for a CBA project is shown below.

Stage 1 – check that shortlisted options have average BCR of more than 1.

Table 3-13 shows that all options have benefit cost ratios of more than 1, enabling decision-making to move to Stage 2.

Stage 2 – choose the leading option on reduced AEP or NPSV

All the shortlisted options provided the same SoP established by the 2005/2006 scheme to continue to reduce erosion risk. As such, it is not possible to order the options by reducing AEP. However, the net present social value (NPSV) which is the difference between the present value benefit and the present value cost over the 20-year duration of benefit was assessed for each option.

Table 3-14 : Summary of net present social value

	Option 2	Option 3a	Option 3b
PV benefit (£k)	61,746	61,746	61,746
PV cost (£k)	5,203	5,543	8,223
NPSV (£k	56,543	56,203	53,523
Rank	1	2	3

As shown in Table 3-14, the leading option based on the NPSV is Option 2 after stage 2.

Stage 3 – consider whether uncertainty affects the leading option

Uncertainty has been factored in through optimism bias allowances. Scheme Options 3a and 3b are deemed to carry the most uncertainty due to the onerous piling and rock armour requirements under the beach material and undetermined ground conditions. Over the 20-year duration of benefits, Option 2 is the leading option based on the NPSV ranking. Section 3.7.1 shows the sensitivity analysis carried out around the uncertainties in pricing for Beach Recharge which affects all three options and defence failure year. Despite these uncertainties, none of the sensitivities tested were sufficient to overturn Option 2 as the leading option.

Stage 4 – identify the national economically preferred option

The leading option at Stage 3 is Option 2. This option remains the nationally economically preferred option as it meets all the project objectives and CSF.

Stage 5 – consider if there is an affordable local choice

Discussions with DC, Swanage Town Council and the EA have suggested that the most desirable option from a local perspective is to undertake Option 2, beach recharge and a new control structure which is also the nationally economically preferred option. As such, Option 2 remains the preferred option at this stage.

Stage 6 – confirm the choice of preferred option

The recommended preferred option is Option 2.

The Appraisal Summary Table (AST) is shown in Appendix I

3.7.1 Sensitivity analysis

Seawall Failure Year

A sensitivity analysis was carried out for the seawall defence failure year. The analysis evaluates the impact of varying the assumed year of sea wall failure on the benefits, costs, and funding eligibility of different coastal defence options. The original economic assessment assumed a defence failure in 2043, but this analysis explores earlier failure scenarios in 2034, 2029, and 2024 to account for the uncertainty in predicting structural deterioration.

The methodology involved updating coastal erosion modelling and benefit calculations for each failure year across 20, 50, and 100-year appraisal periods. While the cost estimates for each option remained unchanged, the benefits comprising property protection, recreational value, and carbon savings were recalculated. The analysis focused particularly on Option 2, which was identified as the preferred solution.

Results show that earlier failure years significantly increase the total benefits and improve the BCR and PF scores. For example, under a 20-year appraisal period:

- A 2043 failure yields a BCR of 4.74 and a PF score of 30%.
- A 2034 failure increases the BCR to 11.40 and PF score to 83%.
- A 2029 failure results in a BCR of 14.71 and PF score of 109%.

- A 2024 failure further boosts the BCR to 18.85 and PF score to 137%.

These results imply that earlier failure assumptions make the scheme more economically attractive and potentially fully fundable through government grants (GiA), eliminating funding gaps in the 2029 and 2024 scenarios.

However, the analysis acknowledges limitations. The assumed failure years are not based on empirical data but on anecdotal evidence and engineering judgment. To mitigate this, a probability-based approach to model failure likelihoods over time was adopted.

Duration of Benefits Period

In addition to the 100-year and 20-year duration of benefits assessed, further test was carried out for a 50-year duration of benefits. All the duration of benefits assessed, i.e., 100 years, 50 years and 20 years did not change the selected preferred option

Beach Recharge Costs

As part of the options costing exercise, a sensitivity analysis was carried out on the construction cost for beach recharge, which is common to the options considered. The sensitivity analysis was necessitated due to the following.

- Uncertainty around cost per cubic metre of beach material due to an opportunity to source beach material more locally to the site. Based on the possible sources of the beach material, the material costs could range from £7.50 per m^3 to £33 per m^3 of beach material.
- The potential availability of a sinker pipe locally free of charge (with the exception of relocation from the local source).

The summary of the sensitivity analysis of the capital costs (including pre-construction and construction costs) for a 50-year duration of benefits is shown in Table 3-15 below.

Table 3-15: Summary of the sensitivity analysis for Option 2 over a 100-year appraisal period and 50-year duration of benefits

Beach Recharge Cost Options	PV Capital Costs (£k)	Benefit Cost Ratio
Beach Recharge at £33/m^3 (ECI Cost)	2,553	2.59
Beach Recharge at £20/m^3	5,312	2.86
Beach Recharge at £20/m^3 without Sinker Pipe	2,991	4.71
Beach Recharge at £7.50/m^3	3,844	3.97
Beach Recharge at £7.50/m^3 without sinker pipe	1,524	8.72

Further strategic engagement with BCP Council, the ESE contractor, Coastal Partners (organisation representing a group of local authorities on the south coast) and other contractors in the region was undertaken to confirm costs associated with beach recharge. It was identified that an efficiency could be realised by aligning the Swanage Beach Recharge with the Bournemouth Beach Management scheme planned in 2027/2028.

By aligning the schemes, the greater volumes of recharge may make the contract more commercially attractive, increase competition in procurement, driving greater value for money. Another efficiency that could be realised from the aligned project work is that the Swanage beach recharge scheme could be offered the use of the sinker pipe free of charge (due to this cost already being incurred by the Bournemouth Beach Management Scheme). In this scenario the Swanage Beach Recharge scheme would only incur the costs for the transportation of the sinker pipe to Swanage Bay from the local source.

The choice of the preferred option remains consistent across all sensitivity tests, demonstrating that the selection is stable even when assumptions are varied.

3.8 Outline design and refinement

3.8.1 Preferred option design development

Following the selection Option 2 as the preferred option, the concept design used for shortlist pricing was refined and a subsequent pricing undertaken in March 2025 to reflect the design optimisation and provide greater cost certainty.

The outline design incorporated new data and information such as the geotechnical desk study (Appendix J1), climate change and other key design standards and guidance to optimise the design of the preferred option developed at the concept design stage. This design refinement led to the optimisation of the materials proposed which necessitated the need for revised pricing. The outline design drawings are in Appendix J2 and the design philosophy and buildability statement are in Appendix J3.

The geometry of the preferred option is summarised as follows:

- Beach recharge overfill crest level (including allowances for average annual losses and design storm losses at the 0.33% AEP event) - +1.75mAOD
- Control structure design crest height - +1.51mAOD
- Beach recharge slope - 1:20
- Control structure trunk design slope - 1:14
- Control structure seaward, landward and roundhead slopes - 1:3
- Total beach recharge design volume (including a 20% assumption for loss of volume) - c. 24,550m³
- Total control structure primary rock volume - c. 1,460m^3 (tonnage is dependent on the confirmed source material density)

3.8.2 Revised Pricing

The revised cost estimate for the both the national and local preferred option has been derived based on the progression of the general design, updated material and labour cost, and a reassessment of project-related risks. A detailed summary of the updated cost for the preferred option is presented in Table 3-16 below

Table 3-16: Summary of PV costs at outline design

Project Stage	Preferred Option PV Cost (£k) (Option 2)
OBC to Detailed Design	861
Construction Stage	1713
Future Costs	197
Optimism Bias	1663
Whole Life Cost	**4,435**

The revised pricing for the preferred option (Option 2) showed a £769k decrease in PV whole life cost when compared to the price estimate from March 2024 for Option 2 (see Table 3-13). The reasons behind this are summarised below:

- Initial Costs - Due to the design optimisation, the major reduction in the price was due to the reduction in material quantity needed for construction. i.e., beach volume and rock tonnage. The OBC cost was not added to the initial appraisal cost used for the options' appraisal as it was common to all options The OBC cost was added to the appraisal cost to reflect a more realistic cost for the preferred option. These resulted in a £1,253k reduction in PV initial cost.
- Future Costs – The future costs increased due to added maintenance costs for regular inspection and site walkover over the 20-year benefit period. This resulted in a £53k increase in PV future cost.
- Optimism Bias – A 60% OB was applied to the all the cost due to the increased risk with the new rock groyne construction and the confirmation of the use of limestone to Granite at detailed design stage. Additionally, due to the dynamic environment, the volume of beach material required will be dependent on when construction is undertaken and the condition of the groynes at that time may mean significant works to groyne may be required to limit outflanking of the groynes and in turn lead to beach washout. This resulted in a £431k increase in PV OB cost.

The three points above led to an overall PV cost reduction of £769k.

The cost reduction further makes the preferred option more economically viable with an updated BCR of 13.92 from the previous 11.87. A summary of the economic case is provided in Table 3-17 below. The economic summary and partnership funding calculator are in Appendix K.

Table 3-17: Summary of economic performance at outline design

Preferred Option	Option 2
Option Description	Beach recharge with a new control structure in the form of a rock groyne to continue to provide a 0.33% AEP SoP.
PV whole life costs (£k)	4,435
PV whole life benefits (£k)	61,746
BCR	13.92

DC have committed to £650k additional funding to support the scheme.

3.9 Value for money statement

The proposal demonstrates strong Value for Money (VfM) by delivering significant benefits relative to its cost. The BCR of the proposal is over 4 and according to LIT 73643, Defra's Value for Money Framework (2024), the categorisation is very high. This means that for every pound invested, the proposal realises more than 4 pounds (13.92 to be exact) in benefit.

A wide range of options were considered for this proposal. Option 2 (the preferred option) showed the best value for money when compared to all other options from both the BCR and the NPSV point of view over a 100-year appraisal period and 20-year duration of benefits. There is also an added flood risk benefit associated with the selection of the Option 2. To avoid double counting the flood risk benefit will be claimed by the Swanage Town Coastal Protection Scheme. Hence, its dependence on this OBC. The appraisal process undertaken shows that the proposal will achieve all its strategic objectives.

Key impacts of the proposal include improved recreation and amenity, and medium-term sustainability. All of which have been monetised and included in the BCR calculation.

The VfM has looked at the 3 categories namely BCR, NPSV and Return on Public Sector Cost (RPSC) for the proposal as shown in Table 3-18. It shows that there is no difference between the BCR and RPSC. It reflects the proposal's ability to deliver high-quality outcomes at a reasonable cost, while also considering equity and sustainability.

Table 3-18: Value for Money categories

Categories	
BCR	13.92
NPSV	£57,311k
RPSC	17.21

There is a high-level of confidence that the VfM category will be realised and unlikely to change. Uncertainties and risk costs have been included in the OB and assessed as part of the appraisal and further reinforce the reliability of the VfM assessment, ensuring informed and accountable decision-making.

4 Commercial case

4.1 Procurement strategy

Dorset Council (DC) has significant experience with Public Contract Regulations and the Procurement Regulations. Delivering on procurement will rely on a mixture of internal and external resources. To meet operation, financial, social and administrative policies DC will achieve value for money and efficient corporate procurement of work, goods and services.

Building on the project objective, key drivers for the procurement of the scheme have been identified as follows:

- Professional and consulting service
- Recharge operations
- Control structure construction
- Site investigations and surveys
- Public engagement and communications

Key drivers will be considered both individually and collectively to determine its optimal procurement options. Procurement options will be chosen on its efficiency to deliver on the project and its objectives.

The major element of the project will be delivered as part of a larger Bournemouth Christchurch and Poole Council (BCP) recharge scheme. Swanage beach is therefore part of a collaborative effort and recharge campaign involving BCP, New Forest and DC beaches. Therefore, to achieve project efficiencies BCP will lead on procurement for the recharge operations post outline business case approval, with DC in the client role, it is likely that the BCP preferred professional and consulting service provider and contractor will provide the best value for the Swanage Beach element of this larger scheme. This will be managed under a public sector cooperation agreement between DC and BCP.

This contracting approach involves the commission of a design supplier to undertake design in advance of commissioning the construction supplier.

The Council procurement policy is to commission the services of consulting engineers through approved framework or contract agreements. It is our intent to procure consultant advice through Dorset Councils TEPS contract agreement for the design phase.

Dorset Council can consider two alternative procurement routes, a Contract tendering process for specific contracts or the use of an approved procurement framework.

Design, procurement, and construction supervision will be managed by Dorset Council potentially with the aid of consultants depending upon staff resource at the time of construction.

4.2 Procurement route and timescales

Following approval of the business case, DC will set out to procure the necessary services and construction work. Post OBC the project will be implemented in two sequential phases outlined below:

- Phase I: April 2026 – December 2027 This is the pre-construction, planning, detailed design, ECI, statutory licensing and planning permissions.
- Phase II: January 2028 – April 2028 This phase will include construction and the beach recharge itself

4.3 Efficiencies and commercial issues

4.3.1 Commercial arrangements

The Designer will be procured under the Dorset Councils Highways TEPS Contract. The appointed consultant will assist in procurement of a Principal Contractor via Open Tender.

4.3.2 Efficiencies

Major efficiency by aligning with the larger BCP scheme and using material dredged under their license. Swanage scheme could be offered the use of the sinker pipe free of charge (due to this cost already being incurred by the larger BCP scheme). In this scenario the Swanage Beach Recharge scheme would only incur costs for the transportation of the sinker pipe to Swanage Bay.

Detailed optioneering has been undertaken with project partners to help structure a viable outline design to minimise optimism bias.

An efficiency's register will be kept throughout this project to catalogue and quantify savings from innovative ideas, cost saving measures and decisions.

5 Financial case

5.1 Financial summary

A financial summary of the project is provided in Table 5-1 below.

Table 5-1: Financial Summary of the Preferred Option

Costs (£k)	Whole-life cash cost (£k)	Total value of project (£k) (for approval)
Costs up to OBC		
OBC Costs	450	450
Sub-total	**450**	**450**
OBC to Construction		
DC Costs	37	37
Consultant Fees (Detailed Design)	250	250
Procurement and Engagement	4	4
ECC PM and Supervision	6	6
Site Investigation	100	100
Environmental Surveys	50	50
Optimism Bias (60%)	268	268
Sub-total	**715**	**715**
Construction		
Construction Costs (Beach Recharge)	998	998
Construction Costs (Rock Groyne)	517	517
ECC PM, Supervisor, ECoW	49	49
DC Costs	13	13
Consultant Fees	108	108
Risk	152	152
Optimism Bias (60%)	1,102	1,102
Inflation (3%)	55	55
Sub-total	**2,994**	**2,994**
Future Costs		
Future works	205	
Maintenance	106	
Optimism bias (60%)	187	
Sub-total	**498**	
Project Total Costs	**4,657**	**4,159**

5.2 Funding sources

The Swanage Beach Coastal Protection Scheme will be funded through a combination of FCERM GiA and partnership funding from DC. The scheme is eligible for a maximum of £4,556k of FCERM GiA, and DC has committed to contributing a total of £650k capital funding to the scheme.

Table 5-2: Key financial details

Detail	Total / score
Whole life project cost (£k)	4,657
3rd part contributions (£k)	650
Raw PF score (%)	103
Adjusted PF score (%)	118

5.3 Mitigating cost variations

The beach volume needed for the beach recharge was estimated based on the existing beach survey information available during the outline design. Due to the dynamism of the beach and the unpredictability of storm events, there could be an increase in beach material loss before construction starts. The project plans to update the beach material using latest beach survey at the next design phase. Ongoing engagement with BCP and the ESE contractor will be adopted, and the OB will be employed to any cost increase. This will be confirmed at the next phase (detailed design) prior to construction.

5.4 Overall affordability

The affordability of the scheme was assessed based on the use of partnership funding calculations to determine the eligibility of the scheme for FCERM GiA funding and identify any funding gaps.

According to the EA (2023), the duration of benefits period typically relates directly to the useful life of the flood or coastal asset being built or upgraded, or the time until the next major capital investment is proposed, whichever is sooner. A major investment is one that is more than 20% of the value of the investment being considered today (in today's prices, without inflation added). For the development of the financial case, a 20-year benefit period was adopted. Sensitivity tests were also carried out for the capped duration of benefits equating to when the 20% future capital cost threshold is exceeded. This was undertaken to accurately assess affordability of the options in the Partnership Funding calculator.

Table 3-13 shows the eligibility for GiA, partnership funding score and funding gap associated with the options considered over the 20-year duration of benefits. It also shows that Option 2 is the most economically viable and affordable option under these conditions.

However, at Stage 5 of the Decision Rule detailed in the FCERM-AG and Partnership Funding guidance, the local choices and preferences may be considered. Option 2 - Beach recharge with new control structure was identified by DC and the EA as the locally preferred option. As such remained the preferred option. This option is economically viable, with a Net Present Value of £57,311k and a benefit cost ratio of 13.92. A maximum of £4,556k of this option's costs over a 20-year appraisal period

are eligible for Grant in Aid funding, with no funding gap. Additionally, £650k of Capital Funding has been made available by DC to contribute towards the cost of the Swanage Beach scheme.

Table 5-3: Project Cost Spend Profile

Annualised and itemised spend profile (cash, £k)	Pre-Yr 0	Yr 0 (this financial year)	Yr 1	Yr 2	Yr 3	Yr 4+	Total
Project development costs (pre-approval)	450						450
Site Investigation costs		100					100
Internal staff costs		47	62				109
External consultant fees		250	108				358
Project implementation costs (construction/services/goods)			1515				1515
Environmental:							
• Surveys and Licences		50					50
Risk (95th %ile + 60% Optimism Bias)		268	1254				1522
Inflation (3%)			55				55
Initial project costs (total of above rows)	450	715	2994				4159
Future costs:							
• Resource (specify)				5	5	96	106
• Capital (specify)						205	205
• Future risk/60% optimism bias				3	3	181	187
Project whole life costs (total of initial + future cost rows)	**450**	**715**	**2994**	**8**	**8**	**482**	**4657**
Funding sources:							
• Grant in Aid	450	715	2842				4007
• DC Capital Funding			152	8	8	482	650

6 Management case

6.1 Project management

The Council will use its public sector cooperation agreement with BCP Team to project and contract manage the delivery of the works. Dorset Council will remain the client for the scheme and be responsible for the appointment of a consultant designer of the works.

Dorset Coastal Forum will lead the press and stakeholder communications engagement aspect of the project.

Consulting Engineers will be commissioned to advise the Council and design the scheme.

6.2 Project roles and responsibilities

Project Manager: Adam Steele, Project Engineer – Dorset Council
Project Executive: Matthew Penny, Lead Manager FCERM – Dorset Council
Lead Public/Stakeholder Engagement: Sara Parker, Dorset Coast Forum Co-ordinator– Dorset Coast Forum
Project Advisor: Matthew Hosey, Head of FCERM - BCP Council
Project Advisor: Martin Ayres, Town Clerk – Swanage Town Council
RMA Advisor: David Picksley, Senior Coastal Advisor – Environment Agency

6.3 Project plan

The main schedule of events is listed below, with provisional timescales based on a construction phase during early 2028.

Event	Date DD/MM/YY
Dorset Council committee sign off	March 2026
NPAS decision on FDGiA Funding Approval	March 2026
Tender, Procure & Appoint Designer	May 2026
Undertake public consultations (3 months)	July 2026
Start Detailed Design	Autumn 2026
Obtain licences and consents	April 2027
Final Detailed Design complete.	January 2027
Tender, Procure & Appoint Contractor	Spring 2027

Event	Date DD/MM/YY
Inform public and businesses of contractor's programme and method of working. Undertake further public awareness.	Summer 2027
Construction works commence	January 2028
Work substantially completed by	February 2028

6.3.1 Table: project stage summary

Project stage / gateway	Project stage description	Estimated start date	Estimated end date	Responsible organisation	Likely budget required (£k)
Gateway 0	Strategic assessment	September 2023	January 2026	Dorset Council	£475k
Gateway 1	Business justification	January 2026	March 2026	Dorset Council	
Gateway 2	Delivery strategy	March 2026	March 2026	Dorset Council	
Gateway 3	Investment decision	March 2026	March 2026	Environment Agency	
Gateway 4	Readiness for service	April 2026	January 2027	Dorset Council & BCP	£715k
Gateway 5	Operational review	January 2027	February 2028	Dorset Council & BCP	£3,747k
Gateway 6	Benefits management and project closure	February 2029	January 2030	Dorset Council	£50k

6.4 Communications and stakeholder engagement

Informal consultation for the planning consent has been undertaken.

Further consultation lead by Dorset Coast Forum will be undertaken once the design has reached an appropriate stage. The communications team will advise and recommence consultations at this point. Meetings will be arranged with affected and nearby businesses and further information will be made available after the main contractor has been appointed.
Dorset Coast Forum have extensive experience working with stakeholders in Swanage on many marine based projects, there expertise will be

invaluable going forward and ensuring a harmony with the project team and the people of Swanage.

The project team has undertaken an Equality Impact Assessment screening and as part of the procurement stage the tenderers will be expected to demonstrate their compliance with Equality Act 2010.

6.4.1 Table: consulted partners

See Appendix A below for detail.

6.5 Benefits, outcomes and change management

This section sets out the key benefits and outcomes arising from the Swanage Beach Coastal Protection Scheme, along with the governance, responsibilities and people-related change activities required to ensure successful delivery. It draws upon the strategic, economic, commercial and financial assessments undertaken within this OBC.

Benefits and Outcomes

The scheme delivers substantial long-term benefits across economic, environmental and social domains. Over the 100-year appraisal period, the project provides a total Present Value (PV) benefit of £104,003k, comprising £96,465k in property protection, £307k in carbon benefits, and £7,260k in recreational benefits.

The primary benefit is the continued provision of a 0.33% Annual Exceedance Probability (AEP) Standard of Protection, achieved by maintaining an adequate beach profile in combination with existing and new hard defences. This reduces risks to more than 110 residential and non-residential properties along the Swanage frontage.

Environmental benefits also arise from enhanced landscape character, improved beach accessibility, and opportunities to strengthen coastal habitat resilience. With appropriate mitigation, the scheme avoids significant adverse ecological or heritage impacts and can enhance the public realm experience along the seafront

Outcomes and Timescales

Delivery of the preferred option (Option 2 – Beach Recharge with a New Control Structure) provides the following outcomes:

Outcome	Responsibility	Planned Delivery
Completion of detailed design, statutory approvals, and procurement	Dorset Council (DC), supported by appointed Principal Designer and BCP Council	April 2026 – December 2027
Construction of the rock control structure and implementation of beach recharge	Principal Contractor managed by DC	January – April 2028
Sustained 0.33% AEP SoP and improved beach amenity	DC (coastal operations)	From 2028 onwards
Realisation of economic, carbon and recreational benefits	DC and partner authorities	Over 20-year duration of benefits, extending to 100-year appraisal

The preferred option offers the highest BCR (13.92) and Net Present Social Value (£56,543k) across scenarios and is both the national and locally preferred choice.

Approach to People-Side Change

Although the project does not directly restructure staff roles, it introduces new ways of working, increased inter-authority collaboration, and operational process changes. Effective people management is central to delivering the scheme.

Managing Changes to Structures, Roles, and Ways of Working

The scheme requires strengthened coordination among Dorset Council, BCP Council, the Environment Agency, Natural England, and local stakeholders. Key organisational changes include:

- Integrated procurement and delivery model, with BCP Council leading on procurement of dredging and recharge activities to secure efficiencies via their licence and supply chain.
- Revised operational processes during construction, including road access management, temporary footpath diversions, provision of alternative disabled parking and beach access controls.
- Enhanced monitoring and maintenance regime aligned with the updated Beach Management Plan.

These changes will be embedded through project governance, clear role definitions, and structured communication with operational teams and the public.

Ensuring Skills and Capability Readiness

Successful delivery relies on specialist technical and environmental skills. The following capabilities are already mobilised:

- Coastal engineering, environmental appraisal, geotechnical assessment and modelling, provided by JBA Consulting.
- Expertise in dredging and recharge operations, coordinated with BCP Council's beach management programme.
- Design and technical assurance delivered through the Dorset Council TEPS framework.

The project's two-phase implementation allows for progressive capability building and early integration of consultant and contractor expertise.

Business Readiness and Stakeholder Acceptance

The scheme has embedded stakeholder engagement throughout OBC development and will continue this approach during delivery. Requirements include:

- Ongoing engagement with statutory bodies such as Natural England, MMO, and the Environment Agency, including for HRA, WFD, and MCZ assessments.
- Community and landowner engagement, critical given the risks of private landowner opposition and interface with local businesses. Early engagement has been undertaken and will be maintained.
- Public information and access planning, particularly relating to temporary construction impacts.

These activities ensure readiness, minimise disruption, and support community acceptance.

Resource Implications and Governance Responsibilities

Resources required to deliver the change include:

- Project Executive (DC) – strategic oversight.
- Project Manager (DC) – day-to-day delivery management.
- Technical Design Team (TBC via TEPS) – detailed design, modelling and technical assurance.
- BCP Council – procurement leadership for dredging and beach recharge efficiencies.

- Dorset Coast Forum – community engagement and communications support.

The Risk Register and Consultation Log provide assurance that resource and governance responsibilities are fully defined.

Benefits Management

A benefits register will be maintained throughout project delivery to ensure outcomes are monitored, measured, and realised. Benefits tracked will include:

- Property protection
- Carbon reduction and avoided emissions
- Recreational and amenity improvements
- Environmental risk mitigation
- Partnering and efficiency gains (including shared dredge mobilisation, free use of sinker pipe)

Progress will be reviewed at key gateway stages, from detailed design through to post-construction monitoring.

6.5.1 Table: carbon benefit summary

Carbon calculation	Carbon forecast (tCO_2)	Carbon baseline (tCO_2)	Carbon reduction target (tCO_2)	% target from baseline	% forecast from baseline
Capital carbon	51,140				
Operational carbon	6,491				

6.6 Risk management

Risk Management

A robust and structured approach to risk management has been adopted to ensure the successful delivery of the Swanage Beach Coastal Protection Scheme. This approach aligns with established FCERM and wider government project risk-management methodologies. It covers the identification, assessment, ownership, mitigation and continuous monitoring of risks throughout the project lifecycle. A comprehensive Risk Register is provided in Appendix F.

Risk Management Strategy and Framework

The project applies an established risk-management framework, following the standard cycle of Identify → Analyse → Plan → Own → Monitor. This framework ensures consistency, transparency and early intervention when risks threaten project cost, programme, quality or delivery.

Key elements include:

Identification

Risks have been identified through:

- Technical assessments and early design work.
- Environmental and consenting reviews (HRA, WFD, MCZ, MMO screening).
- Lessons learned from previous coastal management schemes.
- Engagement with BCP Council, EA, MMO, Natural England, Swanage Town Council and local stakeholders

Analysis

Each risk has been assessed for likelihood and impact across programme, cost, environmental, legal and delivery dimensions. This includes consideration of strategic risks such as funding uncertainty, alignment with BCP recharge activity, landowner opposition and environmental constraints

Mitigation Planning

Mitigation measures have been developed based on proven techniques, statutory bodies' guidance, and experience from comparable coastal schemes. These include:

- Design optimisation following outline geotechnical and coastal engineering studies
- Scheduled construction outside sensitive ecological periods (e.g., Black seabream nesting).
- Alignment with the BCP Council recharge programme to secure operational efficiencies and reduce delivery risks
- Extensive early and ongoing engagement with private landowners and local businesses.

Ownership

Every risk has a defined owner within the project’s governance structure (DC Project Executive, DC Project Manager, BCP Council, JBA Consulting, Dorset Coast Forum). Clear ownership ensures accountability and timely escalation.

Monitoring and Review

Risk assessments will be updated at each gateway and reviewed regularly by the project board, recognising that risks evolve as design progresses, consents are secured and construction approaches.

Lessons Learned from Previous Projects

The scheme incorporates learning from:

- The 2005/06 Swanage Beach Recharge Scheme, particularly on sediment performance, groyne interaction and recharge volumes.
- Swanage Town Coastal Protection Scheme, emphasising the limitations of temporary barriers and the need for integrated planning (Storm Ciarán impacts).
- BCP Council coastal recharge operations, demonstrating the efficiency benefits of multi-authority collaboration, shared infrastructure (e.g., sinker pipe) and coordinated dredge sourcing.

These lessons have been integrated into the preferred option, mitigation planning, procurement strategy and collaborative working arrangements.

Early Risk Potential Assessment

An early high-level risk assessment was undertaken during the development of this OBC. The assessment highlighted critical risks that shaped project formulation, including:

- Funding risk due to the competitive FCERM GiA landscape
- Programme risk associated with alignment to BCP's recharge campaign, which is essential for securing efficiencies.
- Environmental risk, particularly the need for compliance with HRA and MCZ mitigation requirements.

These early insights informed the scope of surveys, timing of engagement and design refinement.

Key Delivery and Operational Risks

The detailed risk register (Appendix F) sets out all project risks; a high-level summary of key categories is provided below.

Funding and Affordability

- Risk: Insufficient grant funding or changes to EA capital programme may delay delivery.

- Mitigation: Strong BCR and PF score; DC capital contribution; continued engagement with EA.

Landowner and Stakeholder Engagement

- Risk: Restricted access to private land (e.g., Ocean Bay slipway, North Beach) affecting construction.
- Mitigation: Early, proactive engagement and clear communication with affected parties.

Environmental and Consenting Risks

- Risk: Potential impacts on SAC, SPA and MCZ features (e.g., Black seabream nests, Mearl beds).
- Mitigation: Seasonal working windows, pollution prevention, habitat-specific controls.

Programme and Dependency Risks

- Risk: Delay to required monitoring and mapping studies for protected features; reliance on BCP programme.
- Mitigation: Maintain alignment with BCP's 2027/28 schedule, integrate Natural England requirements into programme.

Cost Escalation

- Risk: Uncertainty in dredged material cost and recharge volumes.
- Mitigation: Updated beach surveys; 60% optimism bias; efficiencies from shared dredging and equipment.

Technical and Buildability Risks

- Risk: Ground conditions or design uncertainties impacting groyne construction.
- Mitigation: Geotechnical studies, early contractor input, iterative design refinement.

Risk Ownership and Governance

Risk management is embedded within the project governance structure:

- Project Executive (DC): Overall accountability for risk strategy.
- Project Manager (DC): Operational risk management and register maintenance.
- JBA Consulting: Technical, environmental and modelling risks.
- BCP Council: Procurement and dredging-related risk leadership.

- Dorset Coast Forum: Reputation, communications and stakeholder-management risks.

Governance processes ensure risks are reviewed at each stage, escalated promptly where required, and used to inform programme decisions.

Dynamic Risk Assessment

Risk profiles will evolve as the project progresses through design, consenting and procurement. The project team will update the risk register regularly, ensuring the OBC reflects the best possible assessment at the point of submission, in line with FCERM guidance.

6.7 Contract management

Contract management for the Swanage Beach Coastal Protection Scheme will be led by DC, which retains full client responsibility for administering the contract, monitoring performance, managing change, and ensuring that delivery meets programme, cost and quality requirements. Technical oversight and construction supervision will be supported by the consultant appointed through the TEPS framework, who will provide design assurance and quality checks throughout delivery. Coordination with BCP Council will continue where construction interfaces with their wider recharge programme, particularly regarding dredging logistics and use of the shared sinker pipe. DC will also ensure that all environmental and consenting obligations are met, including HRA, WFD and MMO requirements, supported by an Environmental Clerk of Works where needed. Risk, cost and schedule control will be maintained through established governance processes, with the Project Manager responsible for continuous monitoring and escalation to the Project Executive and Project Board, ensuring that the scheme is delivered efficiently, safely and to the required standard

6.8 Assurance

This is a simple change appraisal type project, which will be assured in line with the Environment Agency's Integrated Assurance and Approval Strategy (IAAS), with the Outline Business Case subject to NPAS assurance prior to funding approval. The project schedule incorporates all required assurance stages, including OBC approval in March 2026, designer procurement by May 2026, public consultation and detailed design through 2026–2027, and licensing and statutory approvals completed by April 2027, allowing sufficient time for technical review, environmental assessment, and EA oversight before construction begins in January 2028. Ongoing assurance will be maintained through gateway checks, independent technical review (via TEPS-appointed consultants), design validation, and continued engagement with statutory bodies such as Natural England, MMO and the EA, ensuring compliance with HRA, WFD, MCZ and planning requirements throughout project development. This integrated approach ensures

that all assurance activities are aligned with the project plan and delivered in time to support safe, compliant and efficient progression to construction.

6.9 Post project evaluation

Post project evaluation for the Swanage Beach Coastal Protection Scheme will focus specifically on assessing the performance and effectiveness of the new rock groyne control structure constructed at the Mowlem frontage. The evaluation will review whether the groyne is successfully retaining sediment, reducing longshore losses, and maintaining the required beach profile to sustain the 0.33% AEP Standard of Protection, as defined within the preferred option design. The intention is to construct a non-standard adaptive design that can changed following suitable review. Monitoring will include inspections of groyne stability, armour stone condition, and structural behaviour under storm events, supported by beach level surveys and coastal process observations referenced in the Beach Management Plan. Any significant deviations such as unexpected scour, settlement, or material displacement, will inform future maintenance requirements and long-term asset management planning. The evaluation will also consider construction impacts, buildability assumptions, and environmental mitigation measures applied during installation, ensuring lessons learned are captured to support future FCERM schemes along Swanage Bay and wider Dorset Council coastal assets.

6.10 Contingency plans

If the project, or any of its components, experiences significant failure, delay, or cost escalation, DC has established contingency measures to safeguard delivery of essential outputs. The scheme includes a 60% optimism bias on construction and future costs to accommodate price variability, environmental uncertainties, and potential scope adjustments. In the event of substantial cost changes, DC will assess whether scope reduction, such as deferring non-critical works or adjusting recharge volumes based on updated beach surveys can maintain the required 0.33% AEP Standard of Protection. Alignment with the BCP Council recharge programme also provides resilience, enabling cost efficiencies through shared mobilisation, equipment access, and dredged material supply. Should funding gaps arise, DC has committed £650k of capital funding to support affordability, with the option to secure additional partnership funding if needed. DC has also secured an additional £330k of Local Levy funding to provide additional financial assurance. Collectively, these measures ensure that the project can continue to deliver its core outputs even under adverse financial or delivery conditions.

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Appendix A – Confirmation and details of consultation

Names of key consultees (for example, Finance Business Partner, PAD, NEAS, NE, Commercial, Legal etc.)		
Name **and** job title	Date	Key outcomes from consultation
Natural England	14th July 2025	NE provided updated feedback on the scheme's HRA, MCZ screening and SSSI Notice to be implemented at the next stage.
Dave Picksley (EA Senior Coastal Advisor, FCRM Wessex)	30th April 2025	OBC Template Confirmation
Natural England	22nd May 2025	NE provided feedback on the HRA, MCZ screening and SSSI Notice
Bournemouth, Christchurch and Poole Council (BCP)	29th January 2025	Understanding of seabed grab samples survey operations and collection methodology from previous experience.
Bournemouth, Christchurch and Poole Council (BCP)	4th July 2024	Meeting with BCP and Boskalis to discuss Beach Recharge cost with construction methodology, rates and assumptions agreed
Bournemouth, Christchurch and Poole Council (BCP)	3rd April 2024	Agreed for BCP to undertake the particle size analysis for Swanage Beach
Natural England (NE)	5th January 2024	A validity period would not apply to baseline surveys as the surveys are the starting points for monitoring
Natural England (NE)	1st November 2023	NE provided comments on Baseline surveys proposed for Swanage Bay and confirmation that NE is happy for the planned surveys to proceed
Marine Management Organisation (MMO)	6th October 2023	Exemption request for taking sediment samples from Swanage Beach confirmed
Dave Picksley (EA Senior Coastal Advisor, FCRM Wessex)	9th June 2023	Review of longlist options and comments provided
Bournemouth, Christchurch and Poole Council (BCP)	1st June 2023	Meeting with BCP to gain insight into the previous Swanage Beach recharge (i.e., 2005/2006 scheme) and understand BCP dredging plans for 2025 and 2026. Key outcomes include potential sediment source, availability of sediment current assumptions on volumes and when other recharge campaigns are planned for in the bay areas.
Garcia Cuesta, (EA Flood Economist)	18th May 2023	Consultation with NPAS through Dave Picksley to agree on the Tourism approach for economics. Two options were proposed.

		1. Value of Enjoyment following the Multicoloured manual guidance 2. Travel Cost method based on costs incurred to visits displaced into nearby similar sites
Dave Picksley (EA Senior Coastal Advisor, FCRM Wessex)	20th April 2023	Appraisal Approach Agreement
Dave Picksley (EA Senior Coastal Advisor, FCRM Wessex)	28th February 2023	Clarification on the existing strategy

I confirm that the documentation is ready for submission to Assurance/Budget Holder (delete as appropriate).

I, as Project Executive, have ensured that relevant parties have been consulted in the development of this project and the production of this update in particular the Project Sponsor and Senior User.

Name	Jack Wiltshire
Job Title	Corporate Director for Highways & Engineering, Dorset Council
Emailed approval	
Date	

Paste the full email from the Project Executive here.