



Selsey Peninsula Strategy Review

Technical Review Report - Executive Summary

Prepared by

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Babtie Brown & Root JV
Simpson House, 6 Cherry Orchard Road, Croydon, Surrey. CR9 6BE

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Glossary and Acronyms

BAP	Biodiversity Action Plan.
BBR	Babtie Brown & Root Joint Venture.
Beach recycling	The local redistribution of beach materials from areas of accretion to areas of loss.
Beach re-nourishment / recharge	Supplementing the natural volume of beach sediment using material imported from elsewhere.
CDM Regulations	Construction (Design and Management) Regulations 1994.
CHaMP	Coastal Habitat Management Plan.
Coastal Defence	Describes coastal protection against erosion and defences against flooding by the sea.
Coastal processes	Describes the action of natural forces on the shoreline.
Coast Protection	Natural or man-made features that protect land and property from erosion by the sea.
Defra	Department for Environment, Food and Rural Affairs.
FCDPAG	Flood and Coastal Defence Project Appraisal Guidance (volumes 1-5) – issued by Defra.
Foreshore	Area between LAT and HAT.
GCR	Geological/geomorphological Conservation Review. This is a non-statutory designation identified by the statutory nature conservation agencies as having national or international importance for earth science conservation on the basis of their geology, palaeontology, mineralogy or geomorphology. Many GCRs are designated as SSSIs.
Groyne	Structure that is placed across the shore to help prevent long shore movement of beach materials.
HAT	Highest Astronomical Tide.
Intertidal	(see Foreshore).
LAT	Lowest Astronomical Tide.
MAFF	Ministry of Agriculture Fisheries & Food - now Defra.
Managed realignment	Policies aimed at allowing a landward movement of the shoreline position with some form, of management intervention, on both flood and erosion prone frontages (does not have to include a pre defined landward defence position).
MU	Management Unit.
Nearshore	Sea area close to shore, where seabed transport is normally driven by waves.
Offshore	Area seaward of nearshore zone, where seabed transport is not normally driven by waves.
Optimism	A term used in accordance with Defra guidance to address the economic

Bias	effects of project risk and initial assumptions.
Overtopping	Water taken over the top of a sea defence as a result of wave run-up exceeding the crest height of the sea defence.
PEHCDS	Pagham to East Head Coastal Defence Strategy.
Ramsar Site	Wetland habitat adopted following the Ramsar Convention on Wetlands of International Importance.
PV	Present Value – The value of a stream of benefits or costs over time when discounted back to the present time.
RAPCDS	River Arun to Pagham Coastal Defence Strategy .
Revetment	A facing of rock, concrete, etc., to protect an embankment, or shore structure, against erosion by wave action or currents.
Rock Berm /Rock Revetment	A rock structure placed along the base of the seawall which acts to reduce wave impact and prevent undermining.
(c)SAC	(candidate – not yet fully designated but afforded same status as if confirmed) Special Area of Conservation: an internationally important nature conservation site, designated in accordance with the Habitat Directive.
SAM	Scheduled Ancient Monument.
SEA	Strategic Environmental Assessment.
Sea defences	Natural or man-made features that protect land and property from flooding by the sea.
Sea level rise	The long term upward trend in mean sea level resulting from a combination of local or regional geological movements and global climate change.
Sea wall	Vertical / near vertical structures that prevent flooding and erosion.
Sensitivity Analysis	Analysis of the effects on an appraisal of varying the projected value of important variables.
SMP(2)	Shoreline Management Plan (2 nd edition of SMP).
SNCI	Site of Nature Conservation Interest: a local level designation.
(p)SPA	(proposed – not yet fully designated but afforded same status as if confirmed) Special Protection Area (SPA): internationally important nature conservation site especially for birds; designated under the EEC Wild Birds Directive.
SSSI	Sites of Special Scientific interest (SSSI): land notified under the Wildlife and Countryside Act 1981 (as amended, especially by the Countryside and Rights of Way Act) as being of special nature conservation interest. SACs, SPAs and Ramsar sites are also classified as SSSI. These are a national level designation.
SWWTW	Sidlesham waste water treatment works

Report Summary

This Technical Review reappraised the Pagham to East Head Coastal Defence Strategy (PEHCDS) in light of changes in guidance since its completion and in line with current Defra guidance (FCDPAG Notes). The PEHCDS has not yet been approved by Defra. The output from this Technical Review will be used by the Operating Authorities to inform a public consultation exercise leading to the development of a revised Coastal Defence Strategy for the Selsey Peninsula. This report is not intended as a public consultation document and assumes an in depth understanding of flood and coast defence guidelines.

The study area extends from East Head, at the edge of Chichester Harbour in the west to Pagham Harbour in the east (Figure 2.1) and encompasses the frontages of West Wittering, East Wittering, Medmerry, Selsey West Beach, Selsey Bill, Selsey East Beach, Pagham and Church Norton.

Generally this Technical Review seeks to update the findings of the PEHCDS in relation to changes in appraisal requirements in relation to flood and coastal defence. It is not a wider coastal zone or estuary management plan. Two frontages, Medmerry and West Wittering were not fully resolved within the PEHCDS and these have been addressed in more detail in the Technical Review.

Strategic Environmental Assessment (SEA) has also been undertaken to feed into this Technical Review. The SEA has been completed up to, but not including, the 'consultation review' step of the ODPM guidance. This stage of the SEA process marks the point at which the document is circulated to stakeholders for consultation. Incorporation of the feedback from the consultation exercise will be critical in completing the SEA and the ultimate revision of the Strategy.

Option appraisal

The full range of strategic options has been considered within the review. These are detailed below:

- No Active Intervention - No maintenance or improvements will be undertaken allowing the existing defences to deteriorate under the impact of natural coastal processes. No Active Intervention forms the base case for the comparison of all options and Defra guidance requires its assessment for all frontages.
- Hold the Existing Defence Line - Maintaining or changing the Standard of Protection on the existing Defence line. The implementation of this policy can be undertaken using the following approaches:

Approach	Description
Maintain	Defences are maintained at their current level to minimise the damage from failure. Because of the effects of climate change and sea level rise there will be a gradual reduction in the Standard of Protection provided by the defences over time.
Sustain	The defence levels are improved over time to preserve the Standard of Protection of the defences at its current level to cater for the effects of climate change.
Improve	Raise the Standard of Protection above that already existing

- Advance the existing line of defence - Construction of new defences seaward of the original line of the defences. Historically there is a clear long-term tendency for this coast to erode and on this basis advancing the line of any defences is unrealistic in the face of such a natural tendency for recession. Consequently advance the existing line was rejected for all frontages early during the Technical Review.
- Managed Realignment - Policies aimed at allowing a landward movement of the shoreline position with some form, of management intervention, on both flood and erosion prone frontages (this does not have to include a pre defined landward defence position). This may be achieved either through controlling the coastal processes over time to allow the coastline to move landwards or by the deliberate removal of existing defences. An important distinction between this approach and the No Active Intervention, which may lead to the same outcome, is the management of the process.

In undertaking this Technical Review it has been assumed that the Pagham and Medmerry systems will not be allowed to connect, preventing Selsey from becoming an island. The Steering Group agreed this approach.

Operational unit assessments

A plan showing the locations of the units is included as Figure 2.1 of the Technical Review Report. The following section summarises the assessments of the units considered within the Technical Review.

Management Unit 1A - Pagham Beach

Technical Review Preferred Option - Hold the Existing Defence Line – Sustain

A preferred option to sustain the defences has recently been developed for this frontage within the River Arun to Pagham Coastal Defence Strategy (RAPCDS) 2004. The RAPCDS has not yet been formally agreed by the Environment Agency or Defra. The Environment Agency has not identified any issues with the preferred option for this frontage identified within the RAPCDS. This work has been incorporated directly into this Technical Review. No additional review of this information has been undertaken.

Further details of the option and appraisal can be found within the RAPCDS. This option achieves a Defra Priority score of 7. This option is unlikely to be a priority for Defra funding in the short term. This approach is consistent with the PEHCDS.

Management Units 1B, 1C, 2A and 2B - Pagham Harbour and Church Norton **Technical Review Preferred Option - Hold the Existing Defence Line – Sustain (for a 20 year period)**

These units have been considered within the Technical Review as an integrated unit so that the potential impact upon the Pagham Harbour SPA/Ramsar site and its coastal process interactions can be addressed.

To achieve the most sustainable management of the internationally designated sites in this unit a full understanding of the processes and their interactions is required. The system is complex with designation of both freshwater and inter-tidal habitat. Currently there is not sufficient understanding to identify the preferred approach for the management of this area over the medium to long term. Accordingly the approach recommended by the Technical review is to have no intended impact on the existing habitats within the designated areas whilst the understanding is improved. This will allow an approach working with the dynamic coastal processes to be established and the need for any compensatory habitat identified.

It is proposed that the defences are retained (Sustain) in their current form for a period of (about) twenty years. The management of the southern spit is currently impacting on the nature conservation interest and therefore consideration of how this is achieved operationally may be needed to address this. This approach will effectively allow the coastal processes to respond as at present, minimising the impacts as a result of change upon the wider harbour and the habitats. During this period investigations can be carried out and decisions made as to the long term management of the site. This approach will meet the legal obligations under the Habitats Regulations and will not compromise future options for this frontage. It will also maintain the flood protection levels for the local community.

This approach would also be in accordance with the CHaMP and is consistent with the short term policy within the draft SMP for this frontage. It is also broadly in line with the preferred options identified within the PEHCDS.

Management Unit 3A Selsey East Beach

Technical Review Preferred Option - Hold the Existing Defence Line – Maintain

The preferred option for this frontage is to Hold the Existing Line of Defence by maintaining the existing defences. This approach builds upon the approach recommended in the PEHCDS although the implementation is changed from Sustain to a Maintain approach. This is also consistent with the policy identified within the revised SMP for Selsey Bill to Beachy Head, which is to continue to protect assets within the town.

This option achieves a Defra Priority score of 13.1 and would not be a current priority for Defra funding. Given the condition of the existing defences major capital investment for this frontage may not to be required in the next twenty years.

Management Unit 4A Selsey Bill

Technical Review Preferred Option – No Active Intervention

All the options considered for this frontage have a benefit cost ratio less than unity, therefore there is no economic argument for any form of intervention, consequently a No Active Intervention approach is the most economically viable option here.

The preferred Strategy option identified within the PEHCDS was to implement a maintain option, with the consideration of a realignment of the defence line over the central third. The benefit cost ratio under the PEHCDS also failed to reach unity. The reasoning for this selection was to achieve integration with the adjacent defences.

The preferred policy identified within the revised SMP for this frontage is also to Hold the Line, however this policy options covers the wider Selsey frontage and the apparent inconsistencies within this may be due to the differences in scale.

The Hold the Existing Defence Line - Maintain option achieves the highest priority score of 1.3. However, as the benefit-cost ratio is less than unity, no Defra funding (under current Treasury Rules) would be available to undertake works here. Works to maintain this frontage would require funding outside that available for flood and coastal defence.

Management Unit 4A Selsey West Beach

Technical Review Preferred Option - Hold the Existing Defence Line – Maintain

A scheme has been developed for Selsey West Beach and will shortly be submitted to Defra. This scheme was developed from the PEHCDS for Chichester District Council.

The scheme has reached the Project Appraisal Report stage and is to be submitted to Defra to maintain the existing defences by a combination of capital and maintenance works. One section of the frontage is perceived as needing immediate attention and priority works consisting of a rock revetment with a tyre bale core are included with the submission. The Priority Score for this submission is 11. This does not meet the funding thresholds as currently identified up to 2007/2008 but it is intended to submit the scheme for consideration in the 2008/09 capital programme.

Management Units 5A and 5B Medmerry

Managed Realignment - No Active Intervention on shingle bank, construction of Middle and Earnley Flood banks and local defences between the high ground by the Embassy Club and Medmerry Cliffs

The existing defences are economically unsustainable as they require major intervention works each winter. The area at flood risk is extensive (650 Hectares) with 54 residential properties identified within the 1 in 1 year return period flood area and a further 244 at risk of intermittent flooding. The failure of the existing defences would also have significant implications for the infrastructure of the peninsula, affecting both the B2145, the main access route into Selsey and the Sidlesham Waste Water treatment works (SWWTW) which provides waste water treatment for the southern half of the peninsula. Without intervention there is the possibility that Selsey could be become separated from the Sussex coast by a tidal channel. The presence of two landfill sites within the flood risk area may also have significant implications with regards to pollution risk.

A shingle bank realignment option was identified within the PEHCDS as the preferred option. Protection measures are likely to be required to the transition at the north western end of the realigned frontage to ensure that the existing defences are not outflanked, particularly during periods of drift reversal. Works would be required to maintain the defences through from the high ground by the Embassy Club to the high ground at Medmerry Cliffs.

Moving the shingle bank inland would have the effect of creating a bay between two 'headlands' formed by hard defence at either end of the Medmerry frontage. This bay would hold the limited volumes of sediment that are presently being transported alongshore. Longshore transport process would naturally re-establish along the frontage once the embayment becomes 'filled' with sediment. This may equate to decades or centuries of longshore drift to fully re-establish. The costs of implementing this option are significantly higher than a combination of local defences and a No Active Intervention approach to the shingle bank.

The preferred approach identified by the Technical Review is based upon a combination of local defences and flood banks whilst leaving the main shingle bank to natural processes. This would allow the main shingle bank to (potentially) breach forming an inlet into a large intertidal area. The determination of the location of the new flood banks to provide protection to the assets identified above will be dependent upon a large number of local factors and is beyond the scope of this Review. However, in order to compare this approach with the alternative options an indicative, potential scheme has been developed.

This consists of the introduction of banks across the low lying area near Earnley, east of the holiday village and a second one from the Embassy Club heading north to the high ground by Oakhurst Farm. This would significantly reduce the area that would be subject to tidal inundation and place all residential property behind the flood defences. Defences between the high ground by the Embassy Club and the Medmerry cliffs would also need to be maintained to prevent outflanking of the defences at the southern end. This would remove the need for local defences for the B2145 and SWWTW and associated infrastructure. This approach would also keep the landfill sites outside the flood risk areas and would provide opportunities for the creation of both freshwater and inter-tidal habitats.

This approach has the potential to be the least cost approach to maintaining the key infrastructure assets of the B2145 and operation of the SWWTW.

The combined bank scheme discussed above achieves a Defra Priority score of 10.9. In determining the optimal alignments of bank, full consideration should be given to the opportunities for obtaining alternative funding for both flood defence and habitat creation purposes.

Whilst the preferred option is being developed it will be important that the existing defences, especially the shingle bank, are maintained until the option can be implemented.

Management Unit 6A East Wittering

Technical Review Preferred Option - Hold the Existing Defence Line – Maintain

A scheme has been developed for East Wittering and will shortly be submitted to Defra. This scheme was developed from the PEHCDS for Chichester District Council. The existing defences consist of a timber groyned beach backed by a continuous defence comprising of concrete walls and timber breastworks. The coastal resort of East Wittering lies behind these defences.

The scheme is consistent with the preferred option identified within the PEHCDS, however the scheme is now being developed at a Maintain rather than Sustain level, which will lead to a reduction in the standard of protection provided over time. The Priority Score for this submission is 14. This does not meet the funding thresholds as currently identified up to 2007/2008 but it is intended to submit the scheme for consideration in the 2008/09 capital programme.

Management Unit 7A Cakeham

Technical Review Preferred Option - No Active Intervention (or Hold the Existing defence Line - Maintain if property values warrant intervention)

The existing defences here consist of a wide shingle beach with timber groynes and sections of timber breastworks. There are no other hard defences on this frontage. The land rises slightly behind the defences with a gently rising greensward separating the beach and the large detached houses on The Strand.

All the options considered for this frontage have a benefit cost ratio less than unity, therefore there is no economic argument for any form of intervention, and consequently a No Active Intervention approach is the most economically viable option here. However, it is known that the properties at The Strand are of significantly higher than average value, and sensitivity analysis undertaken has identified that using higher property values, benefit cost ratios greater than unity can be achieved which would lead to a preferred option of Hold the Existing Defence Line - Maintain.

Consideration also needs to be given to the wider implications of development and management of the coastal alignment at East Head (see following section). There may be a requirement to manage the Cakeham frontage as part of an integrated management of West Wittering to ensure that continuity of process is maintained between the two.

The highest priority score was achieved for the Maintain option which obtained a score of 0.6 (6.2 using the higher property values). This option is unlikely to attract Defra funding in the short term.

Management Units 7B, 8A and 8B West Wittering

Technical Review Preferred Option - Managed Realignment with construction of Snow Hill and Strand flood banks, potential for future need of beach control structures on 7B frontage to be resolved.

Chichester Harbour Conservancy undertook works in 1999 to Hold the Line of the navigation channel. This consisted of the construction of a low rock berm extending from The Hinge northwards towards East Head spit. Concern was raised during the planning process over the potential impacts of the works upon the Special Area of Conservation as they could possibly disrupt the function of the estuarine system and would potentially be in contravention of the Habitats Regulations. Consequently Planning Permission was given for the temporary placement of rocks with a five year horizon to allow investigations to be undertaken to resolve the issues at East Head on a longer-term basis (including the review of the coastal defence strategy). The original Planning Permission expired on 30th November 2004. Following the overtopping incidents in October/November 2004, which led to a tidal breach through the defences, consideration is currently being given to short-term measures for preventing tidal breach by the replacement of beach material to either/both the front and/or the rear of the spit. Such material placement was identified as a

necessary first step in the management of this frontage, to ensure sufficient sediment to supply the coastal processes. Negotiations are ongoing with all the interested parties to develop the detailed solution.

This area forms part of a European designated site, the Chichester and Langstone Harbours Special Protection Area (SPA). Chichester Harbour is also part of Chichester Harbour SSSI, the Solent Maritime Special Area of Conservation (SAC) and Chichester and Langstone Harbours Ramsar site. This frontage also lies with the Chichester Harbour Area of Outstanding Natural Beauty (AONB).

The evolution of East Head will be the dominant factor in determining flood risk management in this area. The spit is believed to be unsustainable in its present form. Chichester Harbour Conservancy and others have raised concerns that allowing a breach at East Head will lead to the formation of a second channel entrance to Chichester Harbour. This may be likely to lead to sedimentation in the main harbour channel creating problems for navigation.

Allowing East Head to realign to a more sustainable position would reduce the likelihood of these significant impacts upon the wider areas and functions of the harbour as well as maintaining both environmental and amenity benefits. The final alignment of East Head will be dependent upon a wide range of factors. This may lead to the requirement for beach control structures on the existing 7B frontage.

Consideration of the topography of the area has identified that there are several potential flood routes, potentially leading to the inundation of assets as sea levels rise over time. The flood risks from these can be managed through the construction of local flood banks. The construction of a low level flood embankment (480m in length) across the low ground at Snow Hill and the construction of a similar bank 100m in length seaward of the properties on the Strand could provide protection to the properties in West Wittering village.

If beach control structures (e.g. groynes) are required in the longer term to maintain the coastal (7B) frontage this has the potential to increase the cost by up to threefold. This has led to a range of priority score being developed, extending from 9.9 to 25.9. The range of scores identified indicates that there may be the potential to achieve Defra funding for this scheme, dependent upon the extent of control structures required.

Summary of operational unit assessments

The outcomes from the Technical Review Report are summarised in the following table. The Technical Review has incorporated both of the schemes currently being developed by Chichester District Council and the preferred strategy option developed from the Pagham to River Arun Strategy, these are highlighted in grey in the table.

Operational Unit No.	Unit	PEHCDS Preferred Option	Technical Review Preferred Option	Technical Review BCR	Defra Priority Score	Responsible Authority
1A	Pagham Beach	Sustain	Hold the Existing Defence Line -Sustain	1.2	7	ADC
1B	Pagham Harbour and Church Norton	Sustain realign South Spit	Hold the Existing Defence Line -Sustain 20 years	5.8	N/a	EA/CDC
1C		Maintain				
2A		Sustain				
2B		Sustain				
3A	Selsey, East Beach	Sustain	Hold the Existing Defence Line - Maintain	4.3	13.2	CDC
4A	Selsey Bill	Maintain	No Active Intervention	(0.54 - Maintain)	(1.3 - Maintain)	CDC
4B	Selsey, West Beach	Maintain	Hold the Existing Defence Line - Maintain	2.5	11	CDC
5A	Medmerry	Sustain with local realignment	Managed Realignment – No Active Intervention on shingle bank. Middle and Earnley flood banks and local defences between high ground by Embassy Club and Medmerry Cliffs	3.98	10.9	EA
5B						
6A	East Wittering	Sustain	Hold the Existing Defence Line - Maintain	3.3	14	CDC
7A	Cakeham	Maintain possible realignment	No Active Intervention/ Hold the Existing Defence Line -Maintain	(0.57- 3.29 Maintain)	(0.9 –6.4 Maintain)	CDC
7B	West Wittering	Sustain Hold the Existing Line of Defence + realign	Managed Realignment with flood banks	3.9 - 9.3	9.9 - 25.3	CDC
8A		Sustain				
8B		Sustain				

Executive Summary Table of Technical Review Report Option Appraisal

Note current Defra Priority Score thresholds for funding 2005/6 - 19, 2006/7 – 19 (provisional), 2007/8 – 15 (provisional)

Residual issues and future works

The result of this Technical Review Report has been to advance the understanding of the issues that are relevant to the future management of sites in the peninsula and bring the assessments in line with current government guidance. At each site a preferred option is identified. In some cases this points to solutions that have not been previously identified. The background information and development and appraisal of options have moved the development of a Coastal Defence Strategy for the Selsey Peninsula forward in significant ways.

There remain, however, a number of areas where quantification remains uncertain that when resolved may yet suggest a modified way forward at some sites. These areas of uncertainty can be improved upon by further investigation but in all cases will also require wider consultation that is to follow this report. The main areas for attention can be grouped under the following headings and are described in this section:

- Funding
- Coastal processes and geomorphology
- Ecology and habitat impacts and opportunities
- Coastal and flood defence design

Funding

The Defra Flood and Coastal Defence funding is fundamental to this Technical Review Report and forms the cornerstone of practically implementing any option under flood and coastal defence guidance. This Technical Review has applied the guidance provided by Defra and appraised the technical, environmental and economic merits for all the options. Priority scores have been assessed for the options developed, as shown in the table above. It is clear from this that Defra funding within the next three years is unlikely to be available to undertake works over the vast majority of the peninsula.

However, it is also relevant to consider and account for other funding sources such as investment by private bodies or individuals, agri-environmental schemes and private finance for protection of environmental and habitat creation purposes. The actual funding available through such mechanisms has not been investigated and could influence the option implemented. The consideration of the alternative funding sources should be one of the main strands of the consultation process. The option appraisal has identified that for the majority of the frontages there is an economic argument (benefit-cost ratio is greater than 1) for implementing defences.

Coastal processes and geomorphology

Potential changes to the coastal processes at three locations have been identified as critical; these are Pagham, Medmerry and West Wittering.

The processes at and around Pagham are complex. Changes to the coastal processes here may significantly alter the environments that carry international conservation designations. An improved understanding of the interactions of implementing options with the process, morphology and the feedback of this to

decisions as to the future requirements to conserve the habitats will allow the development of a medium to long term strategy for this frontage.

The coast at Medmerry cannot be maintained in its present position with rising sea levels and the only likely solutions for managing this coast is via a realignment of the defences. This could lead to the formation of a local sediment sink which could tie up the potential drift along the frontage equating to decades to centuries of littoral drift at current rates. There may be opportunities to manage this using local sediment recycling from the Medmerry frontage. The disruption to supply would continue along the coast through to West Wittering.

The present alignment of East Head spit is currently unsustainable in process terms, as witnessed by the recent tidal breaching. It is proposed that the coastline here is modified to obtain a more sustainable alignment by removing the hard defences currently on the 7B frontage in a phased approach. The absolute position of the final alignment and its stability in relation to the ongoing coastal processes is not yet defined and requires further investigation. This may require the introduction of beach control structures on to the 7B frontage at some point in the future. Dependent upon the final alignment there may also be a requirement to manage the Cakeham frontage (7B) as part of an integrated management of West Wittering.

Given the links between East Head and Chichester Harbour it would seem appropriate that future studies consider this area as an integrated whole.

Ecology and habitat impacts and opportunities

There is the possibility to create an exciting and extensive new habitat to the rear of Medmerry. This opportunity includes not only saline habitats but also consideration of brackish and freshwater/saltwater transition habitats as well.

There is an opportunity to consider the development of the Pagham Harbour designated sites in parallel with the development of potential new habitats on the wider peninsula. These may provide long term sustainable solutions to maintaining both the inter-tidal and freshwater habitats for which the Pagham Harbour site is currently designated.

The types of habitat to be created under realignment scenarios have not been determined in this Technical Review. The land levels suggest that a range of saltmarsh and mudflat habitat would be created but the species and stability of any flora or fauna is unclear.

The proposed bank at Snow Hill at West Wittering will permit the existing inter-tidal habitats to migrate back to the new line, this could partially mitigate changes due to rises in sea level.

Coastal and flood defence design

The investigations in the Technical Review have made considerable progress in the understanding of the Study Area and developing a clear course of action in terms of flood and coastal defence appraisal. Preferred management options have been identified for each of the frontages under flood and coastal defence guidance for the full appraisal period with the exception of the Pagham and Church Norton frontage. Here an interim approach has been identified to allow the appropriate consideration

of the medium to long term strategy. However, detailed work will be required for the implementation of these options, some of which has already been undertaken with the scheme designs for the East Wittering and Selsey West Beach frontages, for the other frontages this will be required.

The optimal alignments for the flood bank for the Medmerry frontage will require further work beyond the scope of this Technical Review. This will need to take into account the implications of the wider infrastructure of the peninsula and the landfill sites. The opportunities for alternative funding may also be significant in determining the alignments. In resolving these issues on a least cost basis it is likely that a combination of local defence measures could achieve this whilst also providing protection to a large number of assets. Detailed work will be required to assess the potential for pollution issues associated with the landfill sites arising. A more detailed understanding of the locations of all infrastructure assets, including the land drainage system, and their operational requirements will allow appropriate defences to be developed that integrate with the wider infrastructure of the peninsula.

The next steps in the review process.

This Technical Review is to be used to inform the consultation process leading to the development of a revised Coastal Defence Strategy for the Selsey Peninsula. Funding in the form of grant in aid from Defra is unlikely to be available for the foreseeable future to implement defence options for most frontages. The consultation phase will therefore provide an opportunity to start to explore the potential for additional sources of funding beyond those currently available for flood and coastal defence.

The consultation will also provide an opportunity to start to manage public expectations with regard to what can be achieved given the permissive powers of Coastal Defence legislation and the limitations on funding.

The operating authorities will need to determine their approach in the interim whilst the consultation phase progresses and further investigations can be completed. This will lead to a revised Strategy being developed. Any decision made to no longer maintain the existing defences would need to be supported by an Exit Strategy. The development of the Exit Strategy will provide the appropriate information to allow all those affected to consider their options. As part of this a timescale for the cessation of the maintenance of the defences and their likely residual life will need to be identified. If the Operating Authority withdraws from the maintenance, landowners will be entitled to apply for permission to maintain defences on their land at their own expense. Consent would of course be subject to the consenting authority satisfying itself that the application was acceptable.

It will be important that the operating authorities have a clear statement as to the approaches they will be adopting if funding for works to maintain or improve the defences is not available prior to the consultation phase.

Local views on the acceptability of the different options or how, with amendment, they might become acceptable will have an effect on the final Strategy Plan.

To realise the potential opportunities for additional funding and to prevent habitat gain from being compromised, it is essential that a flexible approach is adopted that

considers the opportunities and involvement of funding and bodies outside flood and coastal defence.

