



# **Cuckmere Haven: Phase 2**

## **Options Impact Assessment (Heritage)**

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## **Executive summary**

In assessing the options for the future of the Cuckmere Haven it has been taken that the best option would optimise opportunities to protect, enhance and increase understanding of the most significant heritage assets and in the most sustainable manner. The time that each option affords to adapt has also been taken into consideration. This assessment has focussed on the physical elements of the historic environment; historic buildings, historic landscape and below ground archaeological remains. Each of these components of the historic environment was identified by Oxford Archaeology's Phase 1 survey as being of National Importance. To refine the assessment of each option the study area has been divided into five Heritage Character Areas, each of which has been graded high, medium or low in value depending on the degree to which it contains significant heritage assets as identified by Oxford Archaeology. The likely positive and negative effects of each option, as modelled by Capita Symonds, have been defined and each Heritage Character Area assessed for likely changes over the short, medium and long term.

As a result of this assessment process the report concludes that the baseline option can be considered broadly Neutral for comparative purposes. As an option it provides little certainty but in the short term might allow the opportunity to adapt and the Haven would become stable in the longer term. This option does not, however, provide for any active management to protect the Nationally Important heritage of the Cuckmere Haven.

The managed realignment Options A, B and C are all considered to have broadly negative effects on heritage in the short to medium term as they lead to very rapid and potentially significant changes to the Nationally Important heritage assets of the Cuckmere Haven. In the longer term, Options B and C are considered to offer potential benefits by providing more balanced and interesting settings for appreciation and understanding of surviving heritage assets.

The defensive Options D, E and F are all considered to have broadly positive effects on heritage in the short term as they allow for the protection of Nationally Important heritage assets and provide time to enhance and develop opportunities for further understanding of the heritage. Of these, however, Option D is considered to be most likely to allow for the development of an appropriate longer term environment and positive contribution to the setting of the most significant heritage assets whereas Options E and F would appear to lead in the medium to longer term to environments that would lack character and variety and therefore lessen the potential value of heritage assets, particularly with regard to their landscape setting.

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## 1 Introduction

- 1.1 This report sets out the results of an assessment of the potential effects of 7 Options (the baseline, and A to F) as set out by the work of the Cuckmere Coastal Pathfinder Project, on the heritage of the Cuckmere Haven, south of the A259. The study has been undertaken as part of the Pathfinder project, funded by DEFRA and managed by East Sussex County Council. This report has been prepared by Casper Johnson, County Archaeologist at East Sussex County Council.
- 1.2 The options under consideration have been identified by the community and comprise:
- The Baseline – Do nothing or do minimum
  - Option A – Partial breach managed realignment
  - Option B – Full breach managed realignment
  - Option C – Engineered reactivation of meanders and creeks
  - Option D – Maintain the existing defences
  - Option E – Sustain the existing defences – raise banks as sea level rises
  - Option F – Sustain the existing defences – raise banks by 300mm
- 1.3 The assessment uses as its baseline the updated East Sussex Historic Environment Record (ESHER) and the Phase 1 Heritage Asset Plan (HAP) prepared by Oxford Archaeology (OA 2010) for the Pathfinder project. The Oxford Archaeology HAP report includes summaries of past research, two Pathfinder-funded geophysical survey reports and a borehole report. The latter has provided important information on the potential for below ground archaeological and palaeo-environmental remains within the Cuckmere Haven. The assessment of the potential effects of each management option has been based on the modelling work carried out Capita Symonds ('Cuckmere Estuary Option Impact Study Options Analysis Report, March 2011').

## 2 Background

- 2.1 The OA report set out the extent of known designated and un-designated heritage assets on the valley floor of the Cuckmere Haven and the surrounding valley sides and concluded that the Cuckmere Haven 'contains a plethora of heritage assets in many forms and from many periods'.
- 2.2 The OA report concluded that:
- the **historic buildings** resource (above ground archaeology) including in particular the upstanding military remains, is considered to be of National Importance
  - based on the range of heritage assets surviving as earthworks (medieval reclamation banks and ditches etc), little impacted by modern

development, the **historic landscape** is considered to be of National Importance

- based on current knowledge and including the palaeo-environmental resource, the **buried archaeological resource** is considered to be of National Importance, though site-specific intrusive archaeological evaluation would be required to define this resource more precisely.

### 3. Policy Context

3.1 Heritage assets are summarised below with reference to whether they are presently designated or undesignated. The policy context for the different types of heritage asset as set out in 2.2 above are described and attention drawn to the fact that heritage assets do not have to be formally designated to be considered significant.

#### Listed Buildings

3.2 There are four sets of Listed Buildings:

- West Dean (not considered directly relevant to the next phase of work because they are not visibly or closely spatially linked to the main area of study),
- Exceat,
- Chyngton Farm, and;
- Two sections of anti-tank defence structures dating from World War II at the mouth of the Cuckmere on the valley floor.

The relevant legislation with regard to listed buildings is the Planning (Listed Buildings and Conservation Areas) Act 1990. Future management changes may lead to impacts on the physical structure of the listed structures on the valley floor and/or their setting and those on the surrounding valley sides. Direct physical impacts could include:

- erosion by running water (river and creek systems),
- effects from engineering works,
- cover by water and/or
- burial beneath marine and fluvial deposits.

With regard to the legislation on Listed Buildings it should be noted that if planning permission is required for a development proposal, and if that development is likely to affect a listed building or its setting then the local authority (or Secretary of State) determining the application is required to 'have special regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses' (S66). Planning permission could be refused for a development proposal that might lead to flooding and or other negative effects to a listed building or its setting. The

implication of this fact is that options that would require planning permission would be subject to this test.

### **Scheduled Monuments**

- 3.3 There are four Scheduled Monuments that need to be considered when assessing the future options for the Cuckmere Haven. These include:
- Napoleonic Barracks,
  - Exceat deserted medieval settlement,
  - Neolithic Oval Barrow between Exceat and Westdean and
  - Bronze Age Bowl Barrow east of Foxhole.

The Relevant legislation for this asset type is the Ancient Monuments and Archaeological Areas Act 1979 (as amended) ('the 1979 Act'). The legislation states that if you wish to carry out any works that will affect a Scheduled Monument, whether above or below ground level, you must apply to the Secretary of State for prior written permission. 'Works' are defined by section 2(2) of the 1979 Act as: any works resulting in the demolition or destruction of or any damage to a Scheduled Monument, any works for the purpose of removing or repairing a Scheduled Monument or any part of it or of making alterations on land in, on or under which there is a Scheduled Monument and any flooding or tipping operations on land in, on or under which there is a Scheduled Monument. As all the Scheduled Monuments, including the Napoleonic Barracks lie above the flood plain they will not suffer inundation related to any management options. There is a potential risk of erosion to the area of the Napoleonic barracks in the longer term if the river Cuckmere meandered and began to erode into the eastern valley margins. The key impact with regard to Scheduled Monuments, however, is considered to be on their setting as a result of options that change their surroundings.

### **Designated and Undesignated Heritage Assets**

- 3.4 These include heritage assets recorded in the East Sussex Historic Environment Record updated from the Heritage Asset Plan by Oxford Archaeology (OA). The Relevant planning guidance is Planning Policy Statement 5 (PPS5): Planning for the Historic Environment (2010).
- 3.5 Following the OA Heritage Asset Plan, the East Sussex Historic Environment Record (ESHER) now identifies a wide range of heritage assets across the valley floor of the Cuckmere Haven and around the valley margins. They include palaeo-environmental remains, assets associated with the river and coastal change, drainage and reclamation, settlement, farming and land use, military and defence, communication and recreation. The assets identified have been grouped in terms of their coherence and time depth with regard to the historic landscape, historic buildings and below ground archaeology. Each of these

aspects of the historic environment of the Cuckmere Haven is considered by OA to constitute a resource of National Importance. Details of the assessment process are set out in the Oxford Archaeology report (OA, 2010) and are not repeated here.

- 3.6 Planning Policy Statement 5 (PPS 5) expresses Government's overarching aim that the historic environment and its heritage assets should be conserved and enjoyed for the quality of life they bring to this and future generations. The objectives for land use planning for the historic environment are to deliver sustainable development, conserve heritage assets in a manner appropriate to their significance and to ensure that where heritage assets are to be lost, opportunities are taken to capture the evidence of the past that they contain and make that knowledge publicly available. Whilst aimed at planning, the principles of PPS5 provide a useful framework to consider the implications of all decisions that might effect the historic environment and in this case of the Cuckmere Haven.
- 3.7 Policy HE 1.2 states: 'Where proposals that are promoted for their contribution to mitigating climate change have a potentially negative effect on heritage assets, local planning authorities should, prior to determination, and ideally during pre-application discussions, help the applicant to identify feasible solutions that deliver similar climate change mitigation, but with less or no harm to the significance of the heritage asset and its setting'. HE 1.3 states: 'Where conflict between climate change objectives and conservation of heritage assets is unavoidable, the public benefit of mitigating the effects of climate change should be weighed against any harm to the significance of heritage assets in accordance with development management principles in this PPS and national planning policy on climate change'.
- 3.8 HE 7 states that in decision-making, the significance of the heritage asset should be understood, including HE7.3 'If the evidence suggests that the heritage asset may have a special significance to a particular community that may not be fully understood from the usual process of consultation and assessment, then the local planning authority should take reasonable steps to seek the views of that community'.
- 3.9 HE 9.1 states: 'There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Loss affecting any designated heritage asset should require clear and convincing justification.' HE 9.6 States: 'There are many heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance....The absence of designation for such heritage assets does not indicate lower significance and they should be considered subject to the policies in HER 9.1, HE9.4 and HER10.'

3.10 HE 10 covers policy principles guiding the consideration of applications for development affecting the setting of a designated heritage asset. Setting is defined in PPS 5 as ‘The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral’ (PPS 5). Preservation of the setting of heritage assets is the goal and local planning authorities should also identify opportunities for changes in the setting to enhance or better reveal the significance of heritage assets. Taking such opportunities should be seen as a public benefit and part of the process of place-shaping.

### **South Downs National Park**

3.11 The Cuckmere Haven lies within the South Downs National Park. The National Park Authority will formally take responsibility for planning decisions on 1<sup>st</sup> April 2011 and will have a duty to conserve and enhance the environment of the Park (including cultural heritage) and to promote recreational use.

## **4 Assessment Methodology**

4.1 The OA report demonstrates that, taken thematically, the Cuckmere Haven possesses heritage assets that, whilst not all formally designated, should be considered to be of National Importance and equivalent in terms of significance to Scheduled Monuments or other designated assets. The relevance of this conclusion is made explicit by reference to the notes on Planning Policy Statement 5 above, namely that where heritage assets are considered to be of National Importance, whether or not they are designated, their should be a presumption in favour of their preservation in situ and that any changes to them should be carefully considered through the land use planning system.

4.2 This Phase 2 Options appraisal focuses primarily, therefore, on the three broad categories of Nationally Important heritage assets and not on individual assets in detail. It is acknowledged that the approach of considering broad themes rather than individual assets is ‘high level’ but it is considered necessary in order to provide a workable framework to understand and discuss the potential impacts of the options being presented and to escape from an overly complex process that could risk losing sight of the key issues at this stage – namely comparing the effects of options in the short, medium and long term. The reader should refer to the OA HAP reports for more detailed descriptions of individual heritage assets and how they contribute to the over-arching themes discussed here.



## **5. Heritage Values**

- 5.1 Each of the three main heritage categories is considered to be of National Importance but each is quite different in character and some key factors need consideration in order to understand the likely consequences of future changes. It should be noted here that Oxford Archaeology identified individual assets with varying levels of significance, when taken together as groups they attained a higher level of significance. This was felt to be particularly important given the location of the Cuckmere Haven within the South Downs National Park, and landscape of National Importance.

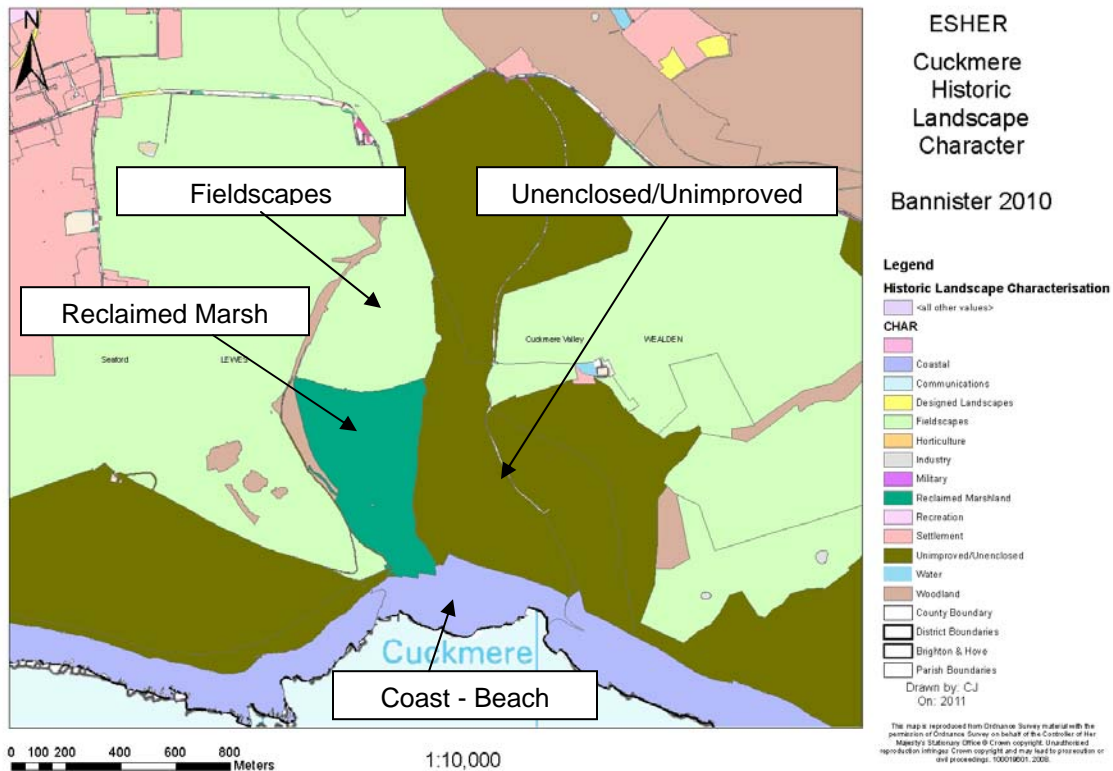
### **Historic Building Resource**

- 5.2 This category comprises buildings, structures and related earthworks, with notable examples of individual assets being the Coastguard Cottages, the listed tank traps dating from the Second World War and the scheduled remains of the Napoleonic barracks on the eastern valley flank. This category is used here to include all related military heritage features (including some elements that will survive below ground). These heritage assets are highly visible in the landscape and have been demonstrated to represent a remarkably coherent group of coastal military defence structures which chart the history of British 'island' defence from the 18<sup>th</sup> century to the mid-20<sup>th</sup> century. Key values are their relative completeness, group value, visibility, landscape setting and the potential they offer for understanding British history. The category is made up of a range of discrete component parts (structures) and an appreciation of the group is dependant upon the survival of individual components and their coastal valley setting. Whilst the extent of the historic landscape setting of these assets has diminished in the past two hundred years due to coastal erosion, by and large, their landscape setting appears to have changed relatively little when compared to conditions before the active medieval management of the river and valley flood plain. Loss of individual components or elements of the historic landscape setting could reduce the significance of this heritage asset category by either contributing to the physical loss of components or by making it more difficult to understand and appreciate the whole. It should be noted, however, that coastal erosion since the early 19<sup>th</sup> century, as recorded on historic mapping, has led to the destruction of elements of this category, for example buildings and structures on the cliffs that lay south of the present day Coastguard Cottages.

### **Historic Landscape**

- 5.3 The historic landscape is defined here as comprising all those heritage assets that go to make up the present landscape of the Cuckmere Haven not included in the Historic Buildings category. In particular they include assets related to the medieval and later management of the River Cuckmere and the valley floor to provide ground for agriculture, industry, military defence, recreation and other

activities. The Historic Landscape Characterisation survey of Sussex (produced by Dr N Bannister, 2005 – 2010 and funded by English Heritage and now part of the East Sussex Historic Environment Record, separates the study area of the Cuckmere Haven into four broad HLC types: Reclaimed Marshland, Fields, Unimproved/Unenclosed and Coast. These divisions are based on a characterisation of the present day landscape taking into account its historic development, hence the fact that parts are characterised as reclaimed marsh, whilst areas of reclaimed marsh to the north have been improved to such an extent that they are now characterised as fieldscapes. The research for the Pathfinder project has allowed smaller scale divisions to be made based on a combination of historic landscape, archaeological and historic building evidence (set out in section 5.5 below). Due to the fact that many of the assets that make up this category are fields, ditches, banks, hedges, pathways and similar features, it is considered that they have greater capacity to absorb some change than the historic building resource. However, these historic landscape features of the medieval and later reclaimed valley floor also form an essential element of the historic landscape setting of many of the historic building assets.



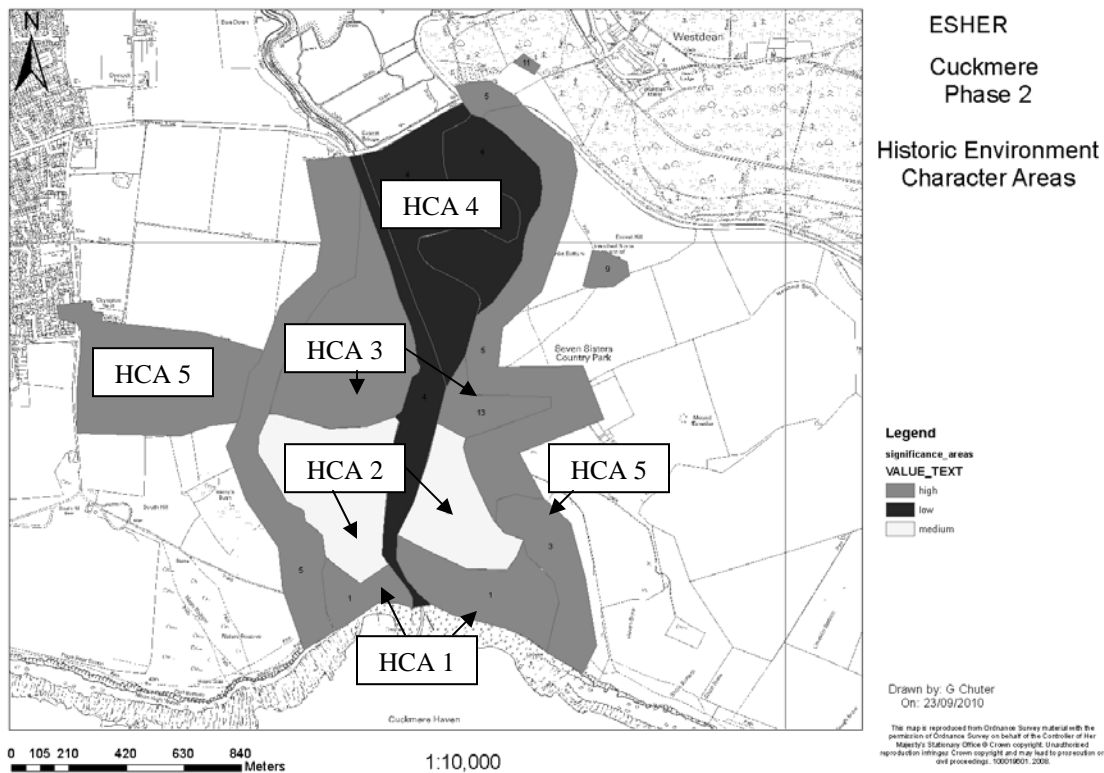
**Map 1 Cuckmere Haven, Historic Landscape Characterisation**

## **Below ground archaeological resource (including palaeo-environmental remains)**

- 5.4 The below ground potential of the Cuckmere Haven is recognised from a range of evidence including discoveries of prehistoric and Romano-British finds, to evidence for the position of channels providing access to the failed medieval settlements in the vicinity of Chyngton and Exceat. Targeted intrusive evaluation would be required to determine the extent to which the valley margins are likely to comprise significant archaeological remains, but existing evidence indicates high potential. However, in the most general terms, this resource is considered to have more capacity to absorb the types of changes that might result from the proposed options than either the historic built resource or the historic landscape resource because as a category the potential extent is large and much will be deeply buried. However, the location of specific assets within the category, such as wharves, hulks or water-logged prehistoric valley margin sites and palaeo-environmental remains, is presently not well understood and will require detailed site specific evaluation excavations and borehole surveys to determine in detail. This type of site specific evaluation study can only reasonably be undertaken for discrete areas of likely future impacts and was not therefore undertaken as part of the Phase 1 Pathfinder project work.

## **Heritage Character Areas**

- 5.5 In order to help assess the impact of the Options (Baseline and A to F), and using the heritage information outlined above, the Cuckmere Haven has been divided into 5 Heritage Character Areas (HCAs). This approach has been adopted to simplify and help refine the process of comparing options whilst avoiding an over complex assessment of individual heritage assets.
- 5.6 Each of the 5 character areas is summarised below and the extent of each HCA is shown on Map 1.
- HCA 1 – Valley mouth and beach front
  - HCA 2 – Southern Cuckmere Haven valley floor
  - HCA 3 – Central and Western Cuckmere Haven valley floor
  - HCA 4 – Cuckmere River and Northern valley floor
  - HCA 5 – Valley sides and surrounding Downs



**Map 2: showing extent of Heritage Character Areas and Significance Value**

## 5.7 Heritage Character Area summaries

### ***HCA 1 – Valley mouth and beach front (High Value)***

- Historic Building Resource – Listed military heritage assets, tank traps etc
- Historic Landscape Resource - Coastal change and management assets such as river walls, groynes etc
- Below Ground Archaeological Resource – Elements associated with military remains below shingle deposits but uncertain survival due to relatively dynamic area with recent past erosion and reworking of earlier deposits.

### ***HCA 2 – Southern valley floor (Medium Relative Value)***

- Historic Building Resource – limited because area appears to have been historically subject to flooding and not therefore used extensively for structures.
- Historic Landscape Resource – limited to some coastal change and management assets (e.g. early flood banks). Greater evidence for reclamation of west side of the river than the east side.

- Below Ground Archaeological Resource – thought to be limited at shallow depths due to relatively dynamic area with erosion and reworking of earlier deposits – higher potential towards valley margins and at depth.

***HCA 3 – Central and Western valley floor (High Relative Value)***

- Historic Building Resource - limited because area low and wet and used for agricultural purposes
- Historic Landscape Resource – important, significant complexity of medieval and later drainage and reclamation assets, links to settlement, farming and land use assets
- Below Ground Archaeological Resource – potentially significant for evidence of former channel to deserted medieval settlement of Chyngton, hulks, wharves etc

***HCA 4 – Cuckmere River and Northern valley floor (Low Relative Value)***

- Historic Building Resource – limited to 19<sup>th</sup> century cut
- Historic Landscape Resource – limited, though Cuckmere river channel is in part a factor of medieval and later water/land management and is arguably a historic feature
- Below Ground Archaeological Resource – thought to be limited due to relatively dynamic area of river cut but may have potential for river side wharfs, hulks, fish traps etc

***HCA 5 – Valley sides and surrounding Downs (High Relative Value)***

- Historic Building Resource - Military assets – e.g. Scheduled Napoleonic Barracks, Coastguard Cottages, Cable Station, Pill boxes etc
- Historic Landscape Resource – significant, field boundaries, earthworks, areas of deserted medieval villages etc
- Below Ground Archaeological Resource – significant as per above e.g. scheduled Napoleonic barracks, deserted medieval settlement at Exceat.

**6 Identification of effects**

The following effects of the options have been considered:

**6.1 Engineering impacts** – areas to be impacted by proposed works such as creation of breaches, lagoons or new defences

- a) Negative effects: physical loss of assets such as medieval and later defence banks, risks of exposing buried archaeological remains
- b) Positive effects: opportunities to understand character and date of features not presently well understood due to lack of research/archaeological excavation. Potential to control impacts and limit potential damage to other assets through engineering measures

**6.2 Erosion** - areas of likely erosion from wave action, river and creeks

- a) Negative effects: physical loss of heritage assets and creation of different landscape settings for specific heritage asset types. Potential risk of meandering river to undercut valley margins (cliffs) and thus pose risk to heritage assets above the floodplain
- b) Positive effects: potential to increase understanding of dynamic environmental factors affecting land use and hence potential for greater understanding of past land use (in particular pre-medieval land reclamation)

**6.3 Inundation/deposition** - areas of likely cover by water/burial by deposits

- a) Negative effects: physical or visual loss of heritage asset beneath water or sediment leading to loss of understanding, access for research, enjoyment etc
- b) Positive effects: micro topography revealed, allowing increased interpretation of historic landscape complexity particularly for pre-reclaimed creek systems but also for reclamation and later ditch systems if revealed by being filled with water

**6.4 Vegetation change** - areas of likely salt marsh and other changes

- a) Negative effects: loss of medieval and post-medieval reclaimed agricultural land, potential loss of understanding. Loss of landscape context for later medieval and post-medieval heritage assets in particular buildings and military remains (Napoleonic to Second World War), loss of access for research, understanding and enjoyment if areas covered in mudflat or salt marsh
- b) Positive effects: potential to increase understanding of pre-medieval historic landscapes before reclamation by witnessing and explaining a more dynamic environment thought to be more representative of the pre-medieval and later managed and reclaimed landscape.

**7 Assessment of effects for Heritage Character Areas**

7.1 It was considered that, using velocity contour data, areas of potential erosion and deposition could be modelled. Following an assessment of data provided to ESCC from the modelling consultants, Capita Symonds, it was decided that predicting erosion from, for example river and creek movement, would not be possible without a more detailed understanding of the substrate makeup (clay, silt, sand and gravel etc). One conclusion that came out of the assessment of velocity contour data, however, was that predicted speeds up to around 5m/s could cause erosion to exposed clays, silts and even gravels. It indicates that erosion from tidal scour and river meander could occur widely if deposits are unprotected by vegetation or man made defences.

7.2 By considering the types of effect outlined above, professional judgement has been used to assess the likely change to each of the three broad heritage

categories in each of the five heritage character areas. The degree to which the effects might be considered negative or positive has been considered and for each option the likely effects and change over the short, medium and long term has been noted. The predictions set out in the Cuckmere Estuary Options Impact Study (Capital Symonds, March 2011) have been used and the tabulated results of the assessment are set out as Appendix 1 to this report.

## 8 Results summary

- 8.1 The results of the assessment for each option are set out in Appendix 1 with a summary table below. A brief description of the likely effects and changes for each option is given along with an assessment of whether the degree of change expected could be considered broadly negative, neutral or positive for heritage.

**Table of option assessments**

Option	Assessment of effects and changes to significance of heritage assets	Rating short term	Rating medium term	Rating long term
Baseline	Allows time to adapt, research and enjoy. No direct engineering impacts but longer term loss of asset significance possible through erosion/burial. Uncertainty about when effects will happen	NEUTRAL	NEUTRAL	NEUTRAL
A	Direct engineering impacts, inundation of valley floor leads to impact on heritage assets both through their loss beneath water/deposits and by impacting on landscape setting of medieval and later heritage assets on higher ground. Negative impact caused by unbalanced approach seeing loss of most significant historic landscape on western side of valley. Some potential positive benefits for understanding of pre-medieval heritage assets but this is considered to be out weighed by impacts to medieval and later historic landscape	NEGATIVE	NEGATIVE	NEGATIVE
B	Direct engineering impacts, inundation of valley floor leads to impact on heritage assets both through their loss beneath water/deposits and by impacting on landscape setting of medieval and later heritage assets on higher ground. Little time to adapt but some potential positive benefits for understanding of pre-medieval heritage assets and longer term considered to be more balanced setting than A	NEGATIVE	NEGATIVE	NEUTRAL
C	Will lead to impacts both from engineering and as a result of inundation/covering by deposits leading to loss of visible assets and effect on setting of other assets on higher ground. Potential to explore former river and creek system and increase understanding of pre-	NEGATIVE	NEGATIVE	NEUTRAL

	medieval systems but archaeological mitigation costs would have to be factored in. Lack of time to adapt, medium term loss of setting but potential for longer term benefits in terms of setting and understanding of heritage assets			
D	Protects heritage assets and allows continued access for research and enjoyment in the short term. Allows meander to continue to exist but with some impacts on historic landscape character along west side of floodplain. Provides for more complex and interesting setting than E and F but with risk of impact to historic landscape character	POSITIVE	POSITIVE	POSITIVE
E	Protects heritage assets and allows continued access for research and enjoyment. Positive in the short term but with impacts to defences and historic landscape character as loss of meander. Rather simple managed river system becomes less positive in terms of setting for historic buildings and historic landscape character in the longer term.	POSITIVE	POSITIVE	NEUTRAL
F	Protects heritage assets and allows continued access for research and enjoyment. Positive in the short term but with impacts to defences and historic landscape character as loss of meander. Rather simple managed river system becomes less positive in terms of setting for historic buildings and historic landscape character in the longer term.	POSITIVE	POSITIVE	NEUTRAL

## 9 Discussion

### Baseline

9.1 The assessment of options compares Options A to F against the baseline. Change is inevitable and managing change intelligently is the goal. The Baseline option provides time to adapt (in terms of research, access and enjoyment of the cultural heritage) and as there is no active intervention other than keeping the river mouth clear there are no proposed engineering impacts to heritage assets. Over the 15 – 20 year time frame there will be progressive changes to the setting of Nationally Important heritage assets as low areas flood and river/creek systems begin to re-establish themselves and as medieval and later flood defence banks begin to break down and over top. There is the risk of a sudden flood/storm event hastening the process in particular at the beach front where migration of the beach could occur. Over the short, medium and long term this option is considered to be broadly Neutral.

### Option A

9.2 This option would see engineering impacts to existing defence structures, some of which are likely to be medieval in origin and any such work would require



archaeological evaluation and mitigation. The results of the breaches would be the inundation of areas of historic reclaimed meadow land, in particular the western side of the valley (HCA3), leading to the loss beneath water and/or sediments of the evidence of medieval and later historic landscape assets. It is the western side of the valley that appears to have been reclaimed at the earliest date and was subject to more management than the eastern side of the valley. The creation of salt marsh and habitat change primarily to the western part of the valley with the highest historic landscape value would therefore have a largely negative impact. It would also have a negative impact on the landscape setting of the Nationally Important historic building assets on higher ground in HCA 1 and 5, particularly in the longer term. This option would seek to protect Foxhole Valley, thus artificially maintaining some valley floor whilst allowing more ancient reclaimed land to be lost. This option would lead to a loss of the meanders at the expense of the 19<sup>th</sup> century cut. This loss would represent a significant impact on the landscape setting of important pre-19<sup>th</sup> century heritage assets, such as the site of the deserted medieval settlement at Exceat. Although there is a slightly positive benefit when compared to the baseline because of the degree of control over breaches to the defence banks this is effectively out weighed by the impacts from inundation, potential for erosion and negative contribution to changed landscape setting. Overall it is considered that this option would have a significant negative effect in the short, medium and longer term on at least two of the three Nationally Important heritage asset categories (Historic Buildings and Historic Landscapes) with the impact on Below Ground Archaeology remaining uncertain at this stage. Community engagement comment noted that protection of east side under this option might be seen as providing some protection to heritage assets and landscape setting of neighbouring heritage assets rather than being seen as less balanced than Option B and C. On this basis Option A might be considered (relative to B and C) to be Neutral in the short to medium term.

### **Option B**

- 9.3 This option would see engineering impacts to existing defence structures, some of which are likely to be medieval in origin. This work would require archaeological evaluation and mitigation. The results of the breaches would be the inundation of areas of historic reclaimed meadow land, in particular the western side of the valley, leading to the loss beneath water and/or sediments of that Nationally Important historic landscape asset along with later reclaimed land in the east of the valley. Modelling suggests a more rapid and dynamic rate of change compared with Option A and would appear to provide less opportunity for adaptation than A. The impact on the landscape setting of Historic Building assets would also appear to be faster and of greater magnitude in the shorter term than A but the balance between both sides of the valley would be more 'natural' than the partial nature of Option A. The creation of salt marsh and habitat change to the eastern side of the valley would have a negative impact on the landscape setting of the Nationally Important historic building assets on higher ground in HCA 1 and 5. Overall it is considered that this option would

have a negative effect on at least two of the three Nationally Important heritage asset categories (Historic Buildings and Historic Landscapes) with an uncertain impact on Below Ground Archaeology. Whilst more balanced than Option A it is possible that with increased creek development (as indicated by velocity contour data and the areas of mudflat predicted by modelling) this option might also create greater risks for revealing and eroding below ground archaeological remains. Whilst discovery of new archaeological remains is exciting and can lead to significant increases in understanding about the past it also brings responsibilities and costs for preserving or recording remains and for analysis, reporting and dissemination of new information. The impact on below ground archaeology of this option remains uncertain at this stage. Although this option is considered to have a negative effect in the short to medium term and would lead to the development of extensive salt marsh and partial loss of the river meanders in the longer term, it appears to offer a slightly more positive contribution to the landscape setting of remaining heritage assets than Option A and is therefore considered Neutral in the long term.

### **Option C**

- 9.4 This option would see engineering impacts to existing defence structures, some of which are likely to be medieval in origin and to meanders and creeks to 'reactivate' them. This work would require archaeological evaluation and mitigation to ensure that buried remains could either be preserved or recorded and more fully understood. The results of the breaches would be the inundation of areas of historic reclaimed meadow land, in particular the western side of the valley, leading to the loss beneath water and/or sediments of that Nationally Important Heritage Asset but also to later reclaimed land in the east of the valley. Modelling suggests a more rapid and dynamic rate of change compared with Options A and B, with much greater extents of mud flats predicted in the medium term. Whilst this option would appear to provide opportunities for more controlled management and a focus on understanding the historic river and creek systems, the medium term loss of vegetation cover could see significant erosion and exposure of buried archaeological remains before salt marsh develops as well as contributing negatively to the landscape setting of Nationally Important heritage assets in HCAs 1 and 5. The impact on the landscape setting of Historic Building assets would appear to be less in the short term than Options A and B but greater in the medium term. The loss of the 19<sup>th</sup> century cut by infilling would mean the loss of a heritage asset that is part of the history of the valley. By contrast, however, it could be argued that in terms of the pre-19<sup>th</sup> century heritage of the valley, the creation of a more naturally functioning system (however artificially engendered) would provide opportunities for developing understanding of aspects of past landscapes. This would not be a reconstruction of a past landscape, but the outcome of Option C might allow opportunities to increase understanding of the pre-modern history of the valley. The creation of salt marsh and habitat change to the eastern side of the valley would have a negative impact on the landscape setting of the Nationally Important historic building assets on higher ground in HCA 1 and 5. Overall it is considered that this

option would have a negative effect on all three Nationally Important heritage asset categories (Historic Buildings, Historic Landscapes and Below Ground Archaeology) in the short to medium term. Whilst leading to a more balanced long term result than Option A it is also possible that with increased creek development (as indicated by the areas of mudflat predicted by modelling) this option might also create greater risks for revealing and eroding below ground archaeological remains. Whilst discovery of new archaeological remains is exciting and can lead to significant increases in understanding about the past it also brings responsibilities and costs for preserving or recording remains and for analysis, reporting and dissemination of new information. The impact on below ground archaeology of this option remains uncertain at this stage but would appear to be likely to be much greater than for other options because of the scale of potential engineering works and resulting water flow. If this option results in a relatively balanced system with meanders, grassland, some salt marsh and a stable beach, it could be considered Neutral in the longer term, as it appears to offer a slightly more positive contribution to the landscape setting of remaining heritage assets than Options A and B.

#### **Option D**

- 9.5 This option, in providing for the defence of the present landscape, would protect/maintain the significance of the three types of Nationally Important heritage assets, whilst also allowing time for future research, access and enjoyment. Of the three defensive options this is the only one that would appear to have potentially positive effects in the longer term with regard to complexity of landscape setting for heritage assets as meander of river and creeks remain. This is limited in the longer term by impacts to HCA 3 historic landscape character, which becomes progressively inundated and risks becoming mud flats. This option does provide a future for the meander, which is seen as an important element of the historic landscape setting of many of the heritage assets and in large part a function of the historic management of the valley. Despite part of the reclaimed medieval landscape potentially becoming inundated in the longer term, leading to a loss of historic landscape value and risk of impacts to below ground archaeology, this option is considered to be Positive in the short, medium and longer term.

#### **Option E**

- 9.6 This option, in providing for the defence of the present landscape, would protect/maintain the significance of the three types of Nationally Important heritage assets, allowing time for future research, access and enjoyment in the short term. In the medium to longer term the creation of a valley floor lacking in variability (meanders, creeks and water filled ditches) would mean a serious impact on the setting of heritage assets (particularly historic buildings).. In the short and medium term this option is considered Positive and Neutral in the long term.

## **Option F**

- 9.7 This option, in providing for the defence of the present landscape, would protect/maintain the significance of the three types of Nationally Important heritage assets, allowing time for future research, access and enjoyment in the short term. In the medium to longer term the creation of a valley floor lacking in variability (meanders, creeks and water filled ditches) would lead to a reduction in the quality of the landscape setting of heritage assets (particularly historic buildings). In the short and medium term this option is considered Positive and Neutral in the long term.

## **10 Conclusions**

- 10.1 In assessing the options for the future of the Cuckmere Haven it has been taken that the best option would optimise opportunities to protect, enhance and increase understanding of the most significant heritage assets and in the most sustainable manner. The time that each option affords to adapt has also been taken into consideration.
- 10.2 Recent research, including the surveys undertaken for the Pathfinder project, demonstrate that the most significant heritage assets derive from the medieval and subsequent periods of management of the Cuckmere River and floodplain for agricultural purposes and the use of the valley floor and surrounding valley sides for a range of activities, including settlement, trade, military defence, agriculture, industry and recreation. Before the reclamation of the flood plain in the medieval period, the Cuckmere Haven appears to have been a dynamic and changing environment.
- 10.3 The baseline option provides little certainty but in the short term it might allow the opportunity to adapt and in the longer term would stabilise. Overall this option is considered Neutral despite the fact that in the short term there is no allowance for any active management to protect the Nationally Important heritage of the Cuckmere Haven.
- 10.4 The managed realignment Options A, B and C are all considered to have broadly negative effects on heritage in the short to medium term as they lead to very rapid and potentially significant changes to the Nationally Important heritage assets of the Cuckmere Haven. In the longer term, Options B and C are considered to offer potential benefits by providing more balanced and interesting landscape settings for appreciation and understanding of surviving heritage assets, though it has been argued that Option A at least would allow some preservation of existing assets when compared with Options B and C.
- 10.5 The defensive Options D, E and F are all considered to have broadly positive effects on heritage in the short term as they allow for the protection of Nationally Important heritage assets and provide time to enhance and develop opportunities

for further understanding of the heritage. Of these, Option D is considered to be most likely to allow for the development of an appropriate longer term environment and positive contribution to the setting of the most significant heritage assets whereas Options E and F would appear to lead in the medium to longer term to environments that would lack character and variety and therefore lessen the potential value of heritage assets, particularly with regard to their setting.

## Appendix 1

Policy Option	Baseline' Do nothing' (Or 'Do minimum' - EA to maintain clearance of river mouth for 15 years)		
Heritage	0-20 years	20-50 years	50-100 years
HCA 1 High Value	Potential for erosion impacts to heritage assets as channel deepens and widens towards the end of this period. Some potential for flooding or burial of component low-lying assets. HWS (means?) – small scale flooding of low areas adjacent to military remains. Uncertainty about how much time to adapt and undertake research	Potential for erosion impacts to heritage assets as channel deepens and widens. Some potential for flooding or burial of component low-lying assets. HWS – small scale flooding of low areas adjacent to military remains	Potential for erosion impacts to heritage assets as channel deepens and widens. Some potential for flooding or burial of component low-lying assets. HWS – small scale flooding of low areas adjacent to military remains. Loss of context for military remains and potential impacts as river begins to meander as it becomes an integral part of the lower floodplain.
HCA 2 Medium Value	Limited change but uncertainty	Limited change but uncertainty	Salt marsh creation and change to setting
HCA 3 High Value	Limited change but uncertainty	Limited change but uncertainty	Salt marsh creation and loss of historic landscape value
HCA 4 Low Value	Change but uncertain timescale	Change but uncertain timescale	Setting changes – potential erosion of below ground resource
HCA 5 High Value	Potential for erosion of valley margins but thought unlikely in this time frame. Setting of surviving heritage assets negatively impacted by loss of component assets on the valley floor	erosion of valley margins but thought unlikely in this time frame. Setting of surviving heritage assets negatively impacted by loss of component assets on the valley floor. Potential positive impact on setting of pre-medieval assets (Neolithic monument above Exceat) as river becomes part of more naturally functioning system...	erosion of valley margins but thought unlikely in this time frame. Setting of surviving heritage assets negatively impacted by loss of component assets on the valley floor. Loss of context for military remains and potential impacts as river begins to meander as it becomes an integral part of the lower floodplain.
<b>Concluding remarks</b>	Relatively slow change to present situation for heritage assets though timescale uncertain. Limited direct impacts to HCA 1, 3 and 5 in the short term allowing time to adapt, research or continue to enjoy. <b>Neutral</b>	Gradual loss of medieval and later heritage assets on the valley floor. In particular impacts to medieval land reclamation features and military remains, both in terms of physical impacts (erosion and burial) and in terms of negative impacts on setting and loss of understanding. <b>Neutral</b>	Essentially the same long term effect as Option B <b>Neutral</b>

Policy Option	Option A Partial Breach Managed Realignment		
Heritage	0-20 years	20-50 years	50-100 years
HCA 1 High Value	Limited or negligible direct effects – though uncertain	Limited or negligible direct effects unless erosion impacts to heritage assets as channel deepens and widens. Some potential for flooding or burial of component low-lying assets. HWS – small scale flooding of low areas adjacent to military remains	Potential for erosion impacts to heritage assets as channel deepens and widens. Some potential for flooding or burial of component low-lying assets. HWS – small scale flooding of low areas adjacent to military remains. Loss of context for military remains and potential impacts as river begins to meander as it becomes an integral part of the lower floodplain.

<p>HCA 2 Medium Value</p>	<p>Potential direct effects to defence banks where breaches occur. Erosion of valley floor surface as creek systems develop. Flooding of valley floor has limited effect as relatively few heritage assets in this HCA. HWS – indicates localised flooding, some potential impacts to setting of military remains.</p> <p>Physical changes to banks – cuts to be made through, some additions to raise height in other areas. Option states that embankments to Cell B would not be maintained so that general erosion and loss of these heritage assets would occur. Opportunity to record sections through banks to determine age and character etc. Opportunity to re-open embankments in positions related to former creeks thus leading to potential for pre-reclamation systems to be re-developed?</p>	<p>Erosion of valley floor surface as creek systems develop where breaches created. From heritage point of view breaches should be opened to attempt to reactivate former creek systems visible from historic air photos.</p> <p>Flooding of valley floor has limited effect as relatively few heritage assets in this HCA. HWS – indicates localised flooding, some potential impacts to setting of military remains and other medieval and later historic landscape features and historic buildings.</p> <p>Negative contribution to setting of heritage assets in HCA 1 and 5</p>	<p>Erosion of valley floor surface as creek systems develop. Flooding of valley floor has limited effect as relatively few heritage assets in this HCA. HWS – indicates localised flooding, some potential impacts to setting of military remains</p>
<p>HCA 3 High Value</p>	<p>Potential significant negative effects as historic landscape inundated and impacts to defence banks where breaches created. Erosion of valley floor surface as creek systems develop could expose buried archaeological deposits. Flooding or burial beneath sediments of valley floor has potentially significant effects as concentration of Nationally Important historic landscape assets in this HCA. Limited time to understand and communicate pre-medieval heritage assets and historic landscape</p> <p>Positive opportunity to record sections through banks to determine age and character etc. Opportunity to re-open embankments in positions related to former creeks thus leading to potential for pre-reclamation systems to be re-developed. Foxhole Valley would be protected under this option</p>	<p>Erosion of valley floor surface as creek systems develop could expose buried archaeological deposits. Flooding or burial beneath sediments of valley floor has potentially significant effects as concentration of Nationally Important historic landscape assets in this HCA. Medieval and later land reclamation features periodically affected and changed by flooding, deposition of sediments and development of creeks and salt marsh... Some limited flooding on HWS of former channels such as OA 377 offering opportunities for interpretation but overall negative impact on significant historic landscape assets</p>	<p>Erosion of valley floor surface as creek systems develop could expose buried archaeological deposits. Flooding or burial beneath sediments of valley floor has potentially significant effects as concentration of Nationally Important historic landscape assets in this HCA. medieval and later land reclamation features periodically affected and changed by flooding, deposition of sediments and development of creeks and salt marsh...</p> <p>Relatively high value, significant change and impact</p>
<p>HCA 4 Low Value</p>	<p>With exception of 19<sup>th</sup> century Cut there are relatively few heritage assets and this area has greater capacity to absorb change though relatively little would occur during this period</p> <p>Relatively little change/low impact</p>	<p>Loss of meander represents loss of historic landscape feature derived in part from past management. Negative contribution to setting of surviving heritage assets</p>	<p>Loss of meander represents loss of historic landscape feature derived in part from past management. Negative contribution to setting of surviving heritage assets</p>
<p>HCA 5</p>	<p>Considered to be little potential</p>	<p>Potential for erosion of valley</p>	<p>Potential for erosion of valley</p>

High Value	for direct impacts. Changes to setting of heritage assets in this HCA will occur. Arguably the setting changes likely to be positive for pre-medieval heritage assets and negative for medieval and later assets (these are the ones that are most significant). Setting impact will be negative on Historic Landscape and Historic Building assets.	margins if river meanders but thought unlikely in this time frame and potential for loss of main river meander in HCA4 impacting on setting. Setting of Nationally Important medieval and later heritage assets significantly effected during this time frame	margins if river meanders but thought unlikely in this time frame and potential for loss of main river meander in HCA4 impacting on setting. Setting of Nationally Important medieval and later heritage assets significantly effected during this time frame
<b>Concluding remarks</b>	Significant direct impacts to HCA 3 and significant negative setting issues for heritage assets in HCA 1 and 5 with little time to adapt, research or continue to enjoy. <b>Negative</b>	Significant direct impacts to HCA 3 and significant negative setting issues for heritage assets in HCA 1 and 5 with little time to adapt, research or continue to enjoy. <b>Negative</b>	Significant direct impacts to HCA 3 and significant negative setting issues for heritage assets in HCA 1 and 5 with little time to adapt, research or continue to enjoy. Les balanced final system compared to baseline or Option B <b>Negative</b>

Policy Option	Option B Full Breach Managed Realignment		
Heritage	0-20 years	20-50 years	50-100 years
HCA 1 High Value	Potential direct impact and setting issues on HWS. Due to anticipated large flow of water it is thought that the river mouth would be likely to stay in present position limiting erosion impacts to HCA 1 assets. Some uncertainty about potential movement of beach affecting listed structures	Limited direct impacts unless river meanders and erodes but significant impacts on setting of Historic Buildings anticipated as HCA 2 changes	Limited direct impacts unless river meanders and erodes but significant impacts on setting of Historic Buildings
HCA 2 Medium Value	Erosion and flooding impacts expected from inundation following direct physical impacts to flood defences during creation of breaches. Potential impacts on below ground archaeological resource in western area of Cell C which will need to be excavated to create a reservoir to enlarge the tidal compartment.	Significant direct impacts through flooding, potential burial and erosion as creek systems develop and river meanders.	Significant direct impacts through flooding, potential burial and erosion as creek systems develop and river meanders. Suggestion that Historic Landscape features might remain visible amongst salt marsh that has replaced meadows
HCA 3 High Value	Extensive flooding and potential for some erosion at HWS. Direct impact on medieval and later flood defences as these would be lowered/destroyed at breach points to allow water to flow into Cells A, B and C – elsewhere they would be kept and would be visible as salt marsh develops. Inundation of Foxhole Valley would occur. Loss of historic landscape resource below water and then salt marsh would be significant impact	Significant direct impacts through flooding, potential burial and erosion as creek systems develop and river meanders. Suggestion that Historic Landscape features might remain visible amongst salt marsh that has replaced meadows but this remains uncertain	Significant direct impacts through flooding, potential burial and erosion as creek systems develop and river meanders. Suggestion that Historic Landscape features might remain visible amongst salt marsh that has replaced meadows. Some positive effect from potential for enhanced understanding of channel links to Chyngton from flooded valley floor
HCA 4 Low Value	Significant impacts for engineering works but only to specific locations. 19 <sup>th</sup> C Cut would remain and limited change elsewhere. Potential for erosion of below ground resource between present river course and Foxhole	Relatively little/slow change leading to more positive contribution to setting of heritage assets	Relatively little/slow change leading to more positive contribution to setting of heritage assets
HCA 5	Potentially significant setting	Limited direct impacts likely	More balanced (i.e. similar to



High Value	issues for heritage assets as large areas of reclaimed meadow land lost to inundation for salt marsh creation	but significant impacts on setting of heritage assets	both west and east sides) outcome than for Option A leading to generally more positive contribution to setting of remaining heritage assets although this is offset by fact that most of valley will be salt marsh with inter tidal mud flats around river
<b>Concluding remarks</b>	Significant negative setting issues for heritage assets in HCA 1 and 5 with little time to adapt, research or continue to enjoy. Significant direct impact on HCA 3 during HWS due to flooding, burial and potential erosion of historic landscape features. Does not seek to protect Nationally Important heritage assets in the short term. <b>Negative</b>	Significant negative setting issues for heritage assets in HCA 1 and 5. Significant direct impact on HCA 3 during HWS due to flooding, burial and potential erosion of historic landscape features. <b>Negative</b>	Significant impacts (erosion, flooding/burial and to setting) of all three Nationally Important heritage asset types. Physical survival of HCA 1 possible but loss of setting and related components in lower lying areas will reduce value of Historic Building. More balanced than Option A. <b>Neutral</b>

<b>Policy Option</b>	<b>Option C Engineered Reactivation of Meanders and Saltmarsh Creeks</b>		
<b>Heritage</b>	<b>0-20 years</b>	<b>20-50 years</b>	<b>50-100 years</b>
HCA 1 High Value	Impact and setting issues as beach potentially moves back and river mouth widens and deepens. Some uncertainty about how this will effect built resource	Uncertain but likely effects as beach moves back	Uncertain but likely effects as beach moves back
HCA 2 Medium Value	extensive flooding and potential for erosion and burial. . Positive benefit as scheme would reconnect and restore remnants of the historic creek system. This work would require detail EIA assessment, targeted archaeological evaluation and development of mitigation strategies.	extensive flooding and potential for erosion and/or burial	extensive flooding and potential for erosion and burial
HCA 3 High Value	Impacts as creek systems engineered to below ground archaeological resource Extensive flooding and potential for some erosion. Some potential visual survival of layout of historic landscape features, historic banks	Extensive flooding and/or erosion. Some potential loss of visual survival of layout of historic landscape features as low-lying areas become covered by deposits of muds and silts, historic banks may remain visible amongst salt marsh	Extensive flooding and potential for some erosion. Some potential loss of visual survival of layout of historic landscape features as low-lying areas become covered by deposits of muds and silts, historic banks may remain visible amongst salt marsh
HCA 4 Low Value	Back filling of 19 <sup>th</sup> Cut proposed by using embankment material. Loss of this feature in order to re-establish meanders and saltmarsh creeks. Significant potential impacts to below ground archaeological resource as engineering works undertaken. Very high cost for evaluation and mitigation of these works would be likely	Limited changes	Positive longer term result for meanders and creek systems
HCA 5 High Value	significant setting issues for medieval and later Historic Landscape and Historic Building assets	Limited direct impacts likely but significant impacts on setting of heritage assets as extensive areas of mud flats created	Impact on setting of heritage assets becoming more positive in the longer term as meanders and creek systems functioning. Uncertainty over degree to which valley floor historic landscape features will be

			visible or accessible within salt marsh
<b>Concluding remarks</b>	Significant impacts and change to setting of Historic Building resource, physical loss of and impacts to Historic Landscape and Below Ground Archaeological resource. High cost of evaluation and mitigation makes this least sustainable option in short term with greatest potential direct engineering impacts <b>Negative</b>	Significant negative effect on setting of medieval and later heritage assets from expanse of mud flats in HCAs 2 and 3 <b>Negative</b>	System would appear to stabilise and provide broadly positive contribution to setting of heritage assets that remain. <b>Neutral</b>

<b>Policy Option</b>	<b>Option D Maintain the existing defences</b>		
<b>Heritage</b>	<b>0-20 years</b>	<b>20-50 years</b>	<b>50-100 years</b>
HCA 1 High Value	Limited change and impacts predicted though some uncertainty.	Limited change and impacts predicted though some uncertainty.	Limited change and impacts predicted though some uncertainty.
HCA 2 Medium Value	Limited change and impacts – flood defence maintained as needed	Some limited change and impacts as creeks may flow at certain tides	Limited change – some potential erosion as creeks re-establish.
HCA 3 High Value	Limited change and impacts – flood defences maintained as needed- evidence suggests flood defences have been progressively modified since medieval periods so this represents ongoing management	Some limited change and impact from encroaching inundation but would appear limited and could enhance understanding of micro-topography and historic landscape features	Change and impacts from some limited erosion and flooding as this low lying area becomes flooded on HWS
HCA 4 Low Value	Limited change and impacts – flood defences maintained as needed (some clearly share boundaries with HCA 1, 2 and 3)	Meanders predicted to continue to flow contributing positively to setting of heritage assets	Meanders predicted to continue to flow contributing positively to setting of heritage assets
HCA 5 High Value	Limited change and impacts – though works to maintain defences might have short term negative effect on setting of assets	Setting of heritage assets in this HCA positively maintained by this option	Setting of heritage assets in this HCA positively maintained by this option
<b>Concluding remarks</b>	Nationally Important heritage assets protected and subject to relatively little change. Options for access, research and recreation available. Medieval and later flood defences altered as mended but only as required. Some impact on setting during works. <b>Positive</b>	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available but quality of setting potentially beginning to lessen as valley loses complexity. <b>Positive</b>	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available and direct impacts from erosion and inundation minimal across most of valley floor except for HCA 3. Quality of setting considered to remain broadly stable as effects to HCA 3 offset by providing for meanders and creek complexity in HCA 2 and 4. <b>Positive</b>

<b>Policy Option</b>	<b>Option E Sustaining the defences: raising banks as sea level rises</b>		
<b>Heritage</b>	<b>0-20 years</b>	<b>20-50 years</b>	<b>50-100 years</b>
HCA 1 High Value	Limited change and impacts predicted though some uncertainty.	Limited change and impacts predicted though some uncertainty.	Potential for over topping of beaches, burial of features by shingle and flooding of valley floor
HCA 2 Medium Value	Limited change and impacts – flood defence banks raised as needed	Limited change and impacts	Potential for flooding
HCA 3	Limited change and impacts –	Limited change and impacts	Potential for flooding

High Value	flood defence banks raised as needed- evidence suggests flood defences have been progressively modified since medieval periods so this represents ongoing management		
HCA 4 Low Value	Limited change and impacts – flood defence banks raised as needed (some clearly share boundaries with HCA 1, 2 and 3)	Some change and impacts – loss of meander represents negative effect on setting of heritage assets	Some change and impacts – loss of meander represents negative effect on setting of heritage assets
HCA 5 High Value	Limited change and impacts – though works to raise defences would have short term negative effect on setting of assets	Limited direct change and impacts	Limited direct change and impacts but overall reduction in quality of valley setting due to loss of meanders and increased risk of sudden un-managed change
<b>Concluding remarks</b>	Nationally Important heritage assets protected and subject to relatively little change. Options for access, research and recreation available. Medieval and later flood defences altered as raised but only as required. Some impact on setting during works and as size of banks increases. Programme of archaeological mitigation would need to be considered – evaluation of banks to inform works. <b>Positive</b>	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available but quality of setting potentially beginning to lessen as valley losses complexity. <b>Positive</b>	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available and direct impacts from erosion and inundation minimal across most of valley floor. Quality of setting potentially beginning to lessen as valley losses complexity. Increased risk of catastrophic event in HCAs 1, 2, 3 & 4 <b>Neutral</b>

<b>Policy Option</b>	<b>Option F: Sustaining defences: raising banks by 300mm</b>		
<b>Heritage</b>	<b>0-20 years</b>	<b>20-50 years</b>	<b>50-100 years</b>
HCA 1 High Value	Limited change and impacts predicted though some uncertainty.	Limited change and impacts predicted though some uncertainty.	Potential for over topping of beaches, burial of features by shingle and flooding of valley floor
HCA 2 Medium Value	Limited change and impacts – flood defence banks raised by 300mm	Limited change and impacts	Potential for flooding
HCA 3 High Value	Limited change and impacts – flood defence banks raised by 300mm – evidence suggests flood defences have been progressively modified since medieval periods so this represents ongoing management	Limited change and impacts	Potential for flooding
HCA 4 Low Value	Limited change and impacts – flood defence banks raised by 300mm (some clearly share boundaries with HCA 1, 2 and 3)	Some change and impacts – loss of meander represents negative effect on setting of heritage assets	Some change and impacts – loss of meander represents negative effect on setting of heritage assets
HCA 5 High Value	Limited change and impacts – though works to raise defences would have short term negative effect on setting of assets	Limited change and impacts	Limited direct change and impacts but overall reduction in quality of valley setting due to loss of meanders and increased risk of sudden un-managed change
<b>Concluding remarks</b>	Nationally Important heritage assets protected and subject to relatively little change. Options for access, research and recreation available. Medieval and later flood defences altered as raised by 300mm. Some	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available but quality of setting potentially beginning to lessen has	Nationally Important heritage assets subject to relatively little change. Options for access, research and recreation available and direct impacts from erosion and inundation minimal across most of valley

	<p>impact on setting during works and as size of banks increases. Programme of archaeological mitigation would need to be considered – evaluation of banks to inform works. <b>Positive</b></p>	<p>valley losses complexity. <b>Positive</b></p>	<p>floor. Quality of setting potentially beginning to lessen as valley losses complexity. Increased risk of catastrophic event in HCAs 1, 2, 3 &amp; 4 <b>Neutral</b></p>
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