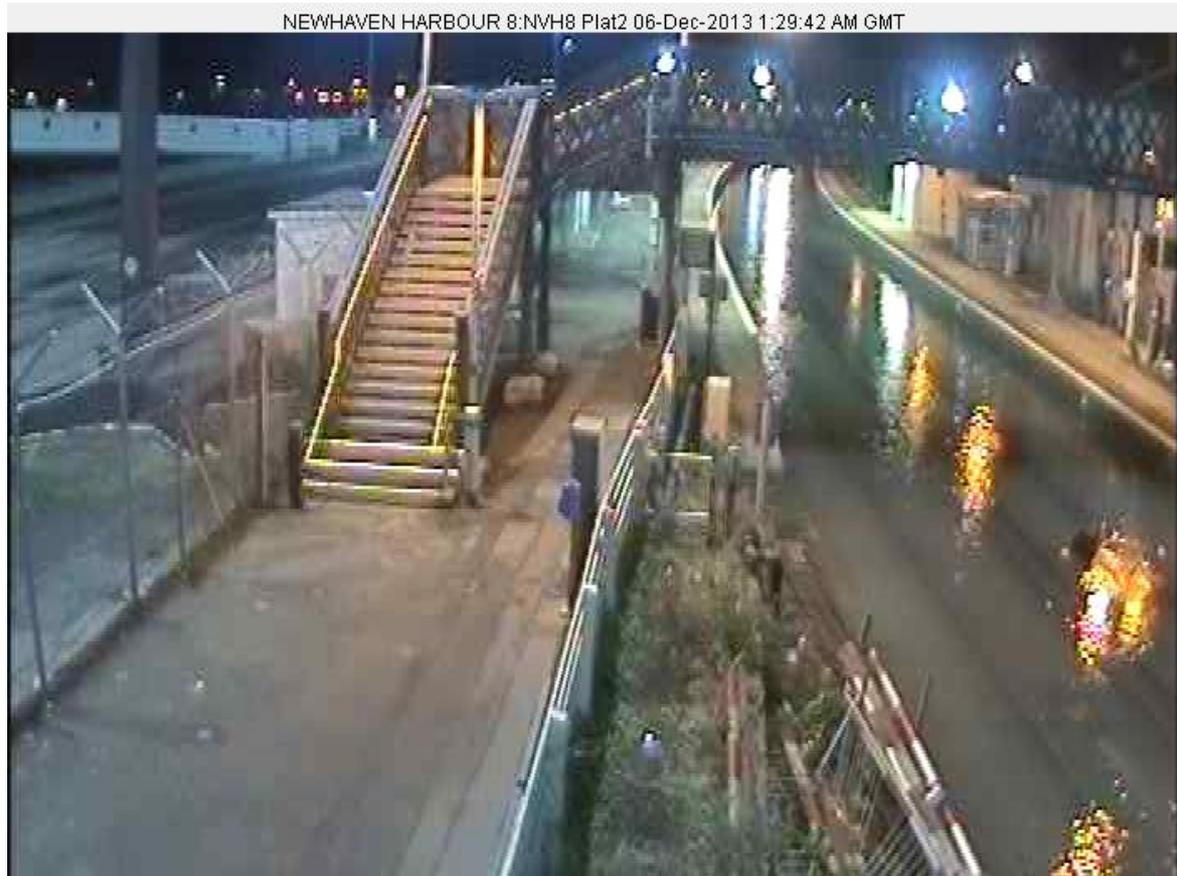


Newhaven (Tidal River Ouse to Seaford): IMSE100229



Newhaven Train Station; 6th December 2013

Form A Business Case

Version No: 1.0

Date: January 2014

FINANCIAL SCHEME OF DELEGATION (FSoD) COVERSHEET

1. Project name	Newhaven (Tidal River Ouse to Seaford)		Start date	January 2014
			End date	September 2015
Business unit	South East	Programme	FCRM (FDGiA)	
Project ref.		Project IBIS Code	IMSE100229	FSoD ref. & date

2. Role	Name	Post Title	% time allocated to project
Project Sponsor	Andrew Gilham	FCRM Manager	2
Project Executive	Joe Pearce	Project Manager 1	20
Project Manager	Lisa Twohig	Project Manager 2	40

3. Risk Potential Assessment (RPA) Category (Appendix G)	Low	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	High	<input type="checkbox"/>
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4. FSoD schedule	<input type="checkbox"/>	Description	Delegation	
			Regional – up to	Environment Agency – up to
A1	<input type="checkbox"/>	Projects (includes FCRM revenue)	£5m	£5m
A2	<input checked="" type="checkbox"/>	FCRM capital project within approved strategy	£10m capital	£100m WLC Defra/£5m capital NAW
A3	<input type="checkbox"/>	FCRM capital project outside of approved strategy	£5m capital	£100m WLC Defra/£5m capital NAW
A5	<input type="checkbox"/>	Consultancy project	£300k	£500k
T2	<input type="checkbox"/>	Purchase or lease of land and buildings	£1m purchase/£50k pa lease	£5m

5. FSoD value	£k
Preparation costs for Form A/Business Case/PAR/FRM Strategy	95
Project costs	905
Whole Life Costs (WLC) of FRM Project	
Financial benefits	
Non-financial benefits	Yes

6. Required level of Environmental Impact Assessment (EIA)	N/A	Low	Medium	High
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

7. FSoD approver name	Post title	Signature	Date
Howard Davidson	Director of South East Region		
FSoD consultee name	Post title	Signature	Date
Richard Nunn	PAB/LPRG Chair	<input type="checkbox"/> RED <input type="checkbox"/> AMBER <input type="checkbox"/> GREEN	
Andrew Gilham	FCRM Manager	<i>see email</i>	
Miles Jordan	Head of Asset Operational Services	<i>see email</i>	
John Willmott-French	Principal Environmental Project Manager, NEAS	<i>see Submission Sheet</i>	

BUSINESS JUSTIFICATION UNDER THE FINANCIAL SCHEME OF DELEGATION

1. Purpose

- 1.1.1 This Form A seeks approval for £905k under Section A2 of the Financial Scheme of Delegation to deliver a supported change Project Appraisal Report (PAR) for Newhaven, as recommended by the River Ouse to Seaford Head Coastal Defence Strategy (the Strategy), approved and adopted in June 2012.
- 1.1.2 The project will develop and recommend flood and coastal risk management (FCRM) options for the East and West banks at Newhaven. The options will also decrease the risk of 'back-door flooding' along the floodplain upstream of Newhaven and through to Seaford.
- 1.1.3 This project also provides a great opportunity for growth by initiating regeneration of a priority area, in line with the current Local Plan. There are numerous potential sources of external contributions in the Newhaven area that may be secured if this project is progressed now.

2. Strategic context

2.1 Background

- 2.1.1 The Environment Agency (EA) and Lewes District Council (LDC) are working in partnership to deliver this project (EA are the lead partner). The lead local flood authority, East Sussex County Council, are supporting us in developing the scheme.
- 2.1.2 The Strategy included 7 flood cells (refer to Figure 1). **This Form A covers two of these cells: Newhaven East and Newhaven West.** In the Strategy these two cells were combined with two further flood cells: the coastal 'Seaford' cell, and the upstream 'Newhaven to Southease' cell, as flooding in any of these cells could have flood and coastal erosion consequences in each of the other cells.
- 2.1.3 The Strategy calculated a single Partnership Funding (PF) score of 212% (Appendix A) covering all four interconnected flood cells. Although this Form A seeks approval to deliver a PAR for works at just Newhaven East and Newhaven West, it makes clear how we will combine with works in neighbouring flood cells to ensure the benefits for all four of them will be delivered.
- 2.1.4 The Strategy described two ways that issues in the flood cells are connected.
 - a. If the embankments upstream of Newhaven fail or are overtopped, water could flow overland along the floodplain, into the East and West Newhaven flood cells. Floodwater could subsequently flow from east Newhaven towards Seaford.
 - b. If the embankments upstream of Newhaven are not maintained, tidal flows through Newhaven will increase significantly, filling and draining the exposed wide upstream floodplain on each tide. This increased tidal volume would cause scour, leading to erosion of the defences at Newhaven.
- 2.1.5 The tidal River Ouse in East Sussex through Newhaven has a mixture of revetted slopes, vertical quays and low flood walls protecting industrial and residential properties (see Figure 2). The Strategy recommended works to reduce flood risk at Newhaven to afford a standard of protection for people and property of 1 in 200 (0.5%) annual exceedence probability (AEP) on the eastern bank and 1 in 100 (1%) AEP on the western bank.
- 2.1.6 The need and urgency for this project was given context recently, as flooding was experienced in Newhaven during the tidal surge event in December 2013. This event, assessed as 1 in 40 (2.5%) AEP, affected approximately 50 residential and numerous commercial properties. The railway was significantly damaged along with other infrastructure including the swing bridge that conveys the A259 road over the tidal River Ouse in the town.

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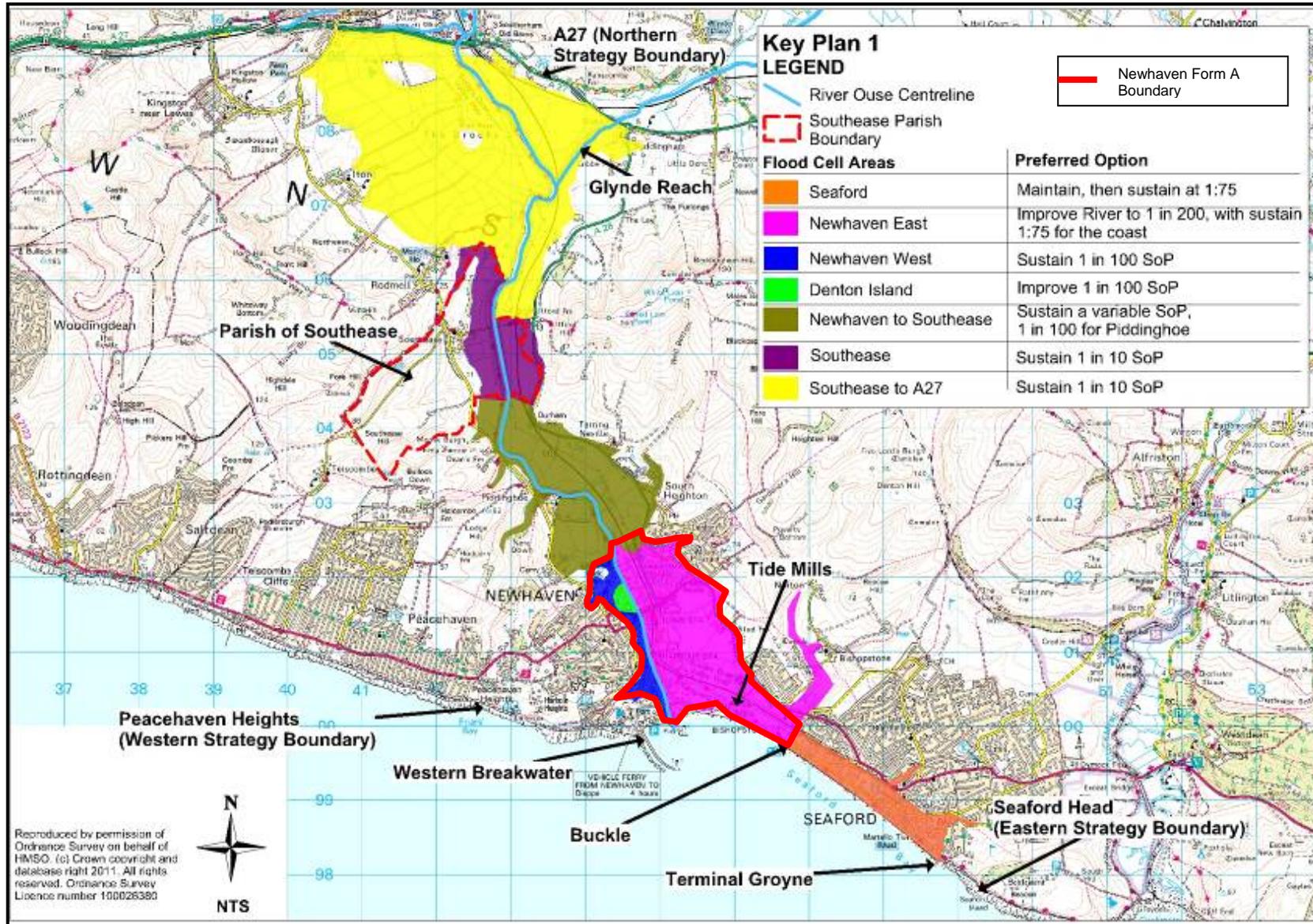


Figure 1: Strategy Cells and Preferred Options

BUSINESS JUSTIFICATION UNDER THE FINANCIAL SCHEME OF DELEGATION



Figure 2: Newhaven

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Neighbouring and connected flood cells

- 2.1.7 Works recommended in the Strategy for the 'Seaford' cell have been taken forward under a separate low risk Form A. The works required for this cell comprise annual shingle recycling and beach management. Procurement of the works is being packaged with beach management activities along the South coast. The works protect the Newhaven East flood cell from flooding 'through the back door'. The Seaford Form A for £1.85m of capital maintenance to undertake the next 5 years of shingle management was approved in October 2013.
- 2.1.8 This Newhaven Form A does not include works at Denton Island which lies between eastern and western Newhaven. Although the Strategy recommended an Improve option (1% AEP, 1:100) for this cell, it is not interconnected with, or dependent on, the other flood cells or their works. It features no residential properties and hence the FDGiA Partnership Funding score is particularly low (17%). Capital works using FDGiA are unlikely to be promoted at Denton Island unless a substantial external contribution is identified, which is not considered likely given the nature of the existing property at risk.
- 2.1.9 The Strategy recommended maintaining existing tidal river banks in the 'Newhaven to Southease' flood cell. Due to the immediate need for work in this location, we are submitting a separate low-risk Form A business case to the Environment Agency South East Region PAB in February 2014. However, we will seek opportunities for efficiency savings by looking to package capital works recommended in years three to five in 'Newhaven to Southease,' with work we will promote in the 'Newhaven' cells.
- 2.1.10 The remaining lifetime of the river banks upstream of Newhaven has driven the intervention period of 14 years for the four linked flood cells. The Strategy received non-financial scheme of delegation approval for works over the 14 year period before banks upstream of Newhaven require significant raising and renewal. As part of the Newhaven scheme, cut-off banks are proposed to manage the risk of flooding from upstream along the floodplain.
- 2.1.11 The Strategy found that if assumptions on sea level rise and tidal volume changes are not substantially revised, maintenance of the banks upstream will remain the preferred management option for 100 years. A Strategy review was recommended for 10 years time that could reassess tidal volume effects. If these effects are shown to have smaller implications at Newhaven than previously assessed, upstream management options could change without adverse impact to Newhaven's riverside defences.

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2.1.12 The Strategy calculated a partnership funding score of 212% for the four interconnected cells as shown in Table 2.1.

Table 2.1 Strategy Outcome Measures and Partnership Funding

	Newhaven to Southease, Newhaven East, Newhaven West, Seaford
Duration of Benefits (period of intervention; years)	14
PV Whole-Life Costs (£m)	12.8
PV Whole-Life Benefit (£m)	428.2
OM2 Total households with reduced flood risk	1,060
OM3 Total households with reduced erosion risk	214
OM4 Environmental benefits	0
Calculated “FDGiA Contribution” (£m)	27.0
“Raw OM Score” (%)	212

Newhaven East and West

- 2.1.13 Newhaven East and West are the only flood cells where major new works are recommended by the Strategy. Hence, these works are being taken forward as a separate project from the neighbouring cells, where recommendations are mainly to continue ongoing maintenance.
- 2.1.14 The option recommended in the Strategy includes building new defences across the floodplain at the northern end of both the East and West Newhaven flood cells. These new banks will effectively isolate Newhaven from the upstream flood cells, managing risks resulting from flooding due to failure or overtopping of tidal banks upstream. On the eastern bank, this would also require a removable flood barrier across Network Rail’s (NR) railway, as there would be a low point at this location.
- 2.1.15 The strategy recommended a 1:100 (1%) AEP protection for the western bank of the Ouse, whereas 1:200 (0.5%) AEP was recommended for the eastern side. This is because the economic analysis found that almost all of the benefits were gathered through providing western defences at the 1:100 (1%) AEP level.
- 2.1.16 The optimum location, timing and designs will be defined for raising low areas along the eastern and western banks, to achieve the standards of protection recommended within the Strategy. We will check the implications of providing different standards of protection on the eastern and western banks. We will seek to equalise protection on both banks at the higher standard, depending on the economic effect and any contributions that we can gain.

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2.1.17 Table 2.2 provides the results of the preferred options and economic analysis, and profiled costs from the Strategy, for the East and West Newhaven cells.

Table 2.2 – Strategy Economics and Costs for East and West Newhaven Cells

Flood cell	Preferred Option with SoP		Total PV Costs (£k) *	PV Benefits (£k)	Average Benefit/ Cost Ratio	Total Cash Costs (£k)*	Cash costs for 14 yrs (£k)	
Newhaven West	Sustain to 1 in 100		3,500	67,000	19.2	8,600	2,400	
Newhaven East	Improve to 1 in 200		19,700	514,000	26.1	75,600	7,600	
Cost (£k)	2012/13	2013/14	2014/15	2015/16	2016/17	Future 9 Years (£K)	Total 14 Years (£K)	Total 100 Years (£K)
Newhaven West								
Capital	0	300	1,643	0	0	0	1,943	5,080
Non-Capital	35.2	35.2	35.2	35.2	35.2	316	492	3,517
Newhaven East								
Capital	0	0	300	4,751	0	0	5,051	57,025
Non-Capital	185	185	185	185	185	1,668	2,549	18,533

2.2 Environmental Designations

- 2.2.1 The South Downs National Park encompasses the flood plain of the tidal river north of Newhaven (i.e. the majority of the Newhaven to Southease cell). Their representatives will be involved in the environmental appraisal of the project.
- 2.2.2 The Brighton to Newhaven Site of Special Scientific Interest (SSSI) is located some 50m to the west of the Newhaven West Flood Cell Area along the chalk cliffs. The Castle Hill Local Wildlife Site (non statutory) is located to the south west of Newhaven and abuts an inland section of the same area on high ground. The Ouse Estuary Local Wildlife Site (non statutory) abuts the eastern and southern extent of the Newhaven East Flood Cell Area on low lying ground.
- 2.2.3 The Beachy Head West Marine Conservation Zone (MCZ) comprises two separate sites which run east and west from either side of the mouth of the River Ouse along the coastline comprised of an intertidal wave cut chalk platform and subtidal chalk ridges.
- 2.2.4 There are several footpaths in the area on the tidal embankments north of Newhaven, and the South Downs Way long-distance footpath which crosses the River Ouse some 3.5km north of the study area, using Southease Bridge.
- 2.2.5 The scheme has been determined by the National Environmental Assessment Service (NEAS) as requiring environmental assessment, which is likely to be complex in nature. It is likely that works are undertaken under the Town and Country Planning System. The Planning Authority will be consulted for a screening and scoping opinion under the Town and Country (EIA) Regulations. Where works are within the existing channel we may otherwise progress under our permitted development rights and the EIA (Land Drainage Improvement Works) Regulations. A decision on how to approach this will be taken in conjunction with the planning authority.

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2.2.6 We will undertake a sustainability risk assessment and use the Carbon Calculator to assess and record impacts of the outline design proposals. This is considered best practice and will be an integral part of option appraisal.

2.3 Objectives

2.3.1 The objectives of this Form A business case are to:

- a. Deliver an approved PAR business case that takes forward the Strategy flood risk management recommendations for a 0.5% SoP for Newhaven East and 1% SoP for Newhaven West;
- b. Deliver the most cost effective implementation plan for Strategy recommendations, taking into account potential contribution funding and the need to reduce the flood risk;
- c. Seek opportunities to maximise environmental opportunities and contribute to the aims of the Water Framework Directive;
- d. Work with our Partners, key stakeholders and local community to develop a scheme with their support;
- e. Ensure the planning and delivery allows for savings and contributes to the efficiency targets set by government.

2.3.2 New objectives that are appropriate for the next phase of work will be included in the PAR.

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3. Available options

3.1 Project Options

3.1.1 The following three options have been considered:

- a. Option 1 – Do Nothing. No PAR will be undertaken.
- b. Option 2 – Do Something. Produce a PAR.
- c. Option 3 – Do Something. Design and Build (D&B) a scheme.

3.2 Option 1 – Do Nothing

3.2.1 No PAR would be undertaken.

Costs

- a. None

Advantages

- a. Short term cost saving by not investing time and resources to complete the PAR.

Disadvantages

- a. Continued flood risk to 818 residential and commercial properties within Newhaven.
- b. No Outcome Measures would be delivered.
- c. Increasing level of flood risk will lead to declining local economy as people and businesses leave the area.
- d. No business justification would be provided to undertake the flood risk management activities needed to implement the Strategy, so the recommendations of the Strategy would not be implemented.
- e. Loss of reputation for the Environment Agency after the consultation undertaken as part of the Strategy.
- f. Opportunity to realise contribution funding will be lost.
- g. Loss of opportunity to encourage regeneration through a scheme at Newhaven.
- h. Opportunities for future environmental enhancements upstream could be lost.

Risks

- a. The risk of this approach would be that the existing coastal defences gradually deteriorate, leading to increased risk to property, consequential damage to a wide variety of assets and the benefit of expenditure invested in the cell to date is not realised.

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3.3 Option 2 - Do something: Preparation of PAR

- 3.3.1 Preparation of a PAR would be undertaken, leading to capital investment. The PAR would include a Benefit Cost Analysis to FCERM-Appraisal Guidance standards, based on the economics in the Strategy. We would conduct sensitivity testing on recent changes to extreme water level and climate change guidance, to ensure the option selection remains valid. The option appraisal would include consideration of the impacts associated with uncertain climate projections and appropriate adaptations.
- 3.3.2 Planning permission would be required for construction of new defences. With involvement of LDC within the Project Team, this is considered a low risk item and would be undertaken as part of the next detail design stage.

Costs

- a. Expenditure for this option to complete the PAR would be £905k. This figure includes estimated risk and all EA, consultant and contractor staff costs. Cost breakdown is set out in Table 4.1.

Advantages

- a. The scheme would be progressed to project appraisal stage, taking forward the recommendations of the Strategy.
- b. Contributions from various sources would be identified, in line with Defra policy.
- c. Following implementation, notable Outcome Measure scores would be delivered, and risk to life reduced.
- d. Local economic investment would increase, with confidence that flood risk would be managed appropriately for the assets currently at risk. Current insurance premiums may be reduced.

Disadvantages

- a. Higher costs than Option 1 – Do Nothing.

Risks

- a. The potential contribution sources have different programmes and cause delay to the project, or cannot be realised within our legal operating framework.
- b. Expenditure incurred on Network Rail and/or NPPC consultation and option appraisal proves solution is unviable. An additional amount of £140k has been added to the risk value of the costs for this option, and is explained in sections below.

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3.4 Option 3 - Do something alternative option: Design and Build

- 3.4.1 Capital investment would be implemented through undertaking detailed design and construction without any further option appraisal. The design would be based on the outline alignment as presented in the Strategy. No PAR business case approval would be sought.
- 3.4.2 The cost for implementation of this option would include design, construction costs and risk, using data from the Strategy.

Costs

- a. Expenditure for this option, including an allowance for 60% Optimism Bias risk, would be approximately £9.8m.

Advantages

- a. The scheme would progress immediately with design and construction, reducing the programme to completion, potentially providing flood risk benefit about 2 years sooner.
- b. Overall cost may be reduced, since no expenditure would be incurred in undertaking the PAR business case appraisal.

Disadvantages

- a. Overall cost may be increased, since risks are not identified and managed accordingly within an appraisal process, causing significant waste and inefficiency as design option is not optimised.
- b. Consultation and agreement with key stakeholders is not undertaken before financial approval. Opportunities for joint solutions would not be progressed. Potential issues would not be resolved in a timely manner, and implementation could be stopped during construction. Costs and programme are likely to increase as issues are solved later in the delivery programme.
- c. Cost of approval sum within this Form A would be based on the Strategy, reliant on setting aside a large risk sum due to uncertainty in option design. Excess risk budget would result in lost opportunity for funds to be released and spent more effectively elsewhere.
- d. Opportunity for partnership funding contributions would not be identified through appraisal process.

Risks

- a. Due to the complexity of the scheme and the uncertainties that remain, this Procurement approach would not be supported by the Environment Agency commercial team.
- b. Uncertainty in technical viability of NR barrier crossing gaining approval – resulting in additional funding required (and a Form G) to extend scheme to enable an alternative solution.
- c. Due to lack of opportunity for investigation of external funding and work with others to find solutions, there would be a high risk that the scheme would require more Grant in Aid money and the scheme would be less likely to gain stakeholder support than if appraisal was carried out.

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4 Preferred option

4.1 Preferred option - Do something: Preparation of PAR

4.1.1 Option 2 – Preparation of the PAR - fulfils the objective to implement the Strategy recommendations and other objectives set out in Section 2.3.

4.2 Preferred Option Costs

4.2.1 The total cost to deliver the preferred option is £905k. It is summarised in Table 4.1.

4.2.2 The costs are based on the cost of previous similar PARs (Sandwich Town Tidal Defences, Sandwich Bay Coastal Defences). The costs have been updated and benchmarked with the Project Team including NEECA2 consultant, ECI, One Commercial Lead and Cost Consultant.

4.2.3 A Risk value of £293k has been calculated in two parts, with the main risk of a change in preferred option being identified separately. The key risk in undertaking this Form A is that the option involving Network Rail agreement is not viable. A separate amount of £140k has been included in the risk value to account for this, to appraise a new preferred option, should the need arise. If the option does **not** change, there would be a saving of £140k to the project.

Table 4.1 Estimated project costs

PAR Preparation cost (£k)		
	(sunk cost)	95
Forecast PAR cost (£k)		
Item		Option 2
Environment Agency		
	ncpms	80
	Area	40
	NEAS	30
	Procurement	15
	Legal and Estates	10
	Sub-total	175
Consultant and ECI		
	Project Management	25
	Option Appraisal	45
	Surveys	15
	Economic Appraisal	10
	Consultation	45
	Mathematical Modelling	15
	PAR Preparation	20
	Sub-Consultants	5
	ECI	10
EIA		
	Preliminary Environmental Information (PEI)	15
	Env Consultation	15
	Landscape design	15
	Specialist surveys	25
	WFD	10
	Sub-total	270
Other external		
	Natural England	10

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Cost Consultant	20
CDM-C	5
Surveys inc SI	75
Services Search	5
SEAFs & consultation	52
Sub-total	167
Total	612
Risk	
Change to strategy preferred option	140
Optimism Bias 25%	153
PAR Total (£k)	905

4.2.4 Site investigations have been included to proactively mitigate the risk of unknown ground conditions and protected species presence, leading to increased costs post-PAR.

4.3 Partnership Working and Funding Opportunities

Project Partner: Lewes District Council

4.3.1 This scheme lies within the boundaries of Lewes District Council (LDC), who have already been contributing to the preparation of this Form A through the input of the Principal Environmental Health Officer (Tim Bartlett) on the Project Team. LDC will continue to support the project through the Steering Group, and providing communication links to local organisations, businesses and development opportunities.

4.3.2 As partners on this project, the EA and LDC are in the process of finalising a Memorandum of Understanding (MoU) which defines roles, responsibilities and contributions (whether financial, or work in kind) from each party. This will be completed following approval of this Form A and confirmation of funding for the PAR phase of work.

4.3.3 LDC is committed to delivering this scheme, and has provided the following statement in support of the project:

“Lewes District Council considers that by working with the Environment Agency, we can deliver a coordinated approach in the development of flood defences in the Lower Ouse valley. Lewes District Council can assist:

- 1) *As the local planning authority assist in identifying constraints and issues that need to be overcome in developing options and detailed designs, and where necessary deal with any relevant planning application in a timely and transparent manner,*
- 2) *With technical issues such as land contamination,*
- 3) *In discussion and negotiations with potential developers and investors – particularly with regard to seeking implementation of the Government’s Flood Defence Grant in Aid policy of contributions,*
- 4) *As a local landowner where appropriate and practical,*
- 5) *In discussions with key stakeholders and wider community as options are developed and explored,*
- 6) *In work with the local community, businesses and other stakeholders, to increase both community and business resilience of locality to adverse weather events including flooding.”*

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Funding opportunities and key stakeholders

- 4.3.4 The Solent and South Downs (SSD) Area East Sussex Partnership and Strategic Overview (PSO) team have been working with LDC to identify key stakeholders and partners in the area, including sources of potential contributions towards the design, construction and ongoing maintenance of the future scheme. The contribution opportunities we are pursuing are developing rapidly. They are outlined in Appendix B which is commercially confidential.
- 4.3.5 In preparing the PAR, we will confirm the scheme beneficiaries. Based on this, the Environment Agency Area team will work together with LDC to achieve outline agreement from beneficiaries for funding contributions. These will be tied in with legal heads of terms before PAR approval.
- 4.3.6 We have been working with the Greater Brighton City Deal team and the Cabinet Office to investigate funding possibilities for the Newhaven Scheme. It is recognised that our scheme has the potential to promote regeneration in Newhaven. Significant funding may be available, depending on the outcome of the City Deal which is currently awaited (March 2014).
- 4.3.7 We understand that ESCC have funds set aside for landscaping and tree planting to the immediate north of Newhaven on the eastern side of the Ouse. We are investigating incorporating defence works within the landscaping.
- 4.3.8 Newhaven Port and Properties Ltd (NPPL) are the statutory harbour authority and are responsible for the on-going management, safety and operation of the port. They also own the majority of the river frontage on the east side of the river. South of the A259 Swing Bridge, commercial shipping uses the East Quay and a Roll-on Roll-off ferry terminal (daily service to Dieppe).
- 4.3.9 In preparing this Form A, we have liaised with NPPL Harbour Master to confirm the viability of flood risk defence improvements within or adjacent to the quay frontages. We have had initial discussions to begin to define alignments for defence structures which would avoid disrupting the port's operations. Together with LDC, we are exploring where future developments could give rise to opportunities. Further discussion will be required to confirm agreements during the PAR development.

Network Rail

- 4.3.10 Network Rail (NR) own the double-track railway branch line from Lewes to Seaford, largely located on a slightly elevated bank on the tidal river floodplain. Signalling and other infrastructure were damaged by tidal flooding in Newhaven at the beginning of December 2013. Our preferred option will protect NR assets but will require a flood barrier to cross the railway line at the northern end of Newhaven, approximately 1.2m high.
- 4.3.11 We have liaised with NR to determine the viability of constructing a floodgate barrier at the site of an existing level crossing, which would be operated by NR in a time of flood risk as advised by Environment Agency flood warning. The barrier would need to be linked into the signalling system to eliminate the risk of train operation when the barrier was closed. Operational procedures for operating any barrier could manage this risk since closure would only be necessary when flood risk to the railway line north of Newhaven is such that the line is likely to be closed to train traffic at the same time.
- 4.3.12 Following discussion with NR we have drafted a Basic Service Agreement (Appendix C, commercial in confidence) between NR and ourselves. This document has been assessed as appropriate by the Environment Agency Legal team. It sets out the scope of advice and

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support from NR for preparation of the outline design and their “Approval in Principle” process needed to support the PAR before it can be submitted for Environment Agency approval. The BSA will be signed on approval of this Form A, commits us to expenditure of up to £25k to NR for their time, and commits NR to providing their support in obtaining Approval in Principle.

- 4.3.13 Should NR ultimately not be able to confirm their Approval in Principle and this option proves unviable, an alternative option of extending the scheme about 2.7km northward towards Southease with a cut-off bank near Durham Farm is the likely alternative. This option would avoid the need for a railway crossing, but incur higher costs and may impact on wildlife habitats. An amount to cover this eventuality has been included in the risk allowance for the scheme, described in section 5.2.

4.4 Efficiency Initiative

- 4.4.1 Defining and recording efficiencies will be at the core of the project throughout its lifecycle. Planning and delivery of efficiencies will be considered at least monthly by the Project Team and reported as required using the efficiency register. In line with our objectives, we aim for this project to deliver savings that match or exceed nationally set targets.
- 4.4.2 The Environment Agency’s capital efficiency reporting operational instruction specifies the points in the project lifecycle when costs are defined and against which the effect of efficiencies must be measured. This Form A business case will take the project from the point when its initial baseline is set (Gateway 0: in this case using costs defined in the Strategy, updated with inflation); to business case approval (Gateway 1) when achieved savings will be reported and a new baseline defined.
- 4.4.3 In preparing the business case for approval, our largest opportunity for reducing required funding is in managing the scope of the project. We will work with others to minimise the cost of achieving the flood risk reduction specified in the Strategy by cooperating with local authorities and businesses in delivering improved defences. We envisage limiting the scope of the Environment Agency led scheme by seeking opportunities to designate private defences under the Flood and Water Management Act. Through managing the scope in this way, we will reduce PAR approval cost thereby realising efficiency savings. These savings will be in addition to any contribution agreements.
- 4.4.4 During PAR preparation, we will use the efficiency register to define opportunities for additional savings to be considered during later phases of the project and operation of the scheme. As we finalise our preferred solution we will confirm opportunities for savings. These will be in two broad categories:
- a. Design: using standard or off-the-shelf designs, innovation or value engineering.
 - b. Procurement: using bulk buying, packaging and the most advantageous contract arrangements.
- 4.4.5 One particular opportunity we will investigate is the possibility to integrate with Network Rail East Sussex’s re-signalling programme due to be implemented in 2016. There is potential for significant efficiency, reducing the cost of associated signalling for the flood barrier crossing on the railway track - since it can be incorporated into this existing NR planned scheme. This, and other opportunities, will be investigated further during the appraisal stage and presented within the scheme PAR.

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4.5 Outputs

4.5.1 The principal outputs from this appraisal are:

- a. A Project Appraisal Report with appendices, with recommendation for approval by LPRG;
- b. Preliminary Environmental Information (PEI);
- c. Water Framework Directive assessment;
- d. Letters of Support / Approval in Principle from NPPL, NR and other key stakeholders as required
- e. External Funding Plan with partner commitments in place.
- f. Specifications and contract documents for the next phase of work.

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5 Case for Change

5.1 Benefits

- a. Delivery of the Strategy recommendation for Newhaven East and West will realise £353,552k of Present Value benefits for the 14 year Duration of Benefits. Table 5.1 identifies the principle sources of the benefits with Table 5.2 identifying the value of benefits that would be realised once the schemes, as described in the strategy, have been delivered.

Table 5.1 Benefits description table

Benefit Description	Benefit Category (e.g. efficiency- cash releasing, efficiency-productivity, environmental)	Benefit Owner (named individual)	Evidence of ownership acceptance	Non-financial benefit
Properties at risk of flooding reduced	Service improvement	Project Sponsor	Sign off of PAR by Project Board	No
Reduced flood risk to key infrastructure: Network Rail and Port facilities	Service improvement	Project Sponsor	Legal Agreements	No
Reduction in Risk to life	Social/Health	Project Sponsor	Signed PAR	Yes
Water dependent habitat created to benefit WFD objectives	Environmental	Local population	Sign off of PAR by Project Board	Yes

Table 5.2 Benefits realisation table for East Newhaven and West Newhaven flood cells only

Benefit Description	Financial Benefit Target	Non-financial Benefit Target	Benefit Measurement(s)	Period of Benefit Realisation
Properties at risk of flooding reduced	£282,800k Present Value	437 residential 392 commercial properties	Flood risk mapping	2017/18 post construction for 14 years
Reduced flood risk to railway & traffic damage	£1,408k Present Value		Flood risk mapping	2017/18 post construction for 14 years
Reduction in Risk to life	£67,583k		Flood risk mapping	2017/18 post construction for 14 years
Agricultural land reduced risk of flooding	£1,761k		Delivery of schemes to construction	2017/18 post construction for 14 years
Total	£353,552k			

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5.2 Risks

- a. Key risks have been discussed and developed by the Project team including Environment Agency (ncpms, NEAS, PSO and Operations representatives), Lewes District Council, and Atkins (NEECA2 consultant).
- b. The key risk in undertaking this Form A is that the option involving Network Rail agreement is not viable. A separate amount of £140k has been included in the risk value to account for this, to appraise a new preferred option, should the need arise. If the option does **not** change, there would be a saving of £140k to the project. We will review the progress of the 'Network Rail' option at regular set intervals. If at any time we consider there is a high risk of the option not progressing, we will go back to LPRG with our plan on how to move forward with an alternative option.
- c. At a benchmarking meeting prior to submission of this Form A, the remaining risks were reviewed and it was determined that an Optimism Bias approach would be taken. A 25% Optimism Bias of £153k has been added to the risk value. This value has been benchmarked against similar recent projects (Folkestone to Cliff End Strategy package, 20%) and was deemed to be of a slightly greater risk due to the legal implications of dealing with Network Rail Assets.
- d. The total risk value is £293k. The top 5 risks are listed in Table 5.3 below.

Table 5.3 Key Risks

	Risk	Mitigation
1	Preferred Strategic alignment option with railway barrier is not ultimately accepted by Network Rail for operational safety reasons.	Include alternative option within appraisal which does not require railway crossing. Liaise with the Project Team in Exeter undertaking a project involving NR. Given potential additional cost of examining alternative option, exclude from initial stage, include only if current indications from NR change.
2	Ground investigation requirements are more extensive than expected leading to increased scope and time on site for NSIF.	Early start on specification to determine requirements with appropriate team members from NSIF nominated contractor.
3	Preferred Strategic alignment option on line of active port and quayside proves more complex to find acceptable solution, or requires replacement of sheet piled quays requiring increased cost to cover survey and outline design.	Early engagement with stakeholders and quayside operators to identify their requirements and gain support for the proposed works. Initial discussions have already taken place with NPPC and Rockspring to gain their support at Form A stage. Programme has included consultation periods with stakeholders at key stages in the appraisal phase.
4	Programme and resource affected by partnership funding contribution requirements. Extra resource requirements or pressures to achieve tighter programme.	PSO team to lead consultation in combination with LDC through the Brighton and City Funding mechanism. Project Sponsor will resist pressure to accelerate construction programme to fit in with funders, seeking to manage expectations.
5	Outline Design identifies additional scheme works such that the costs are in excess of the Strategy approval.	Additional work required to justify business case.

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6	Habitat outcome potential not realised.	Work towards solution for bank, which enables mosaic of Priority habitat including water dependent habitat (OM4a) to be realised.
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5.3 Lessons Learnt

- 5.3.1 We have reviewed the national lessons learned database in preparing this Form A. Relevant lessons that affect the current and near-future stages of the project have been drawn out and are catalogued in Appendix D. We have used the experiences and recommendations listed in preparing this business case and the report will be referenced for risk management throughout the project. The most pertinent lessons relate to Network Rail, investigation and surveys, consultation with affected people and businesses and programme drivers for gaining contributions. These have fed directly into the risks listed above.
- 5.3.2 The project team has also drawn on experience and examples from recent business cases. In creating this Form A, lessons from these projects have been taken into account in planning the next phase of work. We have learned particularly from submissions for Derby, Exeter, Littlehampton and Shoreham.

6 Procurement route

6.1 Suppliers

- 6.1.1 The Procurement Strategy (Appendix E) details how the various suppliers will be engaged under the new Water and Environment Management (WEM) and other framework contracts for the preparation of the business case, and delivery thereafter.
- 6.1.2 As discussed in Section 3 above, significant uncertainties remain that will affect the scope of design and construction work required for the project. We are therefore not pursuing a WEM design and build contracting option for completion of the PAR. This is not ruled out for later stages: either immediately post-PAR for detailed design and construction; or after detailed design to complete the construction. We intend to let the appraisal work under WEM Lot 3 with an incentivised (Option C) contract.
- 6.1.3 Site investigations will be required during option appraisal stage (in advance of Gateway 1) so as to inform the preferred option. This work will be competed under the NSIF3 and special consideration will be given to the location, resources and timing because it may be inappropriate for some of the NSIF suppliers to tender.
- 6.1.4 Cost-management services required in producing the PAR will be direct-awarded under the terms of the EA's national cost management framework.
- 6.1.5 Prior to completion and approval of the PAR at Gateway 1, we will review the procurement strategy to determine the most advantageous contracting options and competition requirements.

6.2 Pathfinder initiatives

- 6.2.1 We will include building information modelling within the project design requirements. We will plan for a project bank account to be set up following the PAR.
- 6.2.2 We will consider the use of cost led procurement and integrated project insurance for the project following PAR approval.

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7 Funding and affordability

7.1 Contributions Planned

- 7.1.1 The Strategy calculated a partnership funding score of 212% which will be refined during PAR appraisal. The project area lies within Authority boundaries of Lewes District and East Sussex County. Both bodies are committed to delivery of the scheme and seeking co-operation and contributions from landowners and developers during business case preparation. Newhaven has been identified as a priority regeneration area within East Sussex and managing flood risk is seen as key to achieving development. National and European funding sources are being investigated.
- 7.1.2 There are as yet no confirmed financial contributions for the PAR preparation phase. However, contribution in kind will be provided by Lewes District Council through staff input and use of facilities.
- 7.1.3 The PSO team is currently liaising with other potential contributors as discussed in Section 4.3. We anticipate that the scheme could include both financial contributions and contributions in kind.

7.2 Budget Plan

Table 7.1 Annualised Spend Profile post Form A to PAR (£k)

Post Form A spend profile £k	Yr 0 13/14	Yr1 14/15	Yr 2 15/16	Yr 2 16/17	Total
Environment Agency (ncpms, NEAS, Procurement, Legal & Estates)	2	80	47	6	135
EA Area Costs	0	24	14	2	40
WEM Consultant Fees	0	176	94	0	270
OTHER					0
Natural England	0	5	5	0	10
NCMF Cost Consultant	0	8	12	0	20
NSIF Contractors	0	75	0	0	75
CDM-C	0	2	3	0	5
External Stakeholder Consultation SEAFs	0	24	10	0	34
Other surveys, service search	0	5	0	0	5
Others (exhibitions, materials)	0	8	10	0	18
Risk (Network Rail Option)	0	14	40	86	140
Risk (add alternate option)	0	3	50	100	153
TOTAL	2	424	285	194	905

8 Project management arrangements

8.1 Project management governance structure

- 8.1.1 The governance structure will be the Programme Board, a Project Board and Project Team, as presented in an organogram, Appendix F.
- 8.1.2 The Programme Board comprises of senior members of the EA who will provide strategic advice to the Project Board. They will make critical decisions should the project exceed the

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agreed tolerances set for time, cost or quality, which will be set out in a Project Product Description document, prior to the start of the next phase of work.

- 8.1.3 The Project Board will comprise the Project Executive, Solent & South Downs (SSD) Area Senior User, the consultant Senior Supplier and a representative from LDC. The project stages are described in Section 8.6.1 below.
- 8.1.4 The Project Team will comprise of the ncpms Project Manager supported by NEAS Environmental Team Manager, SSD FCRM team, Legal and Estate teams and WEM supplier team manager.

8.2 Project assurance arrangement

- 8.2.1 The Project Executive will retain overall accountability for the delivery of the project and chair the Project Board. The Project Board for this project has been set up to provide overarching governance.
- 8.2.2 Overall project assurance will be led by the Project Executive with quality reviews established as part of a post Form A project plan. Progress will be reported to the Project Board at agreed intervals.
- 8.2.3 Suppliers will be contracted to comply with their own QA procedures for deliverables. A supplier project peer review group would be established to review deliverables prior to submission.
- 8.2.4 The PAR business case will form Gateway 1 approval for implementation of the scheme. A peer review will be held prior to submitting the PAR to LPRG.

8.3 Benefits realisation arrangement

- 8.3.1 The PAR will include an Implementation plan for design and delivery of the scheme. The FRM benefits will be fully realised once the scheme has been fully constructed.

8.4 Risk / change management arrangements

- 8.4.1 The project has been assigned a low risk category using the standard risk potential assessment (Appendix G). Updating of a full project risk register will be among the first tasks for the Project Team on appointment of an appraisal supplier.
- 8.4.2 Change will be managed through the Project Team with reference to the risk register and tolerances agreed by the Project Board. Proposed changes will be challenged to evaluate their benefit, any mitigations and likely cost and programme consequences before being approved.
- 8.4.3 The risk register will be updated during the project to remove expired risks, re-value live risks and add in new risks as appropriate.

8.5 Post implementation review arrangements

- 8.5.1 Once submitted and approved the PAR will be subject to a review with lessons learnt fed back into appropriate databases and projects.

8.6 Programme

- 8.6.1 The full programme is provided in Appendix H. A summary of the Milestones is provided in Table 8.1 below.

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Table 8.1 Milestones

Milestone Description	Estimated Start date	Estimated End date
Form A approval	April 2013	February 2014
PAR Preparation		
Stage 1 – start of appraisal, confirmation of contributions and wider outcomes to be integrated into scheme	April 2014	July 2014
Stage 2 – appraisal and outline design of preferred option	August 2014	February 2015
Stage 3 – NR and NPPC approvals	August 2014	February 2015
Stage 4 – PAR preparation and submission to PAB/LPRG	March 2015	June 2015
Stage 5 – Approval process post submission	June 2015	September 2015

8.7 Stakeholder Management Actions

8.7.1 Due to the complexity of this project there are a number of key internal and external stakeholders who must be involved throughout the appraisal stage (and beyond).

Key internal stakeholders include:

- a) Flood and Coastal Risk Management (FCRM) – the Partnerships and PSO team will supply the Senior User and Senior User Representative for the project.
- b) Operations Management Team – the support of the Operations Management team is essential as it is likely that they will be responsible for the operation and maintenance of the improved assets created by this project. This support will be gained through the Senior User.
- c) Environment Management, Fisheries and Biodiversity – consultation with these teams will be undertaken to ensure suitable measures are put in place to control the impact and achieve the Water Framework (WFD) objectives;
- d) Area External Relations – this team will play a key role in helping the Project Team develop and implement the stakeholder engagement plan.

8.7.2 Key external stakeholders include:

- a) Lewes District Council – the Local Authority is a key stakeholder given the wider development opportunities and regeneration of Newhaven. Planning permission will also be required.
- b) Key landowner organisations, including NR, NPPC.
- c) Other potential contributors as identified in Section 2.3.
- d) Natural England

8.7.3 An independent and experienced facilitator will be employed to work on the project to support the engagement work. The Stakeholder Engagement Advice and Facilitation Service (SEAFS) will be used. This will be of particular benefit when planning any liaison with potential contributors.

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8.7.4 We will ensure that the suppliers we procure to undertake the PAR have experience in working with Network Rail in particular, and understand their operational, legal, and health and safety requirements.

8.8 Consultation

8.8.1 The following people have been consulted on and have contributed to the development of the Form A and Business Case:

- | | | |
|----|----------------------|---|
| a. | Joe Pearce | EA ncpms Project Executive |
| b. | Lisa Twohig | EA ncpms Project Manager |
| c. | Josh Peacock | EA NEAS |
| d. | Grant Moffat | EA PSO Business User |
| e. | Kim Smith | EA Senior User |
| f. | Adam Schofield | Consultant Project Director |
| g. | Carolann Simmonds | Consultant Project Manager |
| h. | Graham Heath | One Commercial Lead |
| i. | James Sheldon | Cost Consultant |
| j. | Fiona Geddes | ncpms Peer Reviewer |
| k. | Samina Khan | ncpms Regional Operations Manager |
| l. | Andrew Gilham | EA Project Sponsor |
| m. | John Willmott-French | Principal Environmental Project Manager |

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I confirm that the documentation is ready for submission to LPRG.

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

Name	Joe Pearce
Job Title:	Project Executive
Signature	
Date	16/1/2014

Version control

Version	Status	Signed off by:	Date signed	Date issued
0.1	Draft for review	Project Team	1/12/2013	1/12/2013
0.2	Draft for review by ncpms peer review	Fiona Geddes Samina Khan	11/12/2013	11/12/2013
0.5	Draft for review by Project Board	Kim Smith	7/01/2014	7/01/2014
0.9	Draft for review by Project Sponsor	Andrew Gilham	16/01/2014	16/01/2014
1.0	Submitted to LPRG/PAB	Miles Jordan	23/01/2014	23/01/2014

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APPENDICES

- A Partnership Funding Calculator**
- B Potential contribution partners (commercial in confidence)**
- C Network Rail BSA (commercial in confidence)**
- D Lessons learned report**
- E Procurement Strategy**
- F Governance Structure**
- G Risk Potential Assessment**
- H Programme**