ENVIRONMENT, TRANSPORT & SUSTAINABILITY COMMITTEE	Agenda Item 71 Brighton & Hove City Council

Subject:		**Central Hove and Portslade Property Level Scheme – Permission to Procure**	
Date of Meeting:		**20 March 2018**	
Report of:		**Executive Director, Economy, Environment & Culture**	
Contact Officer:	**Name:**	**Maggie Moran**	**Tel: 01273 292239**
	Email:	**Maggie.moran@brighton-hove.gov.uk**	
Ward(s) affected:		**All**	

FOR GENERAL RELEASE

1. PURPOSE OF REPORT AND POLICY CONTEXT

1.1 The purpose of this report is to seek approval from the Committee to procure contractors to install Property Level Protection (PLP) measures to reduce flood risk to 63 properties in Central Hove and Portslade.

1.2 The cost of the scheme is £430,000. An allocation of £253,000 is to be provided by the Southern Regional Flood and Coastal Committee (SRFCC) Local Levy, pending approval from the Environment Agency. The remaining £177,000 will be funded by the City Council's Flood Protection Surface Water Management Grant.

2. RECOMMENDATIONS:

That the Environment, Transport & Sustainability Committee:

2.1 Approve procurement of contractors to install the flood resilience measures for Central Hove and Portslade.

2.2 Grants delegated authority to the Executive Director for Economy, Environment & Culture to carry out the procurement and award of the contract referred to in 2.1 above.

3. CONTEXT/ BACKGROUND INFORMATION

3.1 In December 2010, the Environment Agency issued the national Indicative Flood Risk Areas to all Lead Local Flood Authorities. This work identified 10 Flood Risk Areas in England which had greater than 30,000 people at risk and the City of Brighton and Hove was ranked at 8th in this list, with 36,412 people identified to be at potential risk of flooding. As a result, BHCC were duty bound to prepare a Preliminary Flood Risk Assessment (PFRA) to facilitate the identification of Flood Risk Areas and local Flood Risk Management options.

3.2 The BHCC Surface Water Management Plan (SWMP), completed by Peter Brett Associates in 2014 drew on the findings of the PFRA and identified a number of key flood hotspots throughout the City, being predominantly those that suffered

extensive flooding during the winter of 2000/2001. This flooding was reported to have been as a result of an extreme rainfall event which overwhelmed the surface water drainage system. Two of the hotspot areas identified were located within the vicinity of Hove and Portslade, which has suffered from repeated incidents of surface water flooding.

3.3 Since publication of the SWMP, further flooding has occurred in Brighton and Hove, in July 2014 and August 2015. [This][Both events] resulted in significant surface water flooding affecting over 100 properties. The SRFCC has allocated funds to provide a PLP Scheme to help mitigate the effects of flooding, which is in line with objectives 5 and 7 of the Local Flood Risk Management Strategy (LFRMS). These seek to:

- "Raise public awareness and resilience to flooding" (Objective 5); and
- "Work with partners and funders to implement sustainable public health protection measures" (Objective 7).

Objective 7 goes on to state that where engineered solutions are considered financially unviable, then "it may be necessary to establish other measures to protect the public, including educational and advisory information, support and/or property level protection".

3.4 The Southern Regional Flood and Coastal Committee (SRFCC) Local Levy has allocated grant money for the Central Hove and Portslade PLP Scheme for the financial year 2017/2018. BHCC has submitted an Outline Business Case for approval by the Environment Agency in order to drawdown the funding. The project has now received both technical and financial approval from the Environment Agency including funding of £253k for this scheme.

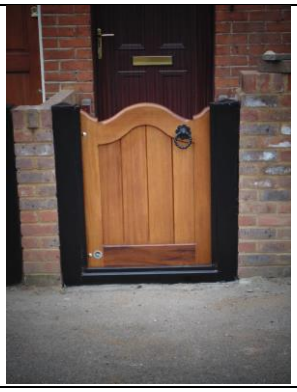
3.5 The primary objective of this scheme is to address flood risk from surface water flooding which has affected properties throughout Hove and Portslade for a number of years. Since there are no technically viable engineering options for mitigation available, these properties remain vulnerable to surface water flooding.

3.6 At present BHCC's response to such flooding has been to deploy sandbags, but BHCC has limited operatives and resources to deal with incidents. There is no specific deployment plan for sandbags due to the unpredictability of extreme rainfall events. Sandbags are usually deployed after the incident has occurred and after damage has been done. Generally, sandbags have been found to be largely ineffective when dealing with issues of quick onset flooding, resulting in additional costs to BHCC in relation to post-flood clean-up and removal of sandbags to landfill. As such, the deployment of sandbags is also considered to be an unsustainable and largely ineffective option.

3.7 Property level protection measures have therefore been investigated, to afford some protection from the frequently repeated flooding events and as an alternative to the only other option of sandbag deployment.

3.8 BHCC as the Lead Local Flood Authority requires the services of an experienced flood contractor who has experience in providing and installing property level protection measures for the reduction of flood risk specifically from surface water and in certain areas groundwater. The measures to be provided, recommended and required are passive flood mitigation measures. This means that they will

act automatically in a surface water flood event. Measures can include a flood door, flood gate or an automatic airbrick cover, see pictures below for examples.

		
Flood Door	Flood Gate	Automatic Airbrick

4. ANALYSIS & CONSIDERATION OF ANY ALTERNATIVE OPTIONS

4.1 No alternative options are currently available

5. COMMUNITY ENGAGEMENT & CONSULTATION

5.1 Public consultation drop-in events were held in February 2017 at Hove Library and individual property surveys have been completed at the 64 properties identified as being at potential risk of flooding.

5.2 The surveys assessed the flood risk posed to the properties, as well as identifying ingress routes in to the buildings and recommending a range of flood protection options and measures to help mitigate against internal flooding. In total 63 properties were found to be eligible for [further?] inclusion in the scheme.

6. CONCLUSION

6.1 The procurement and award of this sole supplier contract will assist the Council in complying with its duties as a Lead Local Flood Authority and fulfil the objectives of the Local Flood Risk Management Strategy and the Central Hove and Portslade Property Level Protection Scheme.

7. FINANCIAL & OTHER IMPLICATIONS:

Financial Implications:

7.1 The cost of implementing the report recommendation is estimated to be £430,000.

7.2 Grant funding of £253,000 has been requested from the Environment Agency's Southern Regional Flood and Coastal Committee Local Levy. This income will not be received by the council if the procurement of contractors to install the flood resilience measures is not approved.

7.3 The remaining estimated cost of £177,000 will be funded from the Surface Water Management reserve held by the Transport department.

7.4 The procurement of a contractor is subject to the council's Contract Standing Orders policy.

Finance Officer Consulted: Gemma Jackson *Date: 07/02/18*

Legal Implications:

7.5 The procurement in relation to the provisions and installation of property level flood defences will be undertaken in accordance with the Council's Contract Standing Orders and EU Procurement Regulations. The value of the proposed contract is below the "works" threshold in the Public Contracts Regulations 2015, but the general principles of the Regulations (such as transparency and equality of treatment) will continue to apply.

Lawyer Consulted: David Fairfield *Date: 23/02/18*

Equalities Implications:

7.6 None specific to this report

Sustainability Implications:

7.7 None specific to this report

Any Other Significant Implications:

7.8 As per Section 7.1

SUPPORTING DOCUMENTATION

Appendices:

1. Outline Business Case

Documents in Members' Rooms

1. None

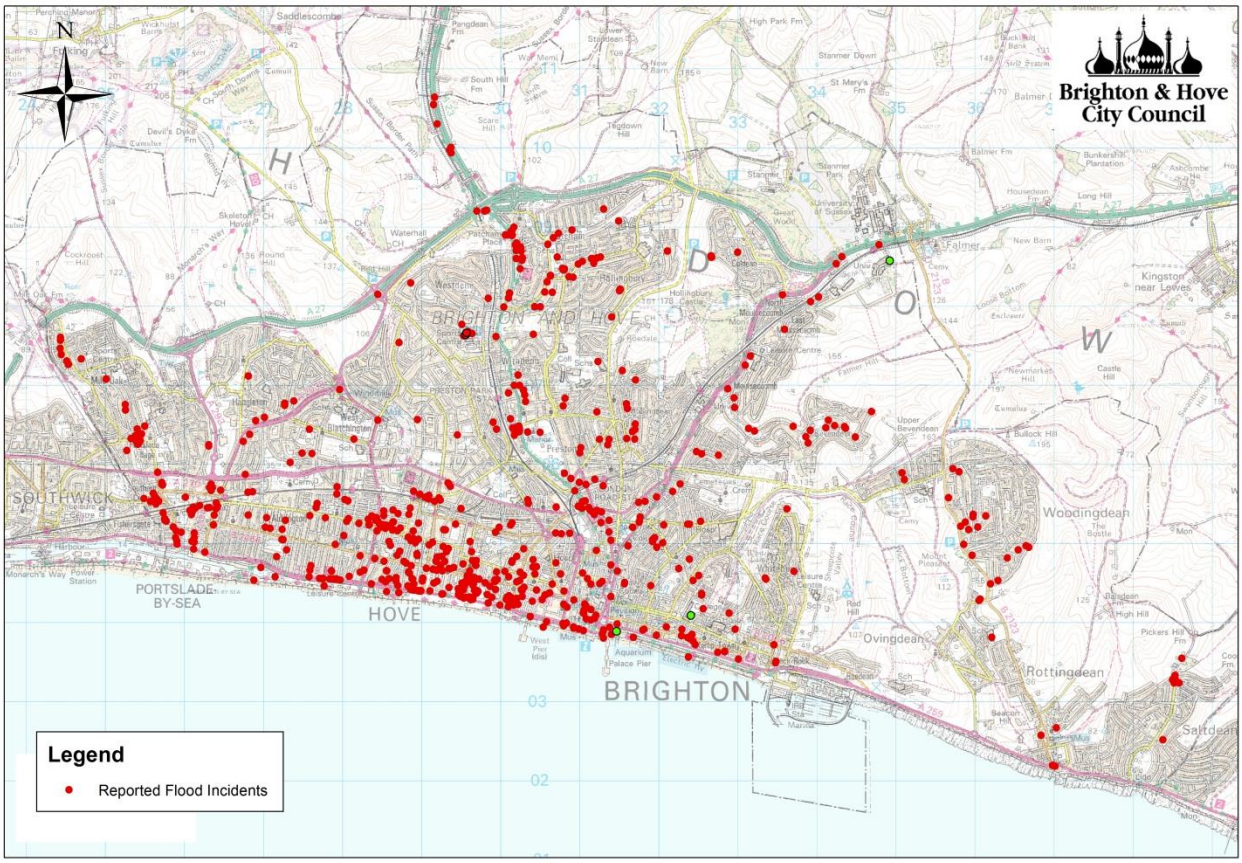
Background Documents

1. None

Short Form Business Case guidance for a FCERM change project for Local Authorities, Internal Drainage Boards and other risk management authorities

Environment Agency

Brighton and Hove PLP Scheme
RMA Short Form
Brighton and Hove PLP Scheme Business Case



Version No: 1.0
***Date*: 20/11/2017**

BUSINESS CASE APPROVAL SHEET

1 Review & Technical Approval

Project title	Brighton and Hove PLP Scheme		
Authority project reference		EA reference	
Lead authority	Brighton and Hove City Council	Date of submission	30/11/2017
Consultant	JBA Consulting		

'I confirm that this project meets our quality assurance requirements, environmental obligations and Defra investment appraisal conditions, that all internal approvals, including member approval, have been completed and recommend we apply to the RFCC for local levy in the sum of £ 253,000.

Job title	Name	Signature	Date
Authority Project Executive	Yann Vochelle		30/11/17

'I have reviewed this document and confirm that it meets the current business case guidelines for local authority and Internal Drainage Board applications.'

OBC reviewer	Rebecca George		

'I confirm that the project is ready for assurance and that I have consulted with the Director of Business Finance'

Area Flood & Coastal Risk Manager	Gordon Wilson		
Assurance sign off - (Tick the appropriate box)			

AFCRM Assurance ☐ Projects < £100k Or Projects < £1m (if GiA & Levy <£100k)	NPAS Assurance ☒ Projects £100k - £2m

Recommendation for approval			Date
AFCRM or NPAS Chair			
Project total as approved (£k)		Version Number	
Project total made up of:	Capital Grant (£k)		
	Levy (£k)	253	
	Other Contributions (£k)	230	

2 Project Financial approval

Financial scheme of approval	Project total	Name	Signature	Date
Area Flood & Coastal Risk Manager	<£100k **or** <£1m (if GiA & Levy <£100k)	Gordon Wilson		
Director of Business Finance	All projects >£100k			
Plus:				
Area Manager	£100k- £1m			
Director of Operations	£1m -£10m			

3 Further approvals (if applicable)

Date sent (or N/A)		Version number (if different)	
Date approved (or N/A)			
Final Comments			

For FSoD Coordinator use only:

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Business Case

1. Introduction

Hove and Portslade are coastal suburbs of the city of Brighton and Hove. The suburbs are bounded by Brighton to the east, the South Downs to the north and the town of Shoreham to the west. There are no main rivers or ordinary watercourses within Brighton and Hove.

Following extreme rainfall events in both July 2014 and August 2015, these areas experienced significant surface water flooding. Due to the rainfall intensity, local sewers and drains were unable to cope with flows which resulted in over 100 properties flooding. The areas most affected were in low-lying urban areas where opportunities for natural drainage are limited. As a result of these events, Brighton and Hove City Council (BHCC) have been allocated £253,000 of local levy money from the Southern Regional Flood and Coastal Committee (SRFCC), in conjunction with £230,000 of their own money, to provide a Property Level Protection (PLP) scheme. This scheme is to protect vulnerable properties in low lying areas where natural drainage is limited with passive Property Level Protection measures..

Additional surface water flood events reported throughout the area include:

- 1990s
- Winter 2000/2001
- February 2014
- July 2014
- October 2014
- June 2016
- July 2017

This business case will follow the Five Case Model and seeks approval for £253,000 of local levy money to better protect 63 properties from the risk of surface water flooding. It will set out the strategic case for change, identify the different options available and provide indicative costs and benefits sufficient to demonstrate that a viable project is possible and to identify the preferred option.

2. Strategic case

Strategic context

In December 2010, the Environment Agency issued the national Indicative Flood Risk Areas to all Lead Local Flood Authorities (LLFAs). This work identified 10 Flood Risk Areas in England which had greater than 30,000 people at risk and the City of Brighton and Hove was ranked at 8th in this list, with 36,412 people identified to be at potential risk of flooding. As a result, BHCC were duty bound to prepare a Preliminary Flood Risk Assessment (PFRA) to facilitate the identification of Flood Risk Areas and local Flood Risk Management options.

The BHCC Surface Water Management Plan (SWMP), completed by Peter Brett Associates in 2014 drew on the findings of the PFRA and identified a number of key hotspots throughout the City, predominantly following extensive flooding during the winter of 2000/2001. This flooding was reported to have been as a result of an extreme rainfall event which overwhelmed the surface water drainage system. Two of the hotspot areas identified were located within the vicinity of Hove and Portslade, which has suffered from repeated incidents of surface water flooding.

Since publication of the SWMP, more recent flooding has occurred once again throughout Brighton and Hove, in July 2014 and August 2015.This resulted in significant surface water flooding affecting over 100 properties. The SRFCC has allocated funds to provide a PLP Scheme to help mitigate the effects of flooding, which is in line with objectives 5 and 7 of the Local Flood Risk Management Strategy (LFRMS). These seek to:

- "*Raise public awareness and resilience to flooding*" (Objective 5); and

- "*Work with partners and funders to implement sustainable public health protection measures*" (Objective 7). Objective 7 goes on to state that:
- "*where engineered solutions are deemed unviable, it may be necessary to establish other measures to protect the public, including educational and advisory information, support and or PLP*."

The case for change

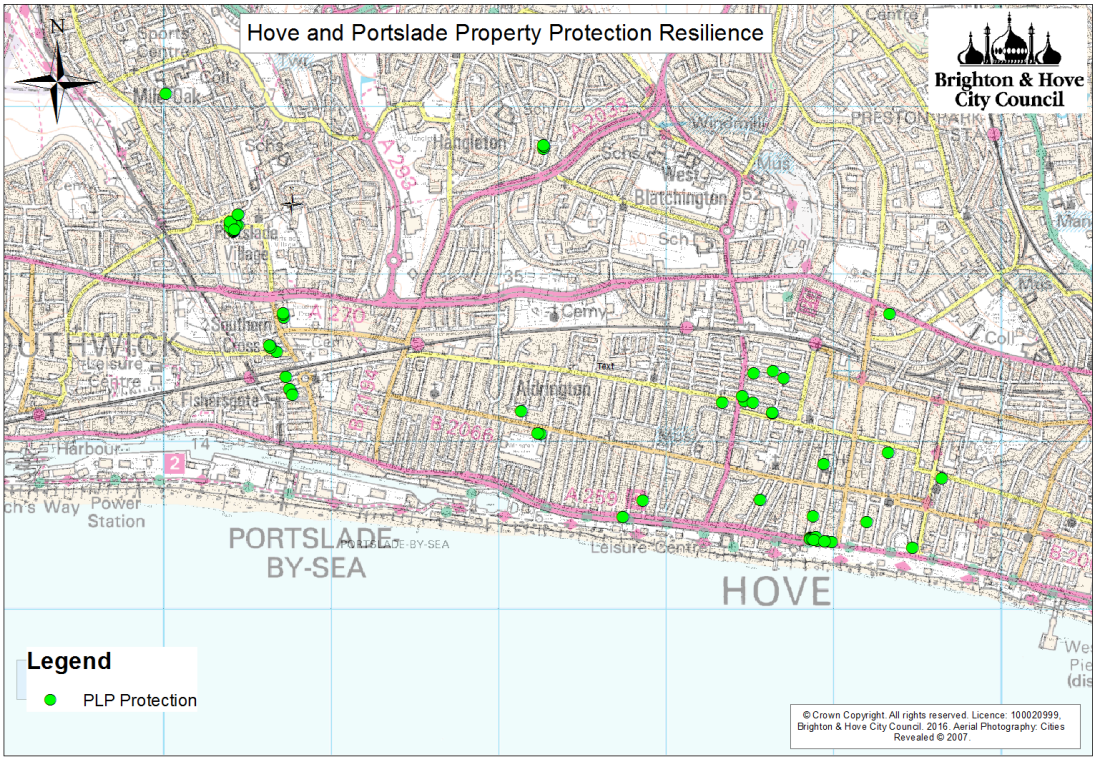
October 2014 – Church Road, Portslade

July 2014 - Elm Road, Portslade

July 2014 - Kingsway

June 2016 – South Street Portslade

Areas of Hove and Portslade have suffered from repeated incidences of surface water flooding, reported to have been affecting properties since the 1990s. Following key surface water flood events, such as Winter 2000/2001, July 2014, October 2014, July 2015 and August 2015, widespread internal property flooding was reported to BHCC by residents. Given the dispersed nature of the flooded properties, the discrete surface water flow routes and the unpredictability of each event, alternative options for flood mitigation, such as the use of temporary or permanent defence structures are not viable options and have not been considered. The map below displays the properties to be included within the proposed property level protection scheme.



Following the July 2014 and August 2015 flood events, BHCC was allocated funds through the SRFCC to initiate a PLP scheme for properties at risk of surface water flooding. Introduction letters were sent to 151 properties which had either reported an incidence of internal flooding, or were adjoining a property that had, inviting them to take part in the scheme through participation in an initial PLP survey. In total, 64 property owners took up the offer and each property was assessed with regard to their potential flood risk, with recommendations for flood mitigation options identified. It was found that 16 of the properties which took part in the initial survey had not flooded internally, however all but one of these were adjoining properties which had suffered from flooding and as such, these properties have also been considered as eligible for further inclusion in the scheme.

Objectives

The primary objective of this OBC is to address flood risk from surface water flooding which has affected properties throughout Hove and Portslade for a number of years. Since there are no technically viable engineering options for mitigation available, these properties remain vulnerable to surface water flooding. Passive property level protection measures have therefore been investigated, to afford some protection from the frequent repeated flooding events and as an alternative to the only other option of sandbag deployment by BHCC.

Such a proposal will help address both LFRMS objectives to raise flood awareness and provide PLP measures.

3. Economic case

Options considered

As identified above in the ‘Case for Change’, the dispersed and frequently isolated nature of the surface water flooding reported throughout Hove and Portslade means that alternative options, such as traditional engineered schemes or the use of temporary and permanent flood barriers have not been deemed suitable. The installation of PLP measures is the only option that has been considered by BHCC to help mitigate the issue of surface water flood risk within the area of Hove and Portslade.

Options		Description	Technical, Environmental & Social matters
1	Do nothing	*No measures offered to the properties. No sandbags are provided.*	The residents will continue to suffer from the adverse effects of flooding.
2	Do minimum	*Provide support to residents when flooded. Although not BHCC policy, provide sandbags if available on a case by case basis.*	The residents will continue to suffer from the adverse effects of flooding.
3	PLP	*Installation of passive Property-level Protection at each property.*	Universal agreement required from all attached properties to ensure PLP is at its most effective. Residents (many are tenants) required to install measures themselves - passive options are necessary and provide the most benefit.

Key findings

Public consultation drop-in events and Individual property surveys have been completed at the 64 properties identified as being at potential risk of flooding. The surveys assessed the flood risk posed to the properties, as well as identifying ingress routes in to the buildings and recommending a range of flood protection options and measures to help mitigate against internal flooding. In total 63 properties were found to be eligible for further inclusion in the scheme and considered for PLP measures should funding be approved. One detached property was found to have no record of ever flooding so was excluded from further assessment.

Using recorded frequency of historic flood events and the Environment Agency's Risk of Flooding from Surface Water mapping**,** 24 properties were determined to be at very significant risk of flooding, with the further 39 at significant risk. The Weighted Annual Average Damage (WAAD) approach was used to calculate Present Value damages (PVd), as set out in the Multi Coloured Manual. The PVd were calculated to be £992k and were calculated over the lifetime of the scheme, which in the case of PFR products is 20 years, see the appendix for the Strategy Level Economic Calculator_v6 (Aug 17) v2.0. To calculate the present value benefits, it has been assumed that with the products in place, all damages would be countered and mitigated against. This is due to the shallow depths of flooding which have historically been reported at the properties included in the scheme.

As a result of the initial surveys, BHCC were supplied with an indicative cost estimate from JBA Consulting to provide measures to each property, which was in the region of £446k. The cost is representative of the passive measures required such as flood proof doors, automatic airbricks, non-return valves, inspections and sealing, as well as pumping solutions. The cost of measures was based on findings of the 2012 Defra report, 'Establishing the Cost Effectiveness of Property Flood Protection: FD2657' which gives confidence in the costs associated with the scheme and as such, a relatively low optimism bias of 10% has been included in the figure. Where the properties in question are basement flats, it has been appropriate to recommend a gateway barrier situated at street level which in some cases provides protection to more than one property.

Option		Present Value costs (£k)	Present Value damages (£k)	Present Value benefits (£k)	Average benefit: cost ratio (BCR)	Option for incremental calculation
1	Do nothing	£0	£992	£0	N/A	N/A
2	Do minimum	£1.5 (day) £2.1 (Night)	£992	£0	N/A	N/A
3	PLP	£483	0	£992	1.96	N/A

Preferred way forward

By adopting the 'Do nothing' approach, the properties located within Hove and Portslade will remain at risk of internal flooding during future surface water events and has therefore been discounted. The 'Do minimum' option, whereby sandbags would be deployed in an emergency is very costly and is labour intensive. The costs described in the table above are based on operatives working for 7 hours, both the day and night rate have been shown to demonstrate the different costs. BHCC have limited operatives and resources to deal with incidents. There is no specific deployment plan for sandbags due to the unpredictability of extreme rainfall events. Sandbags are usually deployed after the incident has occurred and damage has been done. Generally, sandbags have been found to be largely ineffective when dealing with issues of quick onset flooding, with additional costs to BHCC regarding post flood clean-up and removal of sandbags to landfill. As such, the deployment of sandbags is also considered to be an unsustainable and largely ineffective option.

Based on analysis of the project so far and the feelings of the residents captured during the drop-in events and property surveys, the provision of PLP measures is the preferred way forward for the Hove and Portslade properties. Where appropriate it is recommended that PLP products installed are KiteMarked, achieving the relevant British standard. This will help to ensure that, as long as they are well installed, maintained and in a good condition, the products will perform to the best standard possible. The installation of PLP results in a positive cost benefit ratio of 1.96. The main intangible benefit however, is that the residents will have an increased peace of mind and the emotional strain associated with repeated flooding and the threat of flooding will be reduced. It has been assumed that all damages would be mitigated against through the application of PLP measures.

4. Commercial case

Procurement strategy

Sixty-four independent flood risk assessment reports have already been obtained for the properties deemed to be at risk which outline the recommended PLP mitigation measures per property. An installation company will need to be appointed who will follow the recommendations outlined in the property reports and determine the precise design and specific products on a site by site basis in conjunction with the homeowners and council. BHCC will appoint the installation company through open competitive tender to ensure the best value.

Key contractual terms and risk allocation

The project will be managed by BHCC under an industry standard contract and is likely to be a short form contract due to the low value of the project. The overall financial risk to the project will be taken by the City Council and partners will not be expected to contribute if the project is over budget.

Construction is relatively low risk and specialist and experienced contractor will be employed by BHCC to undertake the work, which will reduce the risk of construction related issues. Construction works will be monitored and checked by BHCC. Following construction, an independent post installation survey will be completed by JBA to ensure that all measures have been provided and residents are aware of installation, maintenance and storage procedures.

Efficiencies and commercial arrangements

The project will be let as one lot and all of the properties will be worked on in one lot therefore being constructed in the most efficient manner.

5. Financial case

Summary of financial appraisal

	Cost for economic appraisal (PV)	Whole-life cash cost	Total Project cost (approval)
Costs up to OBC	£53,000 – sunk cost	£53,000 – sunk cost	£53,000 – sunk cost
Costs after OBC			
Consultants' fees	£7,560	£7,560	£7,560
Contractors' fees and construction	£380,196.00	£380,196.00	£380,196.00
Risk Contingency			
Optimism Bias – 10%	£42,244	£42,244	£42,244
Inflation	N/a	N/a	
Future costs (construction + maintenance)	(PV) 0	(Cash) 0	 N/a
Project total cost	£483,000	£483,000	£483,000 (includes the £230k BHCC contribution, sunk costs and 10% Optimism bias)

Funding sources

This scheme will be funded through two different sources - the Southern Regional Flood and Coastal Committee have agreed an allocation of £253,000 of local levy and Brighton and Hove City Council have committed £230,000 towards the project. The profiled spend of the different funding sources is summarised in the table below.

Annualised spend profile (£k)	Yr 0 2017/18	Yr 1 2018/19	Total
Local Levy confirmed allocation	£83,000	£170,000	£253000
BHCC contribution (committed and agreed)	£53,000	£177,000	£230,000
Project total cost	£136,000	£347,000	£483,000

6. Management case

Project management

Brighton and Hove City Council as the Lead Local Flood Authority is managing this project. The Project Manager will be Maggie Moran (Flood Risk Manager) and the Project Executive will be Yann Vochelle (Senior Project Engineer)

Activity	Date (DD/MM/YYY)	Comment
Planning permission received	TBC	10 Properties require planning permission, applications to be submitted due to listed building status
Work to be started on site	15 March	BHCC will have appointed the PLP

Activity	Date (DD/MM/YYY)	Comment
	2018	contractors and will be ready to begin installation
Work substantially completed by	August 2018	Including post installation audits

Benefits realisation

Contributions to outcome measures	
Outcome 1 − Ratio of whole-life benefits to costs	
Present value benefits (£k)	992
Present value costs (£k)	483
Benefit: cost ratio	2.05
Outcome 2 − Households at reduced risk	
2a – Households moved to a lower risk category (number – nr)	63
2b – Households moved from very significant or significant risk to moderate or low risk (nr)	63
2c – Proportion of households in 2b that are in the 20% most deprived areas (nr)	0
Outcome 3 – Households with reduced risk of erosion	
3a – Households with reduced risk of erosion (nr)	
3b – Proportion of those in 3 protected from loss within 20 years (nr)	
3c – Proportion of households in 3b that are in the 20% most deprived areas (nr)	
Outcome 4 – Water framework directive	
4a – Hectares of water-dependent habitat created or improved (ha)	
4b – Hectares of intertidal habitat created (ha)	
4c – Kilometres of river protected (km)	

Risk management

	Key Risks	H/M/L	Owner	Mitigation
1	Planning permission for Property Flood Resilience not achievable on listed properties.	Medium	BHCC	Early liaison with the Local Planning Authority and Conservation Officer and adopt comments in the design.
2	Property Flood Resilience solution not implemented correctly / not fully effective.	Low	BHCC	Engage with and encourage residents at an early stage to use BSI Kite Marked products to be installed by Kite Mark approved contractors.
3	Property owner refusal to adopt PFR measures and refusal to access contribution funds.	Low	BHCC	Early liaison with property owners and the utilisation of engagement events such as flood fairs.

	Key Risks	H/M/L	Owner	Mitigation
4	Groundwater flooding	Low	BHCC	Realistic expectations set with the property owners of PLP interventions.
5	Funding- the Property Flood Resilience scheme does not receive £253k Local Levy funding.	Low	BHCC	Business case developed in accordance with the EA's FCERM-AG, and presented in an appropriate format (i.e. OBC). The project's economic case has a robust benefit cost ratio >1 showing the project is viable.
6	Residents change their mind about the recommended measures after having discussions with the installer.	Medium	BHCC	Early liaison with property owners and the utilisation of engagement events. Signed legal agreements, detailing specific products to be ordered confirms buy-in before products are ordered.
7	Legal agreements between residents and freeholders take time to implement (specifically for shared mitigation measures such as flood gates for shared entrances).	Medium	BHCC	Early liaison with property owners and residents.
8	Surface water flood risk can in some cases only affect part of the property and mitigation measures have been recommended accordingly.	Medium	BHCC	In all of these cases, partial property level protection has been confirmed with the resident on site. For example, if only the front of the property is at surface water flood risk i.e. for a terraced property where the surface water flood risk is from the road at the front of the property, measures have only been recommended for the front of the property.

Assurance, approval & post project evaluation

Internal Reviews:

Project documents and project stages will be managed proportionately using the produce, review and approve' process. Once a document has been produced, it will be peer reviewed, completed and then submitted for approval to a competent officer.

Internal Assurance:

As part of the Project Assurance an independent cost consultant and/or quantity surveyor may be employed. This role will scrutinise and control contractor, sub-contractor and third-party estimates/costs.

External Assurance:

This OBC will be assured by the Environment Agency's National Project Assurance Service.

Post Project Evaluation

BHCC will complete a post PLP installation survey to ensure that all measures are installed correctly and the residents are confident in their use. Following scheme completion, BHCC will present to the RFCC on their findings from the scheme and share any lessons learnt.

7. Recommendation

It is recommended that PLP measures are taken forward as the preferred option for the 63 Hove and Portslade properties which are at current risk of surface water flooding and have already received a PLP survey. BHCC has secured £253,000 through Local Levy funding and a further £230,000 through their own funds, which fully covers the cost of recommended PLP measures at each property, including a 10% optimism bias. Consultancy fees will be allocated from funding secured directly from BHCC, with the entire amount of Local Levy funding allocated to the provision of measures.

This funding will cover the cost of a basic package of PLP measures, with aesthetic upgrades requiring a contribution from property owners directly.

Strategy Level Economic Calculator

JBA Consulting - Engineers & Scientists
www.jbaconsulting.co.uk

CLIENT	Brighton and Hove District Council
PROJECT	Brighton and Hove PLP Scheme
SUMMARY	PLP Scheme

Mandatory input by user
Optional input by user
Calculated by spreadsheet

PART 1: PROJECT DESCRIPTION

Project name	Brighton and Hove PLP Scheme
Project reference	2016s5204
Project location	Brighton and Hove

PART 2: GENERALITIES

Test discount rate	3.5%	3.0%	2.5%
Appraisal period (years)	20		
PV factor for appraisal period	14.710		

PART 3: CALCULATION OF BENEFITS

3.1 Define the benefit area

Residential properties at risk for 200 year event (nr)	63	
Average property value (£)	354,847	
Flood warning? (None/<8 hour/>8 hour)	None	0

3.2 Direct damage to residential properties

Standard of protection (return period)		Properties at risk	Properties protected (default)	Properties protected (default)	AAD per property	Total AAD
		nr	%	nr	£	£
1	No protection	0	n/a	0	£ 5,054	£ -
0.5	50% (2-years)	0	n/a	0	£ 5,054	£ -
0.2	20% (5-years)	0	5%	3.15	£ 3,071	£ -
0.1	10% (10-years)	24	10%	3.15	£ 1,580	£ 37,928
0.04	4% (25-years)	39	25%	9.45	£ 757	£ 29,514
0.02	2% (50-years)	0	80%	34.65	£ 323	£ -
0.01	1% (100-years)	0	93%	8.19	£ 80	£ -
0.005	0.5% (200-years)	0	100%	4.41	£ 41	£ -
	Total	**63**		**63**		**£ 67,442**
	PV damage (PVd)					**£ 992,079**
	Write-off value					£ 22,355,361
	PVd capped					**£ 992,079**

3.3 Direct damage to non-residential properties

Standard of protection (return period)		Properties protected: Retail	Offices	Warehouses	Leisure	Playing Field	Sports Centre	Marina	Sports Stadium	Public Buildings	Industry	Car park	SubStation	NRP sector average	Total AAD
		2	3	4	51	521	523	526	525	6	8	910	960		
		nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	£
	No protection														£ -
	20% (5-years)														£ -
	10% (10-years)														£ -
	4% (25-years)														£ -
	2% (50-years)														£ -
	1% (100-years)														£ -
	0.5% (200-years)														£ -
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	£ -
	PVd non-residential														£ -

3.4 Other flood losses: road disruption and emergency costs

		Property Count	Percentage Properties	Percentage Damage	
Direct damage: residential		63	100.0%	100.0%	£ 992,079
Direct damage: non-residential		0	0.0%	0.0%	£ -
Sub-total: direct damage	Total	**63**	**100%**	**100%**	**£ 992,079**
TOTAL PVd					**£ 992,079**