


Appendix 4 – Candidate Projects for Local Choices

 Environment Agency		FCRM Project Mandate Form (Application Form) PART 1 (Completed by Area FCRM)	
Project name	Mushroom Green Dam		
Location	Dudley	Post Code/Grid Ref	DY5 1EQ / SO 93627 85889
Region	Midlands	Area	Central
CFMP/SMP	Severn	Policy chosen	5
Asset System name	Stourbridge and Halesowen		
Asset System number	FR06/S702	Asset Reference number(s)	0331012690102L02 / R02
Is project from a Strategy or previous appraisal	No	Shape file attached	Yes
Project Governance			
Role	Name	Post Title	
Project Sponsor	Emma Roberts	Central Area Flood Risk Manager	
Senior User	Neil Lote	AP Team leader (North)	
Project Executive	Graham Hodgson	Group Engineer, Dudley MBC	
Project Manager	Simon Hunt	Section Engineer, Dudley MBC	
Mandate Completed by	Neil Lote	Date	23/05/2012
Requirements of the Project			
Project Type	Simple change project (Stand alone)		N
	Complex change project (Strategy)		N
	Change project (supported by Strategy)		N
	Asset replacement (Sustain)		N
	Legal Requirements		N
	Other (e.g. H&S, Plan, Inspections)		H&S
Is this a Framework for Action?	Yes (if Y please justify the approach)	No	No
Indication of Households at risk?	42 shown in shape file - flood zone 2 (approximate reservoir inundation zone). However an additional 140 commercial properties are at risk of a dam breach.		Which KPI does project contribute to? 965
Proposed moderation reason	External funding opportunity		Yes
	Legal Agreement		N
	Health & Safety		Yes
	Statutory Requirement		N
	Study		N
Partnerships and River Basin Management Plan	Is the project part of the Severn Trent Water Partnership?		Yes
	Does the project contribute to the River Basin Management Plan?		No
Background			
Briefly explain the problem, need or opportunity, how the project links to agreed strategies, programmes, business plans.			
Mushroom Green Embankment is located at the downstream section of the Mousesweet Brook, near the confluence with the River Stour, Dudley. A 50m culvert, which runs through the 10m high embankment is failing (grade 4) due to its age and poor condition. In Nov 2000 land behind the dam (a local nature reserve) flooded to approx 120,000 m3 volume and began seeping through the embankment. The EA & LA's attended the scene and overpumped to draw down water and prevent a sudden failure. A new trash screen was installed after this event.			
Dudley MBC are promoting a long term solution in partnership with the EA, Sandwell MBC's and Severn Trent Water to reduce the risk of a sudden failure of the embankment if a large event re-occurs or the culvert collapses.			
Dudley MBC undertook a desk study and ground investigation in 2012 to ascertain the condition and composition of the embankment (£10k), which was found to be made of unsuitable material.			
The embankment is NOT deemed to be classified as a Reservoir, due to it historically acting as a former mineral railway. However, it remains the opinion of both LA's and the EA Central FCRM team that Mushroom Green embankment poses a serious threat to public safety and has been included on the regional high risk sites register.			
The EA commissioned a 'Breach scenario hazard mapping study' in 2010. It concluded that there is little benefit to retain flood water against the embankment, and if it were to breach then there is significant downstream risk within flood zone 2. A minimum of 142 properties (including 42 residential) and critical infrastructure such as roads, services and a sewage treatment works are at risk. The shape file is extended to the confluence with the Smestow Brook at Stourton, however effects could extend further downstream towards Kidderminster.			
There are 4 strategic foul sewers (according to STW), which run through and along the top of the embankment, which are owned by Severn Trent Water. STW completed surveys to determine their asset details & condition in 2012 (approx £5k contribution). It is envisaged they may contribute further - including their 'time in kind' for the project to ensure these assets are fully protected.			
Project Options include:			
1. Do Nothing			
2. Do Minimum - Continue to maintain the trash screen but not repair the culvert / embankment.			
3. Remove the culvert and divert or bridge the existing sewers across the opened valley.			
4. Replace the failing asset with a new oversized culvert (approx 2.4m box culvert).			
Options 3 & 4 have Water Framework Directive and other environmental benefits, which will remove the need for a trash screen; maintenance by the EA and reduce the risk of embankment failure. Option 4 is the current preferred option and could incorporate diffuse pollution improvements (i.e. upstream reed beds), which has attracted £100k of funding from the EA Midlands 'Murci Waters' project.			
The LA's have undertaken early contractor involvement and have obtained a budget price exclusive of risk and other items such as asset protection. The current project strategy is for Dudley MBC to act as client, designer & project manager. They will maintain the new culvert thereafter.			

Scope/objectives of project	
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*In this section, clearly state what the project is seeking to achieve and how it will do this. All Objectives must be SMART (S**pecific**, M**easurable**, A**chievable**, R**elevant**, T**ime bound**).*

Asset No's 0331012690102L02/R02 have been replaced by April 20134 (2 failing assets)

Reduce or remove the serious threat to public safety

Minimise environmental impact and promote environmental enhancements under BAP / WFD

Gateway Dates	Date Forecast Gateway to be Signed Off
Gateway 1 (Business Case)	Apr-13
Gateway 2 (Detailed Design)	Sep-13
Gateway 3 (Contract Award)	Mar-14
Gateway 4 (Project Complete)	Oct-14
Gateway 5 (Contract Complete)	Mar-15

Initial Forecast of the Outcome Measures that could be achieved by the project and the Financial Year in Which They can be Delivered

Delivery year	OM2	OM2b	OM3	OM4	OM5	OM5i
2014/15	42					

Project Gateway Date	Anticipated Spend (£k) per Financial Year (Yr 0 is the Current Financial Year)					
	Yr 0 (12/13)	Yr 1 (13/14)	Yr 2 (14/15)	Yr3	Yr 4	Yr 5
Pre Gateway 3 (Project Development)	30	20				
Post Gateway 3 (Project Construction)		50	1000			

Mushroom Green Culvert (shown in Red) & Location plans

Proposed new culvert shown in Blue



Approx 10m high from culvert
invert to top of embankment

Trash screen at culvert inlet

**MTP 2012/13
MODERATION EVIDENCE**

EA Unique Project Reference: SNC001F/000A/001A

Project Name: Mushroom Green Dam

RFCC: Severn

EA Region: Midlands

Operating Authority: Dudley MBC

EA Area: Central

Reason for Moderation Evidence:

☐

Statutory Requirement

☐

Study

☐

Legal Agreement

☐

Other / EA Policy

☒

Health & Safety

Description

Mushroom Green Dam is located at the downstream section of the Mousesweet Brook, near the confluence with the River Stour, Dudley. A 50m culvert, which runs through the 10m high embankment is failing (grade 4) due to its poor condition. In 2000 land behind the dam (a local nature reserve) flooded to approx 120,000 m3 volume and began seeping through the embankment. The EA & LA's attended the scene and over-pumped to draw down water and prevent a sudden failure.

A long term solution in partnership with the EA, Sandwell MBC and Severn Trent Water is sought to reduce the risk of a breach if a large event re-occurs or the culvert collapses. Dudley MBC undertook a ground investigation in 2012 to ascertain the condition and composition of the embankment, which was found to be made of unsuitable material.

The embankment is NOT deemed to be classified as a Reservoir, due to it historically acting as a former mineral railway. However, it remains the opinion of both LA's and the EA Central FCRM team that Mushroom Green Dam poses a serious threat to public safety and has been included on the regional high risk sites register.

The EA commissioned a 'Breach scenario hazard mapping study' in 2010. It concluded that there is little benefit to retain flood water against the embankment, and if it were to breach then there is significant downstream risk within flood zone 2 are at risk. A minimum of 142 properties (including 42 residential) and critical infrastructure such as roads, services and a sewage treatment works. The shape file is extended to the confluence with the Smestow Brook at Stourton, however effects could extend further downstream towards Kidderminster.

There are 4 strategic foul sewers which run through and along the top of the embankment, which are owned by Severn Trent Water. STW completed surveys to determine their asset details & condition in 2012. It is envisaged they may contribute further - including their 'time in kind' for the project to ensure these assets are fully protected.



FCRM Project Mandate Form
PART 1 (Completed by Area FCRM)

Project name	Wootton Wawen FRMS		
Location	Wootton Wawen	Post Code/Grid Ref	B95 6 SP15706347
Region	Midlands	Area	Central
CFMP/SMP	Warwick - Severn CFMP, Policy Unit 13	Policy chosen	Option 5 (Take further Action to reduce flooding). Policy 3 failing assets
Asset System name	Wootton Wawen		
Asset System number	FR/06/S945	Asset Reference number(s)	0331125050303R02 0331125050303R03
Is project from a Strategy or previous appraisal	No	Shape file attached	No

Project Governance

Role	Name	Post Title
Project Sponsor	Emma Roberts	Area Flood Risk Manager
Senior User	Sarah Blenkin	PSO FCRM Advisor
Project Executive	Andy Wilson	AP FCRM Advisor
Project Manager	Felix Chigama	AP FCRM Advisor
Mandate Completed by	Steven Haywood	Date 08/06/2012

Requirements of the Project

Project Type	Simple change project (Stand alone)	NO	
	Complex change project (Strategy)	NO	
	Change project (supported by Strategy)	NO	
	Asset replacement (Sustain)	YES	
	Legal Requirements	NO	
	Other (e.g. H&S, Plan, Inspections)	H&S - Impact of reservoir failure	
Is this a Framework for Action?	Yes (if Y please justify the approach)	No	
Indication of Households at risk?	54 from raft assessment	Which KPI does project contribute to?	962/965 failing assets
Proposed moderation reason	External funding opportunity	No	
	Legal Agreement	No	
	Health & Safety	YES - Risk to life from reservoir	
	Statutory Requirement	No	
	Study	No	
Partnerships and River Basin Management Plan	Is the project part of the Severn Trent Water Partnership?	No	
	Does the project contribute to the River Basin Management Plan?	No	

Background

Briefly explain the problem, need or opportunity, how the project links to agreed strategies, programmes, business plans.

The Environment Agency has a flood defence at Wootton Wawen which protects approximately 285 permanent residencies. The floodbank is in a poor condition and failing due to poaching and erosion and the situation is complicated by the presence of a reservoir which could have a major impact on the flooding. There are also some weirs nearby that may be our historic assets and affect the water level against the banks.

Central see the current Wootton Wawen situation as one of the biggest risks to life in the area. There is very little chance of warning the 400 residents (number given by caravan operator during a site visit on 15 June 2012) who live at the caravan park immediately downstream of the reservoir should it and our flood banks breach. Central also feel its important to look at the whole risk solution, not just replacing or repairing the failing floodbanks.

The reservoir is undergoing registration (approx. 40000m3 holding capacity) but this may change following the introduction of the FWMA. Its believed that it is operated by the local fishing club. Improvements to the floodbanks would help both the failing asset and the failing system KPI's besides addressing a genuine flood risk.

The objectives are aimed at getting the reservoir undertaker to comply to the reservoir works, rather than the EA doing the work for them. If the owner is unable or unwilling to undertake repairs then considering the risk to life, the EA may be required to undertake the works.

The Wootton Wawen Scheme was looked at by NCPMS in 2007 and a design drafted however there was a very low cost benefit. The scheme was then considered in 2011 as part of the Central Defence Repairs project but due to complex legal / landowner issues it was recommended that it becomes a stand alone sustain project. The funding this year (2012/13) is to better understand the problem, consider the options and to agree a solution with the landowners which also takes account of the poor condition reservoir and failing EA assets. If works are required a PAR report will be produced in year 1, followed by construction in year 2.

Project Delivery By delete as appropriate AREA

Scope/objectives of project

In this section, clearly state what the project is seeking to achieve and how it will do this. All Objectives must be SMART (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **I**me bound).

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Ensure the failing flood defence embankment is brought to target condition as part of the works.

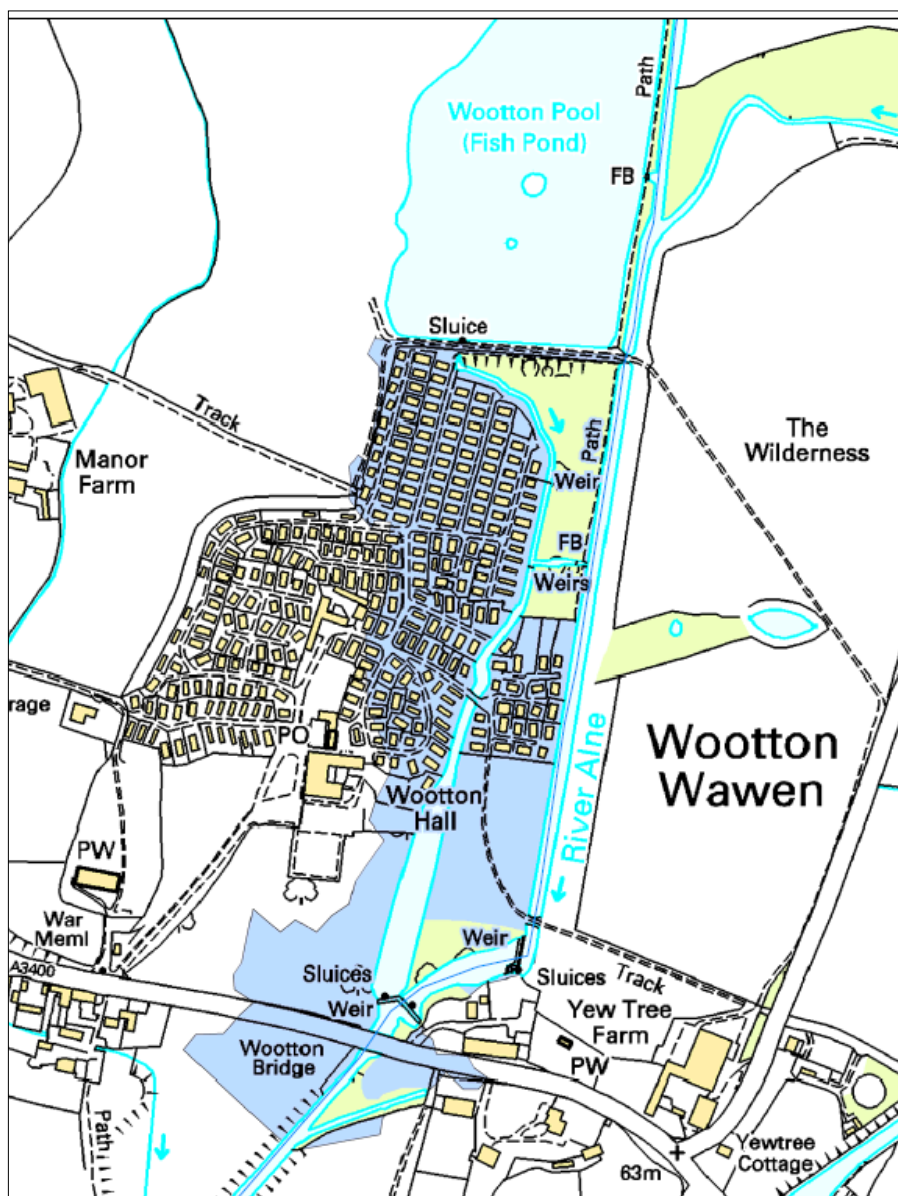
Ensure the upstream Wootton Pool is adequately assessed, with necessary repairs undertaken.

Gateway Dates	Date Forecast Gateway to be Signed Off
Gateway 1 (Business Case)	Jul-13
Gateway 2 (Detailed Design)	Dec-13
Gateway 3 (Contract Award)	Jun-14
Gateway 4 (Project Complete)	Feb-15
Gateway 5 (Contract Complete)	Feb-16

Initial Forecast of the Outcome Measures that could be achieved by the project and the Financial Year in Which They can be

Delivery year	OM2	OM2b	OM3	OM4	OM5	OM5i
2014/15	47	47				

Project Gateway Date	Anticipated Spend (£k) per Financial Year (Yr 0 is the Current Financial Year)					
	Yr 0 (12/13)	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Pre Gateway 3 (Project	25	50				
Post Gateway 3 (Project			500			



MTP 2013/14 MODERATION EVIDENCE	
EA Unique Project Reference: SNC001E/000A/001B	
Project Name: Wootton Wawen	
RFCC: Severn	EA Region: Midlands
Risk Management Authority: EA	EA Area: Central Area
<p>Reason for Moderation Evidence:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Statutory Requirement </div> <div style="width: 50%;"> <input type="checkbox"/> Study </div> <div style="width: 50%;"> <input type="checkbox"/> Legal Agreement </div> <div style="width: 50%;"> <input type="checkbox"/> Other / EA Policy </div> <div style="width: 50%;"> <input checked="" type="checkbox"/> Health & Safety </div> </div>	
<p>Description (<i>robust, succinct, explain the problem, demonstrate the need for urgency, and outline the benefits in order to be able to justify the project; - not just a description of the work to be carried out</i>).</p> <p>The Environment Agency is responsible for flood defences adjacent to a privately-owned reservoir (Wotton Pool) which is going through registration to fall under the ambit of the Reservoir Act 1975. Landowners' negotiations have been progressed by the Reservoir Enforcement at Exeter. There is concern that the level of work required to bring the reservoir to an acceptable standard, may be outside of the landowners capabilities.</p> <p>The reservoir holds approx. 40,000 cubic metres of water and lies immediately upstream of a caravan site with 285 permanently fixed dwellings accommodating about 400 residents (figure given by caravan site operator during our site visit on 15 June 2012).</p> <p>NAFRA data has estimated 47 dwellings to be at v.significant or significant risk and these figures have been used as part of this bid. However it is the opinion of the Area office that these figures substantially underestimate the number of dwellings at risk.</p> <p>The right bank defences' owned by the EA are located downstream of the above-mentioned reservoir and are currently classified as 'failing assets' or grade 4 assets.</p> <p>Due to the potential consequences of failure of the reservoir and subsequently of the EA failing flood defences, there is a strong argument to finding a joined-up solution to address the compliance of the reservoir, improvement of existing flood defences and works to the dilapidated weirs on the R Alne which could also be failing under WFD.</p> <p>Proposed Approach</p> <ol style="list-style-type: none"> 1. Early FY 2012-13: Undertake an options Appraisal to confirm EA approach towards managing the reservoir and failing asset. There are multiple factors to be considered that will affect the cost, time and the most appropriate approach. This year's allocation has been provided to analyse these factors and agree a best way forward. The findings of the Options Appraisal will confirm future funding requirements and delivery timescales. 2. Early FY 2013-14 Prepare a Business Case, if EA deem intervention is required. 3. Late FY 2013-14 Carry out Detailed Design of chosen option 4. Mid-Late FY 2014-15 Award a Contract for construction 5. FY 2015-16 – Project complete 	

FCRM Project Application Form
PART 1 (Completed by RMA)

Project name	Snuff Mill Flood Alleviation		
Project Location (Town, River)	Bewdley, Snuff Mill Brook	Post Code/Grid Ref	DY12 2TN / SO 784 746
Region	Midlands	Area	West
Risk Management Authority	Wyre Forest District Council, acting on behalf of Worcestershire County Council (LLFA)	RMA Type	LA
LA/IDB Scheme Reference	Snuff Mill Flood Alleviation	RFCC	Severn
Parliamentary Constituency (Benefit Area)	Bewdley Town Council, Wyre Forest District Council, Worcestershire County Council		
Shapefile Reference	Snuff Mill		
Is project from a Strategy or previous appraisal? (Please give the details)	No	Has the strategy been adopted?	N/A
Category of Flooding (Risk Source)	R - River Flooding	Funding Code	DEF - Change SoP of Existing defence.

Project Governance

Role	Name	Post Title
Project Sponsor	Mike Parker	Director of Economic Prosperity and Place WFDC
Senior User	Matt Maginnis	Highways and Countryside projects and development manager WCC
Project Executive	Richard Osborne	Principal Environmental Health Officer (Housing and Water Management) WFDC
Project Manager	Kirsten Huizer	Senior Water Management Officer WFDC
Application Completed by	Kirsten Huizer	Date 14-Jun-12

Requirements of the Project

Number of households and level of flood risk pre scheme	37 residential properties are at a very significant risk of flooding from Snuff Mill Brook, 36 of which are also classed to be at a moderate risk of flooding from the river Severn but are defended by demountable flood defences on Severnside South	Number of households and level of flood risk post scheme	36 properties are classed to be at a moderate risk of flooding from the river Severn but are defended by demountable flood defences on Severnside South
Is moderation required?	Yes	Please list moderation supporting documents	Moderation evidence form (enclosed) and on request the report of the All Reservoirs Panel Engineer can be made available
Proposed moderation reason	H - Health & Safety		

Partnerships and Contributions

Partnerships and River Basin Management Plan	Is the project part of a partnership with another RMA or EA?	Yes, Worcestershire County Council (LLFA)
	What is the total value of external contributions to the project?	£ 10,000 (WFDC)
	Please list all contributors and when each contribution is expected to be received.	Contributions being negotiated with landowners, Bewdley Flood Residents' Committee, Bewdley Town Council and Worcestershire County Council

Project Description

Please provide a brief description of the project, as well as the problem that is being addressed. Also include the history of flooding the area.

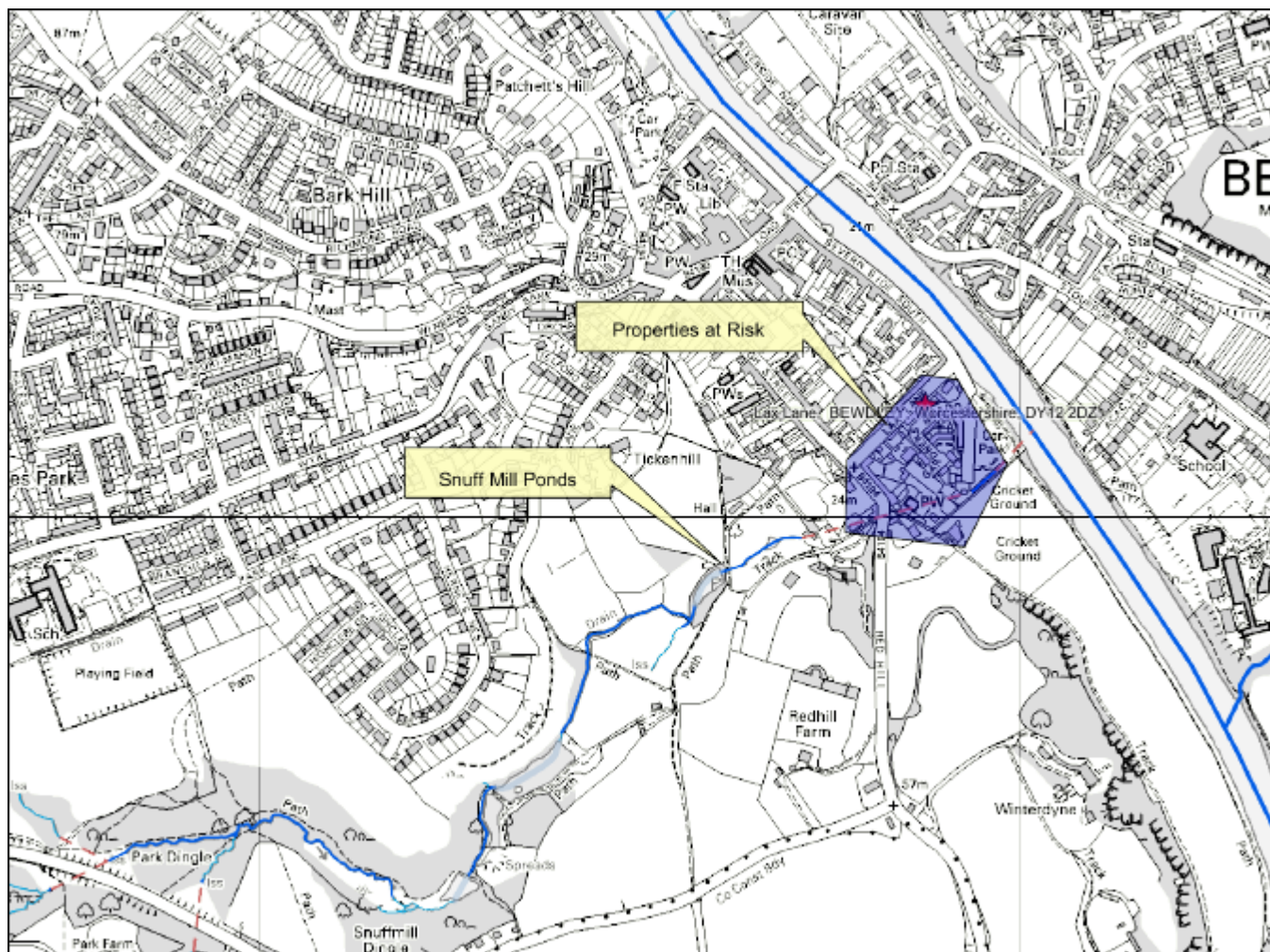
The Snuff Mill Brook is an ordinary watercourse that is everything but ordinary. The brook flows via a steep sloped wooded area and several historic mill ponds into the town centre of Bewdley, where the brook is actually invisible since it discharges via an antiquated brick culvert into a surface water sewer that discharges into the river Severn via a pumping station, which is located just behind the Severn Side South flood defences. In 2007 the watercourse was subject to significant flooding. About 15 properties on Lower Park and Lax Lane were damaged and some local residents were lucky to escape with their lives, having to await rescue at the roof of their bungalow.

The Council instigated a multi-agency investigation to establish the causes of the 2007 flood and the remaining risks for the future. The organisations involved were Worcestershire County Council, Environment Agency and Severn Trent Water. The investigation revealed that multiple factors may have contributed towards what can be described as the severest flood event of the brook in living memory. These factors include the extremity of the rain event, the failure of several pool structures, the collapse of the antiquated brick culvert and the failure of the pumping station. A wide range of relatively small scale measures have by now been taken to address the flood risk for the Bewdley residents, financed by the organisations before mentioned and individual householders and their insurance companies.

During the multi-agency investigation the possibility of creating additional storage for the brook was suggested as a way of dealing with the volumes of water that are generated by this steep sided catchment. There are some remnants of old mill ponds present in the valley just upstream of the antiquated culvert that seem to lend themselves for this purpose. An initial investigation has confirmed the technical feasibility but in the proposed scheme we would like to start with an appraisal phase in which the feasibility of additional storage is fully explored. The creation of extra storage would inevitably need to be combined with adjustments and upgrades to the existing pools structures, some of which are still in urgent need of some works after they were damaged in the 2007 floods. It is appreciated that the responsibility of the pool structures ultimately lies with the landowners, however by combining the works that are needed to the structures from a health and safety point of view with the creation of additional storage the overall flood risk for Bewdley can be reduced even further.

Project Delivery By	Wyre Forest District Council
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Environmental Considerations	No designated sites or requirement for mitigation measures identified					
Scope/objectives of project						
In this section, clearly state what the project is seeking to achieve and how it will do this. All Objectives must be SMART (S pecific, M easurable, A chievable, R elevant, T ime bound).						
Create additional storage utilising remnants of historic mill ponds to reduce the flood risk from the Snuff Mill Brook from 1 in 25 year to 1 in 100 year for 37 residential properties in Bewdley by March 2014.						
Outcome Measures						
Gateway Dates			Date Forecast Gateway to be Signed Off			
Gateway 1 (Date of Business Case/PAB Approval)			Nov-12			
Gateway 3 (Date of Contract Award)			Oct-13			
Gateway 4 (Project Complete, Date Outcome Measures can be claimed)			Mar-14			
Initial Forecast of the Outcome Measures that could be achieved by the project and the Financial Year in Which They can be Delivered						
Delivery year	OM2	OM2b	OM2c	OM4a	OM4b	OM4c
2013/2014	37	37				
Expenditure Profiles						
Project Gateway Date	Anticipated Spend (£k) per Financial Year (Yr 0 is the Current Financial Year)					
	Yr 0 (2012/13)	Yr 1 (2013/14)	Yr 2 (2014/15)	Yr3 (2015/16)	Yr 4 (2016/17)	Future Years
Appraisal	30					
Design & Construction		400				
Post - Construction						10



**MTP 2013/14
MODERATION EVIDENCE**

EA Unique Project Reference: SNC001F/000A/020A

Project Name: Snuff Mill Flood Alleviation

RFCC: Severn

EA Region: Midlands

Risk Management Authority: Wyre Forest District Council, acting on behalf of Worcestershire County Council (LLFA)

EA Area: West

Reason for Moderation Evidence:

☐

Statutory Requirement

☐

Study

☐

Legal Agreement

☐

Other

☒

Health & Safety

☐

Time Constrained Contribution

Description (*robust, succinct, explain the problem, demonstrate the need for urgency, and outline the benefits in order to be able to justify the project; - not just a description of the work to be carried out*).

Several pool structures along the Snuff Mill Brook system were damaged in the 2007 floods. These structures are considered to be high risk structures by virtue of their total capacity when considered as a cascade and the consequence of failure based on their proximity to housing in Bewdley.

The All Reservoirs Panel Engineer that was commissioned by the council in 2011 has advised that should another significant storm occur, it is highly likely that more structures will be severely damaged or even fail. In addition, the engineer has identified two empty structures in the valley of the brook, thought to be remnants of additional historic mill ponds, which could at the moment fill uncontrolled, further increasing the risk to properties downstream.

It is fully appreciated that the individual landowners are ultimately responsible for the operation, maintenance and repair of the structures on their land. However, since some of the empty structures actually provide the unique opportunity to create additional storage in this steep sided catchment, obviously serving a wider public benefit, the Council has decided to step in. The aim is to carry out an integrated investigation into the measures that are needed to create additional storage capacity using the empty structures identified.

It is felt that the inevitable works to the empty structures in the Snuff Mill Valley could and should be combined with the creation of additional storage capacity for the brook, thereby not only reducing the risk posed by these structures, but also minimising the flood risk originating from a large storm event actually overwhelming the capacity of the brook. A first investigation, including some coarse modelling, has identified that it should be technically feasible to store enough water to minimise the risk from the brook to Bewdley in a design flow that is tentatively considered to be a 1 in 100 year flow. This additional storage is thought to reduce the flood risk that the brook currently poses to 46 properties in the town centre of Bewdley, including 37 houses, a craft centre and 2 community halls.