

Scheme Summary

Name of Scheme:	Wykebeck Flood Alleviation
PMO Scheme Code:	GD-PA4-020B
Lead Organisation:	Leeds City Council
Senior Responsible Officer:	Adam Brannen
Lead Promoter Contact:	Daisy Johnson – Project Manager – WYCA
Case Officer:	Paul Coy
Applicable Funding Stream(s) – Grant or Loan:	Local Growth Deal 3
Growth Fund Priority Area (if applicable):	Aligns with; Priority Area 3 – Clean Energy and Environmental Resilience Priority Area 4 – Infrastructure for Growth
Approvals to Date:	
Forecasted Full Approval Date (Decision Point 5):	February 2018
Forecasted Completion Date (Decision Point 6):	October 2019
Total Scheme Cost (£):	£4,167,800
WYCA Funding (£):	£2.6 million
Total other public sector investment (£):	£0.05 levy
Total other private sector investment (£):	£0.99 S106 Drainage £0.526 S106 Greenspace
Is this a standalone Project?	No
Is this a Programme?	Yes – Phase 2 of the FAS programme
Is this Project part of an agreed Programme?	Yes

Current Assurance Process Activity:



Scheme Description:

The Wyke Beck watercourse starts at Waterloo Lake in Roundhay Park in north Leeds and flows through the east of the city, into the Aire Valley Enterprise Zone, before joining with the river Aire, south-east of the city centre.

The Wyke Beck valley river catchment has a long history of flooding and drainage issues. Leeds City Council (LCC) in partnership with the Environment Agency (EA) have developed a plan to address these issues in order to meet strategic priorities for Leeds City Region in particular managing flood risk and sustaining green infrastructure. A catchment wide approach has been taken, as sought in the Leeds City Region Flood Review. The three independent but complementary schemes are all situated within Local Nature Reserves associated with Wyke Beck and provide multiple benefits.

The Wyke Beck Valley is also an extremely important green corridor for wildlife having several unique Biodiversity Action Plan (BAP) Priority Habitats of high ecological value. Habitats of moderate to high ecological value within the valley include a number of semi-natural, broad-leaved woodlands (Lowland Mixed Deciduous Woodland UK BAP Priority Habitat) with an extensive distribution of woodland ground flora species indicating their value as long-established, semi-natural woodland.

A number of species-rich hedgerows have been identified within the valley (Hedgerows UK BAP Priority Habitat). These hedgerows are of high ecological value acting as important corridor links between the sites and providing habitat opportunities for many species of plants and animals.

White-clawed crayfish has a breeding population within the Wyke Beck. Six species of bat have been recorded foraging within the Valley. Many birds listed as UK and Local BAP Priority Species and birds listed on the red and amber list of Birds of Conservation Concern have also recorded in the Valley. This project will help to secure the future of these valuable habitats.

Killingbeck Meadows Naturalised Flood Storage Scheme (KMNFSS)

The proposed flood alleviation development consists of an earthwork embankment constructed across the watercourse with an outlet control structure to create a temporary storage area of up to 45,000 cu m in high flow events. The control structure is such that the spillway will provide up to 1 in 100 year flood protection to residential properties downstream. In addition protection to the residential properties immediately to the west of the spillway is provided by a reinforced wall to ensure no additional flood risk is created when the storage area is operating at capacity.

To reduce the volume of material imported to construct the earth embankment, to maximise the flood storage and to provide improved habitats and visual appearance of the greenspace, it is proposed to excavate a number of ponds and scrapes to provide some or all of the required material. Any excess excavated material that is not suitable for the embankment construction will be utilised within the site for landscaping.

The scheme will provide habitat creation and new planting to improve the biodiversity of the area. A new surfaced public footpath on top of the earth embankment will provide a pedestrian link across the

site into the Killingbeck Fields area and beyond. A number of amenity interpretation points are proposed along with a proposed viewpoint.

During construction, two temporary vehicle access points, one from Foundry Lane and one from Wyke Beck Valley Road, are to be provided. Any impacts arising from the temporary vehicular access and managing construction noise/dust will be addressed through planning and through ongoing local community engagement as set out in the Council's Communication Strategy section 6.4. On completion of the development these access routes will be removed and the land restored to its original condition.

Planning permission was secured in February 2017 for a natural flood management scheme to create a flood storage area with a capacity of 25,000 cu.m within an area known locally as Killingbeck Fields which is part of the Wyke Beck Valley corridor. Further option appraisal has been carried out that has now determined that more storage capacity can be achieved and the proposed scheme will provide 45,000 cu m of storage will directly benefit sixty properties downstream, mostly within the Dunhill's area.

Arthur's Rein Re-Profiling and De- Culverting

Arthur's Rein is also located within Local Nature Reserve. The area consists of low-lying and fragmented amenity grassland with an open water channel, fed by a culverted drain, that feeds in to the Wyke Beck in the Seacroft Area of Leeds. To facilitate the development of a housing site at Kentmere Approach it is necessary to increase the capacity of the existing drain. By constructing an open channel instead of a large culvert in place of the existing there is opportunity to enhance the environment locally and achieve habitat improvements in addition to managing flood risk.

The scheme involves the excavation of approx. 200cu.m of earth to create an open water channel with graded banks to a depth of between 1 - 1.4 m. The channel is designed to be a natural sinuous route varying in width. The excavated material will be used on the adjacent land to create low level mounding that will include new tree planting. A new open porous tarmac path will be created to provide pedestrian access along the existing pedestrian desire line. In addition the semi-circular area of land immediately to the north east and surrounded by highway will benefit from re-profiling of the open watercourse, inclusion of marginal scrapes together with habitat improvements through creation of pollinator habitats, and tree planting.

Halton Moor Local Nature Reserve (LNR)

Halton Moor Local Nature Reserve (LNR 15) is located in one of the most deprived areas of Leeds (ranked in the lowest 10% in the IMD national Ranking – Indices of deprivation 2010). It consists of 15.84 ha amenity greenspace, comprising of a 20m wide riparian corridor either side of the Wyke Beck, together with young amenity woodland plantation and a wide area of close mown amenity grassland.

The riparian channel within the LNR provides a potentially important refuge for white clawed crayfish. The Wyke Beck as a whole is home to a regionally important population of this endangered native species. The amenity woodland, extended in 2005, consists of a young, even aged structure of largely native species, but with a very limited herb layer. The bulk of the green space currently comprises of short mown, amenity grassland of extremely limited biodiversity. The Wyke Beck Way cycle route crosses the site running north to south along the course of the beck, linking directly with a Core Cycle Route (No. 12), which links with the Trans Pennine Trail.

The site's designation as a Local Nature Reserve in 2014, reflected the local communities desire to enhance the profile of their local green space. In 2017 the site was extended by approximately 5 ha in a bid to facilitate our desire to properly connect it to proposed new housing development and ultimately for the site to contribute to a wider, multi-functional, green corridor that properly marries

naturalised flood management, non-motorised public access that properly links with other destinations, together with an increase in biodiversity, along the whole catchment.

In developing this new project, we have divided the site in to two parts, North and South of Neville Road. Throughout the site, it is our intention to create a sense that this is a 'Quality Place', that encourages public access for walking, cycling, both to explore the site, but also as a preferred route, away from the main roads, to reach other destinations. This will contribute to our growing understanding of the important 'Health and Wellbeing' (both physical and mental) that well designed green infrastructure provides to local people. The site is currently lacking in biodiversity and it is our intention to create and encourage a range of new 'Wildlife Habitats', including important connected 'pollinator habitats', that benefit a wide range of species. A community orchard will be provided in partnership with the local Meadow Field Primary School and the local community and this led by the Wyke Beck Project Officer. LCC will continue to maintain this. Whilst it is difficult to quantify, these improvements will make a contribution to our City-wide aim of adapting to 'Climate Change' and improving 'Air and Water Quality'. When viewed alongside those projects planned for Killingbeck Fields and Arthur's Rein this contribution will be significant for the Wyke Beck catchment.

Business Case Summary:

Strategic Case

The flood risk management schemes at Killingbeck Fields and Arthur's Rein will facilitate residential development activity on marginal LCC brownfield sites in East Leeds that would otherwise not come forward for development because of the current flooding/drainage capacity issues affecting the Wyke Beck catchment area. Furthermore, some of the funding for the Killingbeck Meadows scheme will come in part from developer S106 contributions, in return for allowing unrestricted surface water discharge at greenfield rates in to the Wyke Beck.

In addition S106 Greenspace contributions will fund greenspace provision across the project.

Bringing forward these marginal brownfield sites for development is a key priority for LCC to meet its Core Strategy housing growth targets, as well as supporting regeneration of deprived neighbourhoods in East Leeds through investment in housing. It will also support the Council's Vision for Leeds and Best Council Plan. In addition the project aligns with the economic and housing growth ambitions of WYCA for the Leeds City Region as outlined in the SEP.

The flood storage area at Killingbeck Fields in particular will provide significant benefits to the Leeds City Region economy in terms of avoided damages to residential properties from future flooding in the Dunhill Estate area of Halton. Economic appraisal using the Multi-Coloured Manual Handbook suggests that £6.87m will be saved over 100 years. Hydraulic modelling has shown that there are 50 properties at risk in a 1 in 20 year event, 75 properties at risk in a 1 in 75 year event and 120 properties at risk in a 1 in 200 year event. Flooding was reported to a single property during heavy rainfall in August 2017. Frequent and severe flooding in this area over a number of years has caused emotional and well as financial trauma to local residents. This scheme will help to reduce the fear of flooding that residents have to live with on a daily basis.

The three schemes, in particular Halton Moor LNR, will benefit the local community by improving the 'quality of place' for people living and working in

	<p>the area, which is a key priority for the Leeds City Region. This will be achieved by improving access to green spaces and through the delivery of high quality green infrastructure, with improved footpaths and cycle routes through the Wyke Beck valley.</p>
Commercial Case	<p>The project is required to support the wider regeneration of the neighbourhoods of East Leeds through facilitating housing development on largely brownfield sites within the Council's BLP that was established in 2013. Significant development activity is expected within East Leeds over the next 10 years that will drive forward the Council's regeneration agenda and assist in meeting its housing growth targets set out in the Leeds Core Strategy. There are a number of former housing sites in the Seacroft and Halton Moor area which are earmarked for redevelopment, in addition to other large sites which already have planning consent including land to the rear of Seacroft Hospital. Overall, there is scope for circa 2,000 new homes to be delivered across Seacroft and Halton Moor. This project will directly facilitate 4 housing sites coming forward for development within the Council's BLP with a total of 307 dwellings to be built.</p> <p>The demand for the project has derived in part from the housing developers wanting to facilitate housing development in East Leeds utilising the Council's brownfield sites and the need for the Council to develop an integrated sustainable flood management solution for the Wyke Beck which will support the delivery of new housing and economic growth in this part of the city and address the area's long standing flooding problems to residential properties within the catchment area. The latest modelling carried out by WSP on behalf of Leeds City Council shows that around 60 residential properties are at risk of flooding on the Dunhill Estate in Halton Moor and would be at a reduced risk following the construction of the KMNFS.</p> <p>KMNFS will be partly funded by S106 developer contributions. Without the integrated flood management solution for the Wyke Beck valley the catchment area would remain at risk from flooding with housing developers left with no alternative but to provide on-site drainage attenuation solutions that would be less sustainable and more costly to implement. By creating additional water storage capacity within the Wyke Beck catchment area in an integrated way, the scheme offers the most sustainable and cost effective solution to reducing flood risk and supporting regeneration through economic and housing growth in East Leeds.</p> <p>In addition S106 Greenspace contributions will fund greenspace provision across the project.</p>
Economic Case	<p>The preferred option for each of the schemes is summarised here:</p> <p>KMNFS</p> <p>The smaller online (fully impounded) reservoir option with overflow weir and passive outlet control, with the variation of a reinforced concrete wall. This maximises the storage volume, whilst not encroaching on areas of protected greenspace. The construction of a reinforced concrete wall, minimises the extent of construction and avoids the need for realignment of the existing river</p>

	<p>channel which has good habitat status for crayfish. The visual impact of the works and the effect on local trees and vegetation can be mitigated through planting trees and vegetation. Additional access amenity will be provided through the creation of new paths.</p> <p>Arthurs Rein</p> <p>Creation of an open channel to convey unrestricted flows from the Kentmere Approach housing development to Wyke Beck. This will provide additional capacity to convey flows and prevent increased flood risk in the vicinity. It will also provide opportunity for improved amenity arising from the above ground water feature, new access paths and additional tree planting. Biodiversity will be improved by the introduction of meadow grasses and the addition of marginal vegetation along the new channel.</p> <p>Halton Moor LNR</p> <p>It is our intention to create a sense that this is a 'Quality Place', that encourages public access for walking, cycling, both to explore the site, but also as a preferred route, away from the main roads, to reach other destinations. This will contribute to our growing understanding of the important 'Health and Wellbeing' (both physical and mental) and the area will become a well-designed green space for local people to enjoy. The scheme will create and encourage a range of new 'Wildlife Habitats', including important connected 'pollinator habitats', that benefit a wide range of species. A community orchard will be provided in partnership with the local Meadow Field Primary School and the local community and this shall be led by the Wyke Beck Project Officer. LCC will continue to maintain this.</p>
Financial Case	<p>The £2.6m WYCA grant funding will be drawn down as a single pot of money in the current 2017/18 financial year. S106 contributions will be received in accordance with payment schedules set out in legal agreements with housing developers. The initial S106 payments received up to a value of £250,000 will be used by the Council to fund the project's 10 year maintenance cost after the 3 year establishment works has ended.</p>
Management Case	<p>The project will adopt Project Management lite which is Leeds City Council's mandatory methodology and is a streamlined approach to delivering projects. It is based on the Office of Central Government Business Case and Treasury Green Book and incorporates the 5 case model.</p> <p>The project will be primarily a Leeds City Council (LCC) led scheme that will be managed by the Flood Risk Management (FRM) team in the Council. FRM will be responsible for managing:</p> <ul style="list-style-type: none"> • WSP who will producing the design feasibility work for KMNFS and Arthur's Rein and preparing the submission of planning applications and securing planning permissions for both schemes and the role of Principal Designer; • The contract with Colas for delivering the civil works on KMNFS and Arthur's Rein;

	<ul style="list-style-type: none"> • Future maintenance arrangements by liaison with existing maintenance contractors and LCC P&C; • The relationship with the Environment Agency with respect to their ongoing maintenance and flood warning and informing activities along the Main River reaches of the Wyke Beck. <p>FRM will also closely work with the Council's Parks and Countryside (P&C) Service to ensure that the landscaping works are coordinated with the contractor's delivery programme of works.</p> <p>The Council will put in place a governance structure to define roles and responsibilities, reporting mechanisms and decision making processes to facilitate project delivery.</p> <p>Overall responsibility for managing the project will rest with Jonathan Moxon (Flood Risk Manager) who will chair a Wyke Beck Project that will include representatives from the Council's P&C and Regeneration teams and external partners (WSP, YWT, Groundwork) and the Environment Agency. The Wyke Beck Project Board will meet up on a regular basis to review progress and address project issues. A WYCA representative will be invited to these meetings. Unresolved issues will be escalated to the Infrastructure & Investment Group that is jointly chaired by FRM and the Environment Agency and, if necessary, escalate to the Flood Resilience Programme Board which meets up on a quarterly basis and is chaired by the Director of City Development</p> <p>For the schemes themselves the lead person from the Council will be:</p> <ul style="list-style-type: none"> • KMNFS– Project Manager – Flood Risk Management • Arthur's Rein de-culverting – Project Manager – Flood Risk Management • Halton MoorLNR – Project Manager – Parks and Countryside <p>Project Manager – Flood Risk Management to lead and coordinate on the delivery of the civil engineering works managing both WSP and Colas works and working closely with P&C on the delivery of the landscape works.</p> <p>Project Manager – Parks and Countryside to lead on and coordinate the delivery of the landscaping works for all 3 schemes working closely with FRM, WSP and Colas, Project Manager (P&C) to manage external partners (YWT/Groundwork) in the delivery of the project with emphasis on consultation and engagement and recruitment of volunteers from within the local community.</p> <p>Senior Regeneration Officer (LCC) will provide a supportive role to the project working closely with FRM and P&C.</p>
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