

# Rivelin Valley: proposed Roscoe/New Dam flood storage area (FSA): Frequently Asked Questions (1)

*Notes prepared by RVCG, based on information provided by SCC and Arup during the consultation, at meetings and in subsequent correspondence. Updated 10-05-17.*

- **What was the outcome of the recent SCC consultation?**

SCC has published an Interim Report giving the outcomes of the public consultation held between August and October 2016 on the proposed flood alleviation options on the Upper Don (including Rivelin and Loxley) and Sheaf catchments. Many of the options originally proposed have been dropped – these include the Swallow/Wolf flood storage area (FSA) in Rivelin, but the Roscoe/New Dam FSA is still under consideration, despite the relatively high level of opposition (49% disagreed with taking the option forward, 32% agreed, 19% had no opinion – meaning that around 60% of those who expressed an opinion disagreed with the proposal).

More details and the Interim Report can be found at:

[http://www.floodprotectionssheffield.com/pages/consultation and](http://www.floodprotectionssheffield.com/pages/consultation_and)  
[http://www.floodprotectionssheffield.com/files/document/8/1490375403\\_UpperDonandSheafPublicConsultationInterimReport.pdf](http://www.floodprotectionssheffield.com/files/document/8/1490375403_UpperDonandSheafPublicConsultationInterimReport.pdf)

- **Why is the proposed Roscoe/New Dam flood storage area thought to be necessary?**

Some low-lying Sheffield communities and parts of the city centre are built on the floodplain of the River Don and its main tributaries (Sheaf, Porter, Rivelin and Loxley) and are at a high risk of flooding when rainfall is extreme. For example, in the floods of 2007, two lives were lost and millions of pounds worth of damage was done to homes, businesses and infrastructure. The proposed Roscoe/New Dam FSA would complement other city-wide flood alleviation measures to provide substantial capacity for temporary water storage (possibly c. 217,200 m<sup>3</sup> (over 47 million gallons) – the largest of all the proposed Sheffield FSAs). This would contribute to a reduction in flood levels downstream thereby helping to protect properties and businesses along the Loxley, Upper Don and through the city.

SCC has stated that the economic benefits of the whole programme include the potential for 15,000 new jobs, 27,000 new homes, 40 new businesses and £150 million annual economic growth (although the basis for these figures has not yet been published).

- **How does a flood storage area work?**

The type of FSA proposed for Roscoe/New Dam is ‘online’ or ‘impounding’ – an embankment across the river with one or more culverts (tunnels) for water to flow through. When river levels rise above a set level, the water builds up behind the embankment to form a temporary ‘lake’ and drains out slowly once the flood-peak downstream has passed. An overflow channel from the top of the embankment takes any excess water back to the river. For the majority of the time the flood zone area should be dry and normal flow in the river maintained.

## **Rivelin Valley: proposed Roscoe/New Dam flood storage area (FSA): Frequently Asked Questions (2)**

- **What might the proposed flood storage area look like and where would it be?**

No decisions have yet been made regarding the height and width of the proposed embankment or its exact location as the design will depend on other combined options selected across the city. However, in an email to RVCG from SCC in August 2016, it was stated that the indicative dimensions for the Roscoe/New Dam FSA shown in the Consultation document were for an embankment 11.2 m (c. 36 ft) high (above the river), 152 m (c. 165 yds) long at crest level (valley side-to-side) and 71 m (c. 77 yds) wide (along the river). Final dimensions may be smaller than this, but for the flood storage area to hold back sufficient water to be worthwhile in reducing the flood peak downstream, the embankment would have to be substantial in size.

New plans and visualisations will be prepared for workshops/meetings to be held in the near future, but at present this is our understanding:

The proposed location for an embankment is somewhere between the children's playground and the Rivelin Chair Sculpture. If constructed according to the original design dimensions, at maximum capacity the area flooded upstream of the embankment could be up to 57,535 sq metres (14.2 acres) and retain a volume of water around 217,200 m<sup>3</sup> (over 47 million gallons). An additional area of some 7,750 sq m (1.9 acres) could be taken up by the embankment.

The embankment would be grassed over and accessible to the public to walk across/climb up. The footpaths would probably go over the embankment in a zig-zag, and there may be an access path/track all the way across the crest. Within the flood zone paths may be resurfaced, but not re-routed as flooding is only expected to last for a few days.

The river would flow through the embankment in one or more culverts. To withstand the water, the inlet and outlet to the culvert(s) would need to be faced, most likely in concrete or stone and are likely to be protected by a metal fence/grille to prevent access.

A spillway (not shown on the original plan), most likely to be 'concrete grass', would be built within the embankment footprint or extend slightly further. There would probably also be an access track for maintenance vehicles, and may be maintenance hatches for inspection of the culvert(s).

- **How often and for how long would the area be flooded?**

This is not yet clear, but we were told that the area would only flood in extreme events and is likely to take only a few days to drain down again.

## **Rivelin Valley: proposed Roscoe/New Dam flood storage area (FSA): Frequently Asked Questions (3)**

- **How would the embankment and other structures be maintained?**

This is not yet clear, but the structures would need to be subject to regular safety inspections and regular maintenance work carried out as necessary.

- **Who would clean up the area after a flood event?**

SCC has said that staff would be quickly available to clean up silt & debris etc after any flood event and any structural damage and damage to paths would be made good. However, there are concerns that funding may not be fully secured for this purpose and that cleaning of semi-wild areas flooded might not be possible or deemed necessary.

- **What additional measures or alternatives have been considered?**

Additional measures under consideration include another eight flood storage areas, including on the River Loxley at Wisewood and on the River Porter at Endcliffe Park; removal of 'pinch points'; reduction of blockages; maintenance of river channels and culverts; installation of more flood walls (e.g. along the Loxley through Hillsborough); improving flood resilience of homes and businesses; rural land management upstream. Use of existing Yorkshire Water reservoirs upstream for flood water storage is being discussed, but are likely to take a long time to reach any conclusions. Alternative locations for flood storage areas were suggested during the Consultation but apparently none of these were found to be viable (*for reasons not yet published*).

- **Why can't the historic mill dams be used for flood water storage?**

Analysis by the SCC Consultants (Arup) has apparently shown that these mill dams would have limited capacity to reduce peak flows, even if kept empty most of the time. They say that the required works could also result in a negative impact on heritage, wildlife and amenity.

- **SCC has said there may be opportunities to enhance access etc. – what do they mean?**

In the Interim Report, SCC said that “through careful design there may be opportunities to enhance access, amenity, habitats and biodiversity and for improved flood protection and resilience to the park.” Suggestions so far include off-road car parking, a larger area for public recreation (to replace some allotments), remedial work on footpaths and historic structures (possibly not just those within the area affected) and an access path across the top of the embankment from Rivelin Park Road to Rivelin Valley Road (although some of these would involve destruction of even more valuable habitat).

## **Rivelin Valley: proposed Roscoe/New Dam flood storage area (FSA): Frequently Asked Questions (4)**

- **Are similar flood storage areas in use elsewhere?**

Yes, large online flood storage areas have been built to help protect many towns and cities from flooding, for example at Bishop Auckland, Ripon and Skipton. Close to Sheffield there is a flood storage area with a 10 m (about 33 ft) high grassed embankment on the River Drone at Bowshaw, which was built to alleviate flooding in Dronfield.

- **SCC has mentioned a flood storage area in Calderdale as an example – is this comparable to that proposed for Roscoe/New Dam?**

No – the Calderdale FSA at Centre Vale Park Todmorden is an ‘offline’ or ‘non-impounding’ FSA – in flood conditions water is diverted from the river into a grassed storage area with low embankments (1.8 m, c. 6 ft high) and an under-drainage system that helps drainage of the water following flood events. This is more like what is being suggested for Endcliffe and Millhouses Parks, and completely different from the much larger ‘online’ or ‘impounding’ FSA proposed at Roscoe/New Dam.

- **What will happen next?**

SCC has told us that more detailed report on the consultation outcomes will be issued in a few months, but that a document that brings together all responses to the consultation questionnaire will be made available soon. We understand that SCC proposes in the next three months to run some dedicated design workshops with stakeholders affected by the different flood storage schemes to discuss the most effective and acceptable solutions. New plans and visualisations will be brought to these workshops.

In the Interim Report, SCC said that “This is a sensitive option. Wherever practical, the concerns presented by consultees will be carefully addressed during further design and assessment work. Mitigation of environmental, heritage and amenity impacts will all need further consideration, working with local stakeholders.” ... “concerns raised about the remaining sites are being carefully considered by the project team. Identifying whether and how these concerns can be adequately addressed will be part of the assessment of their feasibility. The need for the FSAs is therefore being balanced with the design of the local flood defences in order to develop an optimum combination. Further investigation work has now commenced and will include engineering scoping work, hydraulic modelling, site investigation where required, and environmental and heritage assessments. This work will proceed alongside continued engagement with statutory consultees, landowners and other key stakeholders. Later this year, a Preferred Option will be selected for each catchment and this will be detailed in the Outline Business Case submitted to the Government later in 2017.”

If approved for government funding, a process of detailed design will get underway during 2018. This will involve further public consultation with affected parties, key organisations, the planning authority and communities to ensure that the final designs are the best they can be. The plans will then need to be taken through the planning process before construction can start in 2019–2021.

## Rivelin Valley: proposed Roscoe/New Dam flood storage area (FSA): Frequently Asked Questions (5)

- **What might be the impacts of the proposed construction and operation of the Roscoe/New Dam flood storage area?**
  - **Visual impact:** The embankment would have a high visual impact, especially when viewed from within the park, although some planting of trees has been proposed to provide screening. It is likely to be visible from various locations on the valley sides. The presence of a large embankment blocking the way upstream from the main access point to the valley at the Rivelin Park Café, is likely to form an unattractive physical and psychological barrier to the many visitors who come to Rivelin to enjoy the riverside walk, its heritage and wildlife.
  - **Public access & amenity.** The embankment would have a severe impact on several Rights of Way, recreation and amenity, and be of detriment to the wellbeing of local people, particularly people with disabilities and families. No details on likely frequency of flooding have yet been provided, but around 500 m (c. 550 yds) of a popular, easily-accessible local riverside walk could be repeatedly inundated.
  - **Wildlife and vegetation:** An area of possibly 7,750 sq m (1.9 acres) could be directly destroyed by the embankment. Some surrounding land would also be affected during the construction work. A length of river of possibly 70 m would be routed through a culvert. There would be destruction of and/or damage to important biodiversity habitats (including river, allotments and woodland), with likely significant detriment to fish populations, destruction of mature trees and hedgerows. Also likely to be negative impacts on birds, bats and small mammals critical to the complex eco-system of this wildlife corridor, which stretches from suburban Sheffield at Malin Bridge to the Peak District National Park boundary (at Rails Road). Some mitigation may be proposed for these impacts, for example by designing culverts to aid fish passage, improving habitats elsewhere in the valley etc.
  - **Heritage:** During construction or flood events, there would be some destruction of or possible damage to structures associated with two of the 20 Rivelin heritage watermill sites (New Dam and Roscoe), including weirs, goits, mill dams and Roscoe Bridge (a Grade II Listed building). Flood damage could include damage to historic stonework, coverage by silt/debris, rubbish etc, and trees falling. The likely/possible impact of flooding on the existing historical structures (walls, embankments, sluices, weirs etc) has apparently recently been assessed, but not yet published. More detailed assessment would form part of the next survey phase, prior to the planning application process. Archaeological survey and recording will need to be carried out prior to any construction works, as well as some work to stabilise structures as necessary. During the construction phase there may be some work to stabilise existing paths and structures (including the historic ones) to make them more resilient to flooding.

- **Roscoe Plantation allotments:** no decisions have yet been made, but there is potential for destruction of or damage to many of the allotments, a part of the Rivelin landscape for many decades – a haven for wildlife as well as those who work them. Considerable investment by the SCC Allotment Office and much more by the individual and community plot-holders would be wasted. Some plots may be unaffected (and possibly upgraded) and those within the flood area may remain, but in the event of flooding there is a risk of plots being contaminated and/or being the source of contamination (fertilisers, weedkillers, debris etc). It has been suggested that new plots could be created in a field on the hillside above Rivelin Valley Road (perhaps adjacent to the Hagg House allotments?), but this in itself will lead to destruction of existing habitat which will need survey.
- **Public safety considerations:** There would be free access to the grassed embankment, but the entrance to the culvert(s) would need to be protected (*metal fence/grille?*). In the event of an extreme flood, a large body of deep and dirty water could build up, covering an area of up to perhaps 57,000 sq metres (around 14 acres) behind the embankment. Permanent signs would be erected explaining what the embankment is and that the footpath is likely to be flooded from time to time. However, there are concerns over whether these measures would be adequate.
- **Risks of adverse impacts during construction** (e.g. pollution of the river) should be managed by ensuring good building practice. There may be temporary impacts on traffic flow on Rivelin Valley Road during construction works?