

Emm Brook: Greenways Bridge

Flood Risk Technical Note

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1.0 Background

South East Rivers Trust (SERT) have been developing the Emm Brook Restoration Project at Woosehill Meadows, Wokingham. Here, SERT plan to reconnect a 340-metre length of historic river channel to bypass the existing weir (planning app. 203617). This will open 3.5 km of river habitat and remove the lowest obstacle of fish migration on the Emm Brook. The full Emm Brook scheme was approved in 2023 (planning app. 203617). To support the approved planning application, a flood risk assessment, including detailed flood modelling, was carried out to evidence that the proposed scheme would not increase flood risk elsewhere.

To reconnect the historic channel three footbridges are planned to maintain the existing footpath network. Two of those footbridges were included and approved in the original planning application (planning app. 203617). The third bridge at NGR: SU 79845 69227 referred to as the Greenways Bridge, was included in the flood risk assessment and detailed flood modelling, however it was not included in the planning application because it was planned to be delivered during the construction of the Greenways. Unfortunately, this did not happen, and a culvert was constructed in its place at NGR: SU 79845 69227 (Figure 1).

This crossing is not complimentary to reconnecting the historic channel. It needs to be replaced with a footbridge to allow the re-connected channel to flow freely. As it was not included in planning app. 203617, a new planning application is being sought to replace the culvert with a footbridge (aka Greenways Bridge).



Figure 1. Culvert at NGR: SU 79845 69227 that is proposed to be replaced with a footbridge.

1.1 Greenways Bridge Design

Footbridge 3114 (Greenways Bridge) will be constructed at NGR: SU 79845 69227. It will be a hardwood (D70) timber footbridge with a 4.1 m total length (3.76m bearing c/c, 3.45m clear span) and clear width of 3.5m. The soffit shall be located at +44.76mOD to achieve 300mm freeboard to the 1 in 10Yr flood

level. The foundations shall be a reinforced concrete L-wall with associated wing walls. The bridge shall be integrated with the existing footpaths through local regrading of the adjacent paths with access ramps constructed from imported or site won fill, as required.

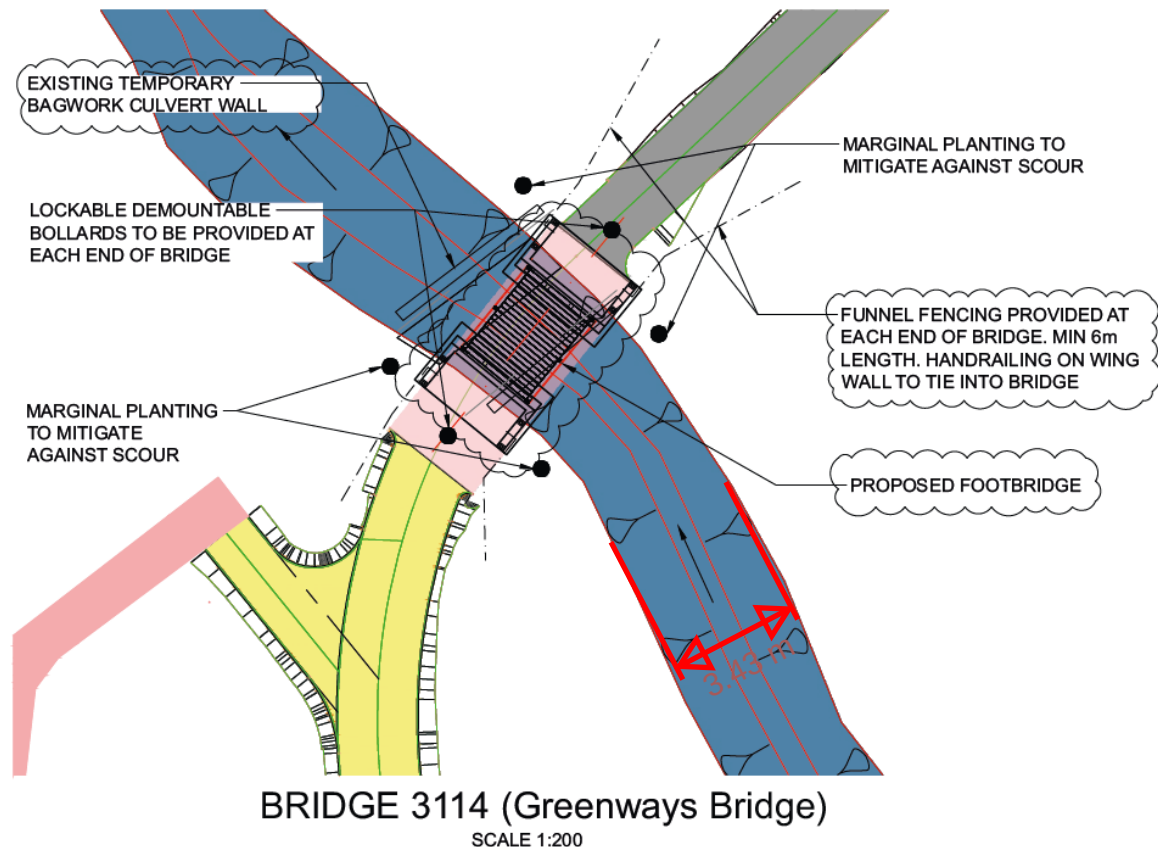


Figure 4: Extract from Emm Brook Greenways Bridge Plan.

2.0 Purpose of Document

As detailed above, the impact of the proposed Greenways Bridge, which forms the new planning application, has been assessed already as part of the Flood Risk Assessment (FRA) included within the granted planning app. 203617. The existing FRA has been included with the new planning application and therefore a new FRA is not required.

This Flood Risk Technical Note provides a summary of the existing FRA and confirms no material changes to the proposed bridge have taken place which would require an update to the existing FRA.

3.0 Summary of Flood Risk Assessment

The reconnection of the historic channel was modelled by cbec Engineering whilst designing the reconnected bypass channel (planning app. 203617 – approved

2023). This model included the Greenways Bridge (this application) and informed the design specification of this bridge.

See the following documents that outline the flood risk assessment completed as part of the planning application for reconnecting the bypass channel (planning app. 203617 – approved 2023):

- 8. 19-1001_Emm Brook Final Design Report_cbec_01.07.19
- 9. U20-1057 Emm_Brook_Model_Update_Report_23_12_20_cbec
- 10. 20_1057_Emm_Brook_remodelling_18_05_22_cbec
- 11. 20-1057_EmmBrook_Remodelling_Flood Risk Assessment_18.05.22_cbec
- 12. UK20-1057 Emm Brook Remodelling hydrology_10062022

3.1 Fluvial Flood Risk

A sequence of remodelling took place in response to feedback during the assessment of the flood model during the planning app. 203617 consultation. The above documents should therefore be read in respect of that with new reports issued with each remodel.

The FRA concluded that the proposed scheme lies within the functional floodplain (Flood Zone 3b), which is defined as an area with a 1 in 33.3 chance of an event occurring in any given year. However, as the scheme comprises channel realignment and re-meandering with the aim of returning this stretch to a more natural state and improving the fish passage, the works cannot be located within an area of lower flood risk. The scheme does not conflict with policies set out in the Thames River Basin Management Plan (RBMP) and the Wokingham Borough Council Local Flood Risk Management Strategy (LFRMS).

Hydraulic modelling demonstrates that the proposed design does not increase flood risk either upstream or downstream and that the risk of flooding is not increased at any properties for the 1 the 100 year plus climate uplift events.

3.2 Confirmation of no material change e.g. soffit

As the design of the Greenways bridge was not finalised when the flood modelling took place, a conservative soffit level of 44.4 mAOD was inputted into the flood model for the bridge. The Greenways bridge design has since been completed with a soffit level of 44.76 mAOD. This is 0.36m above the conservative modelled figure. No other variables have changed.

The raising of the soffit level above the conservative model will mean that the bridge will create less afflux and it is not a material change. As no other variables have changes the flood modelling remains valid and appropriate for the design.

4.0 Conclusions

The FRA documents referenced above concluded that the project does not increase flood risk. With no material change the conclusion remains that the installation of the Greenways Bridge will not adversely impact flood risk either upstream or downstream and that the risk of flooding is not increased at any properties for the 1 the 100 year plus climate uplift events.

5.0 Flood Response

During construction the Site Manager will register to the EA Floodline and the Flood Warnings Direct service.

Weather conditions and river levels will be monitored before and during the works. In the event of sustained heavy rainfall, the works will be suspended until river levels are deemed safe to resume by the Site Manager.

No unsecured materials will be left within the channel or floodplain overnight during periods of high flow when there is risk of mobilisation.