

Our approach to mitigating flood risk

Why is flood compensation required?

As we develop East West Rail (EWR), we're considering how the railway interacts with watercourses and areas that flood naturally, often referred to as floodplains. Due to the scale of the project, it is inevitable that the new railway will have to pass through floodplains and potentially use land that currently provides water storage during flooding. We are developing the design so that the project does not increase the risk of flooding elsewhere.

Any loss of floodplain capacity could increase the risk of flooding elsewhere. One way to avoid this is to propose designs that limit the footprint of the railway in the floodplain, such as by using viaducts. Where this is not practical, a potential solution is to provide flood compensation areas.

How do flood compensation areas work?

Flood compensation areas offset the loss of flood storage space resulting from the construction of the railway. These areas temporarily store excess water during storms or at times when river levels are high, then release it back when water levels have dropped. This helps protect homes, businesses, and infrastructure from flooding. These areas would be designed to sit lower in the landscape, would flood temporarily and be managed to maintain this flood capacity.

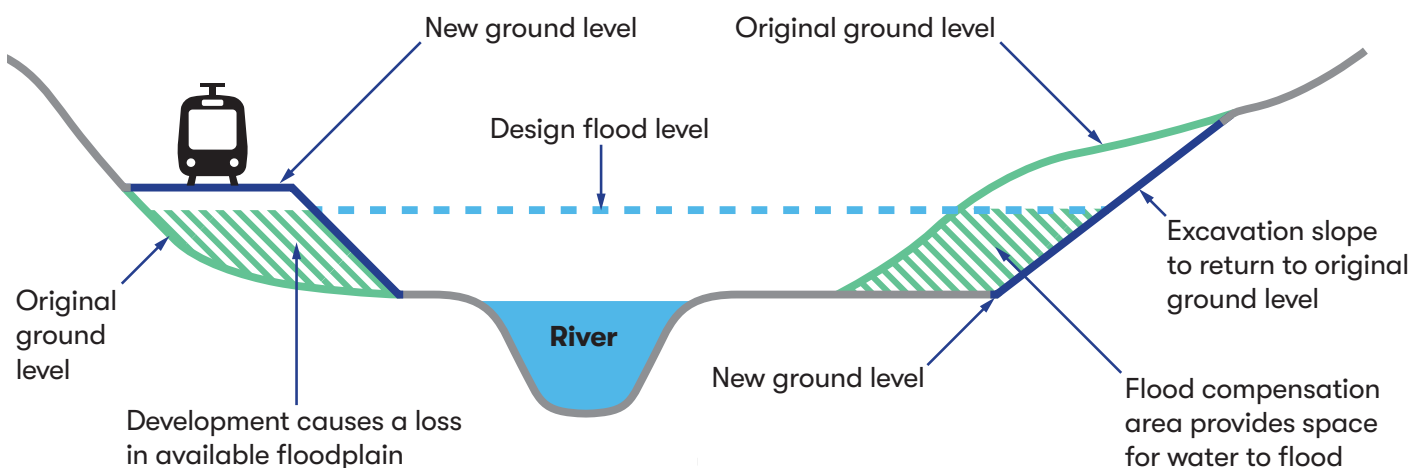
While flood compensation areas mimic the natural floodplain, drainage attenuation measures such as ponds and swales control the rate of rainfall runoff so there is no increase in the rate at which water is discharged into watercourses. Both flood compensation areas and drainage attenuation measures are methods of managing water and avoiding increased flood risk.

Where will flood compensation be required?

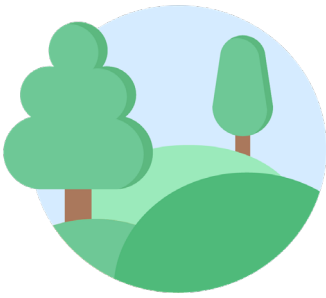
Flood compensation areas will typically be located where there is an existing watercourse and/or where we have predicted an increased flood risk. For example, as part of our plan to construct a passing loop to the north-east of Islip in the Oxford to Bletchley route section, we would provide a flood compensation area within Gallos Brook and a drainage pond to the east of it.

EWR assets that typically require flood compensation areas include rail embankments, viaduct piers, access roads and compounds raised above the existing ground level in the floodplain. Flood compensation areas will generally be connected to existing watercourses or be located at the edge of predicted flood extents where current ground levels are higher. The ground levels can then be lowered to create additional flood storage space.

Figure 1: Flood compensation area indicative cross section



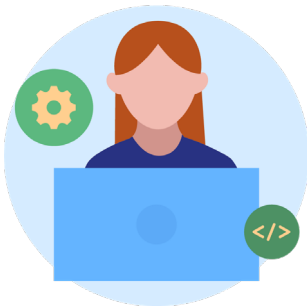
We're currently looking to provide 28 flood compensation areas along the EWR route. These areas are indicated on the consultation plan and profile drawings. As the design is further developed, the size and/or number of these locations will be reviewed and refined.



What will flood compensation areas typically look like?

Flood compensation areas will appear natural and be designed to be unobtrusive and blend into surrounding landscapes. They will typically be planted with grass that is tolerant of being wet. Wet woodland and marginal vegetation can be planted at the edges of the flood compensation areas. They form part of the wider EWR proposals around landscape design and biodiversity. In some instances, it may be appropriate to lower sections of the flood compensation areas so they remain permanently or semi permanently wet, increasing the variety of habitat provided. Where the flood compensation areas are within an agricultural setting, it may be possible for them to be used for grazing purposes.

The size of flood compensation areas will vary across EWR and will depend on the characteristics of the relevant floodplain, the depth of the floodwater and the nature of the works proposed. They are likely to range from as small as 100m² up to as large as 10,000m². For comparison, a badminton court is around 70m² and a football pitch is 7,000m².



How will it work?

The scheme and flood compensation areas are represented in computer hydraulic models of the rivers and floodplains so that they fill and empty efficiently, and there is no change (or betterment) in flood risk. The results from these models will be compared to model results of the river and floodplain conditions before the railway and flood compensation areas are put in place.

The hydraulic models are built utilising topographic surveys to represent the detail (size and shape) of the rivers and structures, and national terrain data LiDAR (light detection and ranging) is used to represent the floodplain. The models are utilised to check or update designs so water levels and flood extents are no worse with the railway than without it.




How will flood compensation areas be managed?


Flood compensation areas are designed to be very low maintenance where possible. Where maintenance is required, this will be so they operate as intended. This is likely to include clearance of any unwanted tree and plant growth within the base of the flood compensation area that could otherwise cause a blockage and/or the removal of debris from within the flood compensation area following a flood. The areas will require management for the duration of EWR's operation and these agreements will be made with appropriate landowners or organisations.

Get in touch

If you have any questions, please get in touch using the details below:

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