

Gooseum Rhyne Reservoir Improvement Scheme

The Gooseum Rhyne reservoir flood defence is located in Millennium Green, Congresbury. The reservoir is formed by the raised riverbanks of the Congresbury Yeo and embankments along its northern and eastern edges.

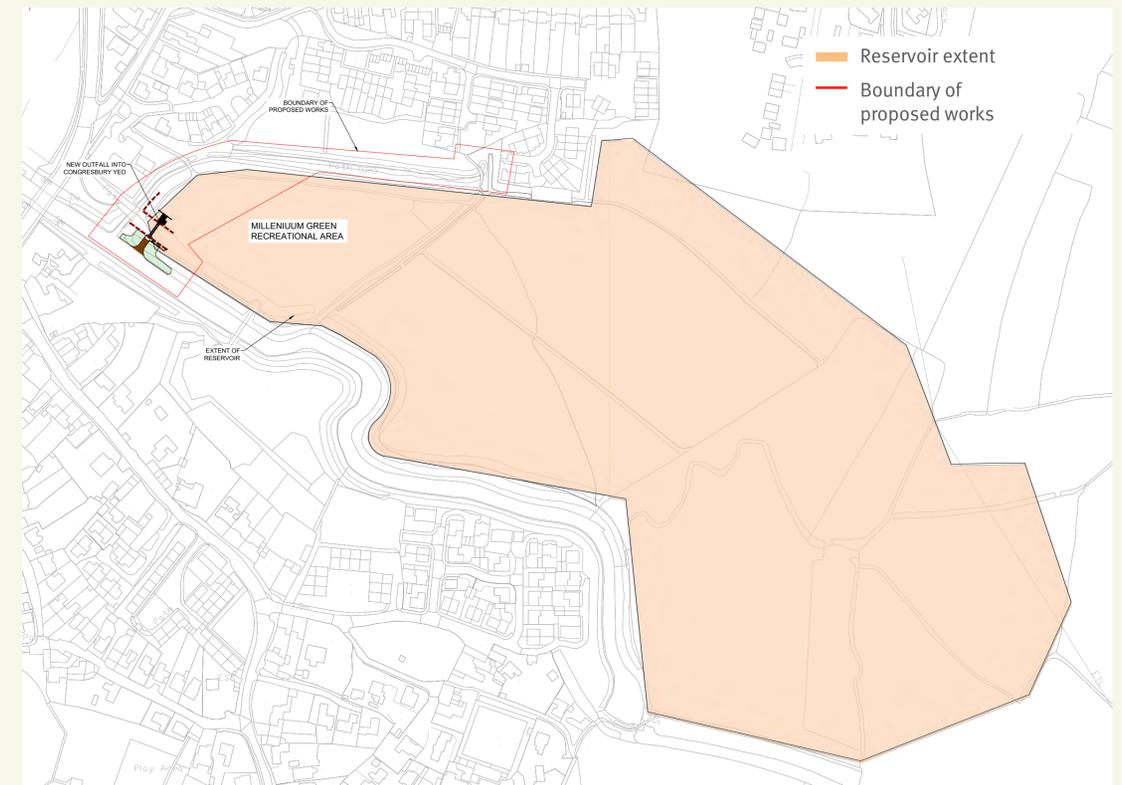
It is classified as a reservoir under the Reservoirs Act 1975 due to the volume of flood water it can hold above natural ground. Due to this classification, the Environment Agency has a legal responsibility to ensure the continued safety of the embankments and water control structures.

Currently, when water levels in the River Yeo rise enough to spill into the fields, the reservoir will begin to fill up. When water levels in the river drop, water will gradually flow back into the river through the culvert near the basketball court. The embankment around the edge of Millennium Green protects properties on the northern side of the River Yeo from flooding.

The reservoir now needs to be brought up to modern maintenance standards to improve its integrity. This will ensure flood protection of the adjacent properties. It will also allow safe and reliable access for EA staff and equipment at all times. We're now in the process of preparing our planning application which is due to be submitted by the end of January 2024. The solution needs to be built by September 2026.

The new arrangement will have the same defence height as the current embankment. The section between the river and Gooseham Mead will be slightly realigned. The embankment will be strengthened to make it more resilient and there will be a widened maintenance track behind it.

In February 2023, we shared our proposals for improvement works to the reservoir's spillway. We have decided to remove these works from the scheme because it was concluded that it is not a reservoir safety issue and was never a part of the improvements identified by the reservoir engineer.



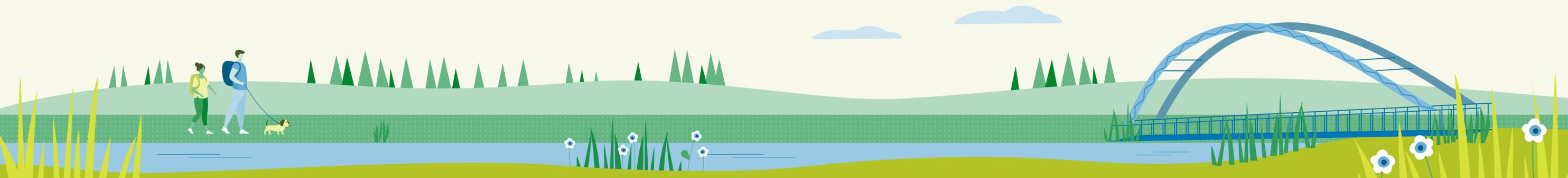
Gooseum Rhyne Reservoir



The reservoir – taken on 13 January 2023



The reservoir – taken on 13 January 2023



Northern Embankment

The existing embankment along the north and northeast edges of the Millennium Green requires upgrading, so it can continue to provide protection to properties north of the River Yeo. To do this we are proposing to install a sheet pile retaining wall within the embankment itself.

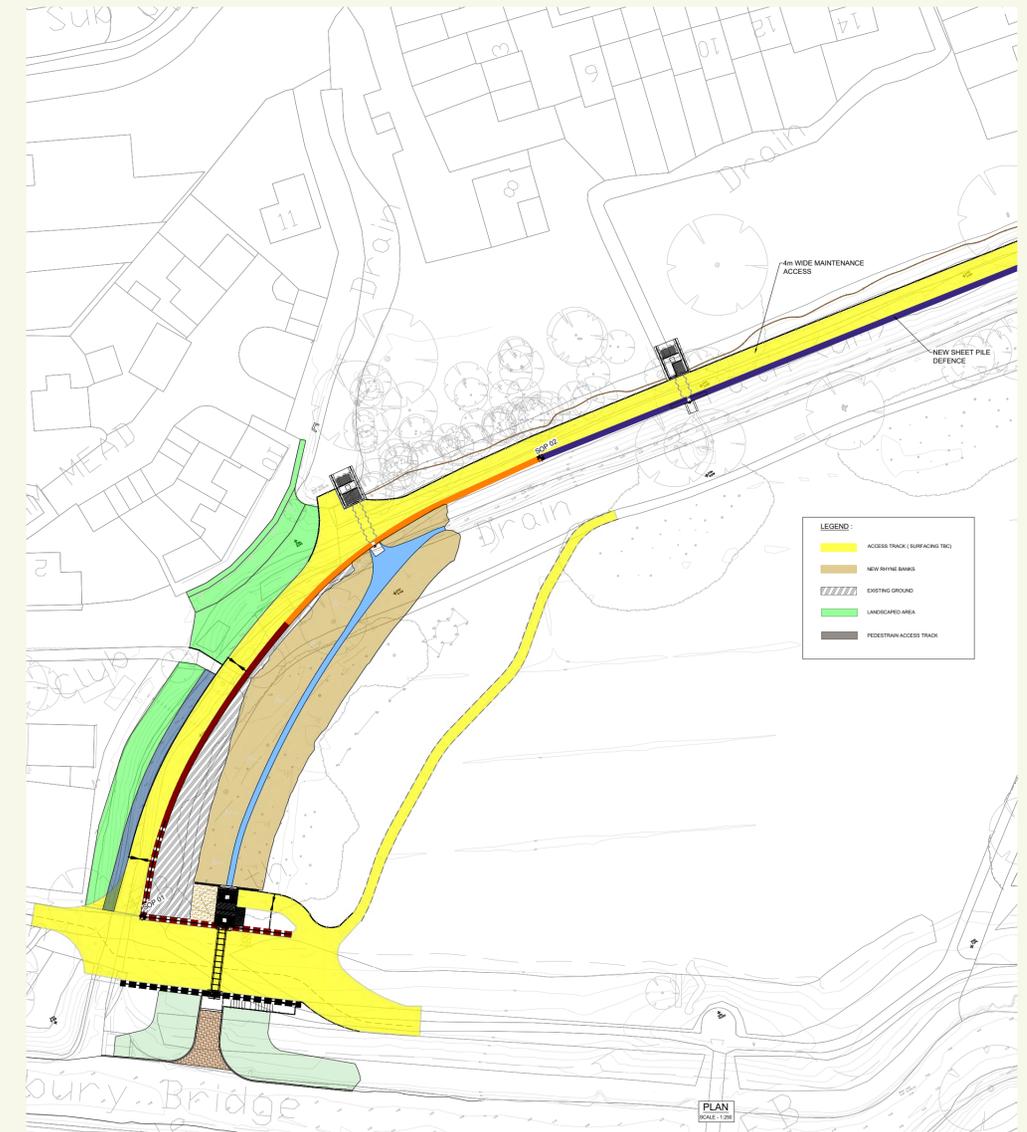
The sheet piles will initially follow the alignment of the existing defence embankment, then from the Gooseum Rhyne outfall, there will be a new alignment of the sheet piled defence, moving gradually into the Green, ending up approximately 10 metres further into the Green than the current defence. We also plan to move the existing drainage ditch (rhyne) to follow the new defence alignment. Due to this relocation, we'll need to build a new outfall into the Congresbury Yeo and decommission the existing structure.

The sheet piles will be visible above ground so we plan to clad them in stone. We're also looking at planting options to shield parts of the wall from view and allow it to better blend into the surrounding landscape.

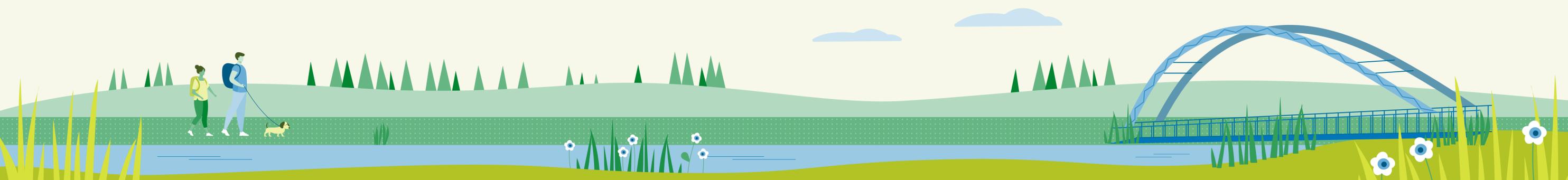
Also, to enable safe and reliable maintenance access year-round, we will need to create a four-metre-wide track behind the wall.

This will require excavation of the existing embankment and filling in of the existing rhyne to provide the track level. The track level will sit 1.1 metres below the top of wall.

All existing culverts, trash screens and outfalls will be replaced with new structures.



Drawing of planned works including the location of the retaining wall



Northern Embankment Visualisation

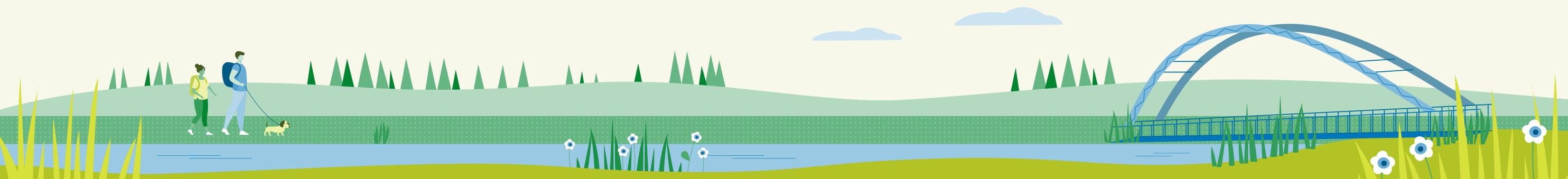
This board shows you what the Millennium Green could look like with our proposals.



The map shows the location and direction of sight used to produce the visual.



Potential view



Northern Embankment Visualisation



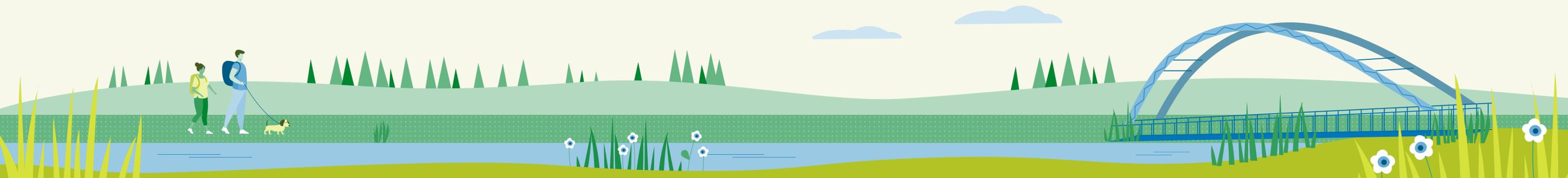
Existing view



The map shows the location and direction of sight used to produce the visual.



Potential view



Northern Embankment Visualisation



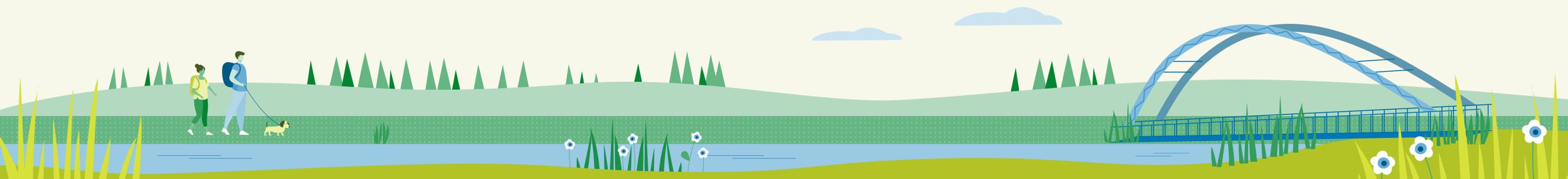
Existing view



The map shows the location and direction of sight used to produce the visual.



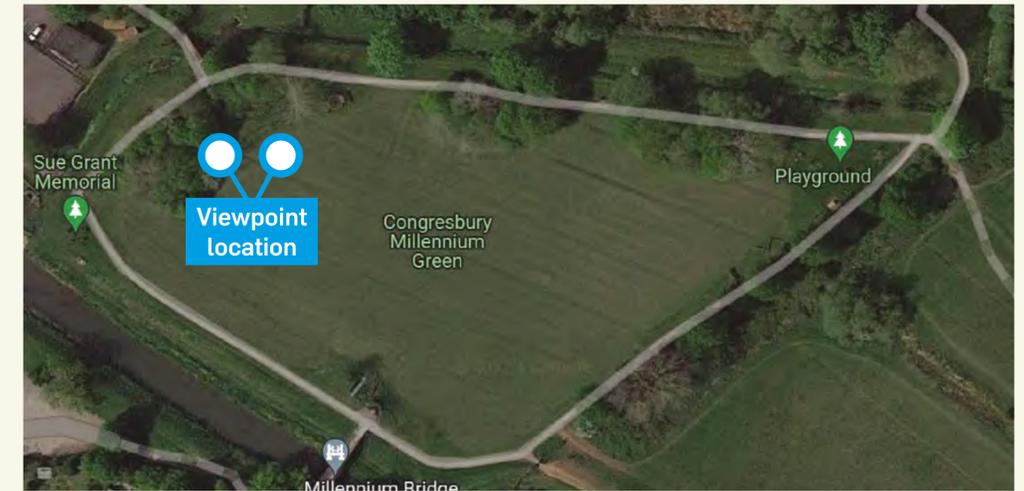
Potential view



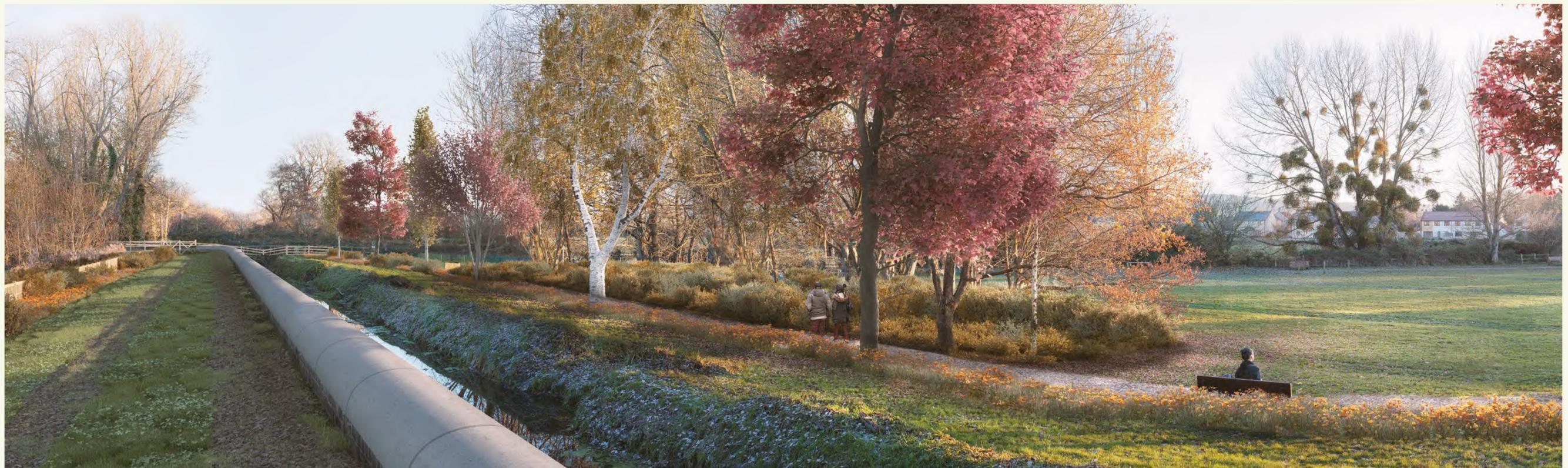
Northern Embankment Visualisation



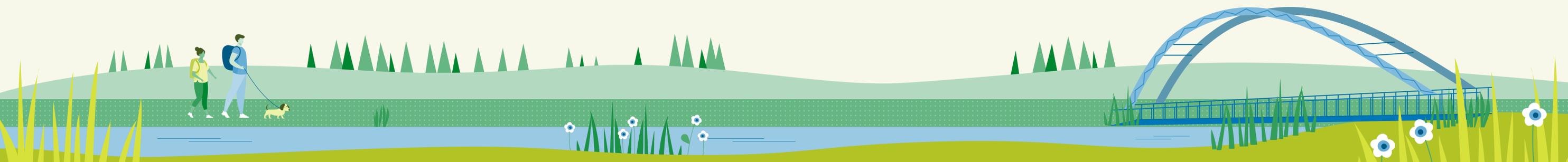
Existing view



The map shows the location and direction of sight used to produce the visuals



Potential view



Northern Embankment Visualisation



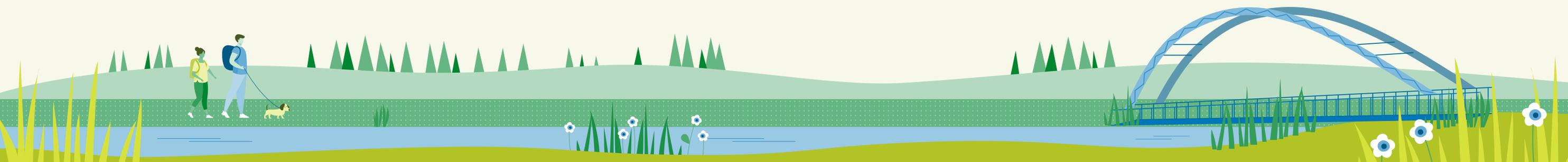
Existing view



The map shows the location and direction of sight used to produce the visuals



Potential view

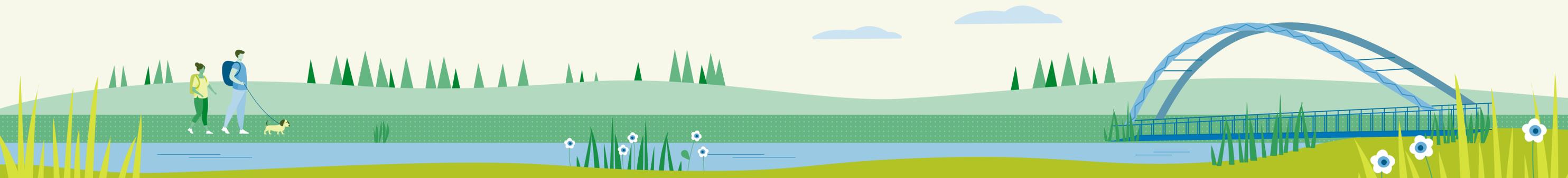


Environmental Constraints

There are several environmental factors that we need to think about when developing and constructing this scheme. This board identifies what constraints there are, their locations, and the considerations we need to make.

- Red line boundary
- Extent of Scheme outline/footprint
- Existing Trees to be retained and protected during construction phase
- Existing Trees to be pruned to facilitate construction phase
- Existing Trees to be removed to facilitate proposed work
- Existing Tree Preservation Orders (TPO)
- Existing Vegetation that may need to be removed to facilitate proposed work and reinstated after completion of works.
- Sue Grant Memorial
- Existing Public Right of Way to be retained and protected during construction phase
- Trees with bat roosting potential. Further survey will be required prior to felling of these trees. If bat roosts are identified, licences from Natural England and compensation of roosting opportunities will be required before trees can be felled.

- Birds:** Removal of and disturbance of habitat suitable for nesting birds will not be undertaken within the nesting birds' season (February-October). If that is not possible, an ecologist will check trees and scrub areas for nests no more than 24 hours ahead of Scheme works starting.
- Reptiles:** Slow worm and grass snake known to be present within the works area. All works should be carried out under a precautionary Method Statement which will set out measures to minimise impacts to reptiles within the Scheme. This may include a translocation of reptile populations and fencing to stop reptiles entering the work area and protect them from harm/disturbance.
- Badger:** A pre-works check for badger activity will be carried out before construction. If an active badger sett is recorded and likely to be impacted by the works, a licence from Natural England will be required to close the sett prior to works commencing. Any excavations will be filled or covered overnight. If this is not possible, an escape ramp will be provided to prevent animals becoming entrapped.
- Otter/water vole:** Potential measures will be implemented to avoid increases in light/noise/vibration levels along the River Yeo, which has the highest suitability for otter and water vole.



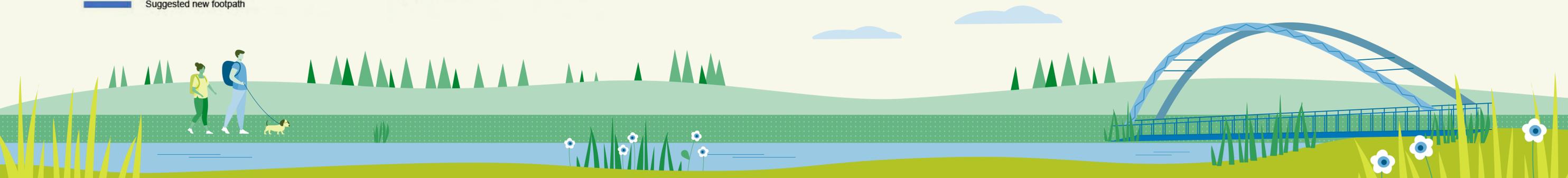
Environmental Opportunities

When developing this scheme, we want to ensure we're mindful of any environmental impact it may have. We have developed several proposals to mitigate any impact our work may have, and enhance the environmental landscape.

-  Red line boundary
-  Extent of Scheme outline/footprint
-  Existing Trees to be retained and protected during construction phase
-  Existing Trees to be pruned to facilitate construction phase
-  Existing Trees to be removed
-  Existing Tree Preservation Orders (TPO) to be confirmed (source: North Somerset Council)
-  Proposed Wetland Meadow Grass to mitigate loss of vegetation during construction phase
-  Proposed Native Thicket Shrubs to mitigate loss of vegetation during construction phase
-  Proposed areas of wildflower meadow grass mix to mitigate loss of vegetation during construction phase
-  Proposed Tree planting
-  Existing basketball court to be maintained and protected during construction phase
-  Existing playground to be removed during construction phase and to be reinstated once scheme completed
-  Suggested new footpath
-  Proposed sheet piling, brick faced wall to engineers drawings
-  Existing Public Right of Way to be retained and protected during construction phase
-  Potential location for Sue Grant Memorial
-  Creation of habitat suitable for foraging bats (woodland edge, scrub and wildflower rich grasslands). Installation of bat boxes. Strengthening of existing linear features (hedgerows/rhynes/rivers/ditches) to enhance commuting habitat
-  Creation of habitat suitable for nesting and foraging birds (dense scrub/woodland/wildflower rich grasslands). Enhancing riparian vegetation along the rhyne/River Yeo to support aquatic species
-  Creation of habitats suitable for reptiles and amphibians; foraging (woodland edge, riparian, wildflower rich grassland), sheltering (woodland, dense scrub, hibernacula) and basking (open areas such as paths or bare ground)
-  Creation of habitats suitable for foraging and sheltering mammals such as hedgehog, otter and water vole (woodland edge, riparian, dense scrub and wildflower-rich grasslands)
-  Potential location for hibernacula suitable for reptiles, amphibians and small mammals



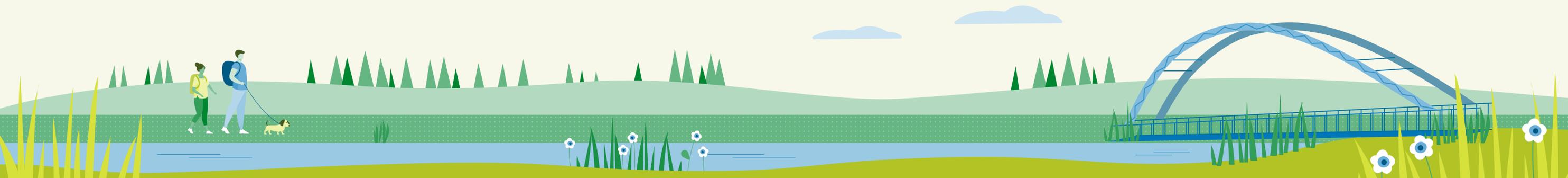
The rhyne re-alignment has been designed to provide aquatic ecological benefit through the creation of a two-stage channel, which will encourage aquatic wetland species to grow at the channel margins.



Proposed Landscaping



- Red line boundary
- Existing amenity mown grass retained and reinstated where damaged due to works
- Existing Woodland/understory thicket to be retained
Understory thicket, to be supplemented with new native thicket shrub planting
- Proposed Access Track
Gravel base and Topsoil with meadow grass seed mix
- Proposed native thicket shrub
Crataegus monogyna, Prunus spinosa, Fagus sylvatica, Acer campestre, Viburnum opulus, Sambucus nigra. 60-80cm high. BR Transplant stock. Edged with informal drifts of container grown Hedera helix hibernica and Bulb planting of Anemone nemorosa and Allium ursinum
- Proposed areas of meadow grass seed mix
- Proposed areas of wildflower mix
- Proposed areas of herbaceous mix
- Proposed Wetland Meadow Grass
- Existing Tree Planting to be retained
- Proposed Tree Planting
Suggested species include Acer pseudoplatanus, Crataegus monogyna, Betula pendula, Liquidambar styraciflua, Tilia cordata, Alnus glutinosa, Carpinus betulus, Prunus avium. (Extra heavy standard and/or semi mature stock, clear stems of 1.8m)
- Existing Tree Preservation Orders (TBC)
(source: North Somerset Council)
- Existing playground to be removed during construction phase and to be reinstated at same location once scheme completed
- Proposed footpath to match existing surface (self binding granular surface)
- Existing PROW to be protected during construction phase
- Existing pedestrian bridge to be removed. New pedestrian access to be provided to facilitate wheelchair accessibility. Design TBC by engineers
- Potential relocation for Sue Grant Memorial
- Existing benches to be retained
- Existing outdoor gym equipment to be retained and relocated
- Proposed Gabion mattress
- Indicative location for Proposed Gate
- Indicative location for Proposed Fence
- Indicative realignment of PROW (proposed surface to match existing PROW)
- Proposed sheet piling, cladding to be stone



Construction

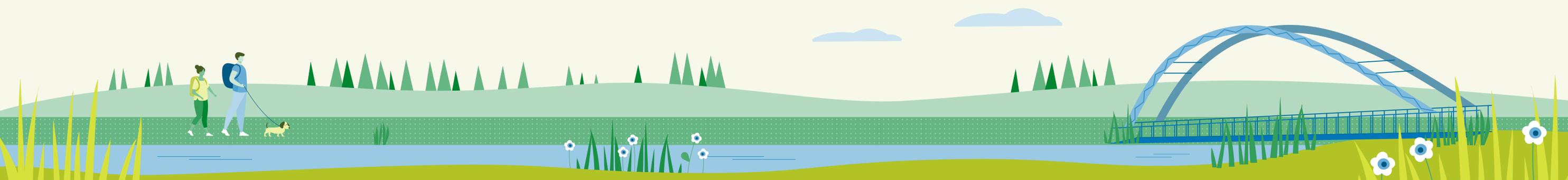
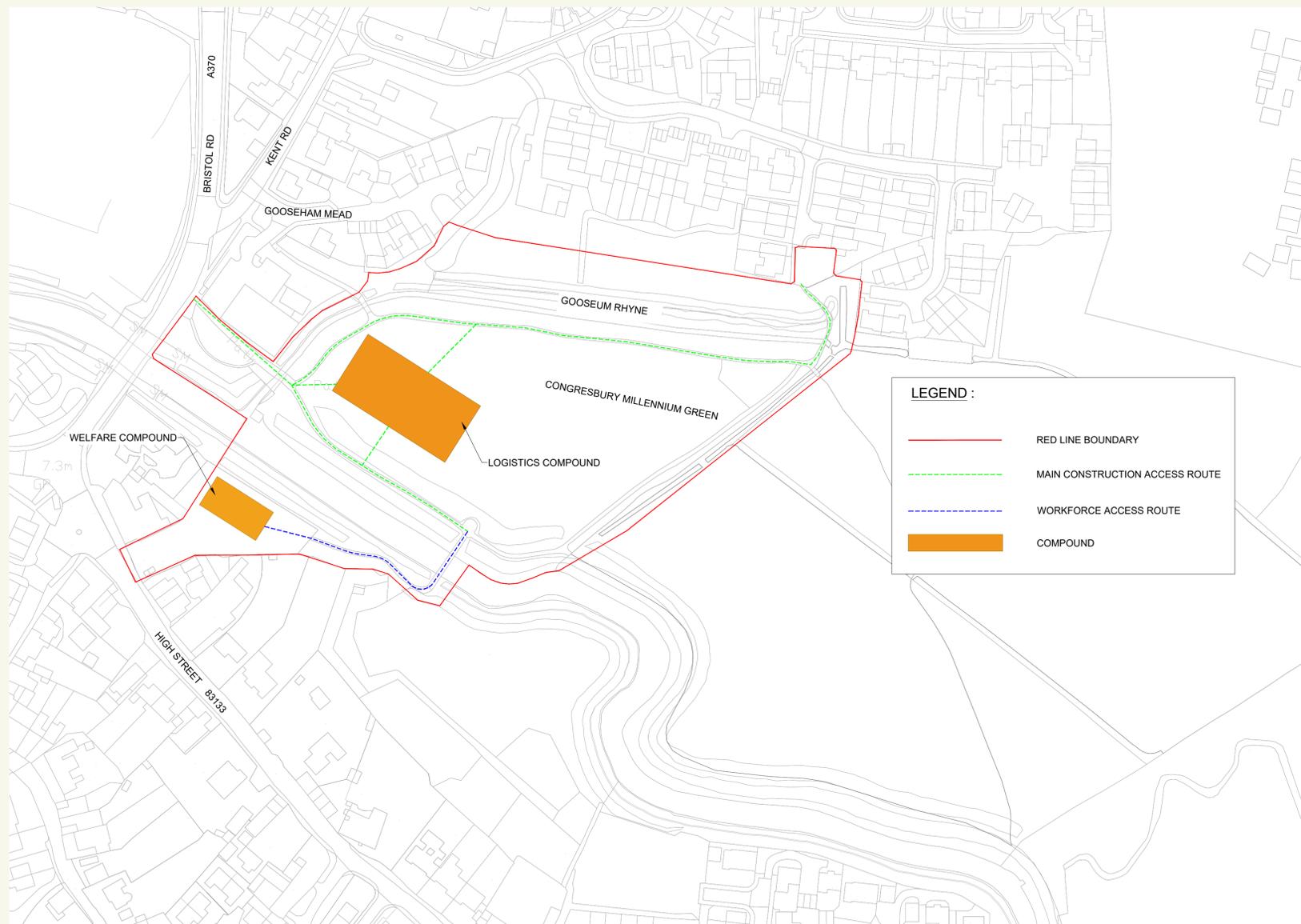
Our construction methodology is still being developed as the design progresses and will be shared once confirmed.

We plan to be on site in early 2024 to carry out tree removal, with main construction due to start in summer 2024 and finish in late 2025.

We will be starting work on the new outfall structure and the rhyne in 2024, and then on the northern embankment.

During construction, we plan to have a logistics compound located within Millennium Green, with a contingency plan in place should the reservoir flood, and a welfare compound located south of the River Yeo, the exact location of which has yet to be agreed.

We will maintain access to sections of the Green during the work, although access locations are likely to change during the construction programme and will be communicated once we have a clearer plan.

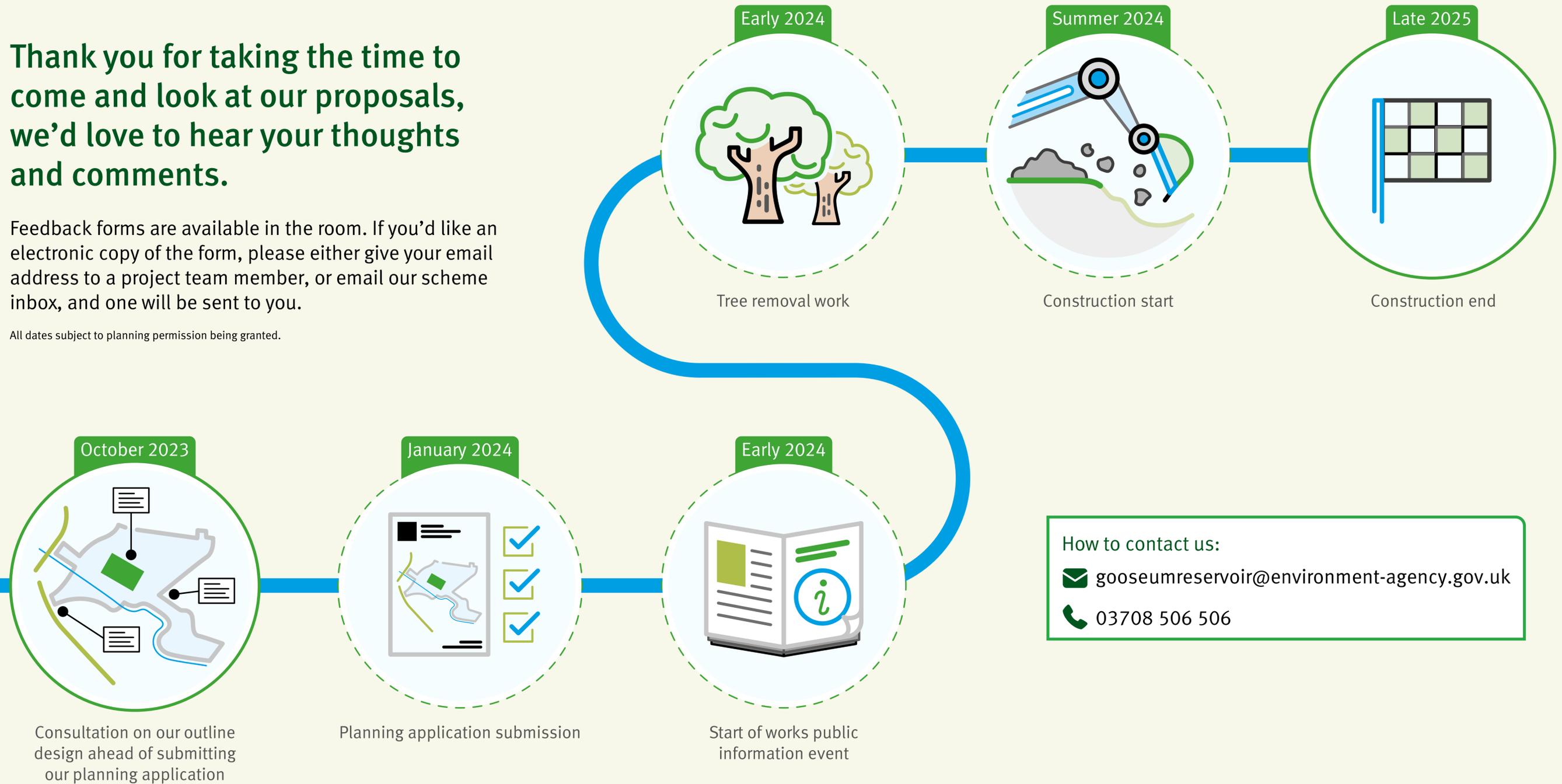


Next Steps

Thank you for taking the time to come and look at our proposals, we'd love to hear your thoughts and comments.

Feedback forms are available in the room. If you'd like an electronic copy of the form, please either give your email address to a project team member, or email our scheme inbox, and one will be sent to you.

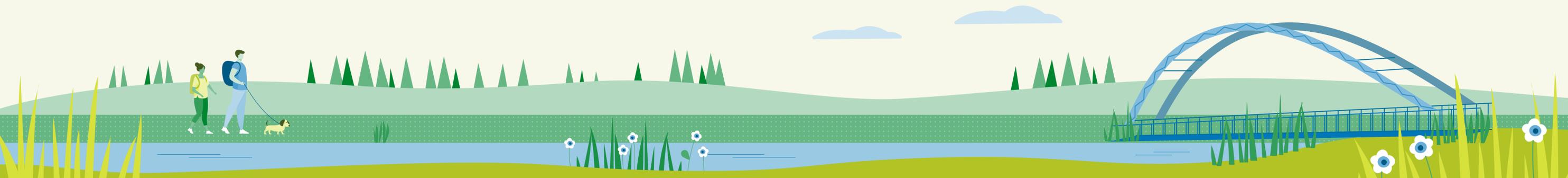
All dates subject to planning permission being granted.



How to contact us:

✉ gooseumreservoir@environment-agency.gov.uk

☎ 03708 506 506



The Gooseum Rhyne Reservoir as a flood defence

Flood defences are either natural or man-made structures that retain, store or channel water. This makes them an important method of reducing flood risk to an area.

They can be designed to offer different levels of protection as needed. Different types of flood defences are used to protect different communities.

The Congresbury Yeo has multiple flood defences and the Gooseum Rhyne reservoir is one of them. It is located in Millennium Green, Congresbury, providing flood protection to the properties in the village.

Flooding history

The low-lying nature of the area means that there is a long history of flooding over the past millennia, which has continued until recent times. The North Somerset area is ranked second nationally for having the highest number of properties at significant risk of flooding.

- 1968** ● A severe storm led to 125 properties being flooded.
- 2000** ● The Millennium Green was flooded, but luckily no properties were affected.
- 2007** ● Properties along a tributary to the Congresbury Yeo were flooded caused by a combination of surface water flooding and a blocked trash screen.
- 2008** ● Wrington (upstream of Congresbury village) experienced flooding which caused damage to some properties and gardens.
- 2012** ● Flooding caused severe impacts to the local motorway and railway.

The Environment Agency recognises and understands the severity of flood risk in the area and the impact it has had on the local community since the 1950s.

We want to assure you that we're working very hard to reduce flood risk to this area. We aim to improve flood risk management by working together with and for the local community.

