

Gooseum Rhyne Reservoir Improvement Scheme

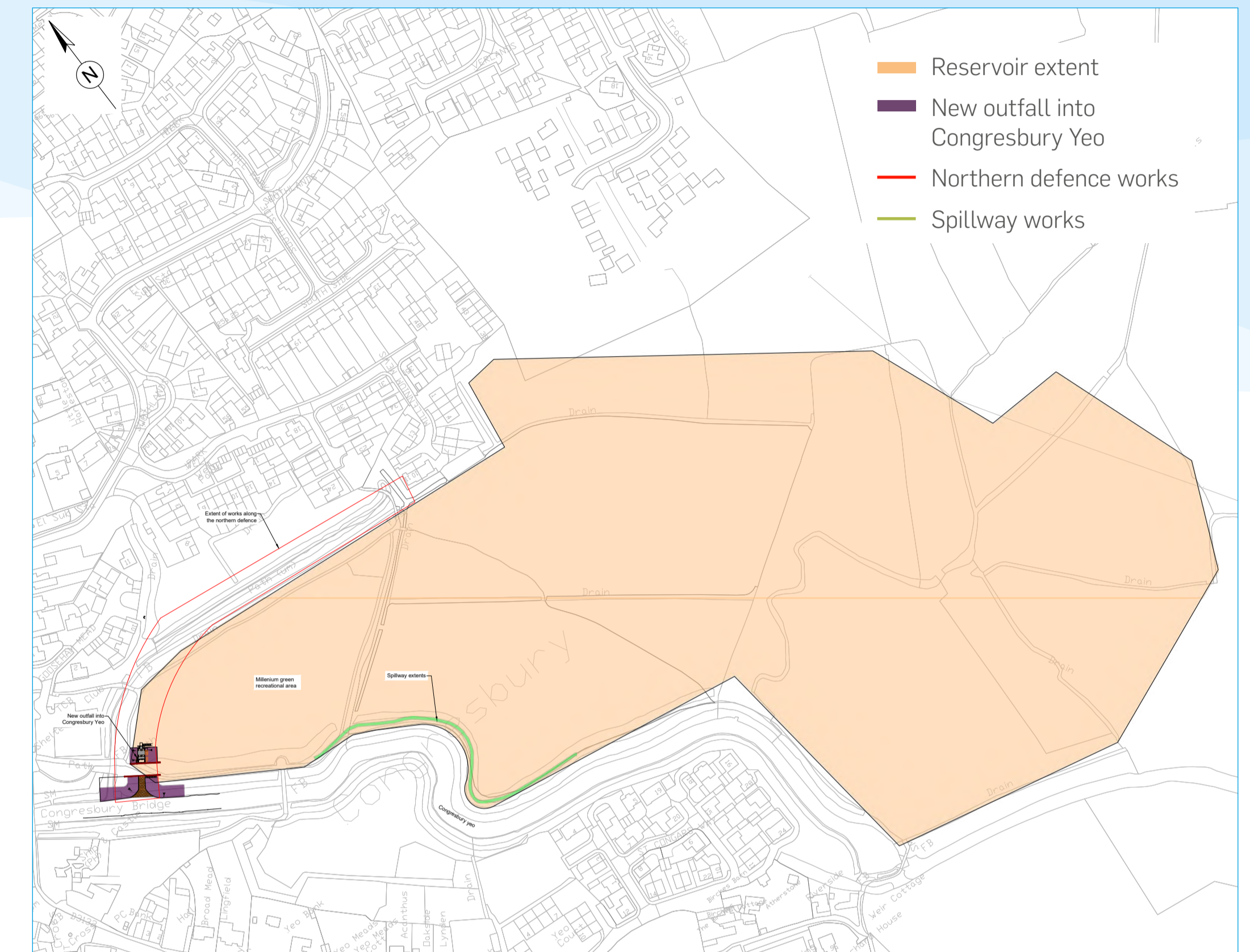
The Gooseum Rhyne reservoir flood defence is located in Millennium Green, Congresbury. The reservoir is formed by the raised riverbanks of the Congresbury Yeo and embankments along its northern and eastern edges.

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 allow safe and reliable access for EA staff and equipment at all times. We're now in the process of designing the necessary changes. The solution needs to be built by September 2026.

The height of the embankment will not change, but it will be slightly realigned between the river and Gooseum Mead. It will also be widened and strengthened to make it more resilient.



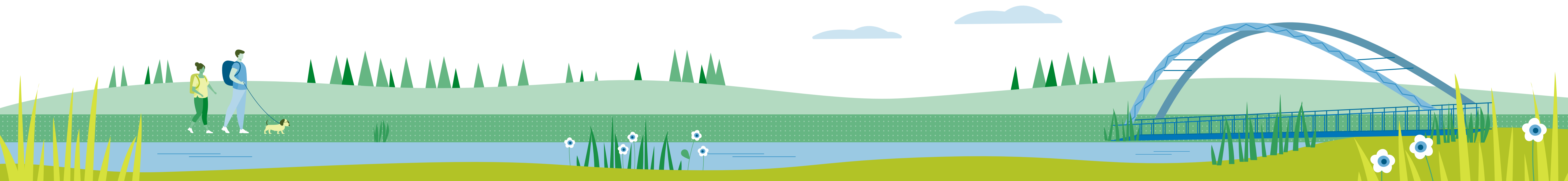
Gooseum Rhyne Reservoir



The reservoir – taken on 13 January 2023



The reservoir – taken on 13 January 2023



Northern Embankment

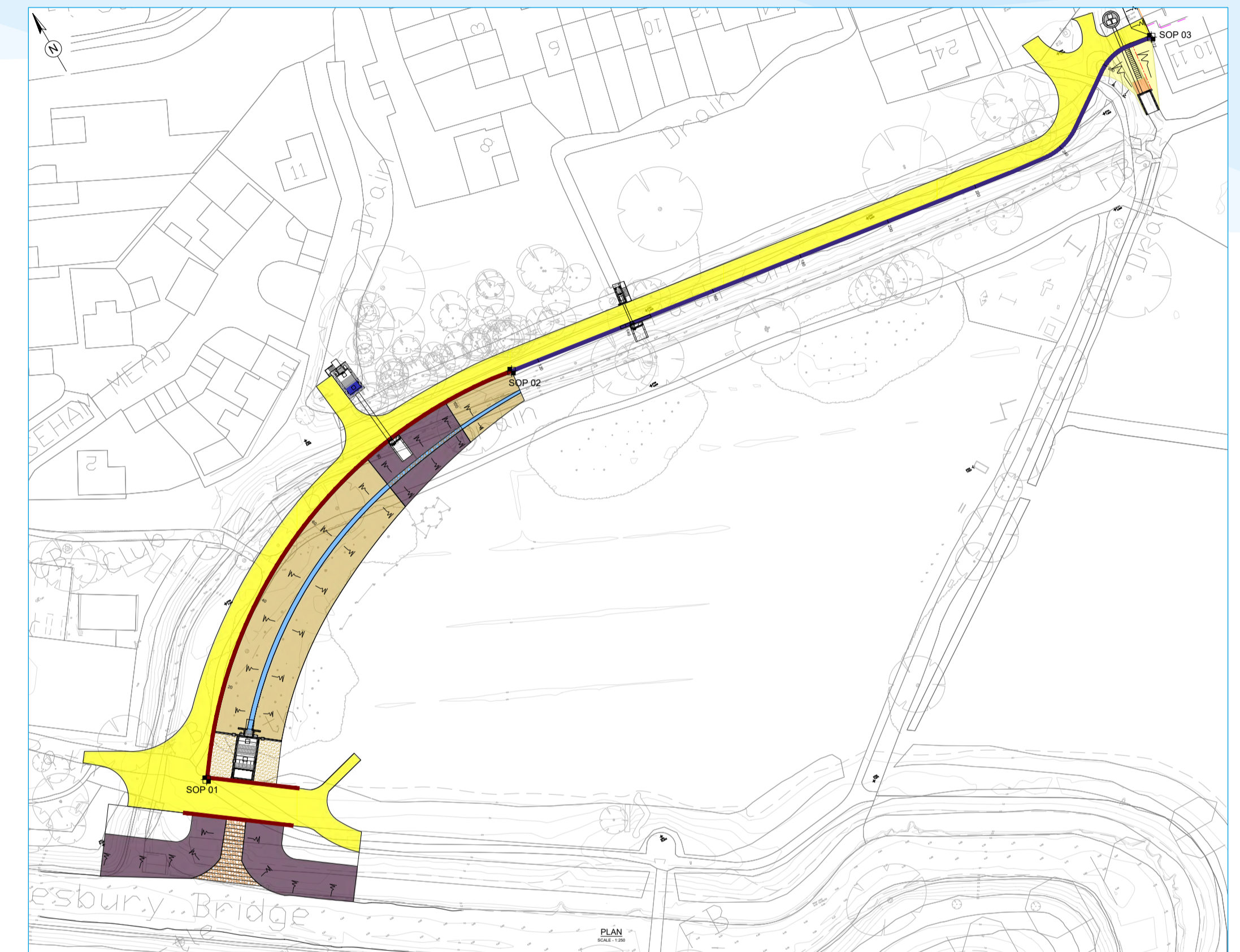
The existing embankment along the north and northeast edges of the Millennium Green requires upgrading, so it can continue to provide protection to properties north of the River Yeo. To do this we are proposing to install a sheet pile retaining wall within the embankment itself.

The sheet piles will initially follow the alignment of the existing embankment, then from the Gooseum Rhyne outfall, there will be a new alignment of the embankment and sheet piles, moving gradually into the Green, ending up approximately 14 metres further into the Green than the current defence. We also plan to move the existing drainage ditch (rhyne) to follow the new embankment's alignment. Due to this relocation, we'll need to build a new outfall into the Congresbury Yeo and decommission the existing structure.

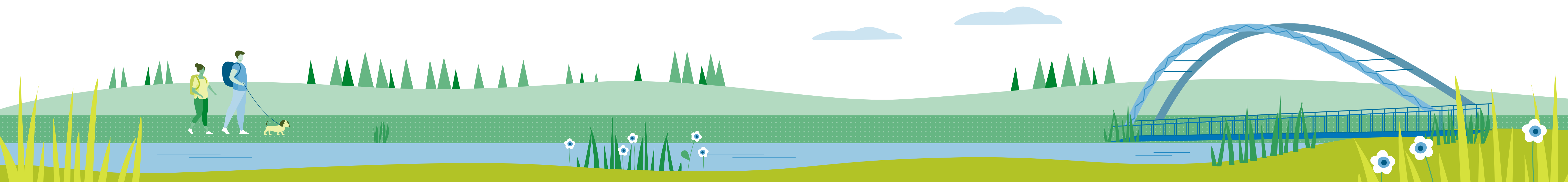
The sheet piles will be visible for a short distance above the height of the embankment and so we plan to clad them in a suitable material to match the surrounding buildings. We're also looking at planting options to shield parts of the wall from view and allow it to better blend into the surrounding landscape.

Also, to enable safe and reliable maintenance access year-round, we will need to create a four-metre-wide track behind the wall. The sides of the embankment will need to be regraded to an appropriate level to allow this to happen.

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



Drawing of planned works including the location of the retaining wall

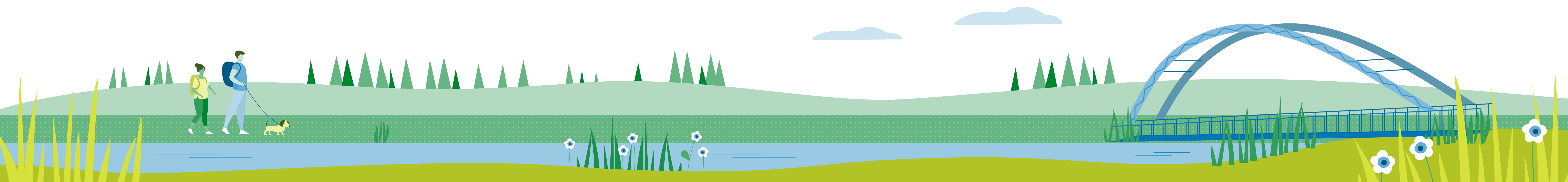


Northern Embankment Visualisation

This board shows you what the Millennium Green could look like with our proposals. In this visual, the retaining wall is shown with brick cladding. The map shows the location and direction of sight used to produce the visual.



Potential view



Northern Embankment Visualisation

This board shows you what the Millennium Green could look like with our proposals. In each visual, the retaining wall is shown with brick cladding. The map shows the location and direction of sight used to produce the visuals.



Existing view



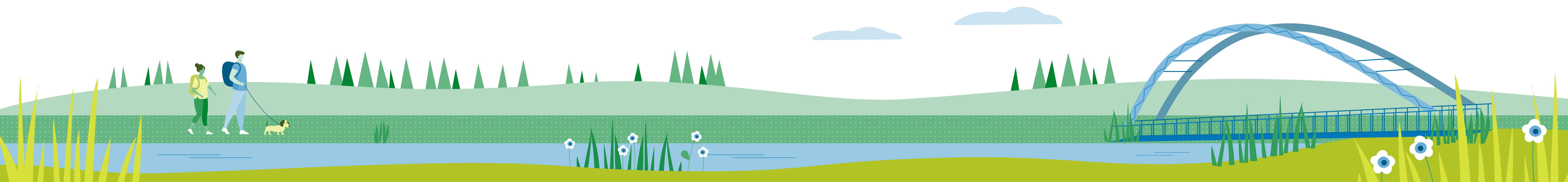
Existing view



Potential view

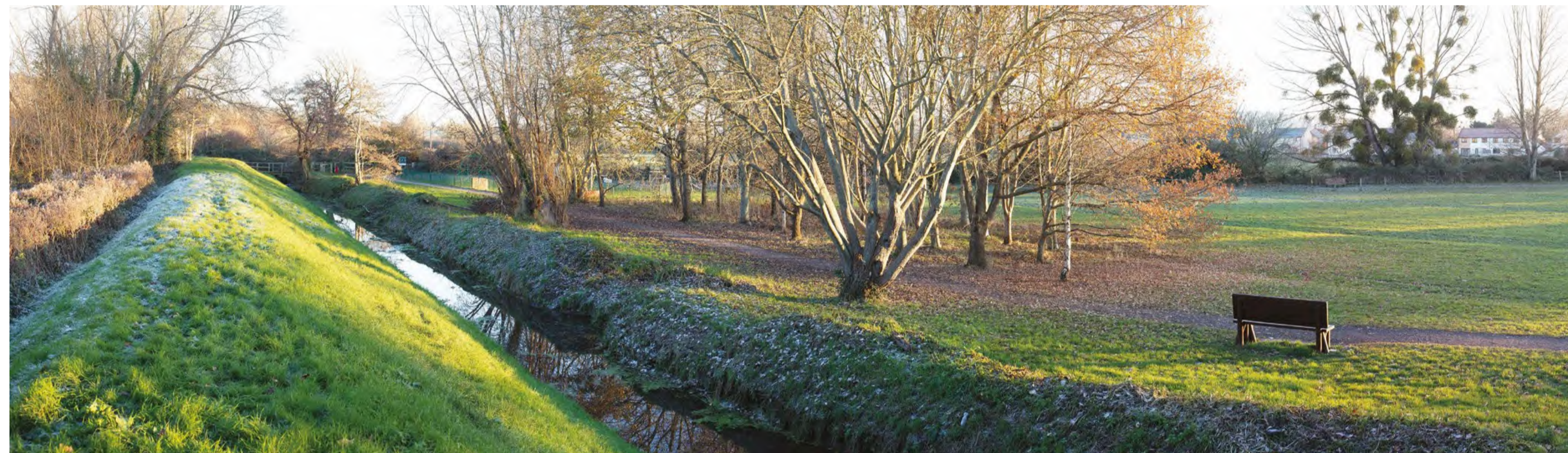


Potential view



Northern Embankment Visualisation

This board shows you what the Millennium Green could look like with our proposals. In each visual, the retaining wall is shown with brick cladding. The map shows the location and direction of sight used to produce the visuals.



Existing view



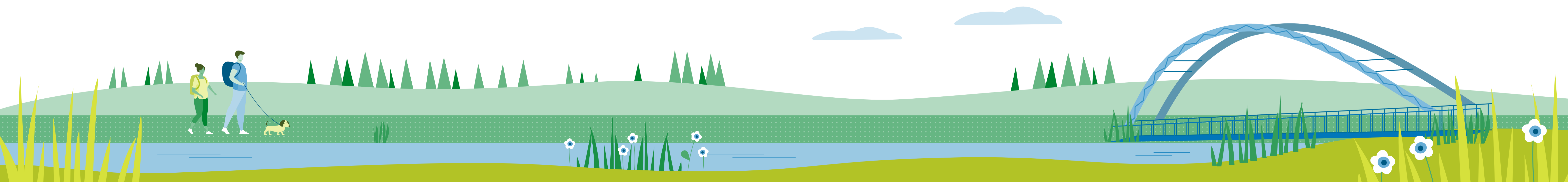
Existing view



Potential view



Potential view



Spillway

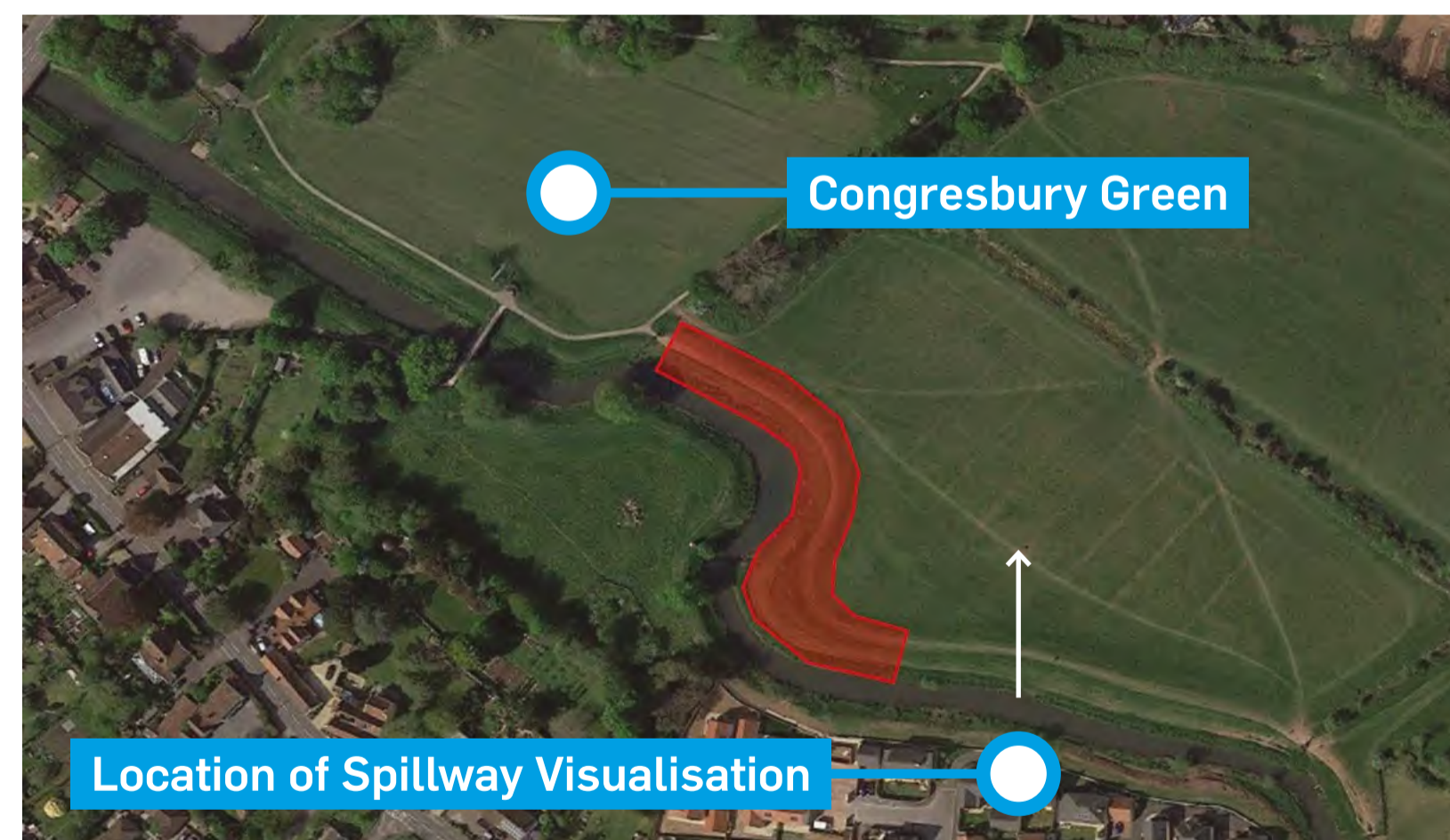
Banks of the Congresbury Yeo

We have found some deterioration along sections of the riverbank in the southeast corner of the Green where the reservoir spillway is located. To fix this, we plan to use a variety of softer engineering techniques. This includes the use of coir rolls (an organic living revetment providing erosion control), brushwood faggot bundles (typically consisting of hazel, chestnut and willow that provide support to the coir rolls), and timber stakes, which will reinstate and reinforce the bank and protect against further erosion.

As a wider benefit, this method of strengthening can also provide sustainable organic habitat that can support vertebrate and even native crayfish populations in the river. We are also considering safe dog access as part of the design.

Spillway Works

We won't be changing how the spillway works, but we do plan to re-grade it to give a consistent level along its length. As the current footpath will need to be removed, we'll also be creating a new two-metre-wide gravel footpath running along the crest of the embankment. A 'ground demarcation beam' has also been proposed to define the level of the spillway and monitor level changes in the future.



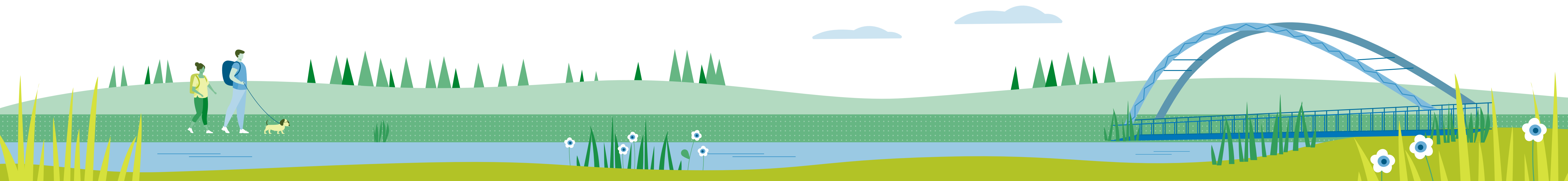
Map showing the location of the work and the viewpoint location



Existing view















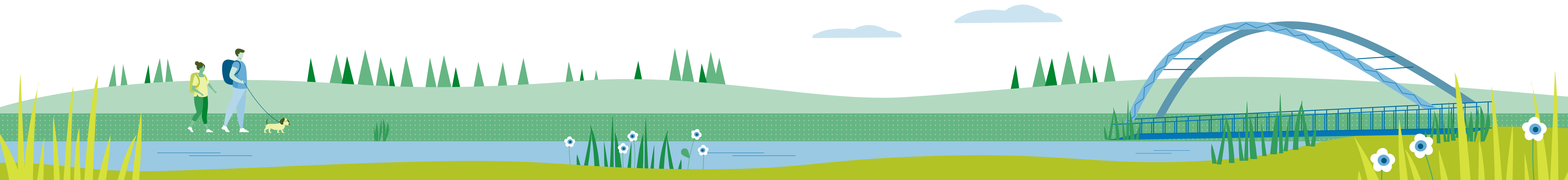
Potential view



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.

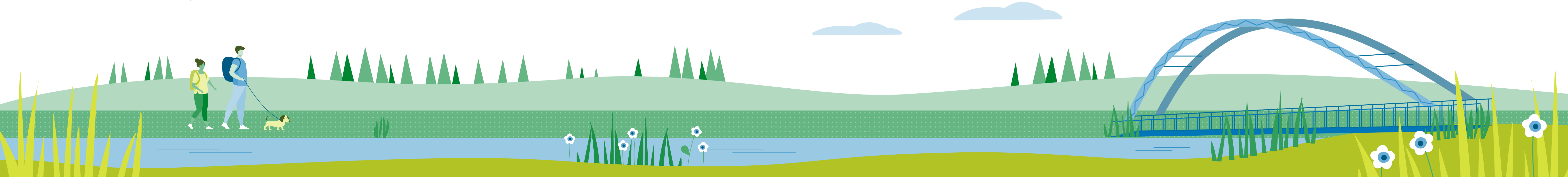
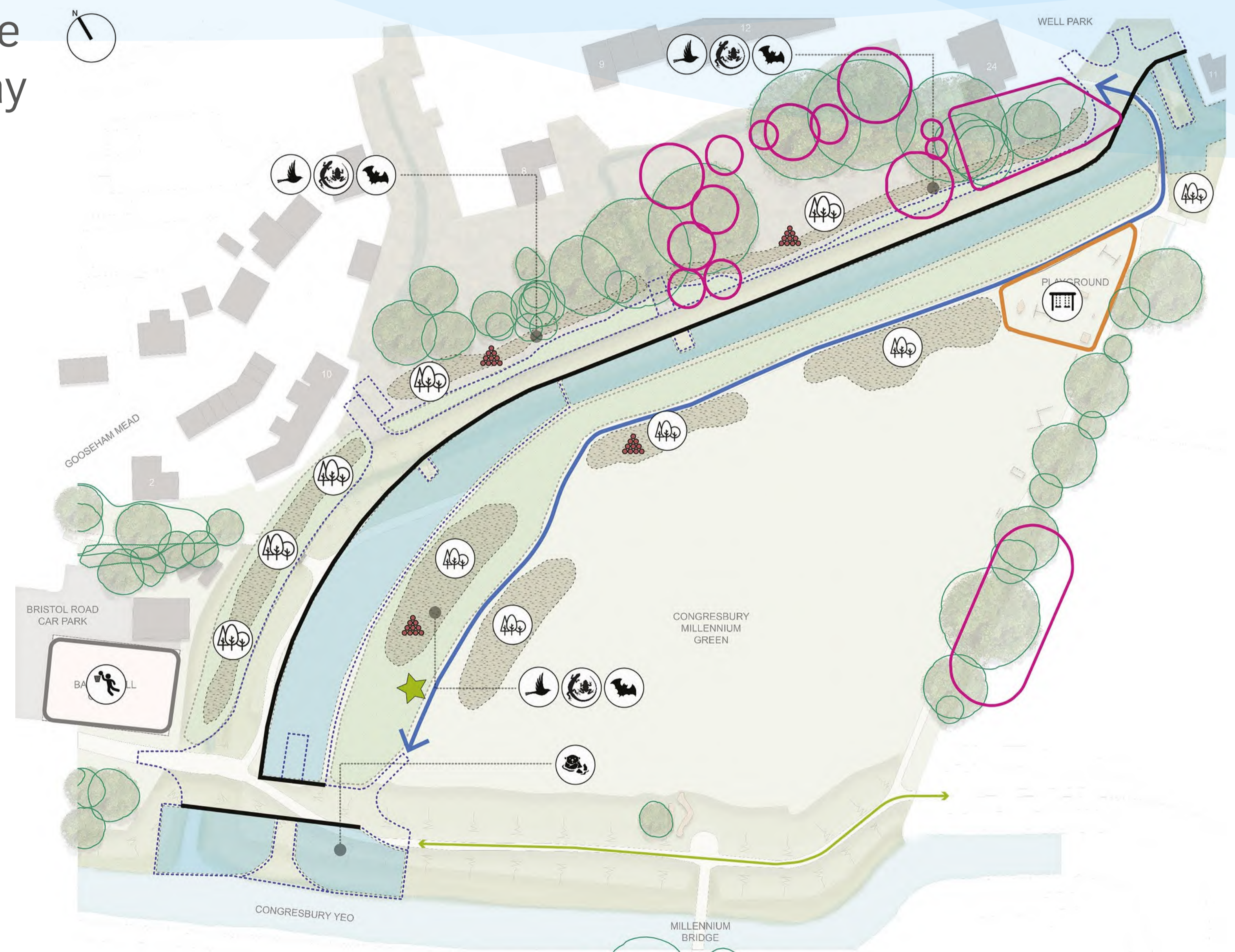
-  Extent of Scheme outline/footprint.
-  Existing trees to be retained and protected during construction phase.
-  Existing trees to be removed to facilitate proposed work.
-  Existing vegetation to be removed to facilitate proposed work.
-  Existing Tree Preservation Orders (TPO) To be confirmed (source: North Somerset Council).
-  Existing Public Right of Way to be retained and protected during construction phase.
-  Sue Grant Memorial.
-  Trees with bat roosting potential. Further surveys 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.
-  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.
-  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.
-  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 provide to prevent animals becoming entrapped.
-  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.



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 has, and enhance the environmental landscape.

-  Extent of Scheme outline/footprint.
-  Existing trees to be retained and protected during construction phase.
-  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 the Scheme is completed.
-  Suggested new footpath.
-  Proposed sheet piling, brick faced wall to engineer's drawings.
-  Existing Tree Preservation Orders (TPO) To be confirmed (source: North Somerset Council).
-  Existing Public Right of Way to be retained and protected during construction phase.
-  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.



Proposed Landscaping



Proposed tree planting



Wildflower meadow grass



Proposed tree planting



Wetland meadow grass



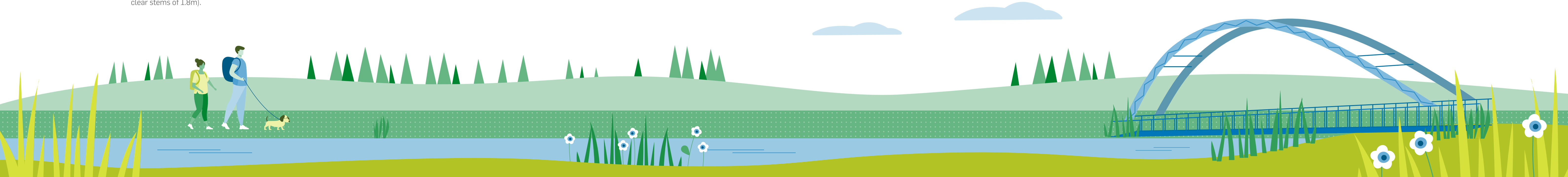
Proposed tree planting



Native thicket

KEY

-  Existing Tree Preservation Orders (TPO) To be confirmed (source: North Somerset Council).
-  Existing Public Right of Way to be retained and protected during construction phase.
-  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 with seeded mix of Amenity Grass 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 wildflower meadow grass seed mix. Emorsgate General Purpose Meadow Mixture EM1 (or similar).
-  Existing Tree Planting to be retained.
-  Proposed Tree Planting. Suggested species include *Acer pseudoplatanus*, *Crataegus monogyna*, *Betula pendula*, *Alnus glutinosa*, *Carpinus betulus*, *Prunus avium*. (Extra heavy standard and/or semi mature stock, clear stems of 1.8m).
-  Proposed Wetland Meadow Grass. Emorsgate Wetland Meadow Grass EM8 (or similar) Note: 1.0m mown grass maintenance strip to base of retaining wall along Rhyne.
-  Existing playground to be removed during construction phase and to be reinstated once scheme completed.
-  Proposed footpath to match existing surface. (self binding granular surface).
-  Existing pedestrian bridge to be retained.
-  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 of Proposed Gate.
-  Indicative location of Proposed Fence.
-  Indicative desire line to be suitable for pedestrian access. (self binding granular surface or similar).
-  Proposed sheet piling, brick faced wall to engineers drawings.



Construction

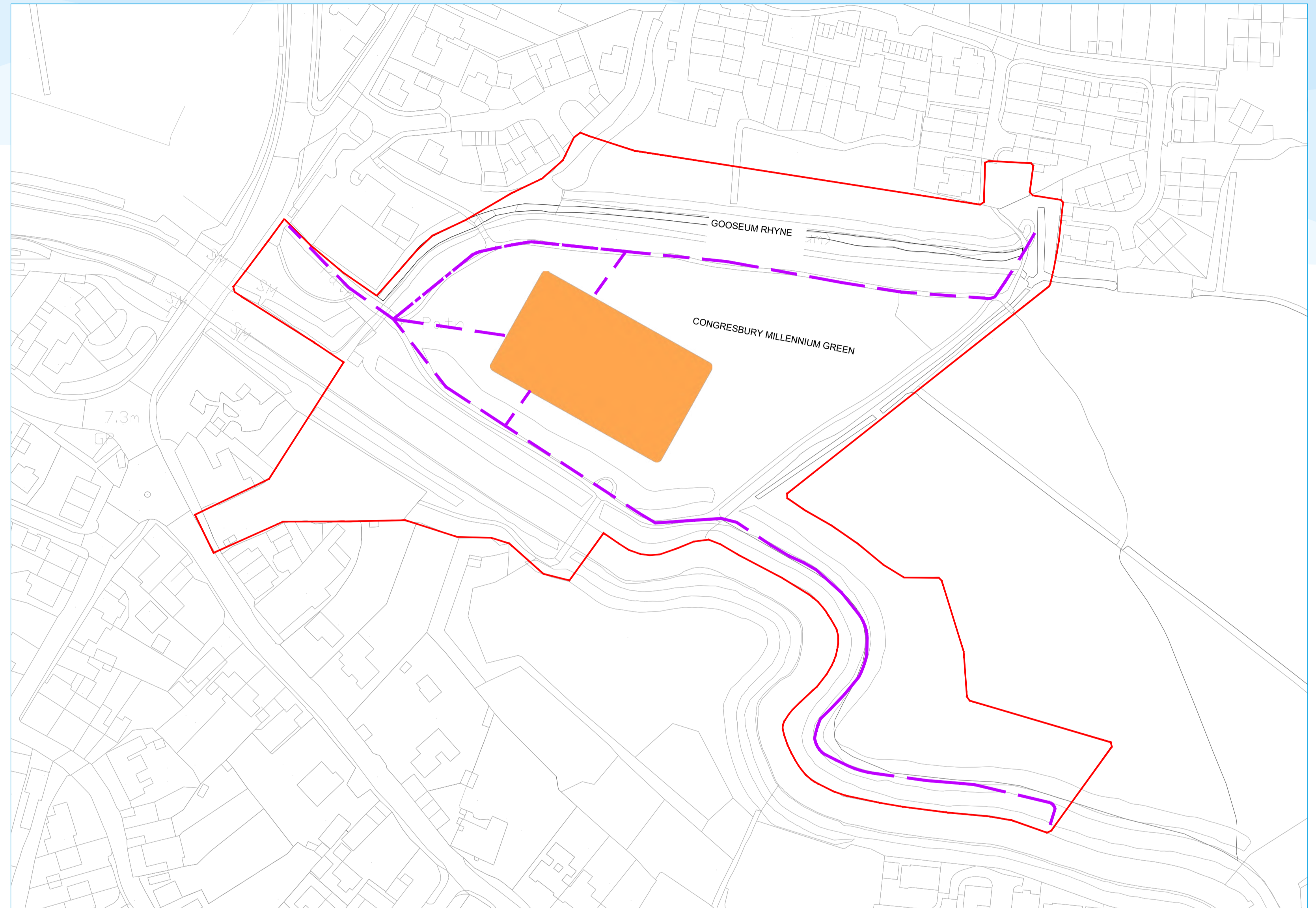
Our construction methodology is still being developed as the design progresses and will be shared once confirmed.




We plan to be on site in January/February 2024 to carry out tree removal, with main construction due to start in April 2024 and finish in November 2025.

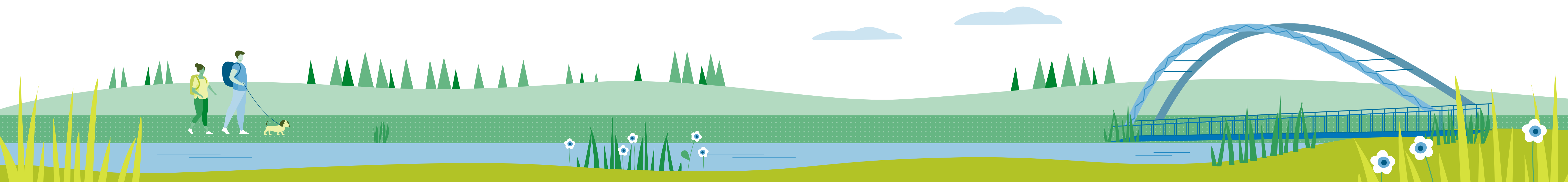
We'll be working on the new outfall structure, the rhyne and the spillway in 2024, and then on the northern embankment in 2025.

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

We hope to 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 firmer plan.



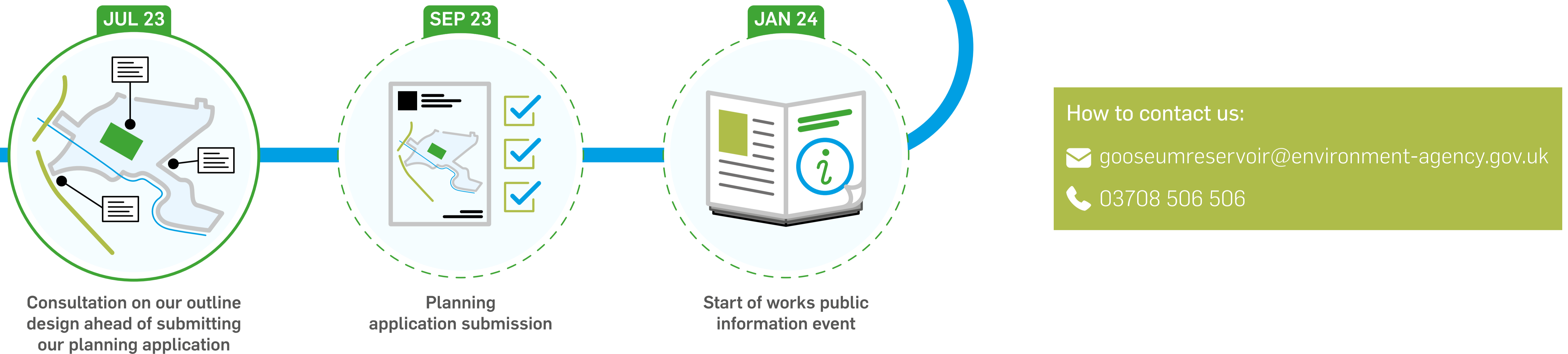
-  Logistics compound
-  Site boundary
-  Main construction access route



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.



How to contact us:

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