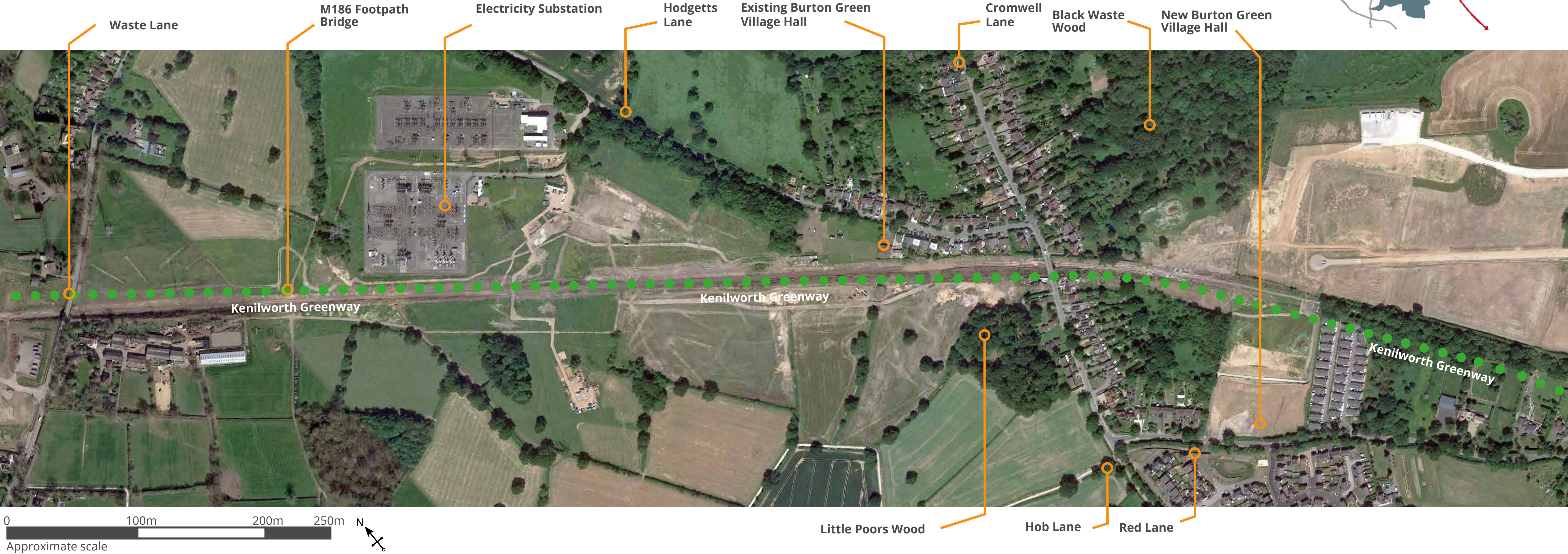
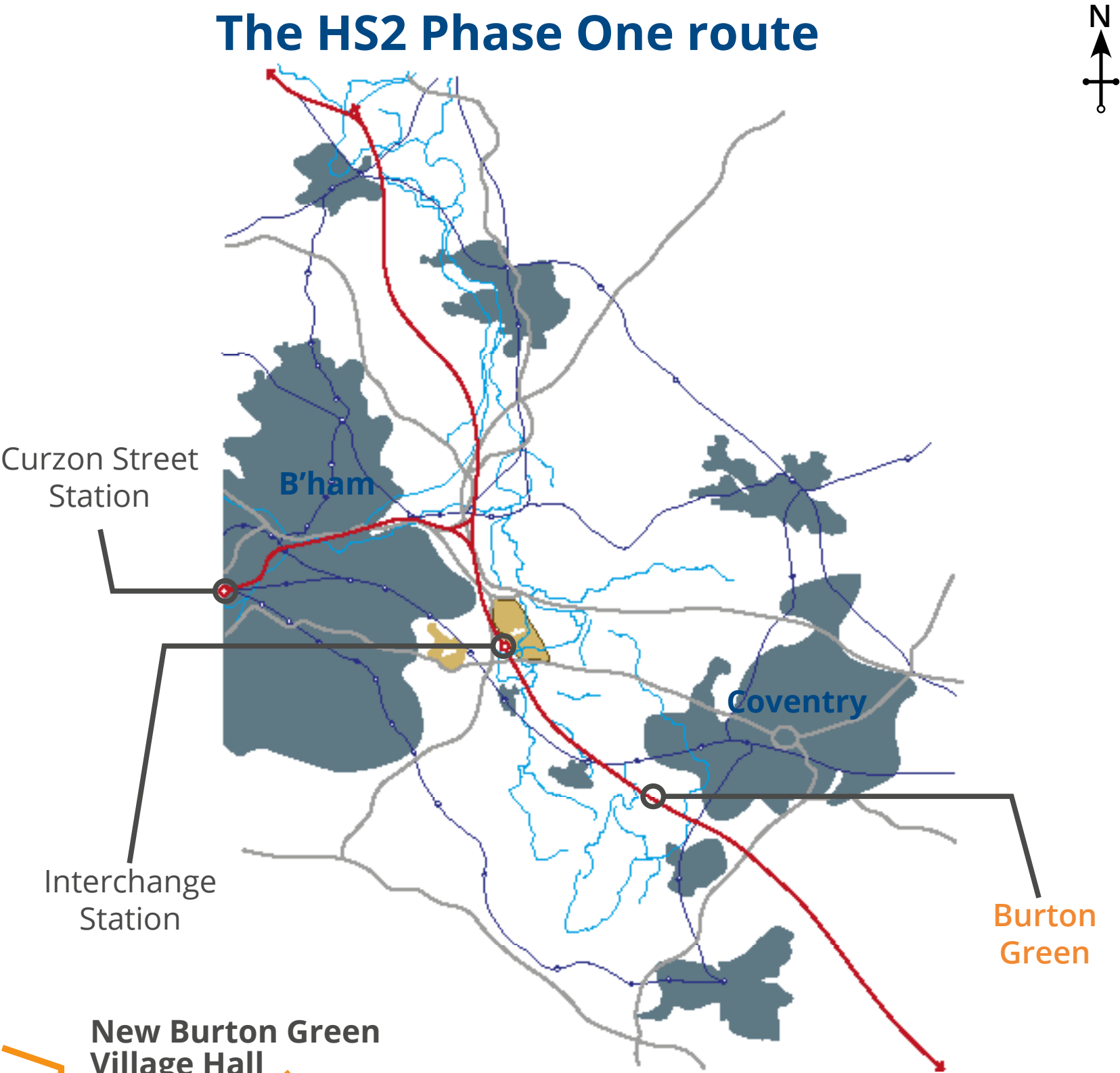


# Context

## Burton Green and the Kenilworth Greenway

Since receiving valuable community feedback in November 2019, Balfour Beatty Vinci (BBV) has been working collaboratively with HS2 and the local authorities to develop the detailed design of the HS2 route through Burton Green. The Burton Green Tunnel was identified as one of a small number of Key Design Elements (KDEs) for the scheme. We are aiming to minimise the impact of construction and integrate the railway into the surrounding landscape.

Our design has considered the need to conserve, enhance, restore and transform the area where the Burton Green Tunnel is located. Our feedback events and documents aim to update the local community on the progress of our design work and give feedback before submitting our designs to the local planning authority.



Existing Kenilworth Greenway route through Burton Green

# Burton Green Tunnel



# South Portal and portal building

There will be a maintenance and services building, called a portal building, next to Cromwell Lane at the tunnel's southern portal. The portal building will be accessed by railway staff from Bockendon Road.

The portal building and the trackside area will provide emergency access to the tunnel. The facility includes mechanical ventilation, communications infrastructure and associated plant rooms for the tunnel.

The building is approximately 58 metres long, 19 metres wide, and 8 metres high. We designed the portal and portal building to be placed in a bowl-shaped landscape, planted with trees and shrubs so that it is not easily visible from the surrounding area. This will help maintain the tranquillity of the Greenway, which runs parallel to the new railway alignment.



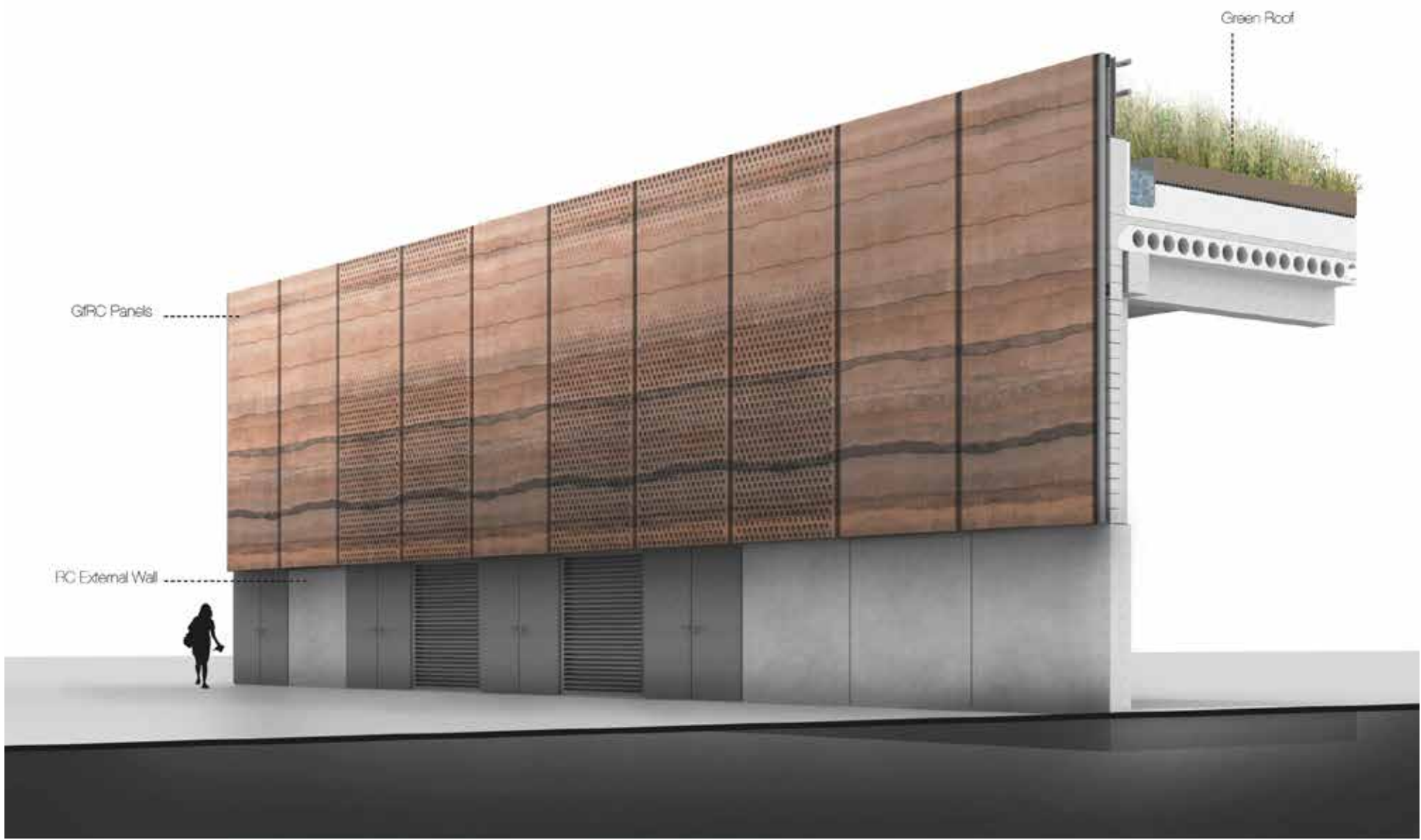
South Portal cross section



South Portal next to Black Waste Wood

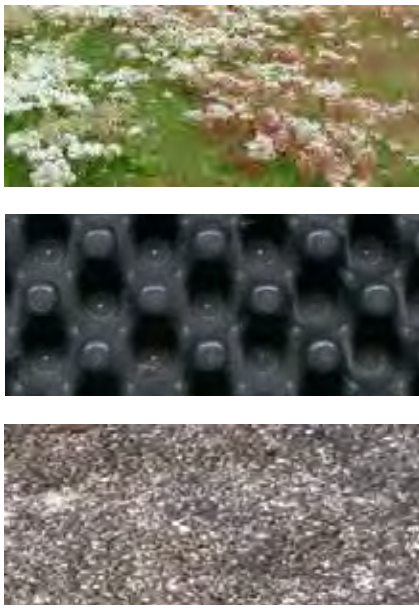


Bird's eye view of South Portal and portal building



Visualisation of the new South Portal building

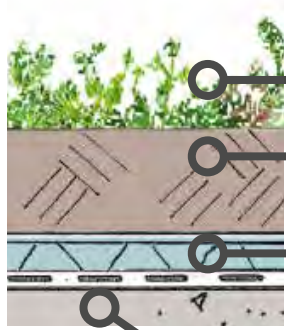
We plan for the portal building to have a green roof with planting to boost local biodiversity. Additionally, the roof will help integrate the building with the surrounding landscape. The roof will only be accessible for maintenance.



Sedum mat planting

Drainage mat

Biodiverse substrate



Sedum mat planting  
Substrate (e.g. soil)  
Drainage and waterproofing  
Roof material (e.g. concrete)  
Typical green roof build up



South Portal and portal building

# Burton Green Tunnel



# Using the tunnel roof

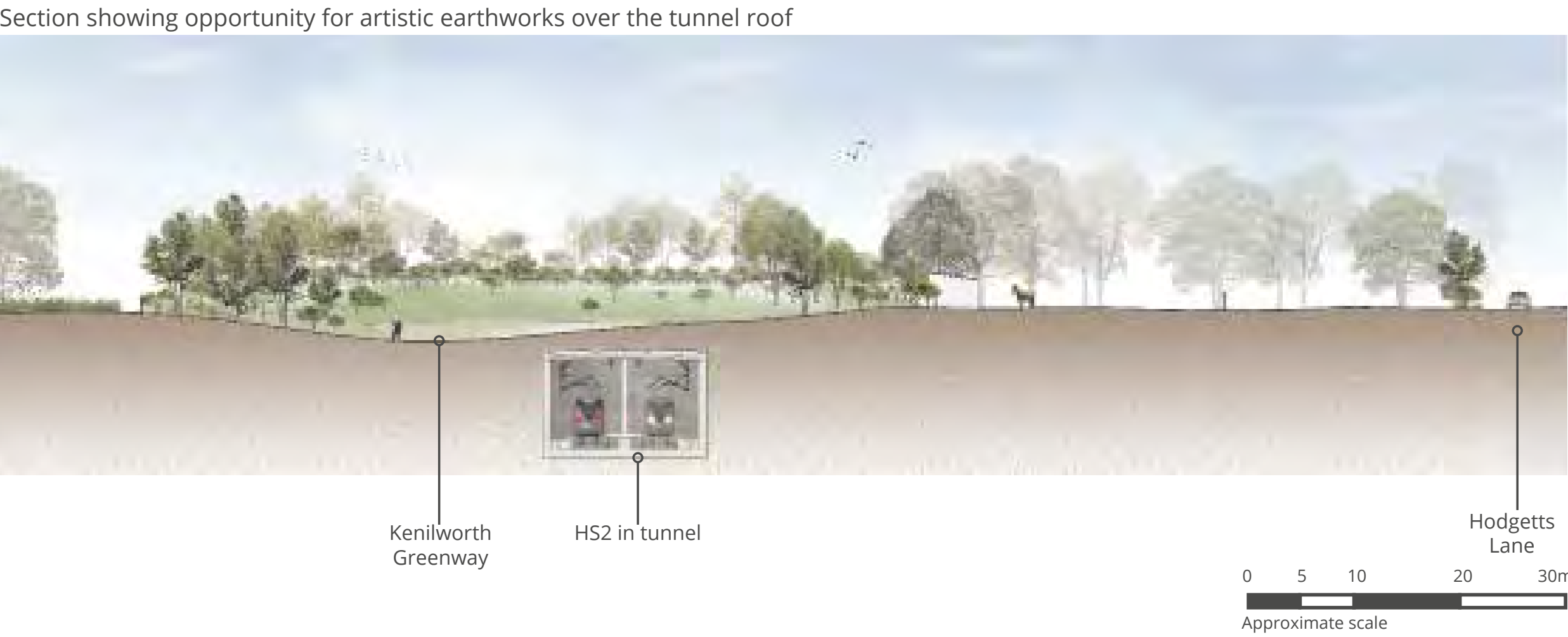
The section of the HS2 route nearest Burton Green is contained in a green tunnel. This is where we will build a cutting along the line of the existing Kenilworth Greenway. We will construct a tunnel 'box' in it and then backfill the cutting with soil to create a landscaped area on the surface.

The green tunnel will provide noise and visual mitigation when the railway is in operation, and it will allow us to restore footpaths and ecological features.

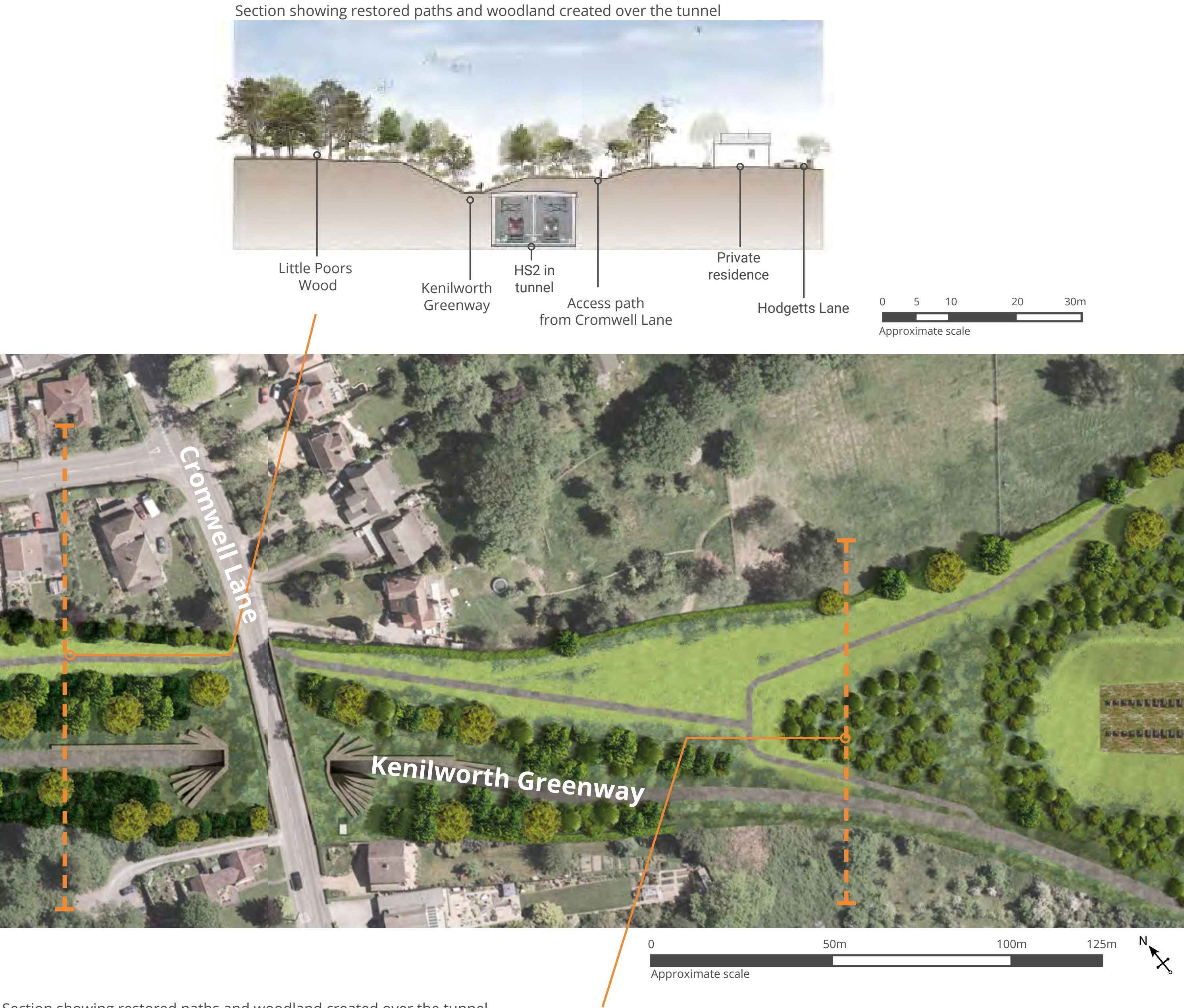
Your feedback in 2019 suggested that you value the wildlife and the natural, tree-lined environment of the Kenilworth Greenway. In response, we will replant extensive native tree and shrub species to recreate the Kenilworth Greenway's biodiverse habitats and re-establish connections with Black Waste Wood and Little Poots Wood.



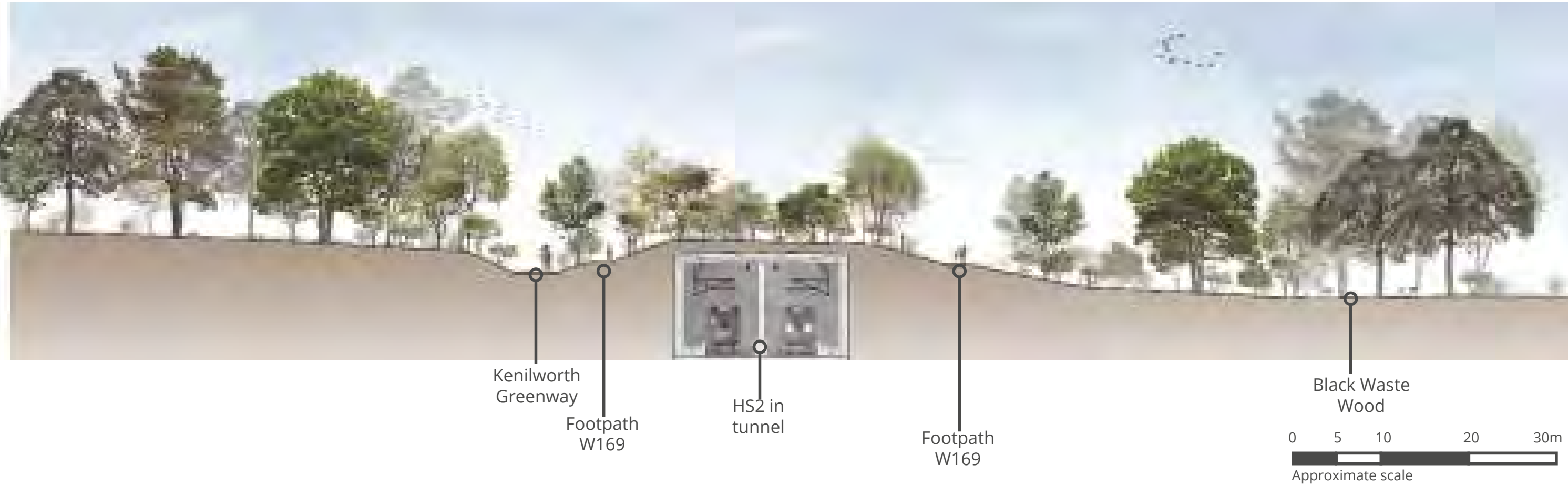
Plans for the tunnel roof and adjacent areas



Section showing opportunity for artistic earthworks over the tunnel roof



Section showing restored paths and woodland created over the tunnel



# Burton Green Tunnel



# Public engagement feedback

## KDE Events

Burton Green Village Hall Events

- 26 October 2019.
- 28 October 2019.

Heart of England Academy Event

- 8 November 2019.



## You said

86% think traffic calming on Cromwell Lane is fairly or very important.

81% think enabling a community space is important.

Suggestions:

- Wildlife habitats.
- A sensory garden.
- Trim trail or exercise facilities.

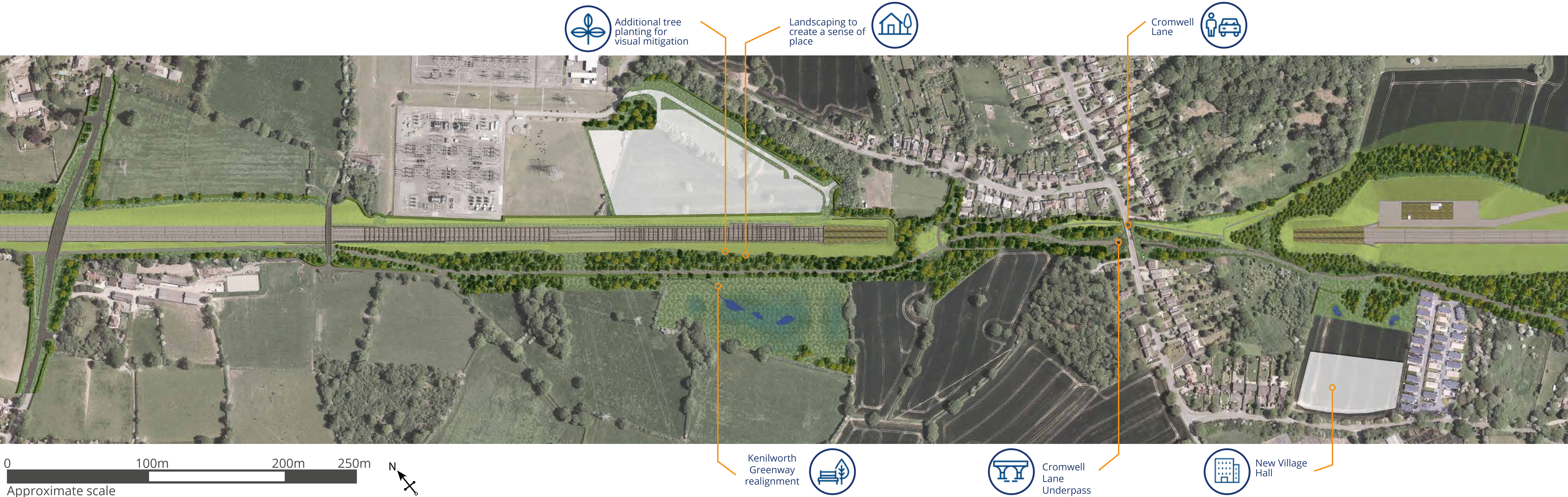


Restoring the Greenway:

- Greenway to encourage and support the local wildlife.
- Feel of the existing Greenway to be recreated.
- Space to be landscaped to shield the new railway.



*“Thank you for trying so hard for our local area.”*  
- Attendee at KDE Event



# Burton Green Tunnel



# Creating a sense of place

We will choose from a range of materials, finishes and designs to ensure our project, including the new Kenilworth Greenway, fits within the surrounding landscape. The images on this board are examples of these ideas.



Example of insect box



Example of bird box



Example of woodland habitats



Example of wildflower meadow



Example of wildflower meadow



Example of woodland flowers

# Burton Green Tunnel



# Cromwell Lane

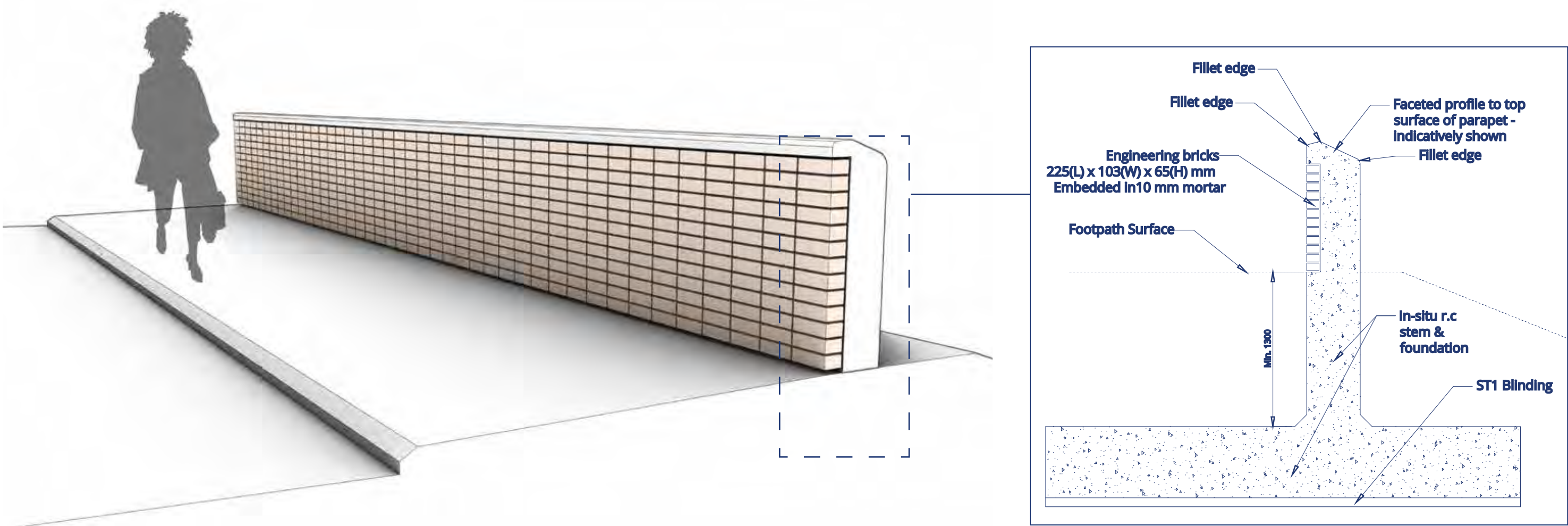


## Traffic calming in Burton Green

We aim to keep Cromwell Lane open during our construction of the Burton Green Tunnel. We will create a temporary diversion to the west of the existing lane to achieve this. This will allow us to construct the southern end of the tunnel before moving the road back to its original and permanent alignment. We will then build the rest of the tunnel.

As with the existing bridge crossing, we will retain traffic calming measures to reduce vehicle speeds in the village and deliver safer pedestrian access to the new Kenilworth Greenway. We will maintain access to local properties at all times.

While we are undertaking this work, there will be periods where we require traffic management as we connect the new sections of the road to the existing alignment. We will always try to keep traffic management to a minimum and inform local people of any work before commencement.



Cromwell Lane road parapet



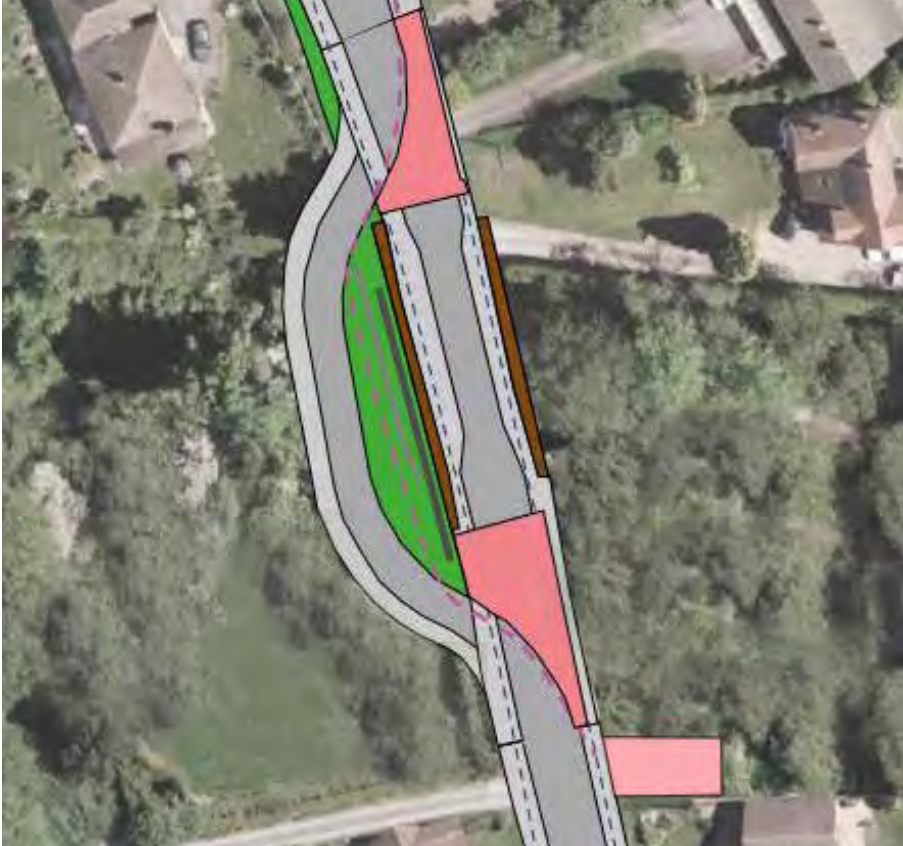
Existing view from Cromwell Lane



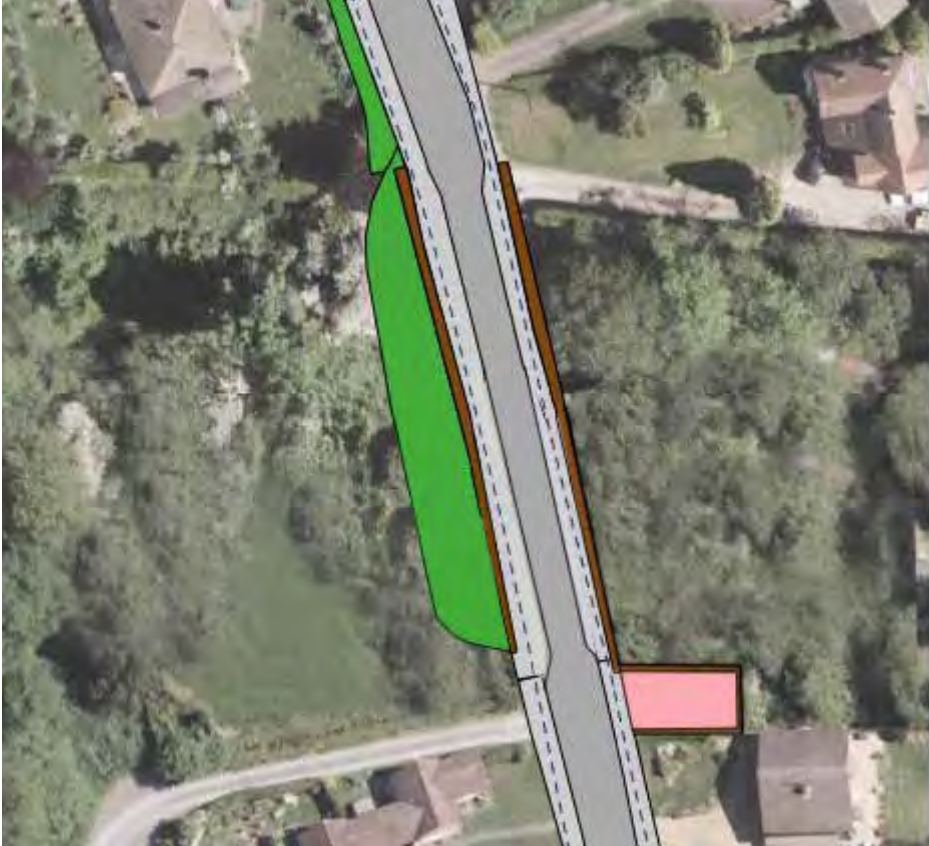
Proposed view from Cromwell Lane



Cromwell Lane - current bridge alignment (showing substation)



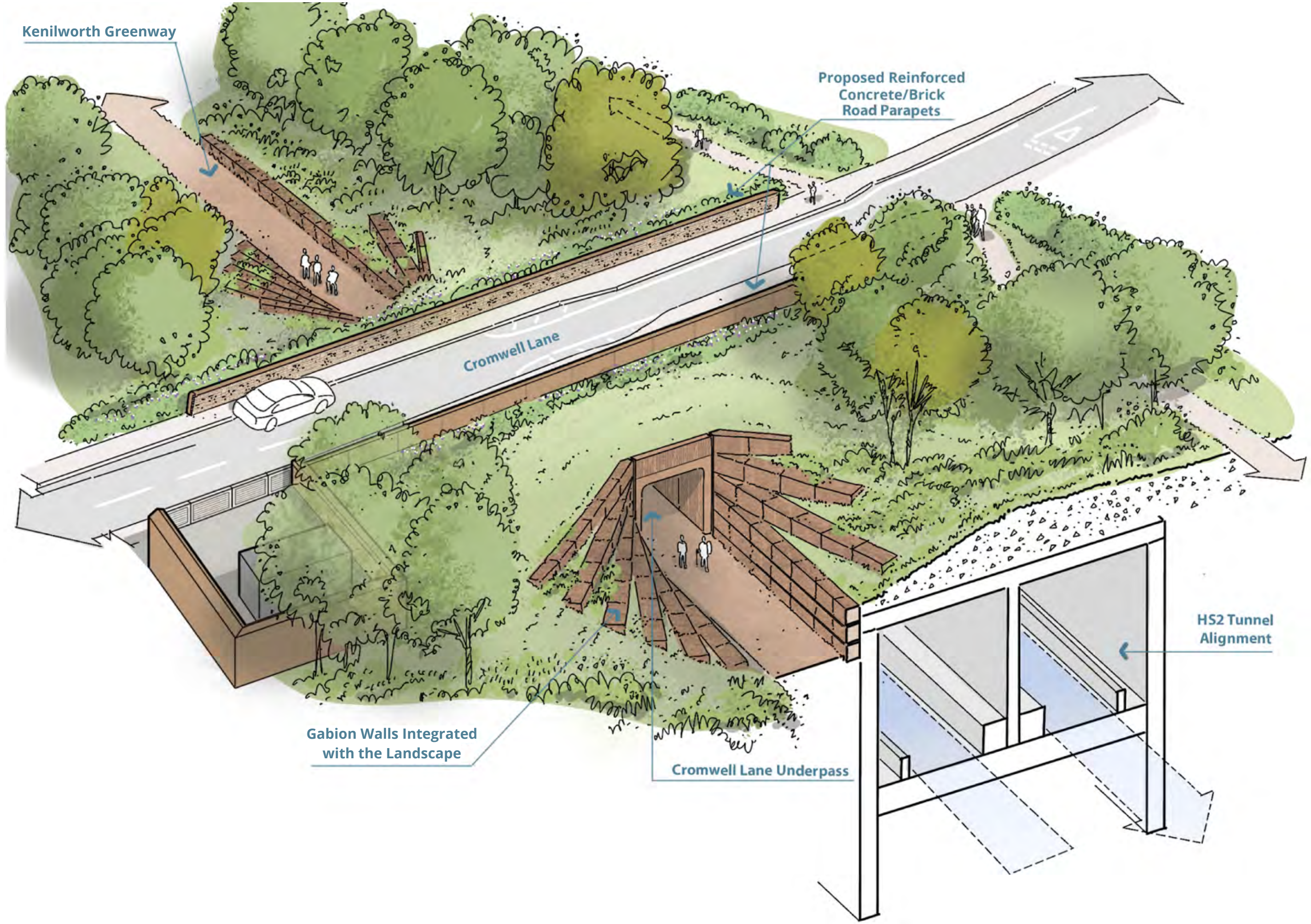
Cromwell Lane - temporary realignment (substation relocated)



Cromwell Lane - final alignment

Note that above alignment diagrams show only approximate arrangements, as these are intended to show construction sequence

Substation



Plans for Cromwell Lane

# Burton Green Tunnel



# Cromwell Lane underpass



The construction of the new green tunnel removes the existing arched brick bridge that carries Cromwell Lane over the Kenilworth Greenway, so we need to build a new underpass.

We have considered several factors in our design of this underpass, including:

- Ensuring the safety of road users
- Minimising the length of the underpass to make it a pleasant space that enables the diversion of Cromwell Lane above it
- Providing enough width and height for horse riders, cyclists and pedestrians
- Restoring the character of the Kenilworth Greenway so that it blends with the existing Kenilworth Greenway's appearance, vegetation and lighting



Image showing the location of the new Cromwell Lane underpass



View of the Cromwell Lane underpass



Cromwell Lane context area



View through the Cromwell Lane underpass



View of the Cromwell Lane underpass

# Burton Green Tunnel



# Kenilworth Greenway plans

## Burton Green and the Kenilworth Greenway

The construction of the HS2 route broadly follows the alignment of the Kenilworth Greenway corridor. We recognise the local importance of the Greenway and have developed proposals for its temporary and future use.

The temporary route diverts from the current alignment close to the site of the new Burton Green Village Hall and follows the existing field boundaries to minimise impacts on farming activities before linking to Berkswell Station in the northwest.

For the permanent route, we have used the HS2 Landscape Design Approach principles to guide our design. This is focussed on:

- Conserving the remaining sections of the Greenway where possible to ensure environmental and historical connectivity
- Enhancing the environmental features of the realigned Greenway, notably in the protection and enhancement of ancient woodlands
- Restoring the character of the Greenway so that in time it reestablishes its linear tree-lined characteristics
- Transforming the usage of the Greenway by providing enhanced connectivity for users and local wildlife



Visualisation of the new Kenilworth Greenway



Visualisation of the new Kenilworth Greenway and Cromwell Lane underpass



New Kenilworth Greenway route

# Burton Green Tunnel



# Northern section

HS2 will pass close to the existing National Grid substation, situated north of the Burton Green Tunnel. We will install a new Auto Transformer Feeder Station (ATFS) next to the substation in the fields to the southeast. These are needed at regular intervals along the railway to provide a consistent power supply to the trains.

We will build a retained cutting in this section because the planned railway is in a narrow area. The cutting is a U-shaped channel where the trains travel with concrete beams over the top to provide stability. The cutting design ensures we reduce the amount of land needed to deliver the railway in this location and keep the National Grid substation operational during construction.

We will preserve and enhance vegetation and screening along Hodgetts Lane to minimise any environmental impact and ensure our work is mostly blocked from view.



Bird's eye view of retained cutting



Kenilworth Greenway next to the retained cutting



Location of the new Auto Transformer Feeder Station



View of the northern section

Kenilworth Greenway

HS2 in retained cutting

Burton Green Auto Transformer Feeder Station

Hodgetts Lane

# Burton Green Tunnel



# Plans overview

## Our design approach

Our approach for the detailed design phase of the scheme is focused on the principles set out in the HS2 Design Vision document. These ensure that People, Place and Time are considered in all aspects of our work. In addition, we are working in accordance with the HS2 Landscape Design Approach document. The vision and principles are set out to the right.

### Conserve

A sensitive setting requires a design approach that successfully screens and integrates HS2 and develops measures to conserve and enhance the area.



### Enhance

A location where HS2 may be easily visible will need a bold design approach to enhance and protect the local area.



### Restore

HS2 crosses land that may have lost or is losing original features and qualities. Our opportunity is to restore and significantly improve these areas.



### Transform

Some urban and rural areas where HS2 will operate may be in poor condition. We aim to bring bold transformation to these locations to provide community benefits and support local economies.



## Burton Green Tunnel design benefits



### Minimise noise

We will use best practice to lessen construction noise for our neighbours



### Manage dust

We will manage dust at source to reduce its impact on our neighbours



### Reduce carbon emissions

We will minimise construction traffic and energy use to help the UK meet its target to be Net Zero by 2050



### Lessen waste

We will aim to reuse all excavated material per our Environment Impact Strategy



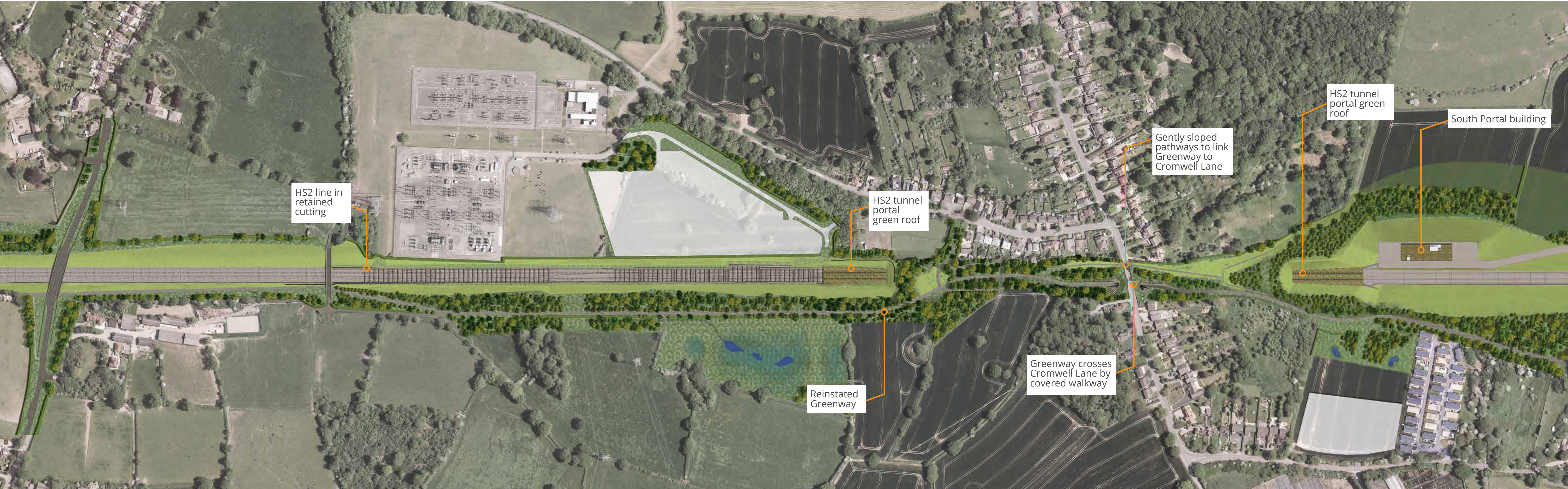
### Use cement alternatives

We will make sure to use sustainable alternatives for at least 45% of the cement we need



### Build structures offsite

We will manufacture some structures offsite to build the railway faster and reduce disruption for our neighbours



0 100m 200m 250m  
Approximate scale

Plan showing the new railway through Burton Green

# Burton Green Tunnel

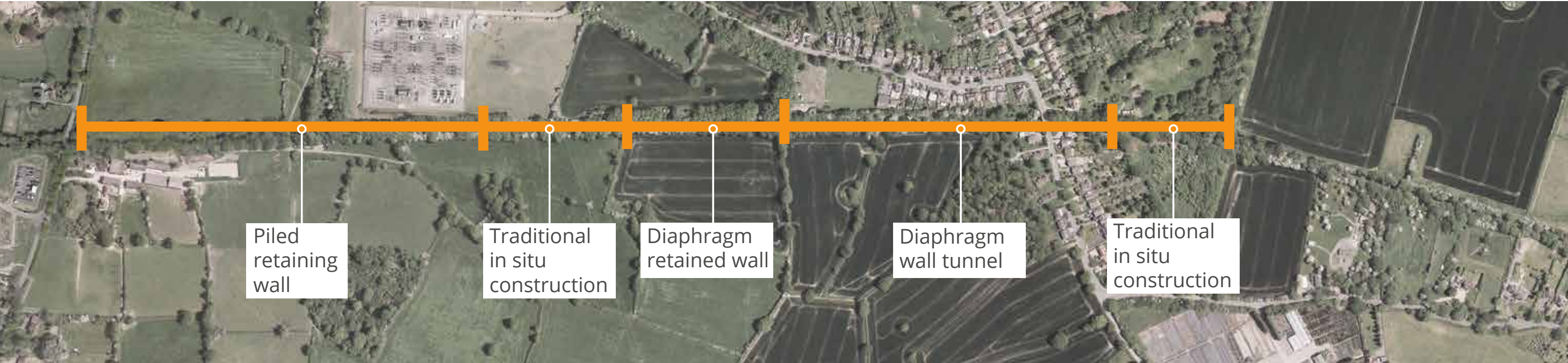


# Construction activity and timeline

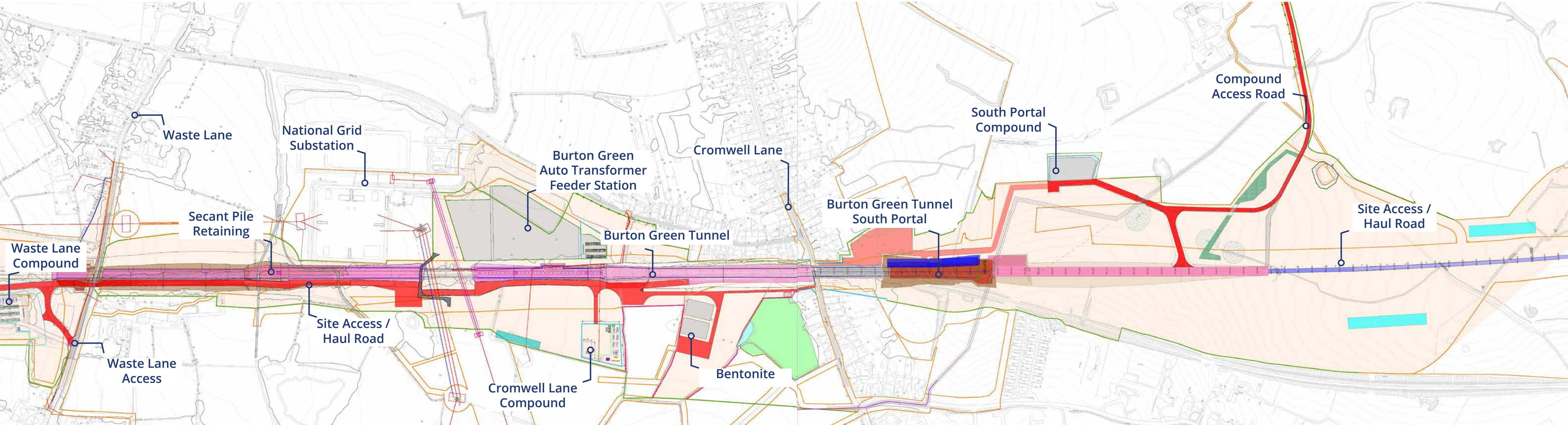
This board shows our work locations in Burton Green and includes an indicative programme for the work.

We know that our planned works here are substantial. We aim to utilise the most efficient construction methods to build the scheme safely and minimise the impact on the local community and environment.

So far, we have worked with local communities to minimise any disruption as much as possible. We will continue to keep local people updated on our progress by issuing Advanced Works Notices before installing any traffic management and regularly updating local stakeholders.



Construction methods used along the highlighted section of route



Burton Green layout plan

Asset Name	Anticipated Duration	Permanent works started in 2021	2022				2023				2024				2025				2026			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Removal of properties	10 months																					
Burton Green South Portal	42 Months																					
Cromwell Lane temporary diversion	17 Months																					
Burton Green Tunnel	51 Months																					
Burton Green retaining wall	48 Months																					
Cromwell Lane permanent alignment	2 months																					
Burton Green Tunnel North Portal	40 Months																					

Indicative construction timeline



# Burton Green Tunnel



# Connectivity

## ● You said: improve local connectivity

“There should be footpaths through the area.”

“For many, the footpaths are a vital link.”

## ● We did:

We will improve the Kenilworth Greenway to provide better access and connections to existing footpaths in the area for people and local wildlife.



Kenilworth Greenway next to the retained cutting

## ● You said: improve access to Berkswell

“Access to Berkswell!”

## ● We did:

We will create a better link to Berkswell by extending the Kenilworth Greenway.

# Burton Green Tunnel

# Safety

## ● You said: keep traffic calming on Cromwell Lane

“Regarding traffic calming on Cromwell Lane at the bridge, the primary reason for introducing this was to create a safe pavement for people.”

## ● We did:

We will keep traffic calming measures to reduce vehicle speeds in the village and deliver safer pedestrian access to the new Kenilworth Greenway from Cromwell Lane.

## ● You said: surface the new Kenilworth Greenway

“The new Kenilworth Greenway should be surfaced to allow use by walkers, cyclists, horse riders without sinking into mud!”

## ● We did:

We will ensure that there is a suitable surface for horse riders, cyclists, and pedestrians and make sure it is in keeping with the new Kenilworth Greenway.



View of the Cromwell Lane underpass

## ● You said: make sure the new Cromwell Lane underpass is safe

“Ideally, an underpass needs to feel safe.”

## ● We did:

We will shorten the length of the underpass to make it a pleasant space.  
We will provide enough space for horse riders, cyclists, and pedestrians.



View through the Cromwell Lane underpass



Proposed view from Cromwell Lane



# Recreational opportunities

● **You said:** a community space on the tunnel is important and you had ideas for what to include

“Trim Trail - for the elderly.”

“A ‘daily mile’ circuit.”

“Nature information boards, mainly for children’s education.”

● **We did:**

We will create a landscaped area on the tunnel roof that could be used as a community space. Some ideas for what could go in the community space include:

- A trim trail or exercise facilities
- A sensory or similar garden
- Natural and wildlife features



Plans for the tunnel roof and adjacent areas

0 50m 100m 125m  
Approximate scale

● **You said:** include wildlife habitats in the community space

● **We did:**

We will restore the Kenilworth Greenway to encourage and support local wildlife and increase biodiversity.



Example of woodland habitats



Example of insect box



Example of bird box

# Landscape design

● **You said:** native flowers, trees and shrubs are important aspects of the existing Kenilworth Greenway, and it is important to recreate the feel of the existing Kenilworth Greenway

“The Greenway needs to remain a facility for walkers, cyclists and riders.”

“As a beekeeper, I would like to see many native bulbs, flowers and trees to encourage insect diversity.”

● **We did:**

We will recreate the feel of the existing Kenilworth Greenway by re-establishing connections to Black Waste Wood and Little Pools Wood. We will restore habitats by replanting many native tree and shrub species, including oak, birch and elder trees and hazel, hawthorn and crab apple shrubs.

We will use space for landscaping and planting along the Kenilworth Greenway and Hodgetts Lane to shield the new railway.



Visualisation of the new Kenilworth Greenway



Visualisation of the new Kenilworth Greenway and Cromwell Lane underpass

● **You said:** It is important to provide easy access to the Kenilworth Greenway for all

“Horse access.”

● **We did:**

We will make sure that the Kenilworth Greenway is accessible for horse riders, cyclists, and pedestrians and ensure that there is a suitable surface for them.

● **You said:** Provide an open grassy space in the Kenilworth Greenway

“An open grassy space is currently lacking in the village, and along the Kenilworth Greenway, so it would be an improvement.”

● **We did:**

We will choose from several designs to ensure our project fits with the local area. We are considering introducing wildflower meadows.

# Burton Green Tunnel