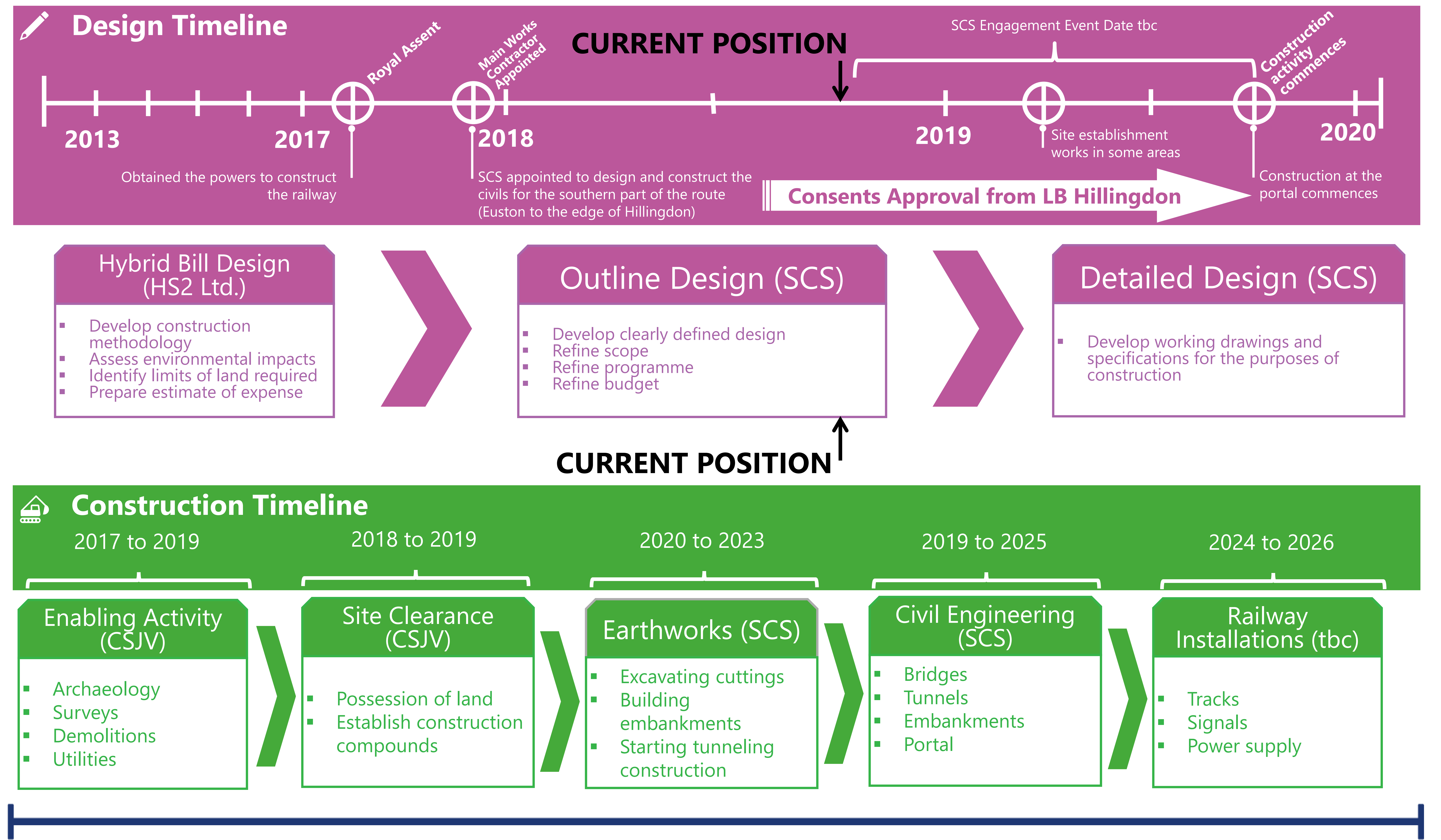
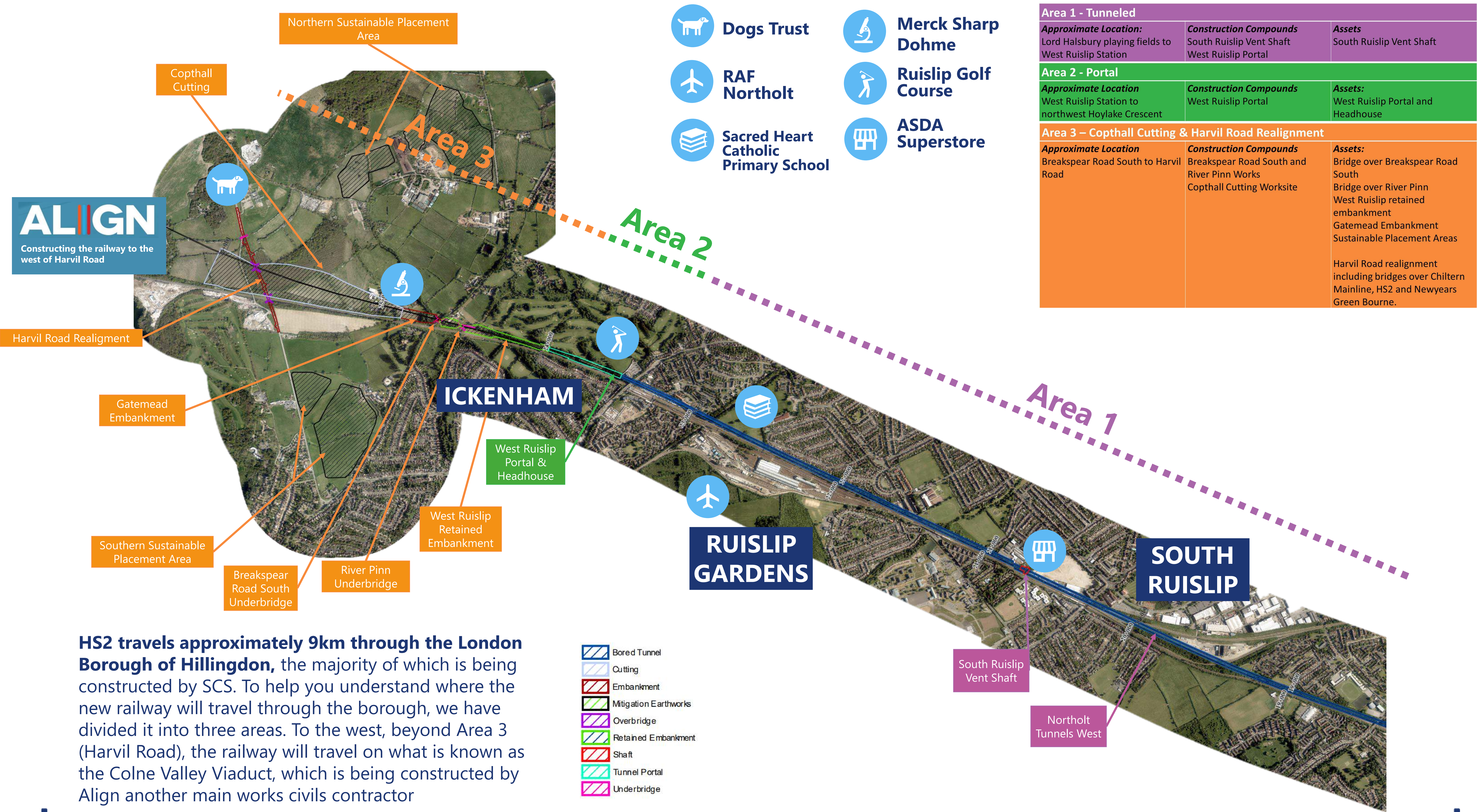


How did we get here and what happens next?



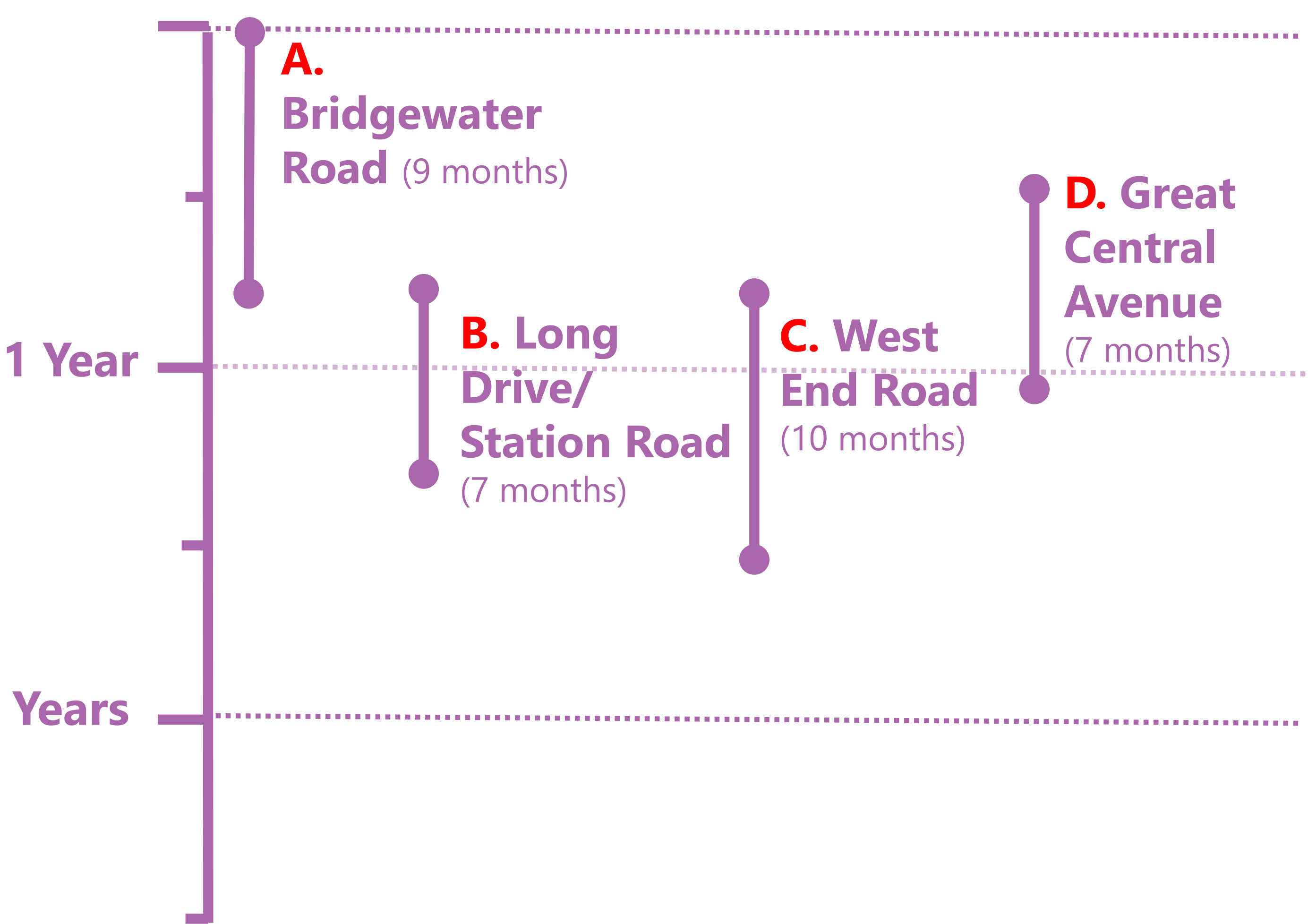
Where does HS2 go in Hillingdon?



HS2 travels approximately 9km through the London Borough of Hillingdon, the majority of which is being constructed by SCS. To help you understand where the new railway will travel through the borough, we have divided it into three areas. To the west, beyond Area 3 (Harvil Road), the railway will travel on what is known as the Colne Valley Viaduct, which is being constructed by Align another main works civils contractor

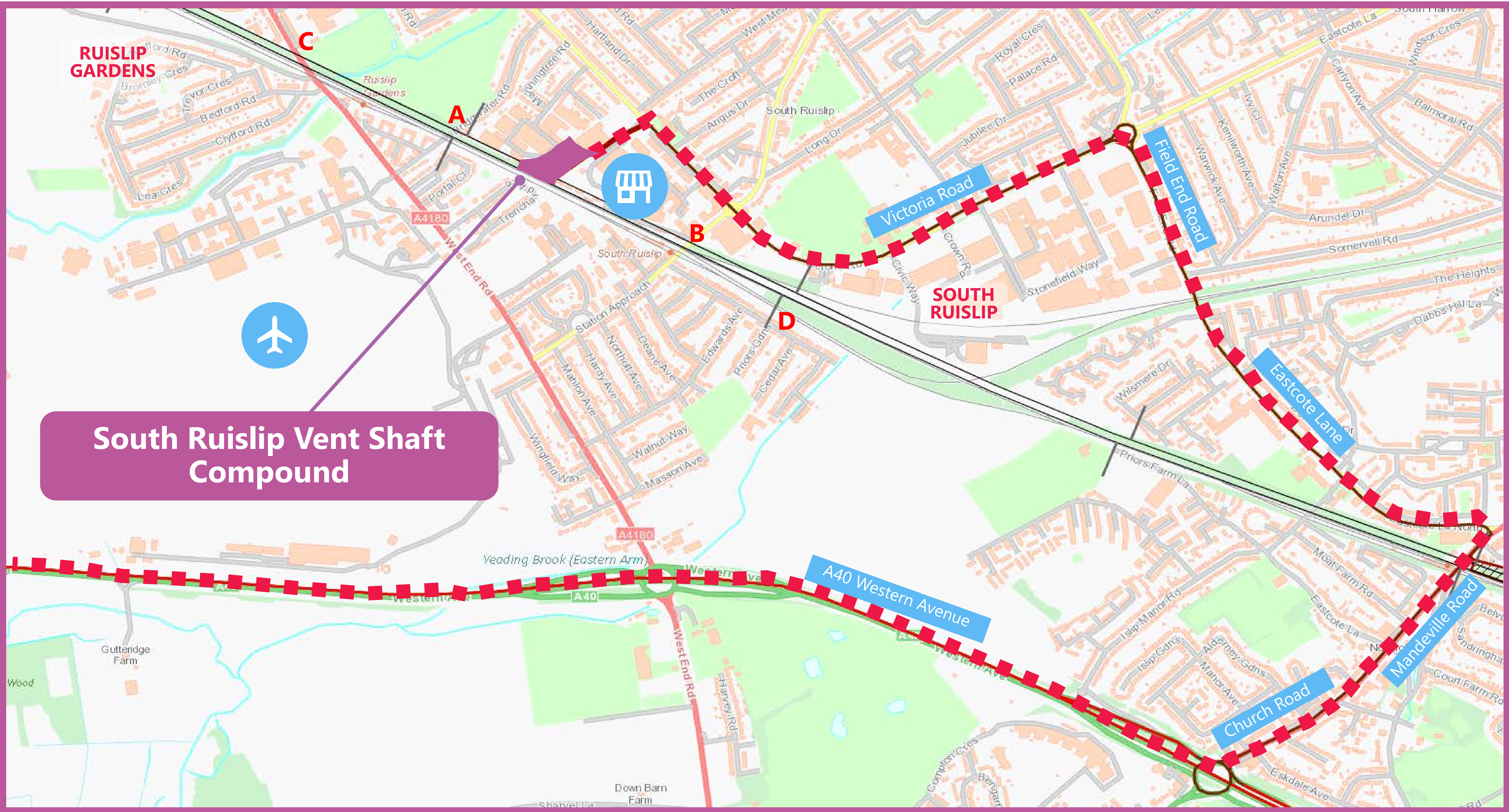
Construction Overview Area 1

Utilities Programme



This programme is in addition to other early works contractor utility activity taking place in the area. Durations are correct as of September 2018

The programme for the utility protection and diversion works is currently being refined. The anticipated start date is still being determined. As part of the Hillingdon Agreement (entered into by HS2 Ltd. and London Borough of Hillingdon) a commitment was made to try and minimise the traffic disruption that may arise from these works. This commitment is currently being factored into our working.



The number of Heavy Goods Vehicles (HGVs) required to construct the South Ruislip Vent Shaft will vary over the course of construction. During the peak month of excavation, we anticipate that there will be 80 lorry movements (40 lorries) per day. During busy periods, we anticipate that there will be 60 lorry movements (30 lorries in, 30 lorries out). All HGVs will use low emission engines (EURO VI).

- RAF Northolt
- ASDA Superstore
- Proposed Lorry Routes
- HS2 Alignment

Note:

- Locations of utilities are indicative
- Information correct as of September 2018, and may be subject to change

Area 1: South Ruislip Vent Shaft

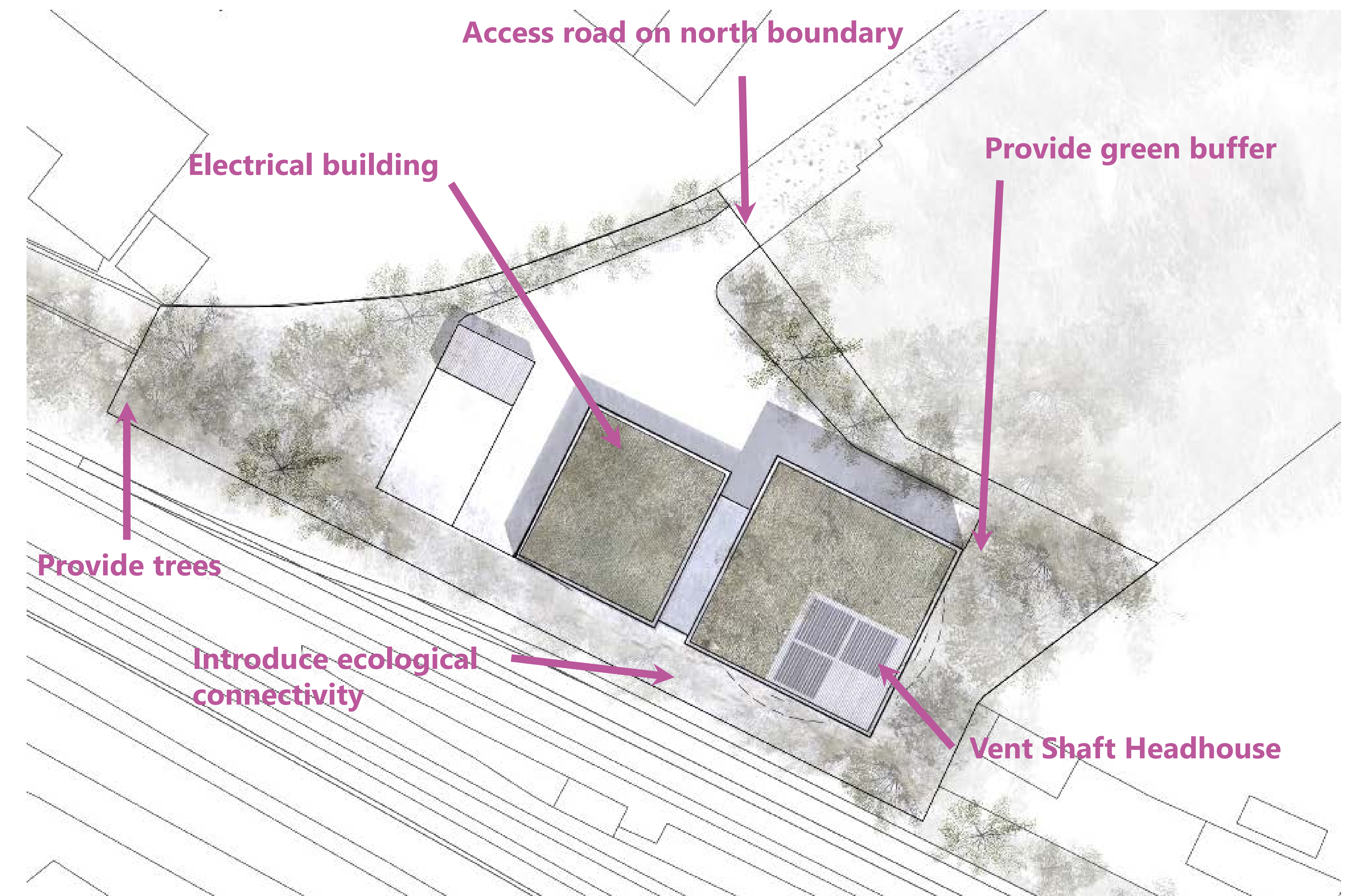
During Construction



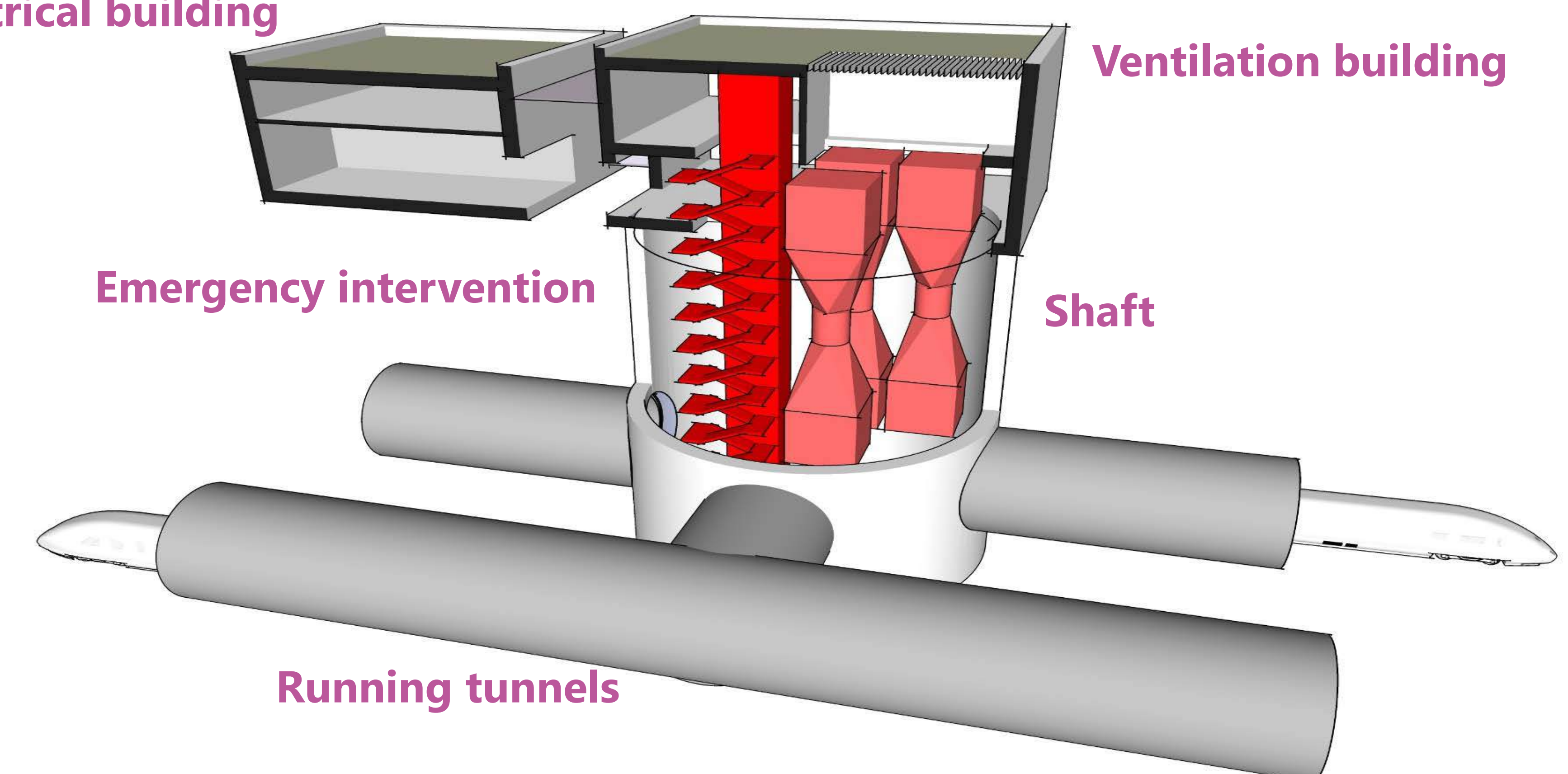
What's changed since the Hybrid Bill Construction Proposals?

The shaft structure has changed in shape from rectangular to circular. The circular shaft, which has a diameter of 25 metres, is more efficient in terms of structure, as it allows for quicker construction. This will lead to a reduction in the volume of excavated material and subsequent vehicle movements. Landscaping design has progressed to include a green roof and a mix of vegetation, which will make it easier for the structure to blend in with the natural environment.

Once Operational



Electrical building

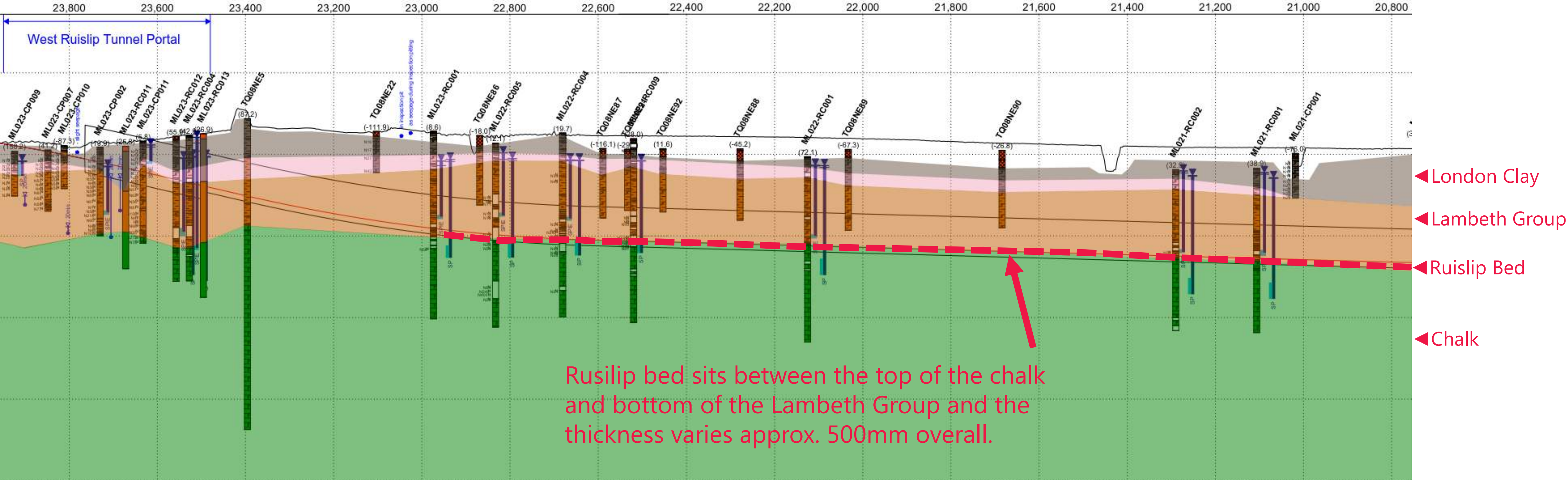
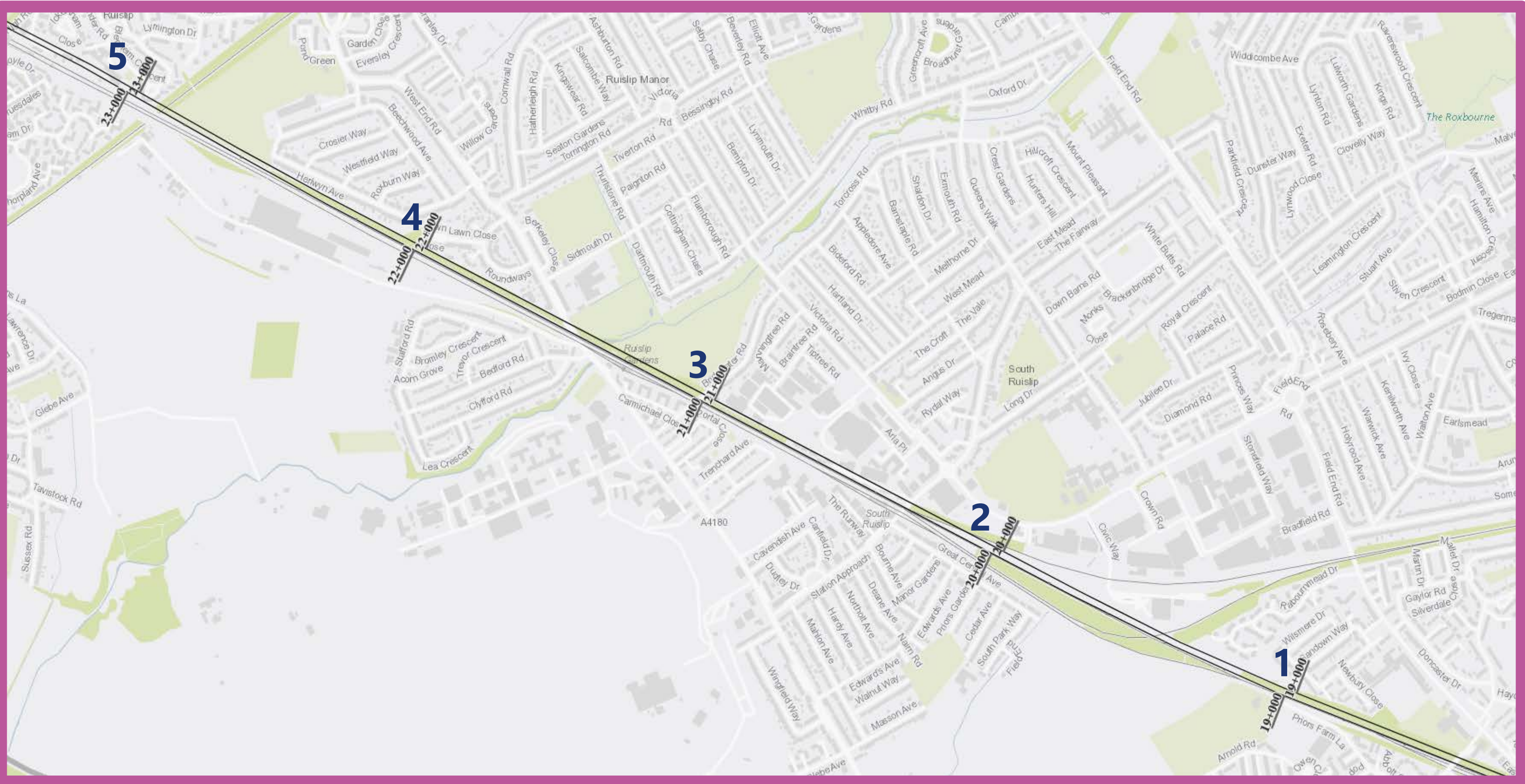


Area 1: Tunneling and supporting activities

Tunneling Activity & the Tunnel Boring Machine

Over 13km of tunnel is being constructed between West Ruislip and Green Park Way (Northolt). Two tunnels need to be constructed, one will be used for trains travelling in the direction of London and the other for trains travelling towards the West Midlands. To construct these tunnels, two tunnel boring machines (TBM) will be used, similar to those that were used for Crossrail. The TBM is effectively a large metal cylinder with a rotating cutting head at the front and conveyor belt at the back to remove the earth. The TBMs will be launched at the West Ruislip portal (adjacent to Ruislip golf course). The TBMs will be launched in 2021. The TBMs will operate 24/7, 365 days a year until they reach Old Oak Common, which is currently scheduled for late 2022.

The tunnels in Area 1 vary in depth and this is outlined in the table below. During the construction of tunnels, small amounts of ground movement can occur at the surface. To try and establish how much movement will occur, assessments have been undertaken by HS2 using established methods tested on previous projects such as Crossrail and the Jubilee Line extension. In addition, ground investigation has been carried out to determine the geology and ground conditions in the area. These assessments indicate that in Area 1, the majority of houses will experience less than 1mm of settlement. The damage to properties is therefore considered to be extremely low. General surface monitoring will be conducted to confirm ground movements are consistent with predictions.



Ground Investigation Activity

A programme of Ground Investigation (GI) was undertaken in Hillingdon in 2016/17. The information collected during this activity provided us with a better understanding of existing ground and groundwater conditions (as shown in the profile above). This information informed the design of the railway. More information was needed and therefore a second programme of GI commenced in Hillingdon in August 2018 on the Old Arla Dairy site (behind the ASDA superstore) where the South Ruislip Vent Shaft is being constructed. Most of the GI tion activity is almost completed, although we will still be collecting further data in Ruislip Golf Course, later in the year.

The Ruislip Bed

The Ruislip bed was discovered during the GI activity in 2016/17. It is a thin layer of clay that sits at the bottom of the Lambeth Group strata. During the Palaeogene era (roughly 45-50 Million years ago) the Ruislip area was on the coast line with lush tropical vegetation. The decaying of this vegetation has resultant in a high organic content in the clay, giving it a grey or black colour that is distinct from the other clay layers in the Lambeth Group. The Ruislip Bed will not have an impact on our tunnelling activity or settlement assessments.

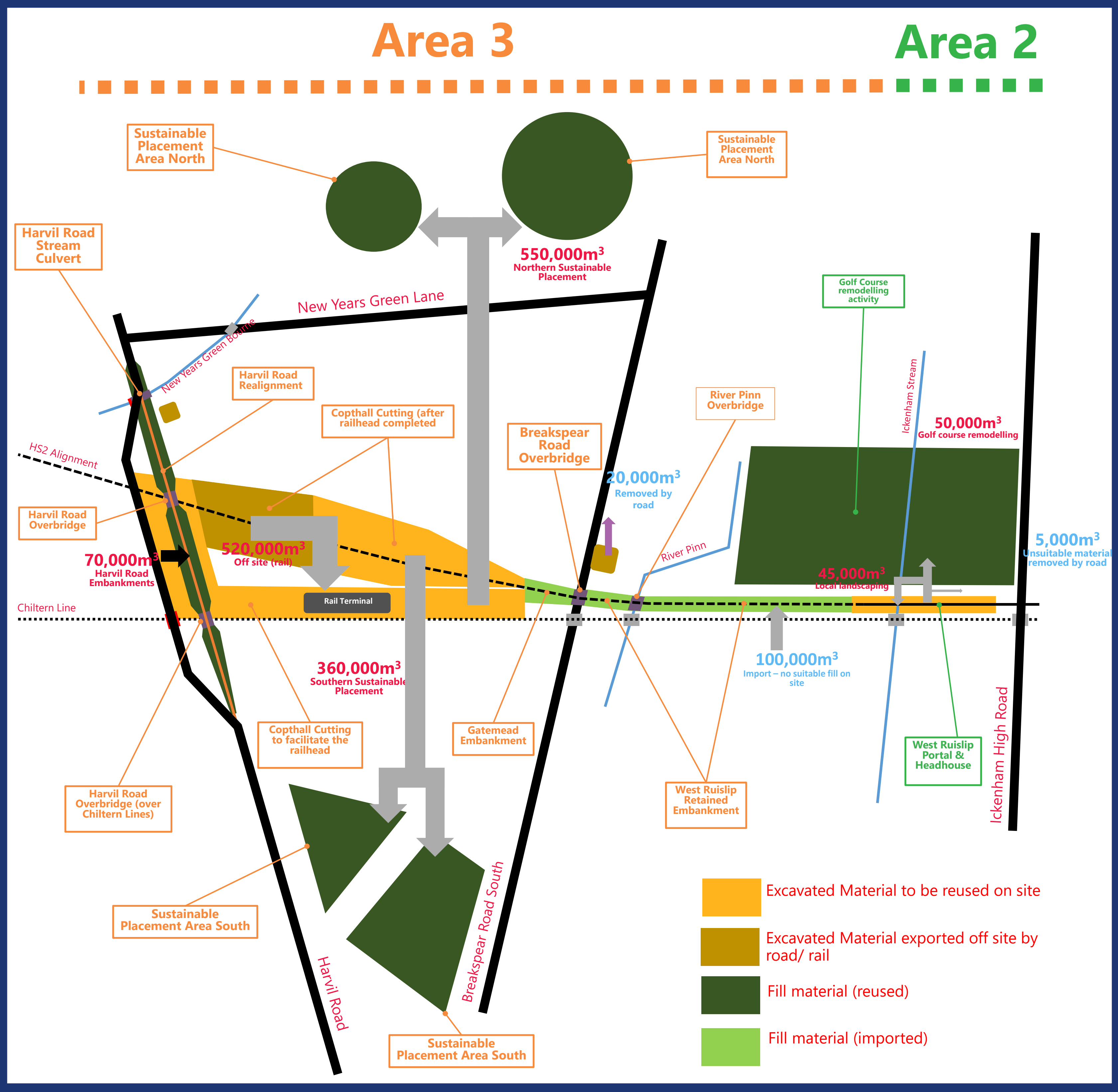
Approximate Location on Map	Nearest Landmark / Street	Depth of Tunnel (Shallowest Point)
1	Lord Halsbury Memorial Playing Fields	23.4m
2	Sainsbury's South Ruislip	18.7m
3	Ruislip Gardens Underground Station	19.5m
4	Lawn Close	18.7m
5	Ruislip Rugby Club pitches	16.1m



Ruislip Bed (Black Clay)

Construction Overview Area 2 & 3

Construction Logistics Schematic:



Measures to reduce HGV Movements:

Volume (m³)	HGVs Reduction	How it's used / removed?
70,000	8,750	Harvil Road embankments
550,000	68,750	Northern Sustainable Placement areas
360,000	45,000	Southern Sustainable Placement areas.
50,000	6,250	Remodel the Ruislip Golf Course
45,000	5,625	Local landscaping
520,000	65,000	Removed by rail

HGVs required:

Volume (m³)	HGVs Required	Why does it need to be removed by HGV?
100,000	12,500	Imported for the West Ruislip Retained Embankment (as no suitable material available at time of construction)
5,000	625	Excavated material not suitable for construction
20,000	2,500	Material required to be removed for constructing cuttings before the temporary railhead is installed.

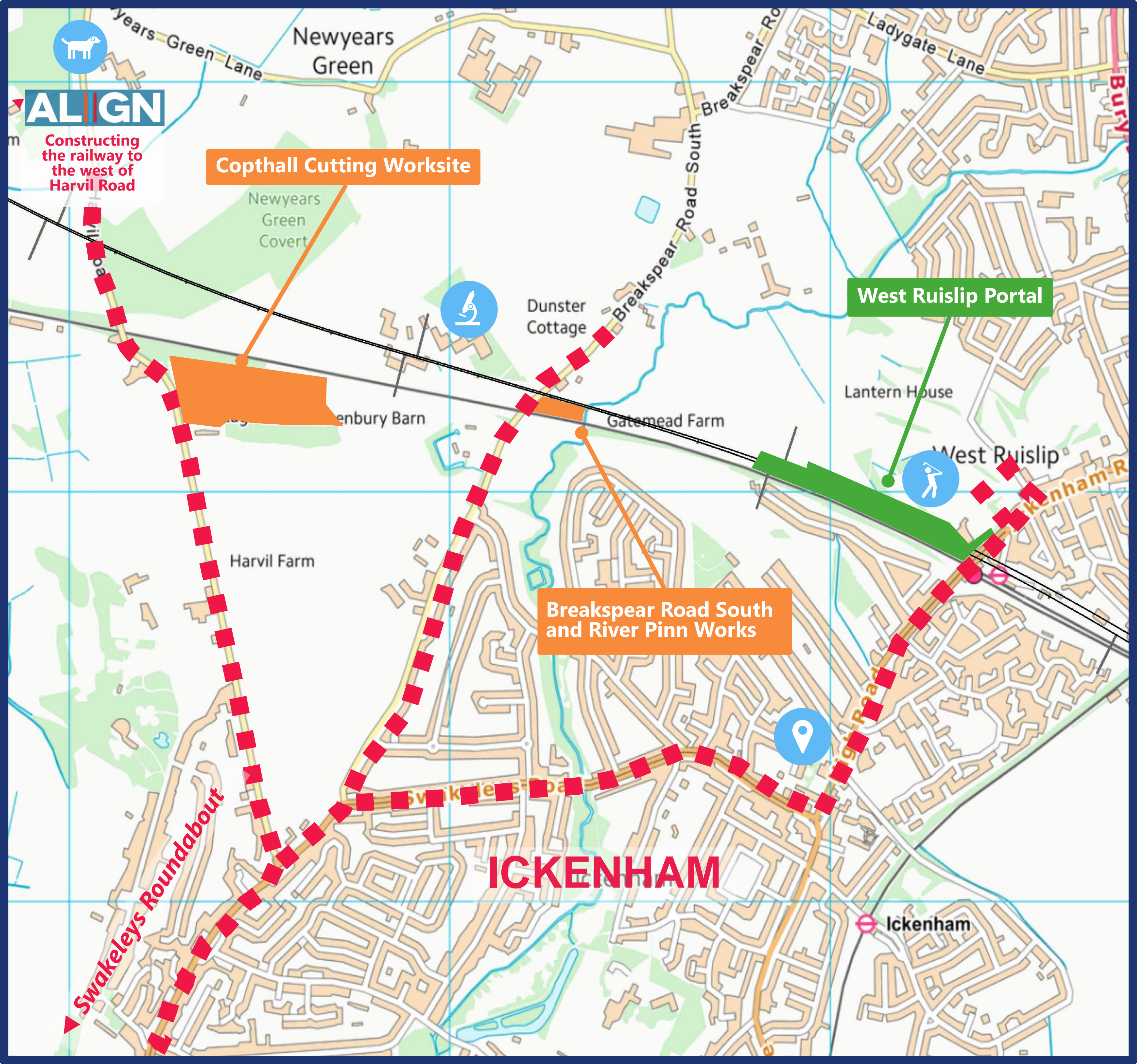
As part of the construction works, utility diversions and protection measures will be required at the following locations:

- Ickenham Road:
- Breakspear Road South:
- Harvil Road:
- Ruislip Golf Course / The Greenway.

The duration of these works is currently being reviewed, including considering how disruption to road users can be kept to a minimum.

As part of the Hillingdon Agreement (entered into by HS2 Ltd. and London Borough of Hillingdon) a commitment was made to try and reduce the number of two-way HGV movements to 550 (225 vehicles in and out) or lower at Swakeleys roundabout for all HS2 related construction (both for SCS and Align). Several measures have been implemented to ensure this is achieved, most notably the removal and delivery of material via rail. The peak HGV movements occur during the earthworks when material is required to be imported for the construction of embankments and excavated material needs to be removed for constructing cuttings.

The Construction Logistics Schematic and tables shows what happens to that material. Wherever possible material which has been excavated has been reused for the construction. This minimises HGV movements as it saves material being exported and imported. Approximately 15,625 HGVs will be required to remove or import materials. These movements will be spread out over the main works civils construction programme.



Dogs Trust

Merck Sharp Dohme

St Giles' Church

Ruislip Golf Course

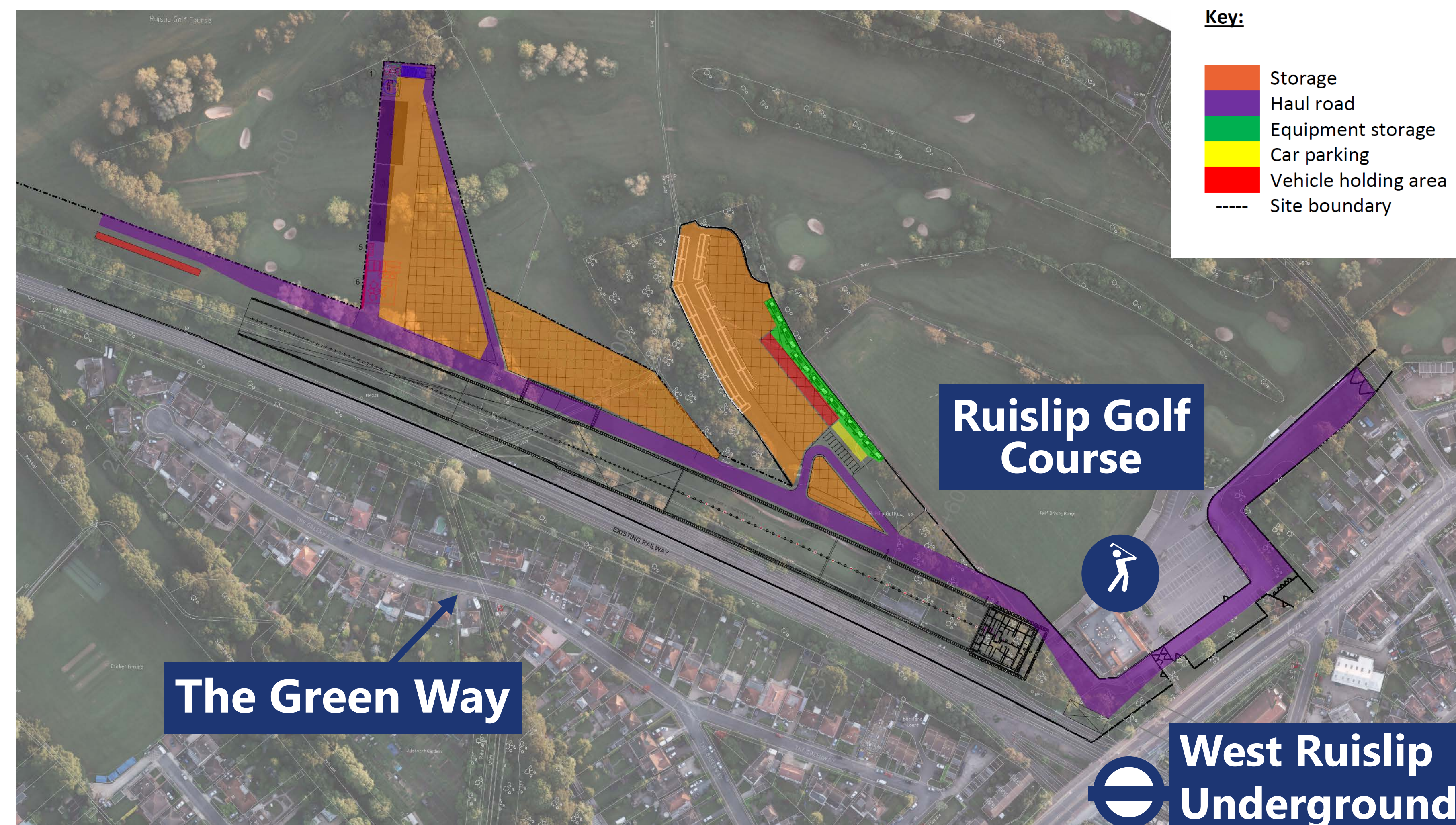
■ ■ ■ HGV Routes — HS2 Alignment

Note:

- Locations are indicative
- Information correct as of September 2018, and may be subject to change

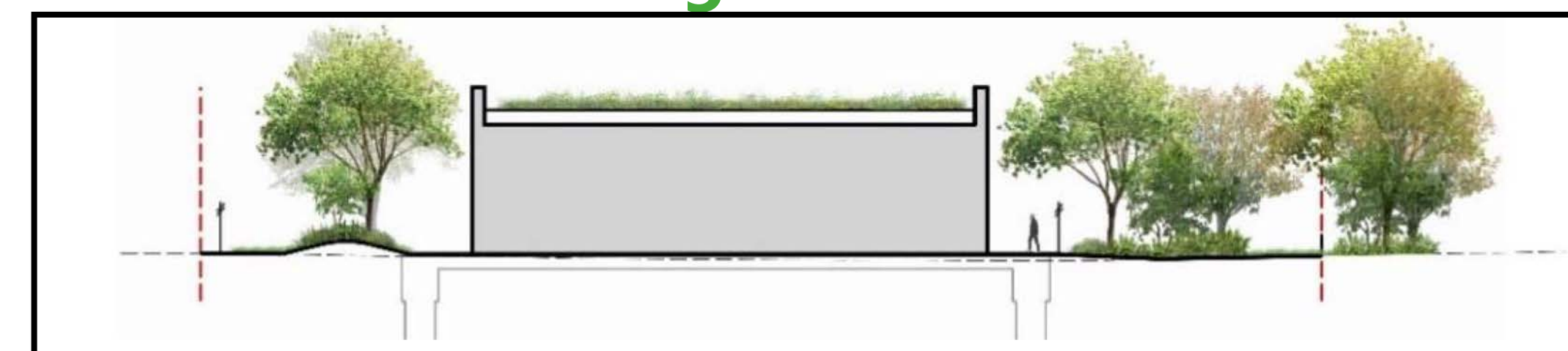
Area 2: West Ruislip Portal

During Construction

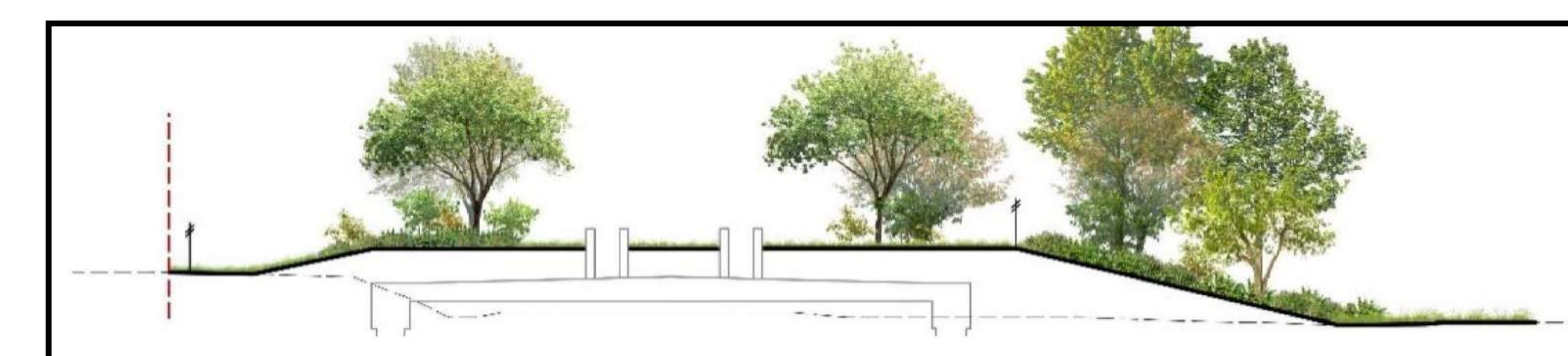


Once Operational

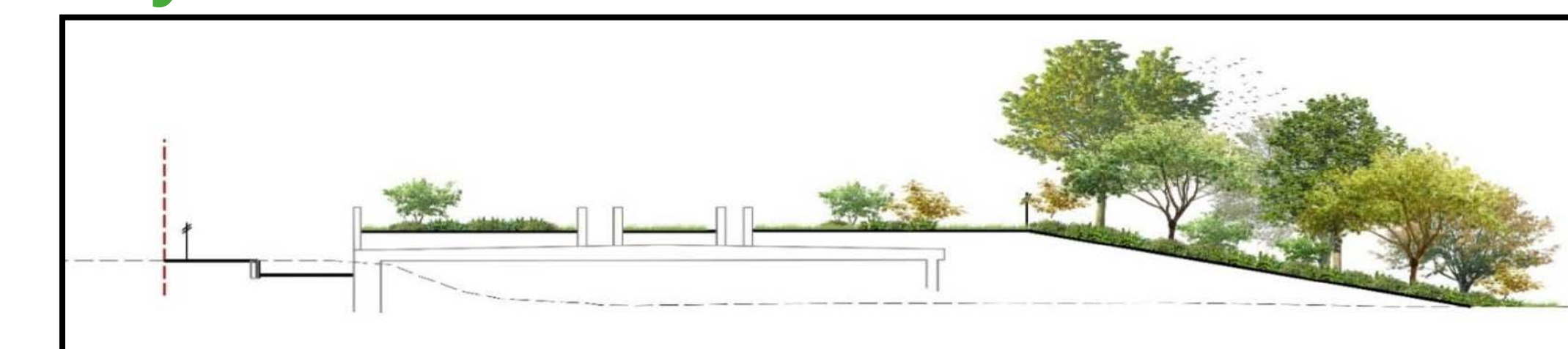
Headhouse Building



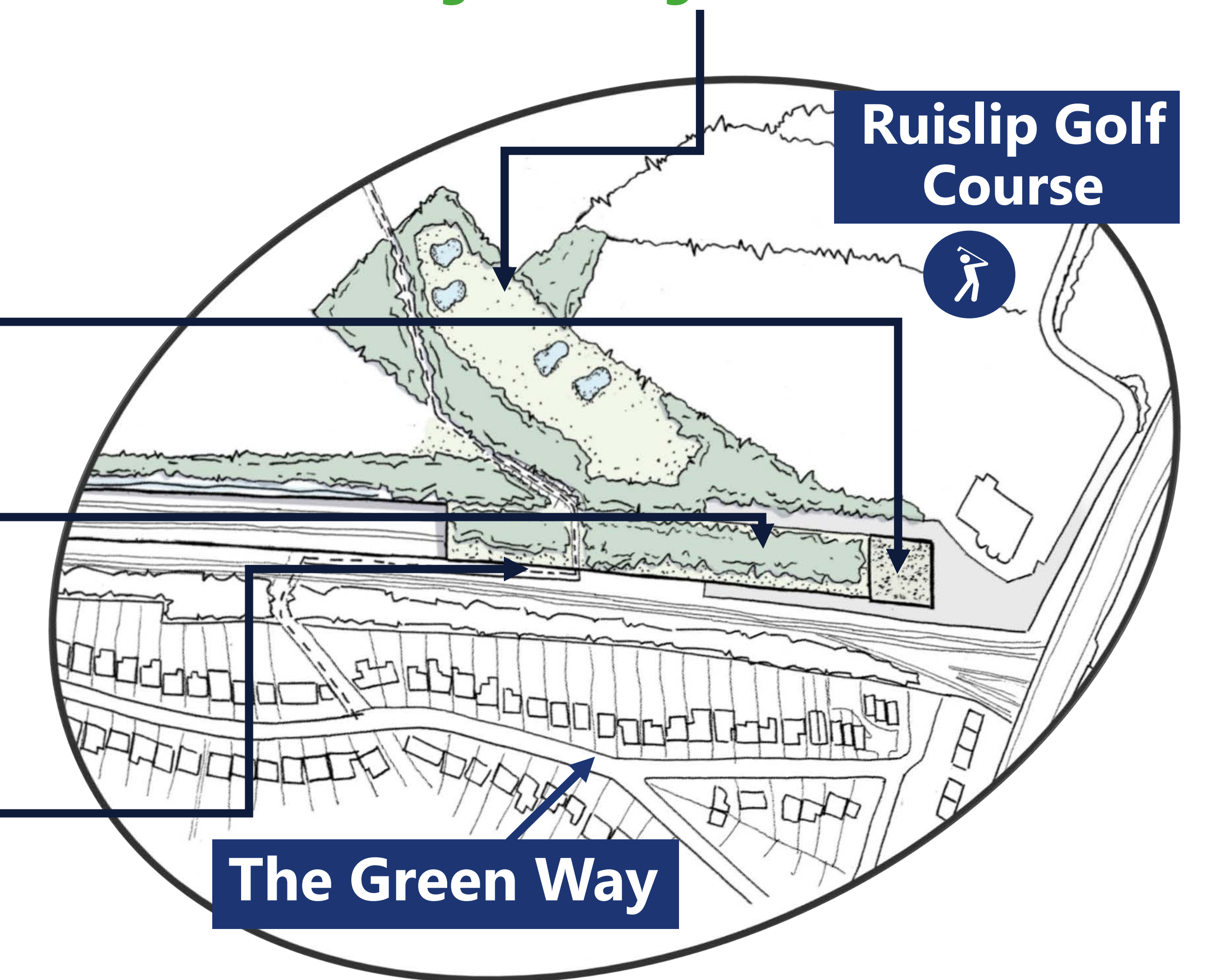
Covered Porous Portal Structure



Porous portal and the diverted Public Right of Way – U81



Ecological Mitigation Area



Reducing the impact of construction:

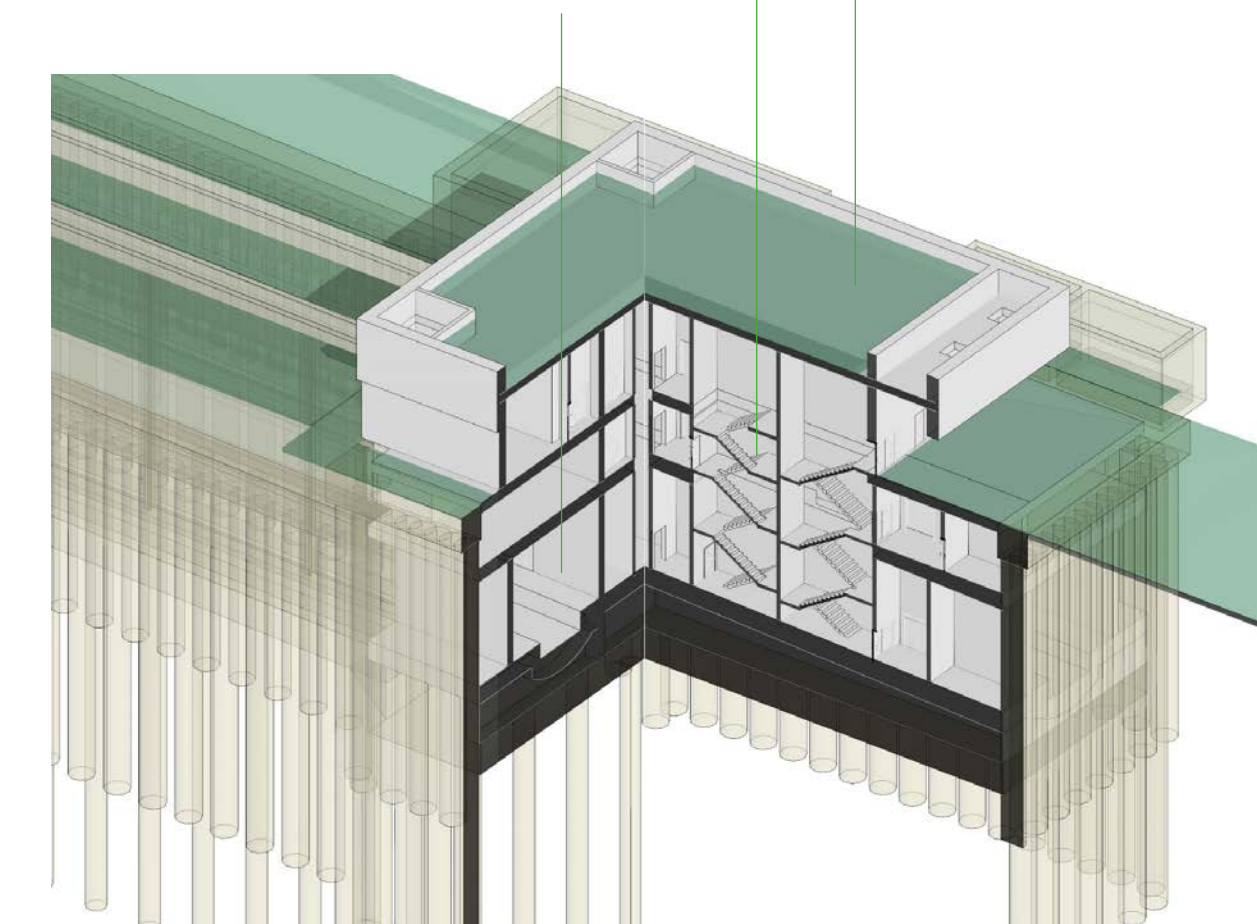
Material stockpiling on the golf course – this is completed as early as possible to avoid importing during the peak construction period. Internal haul roads will be used to minimise the use of local roads.* The use of excavated material to reconfigure the golf course will reduce the number of HGVs required to travel on local roads.

Different piling technique – diaphragm wall to secant piling. This technique is quicker and involves less evening work. However may be noisier during core working hours.

* This is subject to planning approval and suitability of the material



Running tunnels Emergency intervention Electrical building



Change in Design

The portal roof will now extend above ground by approximately 150 metres (an increase of 70m since the Hybrid Bill Design). The porous portal will reduce the “sonic boom” affect, which is typically caused by high speed trains exiting tunnels. The headhouse will provide emergency access and egress, in addition to housing equipment used to assist with the operational railway.

Area 3: Breakspear Road South

During Construction

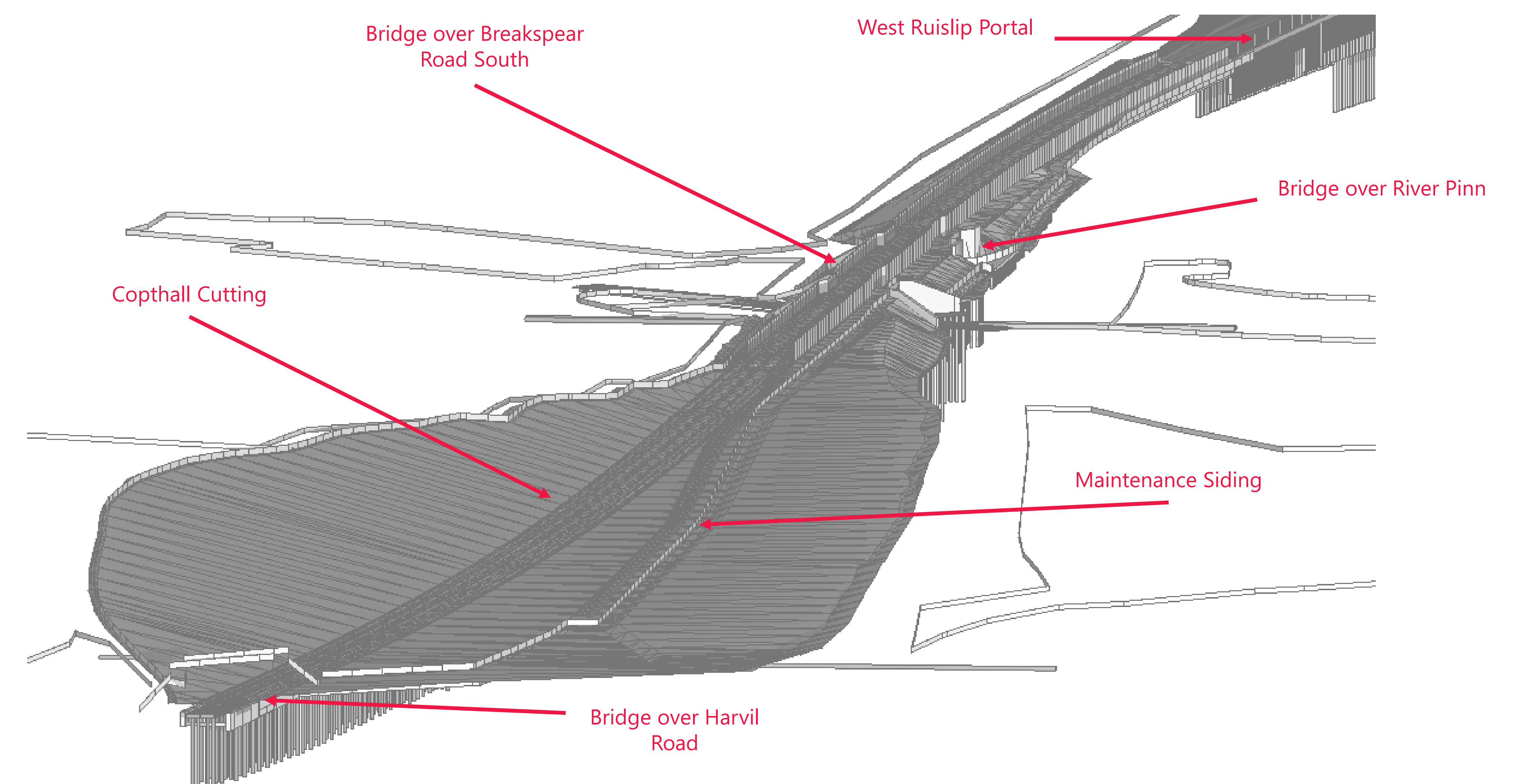
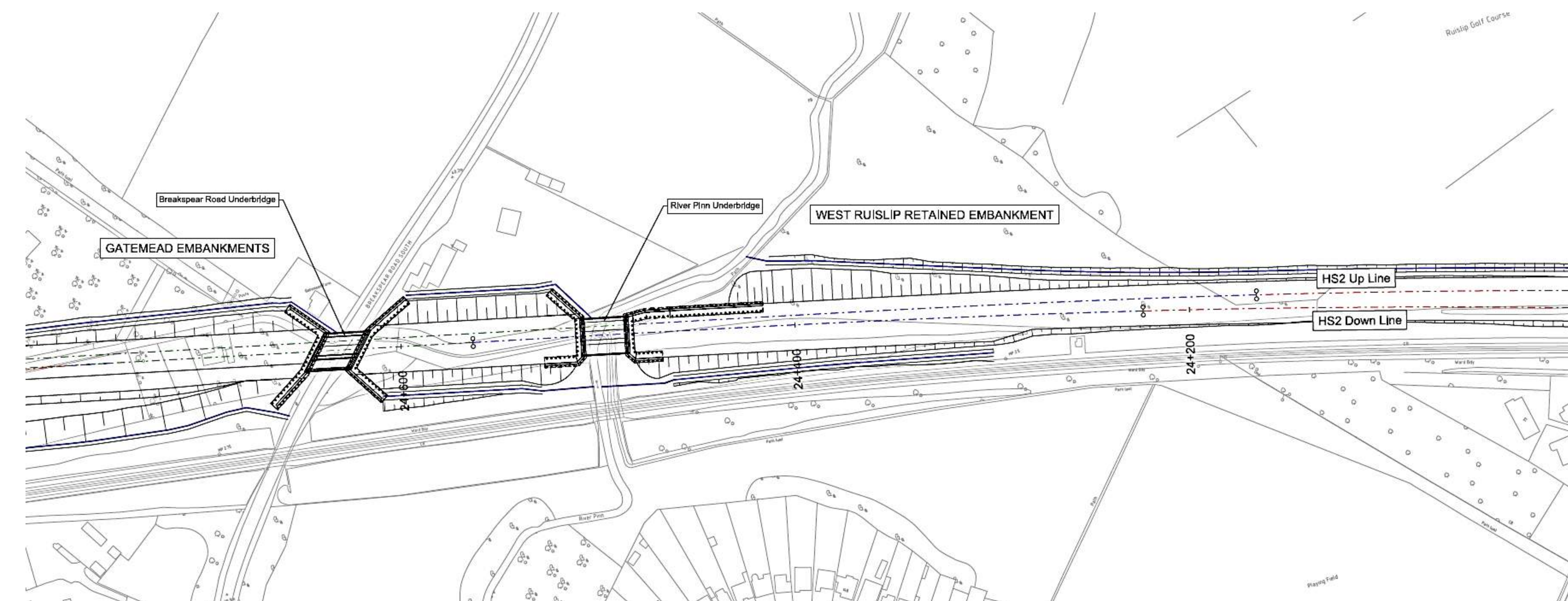


Reducing the impact of construction:

Use of internal haul roads - internal haul roads have been utilised wherever possible. For example, the delivery of concrete for the construction of the bridges near Breakspear Road South will be delivered from the Copthall Cutting worksite as soon as the bentonite manufacturing plant has been established.

Minibuses for staff transport - while a limited amount of parking is provided at the construction compounds, staff and labour from SCS, HS2, subcontractors and suppliers, as well as most visitors, will access all construction compounds using public transport. Minibuses will be provided to take personnel from local train stations to the compound.

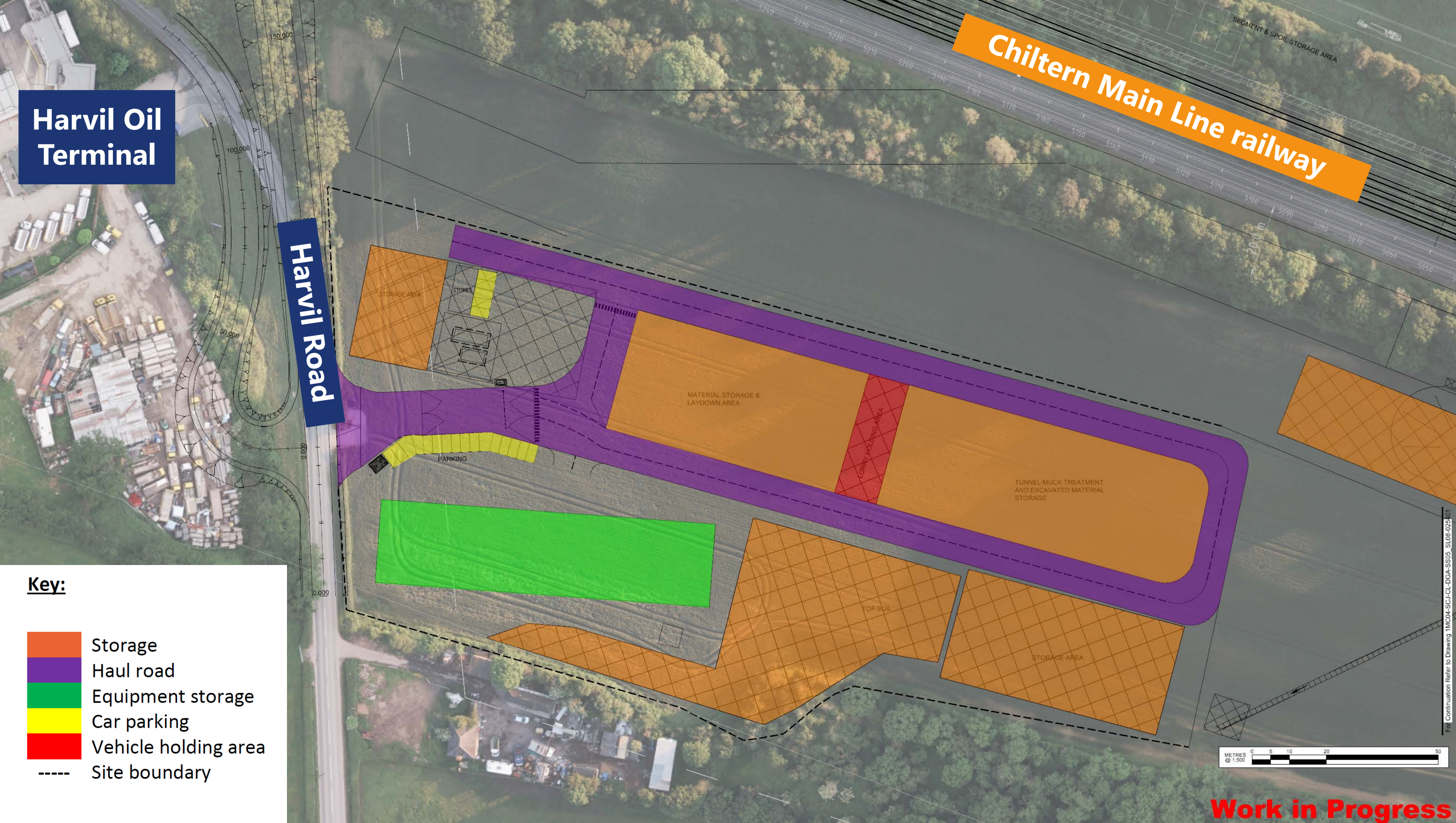
Once Operational



Computer Generated Image looking north east towards Breakspear Road South and River Pinn Bridges

Area 3: Harvil Road

During Construction



Likely compound configuration



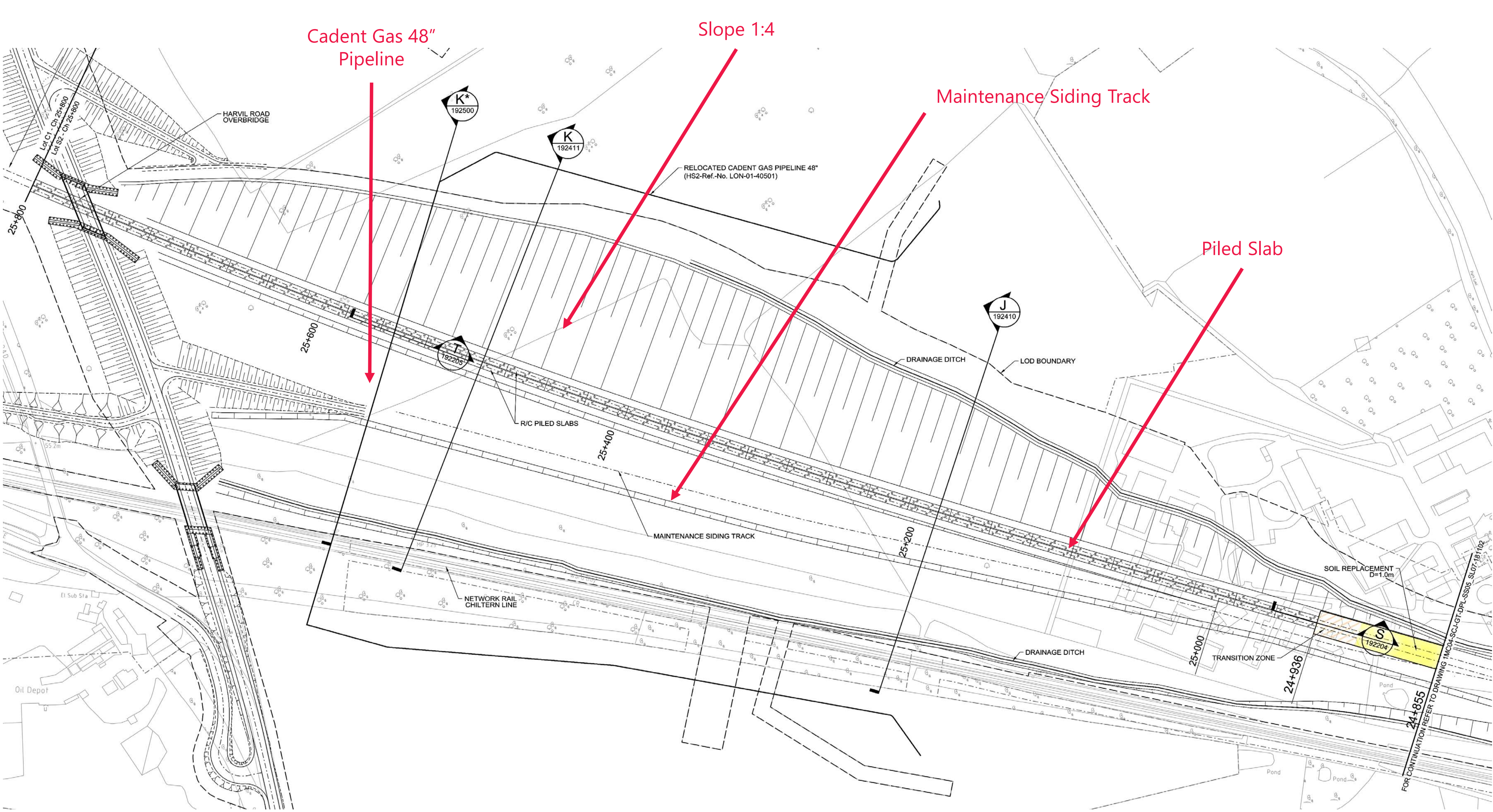
Bentonite manufacturing plant

Reducing the impact of construction:

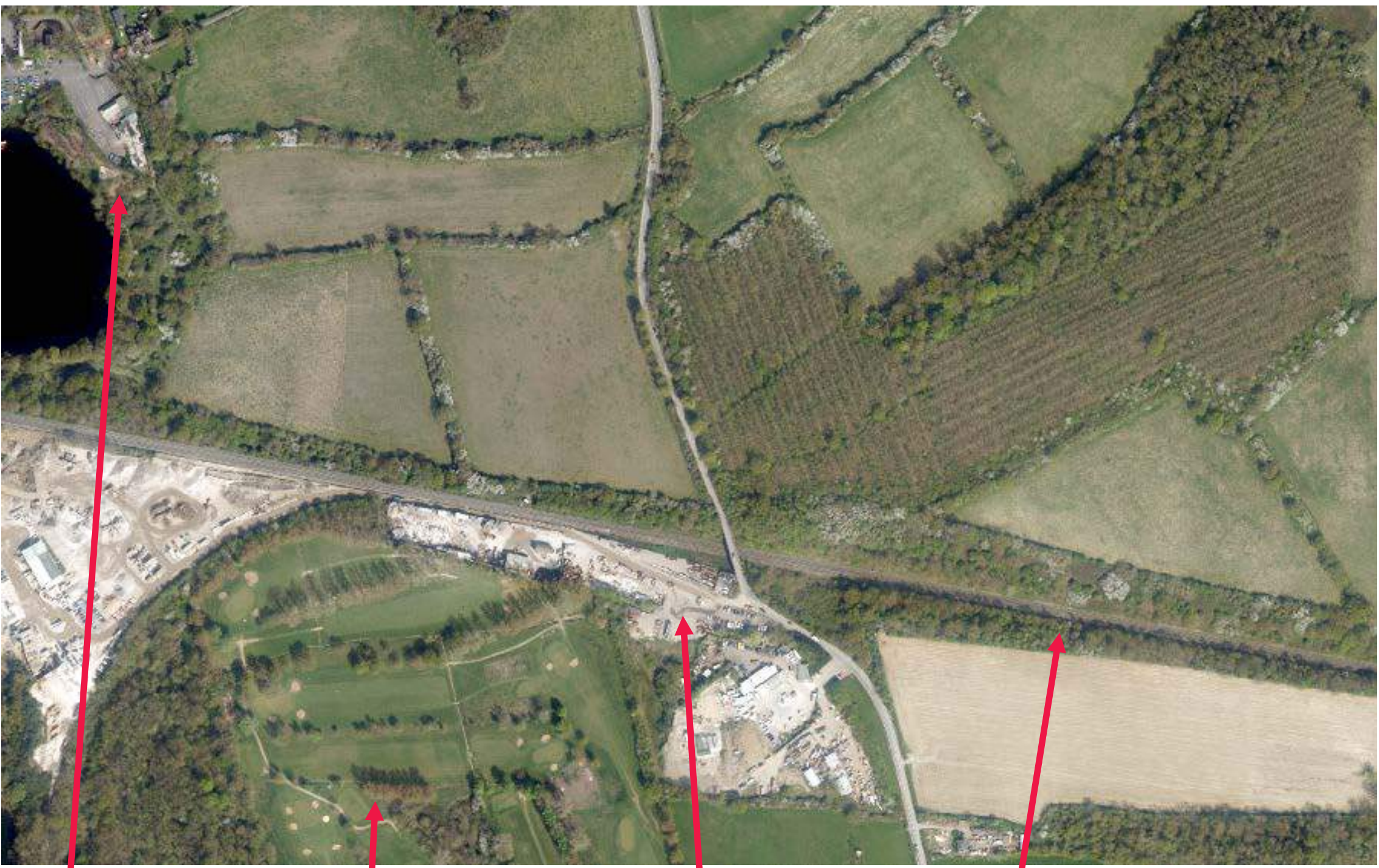
West Ruislip Railhead – that facilitates the delivery and removal excavated material by rail, will be constructed as early as possible in the programme. This will minimise the amount of HGVs on local roads.

Concrete Segment Factory – Has been relocated off site, with segments being delivered by rail. However, there will be a requirement for a bentonite manufacturing plant to be on the site.

Once Operational

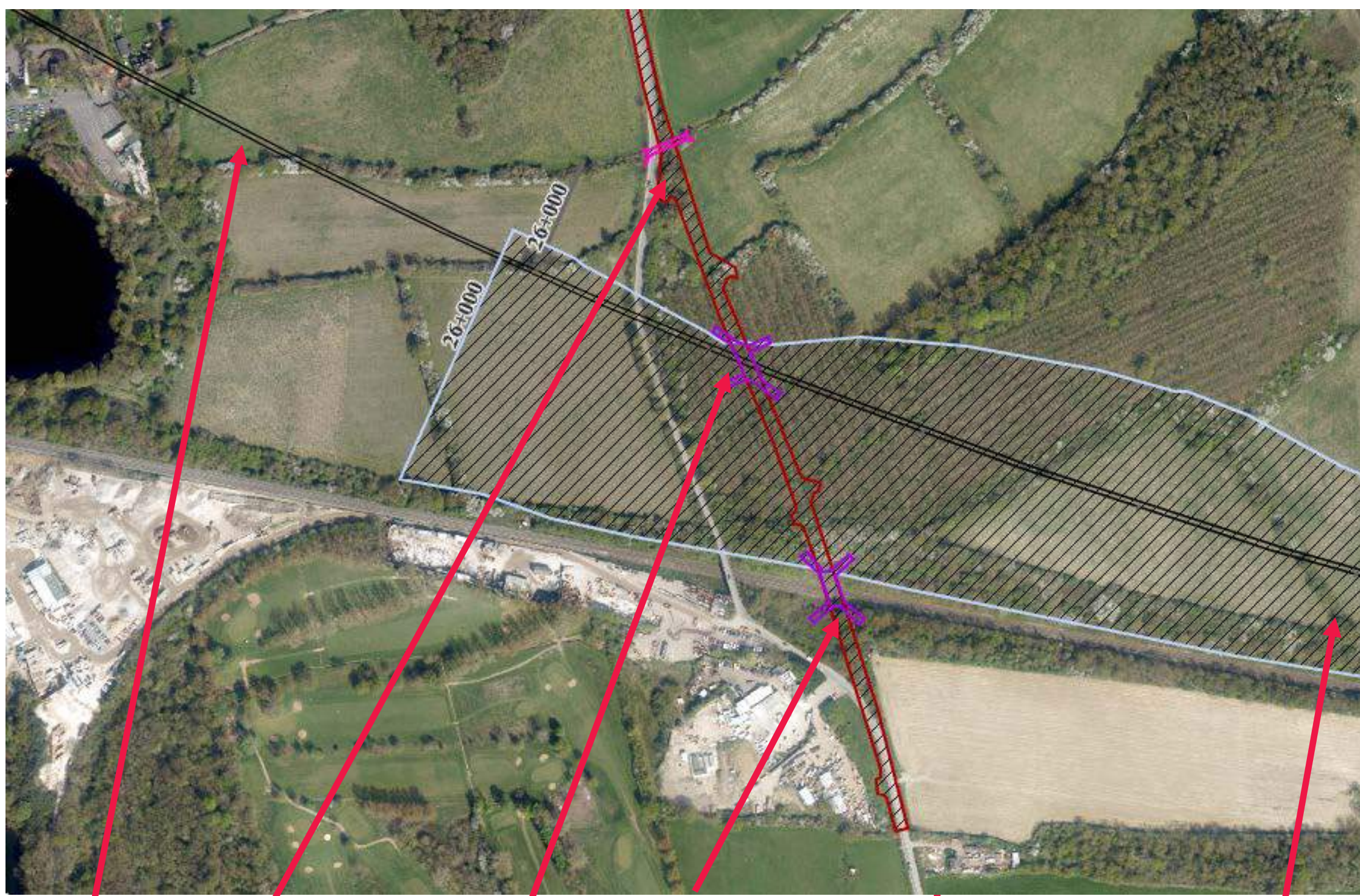


Existing Harvil Road Area



HOAC Uxbridge Golf Course Skip Lane Chiltern Main Line

Proposed Harvil Road Area



HS2 Alignment Newyear Green Underbridge HS2 Overbridge Chiltern Main Line Overbridge Reconfigured Harvil Road Copthall Cutting

Area 3: Sustainable placement areas

Construction:

Sustainable placement is the local on-site placement of excavated material to avoid causing environmental effects associated with the transportation of that material. In this case the excavated material is generated from the Copthall Cutting, which will allow HS2 to build a temporary railhead to remove excavated material from the construction of the Northolt tunnel and to import material to fit out Northolt tunnel instead of by road.

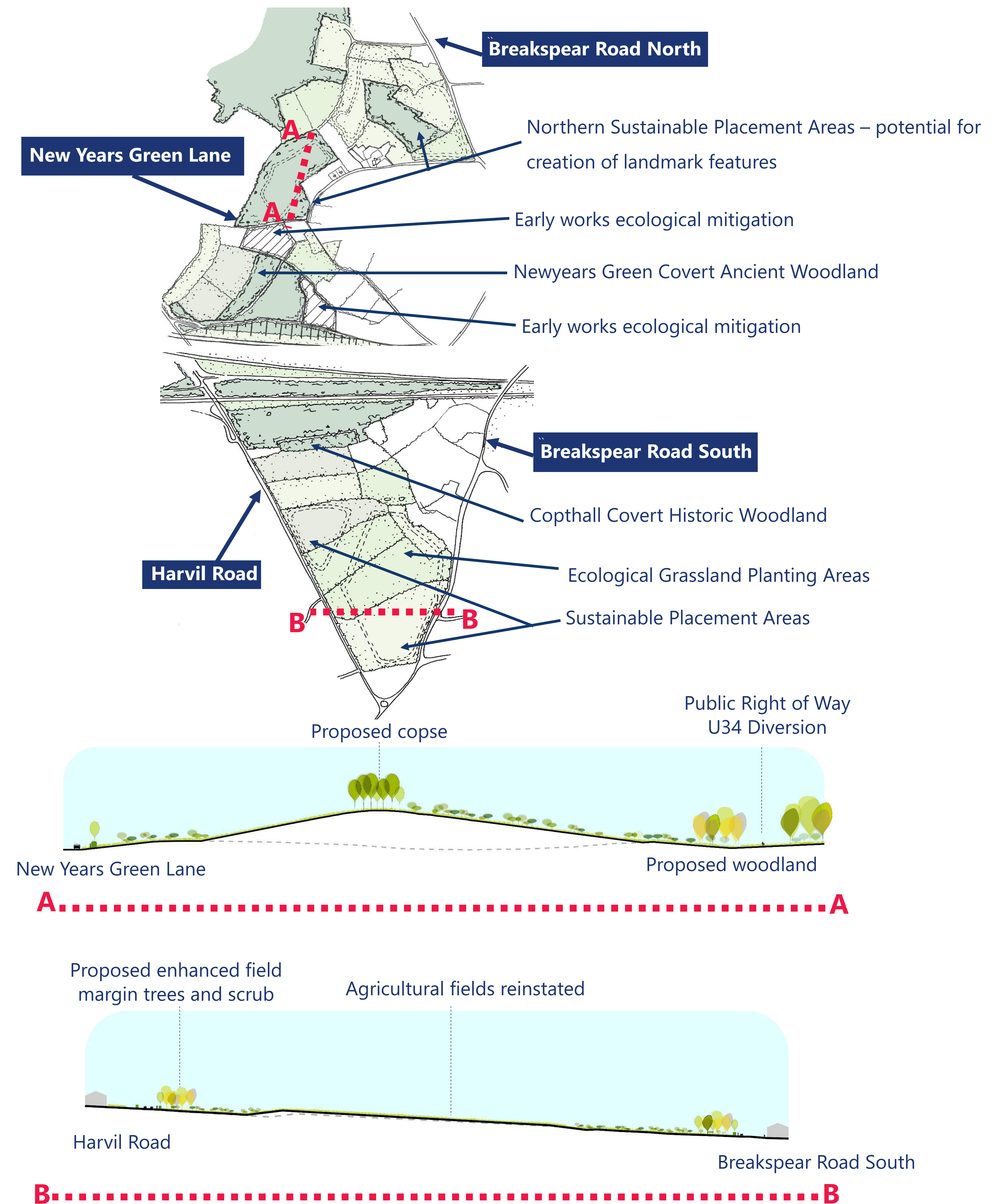
The northern sustainable placement area will be constructed as early in the programme as possible. This will ensure that material can be stockpiled earlier in the programme, avoiding the peak of HGV movements. Both the sustainable placement areas will be placed using internal haul roads.

Operation:

We will build on and enhance existing ecological features and landscapes. Our landscape ambition is to create a green corridor that makes HS2 form part of the bigger landscape picture in Hillingdon. For the southern sustainable placement area (between Breakspear Road South and Harvil Road) we have reduced the height to 2.5m and have tried to reduce the footprint near residential properties.

We recognise that there is an existing flood risk in the area around Breakspear Road South. As part of the detailed design drainage and flood risk will be assessed. This will ensure that the design of the sustainable placement areas will not exacerbate any existing flood risk. Currently modelling is taking place for local watercourses such as the River Pinn and Newyears Green Bourne which will feed into revised flood risk modelling.

This design of the sustainable placement areas is subject to further discussion with stakeholders.



Design of the new buildings

Proposed materials and finishes

Our design experts have considered a range of materials that could provide a consistent theme to the head house structures along the route and could still be used sympathetically at each specific locations.

The recommendation for South Ruslip Vent Shaft and the West Ruislip Portal head house buildings, are timber structures, complemented by some metal finishings. The head house façade will be softened by careful planting.



How can you help?

We have employed expert designers to develop a design that minimises impacts where possible, and have proposed materials that we think best suit your local area. Now we'd know really like to know what you think about our proposals.

There are questionnaire leaflets for you to fill in here or to take away, and they will be available online too. Please take some time to fill one in.

We will come back in a few months time and tell you how we have used your feedback.

How to get in touch

Please leave your questionnaire in the ballot box near the door, or return it to: **FREEPOST SCSRAILWAYS**

Alternatively, please email it to hs2enquiries@hs2.org.uk.

If you have any additional queries after the event, please contact the HS2 Helpdesk on 08081 434434.

What we would like to know

Our **Questionnaire** asks for your views on these specific issues:

- the materials we are proposing for the outside of the building (board SCS 12)
- the proposals for planting of trees and other vegetation for screening (board SCS 8)
- the appearance of the golf course (board GC 1-2)
- the proposed lorry routes into and out of the site (board SCS 3 and SCS 6)

But we would also like to know what other concerns that you may have. Please use the space on our form to give us your feedback – it is very important to us.