

HS2

Common Design Elements



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Introduction

High Speed Two (HS2) is the new high speed railway for Britain.

In 2017, Parliament approved plans for the part of the railway that will run between the West Midlands and London. Since then, we have been developing the design of the railway.

This includes talking to local people about parts of the railway – like our Common Design Elements. We are also giving people the chance to tell us what they think.

What is a Common Design Element?

Common Design Elements will make building HS2 more efficient. Their standardised appearance will also give the railway a recognisable look.

We want all the visible elements of HS2 to be sympathetic to their surroundings, including the character of the area. Common Design Elements will help us with this.

We want to hear what people think about three different Common Design Elements:

- a. Parapets (part of bridges and viaducts) – see page 9.
- b. Piers (another part of bridges and viaducts) – see page 11.
- c. Lineside noise barriers (used to compensate for the sound of high speed trains) – see page 14.

These Common Design Elements will not exist in isolation. They will be part of HS2, which will also include other structures like security fencing, landscaping and operational equipment (Figure 1).

Design progress

We have designed the Common Design Elements based on:

- the job they need to do as part of the railway;
- our design policy; and
- discussions with the local planning authorities.

We are now sharing the designs with the public and explaining how we developed them.

We want to hear your thoughts about some of the detailed aspects of our designs. This will help us with the final stages of our design work.

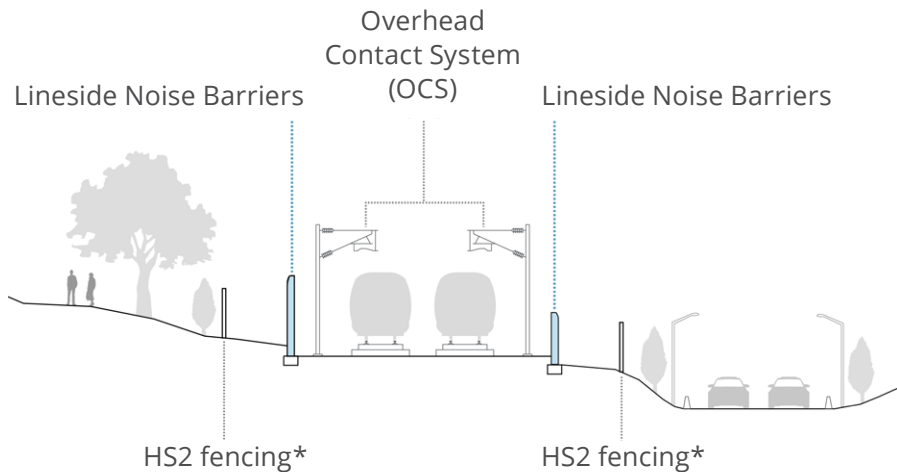
We have designed the Common Design Elements to do their jobs effectively, to last 120 years and to give taxpayers value for money in the long term. This means there are some aspects of the designs that we can't change. For example, they will all be made of concrete, making them durable enough that we won't need to replace or maintain them as often in the future. To find out which aspects of the designs can't be changed, look for the What's fixed? boxes throughout this leaflet.

Key Design Elements

Key Design Elements are structures that are particularly significant and/or in particularly sensitive places. You can find a list of them in Table 1 of HS2 Information Paper D1: Design policy, which is available from GOV.UK.

We will also be talking to people about how we design these Key Design Elements. Some of them, like the viaducts, may include Common Design Elements.

Figure 1: Cross section of the railway, including lineside noise barriers



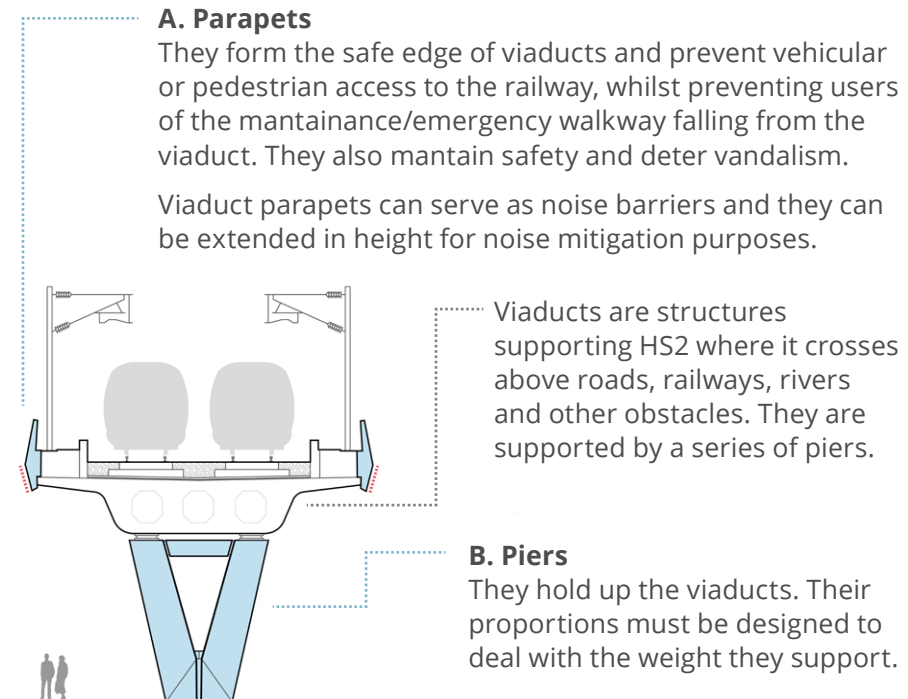
* Fencing is not part of this engagement activity and it may not be required in locations where noise barriers already serve as fencing.

WestonWilliamson+Partners
Diagram
CDE Lineside – Context Section
NTS

Introducing the Common Design Elements

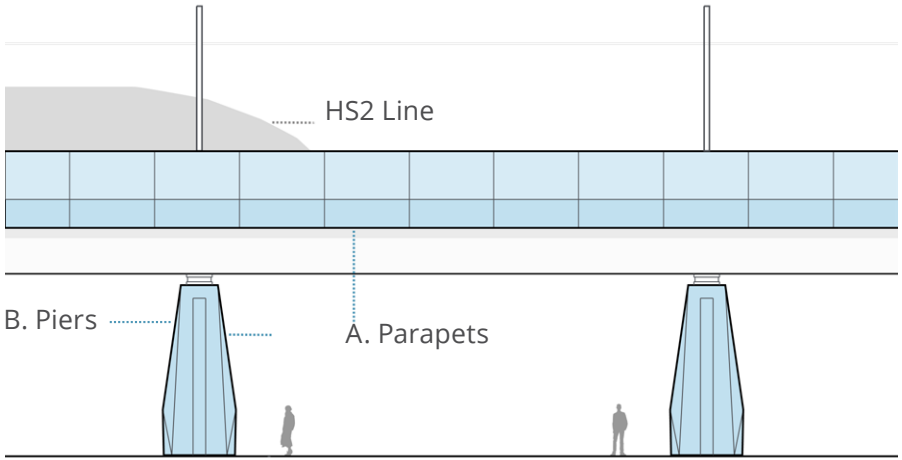
Figures 2, 3 and 4 show the three Common Design Elements without any fencing or landscape, to put the spotlight on the parts we need feedback on. Each of the Common Design Elements are shaded in blue.

Figure 2: Cross section through a viaduct



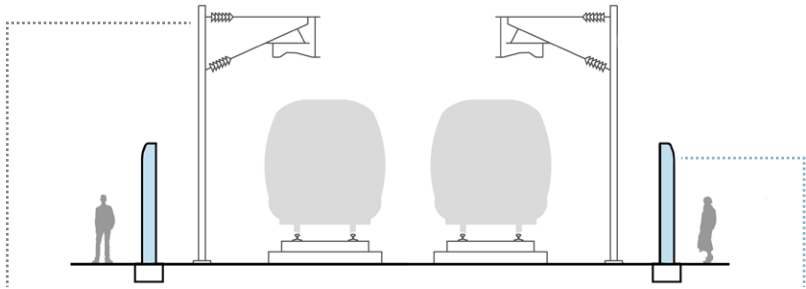
..... Areas of the parapets allowed to be patterned or textured.

Figure 3: Side view of a viaduct



WestonWilliamson+Partners
Diagram
CDE Viaduct – Side elevation
NTS

Figure 4: Cross section through the railway line



The Overhead Contact System (OCS) is used to transmit electrical energy to the trains.

C. Lineside Noise Barriers
They are structures that run alongside the HS2 line, as required, to mitigate the noise generated by the railway.

WestonWilliamson+Partners
Diagram
CDE Lineside – Section
NTS

Parapets

Parapets are structures on the sides of viaducts. They keep people and vehicles away from the railway, and stop people from falling off the maintenance and emergency walkways. They help reduce vandalism and make the railway safer.

The proposed design includes a 'crease' a third of the way up of the parapet. The bottom third is gently angled to face the ground and the top two thirds are angled towards the sky.

This will help the parapet to stand out less. It also means the bottom third of the parapet can be patterned or textured. These patterns or textures could be specific to the area.

On parapets that people could get close enough to see or touch – parapets on pedestrian bridges, for example – the inside surface could also be patterned (Figure 6).

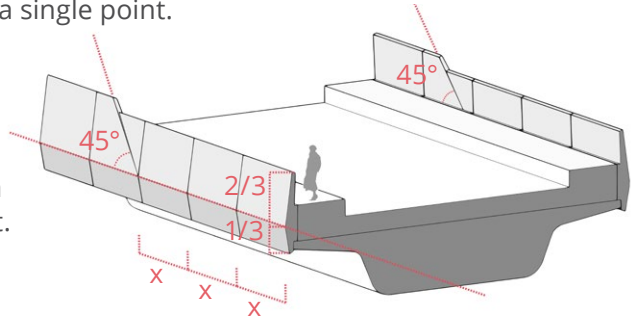
What's fixed? (Figure 5)

- The proportions.
- The horizontal crease.
- The sizes of the pieces and the spacing of the joints.
- The way sections of different heights join together.

Figure 5: Fixed aspects of parapets

A 45-degree transition on a single parapet unit will be used for the changes in height. It will be positioned to meet the vertical joint and the horizontal crease at a single point.

The external face of the parapet will contain a crease detail on the bottom 1/3 of its total height.



On the internal face, the 45-degree transition feature will extend to the road surfacing.

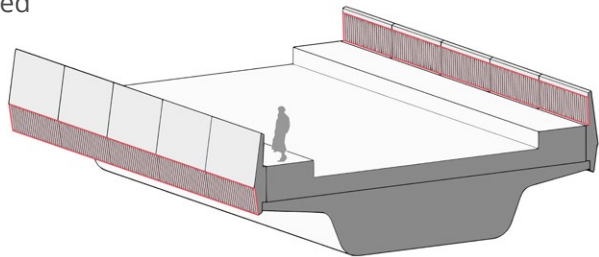
Parapet joints are an important aesthetic feature and they will be consistent along the entire length of an individual structure.


WestonWilliamson + Partners
Diagram
CDE Parapets 1
NTS

Figure 6: Variable aspects of parapets

It is envisaged for most structures that the external parapet face will be plain concrete. However there is an option for texture or a pattern to be applied on the lower 1/3 of the external face, where there is a perceived benefit of doing so.

A pattern (in consultation with the local planning authority) may be specified on the inside face for overbridge parapets especially, where pedestrians will be close enough to see/touch the surface.



 Areas of the parapets allowed to be patterned or textured.

WestonWilliamson + Partners
Diagram
CDE Parapets 2
NTS

Piers

Piers are structures that hold up viaducts. Depending on the type of viaduct, some piers may be taller or shorter, wider or narrower, but they will all be based on a common framework (Figure 7). This framework has been designed to make sure the piers can always carry the weight of the viaduct.

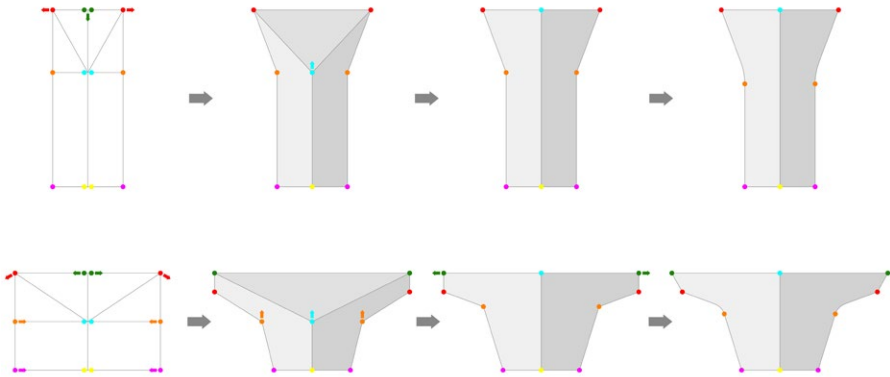
Where a viaduct needs drainpipes, they will be built into recesses in the pier (Figure 8).

Some parts of the piers could be patterned or textured to change the tone and shade, and to blend in better with the surroundings (Figure 9).

What's fixed?

- The location of the recesses, because these help to make the piers look less bulky.
- The top of the piers – these are always flat, which makes it easier to maintain without disrupting the trains.

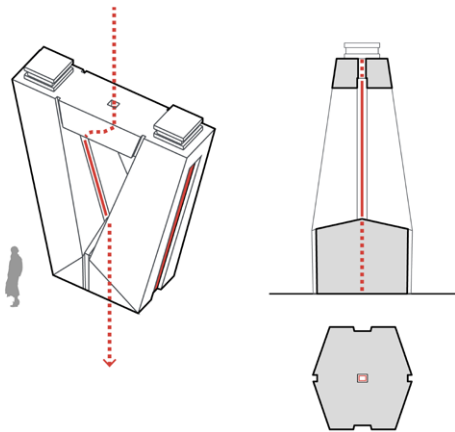
Figure 7: Different piers based on a common framework



Piers will be designed using the same principles. The diagram above shows how their shape is based on a number of symmetrical 'control points'. By moving the points up, down, inwards or outwards, the shape of the pier can change. The shape is decided based on the structural role of the pier, such as the amount of weight it will carry. Using this framework, the piers look related, even if they have a different shape.

WestonWilliamson + Partners
Diagram
CDE Piers – Concept
NTS

Figure 8: A recess in a pier



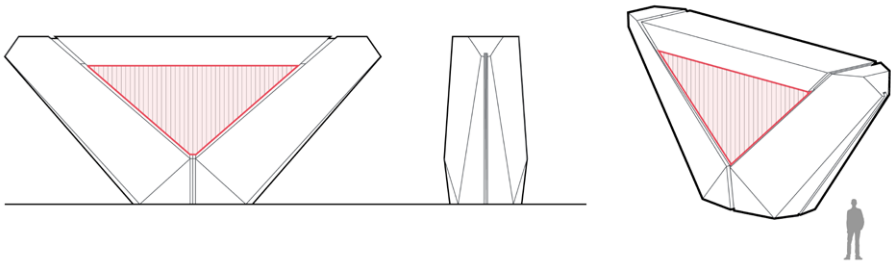
Recesses are a simple architectural detail that can make the piers look more slender.


Recesses can also serve a functional purpose, allowing services such as drainage to be visually integrated into the structure.

WestonWilliamson + Partners
Diagram
CDE Curzon Piers
NTS

Figure 9: Example of a pier

A recess could be patterned, adding detail to complement the local identity of specific assets.



 Recess of the pier allowed to be patterned or textured.

WestonWilliamson + Partners
Diagram
Example of CDE piers
NTS

Lineside noise barriers

Lineside noise barriers are structures that run alongside HS2 in some areas, to help reduce the sound of the high speed trains.

They will vary in height depending on the noise requirements and any commitments we made when Parliament was considering the plans for HS2.

Some viaducts also have noise barriers, which extend from the standard viaduct parapet.

There are two types of lineside noise barrier:

- Visible lineside noise barriers for places that are visible to the public.
- Non-visible lineside noise barriers for places that the public can't see.
- Both visible and non-visible lineside noise barriers will be made and installed in sections, using steel posts and concrete panels.

Visible noise barriers are designed to be sensitive to their surroundings. They are different to non-visible barriers in three main ways:

- The steel posts are hidden, to give the barriers a more seamless and coherent appearance.
- The top section of the barrier, when above three metres higher than the track, may be slanted to make the barrier stand out less (Figures 10 and 11).
- The surface of the barrier can be patterned, to add detail and make it more interesting.

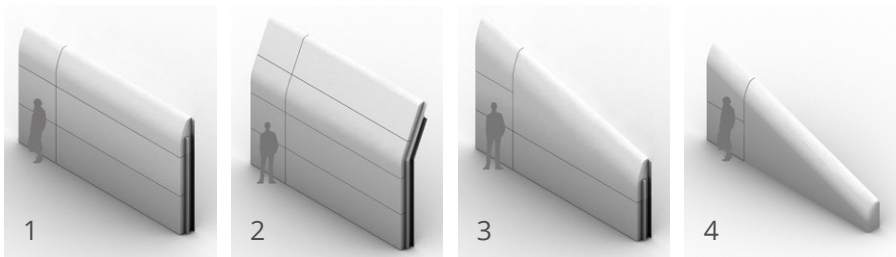
Visible lineside noise barriers could also have a smooth finish.

We know that noise is an important issue for communities. The High Speed Rail Act sets out ways to control airborne noise. As such, wherever possible, we will reduce the amount of noise being made, as well as installing noise barriers.

What's fixed?

- The height and shape of the barriers.
- The use of hidden posts.
- The differences between visible and non-visible noise barriers.

Figure 10: Visible lineside noise barriers



1. The lineside noise barrier will always be vertical up to 3m above the railway. The top panel will incorporate a gently curved end to provide a visually softer and more refined edge.
2. If taller than 3m above the railway the barrier can be curved in the appropriate locations. It will be a gentle curve, helping to soften the appearance of the barrier.
3. If a barrier is required to change height, a transition panel will be used, where appropriate, to avoid sudden stepping in the barrier.
4. If a noise barrier ends and needs to meet the ground, a transition panel will be used, where appropriate, to avoid a sudden end to the barrier.

WestonWilliamson + Partners
Diagram
CDE Lineside Noise Barriers 3
NTS

Figure 11: Fixed elements of noise barriers

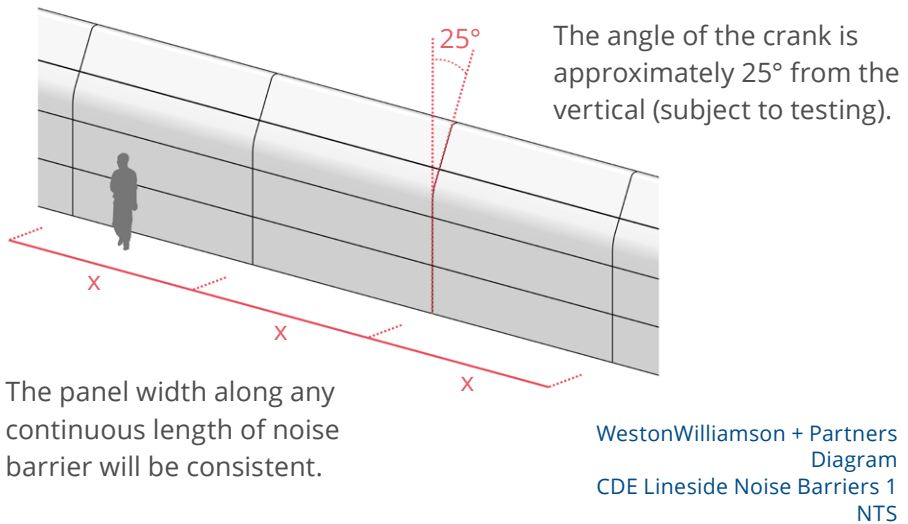
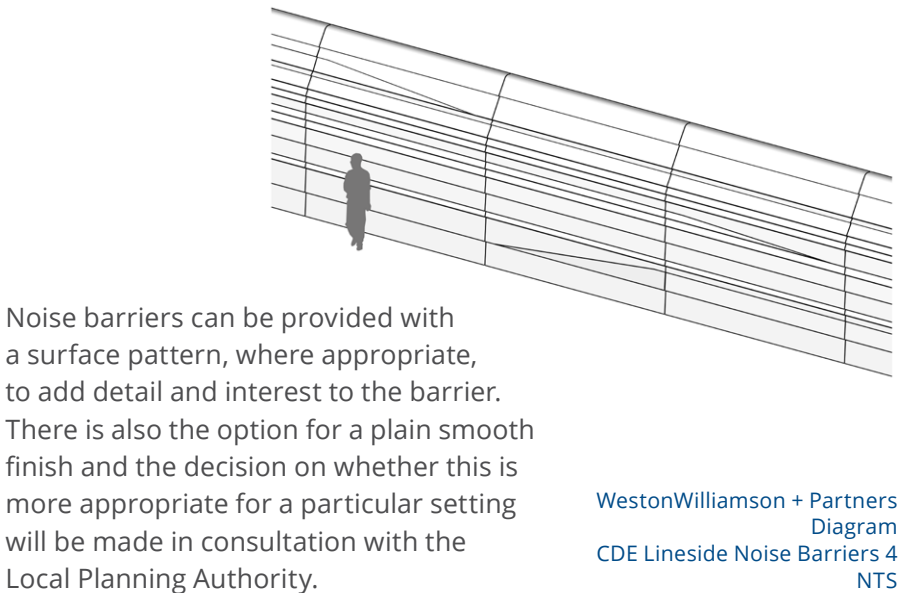


Figure 12: Variable elements of noise barriers

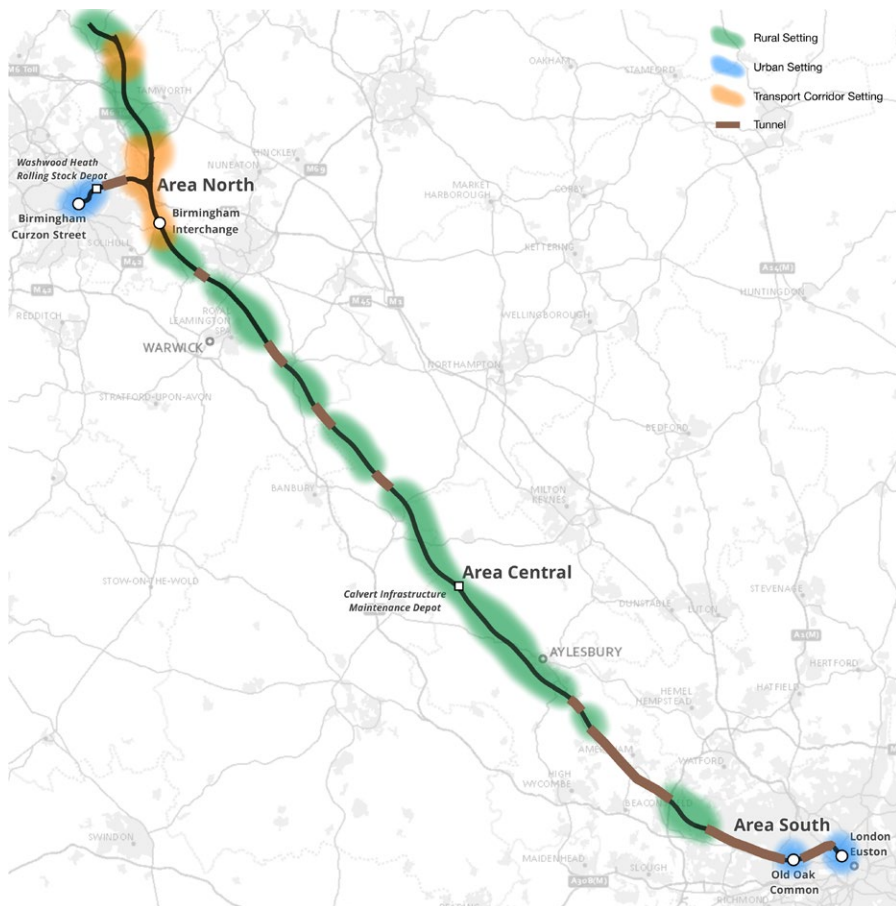


Common Design Elements in different settings

For each Common Design Element, we need to understand the community's priorities in different settings. We have broken the different settings down into:

- Urban settings (built-up areas and city centre locations).
- Rural settings (smaller towns and villages, open countryside and agricultural areas).
- Transport corridor settings (where HS2 runs alongside existing main roads, motorways, railways and waterways).

Figure 13: Context of landscape



This map is for illustrative purposes only. For full detailed maps of our line of route, please go to our website www.hs2.org.uk and search for 'Where we go.'

Over the next few pages, you'll see some artists' impressions of the different Common Design Elements in each of these three settings. We would like you to look at these and think about the following issues:

- The appearance of the structures, including opportunities to add patterns and textures to create a sense of local identity.
- Ways of discouraging vandalism and graffiti, including fencing, security measures and an arts and culture strategy to create a sense of ownership.
- Creating safe spaces and/or a sense of place under the viaducts – for example, through lighting, art and culture or community projects.

Figure 14a: Viaduct with piers and parapets in a rural setting



Figure 14b: Lineside noise barrier in a rural setting



Figure 14c: Viaduct with piers and parapets in a rural setting



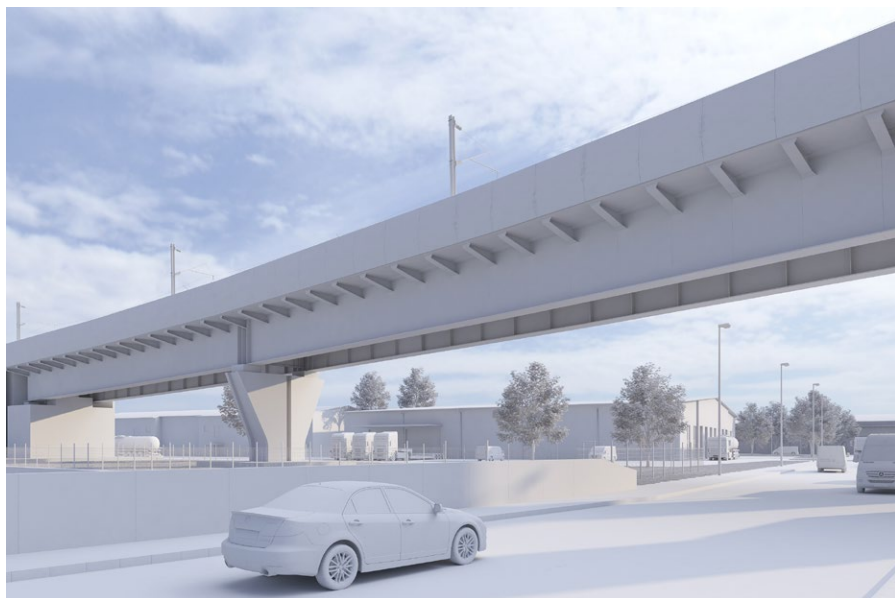
Figure 15: Viaduct with piers and parapets in an urban setting



Figure 16a: Lineside noise barrier in a transport corridor setting



Figure 16b: Viaduct with piers and parapets in a transport corridor setting



Get involved

We would like to hear what you think about the Common Design Elements described in this leaflet.

Please fill in the questionnaire at the back of this leaflet and give it to a member of staff at one of our events, or send it to us using

FREEPOST

HS2 Community Engagement

You can also fill in the questionnaire online – visit www.smartsurvey.co.uk/s/HS2CDEs

The closing date for surveys is 11pm on 30 January 2020.

What happens next?

Common Design Elements (CDEs) will be considered by local planning authorities who will agree the designs for Phase One. Following this exercise, we will consider your feedback carefully and pass it on to our construction team for your area to review. We will also share what we've learned with local planning authorities along the route between the West Midlands and Birmingham, to help with their planning processes.

Keeping you informed

We are committed to keeping you informed about work on HS2. This includes ensuring you know what to expect and when to expect it, as well as how we can help.

The independent commissioners

We have an independent Residents' Commissioner whose job is it to make sure we keep to the promises we make in our Residents Charter.

Our independent Construction Commissioner's role is to mediate and monitor the way in which we manage and respond to construction complaints.

For more information visit www.hs2.org.uk/in-your-area

Holding us to account

If you are unhappy for any reason, you can make a complaint by contacting our HS2 Helpdesk team. For more information visit www.hs2.org.uk/how-to-complain

Property and compensation

You can find out all about HS2 and properties along the line of route by visiting our website. You can also find out if you're eligible for compensation. Visit www.hs2.org.uk/in-your-area/

Contact us

Our HS2 Helpdesk team are available all day, every day. You can contact them via:

 Freephone
08081 434 434

 Minicom
08081 456 472

 Email
hs2enquiries@hs2.org.uk

Write to

FREEPOST

HS2 Community Engagement

Website **www.hs2.org.uk**

To keep up to date with what is happening in your area, visit:

www.hs2inyourarea.co.uk

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Questionnaire

HS2

We want to know what is most important to you about the Common Design Elements in your area.

Please rank the issues below from 1 to 5, where 1 is not important at all and 5 is very important.

Please also outline any ideas you have for how we could make the most of the opportunity presented by each Common Design Element.

In rural areas

1. The appearance of the structures, including opportunities to add patterns and textures to create a sense of local identity:



Please tell us about any ideas that you have for this.

2. Ways of discouraging vandalism and graffiti, including fencing, security measures and an arts and culture strategy to create a sense of ownership:



Please tell us about any ideas that you have for this.

3. Creating safe spaces and/or a sense of place under the viaducts
– for example, through lighting, art and culture or community projects:



Please tell us about any ideas that you have for this.

In urban areas

4. The appearance of the structures, including opportunities to
add patterns and textures to create a sense of local identity:



Please tell us about any ideas that you have for this.

5. Ways of discouraging vandalism and graffiti, including fencing, security
measures and an arts and culture strategy to create a sense of ownership:



Please tell us about any ideas that you have for this.

6. Creating safe spaces and/or a sense of place under the viaducts
– for example, through lighting, art and culture or community projects:

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
←		→		
Not important at all		Very important		

Please tell us about any ideas that you have for this.

Near transport corridors

7. The appearance of the structures, including opportunities to add patterns and textures to create a sense of local identity:

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
←		→		
Not important at all		Very important		

Please tell us about any ideas that you have for this.

8. Ways of discouraging vandalism and graffiti, including fencing, security measures and an arts and culture strategy to create a sense of ownership:

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
←		→		
Not important at all		Very important		

Please tell us about any ideas that you have for this.

9. Creating safe spaces and/or a sense of place under the viaducts
– for example, through lighting, art and culture or community projects:

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
← Not important at all			Very important →	

Please tell us about any ideas that you have for this.

What is the first part of your postcode? _____

This allows us to tell your local authority which issues are important to you, so they can bear them in mind when they make their decisions. If you give us your postcode, we assume that you are happy for us to share this information with the relevant local authorities.

Please fill in the questionnaire and send to:

FREEPOST Community Engagement

Alternatively, you can complete the questionnaire online at:

www.smartsurvey.co.uk/s/HS2CDEs

Survey closing date:

11pm on 30 January 2020

Thank you for sharing your thoughts with us.

Data Protection

This information is being collected to help HS2 understand the views of the various groups of people affected by HS2 CDE designs. The data will be collated and analysed to help in the reporting of survey feedback. The data will be anonymised and will not be used for any other purposes. This information will be used by the HS2 CDE designs project teams. We will not share this data with any other parties unless required to do so by law. We do not, and will not, sell personal information. More information about how HS2 uses personal data can be found on our Privacy Notice at **www.hs2.org.uk/privacy-notice/**