Old Oak Common Tunnel Frequently Asked Questions

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

Skanska Costain STRABAG (SCS) Railways are the main works civils contractor working on behalf of HS2 Ltd. SCS are responsible for the design and construction of bridges, embankments, and tunnels for the Greater London section of the new railway.

SCS will be tunnelling for about 16.4 miles (26.4km) of HS2's journey to its southern terminus in Euston. SCS will build 13 miles (21.4km) of twin-tunnels beneath London, from West Ruislip in the west to Euston in the east.

Where is the tunnel?

In the Old Oak and Park Royal area, SCS is working in partnership with HS2 and alongside Balfour Beatty VINCI SYSTRA joint venture (BBVS) who are building the Old Oak Common station. In this area, SCS is responsible for the following HS2 sites: Victoria Road Crossover Box, Flat Iron, Atlas Road, and Willesden Euroterminal.

The Old Oak Common Tunnel (OOC Tunnel) consists of two tunnels – an upline and a downline – that will run for about 360 metres between the Victoria Road Crossover Box site in Old Oak and Park Royal and the Old Oak Common Station Box. Old Oak Common Station is being built by BBVS. SCS will build the OOC Tunnel which is part of the Northolt Tunnel East between Old Oak Common and Greenford.

The Northolt Tunnel East will be about 5.5 km (3.4 miles) between the Victoria Road Crossover Box site in Old Oak and Park Royal and the Green Park Way Vent Shaft located in Greenford. The Northolt Tunnel East will be built using two Tunnel Boring Machines (TBMs), which will launch from the Victoria Road Crossover Box site towards Greenford.

Green Park Way is one of three ventilation (vent) shafts on this stretch of the route, the others being Westgate Vent Shaft (near Hanger Lane Underground Station) and Victoria Road Crossover Box, which is an underground structure allowing HS2 trains to switch tracks when approaching or departing Old Oak Common Station. Tunnelling works for Northolt Tunnel East between Old Oak Common and Greenford started in spring 2024 and is expected to finish in summer 2026. These dates remain subject to change. We will provide more information to local communities in advance of these works.

How will you build the Old Oak Common Tunnel?

SCS will use a cyclic excavation and support method to build the Old Oak Common Tunnel. This is also called the sprayed concrete lining (SCL) method. SCL tunnelling is a method commonly used to construct tunnels. We will first make a pilot tunnel that is narrower than the final tunnel diameter. We will then enlarge this to create the final tunnel. The ground is

dug out in short lengths and a sprayed concrete lining is used to form the tunnel. After each section is mined and lined, a temporary concrete face forms the end of the tunnel. The temporary face needs to be removed and the above cycle is repeated until the tunnel construction is completed. This phase generates ground-borne noise which may be heard by properties over 100 metres away from the tunnel location. This depends on how the noise can be transmitted through the ground and possibly a building's structure and foundation. This method involves rapidly spraying the excavated ground with concrete to stabilise it and form the permanent tunnel lining.

This tunnelling construction method is summarised below:

- Excavation using road headers or excavators,
- Installation of primary sprayed concrete lining,
- Installation of waterproofing,
- Installation sprayed concrete lining to support the tunnel.

You can find out more about this construction method under Section 9: Mined Tunnels in HS2 Information Paper D7: Tunnel Construction and Methodology, including an image which illustrates this construction method.

Why are these tunnels not being constructed using a tunnel boring machine?

It is not possible to build the OOC Tunnel with a TBM because this would result in building the full length of the tunnels with the widest possible diameter necessary, rather than varying the diameter needed for this section of the tunnels. This would result in a bigger diameter in this location and therefore increase the risk of settlement.

Why have you chosen to use this method here?

Sprayed Concrete Lining (SCL) is a traditional method used to construct tunnels. This method involves rapidly spraying the excavated ground with concrete to stabilise it and form the permanent tunnel wall. Unlike bored tunnels, which are built using a tunnel boring machine, the SCL method allows variation in the tunnel shape and diameter of the tunnels, which are required in this location. The width of the tunnels varies as they approach Old Oak Common Station to allow for track separation as trains are changing tracks when travelling to and from the station.

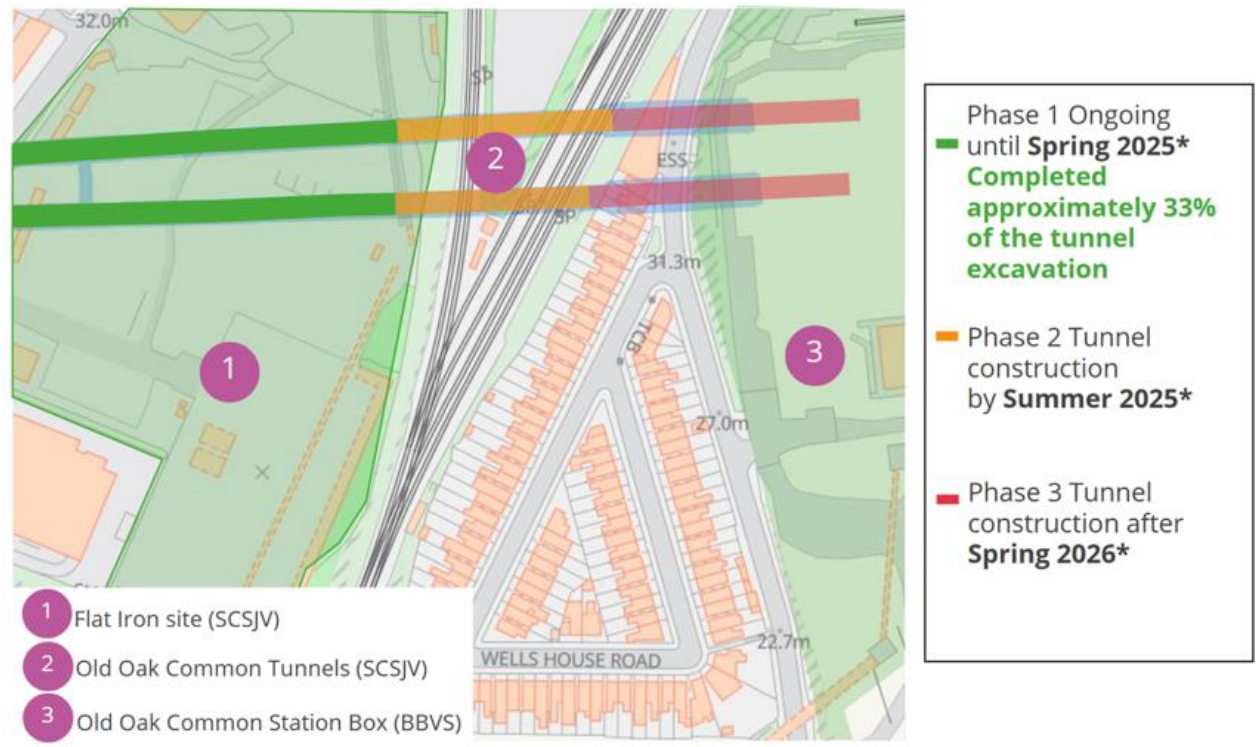
This method has also been used to build the cross passages on the HS2 tunnels, as well as the launch tunnels for the Northolt Tunnels East TBM tunnels, from Old Oak Common to Northolt.

Was this tunnelling method proposed in the HS2 Act?

The HS2 Act 2017 set out that tunnels will be built between Euston and West Ruislip. The construction methodology for the OOC Tunnel between the Victoria Road Crossover Box and Old Oak Common Station box is outlined in the HS2 London to West Midlands Environmental Statement November 2013 - Volume 1 - Introduction to the Environmental Statement and the Proposed Scheme – section 6.12.12.

Tunnel construction update

The OOC Tunnel will be flat and 12 metres below ground (to the top of the tunnel) as it travels from Victoria Road Crossover Box to Old Oak Common Station. However, the depth below ground will vary (by up to two metres) due to existing ground levels in the local area. The width (diameter) of the tunnels will also vary between 8.9 metres and 14.9 metres. This is due to the need for having wider tunnels next to Old Oak Common Station to allow for track separation as trains approach the different platforms in the station. The Old Oak Common Tunnel construction (including site set up and preparations, tunnel drive and finishing works) started in Spring 2024 and is expected to finish in late 2026*.



We are still tunnelling within the Flat Iron site and have completed around 33% of the total tunnel excavation. We expect to complete the orange section on the map above by summer 2025* and start work on phase 3 of the tunnelling section after spring 2026*.

* These dates remain subject to change.

What are the working hours?

We will require extended working hours to build the OOC Tunnels. It is usual practice to construct SCL tunnels on a 24hr shift pattern due. Construction of the SCL tunnels will need to be a continuous process, with minimal disruptions for construction and safety reasons. Our working times for the OOC Tunnels remain subject to ongoing discussions with Ealing Council.

Given the location of the tunnel and being in an urban area with public roads and residential areas above it is extremely important to mitigate settlement where possible. Continuously tunneling reduces the effect of ground settlement and gives the best opportunity to control ground movement and minimise the potential for settlement.

How will you manage the impact of tunnelling?

We recognise that residents may be concerned about tunnelling and related activities and that this is an important issue for the local community. We will always try to reduce the impacts as much as possible. The measures we will use to do that include:

- Selecting a construction methodology that reduces settlement and noise and is significantly quicker than other tunnelling techniques,
- Noise and vibration monitoring will be completed along the alignment to ensure we keep within agreed limits, outlined in the Code of Construction Practice (CoCP) and Information Paper E23: Control of construction noise and vibration,
- HS2 completed an Environmental Impact Assessment in 2013 which set out the impacts and effects of tunnelling. However, the specific impact on individual properties is being assessed through the detailed design stage and the ground movement assessment which are currently being undertaken.
- Assess and adopt construction methods which reduce the impact to the community, such as the conveyor system in Old Oak and Park Royal to reduce lorry movements and congestion on roads, in line with our commitment to achieving a cleaner, greener, low-carbon future.
- Ongoing engagement with local communities about our tunnelling works.

How will the tunnelling work impact my property?

The impact of the tunnelling work will vary for individual properties along the tunnelling route. To discuss the impacts of the tunnelling works to your property, please contact the HS2 Helpdesk on contact the HS2 Helpdesk on 08081 434 434 or email HS2enquiries@hs2.org.uk. Our local engagement team will discuss your property with our tunnelling specialists.

How will you protect local properties?

The High Speed Rail Act 2017 automatically protects properties from damage because of our future tunnelling works. HS2 is responsible for any damage caused to your house because of the construction or operation of the railway. HS2 has a well-established settlement policy that involves the principles of assessing, monitoring, recording, protecting, and repairing. Further information can be found here HS2 Guide to ground settlement

What is settlement?

Settlement is the technical term given to the way the ground moves around an excavation, such as a tunnel, after it has been dug. Some ground movement occurs naturally at anything up to 10 millimetres a year.

For example, the clay under most of London swells slightly during long wet, cool periods, and contracts slightly during very long, dry hot periods. Buildings generally withstand seasonal movement, but construction of the HS2 tunnels may cause some additional ground movement. The effects of settlement, as well as noise and vibration, have been minimised through the design of the tunnels. In most cases, settlement does not cause damage to

properties. In some cases, there may be small cracks in plaster, and in a few cases doors or windows may stick. In very rare instances, settlement can affect the structure of the building.

A number of major tunnelling projects have been or are being undertaken in London in recent years, including Crossrail, the London Water Ring Main, Heathrow Express, Jubilee Line Extension, extensions to the Docklands Light Railway, the Channel Tunnel Rail Link and the Heathrow Express and Piccadilly Line extensions to Heathrow Terminal 5. As a result, there is extensive experience of how the ground behaves when tunnels are constructed and how to minimise settlement affecting buildings above ground.

For information about HS2's approach to ground settlement, refer to HS2 Information Paper C3: Ground Settlement or HS2 Guide to Ground Settlement – Phase One.

During the design process of the HS2 tunnels, buildings which may be affected by structural excavations are assessed using a three-phase process. The process of assessing potential damage from ground movement is outlined in HS2 Information Paper C3: Ground Settlement.

What is a settlement deed?

This is a legal agreement between HS2 Ltd and owners of properties within 30 metres of an excavation. HS2 will be responsible for paying for any property repairs related to its works, whether the property owner holds a deed or not. However, some people find them useful if selling or borrowing, for example.

The settlement deed is part of the HS2 settlement policy, which is part of the 2017 Act. The same protection provided in the Deed is provided to any property affected by HS2. We will put right any damage caused by HS2, whether or not you have a settlement deed.

If your property is eligible and you request a settlement deed, you will receive a settlement report for your property. This will contain a map showing your property and tell you how much settlement is predicted at your property. We cannot give you the settlement details for all properties affected, only for your property.

If you have any questions about settlement deeds, please get in touch with our dedicated Property team by email at property@scsrailways.co.uk or contact the HS2 Helpdesk on 08081 434 434.

Why is the limit for settlement deed eligibility exactly 30 metres?

The 30 metres zone was defined following a review of historic projects of a similar nature, which was scrutinised through the parliamentary process. The zone captures those properties more likely to be affected by settlement.

Is my property eligible for a settlement deed?

We offer property owners within 30 metres of specific excavation works a settlement deed. This is a legal agreement between HS2 Ltd and owners of properties within 30 metres of these excavations.

If you have any questions on settlement deeds, please get in touch with our dedicated Property team by email at property@scsrailways.co.uk or contact the HS2 Helpdesk on 08081 434 434. You can find out more about ground settlement and settlement deeds on the HS2 website here and HS2's commitments with regard to settlement are explained in Information Paper C3: Ground Settlement.

Is my property protected still without a settlement deed?

HS2 will be responsible for paying for any property repairs related to its works, whether the property owner holds a deed or not.

You can find out more about ground settlement and settlement deeds on the HS2 website here. HS2's commitments regarding settlement are explained in Information Paper C3: Ground Settlement.

What is the potential impact of tunnelling on Kildun Court?

The tunnel is relatively shallow in this area which can increase the risk of settlement (the way the ground moves around an excavation during tunnel construction). Ground movement is predicted underneath Kildun Court. We know that Kildun Court will move with the ground because of the structural form of the building, which is a steel framed structure on pad foundations, and because of the proximity to the tunnel.

Because of the predicted ground movement, we need to undertake essential works and monitoring within Kildun Court during our tunnelling activities, to ensure the structure of the building is protected. The works will include exposing supporting beams, installing internal supports within the building, decommissioning the lift and the replacement of windows with boards. Due to the intrusive nature of these works, we require the building to be unoccupied.

The Old Oak Common and Park Royal Development Corporation (OPDC) bought Kildun Court ahead of HS2's tunnelling and as part of its long-term plans.

Why do residents of Wells House Road not need to vacate their properties?

Kildun Court behaves quite differently to the adjacent houses in Wells House Road. These are semi-detached brick buildings on strip footings which will withstand any potential ground movement. We are contacting everyone living near the tunnel to help them understand what its construction is likely to mean for them and their property. The expected impact on properties varies depending on factors like proximity and the structure of the building. These protective works will ensure the buildings are protected from any potential damage. Any properties requiring these works have already been contacted individually.

What is a pre-condition survey? / Is my property eligible for a pre-condition survey?

Pre-condition surveys are visual inspections by an independent accredited surveyor to capture the existing condition of a property. They are required for all properties along the HS2 route within the zone for predicted ground movement of more than 1mm for listed buildings and more than 10mm for non-listed buildings.

We are aware that properties in this area may have had pre-condition surveys previously in relation to other HS2 works in the local area. However, it is important that we carry out another pre-condition survey in advance of the tunnelling works so that we have an accurate record of the condition of your property nearer to the start date of these works.

Will I feel the tunnelling works (e.g., noise and vibration)?

Some properties in the local area may be impacted by ground borne noise and vibration for a short period of time during the tunnelling works. We are currently carrying out further assessments in advance of these works and will provide further information to properties predicted to be impacted by noise and vibration during the tunnelling works.

Can I have additional noise insulation?

There is no further noise insulation available because of future tunnelling works. Properties eligible in the Old Oak and Park Royal area who are eligible for noise insulation have already been contacted about this. For more information about HS2's noise insulation scheme, view HS2's guide to noise insulation (Phase One).

Will I be rehoused during the tunnelling works? / What respite will you offer? / Can I stay in a hotel during the tunnelling works? / I don't want to stay in my home, what are my options?

Some properties in the local area may be impacted by ground borne noise and vibration for a short period of time during the tunnelling works. We are currently carrying out further assessments in advance of these works and will provide further information to properties predicted to be impacted by noise and vibration during the tunnelling works.

HS2 recognises that, in some instances, buildings and the people who live in them may not be properly protected by our policies and that we need to consider these 'special cases' individually. Examples of special cases include but not limited to homes where noise insulation isn't an option, such as houseboats or mobile homes as well as night workers and people with a medical condition which will be seriously aggravated by construction noise.

We have set up a panel to oversee and manage the assessment of all special case applications. The panel will consider your individual circumstances, together with any supporting information it may request from you or our contractors to decide whether any alternative mitigation or other reasonable adjustment should be offered. In such circumstances, any measures will be provided at the absolute discretion of HS2 Ltd.

We actively encourage individuals to make themselves known to either HS2 or our contractors in order that their individual circumstances can be considered by the panel.

How can you assure that I'm safe to stay in my home? / Will my home be safe?

Several major tunnelling projects have been or are being undertaken in London in recent years, including Crossrail, the London Water Ring Main, Heathrow Express, Jubilee Line Extension, extensions to the Docklands Light Railway, the Channel Tunnel Rail Link, and the Heathrow Express and Piccadilly Line extensions to Heathrow Terminal 5. As a result, there is

extensive experience of how the ground behaves when tunnels are constructed and how to minimise settlement affecting buildings above.

All activities to build the HS2 tunnels will be assured technically by competent engineering teams and independently checked by external parties. Monitoring will be carried out throughout the tunnelling works.

I work from home; will I be disturbed on a daily basis?

Local disruption may be experienced during any mitigation and repair works to properties in the local area. Measures will be in place to minimise disruption, and we'll let you know about these works in advance.

Some properties in the local area may be impacted by ground borne noise and vibration for a short period of time during the tunnelling works. We are currently carrying out further assessments in advance of these works and will provide further information to properties predicted to be impacted by noise and vibration during the tunnelling works.

BBVS are also continuing works at the Old Oak Common Station site and on Old Oak Common Lane, which are impacting residents in the Wells House Road area on a daily basis. SCSJV is working with the BBVS engagement team to coordinate engagement where possible about disruption during current and future construction activities.

Additional information (if needed)

We recognise that there may be circumstances in which residents are more sensitive to construction noise. In such circumstances specific noise trigger levels and/or alternative noise control measures will be considered on a case-by-case basis to protect residents. Some situations that might require alternative measures include:

Residential homes where noise insulation is not a viable option;

- Night workers;
- People who regularly work from home and need a quiet environment; and
- Those that may have a medical condition which will be seriously aggravated by construction noise.

If you think the above may apply to you, please contact our helpdesk in the first instance. To progress your application, we may need certain additional information from you, for example evidence that you work from home regularly or medical evidence from your doctor. We will handle all confidential information you provide to us sensitively and securely and in accordance with all relevant legislation and we will only hold it for the time required to progress your case.

Will my rent be reduced during the tunnelling works? / Will you pay my rent during construction of the tunnels?

We cannot pay rent for local residents. You will still be responsible for the rent, bills and other payments at your current home for as long as you are a tenant at / residing in the property.

Why didn't HS2 compulsory purchase my property?

HS2 does not compulsorily purchase properties that it does not need to demolish or make otherwise unusable in order to build or operate the railway.

The Need to Sell scheme remains available to owner occupiers who can demonstrate a qualifying need and an effort to sell their property, but who cannot do so at a fair price because of HS2.

Where can I find out further information?

Please contact our engagement team if you have any questions or require information on the Old Oak Common Tunnel by contacting communities@scsrailways.co.uk.

Will I be able to see the tunnelling works?

Although the main works to build the tunnels will be carried out below ground, support activities will take place above ground. There are various pieces of construction plant and ad hoc activities above ground in our Flat Iron and Victoria Road Crossover Box sites, including:

- Operation of the concrete batching plant,
- Removal of excavated material from the tunnel face to the material stockpile,
- Operation of key plant on the surface needed in support of underground construction (e.g., fans, compressors, generators, batching plant).
- Maintenance of key plant necessary for the safety of the works (underground or on the surface).
- Surface support to the underground work, including welfare facilities, cranage, fitters' workshops and stores.

We will write to local community with more information about these future works nearer the time.

What will happen to the excavated material (spoil)?

Evacuated materials from the OOC Tunnel will be stored in muck bins before being taken by road to our Willesden Euroterminal Site.

The excavated materials will be removed from Willesden Euroterminal site by rail and be transported to locations in Cambridge, Kent and Bedfordshire.

Why am I only finding out about the tunnels now?

In November 2013, the government deposited a hybrid Bill with Parliament titled 'High Speed Rail (London to West Midlands) Bill'. The HS2 Phase One scheme was scrutinised by Parliamentary select committees during the hybrid Bill process, referring to HS2's environmental statement which assessed the impacts of the scheme. The Old Oak Common Tunnels are shown in the HS2 Phase One environmental statement volume 2: community forum area reports and mapbooks. You can view the details of the Old Oak Common Tunnels

in the CFA 04 map book: Kilburn (Brent) to Old Oak Common which supported the environmental statement and the Parliamentary select committees.

The hybrid Bill was enacted in February 2017 as the 'High Speed Rail (London to West Midlands) Act 2017' and grants the powers to construct Phase One of the HS2 network, including the Old Oak Common Tunnels which form part of the tunnels between Euston and West Ruislip.

You can view more about the HS2 Act via UK government website.

What happens if I notice cracks in my home?

If we cause any physical damage, we have a legal responsibility to repair this, under the High Speed Rail (London to West Midlands) Act 2017. We deal with claims under £10,000 through our small claims scheme and those over £10,000 through our damage claim process. You can find out more about the HS2 Small Claims scheme in HS2 Information Paper C10: Small Claims Scheme

If you think that your property has been damaged as a result of our construction work please contact the HS2 Helpdesk via phone 08081 434 434, minicom 08081 456 472 or email HS2enquiries@hs2.org.uk. In order for your concerns to be investigated, you will need to provide a description of the damage or nuisance to your property as a result of HS2 construction related activity via the HS2 Helpdesk.

What is a subsoil notice?

The term subsoil is used to refer to the part of the land which is below its natural surface. English property law recognises that, unless specified otherwise, freehold ownership of land includes the ground below the surface of the land to an unlimited depth. In some cases, leaseholders may share these rights, which may include the subsoil beneath adjacent public roads or streets.

The HS2 tunnels will be constructed in a stratum of subsoil generally more than nine metres below ground level. This stratum of subsoil will be compulsorily acquired using powers within the HS2 Act 2017 and, if you have an interest in the subsoil, you will be entitled to receive fixed value compensation. Subsoil notices will be sent to owners of properties directly above the tunnels to confirm that your subsoil rights will be obtained by HS2. For further information please refer to Using subsoil for HS2

I would like to sell my property, what support do you offer?

HS2 have a 'Need to Sell Scheme' available to residents who need to sell their property but cannot because of HS2. You can view more information about the Need to Sell Scheme here. or by contacting the HS2 Helpdesk on 08081 434 434 or email HS2enquiries@hs2.org.uk

How are you collaborating with other contractors?

SCSJV meets regularly with HS2 and other HS2 contractors working in the Old Oak area to discuss our upcoming works. This allows us to coordinate, where possible, and carry out collaborative engagement with local communities.

How will you engage with us?

SCSJV's local engagement team will be engaging with local property owners and the wider community about these works. A summary of engagement planned is included below. Please note, these dates and the details of the engagement may change.

SCSJV are engaging with local community about:

- Future tunnelling works (direct engagement with property owners and wider local community),
- Predicted impacts to individual properties (direct engagement with property owners).
- Proposed mitigation works (included design of mitigation works) (direct engagement with property owners),
- Settlement deeds (direct engagement with eligible properties).

A number of engagement channels will be used including but not limited to:

- Meetings / correspondence with individual property owners,
- Updates at Old Oak Community Representative meetings,
- Factsheets,
- Advance notice letters about upcoming works,
- 3- and 12-month lookaheads,
- Community meetings,
- Community drop-ins / virtual one-to-ones,
- Updates on the HS2 website.

Will I be disturbed by the future trains operating in the tunnels?

We are taking all reasonable steps to control ground-borne noise and vibration so that it does not exceed the Lowest Observed Adverse Effect Levels (LOAEL) set out in Information Paper E21: Control of ground-borne noise and vibration from the operation of temporary and permanent railways. Based on experience from London Underground, ground-borne noise or vibration below the LOAEL may still be perceptible to some people some of the time depending on the person's sensitivity to noise and how much sound there already is in the environment. But noise exposure below LOAEL is unlikely to have adverse effects on health or quality of life.

In our Environmental Statement (ES), and as a result of the envisaged mitigation in the tunnels, the majority of properties in the vicinity of the tunnels were forecast to experience ground-borne noise and vibration levels below LOAEL. HS2 is in the process of specifying the track so there is no significant change to the effects set out in the ES. Ground-borne noise and vibration control is achieved by engineering the track in the tunnels to stop the vibration generated by the train from being transmitted into the tunnels and surrounding ground. There are a number of different types of tracks available that will achieve this that are already used on high-speed lines in the UK and abroad.

Appendix

- HS2 in your area map– Here you can view our latest works notifications for your local area
- Join our mailing list – here you can join our mailing list to receive our latest updates via email
- Need to sell scheme – Here you will find information about a scheme available to owner-occupiers who can show that they have a 'compelling reason' to sell their property but have been unable to do so (other than at a greatly reduced price) as a direct result of the announcement of the route of HS2.
- Using subsoil for HS2 – Here you will find information which will explain:
    - How and why, we obtain and use subsoil that is beneath land and properties;
    - The legal permission we need and your rights to compensation;
    - How we will build the tunnels; and
    - How we will keep you informed.
- HS2 Guide to ground settlement – This guide tells you about settlement on HS2 and provides information on:
    - how your property might be affected;
    - what we will do to protect your property or pay for repairs;
    - how we will keep you informed; and
    - how to apply for a settlement deed.
- Environmental Statement (ES) - Further information about the environmental minimum requirements for HS2 Phase One.
- Information Paper E21 - Further information about the control of ground-borne noise and vibration from the operation of temporary and permanent railways.
- Information paper - E22 – Further information about the control of noise from the operation of stationary systems.
- Information Paper E23 - Further information about the control of construction noise and vibration
- Code of Construction Practice (COCP) – The CoCP contains control measures and the standards to be implemented throughout Phase One of HS2.