

# Water in the Chilterns and Colne Valley

## – Frequently Asked Questions

High Speed Two (HS2) is the new high speed railway for Britain. We have produced this document to answer the most commonly asked questions we have had from members of the community about water and how we are preventing impacts on the quality and supply of water in the Chilterns and Colne Valley during our works.

### **Tunnel Boring Machines – Chiltern Tunnel South Portal**

#### **Where is the water supply coming from for the accommodation block and tunnel boring machine (TBM)?**

The water supply for construction activities at the Chiltern Tunnel South Portal will come from existing water resources available to Thames Water with a small amount from Affinity Water. HS2 Ltd has invested significantly to ensure that the necessary infrastructure is in place to guarantee a resilient supply and this should provide longer term benefits to both water companies and their customers.

#### **Will local residents water supply be adversely affected by the new pipeline now being supplied to the TBMs and accommodation block?**

No, there will be no impacts on existing public water supplies. This is a critically important issue and is central to the protective measures and infrastructure upgrades that HS2 Ltd is delivering in partnership with the water companies.

#### **What is HS2 Ltd doing at the water treatment stations? Is it true that you will be abstracting water from the aquifer or River Misbourne to supply the TBMs?**

HS2 Ltd is working closely with Affinity Water to install additional water treatment capacity at three pumping stations close to the line of the route in order to protect existing potable water supplies. This is a precautionary measure in the event that construction activity has an adverse effect on the turbidity of water being abstracted. HS2 Ltd will not be abstracting water from the chalk aquifer or from the River Misbourne. HS2 Ltd's water requirements will be met from existing water company resources, principally from Thames Water, outside of the Colne Valley area.

## **What will happen to the surface water after construction? Is there an increased flood risk for residents from the main compound / landscape area at Chalfont Lane?**

Surface water runoff across the site will either infiltrate into the soil or during very heavy rainstorms will runoff and collect in an attenuation pond. Attenuation ponds are designed to contain and manage storm water. From the attenuation pond it can be released to surface water at a rate no greater than the pre-HS2 rate. The attenuation pond is sized to limit the potential for offsite flooding. The landscape area for the main compound (at the South Portal) and surround also includes several wetland features that will help reduce runoff.

## **Water quality**

### **What is HS2 Ltd doing to support Affinity Water to protect the water at its abstraction sites?**

To reduce the risk to public water supplies, Affinity Water, with HS2 Ltd.'s support, has installed new water treatment facilities at its key supply sites that are close to the rail route. Water monitoring data collected from across the site is shared with Affinity Water daily. HS2 Ltd is also sharing construction programme details with Affinity Water so that it is aware of when activities will be taking place close to its abstractions.

### **Can the fissures (fractures or cracks) in the ground cause contamination to spread into the water supply?**

HS2 Ltd is aware of areas of existing contaminated land in the Colne Valley, and the impact that these already have on groundwater quality in some areas. As HS2 Ltd will not be constructing in, or otherwise disturbing, areas of known contaminated land, our work will not lead to any additional groundwater quality issues coming from contaminated land in this area.

### **Is there water quality testing?**

Yes. HS2 Ltd has developed a series of comprehensive water monitoring plans for each of its major construction sites to check groundwater and surface water quality before, during and after construction. The testing requires a full-time team of specialists to collect and analyse water samples from hundreds of locations, including the use of automated systems in some areas. HS2 Ltd has worked very closely with Affinity Water and the Environment Agency to agree the scope of the monitoring and to ensure that our methodologies and water monitoring regimes during our works are robust and effective. This is in addition to regular groundwater quality testing undertaken by water companies and the Environment Agency. The HS2 Ltd testing regime commenced in 2017 and is ongoing along the length of the rail route and will continue beyond the construction phase of the project.

### **Will domestic water supplies be affected by HS2 Ltd.'s demand for water?**

Domestic water supplies will be unaffected by HS2 Ltd.'s water demand as the demand will be met from existing water company resources from outside the Colne Valley area, not from additional abstraction from pumping stations above current licence constraints.

### **Are there risks to the drinking water?**

Construction activities in a principal aquifer that provides a high level of water storage, such as the chalk, can introduce risks to groundwater quality and hence potentially to drinking water abstracted from the aquifer. Therefore, before any HS2 Ltd work below the water table is started, a comprehensive risk assessment is completed and provided to the Environment Agency and Affinity Water for review and comment. Each organisation issues a consent to allow the work to progress if the work is approved. The assessments take into account numerous protective measures to reduce the risk of adversely affecting drinking water. The protective measures include the selection of the cleanest construction techniques, choice of materials, the implementation of robust pollution prevention measures, the provision of enhanced protection at pumping stations and an extensive monitoring programme to check on effects and implement additional mitigation if required.

### **What role does the Environment Agency provide in relation to water quality?**

The Environment Agency is the regulator in England for the water environment and as such it regulates and protects the quality of all controlled waters including rivers, lakes and groundwater. HS2 Ltd cannot progress its construction activities until the Environment Agency is satisfied that any risks to water quality are adequately controlled. The Environment Agency receive regular updates on the results of water monitoring across site and are kept informed of the progress of the project.

## **Lakes, aquifers and rivers**

### **What steps are you taking to ensure that you do not pollute the lakes when you construct piles in them for the Colne Valley Viaduct?**

We will only use materials that are acceptable to both Affinity Water and the Environment Agency. We are using bespoke piling methods, informed by the local ground conditions to ensure the risk of introducing contamination to the lakes is low and closely managed. Our Construction and Environment Plans have the control measures and mitigation plans detailed in them. Everyone working on the project will comply with these documents.

### **What will the impact be on the chalk aquifer?**

HS2 Ltd is committed to protecting the chalk aquifer within the requirements for the construction and operation of the new railway. There will be effects on the aquifer, but these will be localised, on the whole temporary and will not be significant.

Substantial assessment and liaison with the regulators are undertaken prior to any works starting close to or below the water table.

## **The River Pinn is the location for storm water and has experienced flooding, will additional water in the locality increase risks of flooding?**

HS2 Ltd is committed to ensuring that there is no increase in flood risk as a result of the scheme. We use available and accepted flood risk resources, such as the Environment Agency's hydraulic models and considerable local knowledge, to assess the flood risk resulting from our scheme. From this we are able to achieve a design that is compliant with this commitment and approved by the Environment Agency.

## **Will water be taken from the chalk streams such as the River Misbourne or River Chess?**

No. Construction water requirements are of a volume and duration that mean these rivers do not offer a viable source. Furthermore, the Environment Agency would not sanction new abstraction from these rivers, in line with its abstraction policy for these water bodies.

## **What is Bentonite and is it safe?**

Bentonites are naturally occurring clays that are widely used in the construction industry but are also used in the health sector, for agriculture, during some wine and beer production and for other uses such as cat litter. It is not defined as a hazardous. It is safe to use provided that is managed appropriately with the two main concerns for HS2 Ltd being to reduce the potential for release to air and prevent discharge to surface water as it can cause turbidity, block sunlight and cover water based flora. HS2 Ltd is not using bentonite in surface water and has stringent controls in place to prevent inadvertent release to surface water. Bentonite is used as a slurry (approx. 3% bentonite powder mixed with water) by HS2 Ltd in groundwater for piling and diaphragm wall (d-wall) construction but it is not hazardous and is only a concern if it migrates and causes turbidity at sensitive receptors such as public water supplies - mitigation is being implemented to manage this risk. Bentonite powder will also be mixed with cement, water and additives to form a grout which will be used to fill the narrow gap between the bored tunnel and the tunnel lining system. This grout will become a gel within 12 seconds of injection and will fully set within 30 minutes. The potential for bentonite migration to public water supplies from the tunnel is therefore extremely low as it will be sealed within the grout when it sets.

## **Contaminated land**

### **Are you drilling through contaminated land? Are the viaduct piles situated on contaminated land? Is the viaduct being built on contaminated land?**

No. Extensive detailed investigations along the line of the viaduct have been undertaken by HS2 Ltd. As part of the Environmental Impact Assessment for HS2 Ltd, information regarding contaminated land in the area went through a detailed review. This included reviewing the contaminated land registers held by local authorities. We are confident that none of the piles for the viaduct will penetrate contaminated land. However, we will ensure that a robust assessment is undertaken during all construction works. If we do identify any issues, we will

implement appropriate mitigation which could potentially include the removal of contaminated soil, encapsulation of contamination, further risk assessments and monitoring or water treatment.

### **Have any surveys been conducted with regards to the contaminated land at Newyears Green Bourne in the London Borough of Hillingdon?**

HS2 Ltd is aware of areas of contaminated land around Newyears Green Bourne and is aware of assessments that have been completed by the London Borough of Hillingdon and Environment Agency.

These areas were considered within the Environmental Impact Assessment for HS2 and are also considered within our risk assessments for below ground works at the southern end of the viaduct. However, as HS2 Ltd does not pass over or through these areas no direct investigations or surveys of them have been completed by HS2 Ltd.

## Glossary of terms

Please find below explanations of the terms used in this frequently asked question document.

**attenuation pond** is a permanent pond to store and attenuate run-off, reducing peak flows in surface water and used to manage water run-off in sustainable drainage systems.

**turbidity** is the measure of relative clarity of a liquid. It is an optical characteristic of water and is a measurement of the amount of light that is scattered by material. In specific relation to water, it is how cloudy it appears.

**chalk aquifer** is an underground layer of water-bearing permeable rock.

**chalk stream** are streams that rise from springs in landscapes with chalk bedrock.

**principal aquifer** are layers of water-bearing permeable rock that provide a high level of water storage. They support water supply and/or river base flow on a strategic scale.

# 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.

## Residents' Charter and Commissioner

The Residents' Charter is our promise to communicate as clearly as we possibly can with people who live along or near the HS2 route.

[www.gov.uk/government/publications/hs2-residents-charter](http://www.gov.uk/government/publications/hs2-residents-charter)

We also have an independent Residents' Commissioner whose job is to make sure we keep to the promises we make in the Charter and to keep it under constant review. Find reports at: <http://www.gov.uk/government/collections/hs2-ltd-residents-commissioner>

You can contact the Commissioner at: [residentscommissioner@hs2.org.uk](mailto:residentscommissioner@hs2.org.uk)

## Construction Commissioner

The Construction Commissioner's role is to mediate and monitor the way in which HS2 Ltd manages and responds to construction complaints. You can contact the Construction Commissioner by emailing: [complaints@hs2-cc.org.uk](mailto:complaints@hs2-cc.org.uk)

## Property and compensation

You can find out all about HS2 and properties along the line of route by visiting: [www.gov.uk/government/collections/hs2-property](http://www.gov.uk/government/collections/hs2-property)

Find out if you're eligible for compensation at: [www.gov.uk/claim-compensation-if-affected-by-hs2](http://www.gov.uk/claim-compensation-if-affected-by-hs2)

## Holding us to account

If you are unhappy for any reason you can make a complaint by contacting our HS2 Helpdesk team. For more details on our complaints process, please visit our website: [www.hs2.org.uk/how-to-complain](http://www.hs2.org.uk/how-to-complain)

## Contact Us

Contact our HS2 Helpdesk team all day, every day of the year on:

 Freephone **08081 434 434**

 Minicom **08081 456 472**

 Email **[hs2enquiries@hs2.org.uk](mailto:hs2enquiries@hs2.org.uk)**

Write to:

**FREEPOST**

**HS2 Community Engagement**

Website [www.hs2.org.uk](http://www.hs2.org.uk)

To keep up to date with what is happening in your local area, visit: [www.hs2inyourarea.co.uk](http://www.hs2inyourarea.co.uk)

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<https://www.gov.uk/government/publications/high-speed-two-ltd-privacy-notice>

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