

**HS2 PHASE 2B WEST  
HIGH SPEED RAIL (CREWE – MANCHESTER) BILL  
ENVIRONMENTAL STATEMENT CONSULTATION 2022**

**RESPONSE OF THE INLAND WATERWAYS ASSOCIATION**

**Introduction**

The Inland Waterways Association (IWA) is the membership charity that works to protect and restore the country's canals and river navigations for public benefit. IWA is a national organisation with a network of local branches and volunteers who work with navigation authorities, national and local government, and a wide range of voluntary, private and public sector organisations for the benefit of the waterways and their users.

The HS2 Crewe-Manchester Bill affects the Middlewich Branch of the Shropshire Union Canal, the Trent & Mersey Canal, the Bridgewater Canal, the Manchester Ship Canal, and the Ashton Canal and Rochdale Canal in Manchester.

This response considers the major adverse impacts on the canals and their users and suggests mitigation needed to minimise these.

**General Principles**

IWA's general principles for the protection of waterways impacted by HS2 are:

- Protection of Routes – No canal should be lost or blocked, whether a restoration project or a navigation in use, and where the route crosses a waterway, the waterway should be restored to a minimum of navigation standard, whether the navigation is presently extant or not.
- Navigation – There should be minimal disruption to navigation during the construction phase, and any necessary impacts should be integrated with the navigation authority's planned stoppage programmes.
- Waterway gauge - there should be no detriment to the constructed gauge of any waterway due to HS2, particularly in respect of headroom, taking account of any proposed enhancements on freight waterways. Any waterway crossings or other alterations to the waterway should comply with the appropriate navigation authority's policy of headroom over water, over towpaths, and on minimum width.
- Mitigation – wherever possible mitigation should be completed in advance of construction.
- Betterment – opportunities should be sought to achieve betterment for waterways within the planning process as compensation for environmental and heritage damage caused by HS2's construction and operation.

**Engagement**

IWA has engaged with HS2 since 2010 on behalf of its individual and corporate members and the wider public interest in waterways. We have commented in detail on previous Phase 2 and Phase 2b consultations in 2014, 2017 and 2018 and gave evidence to HS2 Select Committees in 2016 and 2018.

IWA responded in detail to the HS2 Phase 2b Working Draft Environmental Statement consultation 2018, and to the HS2 Phase 2b Western Leg Design Refinement consultation in 2020.

IWA also responded to the National Infrastructure Commission's Rail Needs Assessment for the Midlands and the North in 2020. This addressed wider concerns including the need to review the whole Western Leg route to integrate it with Northern Powerhouse Rail and to take better account of subsidence risks; as well as the detailed landscape, noise and heritage impacts on the Trent & Mersey Canal in the Dane valley north of Middlewich; and noise and visual impacts on the Middlewich Branch of the Shropshire Union Canal.

Most recently, IWA has responded to the House of Commons Transport Select Committee Inquiry into the Integrated Rail Plan. For HS2 Phase 2b West this again challenged the poor route selection and the principle of a terminal station in Manchester.

However, as the route is now considered to be largely fixed by publication of the Bill, for better or worse, this response concentrates on our major outstanding concerns. These include the visual, heritage and community impacts of construction and operation, which are assessed in the Environmental Statement. However, the noise impacts on canal users, and particularly on the residential use of boats, is not adequately assessed and the noise mitigation measures proposed are therefore inadequate for each of the affected canals.

## Noise Mitigation

IWA's main objection to the plans is the absence of, or inadequate, noise mitigation measures where HS2 crosses or runs near various canals.

Our canals are major heritage assets, wildlife sites and recreational corridors, valued for their tranquillity, and each HS2 affected location is used by tens of thousands of people each year.

Noise levels close to HS2 bridges can be upwards of 90db and without acoustic barriers the very high noise levels from passing trains will propagate over a wide area. Although this is intermittent, it is the peak noise levels that cause maximum disturbance and any form of averaging noise levels is misleading.

HS2 automatically includes noise barriers, earthworks or fencing, to protect residential properties but continues to misrepresent canal users as 'transitory' and thus not worthy of consideration. A few canal crossings benefit from the proximity of inhabited buildings, but most crossings in rural areas are given no protection and will be subject to intolerable levels of noise.

Whilst some boaters and towpath walkers are just passing through, they do so at only walking pace and are within sight and sound of HS2 crossings for many minutes. Anglers often spend many hours at one spot, and without noise barriers large sections of waterways around HS2 interfaces will become no-go areas for them. Boaters on journeys moor up at intervals overnight and during the day for meals, shopping, visitor attractions or just to enjoy the scenery and tranquillity of rural areas. On CRT waterways boaters are generally allowed to moor up anywhere for 14 days, except locally where shorter periods are signed, and during that time the usage of the boat is akin to a residential building at that location. But in the vicinity of unshielded HS2 crossings, perhaps up to half a mile on either side of the railway, these areas will effectively become no-go areas where boaters will be denied their current rights and choices.

Many of the HS2 interfaces are within earshot of marinas or linear mooring sites, and these are not just static boat parks but are active sites which people visit to work on their boats or socialise or to simply enjoy the waterway environment, often using them as country cottages, staying overnight or for a weekend. On many moorings some boats are used for living on board for long periods, and even if not officially designated as residential moorings in practice this residential use is the reality.

If noise mitigation at canal interfaces in the vicinity of residentially used boat moorings is not provided, to at least the same standards as for residential buildings, then the value of the moorings will be greatly diminished and the use of those closest to HS2 is likely to become untenable. Individual moorers will be forced to seek alternative locations and the moorings business will suffer financially; either having to lower its prices to retain only non-residential users and in recognition of an unattractively noisy environment, or closing altogether.

The portrayal of all canal users as 'transitory' is therefore factually incorrect, misleading and misguided. Canal boats are residences, and whilst not always permanently occupied, and capable of moving, wherever more than a few boats are moored, permanently or intermittently, it is likely that somebody will be living there for significant periods, and their acoustic environment should be protected.

For further explanation of this see Appendix 1 below.

IWA has made this case repeatedly in many HS2 consultation responses and in petitioning before several select committee hearings. However, HS2 Ltd has remained institutionally deaf to reason on this and MPs, whilst sympathetic, have so far failed to require them to acknowledge the inadequacy of their noise mitigation measures and to correct this major anomaly.

There has been a fundamental failure to acknowledge that waterway users are not just 'transitory' but in many locations people live on boats for varying periods of time, and those places should be provided with noise mitigation to at least the same standards as would automatically apply to residential buildings at that location.

Canal users are not unique in this, and HS2's linkage of noise mitigation only to residential buildings means that caravan parks, campsites, and many sport and recreational facilities where people habitually reside or are present for long periods have also been ignored when deciding where and to what extent noise mitigation should be provided.

What boats, caravans and tents also have in common is that their relatively thin walled construction makes them even more vulnerable to external noise than bricks and mortar residences. Unlike houses they cannot easily be retrofitted with double glazing, and their mobility and the outdoor lifestyle of boaters means that they are even more dependent on external noise controls at the source of the problem, including noise fencing on viaducts and bridges, earth bunding and screen planting.

Whilst the design of bridges and viaducts is important, the minor additional visual impact of noise fencing should not be used as an excuse to deny the major audible benefits that it can provide. To static boat residents or waterway users encountering HS2 at walking pace it will in the long term be the operational noise that most impacts and disrupts their lifestyle and activities.

Parliament has failed to address this issue for Phase 1 and for Phase 2a, but that is no reason why the same mistakes should be repeated with Phase 2b. IWA demands that this disgraceful policy of ignoring some of the most damaging consequences of HS2 is reviewed and changed, and that all its interfaces with inland waterways are provided with adequate noise mitigation to at least the normal residential property standards.

The Phase 2b Draft Register of Undertakings and Assurances, at A135, states that:

Some buildings and/or their occupants may not be adequately protected by the thresholds in Table 5. Specific noise trigger levels and/or alternative noise control measures will be considered on a case by case basis for situations such as: residential homes where noise insulation does not represent a viable option including houseboats ...

IWA looks to Government to ensure that HS2 Ltd now implements the intent of this Assurance. Noise trigger levels for all canal boats at least equivalent to residential buildings should be defined, and appropriate site specific noise control measures should be provided to protect not only 'houseboats' but all locations where canal boats are permanently or temporarily moored and may be used residentially.

### **Canal Interfaces**

The interfaces of concern between the waterways and HS2 Phase 2b West are the crossings of the Middlewich Branch of the Shropshire Union Canal, the Trent & Mersey Canal (3 crossings) and the Bridgewater Canal, and also the proximity to the Ashton Canal and Rochdale Canal in Manchester. At all these interfaces the noise mitigation proposed is inadequate and should be improved.

(As the public recreational use of the Manchester Ship Canal is very limited, this is not considered further here.)

### **Middlewich Branch of the Shropshire Union Canal (MA02)**

The Middlewich Branch of the Shropshire Union Canal will be affected by the Crewe North Rolling Stock Depot (RSD) over a distance of about 4 km around Wimboldsley, and by the three viaduct bridge crossings of the canal up to 7m and 8m in height between Park Farm and Yew Tree Farm. The historic environment of the canal within the rural landscape will be permanently degraded by the visual impact of these HS2 structures, and the users of the canal will be subject to construction and operational noise impacts.

The MA02 Operational Airborne Noise plan (SV-05-305) shows no noise mitigation fencing across the three adjacent bridge spans of the Shropshire Union Canal Viaduct. Noise fencing of up to 2m on the adjacent embankment to the north ends short of the canal crossing, and there is no fencing on the embankment to the south. This results in about 200 metres length of the canal between Park Farm and Yew Tree Farm being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time).

As well as the many passing users of the canal and its towpath, there are residential and permanent boat moorings at Park Farm, and visitor moorings at Yew Tree Farm which are used residentially overnight, that will be particularly badly affected at this crossing by overnight train movements. The RSD will be a 24-hour operation and there will be late evening and early morning train movements into and out from the depot across the canal viaducts outside the normal operating hours of the HS2 main line, as well as overnight maintenance train movements from the IMB-R.

During construction of the viaducts many of the moorings at Park Farm which come within the land required for construction will be lost for a period of one year and nine months (ESv2 MA02 2.3.96), and those beneath and closest to the viaducts will be permanently lost.

Noise barrier fencing should be provided across all 3 bridge spans, continuing onto the adjacent Clive Green North and Clive Green South embankments to avoid sound spillage around the ends of the fences, in order to minimise operational noise impacts on the users of the canal, its towpath, the remaining permanent boat moorings at Park Farm, and the visitor moorings at Yew Tree Farm.

Noise barrier fencing of up to 2m shields wheel and track noise. It may be impractical to shield pantograph noise, but 4m height noise fencing should be provided for maximum protection from engine and aerodynamic noise.

### **Trent & Mersey Canal (MA02)**

The original 2013 HS2 alignment required just one crossing of the canal but the amended 2016 route involves three crossings over a two mile section in the River Dane valley north of Middlewich, from south of canal bridge 177

to north of the Billinge Green Flash at Whatcroft. The height of the route was also raised, further increasing the visual and noise impacts on the canal.

The Trent & Mersey Canal is a linear Conservation Area throughout its 93 miles, designated for its historic and architectural significance and now used extensively for recreation. All three crossings are in scenically attractive and currently tranquil rural settings.

Construction of the proposed route will have a permanent visual and environmental impact on the Trent and Mersey Canal Conservation Area due to the height and mass of the viaduct structures and embankments and the operational noise. The proposed track level will be between 10m and 13m above the canal water level at the three crossing, and there will be a dominating view of the viaducts and embankments, rising up to 29m above adjacent land and the River Dane flood plain. It is essential to incorporate parapet or noise fence barriers at all three crossings to significantly reduce the operational noise effects of the railway.

The MA02 Operational Airborne Noise plan (SV-05-307) shows no noise mitigation fencing across any of the three canal crossings at the River Dane Viaduct, Puddinglake Brook Viaduct or Trent & Mersey Canal Viaduct, or on the embankments nearest to the canal. This results in extensive sections of the canal at all three locations being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time).

### **River Dane Viaduct (MA02)**

The southernmost crossing of the Trent & Mersey Canal is approximately 150m east of canal bridge 177, at the northern end of the River Dane Viaduct and at a height of about 10m. The viaduct and adjacent embankment will have a major visual and aural impact on the canal and its Conservation Area. The River Dane Viaduct crossing is also close to visitor moorings at the Bramble Cuttings picnic and barbecue area site (at C8 on CT-05-312) which are regularly used for overnight stays and will be within the noise envelope of HS2.

The MA02 Operational Airborne Noise plan (SV-05-306) shows no noise mitigation fencing across the River Dane Viaduct. This results in about 400 metres length of the canal being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time).

Noise barrier fencing across this part of the viaduct continuing onto the very short embankment indicated and linking up with the shallow cutting to the north is essential to minimise the noise impact on this currently tranquil section of the canal and the Bramble Cuttings moorings.

Noise barrier fencing of up to 2m shields wheel and track noise. It may be impractical to shield pantograph noise, but 4m height noise fencing should be provided for maximum protection from engine and aerodynamic noise.

### **Puddinglake Brook Viaduct (MA02)**

The middle of the three Trent & Mersey Canal crossings is between canal bridge 179 at Whatcroft Lodges and the railway bridge 180A, with the canal crossed by the Puddinglake Brook Viaduct up to 11m in height. The viaduct and adjacent embankment will have a major visual and aural impact on the canal and its Conservation Area.

The MA02 Operational Airborne Noise plan (SV-05-307) shows no noise mitigation fencing across the Puddinglake Brook Viaduct. This results in about 350 metres length of the canal being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time). From here the canal loops round to its next crossing point named as the Trent & Mersey Canal Viaduct, with most of this intervening section lying within the noise 'red zone'.

Noise barrier fencing across the viaduct is essential to minimise the noise impact on this currently tranquil section of the canal. The noise mitigation needs to continue onto both sides of the Whatcroft South Embankment to the north to avoid sound spillage around the ends of the fences, and along the full length of the eastern side of the embankment, to protect both this canal crossing area and its continuation round to the next crossing.

Noise barrier fencing of up to 2m shields wheel and track noise. It may be impractical to shield pantograph noise, but 4m height noise fencing should be provided for maximum protection from engine and aerodynamic noise.

### **Trent & Mersey Canal Viaduct (MA02)**

The northernmost crossing of the canal near Whatcroft is by the Trent & Mersey Canal Viaduct up to 13m in height. This continues across part of the large subsidence 'flash' where a spit of land partially separates the canal from the flash. The viaduct and adjacent embankments will have a major visual and aural impact on the canal and its Conservation Area.

The canal at Billinge Green Flash is a very popular mooring site for visiting boats and other canal users because of its tranquillity and the view of the large open expanse of water across the flash, which is uncommon elsewhere on

the canal system. The considerable alterations to this setting would permanently damage this experience and have a major environmental impact on the Trent & Mersey Canal Conservation Area corridor.

The MA02 Operational Airborne Noise plan (SV-05-307) shows no noise mitigation fencing across the Trent & Mersey Canal Viaduct. This results in about 400 metres length of the canal being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time).

HS2 will also impact on the tranquillity of the occupiers of boats moored at Oakwood Marina, which has about 83 berths. It is only 100m to the West of the proposed HS2 route and also in the noise 'red zone'. An Operational Assessment has been done for the marina offices (Ref. 610398), which is occupied only during the day and, even with the lower screening criteria for A4 offices and amenity spaces (55db rather than 50db), shows a Significant Effect. However, there is no assessment of the noise impact on the adjacent moored canal boats at the marina, which are often occupied residentially both day and night. This illustrates the fundamental inadequacy of the noise assessment and mitigation methodology for waterway users, and in particular the residential users of canal boats, as explained above. Without adequate noise mitigation the continued social and partly residential use of the marina and its financial viability will be greatly reduced.

There are also further permanent boat moorings at Park Farm Marina which is within 400m of the proposed route (just north of Little Grebe Cottage on the plans) which will also be affected by noise from both the construction and operation of HS2.

Noise barrier fencing across the viaduct, continuing onto the Whatcroft North Embankment to the north to avoid sound spillage around the ends of the fences, and along the full length of its western side, is essential to minimise the noise impact on this currently tranquil section of the canal and on the social and residential usage of boats moored at Oakwood Marina.

Noise barrier fencing of up to 2m shields wheel and track noise. It may be impractical to shield pantograph noise, but 4m height noise fencing should be provided for maximum protection from engine and aerodynamic noise.

#### **Bridgewater Canal (MA04)**

The Bridgewater Canal is a heritage asset of national importance, being the first major canal built in England by the pioneering engineer James Brindley, which played a significant part in enabling the industrial revolution. This section of the canal was completed by 1769 and its bridges, aqueducts, warehouses and other structures remain largely as built.

HS2 crosses the Bridgewater Canal by the Bridgewater Canal Viaduct up to 11m in height. The crossing at Agden is at a skew angle, directly over the boat moorings of Lymm Cruising Club. These line the south side of the canal adjoining Warrington Lane, extending northeast from Spring Lane Bridge to Lymm Marina and the boat repair and service premises of Hesford Marine. During construction of the viaduct half (12 of 25) of the moorings will be lost for a period of 3 years and 3 months (ESv2 MA04 6.4.7). The canal environment, the canal and towpath users, and the boat moorings here will all be badly affected by noise during both the construction and operation of HS2. As elsewhere, the canal boat moorings are used residentially for various periods of time and should therefore be afforded at least the same degree of noise mitigation as for residential properties.

The MA04 Operational Airborne Noise plan (SV-05-312b) shows noise mitigation fencing of up to 2m on part of the Bridgewater Canal Viaduct but only part way across the viaduct and only on the east side. This is to provide acoustic screening for nearby residential properties and has taken no account of the noise impacts on residentially used boats. This results in about 120 metres length of the canal being subject to excessive noise impacts in the 'red zone' of significant effect (>65db daytime, >55db night-time).

To protect all canal users and the permanent moorings there should be noise barrier fencing across the viaduct on both sides and this needs to extend onto both the Heatley South Embankment and the Lymm North Embankment to avoid sound spillage around the ends of the fences.

Noise barrier fencing of up to 2m shields wheel and track noise. It may be impractical to shield pantograph noise, but 4m height noise fencing should be provided for maximum protection from engine and aerodynamic noise.

#### **Ashton Canal and Rochdale Canal (MA08)**

The main noise impact from the new Manchester Piccadilly High Speed Station will be in the construction phase with the Main Compound being sited right against the Ashton Canal at Ducie Street Basin and in close proximity to the Rochdale Canal, with road closures and works in the surrounding area further affecting the Ashton Canal.

Although this is an urban area where a greater level of background noise is expected, any major increase due for example to pile driving or overnight construction works would impact on canal users generally, and in particular on the popular overnight moorings on the closest sections of both these canals.

The Main Compound adjoining the Ashton Canal off Store Street should have substantial noise fencing to protect canal users and the canal's habitat. Other measures to limit construction and operational noise impacts on areas around the station should recognise canal users as 'receptors' in all noise assessments.

## Appendix 1.

### ES Vol.5: Sound, noise and vibration Appendix, Annex G (M255)

#### 3.2 Moorings

Temporary and static moorings have, by their nature, transitory use with users staying only for short periods of time (e.g. a few hours at a time). People generally use such moorings when starting on journeys to other locations along the waterways network or whilst en-route between locations. Increases in noise due to construction and operation of the Proposed Scheme may adversely affect the acoustic character of the area around such facilities. However, as users will not be exposed to any increased noise for long periods any adverse noise effects on users are not considered significant.

Facilities that permit occasional overnight stays such as static moorings, camp sites or caravan parks but do not permit long term residential use are not considered to be significantly affected by noise due to construction or operation of the Proposed Scheme due to the short and irregular exposure to noise from the Proposed Scheme.

Permanent moorings are treated as residential, but allowing for the lower sound insulation provided by the 'shell' of a boat compared to a house.

#### Comment:

The above statement is fundamentally wrong and shows a lack of understanding of the variety of ways in which people actually use their boats on inland waterways.

#### Temporary Moorings.

Whilst some boaters are on holiday or short-break journeys and moor-up for a few hours for meals, shopping, visitor attractions, etc. they also moor overnight at various locations, often selected for the scenery and tranquillity. Others on extended journeys will moor for longer periods, and on CRT waterways this is generally permitted for up to 14 days in any one place. This includes private owners on longer journeys away from their long-term mooring and, in particular, licensed 'continuous cruisers' who live aboard but without a permanent designated mooring. All of these users will be effectively denied the use of significant lengths of the waterways near to HS2 crossings and interfaces where these are affected by excessive noise, made worse and more extensive in the absence of noise mitigation measures such as noise fencing and earth bunding.

#### 'Static' Moorings.

The term 'static moorings' is not recognised on the waterways, and is not defined by HS2. If it means anything it must mean moorings where boats are static, i.e. generally permanently moored.

#### Permanent Moorings.

Permanent moorings for boats, whether 'linear moorings' along the canal bank or in a marina basin are not just parking places for boats but are active recreational sites. Owners will often stay on board for days, not just hours, as part of a community, to carry out maintenance work on their boats or using them as 'country cottages'. On many permanent moorings some of the boats are occupied continuously, whether formally licensed as 'residential boats' or not. Historically, this situation has developed in the absence of specific regulation by local authorities or navigation authorities of permanent residential use. The reality is that many permanent boat mooring sites include permanent residential users.

Whilst the above states that permanent moorings are treated as residential, it is clear from the lack of noise mitigation provision for permanent moorings, not only in this Bill but on HS2 Phases 1 and 2a, that they are not, and only registered 'residential moorings' (such as those on the Grand Union Canal Slough Arm in Phase 1) have been offered noise mitigation.

It is wholly incorrect to characterise all other boat users as "transitory" and not exposed to increased noise for long periods.

Even those users that are just passing through or mooring temporarily will be succeeded by others doing the same, and the high level of recreational usage of the waterways means that at any given location for much of the year there will be a residential presence for significant periods of time.

And on most permanent mooring sites there will be a proportion of the boats being used residentially long term.

It is not acceptable for HS2 to seek to avoid the requirement to protect people's health and wellbeing by misrepresenting their presence as "short and irregular" when in reality many users of the waterways are affected for both long and regular periods. These people will be significantly affected by noise due to both construction and operation of the railway.

The presumption should therefore be that at all waterway crossing or interface locations there will be residentially-used boats present much of the time and that these should be provided with external noise mitigation measures that, recognising the lower sound insulation provided by the shell of a boat, implement or improve on the standards for residential buildings.

## **ES Vol.1: Introduction and methodology (M14)**

Noise and vibration effects considered unlikely to be significant

8.14.30

Taking account of the avoidance and mitigation measures included in the Proposed Scheme and the transient/irregular use of the following receptors, it is unlikely that significant effects will result from construction and/or operation of the Proposed Scheme at:

- facilities that permit short term occupation, typically up to two weeks, such as static moorings, camp sites or caravan parks, but which do not permit permanent residential use;

Comment:

The above statement further illustrates the complete lack of understanding by HS2 Ltd of the use of boat moorings.

The term 'static moorings' is not recognised on the waterways. There are permanent moorings and temporary moorings (as above). Whilst this statement recognises that moorings can be residentially occupied for up to two weeks (rather than the "few hours" claimed in the Sound, noise and vibration Appendix - above) this applies to temporary or visitor moorings, not 'static' ones. Permanent moorings can be residentially occupied permanently, or intermittently, depending on local agreements and boat-owner lifestyles.

Permanent moorings generally permit long term residential occupation, and such moorings in marinas or linear canal bank moorings generally include a mix of occasional and permanent residents. In the absence of any information to the contrary, it should therefore be assumed that all mooring locations include long term residents and that significant adverse effects will result unless noise mitigation measures are included in the Proposed Scheme.