



## Response to HS2 Phase 2b (Crewe – Manchester) Environmental Statement Consultation

Please find below the response of the Canal & River Trust (the Trust).

We're the charity who look after and bring to life 2000 miles of canals & rivers. Our waterways contribute to the health and wellbeing of local communities and economies, creating attractive and connected places to live, work, volunteer and spend leisure time. These historic, natural and cultural assets form part of the strategic and local green-blue infrastructure network, linking urban and rural communities as well as habitats. Our waterways are on the doorstep of 8 million people and reach some of the most deprived communities within the UK. By caring for our waterways and promoting their use we believe we can improve the wellbeing of our nation.

**The Trust's work is focussed on making life better by water. The key objective therefore for the Trust, in responding to the consultation, is to protect our assets and interests and to ensure that as the proposal develops the impacts of the scheme on our inland waterways network or affecting third party restoration projects are appropriately mitigated.**

The Trust has a range of charitable objects:

- o to preserve, protect, operate and manage Inland Waterways for public benefit:
  - o for navigation;
  - o for walking on towpaths; and
  - o for recreation or other leisure-time pursuits of the public in the interest of their health and social welfare;

o to protect and conserve for public benefit sites, objects and buildings of archaeological, architectural, engineering or historic interest on, in the vicinity of, or otherwise associated with Inland Waterways;

o to further for the public benefit the conservation protection and improvement of the natural environment and landscape of Inland Waterways;

o to promote, facilitate, undertake and assist in, for public benefit, the restoration and improvement of Inland Waterways;

o to promote and facilitate for public benefit awareness, learning and education about Inland Waterways, their history, development, use, operation and cultural heritage by all appropriate means including the provision of museums;

o to promote sustainable development in the vicinity of any Inland Waterway for the benefit of the public, in particular by:

o the improvement of the conditions of life in socially and economically disadvantaged communities in such vicinity; and

o the promotion of sustainable means of achieving economic growth and regeneration and the prudent use of natural resources; and

o to further any purpose which is exclusively charitable under the law of England and Wales connected with Inland Waterways;

provided that in each case where the Trust undertakes work in relation to property which it does not own or hold in trust, any private benefit to the owner of the property is merely incidental.

The comments below are made specifically in relation to the Environmental Statement. These comments should be read alongside the matters that the Trust have identified in previous consultations in relation to the locations specified. The Trust wish to re-iterate that we will require the crossing designs to follow the overarching principles for HS2 canal crossings agreed on HS2 Phase 1 and Phase 2a.

The Trust hopes that the following comments are helpful and looks forward to further dialogue with HS2 Ltd to ensure that the developing proposal addresses the impacts on and opportunities for the waterway network.

Please direct any queries to John Harris, HS2 Project Lead, Canal & River Trust, National Waterway Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire, CH65 4HW. Email: [john.harris@canalrivertrust.org.uk](mailto:john.harris@canalrivertrust.org.uk)

**Question 1: Comments on the Non-Technical Summary (NTS)**

No specific comments

**Question 2: Volume 1 – Introduction and Methodology**

No specific comments

**Question 3: Volume 2: Community Area (CA) reports and map books**

Below are the relevant issues for the Canal & River Trust (the Trust) which are applicable for routewide and site-specific matters. If there are no site-specific comments, it should be assumed that the routewide comments apply.

The Trust has agreed with HS2 Ltd the parameters of and process by which, the mitigation of impact on our waterways will be achieved for Phase 1 and Phase 2a of the HS2 project via our side agreements signed in July 2016 and May 2019 respectively. We consider that accommodating these requirements will be the starting point for further discussion on Phase 2b. The Trust will require HS2 to ensure that our infrastructure and equipment (including associated power and communications infrastructure) remains operational throughout the construction and operational phases.

Issue	Comments
Impact on our assets	<p><u>Permanent Works on the Trust Property</u> No permanent works are to be located on the Trust property (other than over sailing our property).</p> <p><u>Advance Maintenance Mitigation Works</u> The waterway wall and towpath within the footprint of the HS2 structures need to be repaired to ensure that no major maintenance will be required for the foreseeable future. Typically, this will comprise waterway wall repair/reconstruction and towpath surfacing. Any such works should extend for a distance either side of the HS2 structure, the distance to be specified by the Trust. This is required to ensure that the Trust does not inherit a maintenance liability due to the HS2 structure. Dredging of the waterway channel also needs to be included in this category. Mitigation works should have the same design life as HS2 structures.</p> <p><u>Ownership</u> All crossing points of our waterways to have clear signage confirming ownership, who to call to report defects, graffiti, etc.</p> <p><u>The Trust Bridge Numbers</u> All bridges will need to have the Trust Bridge numbers - a simple bridge plaque on both elevations is acceptable</p>

The Trust Code of Practice

During the construction and operational phase of HS2 any work adjacent to the canals need to be managed in accordance with the Trust's "Code of Practice for Works Affecting the Canal & River Trust," unless HS2 enters into an alternative agreement with the Trust which would supersede this, (for example a side agreement).

Maintenance and Inspection

We need to agree how HS2 structures are to be inspected and maintained where they interface with the waterway network that we own and manage.

Water Levels and Headroom

The Trust will supply relevant information regarding normal water levels, controlling weir levels etc to be used by HS2 in determining structure clearances over the Trust's property.

Drainage

All crossings over The Trust property need to be designed to ensure that water does not drip onto the canal or towpath.

Air draft

All crossings over our waterways are to provide a minimum air draft of 3.00m and a minimum towpath clearance of 2.75m. Specific requirements for each crossing point shall be provided by the Trust.

Access for the Trust to maintain our navigation

The Trust will require uninterrupted access to its assets to ensure that inspection and maintenance activities are not adversely affected. This is applicable during the construction and operational phases of HS2.

Asset Resilience

The Trust's network is 'working heritage' up to 250 years old and is subject to very occasional breaches/failures which under certain circumstances could adversely affect HS2. The Trust will expect HS2 to inspect/assess its network in the vicinity of any crossing point to ensure that the construction work does not affect stability/resilience of the Trust's network. In addition, HS2 will need to ensure that the risk of a breach/failure affecting HS2 during its operational phase is mitigated to an acceptable level. The Trust will expect any mitigation work to be funded by HS2, with the Trust being indemnified against any potential claim against it by HS2 or the future operators of the railway.

<p>Waterway Operation and Customer Use/Access</p>	<p><u>Keeping the waterways open during the construction phase</u> The Trust requires any works to be carried out in such a manner as to cause as little interference as may be reasonably practicable with the passage of vessels using the Canal and pedestrian access to and along the Canal towpath. Where it is not reasonably practical to avoid such interference, the Trust require agreement with HS2 over the nature and timing of any restrictions on the use of our network by our customers. HS2 are to maintain navigation and towpath access at all times throughout construction and operation; no limitations on headroom / width etc. beyond those already in force from existing structures. Some of the Trust's towpaths are public rights of way and carry national cycle routes. HS2 should consider opportunities for improvements to public access to our waterways that could arise from construction and operational accesses. Any temporary canal closures associated with the works will need to be agreed with the Trust and carried out in accordance with the Trust's Code of Practice (or other agreement with HS2). Any closures and stoppages need to be programmed in well in advance with the Trust and within the annual Winter Stoppage Period.</p> <p><u>Graffiti/Vandalism</u> New structures are at significant risk from graffiti and should be designed accordingly - e.g. anti-graffiti measures, maintenance regimes etc. This is a major challenge for the Trust. We need to agree with HS2 what is to be done with regard to offensive/non offensive graffiti on their structures. The Trust will expect that any offensive graffiti shall be removed from structures crossing its property within 24hrs of it being reported.</p> <p><u>Bird Proofing</u> Crossings to be "bird proofed" over the full width of canal and towpath to prevent infestation with feral pigeons. This does not preclude positive roost/nest features for songbirds or bats.</p> <p><u>Recreational Users</u> The waterway corridors are used by a variety of recreational users and the impact on these users should be considered and mitigated as far as practicable.</p> <p><u>Boating.</u> Use of the waterway corridors for boating supports a number of businesses, including those providing moorings (either on or off the mainline of the waterway), boat building and repair together with boat sales, holiday and day hire and those engaged in passenger carrying. Appropriate mitigation should be employed to address issues resulting from HS2 which would affect these uses and businesses which are an important part of waterways.</p> <p>Moorings are used in a number of ways. Long –term moorings (i.e. the parking space for the boat) may be used for leisure purposes or could be someone's primary residence i.e. a residential mooring. Even use for leisure purposes can mean that boaters spend a</p>

	<p>significant period of time at the mooring location. There are also designated visitor mooring areas i.e. an area used by boaters for mooring whilst on a cruise, including 'continuous cruisers' for whom their boat is their primary residence. In addition to these moorings, the relevant waterway legislation permits casual mooring for up to 14 days at a time by any licensed boat along any length of towpath. The exceptions to this are where the towpath is designated for use by long term permit holders, the moorings are visitor moorings where the duration of stay has a specific time limit or the towpath is designated as a 'no mooring' stretch. Casual and visitor mooring can be undertaken by any boat regardless of how it is being used, whether it is a boater on holiday or someone for whom their boat is their primary residence. The impact of HS2 on all forms of mooring needs to be considered and addressed. Please also see our comments under noise.</p> <p>The impact on third party operated long term moorings should be discussed with the mooring operator. The Trust has popular visitor moorings on the Shropshire Union Canal (Middlewich Branch). The Trust will seek the equivalent reinstatement for the visitor moorings and may wish to discuss other visitor moorings in the area.</p> <p><u>Fishing</u> Car parking and access for those using the waterways for fishing is important and should be safeguarded or improved. Introduction of HS2 structures within the waterway corridor is likely to increase the area of water where fishing will need to be restricted. Opportunities to underground existing overhead line crossings of the waterways may however allow some existing restricted areas to be used for fishing.</p>
Utilities	<p><u>Services on or under the Trust's land</u> The Trust's land includes a significant amount of utility company apparatus. This will in some instances require relocation at the cost of HS2. It includes gas, water, electricity and telecoms apparatus and private pipelines including nationally significant oil pipelines. In addition, the canal provides drainage to a large number of properties and developments. Upon detailed assessment, some of this apparatus may require relocation during the construction of HS2. We will require HS2 and its contractors to honour the existing agreements and protocols that are in place between the Trust and its utility company customers, relating to works that could affect their apparatus.</p> <p><u>Overhead Lines</u> Overhead lines will need to be appropriately relocated and undergrounded wherever possible.</p>
Heritage	<p>The Trust's historic network of waterways should be considered of high heritage value throughout. The heritage value should not be limited to the individual assets which are designated. At the strategic level, Conservation Areas, Listed Buildings and other heritage designations should lead to the early identification of those assets which are of greatest importance however, the historic interest of the waterways comprise many other non-designated structures of high heritage interest. The ES reports generally describe the canals as being of moderate heritage value. However, HS2 will have a significant impact on the setting of the waterways and specific assets (both visual impact and noise disturbance) and this should be acknowledged in a consistent manner across the whole route.</p>

	<p>It is the Trust's policy to treat all heritage assets with the same level of care and protection as those legally designated. HS2 will have a significant impact on the setting of a number of waterways and specific assets (both through visual impact and noise disturbance) and this should be acknowledged and appropriately mitigated.</p>
Biodiversity	<p><u>Protected Species</u> The Trust expects to see generic mitigation / improvements for key waterway corridor species that will be affected such as bats, water voles and otters.</p> <p><u>Floating Water plantain</u> Please see our specific comments below in relation to the Habitat Regulations Assessment and potential impact on the floating water plantain within the Rochdale Canal as a result of the HS2 works.</p> <p><u>Invasive Species</u> The Code of Construction Practice needs to include requirements for pre-construction surveys and standard control measures for the most likely invasive species.</p> <p><u>Vegetation Management</u> The scale of vegetation management is likely to be extensive. This means that creation of compensation areas in advance to address construction and operational impacts will be important. The timing of clearance work will be essential (for instance to avoid impacts on nesting birds). The Trust would be concerned if compensation and landscaping were to be confined to the construction footprint, which will make advance mitigation almost impossible. The Trust would welcome the opportunity to discuss the use of residual and/or redundant parcels of HS2 or third party land adjacent to the canals for advance mitigation.</p> <p><u>Habitat Loss</u> Any habitat compensation within the water on the non-towpath side of the waterway should consider appropriate habitats for fish.</p>
Environmental Enhancement	<p><u>Routewide Consideration of Enhancements</u> At a corridor scale, HS2 will create opportunities for new wildlife connections. This needs to be more explicit in the Environment Statement. For instance, examples of landscaping and reinstatement of construction areas that could connect neighbouring habitats. Where appropriate, the Trust may be able to provide opportunities for compensatory habitat and connections to offset any unavoidable losses from construction.</p>
Water Quality and Resource	<p><u>Pollution Control during construction and from operational drainage</u> It is noted that HS2 Ltd are aware of the issue and are undertaking to control it at construction stage. The Trust will monitor discharge points (both constructed and intercepted existing watercourses). We expect Environment Agency involvement to set site</p>

specific control levels and actions to ensure that pollution of our waterways does not occur but we will also require specific protective measures with oil and silt traps as standard along with other measures such as filtering reed beds and/or pollution control valves. Please also see comments under contaminated land.

Impacts on Water Flows in our canals

There should be no interruption of supply during construction or operation. Any interruption of supply would need to be reviewed to protect wildlife, customers and abstractors. It is essential that the quality of water is not adversely impacted by the works.

Surface water discharges (SWDs)

Where SWDs come into the canal directly or via balancing ponds, these need to be assessed by the Trust to determine whether they would be acceptable. In order to confirm whether your proposed discharges will be acceptable, we will need a definitive list of SWDs so we can organise the process to assess and implement impacts. We understand that HS2 Ltd cannot provide this information until the construction phase. We therefore feel that this issue has not been adequately assessed at this point and HS2 Ltd cannot say the environmental impact is being properly managed. We would expect any powers under the Act to contain a protective provision requiring our consent. The process for this consent is contained in our current Code of Practice for Works affecting the Canal & River Trust (or other agreement with HS2). In addition, the Trust would need to be satisfied that the capacity and effect on any Trust structure affected by a SWD not connected to the canal was properly assessed. Mitigation measures may be required.

Whilst the Trust has endeavoured to identify the drainage routes that are shown to discharge to or beneath our waterways within each Community Area, in a number of cases this is unclear. Any proposals to discharge to or beneath the Trust's waterways should be discussed with the Trust. This is in order to protect the canal from flooding, structural damage, environmental degradation (which includes water quality) and to ensure navigational safety. Any existing inflow of water to the waterway which is affected by the scheme should also be discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.

Where discharge would be to culverts under the canal, these may need to be upgraded/enhanced to have a capacity to deal with the forecasted flows that they would be required to take. If water is to pass through culverts under the canal, HS2 should ensure that they have sufficient capacity for any additional flows and consider the acquisition of the Trust owned culvert. Any such culverts should be included within the land potentially required for construction.

Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.

Waste, Hazardous Materials Use and Storage	<p><u>Control of Hazardous Substances and Waste</u> Code of Construction Practice requirements appear to address this issue, but will need close monitoring/advance liaison with individual contractors in the construction phase.</p>
Contaminated Land	<p><u>Preventing canal pollution</u> Our greatest concern is about mobilising or pumping of contaminated water into surface water courses / the canal. The Construction Code of Practice (CoCP) puts the onus on each of the bidding contractors to undertake risk assessments to manage this risk and that the Trust will be consulted where there is a risk to our waterways. The Trust's position is that the CoCP must state that no excavations, groundwater or surface water may be discharged without analysis demonstrating it is not contaminated. Where groundwater is contaminated, any proposed remediation prior to discharge should be agreed with the Trust.</p>
Nuisance/Noise	<p><u>Noise generated by construction operations</u> The Trust is very concerned about noise disruption in quiet rural areas blighting sections of the waterway. As a minimum during the construction phase - all parts of the waterway network should be protected as "Quiet" areas as per Section 13 of the Code of Construction Practice.</p> <p><u>General comments on Noise</u> Noise protection on viaducts is not as effective as earth structures at reducing the noise contours, so there is a disproportionate impact on waterways at crossing points. Noise protection should be provided to reduce the impact on the waterway corridors (please also see our comments on casual mooring) not only during the construction phase but also in the operational phase.</p> <p>Noise disruption will be frequent and continues for large parts of the day which will be intolerable for mooring sites, including casual moorings. The Trust will require the waterways to be treated as residential areas but allowing for the lower sound insulation provided by the shell of a boat compared to a house. Mitigation for boats off the Trust's waterspace should be discussed with the operators/owners of the mooring sites. As set out above moorings are used in a number of ways.</p> <p>The Trust is extremely concerned that HS2 Ltd has failed to understand the fundamental purpose, function and appeal of canals as quiet and peaceful corridors for exploring and enjoying, whether by boat, by bike or on foot. The Trust is disappointed that HS2 Ltd has determined that in Volume 5 Technical Appendix (Sound, noise and vibration) - Appendix SV-001-00000: Annex G paragraph 3.2 that canals do not merit protection and will not be subject to significant effects and will only enjoy noise mitigation measures where there are permanent moorings. HS2 Ltd has focussed on assessing noise impacts on the canals in relation to permanent residential moorings only. It has failed to address the impact on casual and visitor moorings used as primary residences for 'continuous cruisers'. It has also not addressed the noise impact on the other 90% of users of the canal corridor, e.g. walkers, cyclists, anglers, etc, that will be discouraged from using the canals in the vicinity of interface points undermining the Trust's ability to continue to deliver significant public benefits.</p>

	<p>The fundamental point is that the Trust's customers have until now enjoyed peaceful and quiet visits to the canal at the interfaces with the Proposed Scheme and would continue to be able to do so if the Proposed Scheme had not proposed to cross the canals at the interfaces. It is therefore not unreasonable for the Trust to expect the impact on the canals to be minimised in line with Government policy on noise pollution and for canals and offline facilities to be afforded the same protection as other noise sensitive receptors such as residential properties.</p> <p>The principles to be applied to noise barriers should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a, along with any specific interface requirements identified as a result of this phase. The Trust has a general requirement that the design of acoustic barriers should be subject to their satisfying the requirement of the EMR's, be low level and as close as reasonably practicable to the tracks to minimise visual impact from the canal.</p> <p><u>Lighting</u> It is likely that there will be little lighting associated with the development. Lighting will however be required at some canal crossings, especially where significant "underpasses" are being created either by HS2 alone or in combination with existing structures. In these circumstances there will need to be sensitive lighting design to provide safety and improve the public space while not affecting wildlife which may be deterred by bright lights or adversely affecting customers.</p> <p><u>Vibration</u> There is potential for the effects of vibration to impact on our network and customers. There is limited information in the ES on how vibration during construction and operation has been assessed and mitigated. The Trust is particularly concerned about the adverse effects of vibration on its 250 year old network which is not built to modern engineering standards and tolerances. In the absence of further information, the Trust requests that its infrastructure is categorised as "Potentially Vulnerable Buildings" as per Volume 5: Technical Appendices.</p> <p><u>Odour/Smoke/Dust</u> Construction impacts are considered to be adequately addressed in the CoCP.</p>
Bridge design/ Landscape	<p><u>Bridge crossing designs – permanent crossings</u> Bridges over waterways have a strong impact on the character of a waterway corridor, forming landmarks and often defining waterway character lengths. It is therefore critical that any new major bridging/viaduct structure makes a positive contribution to the waterway corridor, and also the wider associated waterway landscape. The pace of travel along waterways either by boat or on foot is slow and, as a consequence, the approach to structures is also slow and carefully observed, possibly more so than in other transport corridors. As a result, any proposed structures set within the landscape, and the quality of any proposed structure when seen from below, is subject to significant scrutiny, and all elements and faces of the structure's design and finish subsequently need to be of an appropriately high quality.</p>

For the majority of canal crossings, the current "designs" are shown as very simple concrete decks, on concrete piers. The Trust does not consider this to be an adequate or appropriate response to canal crossings. The bridge holes created by the proposed HS2 bridges/viaducts (the space below the span) need to be positive spaces rather than difficult, dead spaces which, experience has shown, can become vandal havens, attracting graffiti and anti-social behaviour, and deterring the positive public use of the historic waterway network. These impacts upon the public amenity of the canal network also create a management and maintenance liability for the Trust.

The Trust considers that the design and construction of the HS2 bridge/viaduct structures should showcase the best in contemporary 21<sup>st</sup> Century architecture and engineering, creating structures that contribute positively to the multiple layers of transport history that are evident along the canal corridor. The design and quality of HS2 crossings of the canals therefore need to be to the highest standards in terms of detailing and finishes, comparable to high profile City Centre design standards. We would therefore expect that each crossing will be subject to careful individual assessment and consideration to establish the subtlety of the design response to the individual crossing points. The Trust believes that creative, elegant use of the elevations, piers, soffits, decks, towing paths and other surfacing, lighting etc. can create crossings appropriate for their setting. Care will also need to be taken to ensure the proportions of the structures are considered in the context of the waterway corridor, therefore consideration needs to be given to the aesthetics derived from the relationship of span, deck depth, pier size, etc. In this regard the Trust consider that all the canal related crossing associated with Phase 2b should be assessed as Key Design Elements.

The Trust have produced a Design Principles Document which has previously been applied by HS2 Ltd on other phases to establish appropriate design approaches to HS2 Canal crossings. The Design Principles have been established within the design language of HS2, and to reflect the character of each waterway area and the story of each canal, and to meet our expectations for high quality structures and spaces.

With regard to the visual impact of the crossing points, the Trust strongly believes that further soft landscaping measures, appropriate to the character of the area, should also be employed to reconcile the new crossing structures into the waterway corridor, and the wider landscape, and mitigate the visual impact of any new structures. The implementation of structure planting carefully designed and positioned to provide an oblique, framing buffer to the bridge crossings, could be employed to further exploit the linear nature of views within the waterway corridor. This could be a useful device in narrowing the visual field and therefore reducing the impact of adjacent or approaching railway infrastructure. This structural planting could also assist in blending the new crossings into the existing landscape, by responding to local field patterns and local hedge and woodland species mixes. Site by site assessments, and subsequent proposals, are once again required to ensure local appropriateness, with early planting works undertaken to establish a robust landscape structure, ideally to help screen construction and certainly to form a screen upon completion of HS2 major works.

The Trust would welcome the opportunity to work with the HS2 design teams on the Canal & River Interfaces as follows:

- a) A Trust representative on the Design Review Panel; and
- b) The Trust will give approval for the canal crossings providing that it can be demonstrated that the following issues have been addressed by the HS2 design team and incorporated in the design where reasonably practicable. These design principles will establish an appropriate site specific crossing design for each HS2 canal interface, in accordance with the principles set out in the Canal & River Trust HS2 Design Principles Document addressing:
- Supporting Structures - Pier position and design;
  - Supporting Structures - Abutment position and design;
  - Extent of adjacent viaduct;
  - Parapets;
  - Soffit;
  - Quality standards for exposed finishes (concrete, steel etc);
  - Embankments;
  - Towing paths and other surfacing;
  - Maintenance access to HS2;
  - Associated and relocated access roads;
  - Lighting (where appropriate);
  - Drainage;
  - HS2 services integration (cabling , ducts etc);
  - HS2 offline –infrastructure (service boxes etc);
  - Associated fencing and other furniture details;
  - Associated soft landscaping measures to reconcile the new crossing structures into the waterway corridor, and the wider landscape, and mitigate the visual impact of any new structures. Site by site assessments, and subsequent proposals, to be undertaken to ensure local appropriateness, with early planting works undertaken to establish a robust landscape structure to help screen construction and certainly for completion; and
  - Art to help provide interest, and to tell the story of the waterways.

Bridge crossing designs – temporary crossings

Three temporary crossings of Trust owned waterways are shown within the documentation. These crossings will be in use for a number of years and will, in effect, come to be considered as permanent features in the canalscape. The Trust will require all temporary crossings to be of high design quality and designed subject to the following minimum requirements:

- no construction on Trust owned land;
- minimum air draft of 3.00m for leisure waterways; and
- minimum towpath headroom of 2.75m
- suitable restoration of the land following the removal of the bridge.

The design, appearance, installation/dismantling method, maintenance and inspection regime of the temporary bridge crossings shall be agreed with the Trust.

	<p><u>Mitigation Areas</u>  Further details are required for mitigation / landscaping areas. The Trust would like to see some screen planting at the edges of construction areas first with fast growing native hedgerow plants at the boundary to help screen the construction phase and the operational phase from day one. This will also help to channel wildlife away from the construction areas to crossing points such as the canals. Planting should be kept a minimum of 5m from the water's edge and further from any structures (locks/waterway walls, etc.) whereby 10m would be more appropriate. Appropriate native species mix should be based on existing local woodland character. Also, HS2 Ltd should explore opportunities for other priority habitats like heathland and grass meadows to be part of the mitigation areas on construction subsoil such as embankments and spoil areas.</p> <p>The Trust is also concerned at the potential impact of embankments and viaducts on wet meadows and other sensitive canal-side landscape types. These landscape character types are visually important to the waterway corridor but equally important as habitat areas, supporting rare and endangered species. Retaining adequate parcels of accessible land between the canal and the HS2 route will enable traditional farming practices to continue to maintain these sensitive landscapes.</p>
Socio-Economics and Restoration	<p><u>Impact of HS2 development on waterway socio-economic context.</u>  The inland waterways of England and Wales provide many benefits; social (including health), economic and environmental. The provision of socio-economic benefits varies from waterway to waterway, ranging from minor to highly significant. It is the Trust's aim to ensure that the wider uses for and dividends from the waterways are understood so that their potential to add value and help deliver objectives at the national, regional and local level is realised.</p> <p>In particular, the promotion of public health and wellbeing is becoming an ever more important aspect of policy across local and national government. It is acknowledged that fostering a physically and mentally healthy population leads to higher levels of both labour force participation and productivity, whilst also reducing health service and social security costs. Whilst there are many aspects of health promotion, the availability of high quality green/blue spaces such as those provided by waterway corridors has assumed increasing importance in recent years and even more so during the Covid pandemic. They can act as an easily accessible multi-functional health asset encouraging people to take more exercise, feel more confident about their community and provide a peaceful environment that can offer a real alternative to undertaking journeys by car or bus.</p> <p>The Trust therefore considers that inland waterways make a valuable contribution to socioeconomic outcomes including measurable benefits to people's quality of life. They provide recreation, transport and land drainage. They act as a focus for the regeneration of waterside areas. They provide an important environmental, landscape and heritage resource.</p>

Health	<p>The estimated total number of visits to our canals and rivers rose to nearly 750 million in the year 2020/21, reflecting their tangible link to the everyday lives of so many people and demonstrating the significant reach of our ‘on the doorstep’ natural network and its impact on our national health and wellbeing.</p> <p>Indeed, during a typical two week period 4.3m people visit one of our waterways often doing multiple activities, this includes 2m taking a walk/rambling; 1m walking a dog, 1.4m just sat/stood by water, 180k fishing; 690k cycling; 650k running; 1.2m commuting; 680k visiting canal-side attraction; 350k boating with an engine and 142k boating without an engine (i.e canoeing; kayaking, paddle-boarding etc).</p> <p>One of the Trust’s charitable objectives is to preserve, protect, operate and manage Inland Waterways for public benefit: for navigation, for walking on the towpaths and for recreation or other leisure-time pursuits of the public in the interest of their health and social welfare. As stated previously the towpaths, where they do not carry a public right of way, generally benefit from permissive access. In some areas they also carry the National Cycle Network (NCN). Given the use of the waterways, the impacts on waterway use should be considered. Correspondingly there should be appropriate mitigation in both the construction phase and operational phase. They should also be considered in relation to neighbourhood quality in both the construction and operational phases.</p>
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**SITE SPECIFIC COMMENTS**

**Community Area Report MA02 – Wimboldsley to Lostock Gralam**

**This Community Area Report covers 5 general areas of interaction between the Trust’s network and the HS2 proposal, namely:**

1. The Rolling Stock Depot and the Shropshire Union Canal Underbridge crossings of the Shropshire Union Canal (Middlewich Branch);
2. The parallel running of the River Dane Viaduct;
3. The River Dane Viaduct crossing of the Trent & Mersey Canal;
4. The Puddinglake Brook Viaduct crossing of the Trent & Mersey Canal; and
5. The Trent and Mersey Canal Underbridge.

All of these canal related crossings should be considered as Key Design Elements for further engagement.

Work No	Canal	Issue/Comment	Action
Work No 1/31 Rolling Stock Depot	Shropshire Union	<p data-bbox="600 229 1178 261"><b>LANDSCAPE AND ECOLOGICAL MITIGATION</b></p> <p data-bbox="600 293 1084 389"><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-06-308b and CT-06-309-L1</b></p> <p data-bbox="600 421 1532 683">The Trust has concerns regarding the proposed landscape and ecological mitigation shown. The landscape character of the area consists of small coppices of woodland and open fields which respond to the topography of the land. We have concerns that the proposed large tree belts as shown on Map CT-06 308b in particular around the access road to the balancing pond (Grid H4, H3, I3, J3) and extensive areas of woodland planting (Map CT-06-309-L1 (Grid F6, F7, G7 and G8)) will adversely change the open landscape character of the area.</p> <p data-bbox="600 715 1532 976">The location of the woodland habitat creation is of concern to the Trust. It requires a more fragmented approach if it is to reflect the landscape character of the area. The Trust considers that the location/design of the woodland habitat creation should be reconsidered. This should take account of all the issues raised by the Trust. The location of the woodland habitat creation should consider supplementing the existing woodland framework, providing a link to the canal and the new habitat proposed adjacent to the West Coast Main Line.</p> <p data-bbox="600 1008 1532 1174">Six ecological mitigation ponds are shown along the offside of the canal (Map CT-06 308b (Grid G2, H2, I2, J2 and J3)). These would be sited close to the offside of the canal we would require further details on these in terms of depth and proximity to the canal to better assess the potential impact on the structural integrity of the canal.</p>	<p data-bbox="1556 229 2033 389">The landscape treatment to the east of the canal between the West Coast Main Line need to be agreed with the Trust to minimise views of the Rolling Stock Depot (RSD).</p> <p data-bbox="1556 421 2033 619">HS2 to re-consider the landscape mitigation strategy which better reflects the existing landscape character of the area and adheres to the HS2 Design Principles on Place and Identity.</p> <p data-bbox="1556 651 2033 785">As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p> <p data-bbox="1556 817 2033 912">The Trust to be consulted on further details relating to the ecological mitigation ponds next to the canal.</p>

	Shropshire Union	<p><b>BALANCING PONDS AND RAILWAY DRAINAGE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-06-308b</b></p> <p>Wimboldsley culvert is shown on Map CT-06-308b (Grid I4, I5, I6 and I7) passing beneath the Rolling Stock Depot and West Coast Mainline and appears to be potentially receiving a large volume of water from a balancing pond (Grid I8) and drainage ditches at the toe of the Walley's Green Embankment (Grid F7, G7, H7, I7, I8, J7) as well as the overflow of the large balancing pond (H4, I4 and J4). These all join an existing watercourse which passes into a culvert under the canal (Grid J2).</p> <p>The Trust has serious concerns in relation to these drainage arrangements. The culvert under the canal would be unable to cope with any increase in water flow. It should not be assumed that our culverts have capacity to cope with any material increase in water flow. The culvert would need to be upgraded/enhanced to have a capacity to deal with the forecasted flows that it would be required to take. If water is to pass through this culvert, HS2 should ensure that it has sufficient capacity for any additional flows and consider the acquisition of the Trust owned culvert. The culvert should be included within the land potentially required for construction. A canal breach recently occurred on this section of canal and as such appropriate drainage arrangements and supporting infrastructure is critical.</p> <p>Similarly, the drainage from the balancing pond (Grid D4) and A530 Nantwich Offline culvert (Grid E3, E4, D4) both pass into a ditch which flows towards the canal and passes into a culvert under the canal (Grid F1). This culvert would be unable to cope with any increase in water flow. The culvert would need to be upgraded/enhanced to have a capacity to deal with the forecasted flows that it would be required to take. If water is to pass through this culvert, HS2 should ensure that it has sufficient capacity for any additional flows and consider the acquisition of the Trust owned culvert. The</p>	<p>The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>To mitigate the risk to the Trust of the additional flows through the culvert(s) and the consequential increase in wear and tear the Trust will require HS2 to acquire the Trust owned culvert(s). The culvert should be included within the land potentially required for construction.</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>
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		culvert should be included within the land potentially required for construction.	
Work No 1/32 Viaduct crossings over the canal	Shropshire Union	<p><b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2 Community Area Mapbook</b> <b>MA02 Wimboldsley to Lostock Grlam</b> <b>Map CT-05-310</b></p> <p>Map CT-05-310 (Grid D5, D6, E5, E6, E7, E8, E9) indicates that approximately 200m of the Shropshire Union Canal (Middlewich Branch) will be potentially required during the construction phase. The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The closure of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway (which includes the towpath). The towpath carries the NCN route 5 in this location; and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction.</li> </ol>	The Trust objects due to the impact on our customers. The principles to be applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface requirements identified as a result of this phase.
Work No 1/32 Viaduct crossings over the canal	Shropshire Union	<p><b>DESIGN AND VISUAL IMPACT OF VIADUCTS 1, 2 and 3</b></p> <p><b>Volume 2: Community Area Mapbook</b> <b>MA02 Wimboldsley to Lostock Grlam</b> <b>Maps CT-05-310 and CT-06-310.</b></p> <p>The Trust are deeply concerned and object to the Shropshire Union Canal Viaducts 1, 2 and 3 as shown, especially given the three viaduct crossings would be at different heights over the canal (with viaduct 1 and 2 being up to 7m in height and viaduct 3 being up to 8m in height above existing ground level). Substantial earthworks will also be required to carry these viaducts over the canal. The embankments need to be constructed so they do not</p>	<p>We would welcome discussions with HS2 to investigate potential solutions to this very difficult crossing which should be a Key Design Element.</p> <p>The design of the crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a. In particular, the arrangement of piers and bank seats will need to be given further consideration to address the potential</p>

		<p>interfere with the operation of the canal or impose loadings on the Trust owned land.</p> <p>The Trust have serious concerns in relation to what the waterway users experience of the structures would be from the canal corridor with the potential clutter of the multiple piers and earthworks. A consequence of the fragmented crossing is that it does create visually awkward and contrived earthworks between each crossing. The major adverse significant visual impact of these viaducts would be further compounded by the staggered bank seats which the crossings would be constructed upon. We agree that the works will result in a high magnitude of visual change and high sensitivity and result in a major adverse significant effect. We consider HS2 should explore options and alternative designs with the Trust for this difficult crossing.</p> <p>Work would also be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal.</p> <p>On the offside of the canal there could be potential for the bank seats of all three crossings to be combined into one to provide a neater finish and remove the awkward spaces these create. A combined bank seat and toe of the embankment could then be moved closer to the canal. This would remove the need for both piers and bank seats on the offside and the awkward deadspace these create, (Map CT-05-310 (Grid D5 D6).</p> <p>The restoration, treatment and land use of the strips of land between the viaducts adjacent to the canal will be critical (Grid D5, D6 southwards, Grid E5, E6 northwards). Currently it is unclear how HS2 propose to treat this space and canal edge, including HS2 security arrangements. Clarity on the landscape treatment is required and the Trust require discussions with HS2 on this.</p>	<p>clutter of multiple piers and the awkward spaces created.</p> <p>The piers would need to be moved so they do not encroach onto the canal towpath.</p> <p>The Trust are open to exploring options for this difficult crossing with HS2, including the potential creation of a tunnel structure at this location instead of the multi-viaduct arrangement.</p>
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<p>Work No 1/32 Viaduct crossings over the canal</p>	<p>Shropshire Union</p>	<p><b>PIER SITING AND ALIGNMENT</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Maps CT-05-310 and CT-06-310.</b></p> <p>The Trust object to the siting of piers of the viaduct crossing on the canal towpath (Grid D5, E6) this would be unacceptable. These need to be removed from encroaching onto the canal towpath and NCR.</p> <p>The Trust object to the alignment of the piers of each of the viaducts over the canal which would all appear to be arbitrary and pay no regard to the alignment of the canal and do not adhere to the HS2 Design Principles for Waterway Crossings. The piers should be aligned so that they are orientated/aligned to the canal and be of a similar design to provide a degree of commonality between them.</p> <p>Work would be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal</p>	<p>HS2 should ensure that the viaduct piers do not encroach onto the canal towpath</p> <p>The design of the crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p> <p>The structure should be considered as Key Design Element.</p>
<p>Work No 1/32 Viaduct crossings over the canal</p>	<p>Shropshire Union</p>	<p><b>CANAL BOUNDARY TREATMENT AND LANDSCAPING</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Maps CT-05-310 and CT-06-310.</b></p> <p>The existing towpath hedge line is raised from the towpath and restricts views to the north. The retention and maintenance of the hedge line, outside of the crossings, is critical to providing a degree of protection to the towpath side and the canal character, amid the significant adverse impact of this HS2 Crossing. The existing hedgerow at back edge of the towpath would likely be removed to accommodate the works and replacement planting would be unlikely to survive. We ask HS2 to clarify what boundary treatment/landscaping would be provided here. Map CT-06-310 (Grid D5,</p>	<p>We ask HS2 to clarify what boundary treatment/landscaping would be provided here as no replacement landscaping between the works and canal towpath are currently shown.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>

		D6) show no replacement landscaping between the works and canal towpath.	
<b>Work No 1/32 Viaduct crossings over the canal</b>	Shropshire Union	<p><b>YEW TREE FARM ACCESS TRACK</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gram Maps CT-05-310 and CT-06-310</b></p> <p>The Trust have serious concerns and objects to the space to be created between the canal towpath, viaduct piers, Yew Tree farm access track and bank seats which would be incredibly awkward (Map CT-06-310, Grid D5, E6).</p> <p>The adverse visual impact would be compounded due to the siting of the farm access track and the likely engineering works required to achieve head clearance under the viaduct. Due to the existing level of the canal/towpath the farm access track would need to be formed in a cutting below towpath level by quite a significant distance. The head clearance above the towpath to the soffit of the viaduct is likely to be in the region of 2.8m. To allow farm vehicles to use the access track and have sufficient clearance it would need to be approximately 3m lower. As a consequence, the canal would need to be retained somehow here to support the canal. This is of significant concern to the Trust both in structural and visual terms. The treatment of this space and how it would be viewed from the canal corridor is of critical importance. Especially given the various security fences and associated paraphernalia that would be required to secure this access track and earthworks.</p> <p>Work would also be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal.</p>	<p>We would welcome discussions with HS2 to investigate potential solutions to this awkward relationship created by this farm access track.</p> <p>If the farm access cannot be rerouted, it is suggested that an additional span is introduced into the Shropshire Union Canal Viaducts 1, 2 and 3 (Map CT-06-310, Grid D5, E6). The farm access track could then pass through the northernmost span. The existing ground is likely to be more uniform in level in this location reducing the potential for retaining structures being required to support the canal. If insufficient headroom is available in this location there is the potential for the existing land level to be reduced. Appropriate screening of the land from the canal would also be required.</p>

<p><b>Work No 1/32 Viaduct crossings over the canal</b></p>	<p>Shropshire Union</p>	<p><b>LANDSCAPE AND ECOLOGICAL MITIGATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-310 and CT-06-310</b></p> <p>The proposed woodland habitat creation planting (Grid D6, D7, E7, D8, E8, D9 and E9) would significantly change the landscape character however this is not assessed within the Community Area Report. The Trust recognise that there is a balance to be struck between any harm to the landscape of creating woodland and the benefits of screening and absorbing the HS2 works into the landscape.</p> <p>In this location, it is suggested that Landscape mitigation planting is required adjacent to the HS2 Infrastructure in Grid D6. From a landscape perspective, in order to preserve the open landscape character, the fields adjacent to the canal to the east of Grid D6 should not be given over to woodland habitat creation.</p>	<p>HS2 to re-consider the landscape mitigation strategy which better reflects the existing landscape character of the area and adheres to the HS2 Design Principles on Place and Identity.</p>
	<p>Shropshire Union</p>	<p><b>CANAL BRIDGE No.23 AND PUBLIC FOOTPATH 1/1</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-309-L1</b></p> <p>The Trust objects to our canal bridge no.23 being land potentially required during the construction phase (Grid I8). The Trust require HS2 to explain their intentions regarding use of this bridge.</p> <p>Bridge no.23 also carries a public footpath. The map shows public footpath Wimboldsley 1/1 would be extinguished from the canal bridge back towards the Rolling Stock Depot (Grid I8, I9, H9, H10, G10). The canal towpath here also carries National Cycle Route 5 which leaves the canal towpath at this bridge and heads westwards towards Clive Back Lane. The closure of public footpath 1/1 may be detrimental to our customers who may use this as a route to gain access to the canal corridor and National Cycle Route 5. It</p>	<p>We ask HS2 to provide an alternative realigned public right of way to the canal corridor following public footpath Wimboldsley 1/1 being extinguished. A public footpath could possibly utilise the new realigned Clive Green Lane and provide a suitable ramped access at the Shropshire Union Canal Offline Overbridge.</p> <p>HS2 Limited should consider retaining FP 1/1 from the T-junction of the Lea Hall Access Road (Grid F4 Map CT-06-309) and westwards to canal bridge no.23.</p>

		would not appear that a new/realigned public right of way to the canal is being provided and we would ask that HS2 clarifies this.	We ask for clarification from HS2 why our canal bridge no.23 is shown as being required for construction, but not as a construction route.
	Shropshire Union	<p><b>CONSTRUCTION ROUTE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Grlam Map CT-05-310</b></p> <p>The Trust owned bridge on Map CT-05-310 (Grid E9) is shown as being land potentially required during the construction phase along with Coalpit Lane. Although not shown as a construction route which seems to end (Grid B8 and J8) at either end of Coalpit Lane. The Trust objects to the inclusion of our bridge. The Trust require HS2 to explain their intentions regarding the use of this bridge.</p>	We ask for clarification from HS2 why our canal bridge is potentially required for construction, if it is not a construction route.
	Shropshire Union	<p><b>ACCESS TO BALANCING POND</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Grlam Map CT-06-310</b></p> <p>The Trust objects to the siting of a large turning head to serve the balancing pond (Grid D6, D7, E7). It is unclear why the access road turning head needs to encroach so close to the offside of the canal corridor and we ask that this access road is reduced/truncated so it is set further from the canal.</p>	The access road and turning head should be reduced/truncated to set it further back from the canal and confined to Grid D7.
	Shropshire Union	<p><b>BALANCING PONDS AND RAILWAY DRAINAGE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Grlam Map CT-06-310</b></p>	The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be

		<p>The drainage from balancing pond (Grid G7) and the toe drainage from Stanthorne South Embankment No.2 would all enter the same watercourse which passes into a culvert under the canal (Grid E9). This culvert would be unable to cope with any increase in water flow. The culvert would need to be upgraded/enhanced to have a capacity to deal with the forecasted flows that it would be required to take. If water is to pass through this culvert, HS2 should ensure that it has sufficient capacity for any additional flows and consider the acquisition of the Trust owned culvert. The culvert should be included within the land potentially required for construction. A canal breach recently occurred on this section of canal and as such appropriate drainage arrangements and supporting infrastructure is critical.</p> <p>A drainage ditch is shown from this balancing pond (Grid E7) and runs parallel to the canal to Grid E9, under Coalpit Lane and links to a watercourse downstream of a culvert under the canal. Subject to the construction of this ditch it should not impact the canal.</p> <p>The Trust own an existing culvert just to the east of the proposed viaduct crossing (Work 1/32) and would be likely to be within the land potentially required during construction Map CT-05-310 (Grid D5). Any works or vegetation planting has the potential to damage culverts and hinder access. Currently, most of the culverts will be accessible over fields and these routes should be maintained if possible or alternative routes proposed.</p>	<p>assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>To mitigate the risk to the Trust of the additional flows through the culvert(s) and the consequential increase in wear and tear the Trust will require HS2 to acquire the Trust owned culvert(s). The culvert should be included within the land potentially required for construction.</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>
<p><b>Work No 1/39</b>  <b>Temporary bridge over the canal for Work No. 1/32</b></p>	<p>Shropshire Union</p>	<p><b>TEMPORARY BRIDGE OVER CANAL FOR WORKS 1/32</b></p> <p><b>MA02 Wimboldsley to Lostock Gralam</b>  <b>Map Book Plan 1-24</b></p> <p>The plan shows the possible location of a temporary bridge over the canal to facilitate access for works 1/32. For continuity it is unfortunate that the temporary bridge is not shown on Map Number CT-05-310. The temporary bridge would be within Grid D5.</p> <p>The Trust would need to ensure that adequate air draft and towpath headroom clearance is provided. The air draft required for navigation shall</p>	<p>The design of the temporary crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p>

		<p>be no less than 3m measured across the whole width of the navigation and a minimum of 2.75m for towpath clearance unless otherwise agreed by the Trust. There is concern that there is a risk of insufficient headroom over the canal which would restrict or prevent navigation.</p> <p>The temporary bridge lies within a sensitive landscape, with the canal being an important waterway destination. It also forms part of a wider sensitive landscape context. Its design needs to be appropriate.</p> <p>Wherever possible a 10m buffer (with early supplementary planting if required) should be provided to protect the canal side vegetation within the land potentially required during construction on both sides of the canal.</p> <p>Work associated with the temporary bridge would be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal.</p>	
<p><b>Work No. 1/38 Clive Green Lane</b></p>	<p>Shropshire Union</p>	<p><b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-310</b></p> <p>The details show that land potentially required during the construction phase extends into the canal (Grid B2 B3). The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The restriction of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway, and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction.</li> </ol>	<p>The Trust objects due to the impact on our customers. The principles to be applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface requirements identified as a result of this phase.</p>

<p>Work No. 1/38 Clive Green Lane</p>	<p>Shropshire Union</p>	<p><b>CANAL OFFLINE OVERBRIDGE (CARRYING REALIGNED CLIVE GREEN LANE)</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Map CT-05-310 and CT-06-310</b></p> <p>The alignment of the Shropshire Union Canal Offline Overbridge is shown as being perpendicular to the canal corridor, which is welcome (Grid B2, B3). The MA02 Community Report Wimboldsley to Lostock paragraph 2.2.16 (page 30) sets out the crossing would be 6m above ground level and water level.</p> <p>The Trust would like to be involved in the design of this highway bridge crossing and ask that it embodies the HS2 Design Principles for Waterway Crossings which have been adopted elsewhere along the route. Subject to the new highway and bridge having footways and the extent of these, we would welcome the creation of an appropriate Equality Act compliant ramped access from this new bridge/highway to the canal. A suitable ramped access could be constructed at right angles to the canal corridor along the southern Clive Green Lane embankment (Grid B2). This would promote and encourage walking and cycling and provide a direct link between the canal which carries NCR5 and the highway. The provision of a ramped access would align with HS2 Information Paper E29: Active Travel, which at paragraph 2.5 states the aim <i>“to promote sustainable and accessible transport choices for all”</i> and <i>“improve provision and create new connections for active travel”</i>.</p> <p>This is especially the case that appropriate Equality Act compliant access is provided given that following the closure of Footpath Wimboldsley 1/1, where it leaves the A530 Nantwich, users will be diverted along the Shropshire Union Canal to Clive Green Lane and the Rolling Stock Depot. (as set out at MA02 Community Report Wimboldsley to Lostock paragraph 2.2.16 (page 27)). It is therefore critical than suitable towpath access for all users is provided to the canal to maximise this sustainable active travel route.</p>	<p>We would welcome further discussions with HS2 in relation to the design of this crossing, associated earthworks.</p> <p>We would also welcome a commitment from HS2 to provide an Equalities Act compliant access to the canal for pedestrians and cyclists (and align with HS2 Information Paper E29: Active Travel). A suitable ramped access could be constructed at right angles to the canal corridor along the southern Clive Green Lane embankment (Grid B2). This would promote and encourage walking and cycling. We would welcome further discussion with HS2 on this matter.</p> <p>The design of the highway crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p>
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<p><b>Work No. 1/38 Clive Green Lane</b></p>	<p>Shropshire Union</p>	<p><b>STOPPING UP CLIVE GREEN LANE AND ACCESS TO BALANCING PONDS</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map Number CT-05-310 and CT-06-310</b></p> <p>The details show that the existing Clive Lane Bridge would be retained and stopped up as a highway at Wharf Cottage (Grid B3). Although it would appear that an HS2 access would also be created here to enable access to a balancing pond. This creates an awkward arrangement with two turning heads effectively side by side. This detail should be reconsidered. It is also unclear how either of the accesses would be secured and we would welcome this being clarified.</p> <p>No mitigation landscaping is shown on the northern side of these access tracks and as such would be visible from the canal corridor. This would not be acceptable to the Trust.</p> <p>It is also unclear how the stopped-up highway would be finished in a manner appropriate to the character of the area. The Trust would also like to have vehicular access here to be able to maintain the retained Clive Green Bridge. We would also welcome clarification on the treatment of the space on the towpath side of the canal between the new highway bridge and retained Clive Green Bridge (Grid B3). This would create an awkward deadspace and would require a suitable treatment to deal with potential anti-social behaviour.</p> <p>A public right of way will need to be maintained over the retained Clive Green Lane Bridge to allow people to access the canal corridor. We consider it would be appropriate to create an Equality Act compliant ramped access from the bridge to the canal that would be suitable for all users. This would promote walking and cycling.</p>	<p>We would welcome discussions with HS2 in terms of the future of the existing Clive Green Bridge and future access arrangements here. We would also welcome discussion with HS2 in relation to providing an Equalities Act compliant access to the canal for pedestrians and cyclists.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>

	Shropshire Union	<p><b>CONSTRUCTION ROUTE OVER CLIVE GREEN CANAL BRIDGE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-310</b></p> <p>The details show that the Trusts existing canal bridge would be used during the works as a construction traffic route (Grid B3). The road narrows to 4.175m over the bridge, making it effectively single lane and due to its profile and alignment often results in grounding of long vehicles or those with low ground clearance. HS2 should take the existing bridge constraints into account to ensure construction traffic does not damage the bridge.</p> <p>The Trust will require measures to control the increased traffic over the bridge and measures to be installed to prevent damage to bridge parapets or other damage. This may include traffic lights and a re-profiling of the approach slopes to reduce the risk of vehicles grounding. The Trust may require cameras to be installed on the bridge to record any vehicular impacts.</p>	We ask that HS2 assess the weight restriction of the bridge and ensure construction traffic using this route would not cause damage to our bridge and incorporate mitigation measures to protect the bridge.
	Shropshire Union	<p><b>CONSTRUCTION TRAFFIC ROUTING</b></p> <p><b>Volume 2: Community Area Mapbook M A02 Wimboldsley to Lostock Gralam Maps CT-05-310 (Grid B10) and CT-05-310-R1 (Grid E8).</b></p> <p>The details show a construction traffic route heading north east along Nantwich Road (towards Middlewich) from Clive Green Lane (CT-05-310 (Grid B10)). On the edge of Middlewich, the road passes under the canal, the canal being carried by the Trust owned Stanthorne Aqueduct which is a Grade II listed structure (CT-05-310-R1 (Grid E8)).</p> <p>This aqueduct has a height restriction and suffers from regular vehicle strikes from HGV's, including HGV's getting stuck under the structure. The Trust require HS2 to limit construction traffic or diverted traffic to vehicles</p>	We ask that HS2 assess the height restriction of the aqueduct and ensure construction traffic using this route would not cause damage to our listed aqueduct and incorporate mitigation measures to protect it.

		with a low vehicle height to reduce the likelihood of vehicle strikes. The Trust may require cameras to be installed here to record any vehicular impacts.	
	Shropshire Union	<p><b>TEMPORARY HIGHWAY DIVERSION</b></p> <p><b>Volume 2: Community Area Mapbook</b>  <b>MA02 Wimboldsley to Lostock Gramam</b>  <b>Map CT-05-310</b></p> <p>The Trust objects to the temporary highway diversion through a triangular parcel of land, which is within the ownership of the Trust, and is currently mature woodland (Grid B2, B3).</p> <p>It is likely the majority of this woodland would be felled/cleared to accommodate the temporary highway diversion. There is also an open watercourse which passes through this woodland and is culverted under the canal. The Trust are deeply concerned about the unnecessary loss of this area of woodland which is within our ownership and ask HS2 to explore an alternative temporary alignment of the highway which preserves this area of mature woodland or at least consider an alternative phasing of the works which retains the use of the existing Clive Green Bridge for as long as possible and avoids the need for this temporary highway diversion.</p> <p>If an alternative route cannot be found, then we would ask that the woodland clearance is minimised as far as practicable. It would also be important that the existing watercourse through this woodland is protected during the works.</p> <p>We ask HS2 to clarify what the future use of this land would be following the temporary highway diversion. No landscape mitigation is proposed for this area (Map CT-06-310 (Grid B3). We would ask HS2 to review alternatives to the temporary road diversion through the area of woodland within our ownership.</p>	<p>We would ask HS2 to review all alternatives to the temporary road diversion through the area of woodland within our ownership.</p> <p>We would also welcome clarification on the future use of this land following the temporary highway diversion.</p>

	Shropshire Union	<p><b>BALANCING PONDS AND RAILWAY DRAINAGE</b></p> <p><b>Volume 2: Community Area Mapbook</b>  <b>MA02 Wimboldsley to Lostock Gralam</b>  <b>Map CT-06-309-L1 and Map CT-06-310</b></p> <p>Map CT-06-309-L1 show a drainage ditch running to the canal (Grid I8) and then running parallel to the offside of the canal (Grid J9 J10). A further drainage ditch runs along the southern toe of the Clive Green Lane realignment embankment (Map CT-06-310 Grid A2, B2, B3, A3, A4, A5).</p> <p>Both of these drainage ditches pass into a watercourse which is culverted under the canal (Grid A2). This culvert would be unlikely to be unable to cope with any increase in water flows. The culvert would need to be upgraded/enhanced to have a capacity to deal with the forecasted flows that it would be required to take. If water is to pass through this culvert, HS2 should ensure that it has sufficient capacity for any additional flows and consider the acquisition of the Trust owned culvert. The culvert should be included within the land potentially required for construction.</p> <p>It would appear that there is a direct discharge to the canal, Map CT-06-310 (Grid B3), which takes the drainage from ditch along the toe of the northern Clive Green Lane embankment and overflow from the balancing pond (Grid B4 B5). This balancing pond takes water flows from the Stanthorne Culvert (Grid A5, A6), the Clive Green South Embankment No.3 as well as the drainage ditch shown adjacent to the realigned Clive Green Lane (Grid A6, A7, A8). Any discharges to the canal would require the separate consent of the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p> <p>It is unclear from Map CT-06-310 whether the other two balancing ponds (Grid A4) and (Grid B3, B4) would also discharge to the canal. If not, we ask HS2 to clarify where they would discharge to, as neither appear to have an outlet. Indeed, the balancing pond Grid A4 does not appear to have any inlets either. Vegetation planting has the potential to damage culverts and hinder access. Currently, most of the culverts will be accessible over fields</p>	<p>The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>To mitigate the risk to the Trust of the additional flows through the culvert(s) and the consequential increase in wear and tear the Trust will require HS2 to acquire the Trust owned culvert(s). The culvert should be included within the land potentially required for construction.</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p> <p>We ask for clarification from HS2 in relation to the discharge from the balancing ponds and drainage arrangements here.</p>
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		<p>and these routes should be maintained if possible or alternative routes proposed. Landscaping mitigation planting should be designed accordingly.</p> <p>There is a Trust owned culvert in this area (Map Number CT-05-310 and CT-06-310 Grid E7). The wetland habitat creation needs to be designed to ensure that it does not affect the integrity of the canal, the culvert, its headwalls or the flow through the culvert.</p> <p>There is a further Trust owned culvert in this area (Map CT-06-310 Grid D5). The construction works need to be planned and the Shropshire Union Canal Viaducts (Work 1/32) need to be designed to ensure that they do not affect the integrity of the canal and the culvert, its headwall or the flow through the culvert. Alternatively, appropriate alternative provision should be made for this drainage.</p>	
		<p><b>LANDSCAPE AND ECOLOGICAL MITIGATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-308b, CT-06-308b, CT-05-309-L1 and CT-06-309-L1</b></p> <p>Maps CT-06-308b (Grid F1, G1, G2, H2, I2, J2) and CT-06-309-L1 (Grid A9, A8, B8, B7, B6, C6, D6, E6, F6, F7, G7, H7) shows woodland habitat creation adjacent to the canal. The Trust require HS2 to clarify that this land is only required in association with mitigation planting and not construction works.</p> <p>The Trust is concerned by this woodland habitat creation. There are a number of Trust owned culverts in this area (Map CT-06-308b Grid F1, G1, J2 and CT-05-309-L1 and CT-06-309-L1 Grid D6, G7, H7). The woodland habitat creation needs to be designed to ensure that it does not affect the integrity of the canal and the culverts, their headwalls or the flow through the culvert or any associated brook course.</p> <p>The Trust considers that the location/design of the woodland habitat creation should be reconsidered, taking into account all the issues raised by</p>	<p>HS2 to re-consider the landscape mitigation strategy which better reflects the existing landscape character of the area and adheres to the HS2 Design Principles on Place and Identity.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>

		the Trust. Furthermore, woodland habitat creation creates a non-towpath side maintenance liability for the Trust in relation to tree management, for which the Trust would seek a maintenance payment from HS2.	
		<p><b>ECOLOGICAL MITIGATION PONDS</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Maps CT-05-308b and CT-06-308b</b></p> <p>Ecological mitigation ponds are shown alongside the canal (Grid G2, H2, I2 and J2). The Trust require that these mitigation ponds to be designed and constructed so they do not compromise the integrity of the canal wall/edge.</p> <p>The Trust wish to understand the drainage arrangements for these ponds. The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>	<p>The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p>
		<p><b>DEWATERING OF BORROW PITS</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Map CT-05-310</b></p> <p>We have concerns related to the potential impact the excavation of the large borrow pits near Coalpit Lane may have on the canal (Grid G7-8, H7-8). These could have an adverse impact on local water table depending on how these large excavations are dewatered, which in turn could impact the canal.</p> <p>The towpath is the same side of the canal as the Borrow pit. The canal is formed on embankments here which could be adversely affected by dewatering activities. The canal also has culverts, sluice and weirs in the vicinity of the Borrow pit.</p>	<p>The Trust would wish to understand how the area around the borrow pits might be impacted by dewatering activities. We would want assurances from HS2 that any dewatering activities in the borrow pits would not have an adverse impact on the integrity of the canal or associated infrastructure.</p>

<p>Work No.1/21 River Dane Viaduct</p>	<p>Trent &amp; Mersey</p>	<p><b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-312 and CT-06-312</b></p> <p>The details indicate land potentially required during the construction phase, including the Trent &amp; Mersey Canal and Trust owned canal bridge. The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The closure of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway (which includes the towpath); and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction/mitigation operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction. The canal is on an embankment within this area. Embankment stability assessments may be required in relation to any potential breach risk of the canal,</li> <li>3) the use of the canal bridge;</li> <li>4) future access to the canal bridge at Map Number CT-06-312 (Grid D6, D7) does not show any access being provided.</li> <li>5) Design and appearance of the viaduct bank seat (Grid D7) and the likely retaining structures that would be required alongside the canal corridor.</li> </ol>	<p>The Trust objects due to the impact on our customers. The principles to be applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface requirements identified as a result of this phase.</p> <p>The works to be a Key Design Element to mitigate the impact on the canal corridor. This crossing is one of a family of three viaducts over the canal corridor in close proximity of each other and they each need to be designed consistently.</p>
<p>Work No. 1/21 River Dane Viaduct</p>	<p>Trent &amp; Mersey</p>	<p><b>PIER DESIGN AND SITING</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-312 and CT-06-312</b></p> <p>Where the River Dane Viaduct crosses the Trent &amp; Mersey Canal the detailed siting and design of the piers and the crossing itself need to be developed to ensure that it is an appropriate response to the canal environment (Grid C7). The crossing shall be in general accordance with the</p>	<p>HS2 should ensure that the viaduct piers do not encroach onto the canal towpath and ensure any piers sited on the canal embankment do not undermine stability.</p> <p>The design of the crossing should reflect the over-arching Design Principles for Waterway Crossings as</p>

		<p>Trust's overarching principles for HS2 canal crossings agreed on HS2 Phase 1 and 2a, reflecting that this is a special crossing and to try and mitigate the major adverse significant visual effect of the crossing. We agree that the works will result in a high magnitude of visual change and high sensitivity will result in a major adverse significant effect.</p> <p>A pier to the River Dane Viaduct is shown to be within the canal embankment/on the canal towpath. The Trust is concerned that this could have a de-stabilising effect upon the canal leading to failure. The viaduct piers need to be positioned/constructed so as not to compromise the canal embankment. The construction of the pier on the canal towpath would be unacceptable.</p> <p>A sensitive elegant design is required to minimise the visual impact on the canal from the embankment/bank seat on the non-towpath side of the canal. This should reflect the character and materiality of the local landscape.</p> <p>When developing the design of the River Dane Viaduct, consideration should be given to the acute views of the structure when viewed from the canal crossing point southwards.</p> <p>The crossing would likely result in large retaining structure next to the existing canal bridge the Trust are deeply concerned in relation to the visual impact of this on the canal corridor.</p>	<p>agreed with HS2 Limited on HS2 Phase 1 and 2a.</p> <p>The structure should be considered as a Key Design Element. This crossing is one of a family of three viaducts over the canal corridor in close proximity of each other and they each need to be designed consistently.</p>
	Trent & Mersey	<p><b>CANAL BRIDGE USED FOR CONSTRUCTION PHASE</b></p> <p><b>Volume 2: Community Area Mapbook</b>  <b>MA02 Wimboldsley to Lostock Gralam</b>  <b>Map CT-05-311-R1</b></p> <p>The Trust objects to our canal bridge being land potentially required during the construction phase (Grid H3). The Trust require HS2 to explain their intentions regarding the use of this bridge.</p>	<p>We ask for clarification from HS2 why our canal bridge is shown as being required for construction, but not as a construction route.</p> <p>A weight assessment will be required for this bridge and strengthening works may be required to enable its use.</p>

	Trent & Mersey	<p><b>LAND ADJACENT TO CANAL REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-311-R1</b></p> <p>The details indicate that land potentially required during the construction phase will run parallel with the canal (Grid H3, H2). The Trust require HS2 to explain their intentions regarding the nature of the works in this area and the use of the land. This is to enable the Trust to assess the impact upon the structural integrity of the canal and the acceptability of this to the Trust.</p>	We ask for clarification from HS2 why this land is shown as being required for construction.
Work No. 1/21 River Dane Viaduct	Trent & Mersey	<p><b>WOODLAND LOSS AND LANDSCAPE MITIGATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-312 and CT-06-312</b></p> <p>The Trust objects to the significant corridor of mature woodland/vegetation that will be lost around the River Dane Viaduct crossing of the canal, especially to the embankment on the non-towpath side (Grid C6, C7, D6 D7).</p> <p>A detailed landscape solution is required to promote woodland groundcover recovery below the line of the viaduct and promote woodland restoration along the rail line. No landscape mitigation planting is currently shown on Map CT-06-213).</p>	<p>HS2 to clarify and provide the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>
Work No 1/21 Puddinglake Brook Viaduct	Trent & Mersey	<p><b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-313</b></p>	The Trust objects due to the impact on our customers. The principles to be applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface

		<p>The details indicate land potentially required during the construction phase, including the Trent &amp; Mersey Canal (Grid A5, A6, B5, B6). The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The closure of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway (which includes the towpath); and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction.</li> </ol>	requirements identified as a result of this phase.
		<p><b>PUDDLINGLAKE BROOK VIADUCT SATELLITE COMPOUND</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Maps CT-05-313 and CT-06-313</b></p> <p>The site of the Puddinglake Brook Viaduct Satellite Construction Compound appears to be unrestored within the proposed scheme (Grid A6, A7, B6, B7). An appropriate landscape mitigation scheme is required.</p> <p>The existing non-towpath side canal vegetation will provide some screening of the Satellite Compound. It should be retained, managed and supplemented, as required, to ensure a robust buffer is maintained.</p>	<p>HS2 to clarify and provide the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>
Work No 1/21 Puddinglake Brook Viaduct	Trent & Mersey	<p><b>TOWPATH BOUNDARY TREATMENT AND LANDSCAPE MITIGATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Map CT-05-313 and CT-06-313</b></p> <p>The towpath hedgerow is critical to the local landscape character and the screening of HS2 to the north from the canal and should be retained on either side of the crossing (Grid B5, B6).</p>	<p>HS2 to clarify and provide the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.</p> <p>As much of the existing waterside vegetation should be retained to</p>

		<p>The extent of the land potentially required for construction extends beyond the area of landscape mitigation planting (scrub/woodland) proposed. The landscape mitigation planting (scrub/woodland) should be extended to reflect the land potentially required for construction to the north west of the towpath.</p>	<p>provide screening to the transport corridors in this area.</p>
<p><b>Work No 1/21 Puddinglake Brook Viaduct</b></p>	<p>Trent &amp; Mersey</p>	<p><b>DESIGN OF VIADUCT ABUTMENT</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Maps CT-05-313 and CT-06-313</b></p> <p>The viaduct abutment design and siting to the north of the towpath will be critical to the canal environment that is to be created here (Grid B5, B6). An appropriate site sensitive design to the viaduct abutment to the rear of the towpath is required.</p> <p>The crossing shall be in general accordance with the Trust's overarching principles for HS2 canal crossings agreed on HS2 Phase 1, reflecting that this is a special crossing and to try and mitigate the major adverse significant visual effect of the crossing. We agree that the works will result in a high magnitude of visual change and high sensitivity will result in a major adverse significant effect.</p>	<p>The design of the crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p> <p>The structure should be considered as a Key Design Element. This crossing is one of a family of three viaducts over the canal corridor in close proximity of each other and they each need to be designed consistently.</p>
<p><b>Work No. 1/50 Temporary Bridge over canal for Work 1/21</b></p>	<p>Trent &amp; Mersey</p>	<p><b>TEMPORARY BRIDGE OVER CANAL FOR WORK 1/21</b></p> <p><b>MA02 Wimboldsley to Lostock Gralam Map Book Plan 1-30</b></p> <p>The plan shows the possible location of a temporary bridge over the canal to facilitate access for works 1/21. For continuity it is unfortunate that the temporary bridge is not shown on Map Number CT-05-313. The temporary bridge would be within Grid B6.</p>	<p>The design of the temporary crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p>

		<p>The Trust would need to ensure that adequate air draft and towpath headroom clearance is provided. The air draft required for navigation shall be no less than 3m measured across the whole width of the navigation and a minimum of 2.75m for towpath clearance unless otherwise agreed by the Trust. There is concern that there is a risk of insufficient headroom over canal which would restrict or prevent navigation.</p> <p>The temporary bridge lies within a sensitive landscape, with the canal being a conservation area and an important waterway destination. It also forms part of a wider sensitive landscape context. Its design needs to be appropriate.</p> <p>Wherever possible a 10m buffer (with early supplementary planting if required) should be provided to protect the canal side vegetation within the land potentially required during construction on both sides of the canal.</p> <p>Work associated with the temporary bridge would be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal.</p>	
	Trent & Mersey	<p><b>LISTED MILESTONE MARKER</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam Map CT-05-313</b></p> <p>There is a Grade II listed milestone located at the rear of the towpath (Grid B5). The Trust is concerned that this could be damaged or lost as works to construct HS2 progress. The Trust require HS2 to provide appropriate protection for this listed structure.</p>	HS2 to provide appropriate protection for this listed structure.
	Trent & Mersey	<p><b>BALANCING PONDS AND RAILWAY DRAINAGE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gramam</b></p>	The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage,

		<p><b>Map CT-06-312</b></p> <p>The details show a balancing pond (Grid F7) and a drainage ditch along the eastern side of the Dane Valley Embankment (Grid D7, E7, F7, G7) which discharge to a brook (via the Whatcroft Culvert) which appears to discharge into the Trent &amp; Mersey Canal (Grid F4). The impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>	<p>environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>
<p><b>Work No. 1/21 Whatcroft Viaduct</b></p>	<p>Trent &amp; Mersey</p>	<p><b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-05-313</b></p> <p>The details indicate the land potentially required during the construction phase including the Trent &amp; Mersey Canal (Grid D5, D6, E4, E5, E6). The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The closure of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway (which includes the towpath); and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction.</li> <li>3. A pier to the Whatcroft Viaduct is shown to be on the canal towpath. The construction of the pier on the canal towpath would be unacceptable.</li> </ol>	<p>The Trust objects due to the impact on our customers. The principles to be applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface requirements identified as a result of this phase.</p> <p>HS2 should ensure that the viaduct piers do not encroach onto the canal towpath</p> <p>The structure should be considered as a Key Design Element. This crossing is one of a family of three viaducts over the canal corridor in close proximity of each other and they each need to be designed consistently.</p>

		<p>The crossing shall be in general accordance with the Trust's overarching principles for HS2 canal crossings agreed on HS2 Phase 1 and 2a, reflecting that this is a special crossing and to try and mitigate the major adverse significant visual effect of the crossing. We agree that the works will result in a high magnitude of visual change and high sensitivity will result in a major adverse significant effect.</p>	
<p><b>Work No. 1/53 Temporary bridge over the canal for Work No. 1/21</b></p>	<p>Trent &amp; Mersey</p>	<p><b>TEMPORARY BRIDGE OVER CANAL FOR WORK 1/21</b></p> <p><b>MA02 Wimboldsley to Lostock Gralam Map Book Plan 1-32</b></p> <p>The plan shows the possible location of a temporary bridge over the canal to facilitate access for works 1/21. For continuity it is unfortunate that the temporary bridge is not shown on Map Number CT-05-313. The temporary bridge would be within Grid E4.</p> <p>The Trust would need to ensure that adequate air draft and towpath headroom clearance is provided. The air draft required for navigation shall be no less than 3m measured across the whole width of the navigation and a minimum of 2.75m for towpath clearance unless otherwise agreed by the Trust. There is concern that there is a risk of insufficient headroom over canal which would restrict or prevent navigation.</p> <p>The temporary bridge lies within a sensitive landscape, with the canal being a conservation area and an important waterway destination. It also forms part of a wider sensitive landscape context. Its design needs to be appropriate.</p> <p>Wherever possible a 10m buffer (with early supplementary planting if required) should be provided to protect the canal side vegetation within the land potentially required during construction on both sides of the canal.</p> <p>Work associated with the temporary bridge would be being carried out in close proximity to the canal and therefore there is concern over the possible physical impact on the structural integrity of the canal.</p>	<p>The design of the temporary crossing should reflect the over-arching Design Principles for Waterway Crossings as agreed with HS2 Limited on HS2 Phase 1 and 2a.</p>

	Trent & Mersey	<p><b>WETLAND HABITAT CREATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-06-313</b></p> <p>The Trust objects to the wetland habitat creation adjacent to the canal corridor (Grid D6, D5, E5 and E4). The wooded fringe to the canal should be retained and not replaced with wetland habitat creation.</p>	<p>HS2 to amend the landscape mitigation strategy to ensure that it is appropriate to the character of the canal corridor and adheres to the HS2 Design Principles on Place and Identity.</p> <p>As much of the existing waterside vegetation should be retained to provide screening to the transport corridors in this area.</p>
	Trent & Mersey	<p><b>WOODLAND CREATION AND MITIGATION</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-06-313.</b></p> <p>This is an open landscape, the proposal for a wooded belt along both sides of the Whatcroft North Embankment (from Grid D5, E5, F5 and G5) creates an unnecessary and unwelcome division and separation in the local landscape. The wooded belts to the rail line should be removed and restored to an appropriate grassland character.</p>	<p>HS2 to re-consider the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.</p>
	Trent & Mersey	<p><b>BALANCING PONDS AND RAILWAY DRAINAGE</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-06-313</b></p> <p>The details appear to show drainage at the toe of the railway embankment discharging to the Trent &amp; Mersey Canal (Grid B6). The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>	<p>The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>Where drainage is to waterspace not owned by the Trust the impact of</p>

		<p>A balancing pond is shown at Grid C6 into which the Manor Culvert and Whatcroft South Embankment appear to drain. This balancing pond is shown to discharge to the Trent &amp; Mersey Canal (Grid B7). The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p> <p>A further balancing pond is shown in Grid E5 which will take drainage from the Whatcroft North Embankment and discharges drainage to the canal. The Trust requires that its consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>	<p>downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>
	Trent & Mersey	<p><b>ACCESS TO BALANCING POND</b></p> <p><b>Volume 2: Community Area Mapbook MA02 Wimboldsley to Lostock Gralam Map CT-06-313</b></p> <p>The Trust objects to the siting of a large turning head to serve the balancing pond (Grid E4, E5). It is unclear why the access road turning head needs to encroach so close to the offside of the canal corridor and we ask that this access road is reduced/truncated so it is set further from the canal.</p>	<p>The access road and turning head should be reduced/truncated to set it further back from the canal and confined to Grid E5.</p>
<b>Volume 2: Community Area Report MA05 Risley to Bamfurlong</b>			
<b>Work No:</b>	<b>Canal</b>	<b>Issue/Comment</b>	<b>Action</b>
	Leeds & Liverpool	<b>LAND POTENTIALLY REQUIRED DURING CONSTRUCTION</b>	The Trust objects due to the impact on our customers. The principles to be

	(Leigh Branch)	<p><b>Volume 2: Community Area Mapbook MA05 Risley to Bamfurlong Map Number CT-05-334</b></p> <p>The details indicates that the existing West Coast Mainline crossing of the Leeds &amp; Liverpool Canal Leigh Branch will be land potentially required during the construction phase (Grid D5). The Trust has the following objections to the proposed disruption:</p> <ol style="list-style-type: none"> <li>1. The closure of the canal would have an unacceptable impact on our customer's ability to make use of the navigable waterway (which includes the towpath); and</li> <li>2. The proposed acquisition of the Trust's land is not justified as the adequate and practical planning of construction operations could remove the need for acquisition of the waterway. We would need to maintain operation of the canal and towpath during construction.</li> </ol> <p>It appears that the canal itself may not be required as the works are to the railway oversailing the canal. The Trust seeks confirmation, from HS2, regarding this matter.</p>	<p>applied to the acquisition of land and rights should reflect those in the agreement between the Trust and the Secretary of State for HS2 Phase 1 and 2a along with any specific interface requirements identified as a result of this phase.</p>
	Leeds & Liverpool (Leigh Branch)	<p><b>VISUAL IMPACT ON CANAL CORRIDOR</b></p> <p><b>Volume 2: Community Area Mapbook MA05 Risley to Bamfurlong Map Number CT-05-333 and CT-06-333.</b></p> <p>The proposed alignment of the HS2 route and its associated infrastructure, to the south of the Leeds &amp; Liverpool Canal will be visible on higher ground. We would agree that the combination of works here will result in a high magnitude of visual change. The high magnitude of visual change and high sensitivity will result in a major adverse significant effect.</p> <p>The existing woodland is fragmented and does not provide adequate screening. An appropriate landscape scheme should be prepared to reflect</p>	<p>HS2 to re-consider the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.</p>

		the local field pattern and provide an enhanced and sustainable landscape buffer between the HS2 line and the Leeds & Liverpool Canal recreational corridor. This should also take account of the ecological value of the area. Currently only very limited mitigation planting is shown on Map CT-06-333.	
	Leeds & Liverpool (Leigh Branch)	<p><b>BAMFURLONG SATELLITE COMPOUND</b></p> <p><b>Volume 2: Community Area Mapbook</b>  <b>CA05 Risley to Bamfurlong</b>  <b>Maps CT-05-333, CT-06-333 and CT-05-334.</b></p> <p>The Bamfurlong Satellite Compound will have a significant visual impact upon the Leeds and Liverpool Canal. Early implementation of appropriate planting, which respects the ecological value of the area, is required to create a buffer between the canal and the compound.</p>	HS2 to re-consider the landscape mitigation strategy which is appropriate to the character of the area and adheres to the HS2 Design Principles on Place and Identity.
	Leeds & Liverpool (Leigh Branch)	<p><b>CULVERT OWNERSHIP</b></p> <p><b>Volume 2: Community Area Mapbook</b>  <b>MA05 Risley to Bamfurlong</b>  <b>Map CT-05-334</b></p> <p>There is a culvert at the railway crossing GR: 359876 402141 (Grid D5). This culvert is not within the ownership of the Trust. The ownership and responsibility for this culvert needs to be determined.</p>	HS2 need to determine the ownership and responsibility for this culvert and its ongoing maintenance.
<b>Volume 2: Community Area Report MA08 Manchester Piccadilly Station</b>			
<b>Work No</b>	<b>Canal</b>	<b>Issue/Comment</b>	<b>Action</b>
Piccadilly Station	Ashton Canal	<p><b>CONSTRUCTION COMPOUND</b></p> <p><b>Volume 2 Community Area Mapbook</b>  <b>MA08 Manchester Piccadilly Station</b>  <b>Map CT-05-365b</b></p>	We would ask HS2 to ensure the structural integrity of the existing Ducie Basin retaining wall is safeguarded during the works. In addition, we would ask HS2 to provide a high-quality protective boundary

		<p>A main construction compound is shown which would border Ducie Basin on the Ashton Canal (Grid I7 and I6). Due to the existing land levels here, there is a substantial retaining wall between the Basin and the construction compound. Therefore, any works on this land must not compromise the integrity of this retaining wall. A high-quality protective boundary treatment to the canal basin is required.</p>	<p>treatment to the canal basin for the duration of the works.</p> <p>We would welcome clarification from HS2 in terms of the suitable development use the site would be returned to.</p>
	Ashton Canal	<p><b>CONSTRUCTION ROUTE</b></p> <p><b>Volume 2: Community Area Mapbook MA08 Manchester Piccadilly Station Map CT-05-365b</b></p> <p>A construction route is proposed under Store Street Aqueduct (Grid H7). This is a Grade II* structure with a 4.6m height restriction. Due to this height restriction, this route is not suitable for high sided vehicles. The Trust require restrictions on the vehicles that can use Store Street as an access or diversion route, and a review to determine if extra warning signage and impact protection beams should be provided or are appropriate given the heritage status of the structure.</p>	<p>We ask for clarification from HS2 in terms of the restrictions and protection measures that would be used to protect our grade II* listed aqueduct.</p> <p>We would welcome discussion with HS2 in terms of how the station and realigned road network could be better integrated with the canal corridor to maximise the potential for the canal networks to be used as a sustainable transport route to the station.</p>
	Ashton Canal	<p><b>PICCADILLY STATION INTERFACE WITH THE ROCHDALE CANAL</b></p> <p><b>Volume 2: Community Area Mapbook MA08 Manchester Piccadilly Station Maps CT-05-365b and CT-06-365b</b></p> <p>There is the potential opportunity to create a fantastic entrance to the HS2 Piccadilly Station from the canal corridor.</p> <p>Currently, positive towpath use through Manchester is adversely affected by the disconnected towpath route at the junction of the Rochdale Canal and Ashton Canal, and further adversely impacted by the paucity of the gateway to the canal from Dale Street (CT-05-365b and CT-06-365b Grid I7</p>	<p>We would welcome discussion with HS2 in terms of reconsidering how the northern entrance of the HS2 Piccadilly Station could better integrate with the canal corridor and utilise this sustainable transport route along the canal towpaths.</p>

		<p>and J6 respectively). The canal is in a tunnel in Grid J6. Through transformational city making around the HS2 Piccadilly Station the opportunity exists to uncover the Rochdale Canal.</p> <p>This would enhance the City placemaking around the Station by strengthening the connection to the heritage of Manchester, unlock the health and wellbeing potential of the canal to the Station Plaza, improve the wider towpath use in the City, and begin to reclaim the Rochdale Canal from antisocial use. Whilst we recognise that this is not within the remit of the HS2 scheme per se, we consider that it is critical that this is part of the wider discussions about the regeneration opportunities that bringing HS2 to Manchester can deliver for the benefit of all.</p> <p>The section of the Rochdale Canal which is in a tunnel/underpass in Grid J6 (Map CT-05-365b), due to development above it, is the only part of the <b>Trust's entire 2000 mile towpath network that is</b> required to be gated at night. This is due to the level of crime and anti-social behaviours that occur here. In recognition of the scale of the problems associated with the underpass, the gating of this section of towpath was by way of a Public Space Protection Order. This was a multi-agency approach led by Manchester CC, as a joint project with the Trust, the Police and Fire Service.</p> <p>The proposed HS2 Piccadilly Station therefore provides a once in a generation opportunity to resolve a significant problematic area within Manchester as part of regeneration just to the north of the station and the area to be covered by the construction land. Potentially opening up the canal frontage here provides an opportunity to enhance connectivity and to transform the station and this part of Manchester and potentially provide a space akin to the Regent's Canal and Kings Cross Station in London.</p>	
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Question 4: Volume 3: Route-wide effects		
Chapter	Issue/Comment	Action
6. Ecology and Biodiversity	<p>One site designated as being of international importance for nature conservation will be affected by the construction and/or operation of the Proposed Scheme is the Rochdale Canal Special Area of Conservation (SAC) which is 4.6km north of the Proposed Scheme (para 6.3.1). The SAC is also designated as a Site of Special Scientific Interest (SSSI), which is similarly impacted by the Proposed Scheme. This SAC is designated for its colonies of floating water-plantain <i>Luronium natans</i>, which is an Annex II species (a species for which sites can be designated, as listed in Annex II of the EU Habitats Directive).</p> <p>Due to the construction traffic routes and displaced traffic associated with the Proposed Scheme adjacent to the SAC/SSSI, a Habitat Regulations Assessment has been undertaken.</p> <p>As acknowledged with the document it has not been possible to rule out adverse effects from nitrogen deposition associated with displaced traffic which in turn could have an adverse effect on water quality. There may therefore be an adverse effect on the SAC that is significant at the international level. It is understood that documents to inform the Appropriate Assessment for the Rochdale Canal SAC will be made available prior to approval of the Hybrid Bill.</p> <p>The potential impact on the Freiberg's screw moss population on the Shropshire Union Canal and Trent &amp; Mersey Canal could result in a route wide negative impact. Freiberg's screw moss is a rare moss globally and is a species of principal importance. Where this species would be impacted by the Proposed Scheme this will need to be translocated in agreement with the Trust.</p> <p>The potential impact of night time lighting along the route of the works during construction and the railway when in operation could have an adverse impact on nocturnal species and a route wide negative impact.</p>	<p>We would ask HS2 to take these potential route-wide effects into account and provide mitigation.</p> <p>Further assessment will be needed to be carried out in accordance with relevant legislation in relation to the potential adverse effect on floating water plantain within the Rochdale Canal.</p> <p>Opportunities to avoid or reduce effects will need to be considered as the design develops.</p> <p>The Trust would wish to be consulted in relation to the mitigation proposed in relation to our waterways.</p>

	<p>The impact of large viaduct crossings of the canal network could affect the ability of water voles to increase their range and have a route wide negative impact.</p> <p>Subject to assessment, the canal network could be considered as a suitable receptor site for ancient woodland soil. Land alongside the canal, within the ownership of the Trust, could provide a link to or are adjacent to ancient woodland fragments.</p> <p>There is potential for the canal corridor to be a site of hedgerow gap filling/laying to mitigate for the overall loss of integrity to the hedgerow network along the route (both within and outside bill limits –with our consent as landowner). The Trust would be happy to discuss this with HS2, along with HS2 funding for future maintenance.</p> <p>The creation of a new linear feature could result in the increased ease of spread of invasive non-native species, such as Japanese Knotweed and Himalayan Balsam, which are very prevalent along the existing rail network. If un-managed this could result in a route wide negative impact upon biodiversity, including the biodiversity of the canal network.</p>	
7. Health	<p>The assessment of travel stress (paragraph 7.2.4 and 7.5.10 onwards) should have considered journeys made along the canal network by non-motorised and motorised users. Due to the nature of the waterway network diversion routes for navigation are often lengthy or impossible. Closure of the canal network could also lead to holidaymakers having a less positive experience.</p> <p>In terms of mitigation of travel stress. With investment, the canal network could provide a viable alternative route for walkers and cyclists wishing to avoid road routes impacted by HS2 related HGV movements.</p>	The Trust would be happy to discuss the potential for investment in upgrading the canal towpaths along the route corridor to provide an alternative sustainable transport route.
8. Historic Environment	Permanent construction and operation phase effects are predicted in relation to direct impacts on the character and appearance of the Trent and Mersey Canal conservation area. This is due to the route of HS2 crossing the Trent & Mersey Canal multiple times. The existing rural quiet setting of	It would be important that all the canal crossings are considered as Key Design Elements to limit the route wide effect.

	<p>the canal conservation area will be lost forever with a permanent significant adverse effect. It will also permanently adversely alter key views along the canal corridor. The Trent &amp; Mersey crossings are a family of three viaducts over the canal corridor in close proximity of each other and they each need to be designed consistently. It would be important that all the canal crossings are considered as Key Design Elements.</p>	
11. Major accidents and disaster	<p>The canal network and associated infrastructure should be considered as a potential source of hazard both during the construction and operation of HS2 (paragraph 11.4). Several of the HS2 canal interfaces are in close proximity to canal embankments that could potentially fail (including HS2 induced failure) and cause major flooding of the railway structures and earth structures, construction sites, resulting in loss of life and damage to property. Similarly, a failure of a canal culvert could result in similar impacts during both the construction and operational phase.</p> <p>HS2 should consider undertaking flood risk modelling in the vicinity of the canal network to assess the potential impact of a catastrophic failure of a canal embankment, culvert or other feature resulting in the significant/immediate loss of water from the canal, on the safety of the railway.</p>	<p>It will be imperative that the route wide works across/adjacent to our waterways are carried out in accordance with the Canal &amp; River Trust Code of Practice (or other agreement with HS2) to limit the potential adverse impact from the construction activities on our 200 year old waterway infrastructure.</p>
14. Traffic and Transport	<p>The assessment of the route wide effect of the construction of the works associated with the displacement of traffic associated with HS2 should have considered the potential impact on canal bridge crossings, many of which are designated heritage assets and subject to weight restrictions. Closure of roads, diversions and displacement of traffic could result in increased vehicle movements over our canal bridges. This in turn could increase wear and tear of our assets and increase the likelihood of damage from an uplift in usage of canal bridges as a result of parapet bridge strikes and grounding of vehicles.</p>	<p>We would ask that HS2 work with the Trust to seek to avoid the displacement of traffic along the route over our canal bridges.</p>
16. Water Resources and Flood Risk	<p>Due to the number of potential surface water discharges to the canal network along the route there is the potential for adverse impacts</p>	<p>It is critical that the Trust's consent is obtained for any discharge to the</p>

	<p>associated with such discharges in terms of increased likelihood of pollution incidents and associated environmental impacts.</p> <p>There is also the increased risk of the breach of the canal along the route or culverts under the canal associated with increased volumes of water discharging to the canal. It is critical that the Trust's consent is obtained for any discharge to the canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>To mitigate the risk to the Trust of the additional flows through the culvert(s) under the canal along the route and the consequential increase in wear and tear the Trust will require HS2 to acquire the Trust owned culvert(s).</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>	<p>canal, to protect the canal from flooding, structural damage, environmental degradation and to ensure navigational safety. It cannot be assumed that the canal or culverts have the capacity to accommodate such discharge.</p> <p>To mitigate the risk to the Trust of the additional flows through the culvert(s) under the canal along the route and the consequential increase in wear and tear the Trust will require HS2 to acquire the Trust owned culvert(s).</p> <p>Where drainage is to waterspace not owned by the Trust the impact of downstream flooding needs to be considered and discussed with the Trust. It cannot be assumed that the canal has the capacity to accommodate such discharge.</p>
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**Question 5: Volume 4: Off-route effects and map book**

Chapter	Comment
3. Preston Station	As set out at paragraphs 3.8.31, 4.8.31 and 6.12.27 there are no Trust owned waterways within the immediate vicinity of the Preston Station area that would potentially be affected by the proposed scheme. The Trust agree that the potential impact on the waterways owned and managed by the Trust would not require further assessment in this instance.

Question 6: Volume 5: Technical appendices and map books	
Volume 5: Appendix CT-002-00000 – Draft Code of Construction Practice	
Chapter	Comment
3. Policy and environmental management principles	Paragraph 3.3.1 – The Canal & River Trust (the Trust) is a Statutory Body and we would like to see the Trust identified throughout the CoCP as such a body.
5. General requirements	<p>Paragraph 5.1.4 – the Trust require that bespoke arrangements are agreed for the advance notice of works affecting the Trust’s <b>owned assets and infrastructure</b>.</p> <p>Paragraph 5.2.11 – Emergency works will be notified to the relevant local authority as soon as practicably possible. The <b>Trust’s commitments to its customers should make it necessary for the Trust to be notified of such an event within the area of a waterway owned and managed by the Trust, and as such we seek to be included in this text.</b></p> <p>Paragraph 5.6.2 – The Trust would expect to be consulted on the design of any hoarding on or adjacent to its property.</p> <p>Paragraphs 5.12.2 – We would like The Canal &amp; River Trust to be specifically mentioned here along with the Environment Agency due to the proximity of our canals to the proposed worksites.</p>
8. Cultural heritage/historic environment	Paragraph 8.1.3 – The Trust has the third largest estate of heritage assets, and so it would be expected that the Trust should be allowed the opportunity to input on the General Written Scheme of Investigation: Historic Environment Research Delivery Strategy (GWSI:HERDS) process. We welcome that the Trust would be consulted on historic management measures as set out at paragraph 8.1.7.
9. Ecology	Paragraph 9.2.4 – Prior to and during construction, consultation will be made with Natural England, Environment Agency, Local Wildlife Trusts and relevant planning authorities. The Trust requests that it should be invited to these consultations. This would especially be the case in terms of the specific canal related species including floating water plantain ( <i>Luronium natans</i> ) and <b>Freiberg’s screw moss</b> , as well as other potentially affected species which our waterways support.
14. Traffic and transport	Paragraph 14.3.1 – we would like to talk to HS2 and its construction contractors about the opportunities for using the <b>Trust’s network of towpaths as part of a sustainable workforce travel plan.</b>

	The Trust owns around 1000 public road bridges. Many of these are historic structures that are vulnerable to impact damage. We would want to see a requirement to take all reasonable measures to route HS2 traffic way from the Trusts historic bridges.
<b>Volume 5: Appendix CT-008-00000 – Borrow Pit Report</b>	
9. Restoration Strategy	Dredged materials from inland waterways is typically fine, silty material for which detailed characterisation and analysis is done prior to the dredging operation. Disposal is often to adjacent and agricultural land, but this is not always practical, and sometimes goes to landfill. During the period of construction of the scheme, there are likely to be opportunities for material dredged from the canal to be transported from the canal to a borrow pit which could contribute to restoration, and avoid unnecessary landfill disposal.
Paragraphs 9.3.9 and 9.4.2	The sections set out that there will be further consultation with a wide range of relevant stakeholders as part of the preparation of the site specific restoration plan for each borrow pit. The Trust would wish to be included in consultations on site specific restoration plans for each borrow pit.
<b>Volume 5: Appendix TR-002-00002 – Traffic and Transport MA02 Wimboldsley to Lostock Gramam</b>	
Section 7.7 Waterways and canals	Paragraph 7.7.2 sets out that “ <i>compared to the existing baseline, no (waterway and canal) changes are assumed.</i> ” Temporary acquisition of both the Shropshire Union Canal and Trent & Mersey Canal is planned within this Community Area as well as diversions. We consider these to be a change.
<b>Volume 5: Appendix SV-002-0MA02 – Sound, noise and vibration MA02 Wimboldsley to Lostock Gramam</b>	
3. Baseline	The assessment does not appear to consider or even reference the potential impact on boaters mooring on either the Shropshire Union Canal or Trent and Mersey Canal. Furthermore, there is no consideration of the varied nature of moorings. People may visit their mooring without cruising. Generally, boaters can moor on the towpath side of the canal for up to 14 days at a time.
<b>Volume 5 Appendix SV-001-00000: Annex G - Sound, noise and vibration methodology, assumptions and assessment</b>	
Paragraph 3.2 of Annex G	<p>The document sets out that canals do not merit protection and will not be subject to significant effects and will only enjoy noise mitigation measures where there are permanent moorings. HS2 Ltd has focussed on assessing noise impacts on the canals in relation to permanent residential moorings only. It has failed to address the impact on casual and visitor moorings used as primary residences for ‘continuous cruisers’. It has also not addressed the noise impact on the other 90% of users of the canal corridor, e.g. walkers, cyclists, anglers, etc, that will be discouraged from using the canals in the vicinity of interface points undermining the Trust's ability to continue to deliver significant public benefits.</p> <p>The fundamental point is that the Trust's customers have until now enjoyed peaceful and quiet visits to the canal at the interfaces with the Proposed Scheme and would continue to be able to do so if the Proposed Scheme had not</p>

	proposed to cross the canals at the interfaces. It is therefore not unreasonable for the Trust to expect the impact on the canals to be minimised in line with Government policy on noise pollution and for canals and offline facilities to be afforded the same protection as other noise sensitive receptors such as residential properties.
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**Volume 5: Appendix EC-016-00004 – Document to Inform a Habitat Regulations Assessment for Rochdale Canal SAC**

As set out within the document the works could adversely affect the Rochdale Canal Special Area of Conservation (SAC) which is 4.6km north of the Proposed Scheme. The SAC is also designated as a Site of Special Scientific Interest, which is similarly impacted by the Proposed Scheme. This SAC is designated for its colonies of floating water-plantain *Luronium natans*, which is an Annex II species (a species for which sites can be designated, as listed in Annex II of the EU Habitats Directive).

As acknowledged with the document it has not been possible to rule out adverse effects from nitrogen deposition on air pollution associated with displaced traffic which in turn could have an adverse effect on water quality within the canal. There may therefore be an adverse effect on SAC that is significant at the international level. It is understood that documents to inform the Appropriate Assessment for the Rochdale Canal SAC will be made available prior to approval of the Hybrid Bill.

Further assessment will be needed to be carried out in accordance with relevant legislation (Article 6(3) of the Habitats Directive) in relation to the potential adverse effect on floating water plantain within the Rochdale Canal. Opportunities to avoid or reduce effects will need to be considered as the design develops. The Trust would wish to be consulted in relation to the mitigation proposed in relation to our waterways.