

## CASE FILE LIST

Case: HS2-010\_AP1-007.

Title: HS2-010\_AP1-007 Lostock Gralam Parish Council - Promoter.

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## CASE FILE LIST

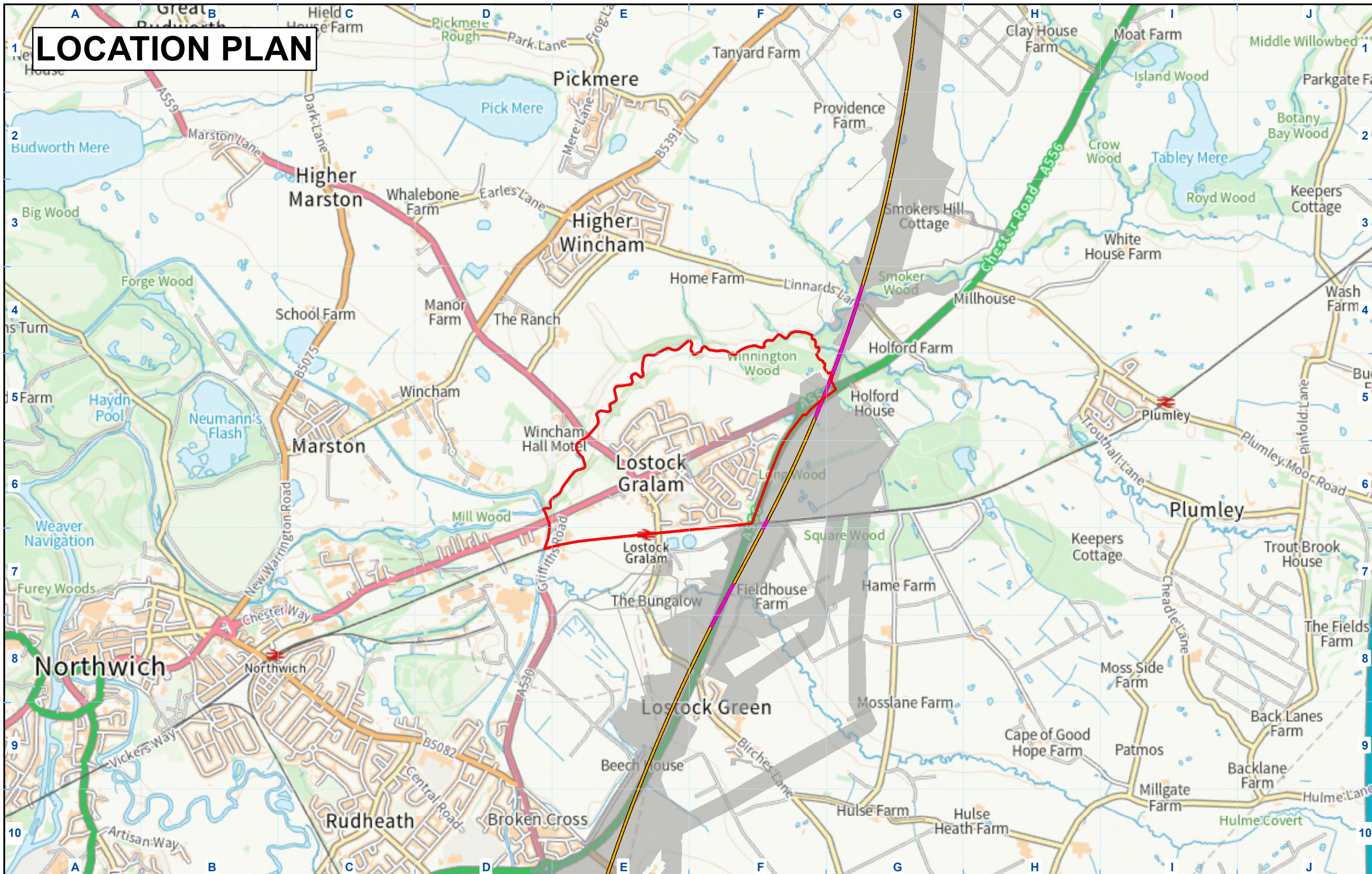
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# LOCATION PLAN



**Legend**

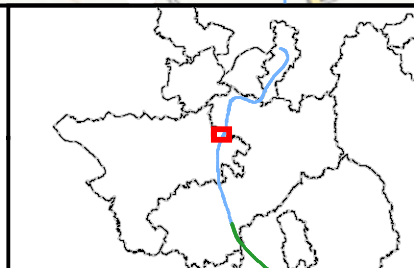
Phase 2b Western Leg Bill alignment February 2022

- Embankment
- Viaduct

Indicative extent of petitioner(s) land interests

hybrid Bill Limits

**P170**



High Speed Two  
Petitioner Location Plan  
Reference Drawing

Petitioner  
Lostock Garam Parish Council

Petition number  
P2B-HS2-010

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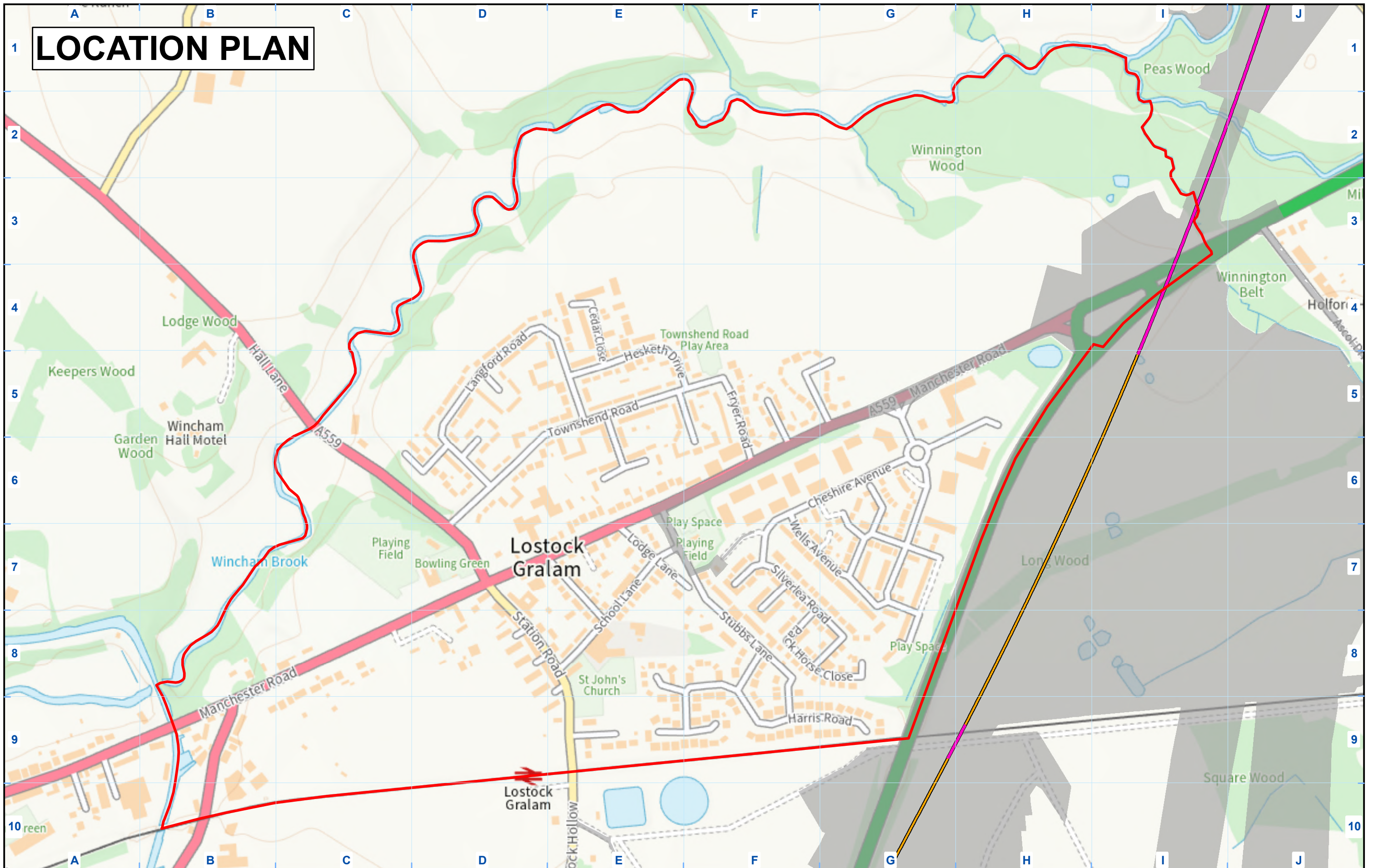
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Doc Number: P2B-HS2-HY-MAP-000-000029

Date: 04/08/22

# LOCATION PLAN



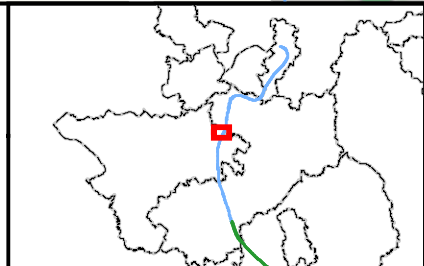
**Legend**

**Phase 2b Western Leg Bill alignment February 2022**

- Embankment
- Viaduct

Indicative extent of petitioner(s) land interests

hybrid Bill Limits



High Speed Two  
Petitioner Location Plan  
Reference Drawing

Petitioner  
Lostock Gralam Parish Council

Petition number  
P2B-HS2-010

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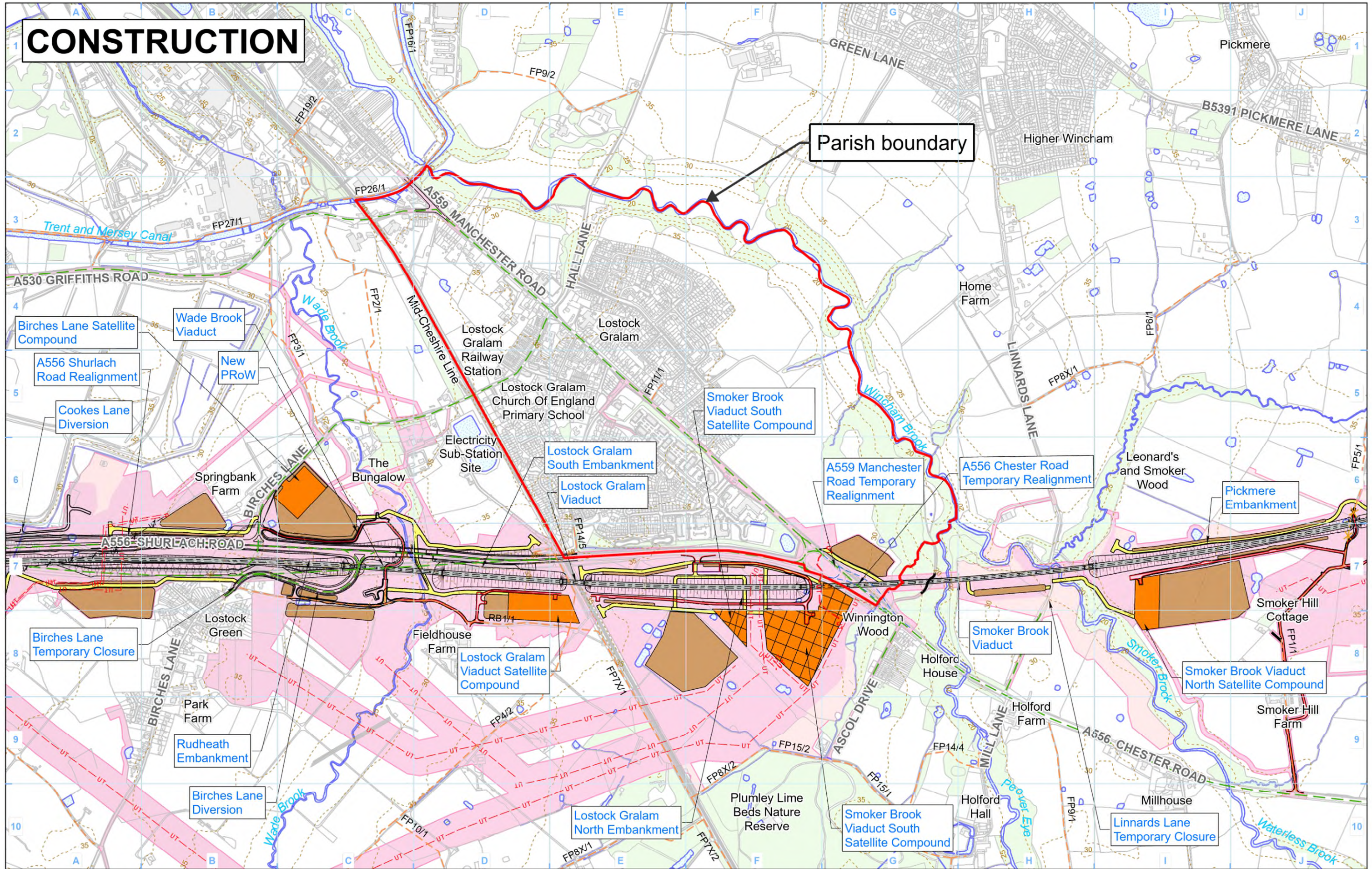
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Metres

Doc Number: P2B-HS2-HY-MAP-000-000029

Date: 04/08/22

P171

# CONSTRUCTION



**Legend**

- Indicative extents of Petitioner(s) land interests
- Satellite construction compound
- Railway systems compounds
- Temporary material stockpile
- Land potentially required during construction
- Land potentially required for mitigation planting
- Rail alignment formation
- Haul routes
- Construction traffic route
- Existing public right of way
- Public right of way closure
- New, diverted or realigned public right of way
- Landscape earthworks
- Engineering earthworks
- Temporary highway diversion / realignment
- Major utility works
- Existing buildings
- Existing woodland
- Existing inland water
- Existing watercourse
- HS2 access
- Rail alignment
- 5m contours

P172

Parish boundary

Petitioner  
**Lostock Gralam Parish Council**  
 Petition number  
**HS2-010**

**HS2**

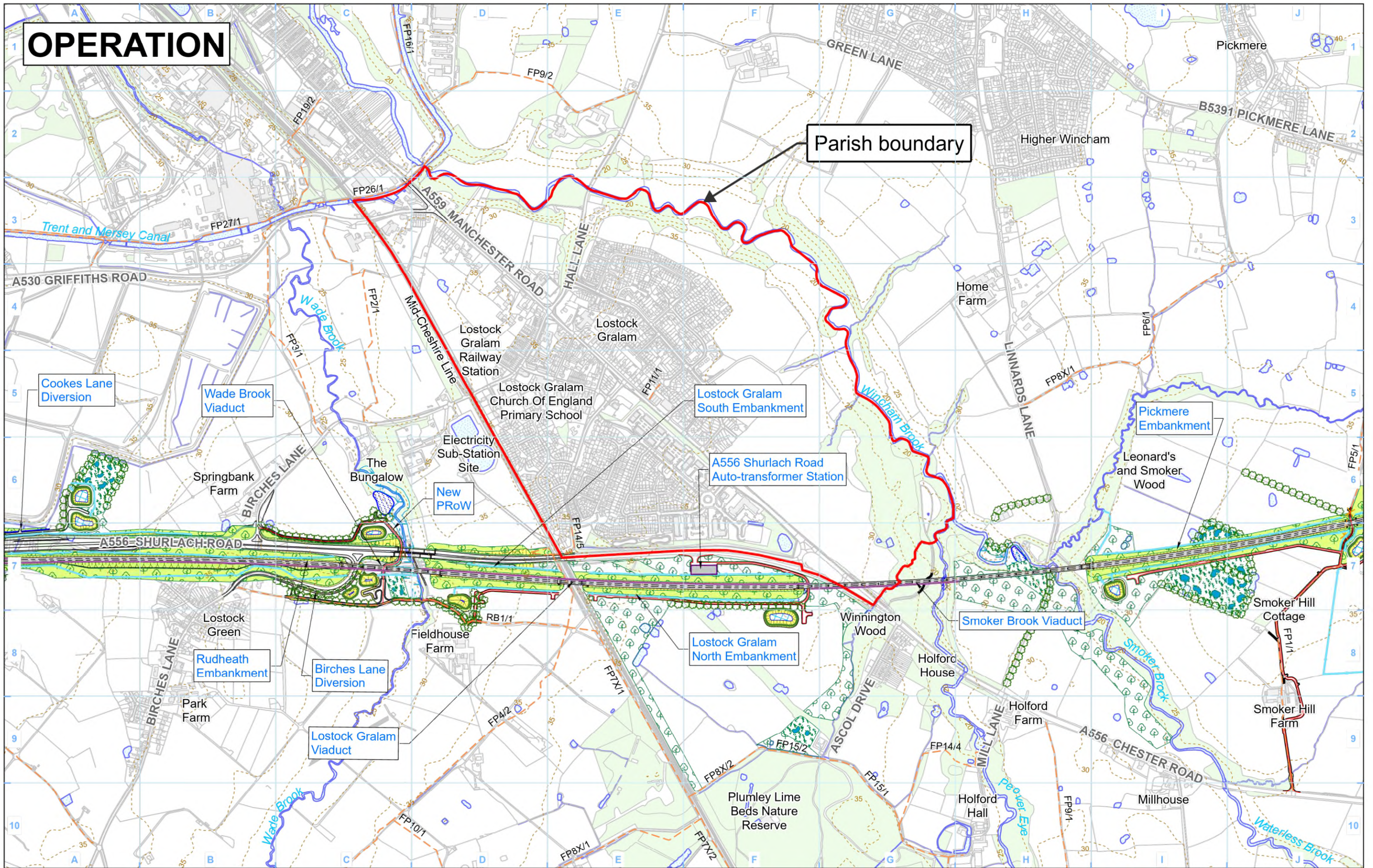
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# OPERATION



Parish boundary

Legend	
Indicative extents of Petitioner(s) land interests	Replacement floodplain storage area
Railway systems site	Grassland habitat creation
Ecological mitigation pond (Indicative only)	Wetland habitat creation
Balancing pond	Woodland habitat creation
Hedgerow	Landscape mitigation planting (scrub / woodland)
New ditches	Watercourse diversion
Engineering earthworks	Landscape earthworks
Rail alignment formation	Existing buildings
Existing public right of way	New, diverted or realigned public right of way
Public right of way closure	Existing woodland
Existing inland water	Existing watercourse
HS2 access	Noise fence barrier
Rail alignment	5m contours

P173

Petitioner  
**Lostock Gralam Parish Council**  
 Petition number  
**HS2-010**

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*Mrs Lyndsey Sandison  
Lostock Gralam Parish Council  
PO BOX 768  
Northwich  
Cheshire  
CW9 9TS*

*Sent by email to: [clerk@lostockgralamparishcouncil.co.uk](mailto:clerk@lostockgralamparishcouncil.co.uk)*

3 April 2023

Dear Mrs Sandison,

**HIGH SPEED RAIL (CREWE – MANCHESTER) BILL – HOUSE OF COMMONS SELECT COMMITTEE: PETITIONS HS2- P2B - 010 AND AP1-007– LOSTOCK GRALAM PARISH COUNCIL**

I am writing to you in my capacity as Director of Hybrid Bill Delivery at HS2 Ltd, which is acting on behalf of the Promoter of the High Speed Rail (Crewe-Manchester) Bill (the Bill) currently before Parliament.

I understand that you have concerns about the impact of HS2 Phase 2b (known as the Proposed Scheme) and have submitted a petition on that basis against the Bill and first Additional Provision to the Bill in the House of Commons.

I am advised that HS2 representatives met Parish Council representatives on 2 December 2022 and 30 March 2023 to discuss your petitions. Promoter's Response Documents were also sent to you on 17 February 2023 setting out our position in relation to the issues you raised in your petitions against the Bill and the first Additional Provision to the Bill.

I understand that it is your intention to raise the following issues before the Select Committee, and our position in response is set out below.

*Land quality*

As you will be aware, further to the Promoter's response on ground conditions set out in pages 4 to 8 of the Promoter's Response Document regarding your petition against the Bill, a

report has been published on 3 March 2023 which provides a review of the ground conditions, the associated risks, and the mitigation measures for the Crewe-Manchester Proposed Scheme. This report titled "Crewe to Manchester - Understanding the Ground Risk across the Cheshire Plain" can be viewed from the following link:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1140192/Understanding\\_the\\_Ground\\_Risk\\_across\\_the\\_Cheshire\\_Plain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1140192/Understanding_the_Ground_Risk_across_the_Cheshire_Plain.pdf)

I understand that the Parish Council were contacted by email on 29 March to identify whether you have any outstanding issues concerning ground conditions in light of the review set out in the published report. I understand that you have indicated that the Parish Council intend to raise geology during the hearing of your petition; however, you have not set out the Parish Council's position on the issues raised in your petition in light of the report published in March 2023, to enable us to understand what remaining issues you have with the content of that report. It would be very helpful if you could please let us know, by return of email or letter, the Parish Council's position on the issues raised in your petition in respect of geology in light of the report published in March 2023, so that we consider the issues further and potentially resolve your concerns, but even if we are unable to do so, we can attempt to define and narrow the issues in dispute in front of the Select Committee.

#### *Replacement of embankments with viaducts*

I understand that this matter has been discussed at the aforementioned meetings between HS2 representatives and Parish Council representatives. The Promoter's response remains as set out in pages 9 to 12 of the Promoter's Response Document in relation to your petition against the Bill.

With regard to the suggestion of replacing embankments with viaducts and as discussed at the meeting on 30 March, a low embankment is easier to screen as compared with a higher viaduct. An embankment would also allow the proposed railway to sit at a lower elevation in the landscape compared with a viaduct. A change from embankments to one long viaduct is not considered necessary and would likely see an increase in capital cost to the project, it would require an increased use of concrete, and would be likely to raise the proposed railway in the landscape which could further increase visual and noise impacts on local receptors.

#### *Visual effects of the scheme*

The Promoter's position remains as set out in pages 13 to 17 of the Promoter's Response Document in respect of your petition against the Bill. I understand that this matter was discussed at the meeting on 30 March, where Parish Council representatives asked for details about what the embankments would look like. As explained during the meeting, embankments offer an opportunity for embedding the embankments into the landscape through planting. Schedule 17 of the Bill ensures that the detailed design of the Proposed

Scheme has due regard to relevant planning authority aspirations and fits within the local environment.

The draft Code of Construction Practice (CoCP) includes measures to limit landscape and visual impacts during construction. These include protecting existing trees where possible, use of well-maintained fencing around construction areas, and designing lighting to avoid intrusion on adjacent residential properties.

Whilst the design of the Proposed Scheme has not yet been finalised, the embankments would be designed to be integrated into the surrounding landscape including slopes being grassed and landscape screen planting where appropriate.

Further information on HS2's design policy, including aesthetics and quality, can be found in HS2 Phase 2b Western Leg Information Paper D1: Design.

#### *A556 Shurlach Road Auto-Transformer Station (ATS)*

The A556 Shurlach Road ATS was also discussed at the 30 March meeting, where it was confirmed that this would be screened by an area of proposed woodland habitat creation. The proposed location of this ATS, as shown in cell J5 of map CT-06-316, benefits from a direct access junction on the existing A556 Shurlach Road. Auto-transformer stations help to provide the power supply for the HS2 railway system, and each ATS site must be provided at regular spacing intervals along the line of the railway to main the correct voltage for the overhead catenary system.

The Promoter is working on changes to the design of this ATS, which would require some additional land for modifications to the power connection. However, the location of the ATS would not be changed. Further details including updated construction and operation maps would be provided following the completion of this work in due course.

#### *Highways*

The Promoter's response is as set out in pages 18 to 23 of the Promoter's Response Document in respect of your petition against the Bill and pages 4 to 12 of the Promoter's Response Document regarding your petition against Additional Provision 1.

With regard to your concerns about the use of Station Road, an assurance has been offered to the Parish Council on 30 March 2023 requiring "*the nominated undertaker to limit, so far as reasonably practicable, its use of Station Road by HS2 construction traffic during the construction of the authorised works to occasional use associated with tie-in works at the junction of Birches Lane and the realigned A556 Shurlach Road and with utility works and other minor highway works affecting Station Road.*"

The proposed realignment of the A556 Shurlach Road was discussed at the 30 March meeting, where HS2 representatives explained that two lanes of traffic would continue to run in both directions, excluding a period of 40 days during the northbound tie in works and a further 40

days for the southbound tie in works, where a single lane would run in each direction and there would be some weekend and overnight closures. During the meeting the Parish Council also referred to the utility works at this location. You requested more information about the type of work, duration, diversion routes and whether these would require further lane closures. The utility diversions associated with the A556 Shurlach Road realignment will be constructed offline. It is expected that the tie-ins of these utility diversions will take place at the same time as the tie-ins for the highway works, and where possible will take place outside of the carriageway. Any utility diversion that crosses the A556 Shurlach Road, such as the Inovyn assets, would be in the form of trenchless construction under the carriageways insofar as reasonably practicable.

It is my understanding that during the 30 March meeting, the Parish Council noted that the Promoter is considering junction improvement works for a left-turn movement from A559 Manchester Road into Hall Lane. The Parish Council explained that further to your petitions you are more concerned about traffic delays caused by the right-turn into Hall Lane from the A559 Manchester Road. This is understood to be an existing problem and HS2 representatives explained that the Promoter would be required to consider mitigation for congestion impacts only where they are caused or made worse by the Proposed Scheme. If the Promoter were to undertake any highway works at this junction, such as localised carriageway widening, there would be an opportunity to review the traffic signal staging timing arrangements to optimise junction performance.

I understand that your petition request for a controlled pedestrian crossing on the existing traffic island near to the Stubbs Lane junction on Manchester Road was also discussed at the 30 March meeting. I note that this is something that the Parish Council is particularly concerned about and has discussed with Cheshire West and Chester Council. Parish Council members also offered to share road crossing data with HS2, which may assist HS2 in future discussions with Cheshire West and Chester Council. HS2 would seek to engage with Cheshire West and Chester Council further on this matter.

#### *Noise and vibration*

The Promoter's response remains as set out in pages 24 to 26 of the Promoter's Response Document in respect of your petition against the Bill and pages 13 to 15 of the Promoter's Response Document regarding your petition against Additional Provision 1.

#### *Dust and light pollution*

The Promoter's response remains as set out in pages 27 and 28 of the Promoter's Response Document regarding your petition against the Bill, which outlines the policies in the draft CoCP regarding working hours, dust management and light pollution.

#### *Blight*

The Promoter's response is as set out in pages 29 and 30 of the Promoter's Response Document regarding your petition against the Bill, which sets out the statutory and non-

statutory property schemes that are available, as well as the reasons why the extension of the Homeowner Payment Scheme is not considered to be justifiable.

#### *Socio-economics*

I understand that this matter was discussed at a meeting between HS2 representatives and Parish Council representatives on 2 December 2022, where a HS2 Engagement representatives gave examples of how HS2 Ltd is working with local communities on the Phase 1 and 2a routes, providing opportunities in relation to local employment, apprenticeships and educational initiatives. More information is provided in pages 31 and 32 of the Promoter's Response Document regarding your petition against the Bill.

#### *Other environmental matters and Utilities*

The Promoter's position is as set out in pages 33 to 40 of the Promoter's Response Document relating to your petition against the Bill, which set out the Promoter's policy with regard to surface water runoff, biodiversity, resilience against climate change, public rights of way, use of electric vehicles, landscape effects and utilities.

#### *Land required - Smoker Brook viaduct and A530 Griffiths Road and Manchester Road junction*

Pages 16 and 17 of the Promoter's Response Document regarding your petition against Additional Provision 1 sets out details of the land that is required under Additional Provision 1 for the realignment and extension of the Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood and modifications to the A530 Griffiths Road and Manchester Road junction.

I hope that the information set out above and through our earlier correspondence and discussion with you gives the Parish Council the reassurance you were seeking in response to the issues raised in your petition.

For any further queries please don't hesitate to contact Kirsty Clarke, Petition Manager, on 07826 886543 or [kirsty.clarke@hs2.org.uk](mailto:kirsty.clarke@hs2.org.uk).

Yours sincerely



**Lucy Lagerweij**  
Director, Hybrid Bill Delivery,  
High Speed Two (HS2) Limited

Mrs Lyndsey Sandison  
Lostock Gralam Parish Council  
PO BOX 768  
Northwich  
Cheshire  
CW9 9TS

Sent by email to: [clerk@lostockgralamparishcouncil.co.uk](mailto:clerk@lostockgralamparishcouncil.co.uk)

30 March 2023

Dear Mrs Sandison,

**HIGH SPEED RAIL (CREWE – MANCHESTER) BILL – HOUSE OF COMMONS SELECT COMMITTEE: PETITION HS2- P2B - 010 and AP1-007– LOSTOCK GRALAM PARISH COUNCIL**

I am writing to you in my capacity as the Director of Hybrid Bill Delivery at HS2 Ltd, which is acting on behalf of the Promoter of the High Speed Rail (Crewe - Manchester) Bill ('the Bill') currently before Parliament.

Further to the Promoters Response Document sent to you on 17 February 2023 which set out the Promoter's position on the issues raised in Lostock Gralam Parish Council's petitions against the Bill and first Additional Provision to the Bill in the House of Commons, I am writing to you, on behalf of the Secretary of State for Transport, to offer Lostock Gralam Parish Council the following assurance:

In this assurance

"the authorised works" means the works authorised by the Bill;

"the Bill" means the High Speed (Crewe – Manchester) Bill as introduced into Parliament on 24 January 2022 as amended by the Additional Provision to the Bill deposited on 6 July 2022;

“HS2 construction traffic” means any HS2 construction vehicles excluding private construction worker vehicles or vehicles used to transport HS2 workers to and from construction sites;

“the nominated undertaker” means High Speed 2 (HS2) Ltd or such other person as may be appointed nominated undertaker under clause 42 of the Bill;

“the Promoter” means the Secretary of State for Transport or any successor Secretary of State or Minister holding the transport portfolio and includes, so far as relevant, the Nominated Undertaker;

“Station Road” means Station Road in the Parish of Lostock Gralam, in the borough of Cheshire West and Chester from its junction with the A559 Manchester Road to the point where it meets the mid-Cheshire railway Line.

1. The Promoter will require the nominated undertaker to limit, so far as reasonably practicable, its use of Station Road by HS2 construction traffic during the construction of the authorised works to occasional use associated with tie-in works at the junction of Birches Lane and the realigned A556 Shurlach Road and with utility works and other minor highway works affecting Station Road.
2. Paragraph 1 shall not apply in the event that there is an emergency, or other unforeseen need for works, that reasonably requires the use of Station Road by HS2 construction traffic.
3. For the purposes of paragraph 1, “minor highway works” would include tie-in works at the junction of Birches Lane and the realigned A556 Shurlach Road.

If accepted, this assurance will be included in the Register of Undertakings and Assurances, which is held by the Department for Transport. Drafts of the Register will be published regularly during the passage of the Bill and it will be finalised after Royal Assent. A nominated undertaker will be contractually obliged to comply with all relevant undertakings and assurances set out in the Register. The assurance process is set out in Annex A.

If you have any further queries please don't hesitate to contact Kirsty Clarke, Petition Manager, on 07826886543 or [kirsty.clarke@hs2.org.uk](mailto:kirsty.clarke@hs2.org.uk).

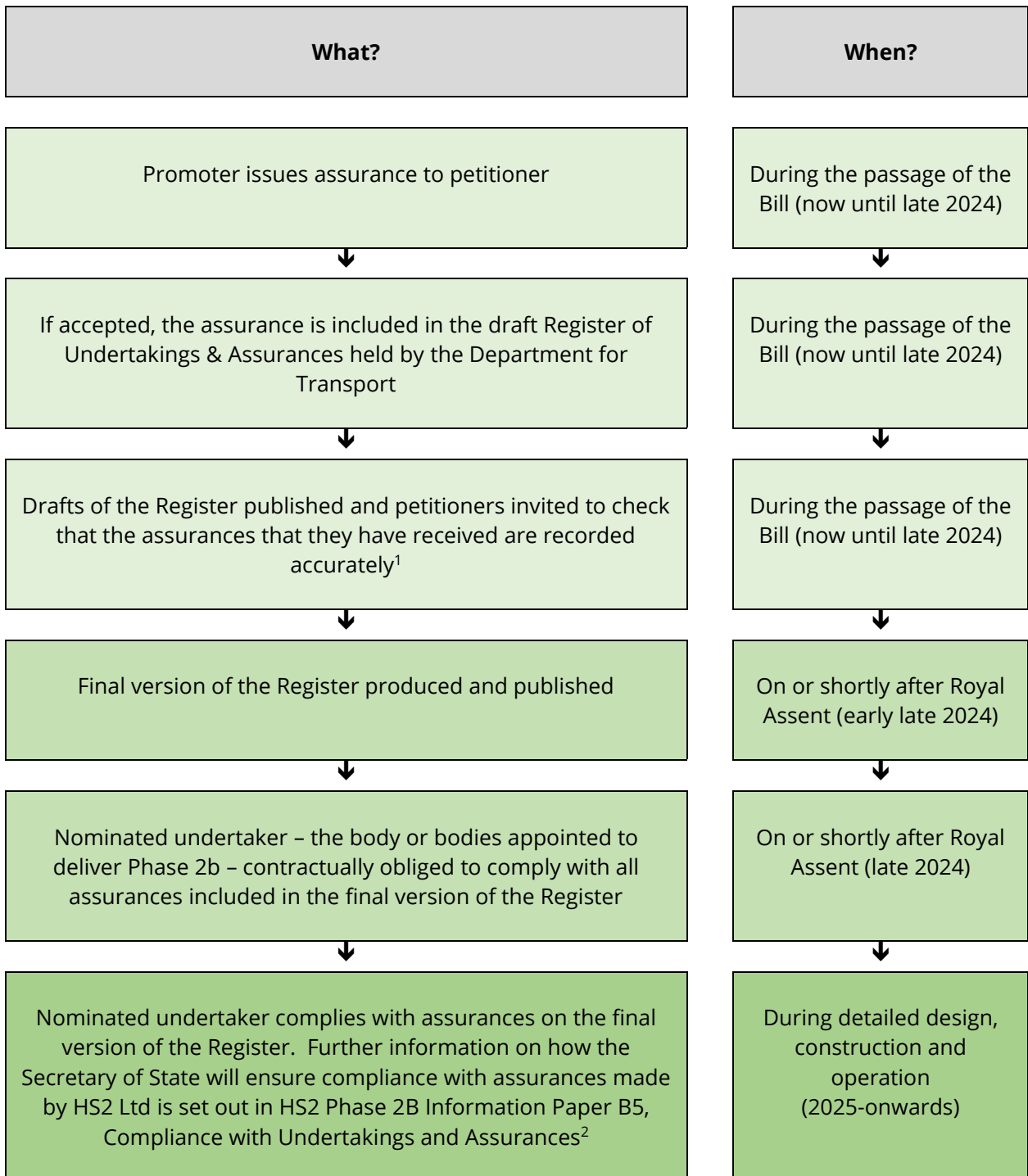
Yours sincerely



Lucy Lagerweij  
Director, Hybrid Bill Delivery  
High Speed Two (HS2) Limited

## Annex A

### ASSURANCES: STEPS AND TIMING

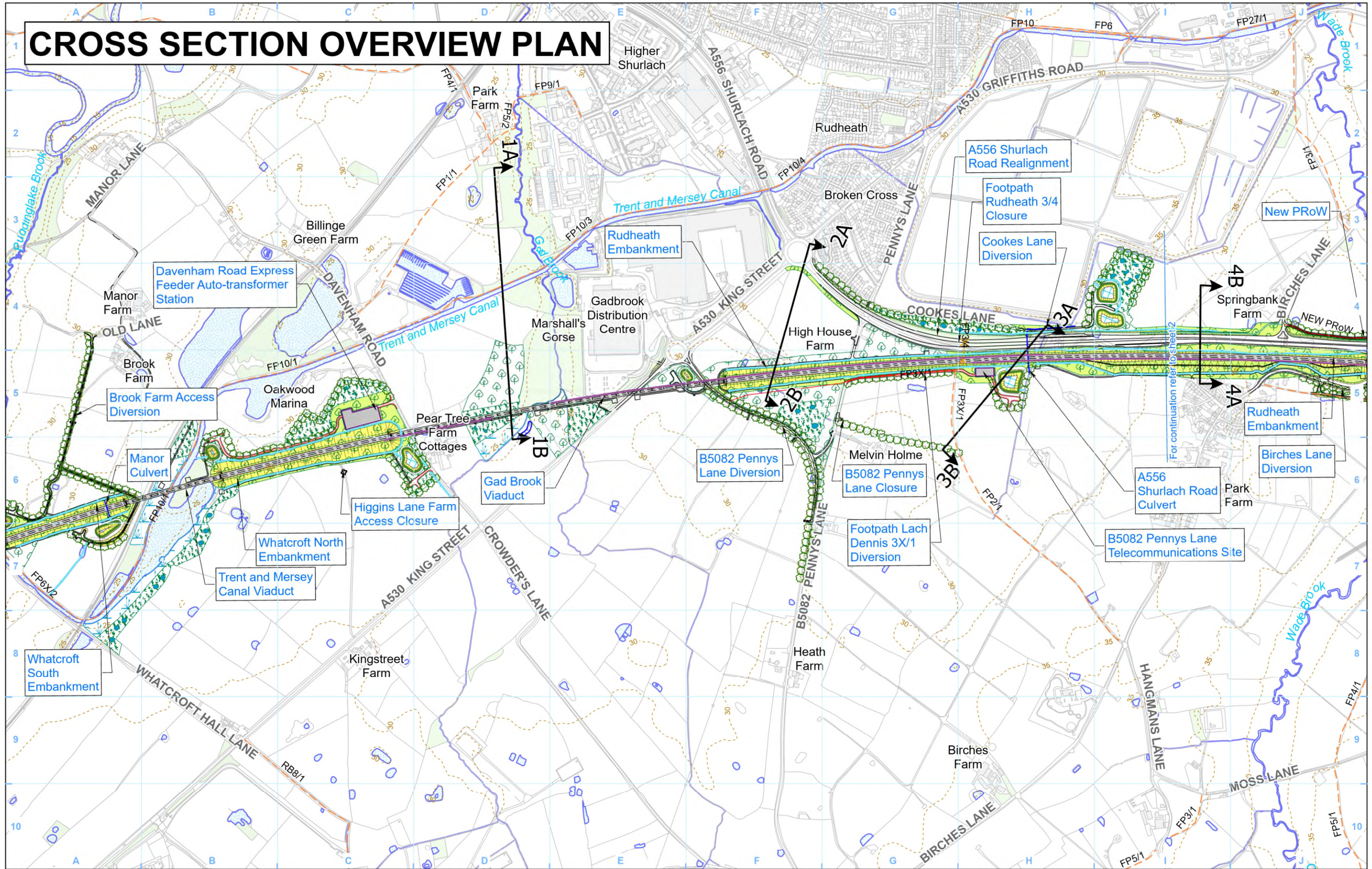


<sup>1</sup> The latest draft of the Register can be found at <https://www.gov.uk/government/publications/hs2-phase-2b-crewe-manchester-register-of-undertakings-and-assurances>

<sup>2</sup> A copy can be found at

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1048801/B5\\_Compliance\\_with\\_undertakings\\_and\\_assurances\\_v1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1048801/B5_Compliance_with_undertakings_and_assurances_v1.pdf)

# CROSS SECTION OVERVIEW PLAN



- Legend**
- Railway systems site
  - Ecological mitigation pond (Indicative only)
  - Balancing pond
  - Replacement floodplain storage area

- Grassland habitat creation
- Wetland habitat creation
- Woodland habitat creation
- Landscape mitigation planting (scrub / woodland)
- Hedgerow

- New ditches
- Watercourse diversion
- Engineering earthworks
- Landscape earthworks
- Rail alignment formation
- Existing public right of way

- New, diverted or realigned public right of way
- Public right of way closure
- Existing buildings
- Existing woodland
- Existing inland water

- Existing watercourse
- HS2 access
- Noise fence barrier
- Rail alignment
- 5m contours

P176(1)

Petitioner  
**Lostock Gralam Parish Council/  
 Lach Dennis Parish Council**  
 Petition number  
**HS2-010 / HS2-011**  
 For sections refer to  
 2PT24-MWJ-PT-DSE-M000-001131-HS2-011 to  
 2PT24-MWJ-PT-DSE-M000-001134-HS2-011

**HS2**

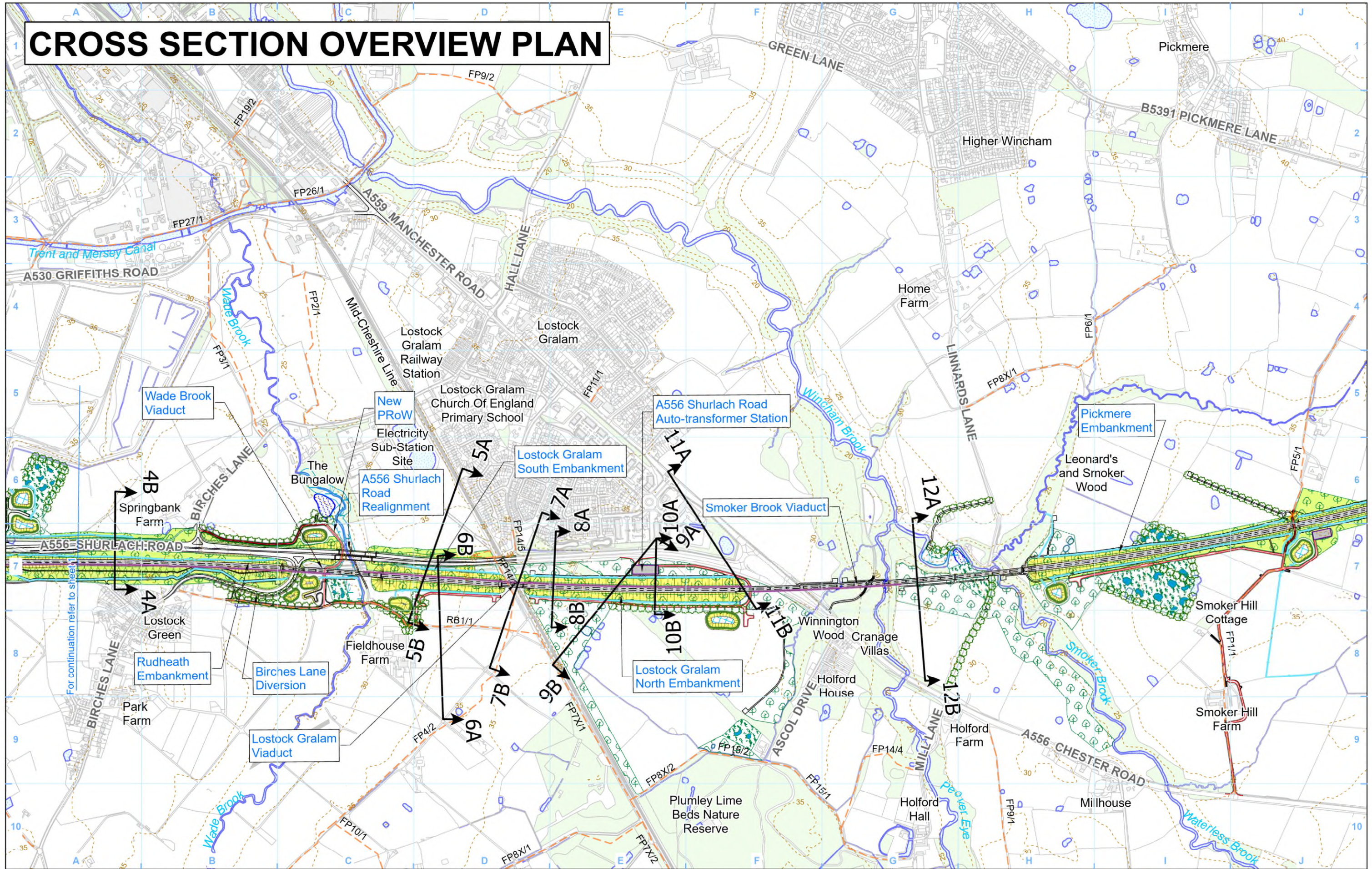
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# CROSS SECTION OVERVIEW PLAN



- Legend**
- Railway systems site
  - Ecological mitigation pond (Indicative only)
  - Balancing pond
  - Replacement floodplain storage area
  - Grassland habitat creation
  - Wetland habitat creation
  - Woodland habitat creation
  - Landscape mitigation planting (scrub / woodland)
  - Hedgerow
  - New ditches
  - Watercourse diversion
  - Engineering earthworks
  - Landscape earthworks
  - Rail alignment formation
  - Existing public right of way
  - New, diverted or realigned public right of way
  - Public right of way closure
  - Existing buildings
  - Existing woodland
  - Existing inland water
  - Existing watercourse
  - HS2 access
  - Noise fence barrier
  - Rail alignment
  - 5m contours

P176(2)

Petitioner  
**Lostock Gralam Parish Council/  
 Lach Dennis Parish Council**

Petition number  
**HS2-010 / HS2-011**

For sections refer to  
 2PT24-MWJ-PT-DSE-M000-001134-HS2-011 to  
 2PT24-MWJ-PT-DSE-M000-001142-HS2-011

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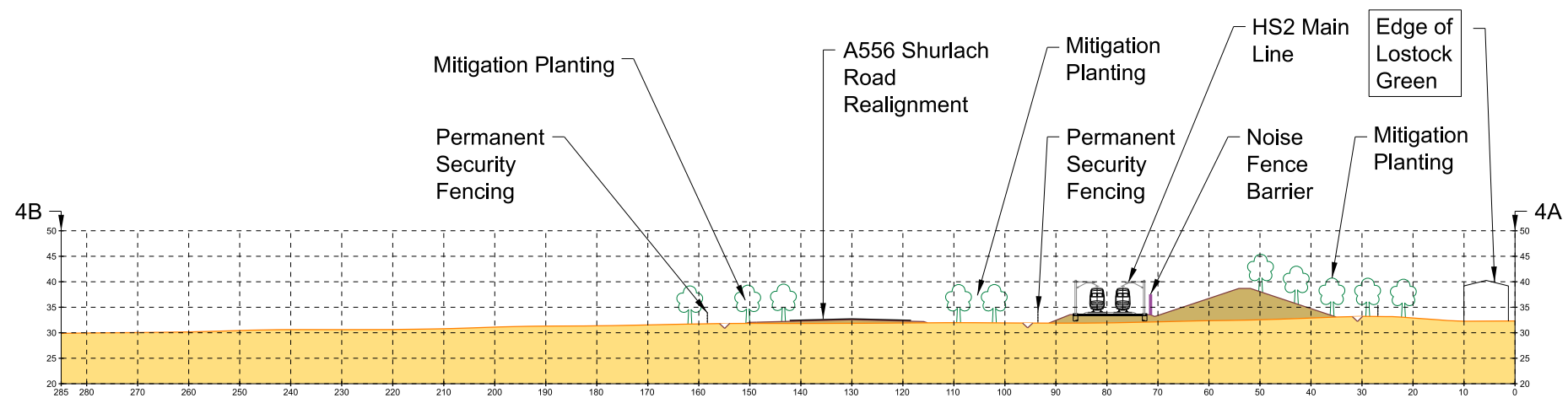
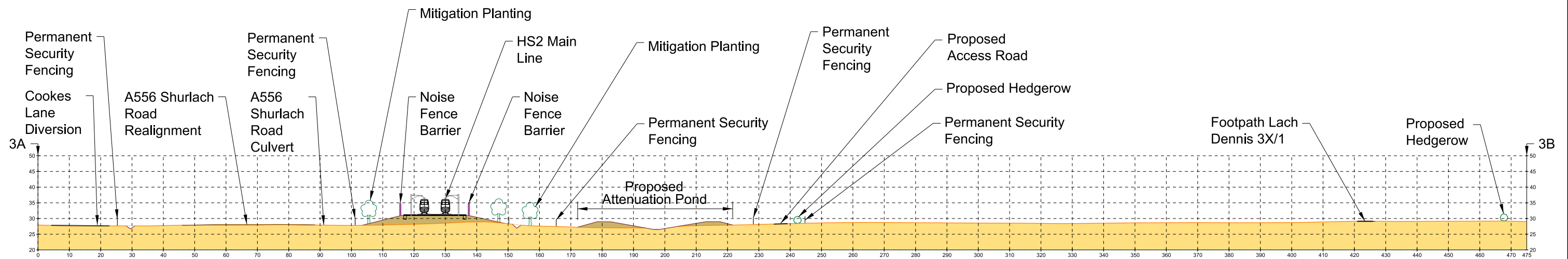
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# CROSS SECTION/S



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**Legends/Notes:**

- Existing ground
- Proposed HS2 earthworks
- Existing surface
- Designed surface level
- Mitigation Planting (Assumed Height at Year 15 of Operation)
- Noise fence barrier
- Proposed Hedgerow Planting

# HS2

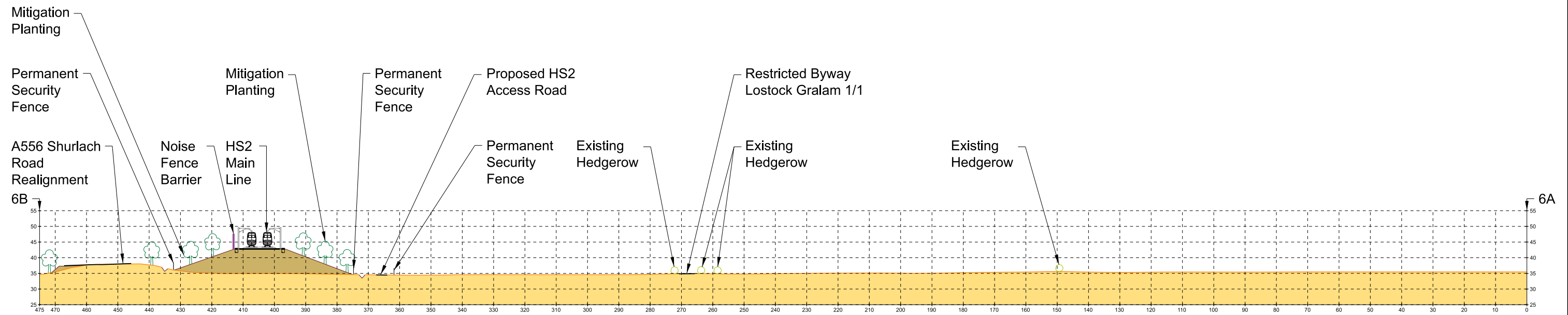
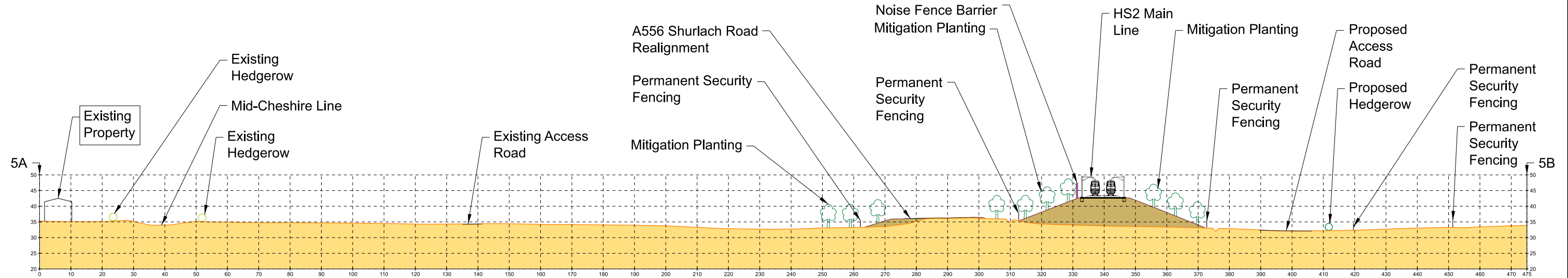
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 Registered office:  
 2 Snow Hill, Queensway,  
 Birmingham, B4 6GA

Zone	Manchester Leg Whole		Project/Contract	2DE01 Hybrid Bill Additional Provision 1 AP1	
Design Stage	Designs for Petition		Discipline/Function	Petitions	
Drawing Title	Lach Dennis & Lostock Gralam Parish Councils		Creator/Originator	MW JV (Mott MacDonald and WSP Joint Venture)	
	HS2-010/HS2-011		Date	Scale	Size
	Sh.02 (SECTION 3A-3B & 4A-4B)		2022/08/12	AS SHOWN	A3
			Drawing No.	Rev.	
			2PT24-MWJ-PT-DSE-M000-001132-HS2-011	P04	

**P177(2)**

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# CROSS SECTION/S



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**P177(3)**

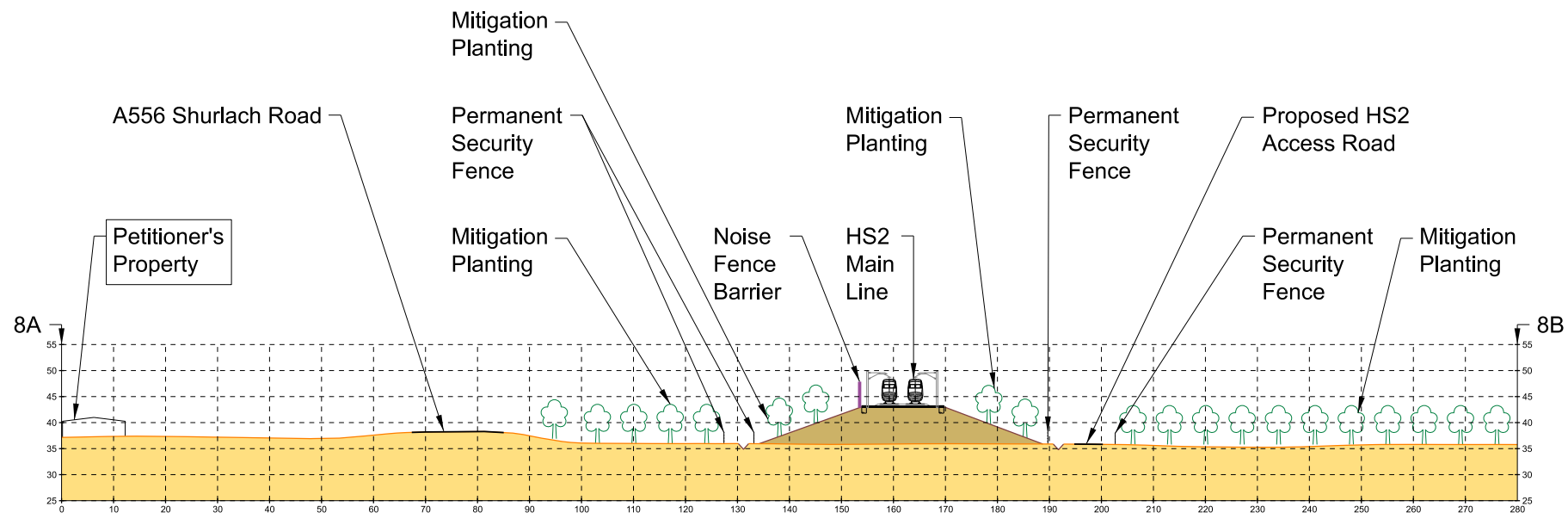
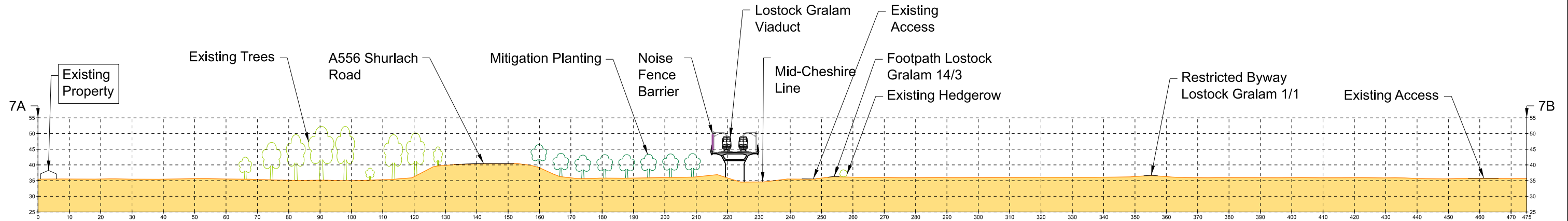
Scale with caution as distortion can occur.

Legends/Notes:	
Existing ground	Proposed Hedgerow Planting
Proposed HS2 earthworks	Existing Hedgerow
Existing surface	
Designed surface level	
Mitigation Planting (Assumed Height at Year 15 of Operation)	
Noise fence barrier	

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Zone	Manchester Leg Whole		Project/Contract	2DE01 Hybrid Bill Additional Provision 1 AP1	
Design Stage	Designs for Petition		Discipline/Function	Petitions	
Drawing Title	Lach Dennis & Lostock Gralam Parish Councils		Creator/Originator	MW JV (Mott MacDonald and WSP Joint Venture)	
	HS2-010/HS2-011		Date	2022/08/12	Scale
	Sh.03 (SECTION 5A-5B & 6A-6B)			AS SHOWN	Size
				A3	Rev.
			Drawing No.	2PT24-MWJ-PT-DSE-M000-001133-HS2-011	P04

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**Legends/Notes:**

- Existing ground
- Proposed HS2 earthworks
- Existing surface
- Designed surface level
- Mitigation Planting (Assumed Height at Year 15 of Operation)
- Noise fence barrier
- Existing Trees
- Proposed Hedgerow Planting
- Existing Hedgerow

# HS2

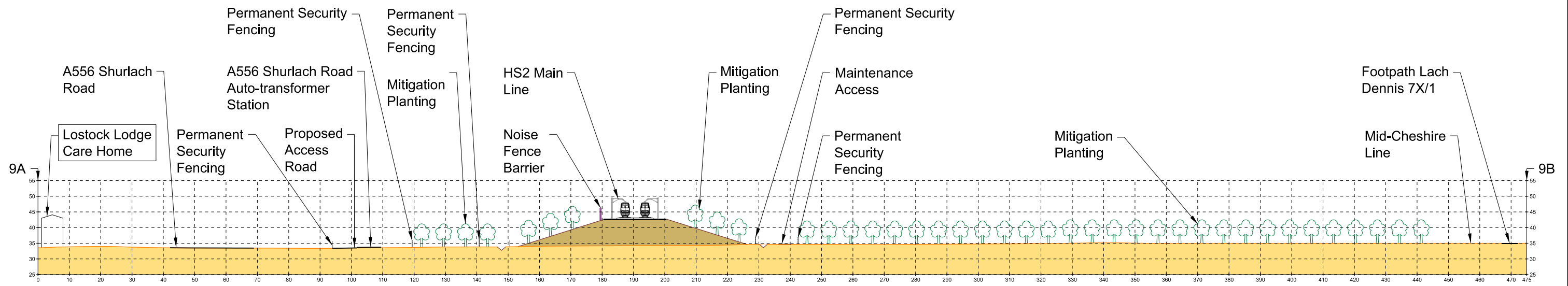
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Registration No. 06791686  
Registered office:  
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Birmingham, B4 6GA

Zone	Manchester Leg Whole		Project/Contract	2DE01 Hybrid Bill Additional Provision 1 AP1	
Design Stage	Designs for Petition		Discipline/Function	Petitions	
Drawing Title	Lach Dennis & Lostock Gramam Parish Councils		Creator/Originator	MW JV (Mott MacDonald and WSP Joint Venture)	
	HS2-010/HS2-011		Date	2022/08/12	Scale
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					P04

**P177(4)**

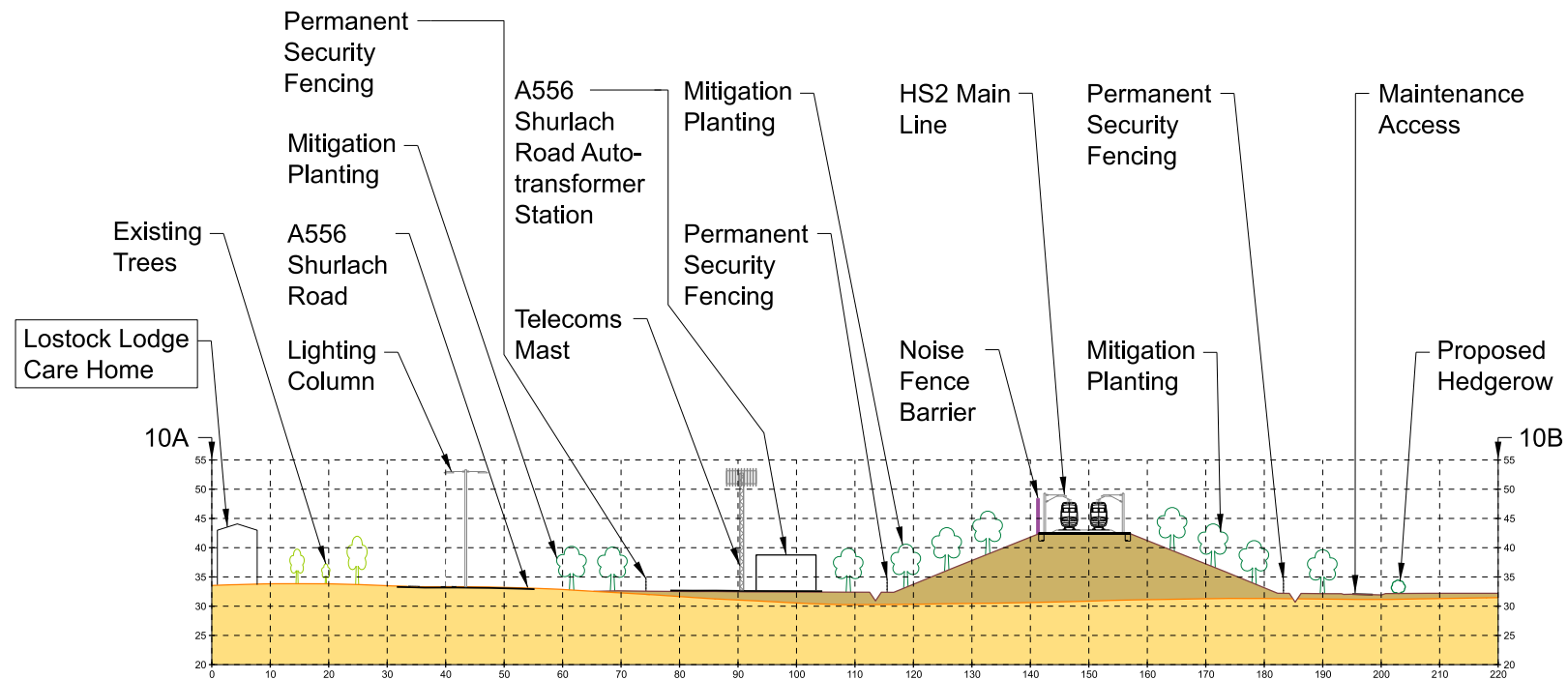
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# CROSS SECTION/S



SECTION 9A-9B  
SCALE 1:1250

For Plan refer to 2PT24-MWJ-PT-MAP-M000-001133-HS2-011-010



SECTION 10A-10B  
SCALE 1:1250

For Plan refer to 2PT24-MWJ-PT-MAP-M000-001133-HS2-011-010

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**Legends/Notes:**

- Existing ground
- Proposed HS2 earthworks
- Existing surface
- Designed surface level
- Mitigation planting (Assumed Height at Year 15 of Operation)
- Existing Trees
- Proposed Hedgerow Planting
- Noise fence barrier

# HS2

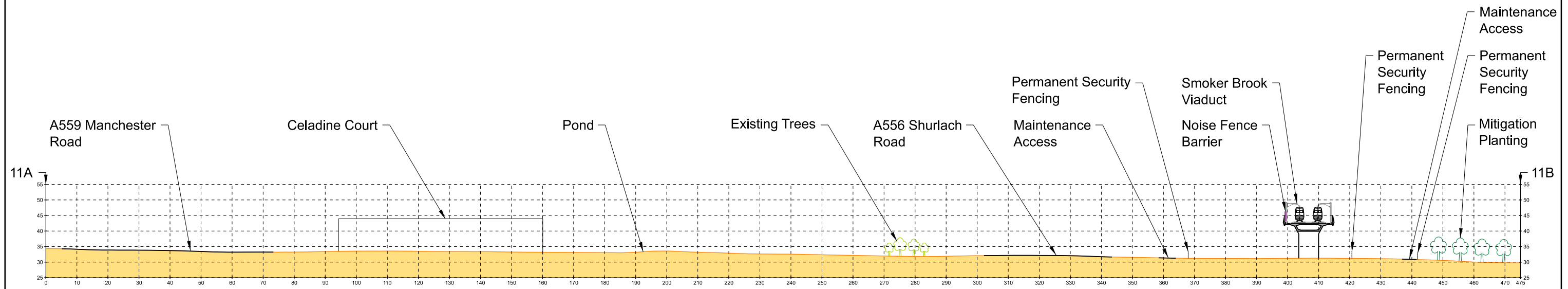
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Birmingham, B4 6GA

Zone	Manchester Leg Whole		Project/Contract	2DE01 Hybrid Bill Additional Provision 1 AP1	
Design Stage	Designs for Petition		Discipline/Function	Petitions	
Drawing Title	Lach Dennis & Lostock Gralam Parish Councils		Creator/Originator	MW JV (Mott MacDonald and WSP Joint Venture)	
	HS2-010/HS2-011		Date	2022/10/11	Scale
	Sh.05 (SECTION 9A-9B & 10A-10B)			AS SHOWN	Size
				A3	Rev.
			Drawing No.	2PT24-MWJ-PT-DSE-M000-001135-HS2-011	P04

**P177(5)**

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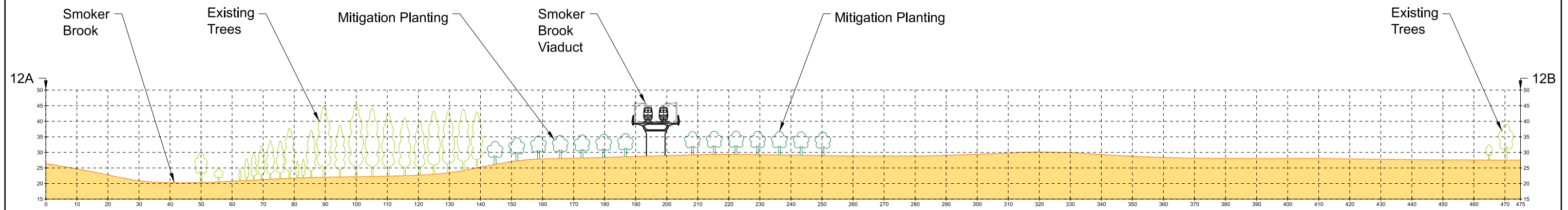
# CROSS SECTION/S



SECTION 11A-11B

SCALE 1:1250

For Plan refer to 2PT24-MWJ-PT-MAP-M000-001133-HS2-011-010



SECTION 12A-12B

SCALE 1:1250

For Plan refer to 2PT24-MWJ-PT-MAP-M000-001133-HS2-011-010

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Legends/Notes:

- Existing ground
- Proposed HS2 earthworks
- Existing surface
- Designed surface level
- Mitigation Planting (Assumed Height at Year 15 of Operation)
- Noise fence barrier
- Existing Trees

**HS2**

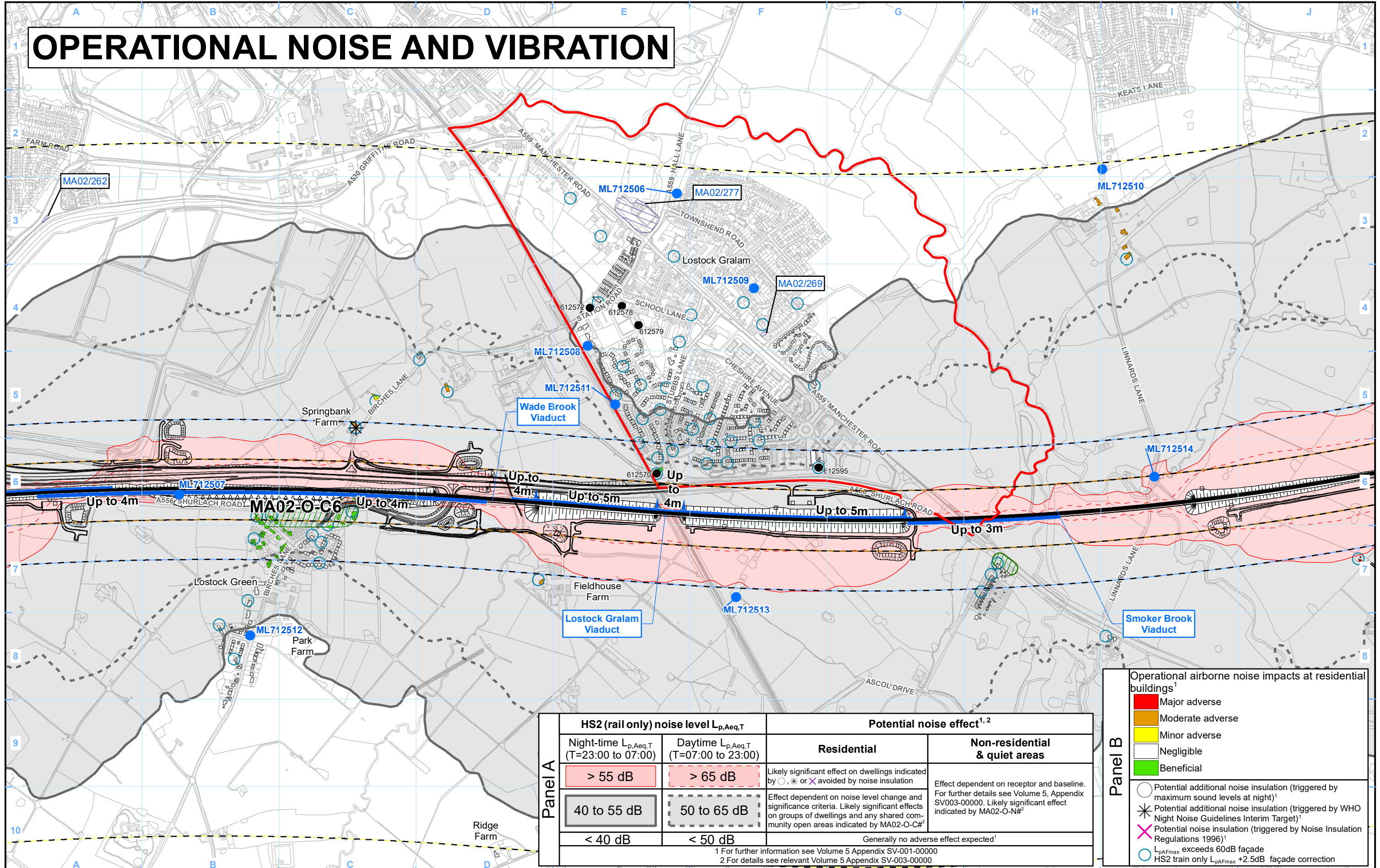
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Birmingham, B4 6GA

Zone	Manchester Leg Whole		Project/Contract	2DE01 Hybrid Bill Additional Provision 1 AP1	
Design Stage	Designs for Petition		Discipline/Function	Petitions	
Drawing Title	Lach Dennis & Lostock Grlam Parish Councils		Creator/Originator	MW JV (Mott MacDonald and WSP Joint Venture)	
	HS2-010/HS2-011		Date	Scale	Size
	Sh.06 (SECTION 11A-11B & 12A-12B)		2022/10/11	AS SHOWN	A3
	Drawing No.			Rev.	
	2PT24-MWJ-PT-DSE-M000-001136-HS2-011			P05	

**P177(6)**

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# OPERATIONAL NOISE AND VIBRATION



Panel A	HS2 (rail only) noise level $L_{p,Aeq,T}$		Potential noise effect <sup>1,2</sup>	
	Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)	Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)	Residential	Non-residential & quiet areas
	> 55 dB	> 65 dB	Likely significant effect on dwellings indicated by ○, * or ✕ avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV003-00000. Likely significant effect indicated by MA02-O-N#
40 to 55 dB	50 to 65 dB	Effect dependent on noise level change and significance criteria. Likely significant effects on groups of dwellings and any shared community open areas indicated by MA02-O-C#		
< 40 dB	< 50 dB	Generally no adverse effect expected <sup>1</sup>		

1 For further information see Volume 5 Appendix SV-001-00000  
2 For details see relevant Volume 5 Appendix SV-003-00000

**Operational airborne noise impacts at residential buildings<sup>1</sup>**

- Major adverse
- Moderate adverse
- Minor adverse
- Negligible
- Beneficial

**Panel B**

- Potential additional noise insulation (triggered by maximum sound levels at night)<sup>1</sup>
- \* Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)<sup>1</sup>
- ✕ Potential noise insulation (triggered by Noise Insulation Regulations 1996)<sup>1</sup>
- $L_{pAFmax}$  exceeds 60dB façade
- HS2 train only  $L_{pAFmax} +2.5dB$  façade correction

**Legend - General features**

- Route in bored tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Indicative extents of Petitioner(s) land interests

**P178(1)**

**Engineering earthworks:**

- Embankment
- Cutting

**Non engineering earthworks:**

- Embankment
- Cutting

**Legend - Noise related features**

Envisaged mitigation to avoid / reduce significant noise effects:

- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:

- Other environmental e.g. landscaping
- Engineering e.g. cuttings

Noise Important Areas defined in national noise action plans (Defra 2014)

- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise or vibration impact at residential buildings

Ground-borne noise & vibration study area (residential and non-residential)

- Ground-borne noise & vibration study area (highly sensitive non-residential)

- Airborne noise assessment location
- Baseline measurement locations

Map Number: SV-02

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects  
Petition HS2-010  
Lostock Garam Parish Council

Community Area MA02:  
Wimboldsley to Lostock Garam

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Doc Number: 2PT24-MWJ-PT-MAP-M000-001021-HS2-010  
Date: 28/03/23

# Noise Levels



## Appendix 7: Detailed Noise Table (Hybrid Bill)

Table 1: Baseline sound levels

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Ref	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L <sub>pAeq</sub>	Evening / weekend L <sub>pAeq</sub>	Night-time L <sub>pAeq</sub>	Daytime L <sub>pAeq,16hr</sub>	Night-time L <sub>pAeq,8hr</sub>	Arithmetic average L <sub>pAFmax,5min</sub>	Highest night-time L <sub>pAFmax,5min</sub>	
612570	Harris Road, Lostock Gralam		67	63	60	66	60	64	87	5,A,i,b
612572	Lostock Tiny Tots Pre-School, Station Road, Lostock Gralam		61	56	53	60	53	58	73	3,A,i,b
612578	St John The Evangelist Church, School Lane, Lostock Gralam		53	48	46	52	45	50	67	3,A,i,b
612579	Lostock Gralam Church of England Primary School, School Lane, Lostock Gralam		48	43	40	47	41	46	66	3,A,i,b
612595	Lostock Lodge Care Home, Cheshire Business Park Roundabout		68	63	61	68	61	66	71	3,A,i,b

Table 2: Assessment of construction noise at residential receptors

Assessment location		Impact criteria				Significance criteria								Significant effect	
Ref	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact		Mitigation effect
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
612570	Harris Road, Lostock Gralam	66/73[C]	-/[C]	-/[C]	Day: Highway works	NA	11	R	T	H	-	-	-	-	
612595	Lostock Lodge Care Home, Cheshire Business Park Roundabout	65/70[C]	-/[C]	-/[C]	Day: Highway works	NA	1	R	T	H	-	-	-	-	

# Noise Levels

# HS2

Table 3: Assessment of construction noise at non-residential receptors

Assessment location		Impact criteria				Significance criteria							Significant effect		
Ref	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of Properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (months)		Combined impact	Mitigation effect
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
612572	Lostock Tiny Tots Pre-School, Station Road, Lostock Gralam	52/56	-/-	1	-	Day: Earthworks	1	A3	T	H	-	-	-	-	\$
612578	St John The Evangelist Church, School Lane, Lostock Gralam	50/54	-/-	2	-	Day: Earthworks	1	A2	T	-	-	-	-	-	\$
612579	Lostock Gralam Church of England Primary School, School Lane, Lostock Gralam	48/53	-/-	4	-	Day: Earthworks	1	A3	T	-	-	-	-	-	
612595	Lostock Lodge Care Home, Cheshire Business Park Roundabout	65/70	-/-	3	-	Day: Highway works	1	A5	T	H	-	-	-	-	

Table 4: Operational airborne sound, noise impacts and significant effects: residential and non-residential receptors

Assessment location		Impact criteria										Significance criteria							Significant effect	
Ref	Area represented	Proposed Scheme only (year 15)			Without Proposed Scheme (opening year baseline)			With Proposed Scheme (opening year baseline + year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique features	Combined impact		Mitigation effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
612570	Harris Road, Lostock Gralam	62	54	68/--	66	60	64	65	57	-2	-3	A	3	R	T	H	-	-	-	
612595	Lostock Lodge Care Home, Cheshire Business Park Roundabout	53	47	70/--	68	61	66	67	61	-1	-1	A	1	R	T	H	-	-	-	
612572	Lostock Tiny Tots Pre-School, Station Road, Lostock Gralam	48	42	65/--	60	53	58	60	54	0	0	B	1	A3	T	-	-	-	-	
612578	St John The Evangelist Church, School Lane, Lostock Gralam	46	39	61/--	52	46	50	53	46	1	1	B	1	A2	T	-	-	-	-	
612579	Lostock Gralam Church of England Primary School, School Lane, Lostock Gralam	47	40	63/--	47	41	46	49	42	2	2	B	1	A3	T	-	-	-	-	

# Noise Levels



## Appendix 8: Detailed Noise Table (SES1 and AP1)

Table 1: Assessment of construction traffic

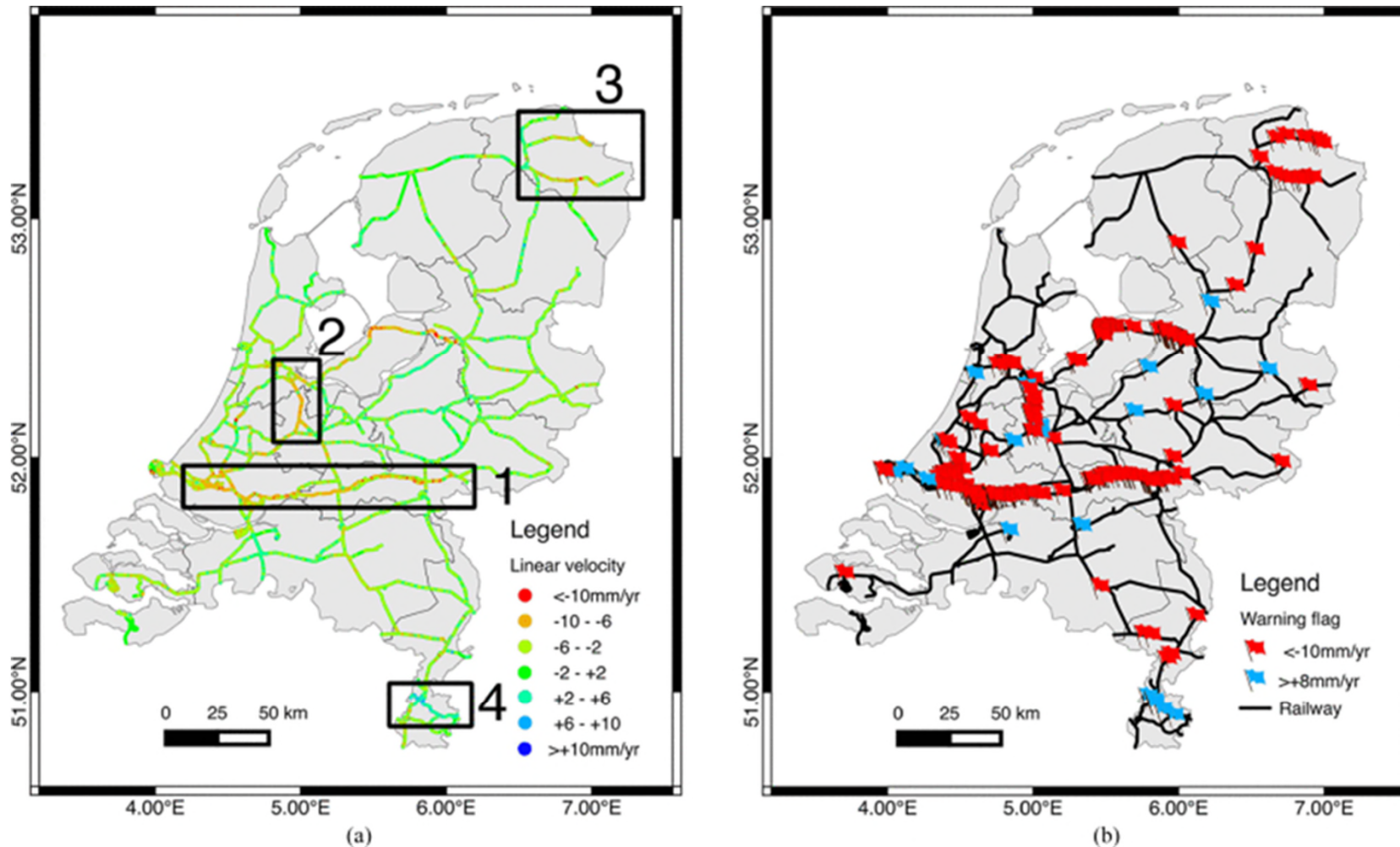
Road name	Portion of road affected	Number of properties affected (approx.)	Daytime traffic sound levels $L_{Aeq,16hr}$ dB			Change compared to current traffic sound level (dB)		Combined impact	Significant effect
			Without the Proposed Scheme (2030)	Typical month during construction	Peak month during construction	Typical month during construction	Peak month during construction		
Birches Lane/Lostock Green/Lostock Hollow/Station Road	Between A556 and School Lane	R:6 (5) NR:2	58.4	59.1	62.0	0.3	3.6	-	MA02-C-N5 MA02-C-N6
A556 Shurlach Road	Between Birches Lane and Manchester Road	R46 (38) NR: 1	73.4	73.9	74.5	0.5	1.1	-	MA02-C-C9 MA02-C-N7

# HS2

## Phase 2b (Crewe – Manchester)

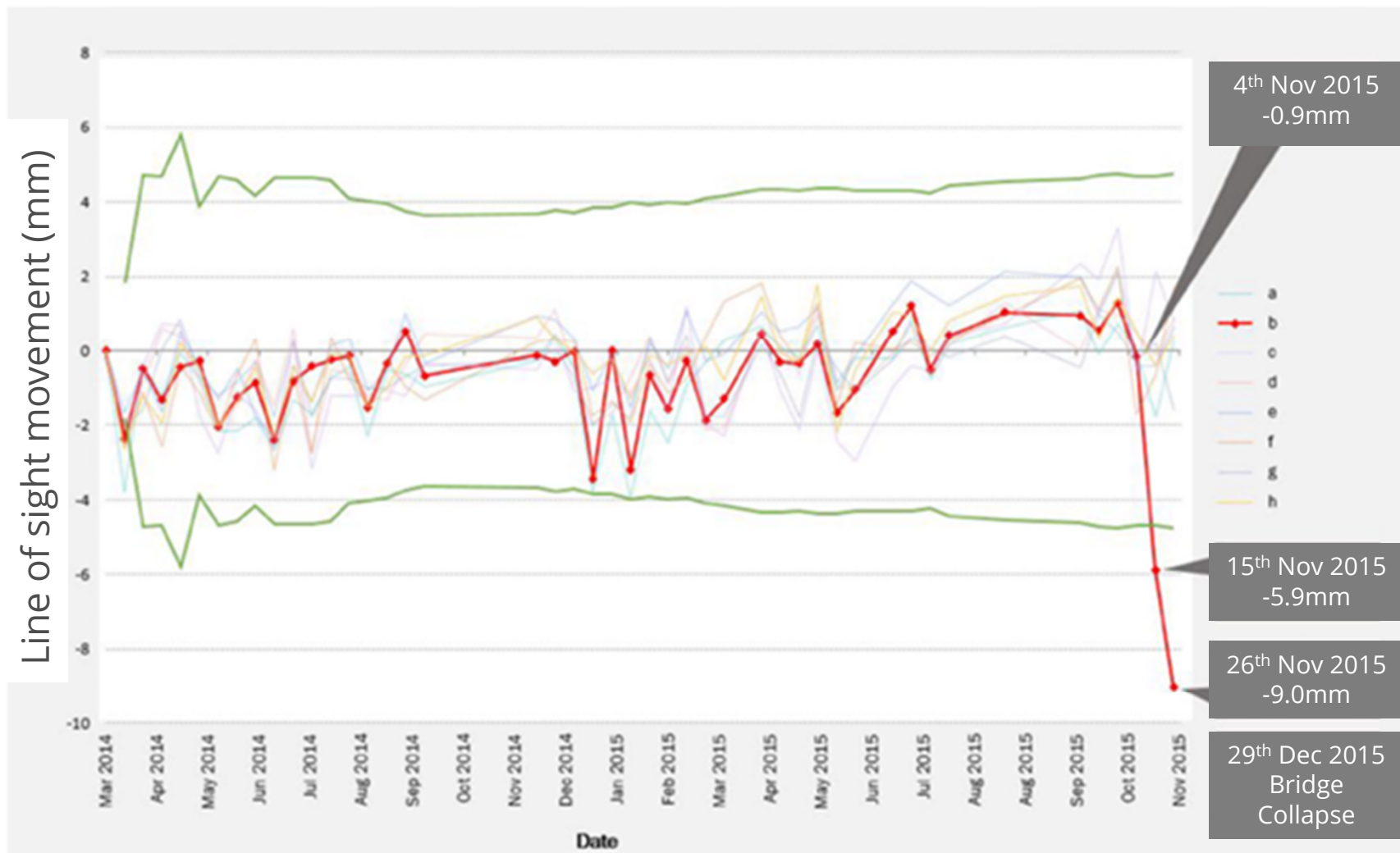
### A Note on Ground Risk across the Cheshire Plain

A Report Prepared by GCG, led by Professor Lord Robert Mair



**Figure 10.5: (a) Deformation map for Netherlands railway network derived from satellite observations. (b) Risk map, in which the coloured flags indicate the severity of the deformation (negative means settlement, positive means heave). Ling Chang et al (2018)**

Extract of Network Rail Report "A Review of Earthworks Management", Mair et al (February 2021)



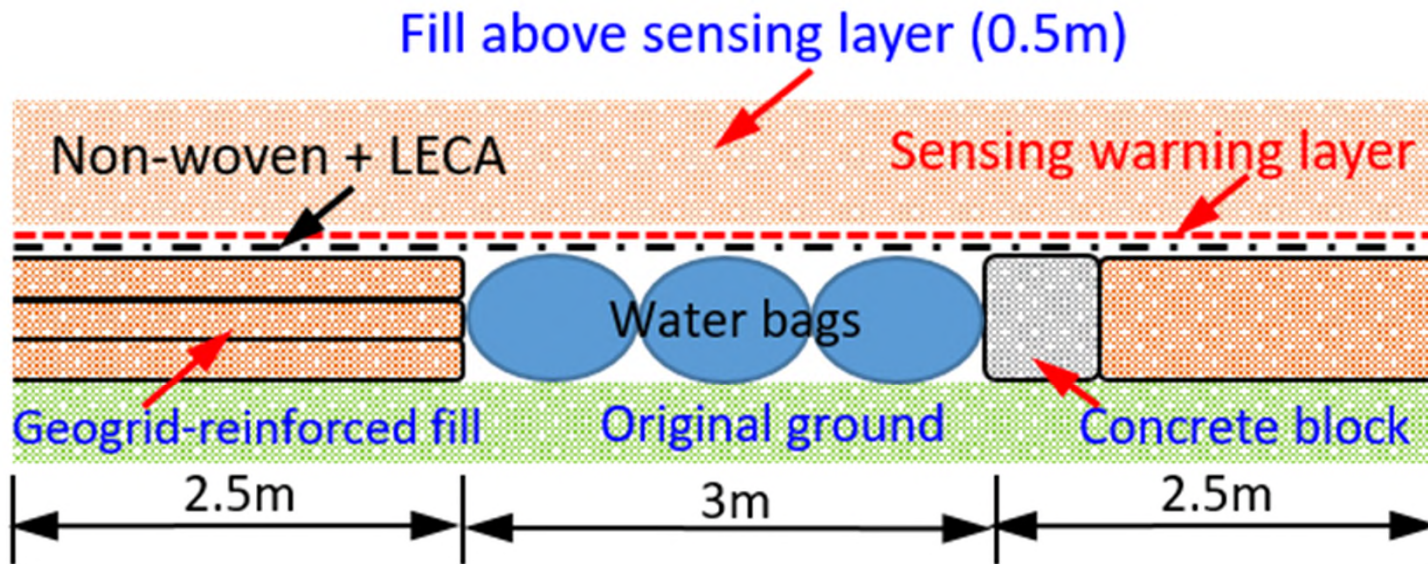
**Figure 10.4: Vertical movements of masonry bridge at Tadcaster inferred from InSAR data, indicating rapidly increasing settlement several weeks before bridge failure occurred due to scour of its foundations during flooding of the River Wharfe (Selvakumaran, S et al, 2018)**

Extract of Network Rail Report "A Review of Earthworks Management", Mair et al (February 2021)

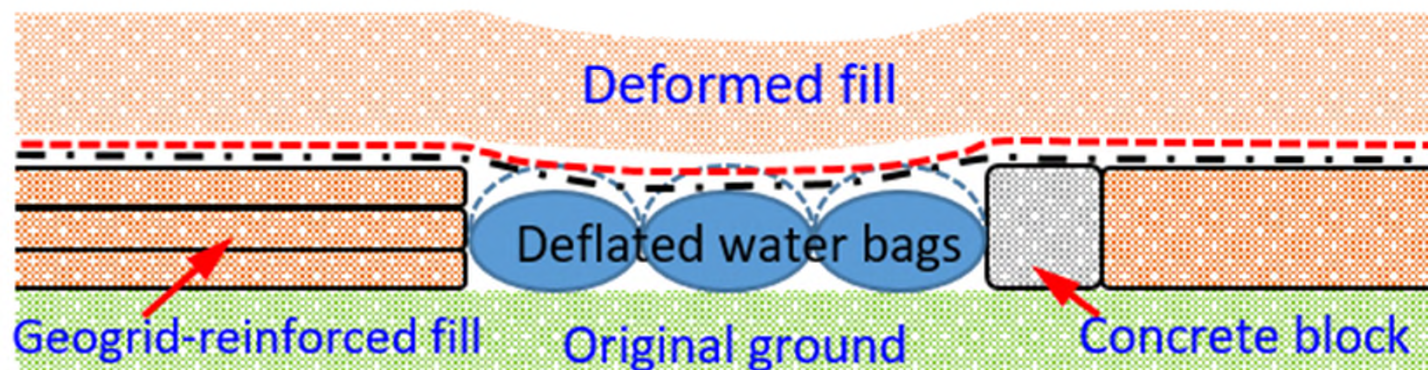


**Figure 10.3: Wireless tiltmeters around a tunnel portal (Network Rail presentation, 9 October 2020)**

Extract of Network Rail Report “A Review of Earthworks Management”, Mair et al (February 2021)

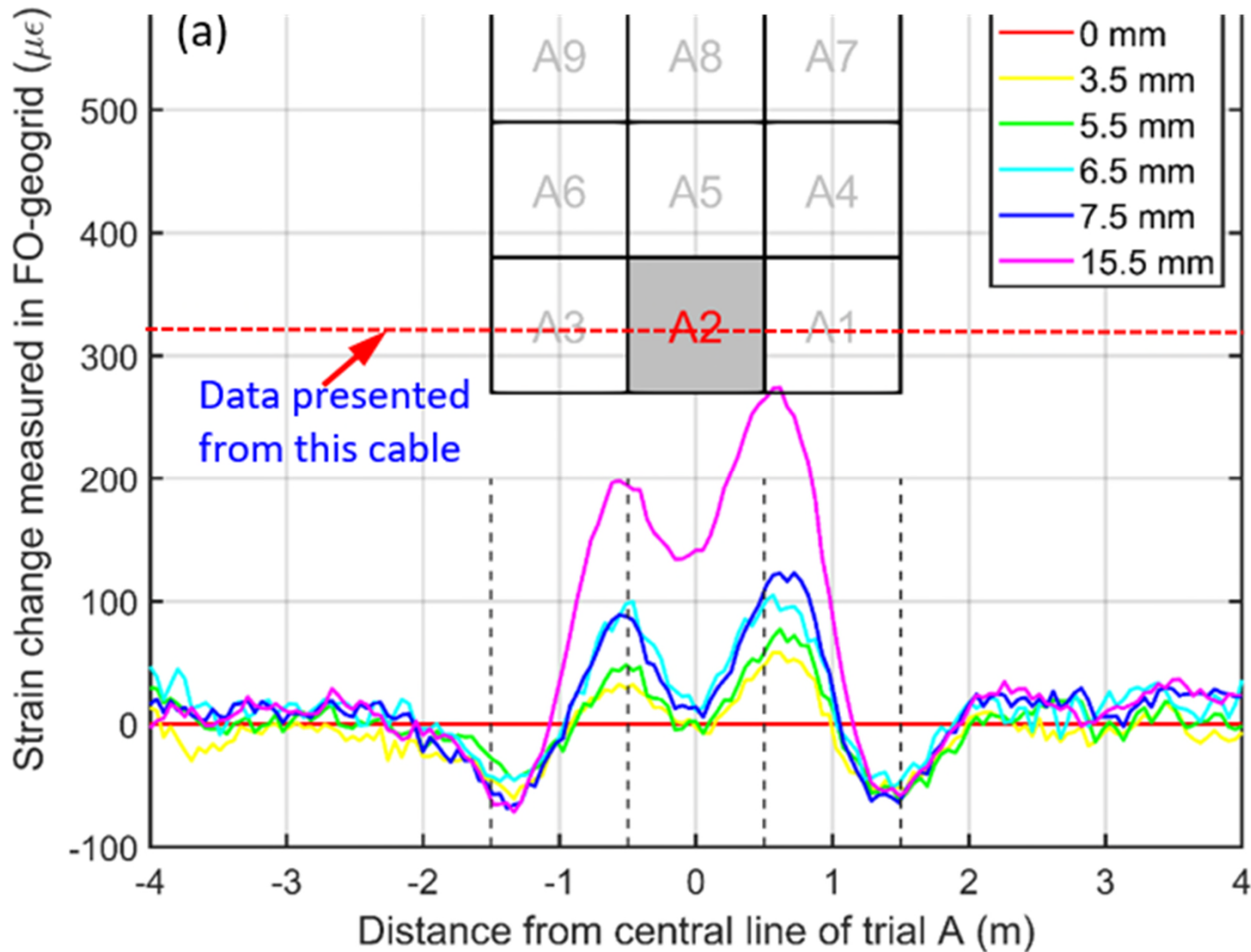


(a) Schematic diagram of field experiments (initial)



(b) Schematic diagram of field experiments (Bags deflated)

Fig.1 Field simulation of ground movement: (a) Schematic diagram of field experiments at the initial stage; (b) Schematic diagram of field experiments when bags deflated; (c) results for deflation of cell A2, small displacements results, (d) Construction of field experimental setup (after Xu et al, 2022)



(c) Small displacements

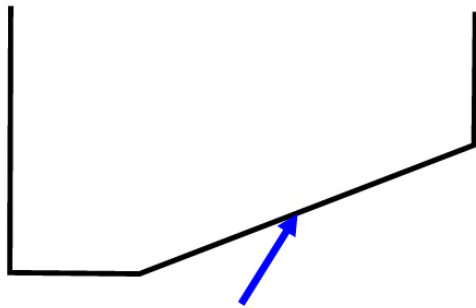
Fig.1 Field simulation of ground movement: (a) Schematic diagram of field experiments at the initial stage; (b) Schematic diagram of field experiments when bags deflated; (c) results for deflation of cell A2, small displacements results, (d) Construction of field experimental setup (after Xu et al, 2022)



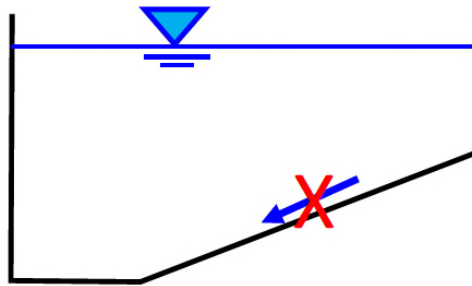
(c) Construction of site trial – Sensorgrid over water bags with backfill above

**Fig.1 Field simulation of ground movement: (a) Schematic diagram of field experiments at the initial stage; (b) Schematic diagram of field experiments when bags deflated; (c) results for deflation of cell A2, small displacements results, (d) Construction of field experimental setup (after Xu et al, 2022)**

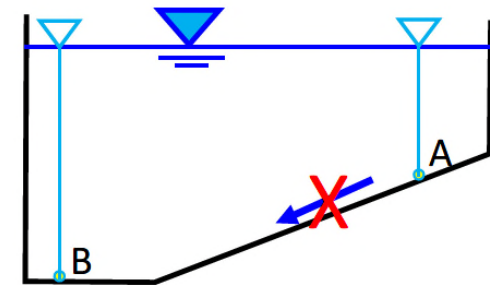
# Illustration in response to Dr Todhunter's presentation of driving head at salt rockhead



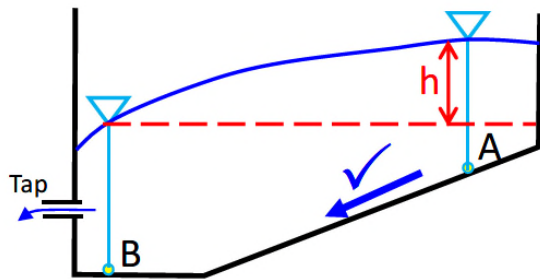
Container with sloping base, mimicking inclined salt rockhead



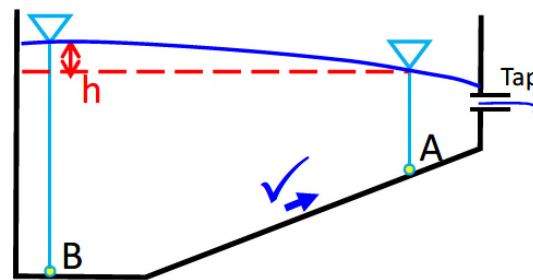
Container filled with water; there is no flow even though the base is inclined



This is because there is no driving head – e.g. see pressure head at points A & B which are equal



If you open a tap on the left, then a head difference "h" is generated and this drives flow.



Indeed if you open a tap on the right, then flow at the base would seem to be "uphill" with respect to the slope of the container base.

# **HS2 CREWE TO MANCHESTER**

**A Note on Ground Risk across the  
Cheshire Plain**

**A Report Prepared by GCG, led by  
Professor Lord Robert Mair  
CBE FREng FICE FRS**

**5<sup>th</sup> April 2023**

HS2

Crewe to Manchester

A Note on Ground Risk across the Cheshire Plain

5<sup>th</sup> April 2023

### 1. Introduction

1.1 This Note has been prepared by Professor Lord Robert Mair and Dr Chris Menkiti of Geotechnical Consulting Group (GCG). The purpose of the Note is to comment on the following documents:

- *Briefing Statement: HS2 2B route across the Cheshire Salt District North of Crewe*. Report by Dr Rosalind Todhunter, dated 6 July 2022 (hereinafter referred to as the 'Todhunter report')
- *Crewe to Manchester, Understanding the Ground Risk across the Cheshire Plain*. Report by HS2, dated 3<sup>rd</sup> March 2023 (hereinafter referred to as the 'HS2 report')

### 2. Background

2.1 The proposed HS2 line will cross the Cheshire Plain, an area of relatively flat topography, comprising mainly rural pasture and crop fields. The alignment of the Proposed Scheme crosses the Cheshire Plain in areas of former salt mining and other areas where salt mining is ongoing.

2.2 Throughout this Area of Interest, there are flashes and meres. Flashes are existing water bodies which have formed in depressions in the ground surface resulting from ground settlement, which has been induced by either historic mining collapse or salt dissolution processes. Meres are shallow lakes, likely to have originated at depressions formed from glacial scouring.

2.3 The HS2 Proposed Scheme will be on low embankments and, in some locations, on viaducts and bridge structures. There is a history of ground settlement in the area, arising from historic mining and from salt dissolution processes. The scheme is therefore likely to experience longer term ground settlements in its operational mode. This is addressed later in this Note.

### 3. Ground conditions and geotechnical risks

3.1 The HS2 report comprehensively describes the geology and ground conditions, including the hydrology (surface water) and hydrogeology (sub-surface groundwater). This information has been gained from detailed desk studies comprising reviews of published data sources, including borehole information held by the British Geological Survey (BGS), and consultations with mining companies operational within the area.

3.2 Geomorphological mapping (i.e. mapping the landforms and their development) has also been undertaken to identify higher priority locations in respect of potential salt dissolution hazard.

Advanced ground investigations, comprising boreholes and cone penetration tests (CPTs) have been undertaken at these targeted locations in 2020 and 2021. Currently, a time history of LiDAR<sup>1</sup> and InSAR<sup>2</sup> surveys are being studied by HS2 to identify locations of settlement within the alignment corridor.

3.3 LiDAR means Light Detection and Ranging and refers to a remote sensing technique that uses pulsed radar to survey a zone of ground.

3.4 InSAR stands for Interferometric Synthetic Aperture Radar. It is a satellite-based remote sensing method that can generate high-resolution images using radio and microwaves.

3.5 Appendix C of the HS2 report describes both LiDAR and InSAR techniques and associated data already gathered for the proposed alignment by HS2.

#### **4. Further investigations**

4.1 At this stage of a scheme, it is reasonable not to have undertaken fully comprehensive ground investigations in the form of many more boreholes and CPTs. HS2 is now planning for more ground investigations to further understand the ground conditions. Further supplementary investigations will be essential for the detailed design of the scheme; these will be at a later stage. However, there is sufficient geotechnical information at present on which to base the horizontal and vertical alignment of the Proposed Scheme.

4.2 Further investigations informing the detailed design development will also include collection and analysis of LiDAR and InSAR data to obtain information on surface depressions and settlements of the ground in the Area of Interest, as described above. Further comments on the value of LiDAR and InSAR are made in section 7.

#### **5. Potential geotechnical risks**

5.1 The Todhunter report identifies the complex geological issues in the Area of Interest, highlighting the influence of rock salt dissolution on potential future ground subsidence. Other concerns expressed in the report relate to artesian groundwater pressures in some superficial layers. However, this does not appear to be directly related to salt dissolution; it is a different and more common geotechnical problem associated with the impact of elevated porewater pressures in cohesionless deposits.

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<sup>1</sup> From 1998 to present

<sup>2</sup> From 1995 to 2020

- 5.2 The HS2 report also addresses natural salt dissolution, controlled brine extraction and the potential effects at the ground surface. It notes that, with the cessation of wild brining more than four decades ago, ongoing dissolution along brine runs is expected to be at a slow rate. It also discusses the specific geological conditions leading to collapse at the ground surface, known as ‘sink holes’, noting that there have been no reported instances of sink hole formation arising from salt dissolution across the Area of Interest. This includes a review of data from the Cheshire Brine Compensation Board, for which HS2 report that “The Cheshire Brine Compensation Board stated that in the decade following 2006<sup>3</sup> they had received [only] one notice of damage within 1km of the HS2 route” and for this “compensation [was] rejected as [it was] not attributable to salt dissolution”.
- 5.3 The Todhunter report also identifies the need for careful drainage design and this is recognised by HS2. We agree with this.
- 5.4 In summary, we agree with the broad mechanisms of potential salt dissolution hazards identified both in the Todhunter report and the HS2 report, and that there is likely to be future ground subsidence. This must be allowed for in the detailed design of the Proposed Scheme. The Todhunter report refers to “extensive ground instability” in several places. This is potentially misleading, implying that these mechanisms at depth will be manifested at the ground surface as extensive instability in terms of their interaction with the proposed embankments and structures. Whereas long-term surface ground movements that occur can be managed, as discussed in this Note.

## **6. Proposed scheme response**

- 6.1 Although future ground subsidence is to be expected, the HS2 report outlines how this can be safely accommodated by the detailed design of the Proposed Scheme. Bridges and viaducts will be on piled foundations, with the piles taken down to adequate depths; the decks of these structures will be designed to have jacking facilities if there is a need to adjust them in the future.
- 6.2 The Proposed Scheme will be mainly on low embankments, which will probably incorporate geogrid reinforcement; these stiffer embankments will mitigate against effects of ground subsidence, but there may also be a need to adjust the rails to allow for ongoing settlement. The settlement development is likely to be slow and such adjustment is feasible.
- 6.3 A key to the approach outlined in the HS2 report is to mitigate the risk of ongoing settlement (including incipient sinkholes at the ground surface) by firstly adopting engineering solutions, such

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<sup>3</sup> after cessation of the last known brine operation - the New Cheshire Salt Works, situated in Wincham 2km from the route alignment, which ceased trading in June 2006

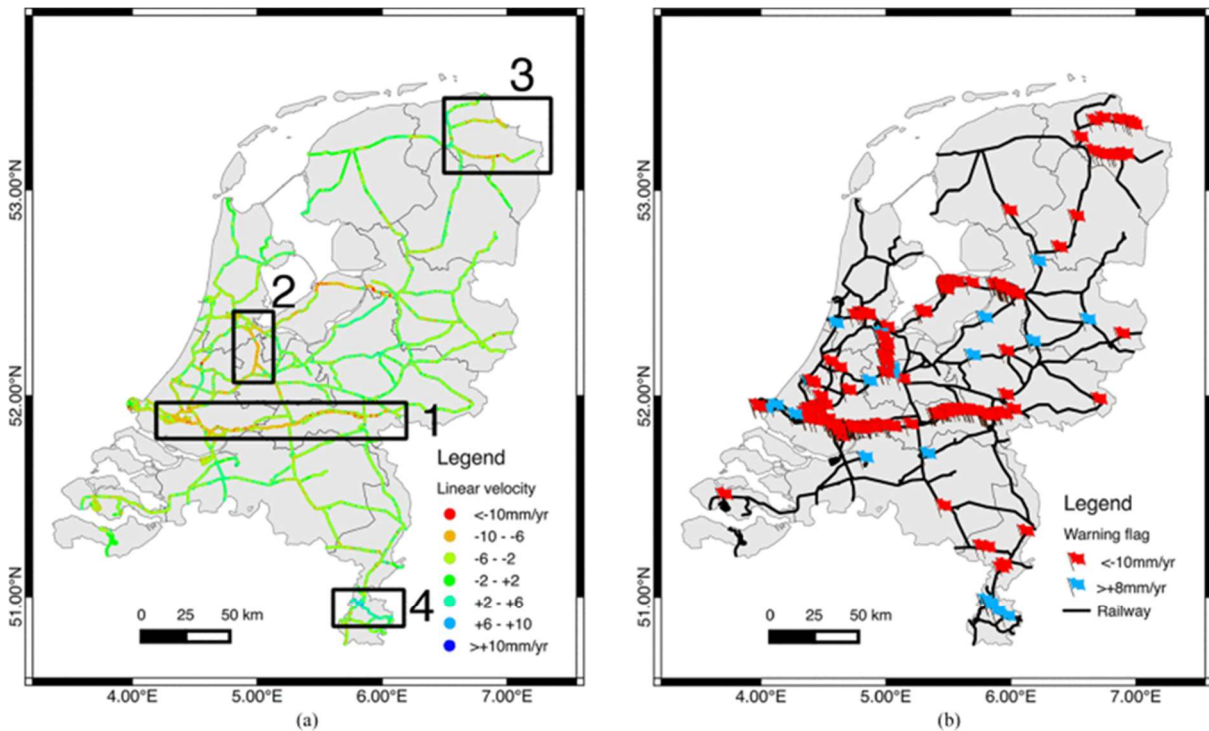
as those discussed in paragraphs 6.1 to 6.2 above, and then dealing with any further settlement by means of comprehensive monitoring and appropriate maintenance interventions.

6.4 The combination of further ground investigations, risk assessments, use of engineered solutions, detailed monitoring of movements of both the ground and the railway, and a detailed response plan for both anticipated and unexpected ground movement (termed 'adaptive interventions' in the HS2 report) will ensure that the Proposed Scheme can be operated safely.

## **7. Monitoring and surveillance technologies**

7.1 The HS2 report refers to the use of LiDAR and InSAR for remote sensing of the settlement of the Proposed Scheme. We fully agree with this. Following the tragic train derailment near Carmont (west of Stonehaven), Scotland in August 2020 after a period of intense rainfall, Network Rail appointed Lord Mair to chair a Task Force Review of their management of earthworks (i.e., cuttings and embankments) across the whole Network Rail system. The Review focused on Network Rail's capability and methodology for the management of railway cuttings and embankments, particularly in the light of climate change. The Task Force report, published in February 2021 (ref[1]), contained a total of 54 recommendations, including the need for significant investment in the updating of monitoring and surveillance methods.

7.2 Chapter 10 of the Task Force report focused on the importance of monitoring and surveillance technologies and drew attention to the considerable value of InSAR, using satellite technology. An application of InSAR for railways is shown in Figure 10.5 from the Task Force report (extract below) in which the technology was applied to the entire railway network of the Netherlands, more than 3000 km long, using hundreds of Radarsat-2 acquisitions between 2010 and 2015, leading to the first satellite-based nationwide railway monitoring system. The resulting deformation map for the Netherlands railways is shown in Figure 10.5 (a) of the Network Rail report, and a more detailed "flagging system" risk map is shown in Figure 10.5(b). The risk map, based on the satellite measurements combined with expert judgement, shows areas with  $< -10$  mm/year (indicating a settlement rate exceeding 10mm/year), and those with  $>+8$  mm/year (indicating a heave rate exceeding 8mm per year); these are highlighted by the red and blue flags, respectively.

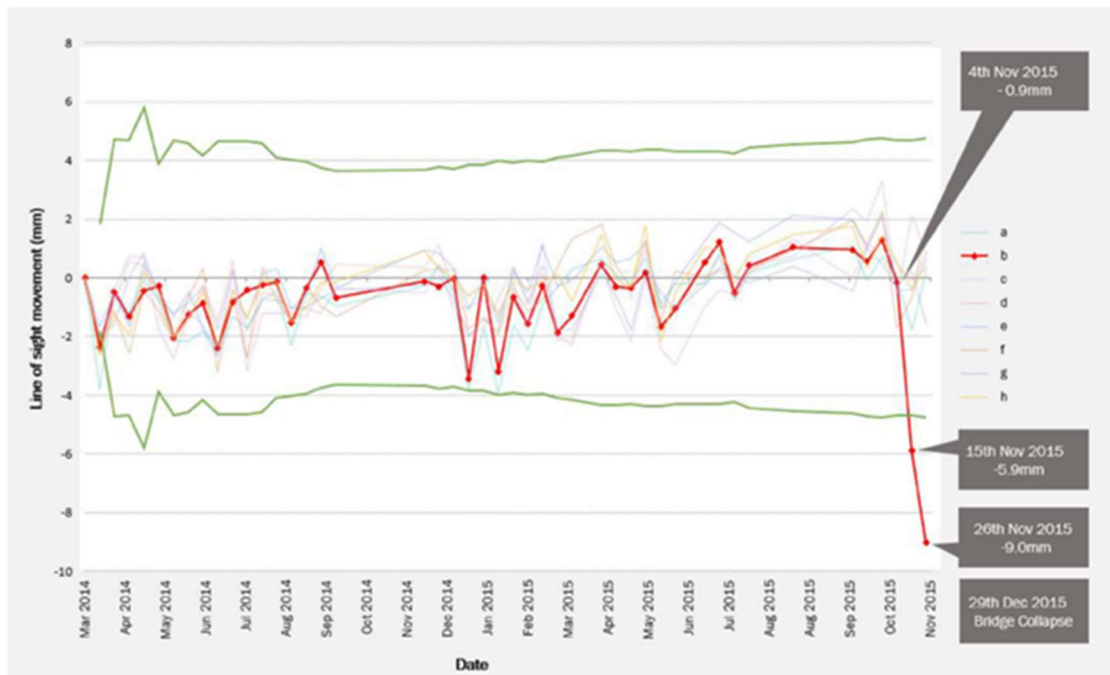


**Figure 10.5: (a) Deformation map for Netherlands railway network derived from satellite observations. (b) Risk map, in which the coloured flags indicate the severity of the deformation (negative means settlement, positive means heave). Ling Chang et al (2018)**

Extract from ref [1]

7.3 The recent experience for the Netherlands railway network illustrates the potential for InSAR to be used to monitor and control the performance of the HS2 Proposed Scheme. InSAR is clearly a promising technology which is developing rapidly, particularly with rapid developments in AI and machine learning.

7.4 InSAR is also capable of providing warning of impending instability. An example of its potential use for providing warning of bridge foundation scour is illustrated in Figure 10.4 from the Task Force report (see below). On 29<sup>th</sup> December 2015, following a period of intense rainfall and flooding, the masonry bridge at Tadcaster suffered a partial collapse into the River Wharfe due to scour of its foundations. Figure 10.4 shows subsequent analysis of InSAR data indicating settlement of the bridge being a precursor to failure; measurements several weeks before the failure indicate rapidly increasing settlement, almost certainly caused by earlier flooding and scour. This is a good example of the potential for InSAR technology for providing evidence of settlement as a precursor to subsequent instability and failure. It is highly relevant to providing warning of a possible, although unlikely, development of a sink hole beneath the HS2 Proposed Scheme.



**Figure 10.4: Vertical movements of masonry bridge at Tadcaster inferred from InSAR data, indicating rapidly increasing settlement several weeks before bridge failure occurred due to scour of its foundations during flooding of the River Wharfe (Selvakumaran, S et al, 2018)**

Extract from ref [1]

7.5 Chapter 10 of the Task Force report also highlights a number of other new technologies for monitoring, including wireless tiltmeter systems recently trialled by Network Rail (see Figure 10.3 below, which has been extracted from the Task Force report). The tiltmeters transmit their measurements through a wireless communications network to a gateway, and thereby are loaded onto the internet. Readings can be taken every five minutes or at even higher frequencies, and alert levels set to give suitable warnings. These are an extremely promising application of innovative sensor development to the management of infrastructure such as the HS2 Proposed Scheme.

7.6 The roles of monitoring and mitigation are recognised in the Todhunter report<sup>4</sup>.

<sup>4</sup> e.g., Section 4 paragraph 3

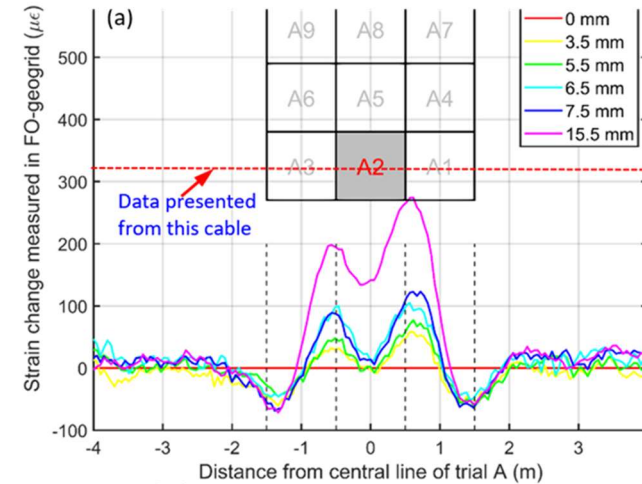
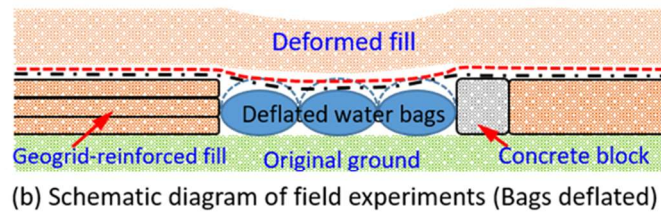
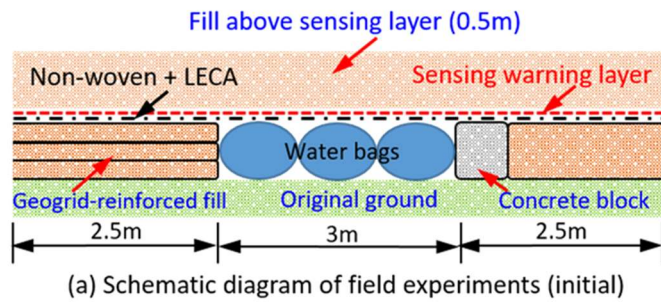


**Figure 10.3: Wireless tiltmeters around a tunnel portal (Network Rail presentation, 9 October 2020)**

Extract of ref [1]

7.7 Distributed fibre optic sensing (DFOS) provides a powerful technique for measurement of deformation and for advance warning of adverse ground movements. Controlled field experiments for early detection of sink hole development have recently been undertaken by HS2, Cambridge University and others (Xu et al, 2022). These were designed to assess the use of a newly developed geogrid for early warning of localised ground movement – see Fig.1 below. The geogrid is integrated with DFOS strain cables during the manufacturing process (referred to as a Sensorgrid). The trial results showed that the Sensorgrid configuration is highly sensitive to strain and can detect very small vertical displacement.

7.8 This innovative technology has considerable relevance to the HS2 Proposed Scheme, in which geogrids are likely to be incorporated in embankments in certain areas.



(c) Small displacements



Fig.1 Field simulation of ground movement: (a) Schematic diagram of field experiments at the initial stage; (b) Schematic diagram of field experiments when bags deflated; (c) results for deflation of cell A2, small displacements results, (d) Construction of field experimental setup (after Xu et al, 2022)

## **8. Conclusions**

- 8.1 Since the refined alignment was published in 2016 (ref [2]), additional surveys and studies have been undertaken by HS2 in the Cheshire Plain area, including desk studies of BGS boreholes, data harvesting from salt mine operators, geomorphological mapping and risk categorisation for salt solution landforms, new InSAR and LiDAR surveys, and new ground investigations comprising boreholes and CPTs.
- 8.2 Therefore, it appears, at this stage, that there is sufficient ground investigation information for HS2 to define the vertical and horizontal alignment in the Cheshire Plain area.
- 8.3 Nevertheless, further extensive ground investigation and surveys will be undertaken to fully develop the design and to inform construction planning.
- 8.4 Complex geological mechanisms apply in the Area of Interest, related to the influence of rock salt dissolution. These are well recognised in both the Todhunter report and the HS2 report and we agree that these potential geological hazards are important and applicable. These geological mechanisms will result in ongoing surface settlement that must be accommodated by the HS2 project, both during construction and in the operational life of the railway. The HS2 report discusses many engineering techniques for addressing such challenges.
- 8.5 It is common in infrastructure engineering for structures to be designed to tolerate ground movements. The techniques referenced in the HS2 report are well-established engineering methods that have been successfully used many times. We see no reason why they cannot be successfully used in the Cheshire Plain for the HS2 Proposed Scheme.
- 8.6 Indeed, for the efficient and safe operation of a high speed train, track maintenance with level corrections is a reality, regardless of any underlying time-dependent ground movements.
- 8.7 The ongoing settlements in the Cheshire Plain would be addressed by HS2 by risk categorisation and engineered solutions during design and construction, and in the operational life of the railway by monitoring, surveillance and appropriate maintenance interventions.
- 8.8 There have been significant advances in monitoring and surveillance technologies in recent years, e.g. LiDAR, InSAR, wireless tiltmeters and fibre optic sensing, most of which are being implemented by Network Rail. Adoption of such technologies will be of considerable benefit to the HS2 Proposed Scheme in ensuring safe construction and operation of the railway.
- 8.9 It is noteworthy that the West Coast Mail Line railway and other railways have successfully operated in the same area for a long period.

8.10 Based on the information we have reviewed, we see no insurmountable obstacle to the successful construction and operation of the HS2 Proposed Scheme.

8.11 Climate change might promote faster salt solution mechanisms resulting in quicker rates of surface settlement. A climate change resilience assessment was undertaken by HS2 as part of its Environmental Impact Assessment. The result was that “All climate change related risks during operation have been assessed to be ‘low’ or ‘medium’ due to the range of mitigation measures”. We are satisfied that the proposed HS2 construction stage mitigations, as well as the monitoring and surveillance strategies for the operational stage jointly provide resilience to potential climate change impacts.

## **9.0 References**

- [1] A Review of Earthworks Management, prepared by a Task Force led by Professor Lord Robert Mair for Network Rail, February 2021 <https://www.networkrail.co.uk/wp-content/uploads/2021/03/Network-Rail-Earthworks-Review-Final-Report.pdf>
- [2] High Speed Two Phase 2b, Crewe to Manchester West Midlands to Leeds, Route Refinement Consultation 2016 – Consultation document, November 2016.
- [3] Xiaomin Xu, Cedric Kechavarzi, David Wright, Graham Horgan, Hartmut Hangen, Nicholas De Battista, Dave Woods, Edgar Bertrand, Sarah Trinder, Nick Sartain (2022) “Fibre optic instrumented geogrid for ground movement detection”, 11<sup>th</sup> International Symposium on Field Monitoring in Geomechanics ,London, 4<sup>th</sup> – 8<sup>th</sup> September, 2022

## Fibre optic instrumented geogrid for ground movement detection

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### Abstract

The serviceability of transportation infrastructure, and other civil engineering assets, can be adversely affected by post-construction ground movements. Potential sources of these movements include loss of material from dissolution features, differential movements at earthwork/structure transitions and movements associated with mining legacy features. Post-construction ground movements are mitigated through engineering design, which may be supported through the inclusion of monitoring systems within the earthworks at locations of particular interest.

The number of available methods capable of monitoring sufficiently large areas and providing early warning of the onset/development of ground movement is limited. The incorporation of distributed fibre optic sensing (DFOS) systems into earthworks could provide important information on the commencement, location, origin and magnitude of ground movements in near real-time for critical infrastructure over areas at risk.

HS2 is the new high-speed railway connecting London, Birmingham and the north of England. This paper presents field monitoring trials on the HS2 Phase One route using a newly developed sensing solution consisting of a DFOS instrumented geogrid for ground movement detection. Controlled field tests were first performed on two simulated sinkholes using 3x3m pits in which water-filled bags were placed and covered with stabilised chalk and granular soils, respectively. By deflating the bags in varying sequences, the captured strain signature profiles from the instrumented geogrid were compared with displacement measurements from conventional instrumentation, to assess the instrumented geogrid's sensitivity to millimetre-scale settlements. Robustness and resilience were also evaluated through in-situ durability tests. Finally, as a result of these trials, this technology is being deployed over a 100 m-long, 10 m-wide stretch of the mainline alignment on the HS2 site at Tilehouse Lane Cutting to demonstrate its viability within a live construction environment. During the remaining construction period, continuous monitoring, near real-time data processing and visualisation will offer the opportunity to detect any incipient ground movement below the temporary haul road surface.

Keywords: Distributed fibre optic sensing, Ground movement, Geogrid, Sensorgrid, Early warning

### 1. Introduction

Nearly all of the UK's critical infrastructure is placed on, or situated in soil. Therefore, ground movement can have a significant social, economical and physical impact on infrastructure provision both at present and in future years. Such ground movements are commonly induced from shallow geohazards like sinkholes, subsidence, landslides, etc., often resulting in both long-term degradation and, ultimately, structural failure of particular assets. Climate change projections suggest that these geohazards, which are themselves often driven by antecedent weather conditions, are likely to increase in magnitude and frequency for certain areas of the UK through the 21st century. Implementing early warning systems by measuring and monitoring spatio-temporal movements may be used as part of a coordinated design and risk management approach to mitigate these increasing risks posed to critical infrastructure (Ast et al. 2001). This was also emphasised by the task force appointed by Network Rail to carry out a review of earthworks management following the fatal train derailment at Carmont, Scotland on 12<sup>th</sup> August 2020 (Network Rail, 2021).

The number of available methods that are capable of monitoring sufficiently large areas and providing early warning of the onset/development of ground movement, is limited. Conventional instrumentation, such as

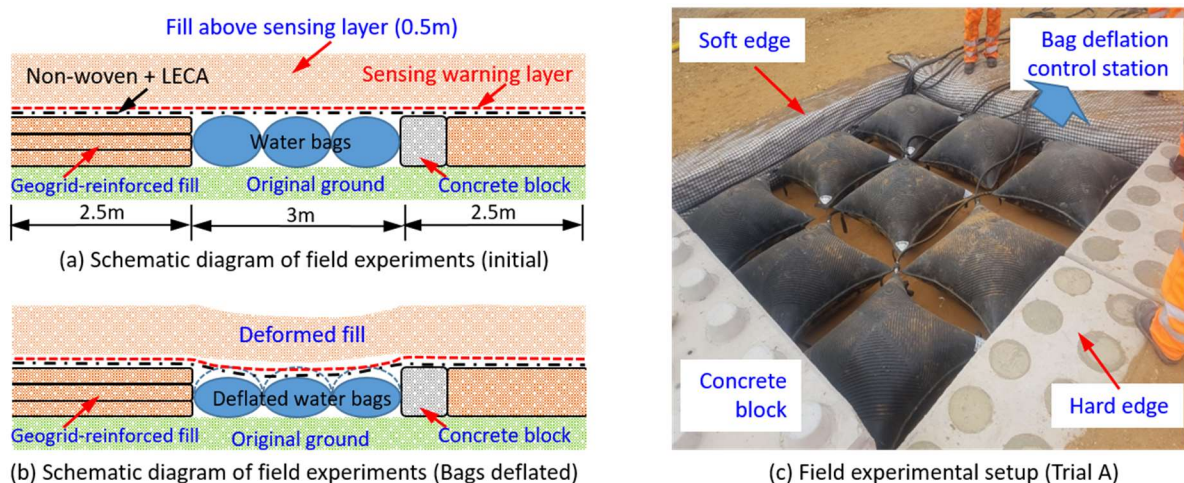
borehole extensometers, are often constrained by discretely instrumented ‘measuring points’. Remote sensing technologies like interferometric synthetic aperture radar (InSAR) are commonly used to detect ground surface elevation changes and have proved effective in mapping large-scale ground motions. However, these do not allow for the capture of subsurface deformation, which is often a precursor and early warning of surface ground movement, and their effectiveness in highly vegetated infrastructure corridors is often limited. Distributed fibre optic sensing (DFOS) technology has emerged as a powerful tool for continuous, high temporal and spatial resolution mapping of subsurface ground movement. DFOS enables measurement of temperature, strain, and acoustic energy distributions along the entire length of a fibre optic sensing cable (Kechavarzi et al. 2016; Xu et al. 2021). The incorporation of DFOS cables into the ground could provide significantly improved information on the location and magnitude of subsurface ground movement and subsidence (Möller et al., 2022). To date, this technology has been trialled in some field monitoring campaigns, with DFOS cables embedded in trenches on the ground surface and back-filled by in-situ soil to monitor ground cracks, horizontal displacements and ground settlements. Many have reported that the quality of fibre optic sensing data is highly reliant on the mechanical coupling between fibre optic cables and their surrounding soils, which is dependent on both the cable construction and its installation (Iten et al., 2011; Klar et al. 2014; Zhang et al. 2016; Winters et al. 2020).

This paper reports on controlled field experiments designed to assess the use of a newly developed geogrid, integrated with DFOS strain cables during the manufacturing process (referred to as a Sensorgrid), for early warning of localised ground movement. This innovative Sensorgrid was developed in collaboration between Huesker, the Centre for Smart Infrastructure and Construction (CSIC) at the University of Cambridge and Epsimon Ltd. The performance and practical implications of the new sensing solution were explored through real-world trials simulating the type, scale and rate of ground movement that could be experienced by earthworks assets in areas of unmitigated ground movements.

## 2. Field-scale controlled experiments

### 2.1 Experimental setup

Two 3 x 3m voids constructed at the HS2 site at Tilehouse Lane Cutting (TLC) to simulate the ground movement from shallow geohazards and explore the behaviour and response of the Sensorgrid against two different types of overburden fills commonly found and used on the South Portal at TLC: stabilised chalk (trial A) and granular fill (trial B). As illustrated in Figure 1, nine heavy-duty water-filled bags were laid in the base of each, with a maximum inflation height of 0.5m. On one end of the pit, concrete modular blocks were used to form a hard edge, simulating the transition between earthwork and structure (e.g. bridge abutment). At the other end a soft edge was formed by using a geogrid and a non-woven wrap-around on compacted fill (Figures 1(a) and (c)). On one side of the pit, four modular blocks could be removed at the end of the trial to inspect the condition and profile of the Sensorgrid. When all the bags were fully inflated, a layer of non-woven geotextile was placed loosely on top of them to support a lightweight expanded clay aggregate (LECA) fill. This was then followed by the installation of the Sensorgrid, and a 500mm layer of overburden fill above the sensing layer.

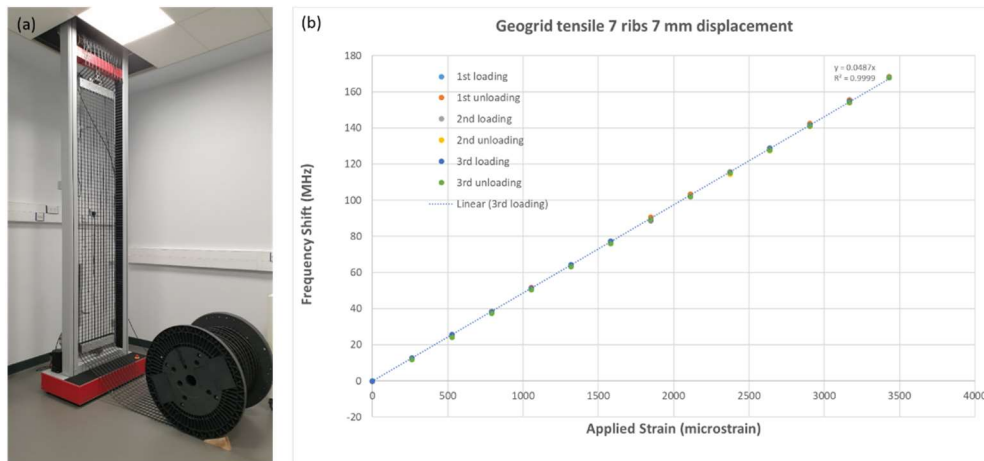


**Figure 1:** Field simulation of ground movement: (a) Schematic diagram of field experiments at the initial stage; (b) Schematic diagram of field experiments when bags deflated; (c) Field experimental setup (Trial A).

## 2.2 Field instrumentation

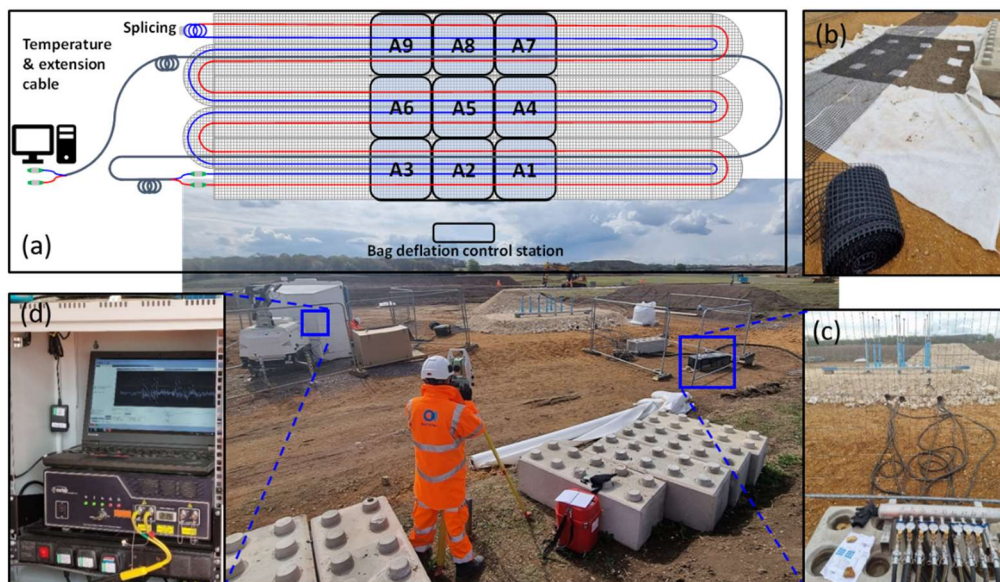
The strain fibre optic (FO) cable integrated into the Sensorgrid used in these two trials was 2.5 mm in diameter and consisted of single-mode optical fibre with a 0.9mm Hytrel coating embedded in an elastic 2.5 mm polyurethane outer sheath. It was knitted into a geogrid by Huesker by substituting it for yarns of similar size. The Sensorgrid used in these two trials was 0.5m wide and carried three individual FO cables, a central fibre, a redundant fibre positioned next to it and an offset fibre.

Prior to the trials, the performance of the Sensorgrid was evaluated through extensive testing at CSIC. In particular, the strain transfer function was evaluated using a bespoke universal testing machine to carry out tensile tests (Figure 2(a)). As illustrated by one of the test results presented in Figure 2(b), the strain transfer function of this very elastic cable showed good linearity, no hysteresis, good repeatability to high strains and high sensitivity (high strain coefficient or gauge factor, which is the slope of the linear relationships shown).



**Figure 2:** Laboratory tensile tests on the Sensorgrid: (a) Tensile test at CSIC; (b) Testing results.

Figure 3 shows an overview of the field instrumentation set-up. The grid was positioned on top of the bags in a way that the offset fibre was running over the middle of each bag, as illustrated in Figures 3(a) and (b). The anchored length of Sensorgrid was 2.5m on either sides of the pit.



**Figure 3:** Field experimental setup at trial A: (a) Sensorgrid layout; (b) Sensorgrid installation; (c) Water bag control station; (d) Fibre optic sensing analyser operating in real-time.

A conventional total station monitoring system was employed to capture the displacement on the crown of each bag, created by deflation, as well as the resulting displacement experienced by the Sensorgrid. One circular metallic plate was sitting on the centre of each bag and a second plate was sitting on top of the Sensorgrid above the bags. These two plates were connected to rods and tubes that extended over the overburden fill. Prisms

were attached to the rods and tubes and monitored using a total station, as shown in Figure 3. This allowed the movement of the bags (void) and the geogrid to be recorded in real-time, with an accuracy of  $\pm 1\text{mm}$ .

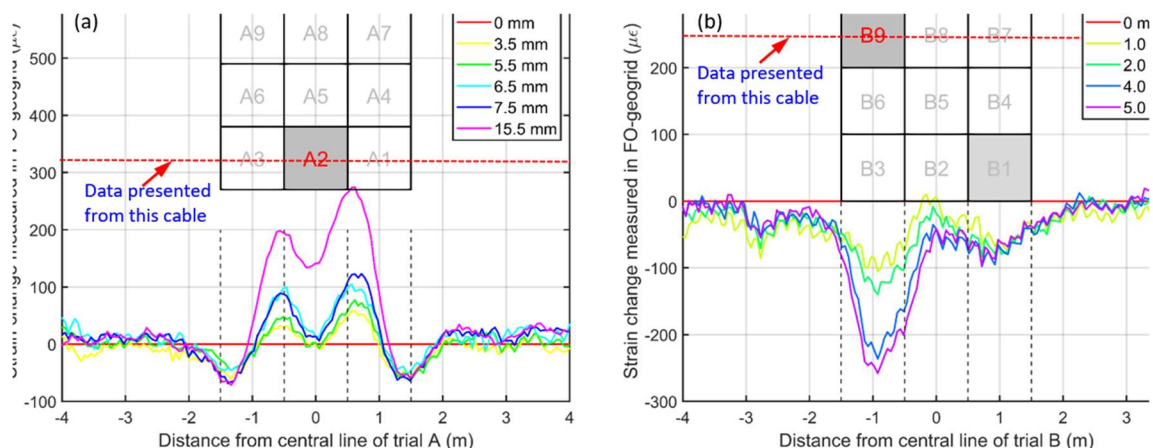
To simulate ground movement, water was released from the bags through a control station (as pictured in Figure 2(c)), causing the fill above to move downwards and strain the mesh, which in turn caused a change in the characteristics of the spectrum of the back-scattered light pulsing through the FO sensing cable captured in real-time by a Brillouin Optical Time Domain Analysis (BOTDA) analyser (OZ Optics Ltd, Canada) (Figure 2(d)). After full completion of testing on trial A, the overburden fill, the monitoring tubes and the Sensorgrid were removed to recover the bags from the pit and reuse them for trial B.

### 3. Results and Observations

#### 3.1 Early warning strain signatures

The strain signature profiles measured in the Sensorgrid at the very early stage of sinkhole formation are illustrated in Figure 4. These represent a change in strain with respect to a baseline measurement taken following the installation and prior to starting the tests. By convention, positive strain change corresponds to an increase in tension while negative strain change represents compression or loss of tension. The strain profiles shown are those obtained with the FO cable centred on the water bags in the row with red numbering, as indicated in the schematic inset in the figures. The grey shading illustrates the bags that have been (grey numbering) or are being (red numbering) deflated at the time of the measurement.

In both trials A and B, the Sensorgrid was sensitive to millimetre scale subsurface vertical settlement (not necessarily the ground surface settlement) over the relatively small spatial scale of 1m (deflated bag width). The strain generated was several times higher than the system's measurement resolution. At this early stage, the strain profile in Trial A exhibited a double-peak shape associated with the central dip across the A2 section and negative strain at the edge of the trial area. The strain profile is wider than that of the deflated water bag as the deformation across A2 generated axial strain in the grid. For Trial B, the strain profile displays a different pattern with a negative strain change in the centre line of the fibre optic trial pit B9, as shown in Figure 4 (b). This artefact is due to the different construction procedures used in Trial B where the soil over the water bags was compacted. This compaction forced the geogrid down in the dips in between the bags, creating tension in the FO cable over the centre of the curved bags. As the bags were deflated this tension was released, resulting in a negative strain change (loss of tension). This would not happen in a site installation when the geogrid is installed over a flat surface. Nevertheless, both trials demonstrate the sensitivity and effectiveness of the Sensorgrid system in detecting relatively small movements over a small spatial scale.

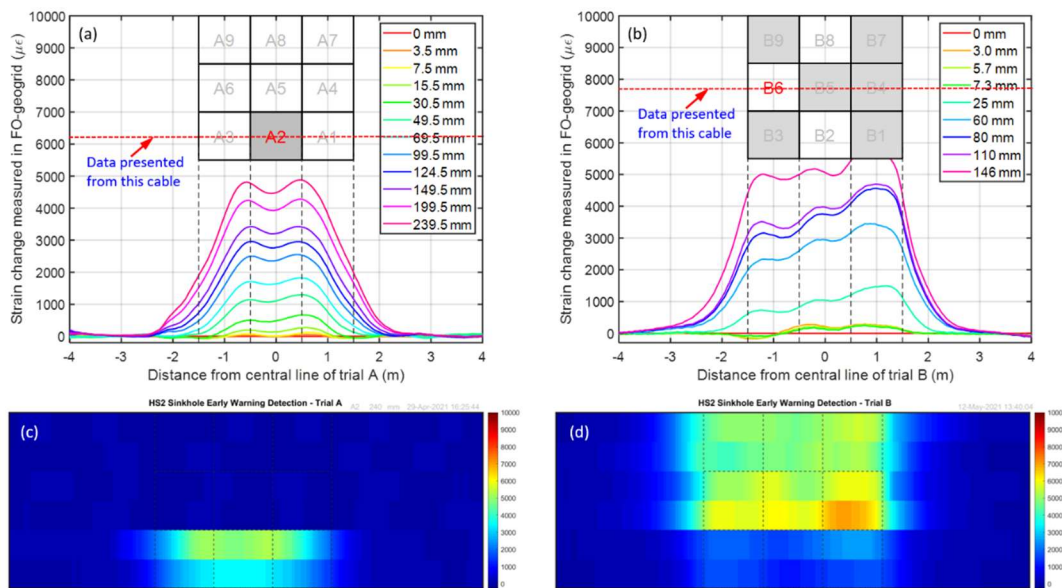


**Figure 4:** Early warning strain signature profiles: (a) Trial A - deflation of bag A2; (b) Trial B - deflation of bag B9 (following the deflation of B1).

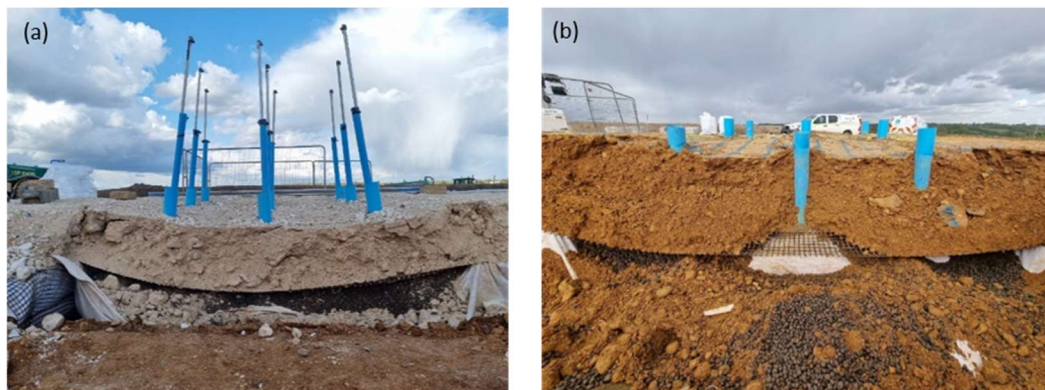
#### 3.2 Strain signatures at large ground deformations

The evolution of the measured strain profiles as sinkholes propagate was investigated by deflating bags in sequence. As displayed in Figure 5(a), the strain profile gradually became wider as the single bag A2 was deflated; i.e. the positive peaks remained around the edges of A2 but strain propagated up to about 1m into the anchorage length on both sides of the trial pit. Similar behaviour was observed in trial B, as shown in Figure 5(b). The

propagation of strain, as the bags were deflated, can also be visualised using contour plots, as highlighted in Figure 5(c) and (d). This type of two-dimensional plot on a larger scale installation is essential to allow for rapidly pinpointing the location of problem areas. Following completion of each trial, the lateral modular blocks were removed for inspection, as shown in Figure 6.



**Figure 5:** Strain profiles at large ground deformations: (a) Trial A – deflation of bag A2; (b) Trial B - deflation of bag B6 (following the deflation of B1, B9, B3, B7, B5, B4 and B6 in sequence); (c) Strain contour at trial A deflating A2 to 239.5mm; (d) Strain contour at trial B deflating B6 to 146mm.



**Figure 6:** Deformed profiles of Sensorgrid after all bags were fully deflated: (a) Trial A; (b) Trial B.

During the trials, a FO temperature cable was installed above the Sensorgrid to assess potential temperature effects. The largest temperature changes occurred on 29 April 2021 due to sun exposure, with rapid changes and an increase of almost 25°C, which was picked up by part of the cable located outside of the soil. However, in the cable covered by the soil in the trial pit, the changes were not significant and in the order of the precision of the analyser (i.e.  $\pm 1$  °C).

#### 4. In-situ durability assessment

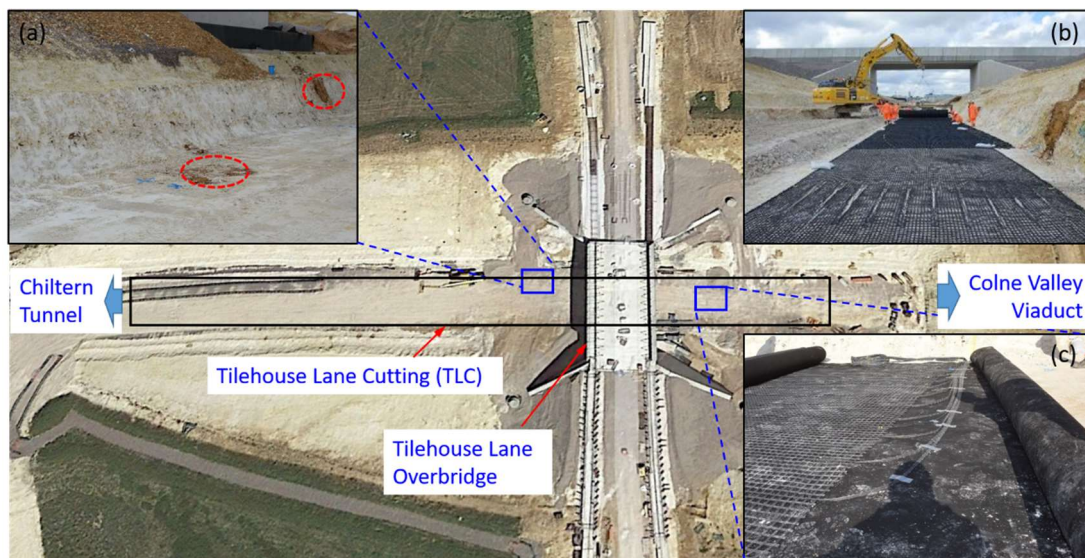
Separate tests were conducted in order to assess the robustness of the Sensorgrid used in these preliminary trials, where no significant problems had occurred, under more realistic field conditions representative of the temporary haul road and final pavement construction process at TLC. Two separate Sensorgrid circuits were laid on the ground in a single loop over a length of approximately 50m in order to apply four different treatments: (1) T1 with one protection layer of non-woven geotextile (NW20) above and below the Sensorgrid, (2) T2 with two layers of NW20 above and below the Sensorgrid, (3) T3 with three layers of NW20 above and below the Sensorgrid; (4) T4 with three layers of NW20 above and two layers of NW20 below the Sensorgrid; The non-woven geotextile (NW20) used here had a weight of 235 grams/m<sup>2</sup>, and was the same product used to cover the

water bags in the trial areas. After placing the Sensorgrid and NW20 protections, a series of construction activities were carried out, including placement and levelling of a stabilised chalk fill over the Sensorgrid, and compaction of that fill with eight passes of a 20-tonne vibratory roller. For all treatments, both strain and optical power were measured with a Neubrex NBX-5000 Brillouin Optical Time Domain Reflectometry (BOTDR) analyser all along the FO cables integrated in the Sensorgrid. The data showed that, whereas acceptable localised losses were generated during soil placement, soil levelling and soil compaction resulted in significant losses at several locations along the optical fibres. These were likely due to excessive localised bending in the fibres generated by sharp aggregates, but as the losses are cumulative they eventually exceeded the optical budget available (dynamic range of the analyser), leading to erroneous strain data.

Since the manufacturing of the Sensorgrid by Huesker is realised through a knitting process, different grid designs can be achieved by using FO strain cables of different sizes and stiffness and therefore robustness. As such, a stiffer Sensorgrid (Fortrac® R 220/100-30 GSGTA) was produced with a much more robust cable for the larger scale ground movement monitoring scheme deployed at TLC, as described below.

### 5. Large-scale trial of ground movement monitoring at Tilehouse Lane Cutting

TLC is approximately 710m long in total and up to 11m deep, and it connects the North Approach Embankment and Colne Valley Viaduct to the south-east with the West Hyde embankment and the 10.6 mile-long twin-bore Chiltern Tunnel passing under the M25 to the north-west, as indicated in Figure 7. The ground investigation (48 CPTs) and cutting excavation has revealed dissolution features ranging from 0.5 to 2m in diameter to be present along the cutting (Figure 7(a)). The condition of the infill material varies, and voids are occasionally present. Engineered mitigation has been constructed at these locations and a geogrid-reinforced mattress will also be installed over the area. This has provided the opportunity to prove the viability of the technology in a live construction environment and 5m-wide Sensorgrid with FO strain sensing cables at a 0.5m spacing is being deployed to monitor potential ground movement beneath a 100m-long, 10m-wide stretch of the mainline alignment on the HS2 site at TLC.



**Figure 7:** Large-scale monitoring of ground movement at Tilehouse Lane Cutting (TLC): (a) Solution features at TLC (as circled); (b) Field deployment of Sensorgrid; (c) Sensorgrid in-situ.

To protect against construction damage, the Sensorgrid is sandwiched between layers of Non-woven geotextile (HPS14) (Figure 7 (b) and (c)). Above this is a layer of geogrid Fortrac 600 MDT forming the base of the reinforced mattress, overlain by chalk mixed with 2% cement. Strain will be monitored continuously along the Sensorgrid for two years during the construction of HS2. This represents 10,000 monitoring points over 1000m<sup>2</sup>. Temperature cables are also being embedded with the Sensorgrid to assess any (unexpected) temperature effect. The data acquired from the FO cables will be automatically processed and displayed in real-time on a web-based visualisation dashboard developed by Epsimon Ltd. This will enable the project engineers to detect any incipient ground movement, enabling them to take timely preventative action if necessary.

### 6. Conclusions

Controlled field experiments were performed to explore the performance of a newly developed DFOS instrumented geogrid (Sensorgrid) for ground movement detection. Water-filled bags were placed in the ground and deflated in a pre-determined sequences to replicate vertical ground movements which demonstrated the sensitivity and effectiveness of the Sensorgrid system as an early warning detection solution for local ground movements beneath earthworks. The Sensorgrid sensing system is sensitive to millimetre scale vertical settlement at depth. It is also sensitive to settlement at the sub-metre spatial scale. For large ground movements, the Sensorgrid is likely to experience large strains but, in the trials, these did not exceed the capacity of the system (both in terms of tensile strength and measurement range/limit).

As shown by the trial results, the current Sensorgrid configuration is highly sensitive to strain and can detect very small vertical displacement. Its low stiffness is likely to lead to good strain transfer in soils, which also makes it ideal for application where horizontal movement and axial strain occurs, such as for slope movements and embankment retaining walls. For applications in harsh construction environments, the Sensorgrid design is highly configurable and it can be integrated with more robust strain cables as required.

Developing a capability for early detection of ground movement which leads to appropriate preventative or precautionary measures could prove a valuable tool for the maintenance of infrastructure earthworks. These technologies may become more valuable in future because of the increasing frequency of extreme weather events and their potentially adverse impact on ground conditions and earthwork assets.

### Acknowledgements

The authors are grateful to HS2 Innovation for funding and supporting this work. They are thankful to Roadbridge Ltd, SOCOTEC UK Ltd and Mr Kyriakos Kaskiris (formerly at Jacobs UK Ltd) for their support with field construction and Sensorgrid deployment. The authors would also like to thank CSIC (EPSRC (EP/N021614/1) and Innovate UK (920035)) for supporting this research.

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# Ground conditions

## Promoter's response

On 3<sup>rd</sup> March 2023 the Promoter published a report entitled "Crewe to Manchester - Understanding the Ground Risk across the Cheshire Plain".

The March Report can be viewed at the following link: [HS2 Phase 2b Select Committee: Crewe to Manchester - Understanding the Ground Risk across the Cheshire Plain - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/114122/HS2_Phase_2b_Select_Committee_Crewe_to_Manchester_-_Understanding_the_Ground_Risk_across_the_Cheshire_Plain.pdf)

The March Report provides a review of the ground conditions, the associated risks, and the mitigation measures for the Crewe to Manchester Proposed Scheme.

## HS2

### Crewe to Manchester

### Understanding the Ground Risk across the Cheshire Plain

3<sup>rd</sup> March 2023

# Overview of the March Report

## Ground conditions

The alignment of the Proposed Scheme passes across the Cheshire Plain in areas of former salt mining and other areas where salt mining is ongoing. The March Report addresses geological concerns in this area and sets out:

- HS2 Ltd's understanding and interpretation of the existing ground conditions;
- How the route alignment and developed design has taken account of those ground conditions; and
- How HS2 Ltd plans to gather further information, develop the design, construct, and operate the Proposed Scheme.

Based on interpretation of information obtained to date and the derived engineering approach, HS2 Ltd, in conjunction with its designers and technical advisors, considers that the route alignment is appropriate for the intended purpose, and that geological challenges can be both managed and mitigated during detailed design and construction so as to provide a safe operational railway.

# Conclusion of the March Report

## Ground conditions

The scale of the ground related challenges and their solutions are commensurate with the purpose of the Proposed Scheme as key national infrastructure, and comparable to the scale of other ground related challenges that can be encountered in the operation of other high-speed railways.

The Proposed Scheme has been designed with sufficient inbuilt resilience, along with practical measures for routine maintenance and adaptive design, which can be put in place in achievable timeframes, to mitigate against climate change during operation.

# Route Alignment

## Ground conditions

The Proposed Scheme was selected to minimise the risks posed by ground conditions in the Cheshire plain. In particular, the route selected:

- Avoids major areas of former high subsidence as marked by flashes, with the one exception of Billinge Flash;
- Avoids a line of Meres that broadly align southeast of Rostherne Mere;
- Avoids areas of ground subsidence such as those which the Cheshire Brine Compensation Board defines as requiring statutory consultation in relation to any new development;
- Does not pass within 2 km of any known former locations of historical wild brine well pumping sites, with one possible exception, a suspected brine well in the vicinity of Clive Green Lane;
- Avoids clusters of subsidence features as historically mapped by BGS;
- Avoids historical and controlled salt mines, whether remediated or not, with the exception of Winsford Rock Salt mine; and
- Avoids existing brining extraction and gas storage caverns, passing just west and northwest of Warmingham and Holford brinefields respectively.

It is not possible to select a route which avoids entirely all possible sources of risk posed by the ground conditions.

# Design response

## General risk mitigation by design

The Proposed Scheme has been designed to account for the risks posed by ground conditions in the Cheshire plain as outlined below.

Adapted precautionary mitigation measures are proposed against the risk of subsidence, which are typical for the construction of infrastructure in these types of ground condition, or for high-speed rail systems in general including:

- The viaducts will be supported by piers on piled foundations because of the potentially relatively low strength of the near-surface soils. The piles can be lengthened into more stable ground.
- Surface rainwater run-off from embankments, and viaducts to be collected by lined drainage systems and held temporarily in lined balancing ponds, before discharge to river courses. Rainwater not concentrated and not percolating through the ground to give rise to the risk of salt dissolution.
- The track forms can have built in design features to allow for corrections of vertical rail geometry in operation.
- Differential settlements arising from the ground can be addressed through the design and routine maintenance aspects of the track form.

# Design response

## General risk mitigation by design of vertical horizontal and vertical alignment

The selection of structural infrastructure including viaducts and bridges is driven by the need to cross over existing natural features such as rivers and existing major infrastructure. The viaducts are sufficiently high so as to provide necessary headroom. This infrastructure will be designed to account for the risks posed by ground conditions.

Where the Proposed Scheme continues north and has passed beyond the area of wet rockhead, long cuttings can be incorporated without risk of salt dissolution. At Hoo Green Lane and Rostherne the design has lowered the alignment to pass under the A556 and M56.

# Design response

## Site Specific Risk Mitigation Design

Solutions are proposed at Clive Green Lane and Billinge Flash. The final choice of mitigation solution will be based on interpretation of further ground investigation.

Winsford Rock Salt mine - viaduct structures and embankment are proposed. The piles of the viaduct structures will not reach the wet rockhead level, nor any of the salt layers. The mine is not materially impacted by the Proposed Scheme.

# Construction Stage Response

The draft CoCP references measures to be implemented which include undertaking ground investigation, risk assessments, monitoring of ground movement, groundwater and ground gas.

Ground movement will be monitored using a master network of positional and level datums which would be tied into national level bedrock datums. INSAR and LiDAR surveys would be used during the construction stage to monitor ground movements in direct response to construction stage activities.

# Operational Stage Response

## Risk mitigating measures by adaptive interventions

Operation and maintenance of the railway will make use of digital information and monitoring techniques to detect:

- ground movements from the legacy effects of former salt brining activity
- salt dissolution from climate change impacts.

Due to the transient nature of ground surface settlements, the operational safety of the railway will need solutions which are able to make corrections for settlements which are outside of expectation.

Adaptive measures can include provisions for track raising, OCS raising, bridge deck raising, and interventions to the foundations, and future 'new technology' that will occur during the 120 year lifetime of the railway.

The monitoring data will allow early decisions on the application of the adaptive design elements accommodated for, or built into the infrastructure, and hence avoid unnecessary interruptions to operations.

# Ground investigation works

## Ground conditions

Under the process of desktop study, a significant amount of data gathering has been undertaken to inform the Proposed Scheme design with specific reference to the geology, hydrogeology and ground conditions.

HS2 Ltd has carried out detailed reviews of published data sources and a series of consultations with mining companies operational within the area so as to establish the ground conditions in the area.

Subsequently, advanced ground investigations were undertaken at targeted locations in 2020 and 2021. The data from these investigations has been used to reinforce the understanding from the desktop study, refine risk assessments, and will contribute to informing the detailed design development.

Further ground investigations will be carried out as the Proposed Scheme is taken forward.

# Alternative alignment following the M6

## Ground conditions

The proposed route via Crewe with a connection with the WCML near Crewe provides greater strategic benefit including connectivity to northwest England (including Chester, Liverpool and Warrington) and north Wales. This route also performs more favourably from a sustainability perspective compared with the other alternative routes including the M6 corridor, as it will require fewer demolitions and will be further away from a number of settlements across the Cheshire plain.

Routes following the M6 corridor would have similar impacts and geological challenges associated with passing over the Cheshire plain but would require a less favourable location for the junction of the HS2 WCML connection and the HS2 Manchester spur.

The decision to serve Crewe was confirmed by the Secretary of State in 2015. Neither of the alternative corridors (via the M6 or Airport) would serve Crewe.

# Viaducts & Embankments

Viaducts are required to cross existing features in the landscape.

An embankment could allow the proposed railway to sit at a lower elevation in the landscape compared with a viaduct.

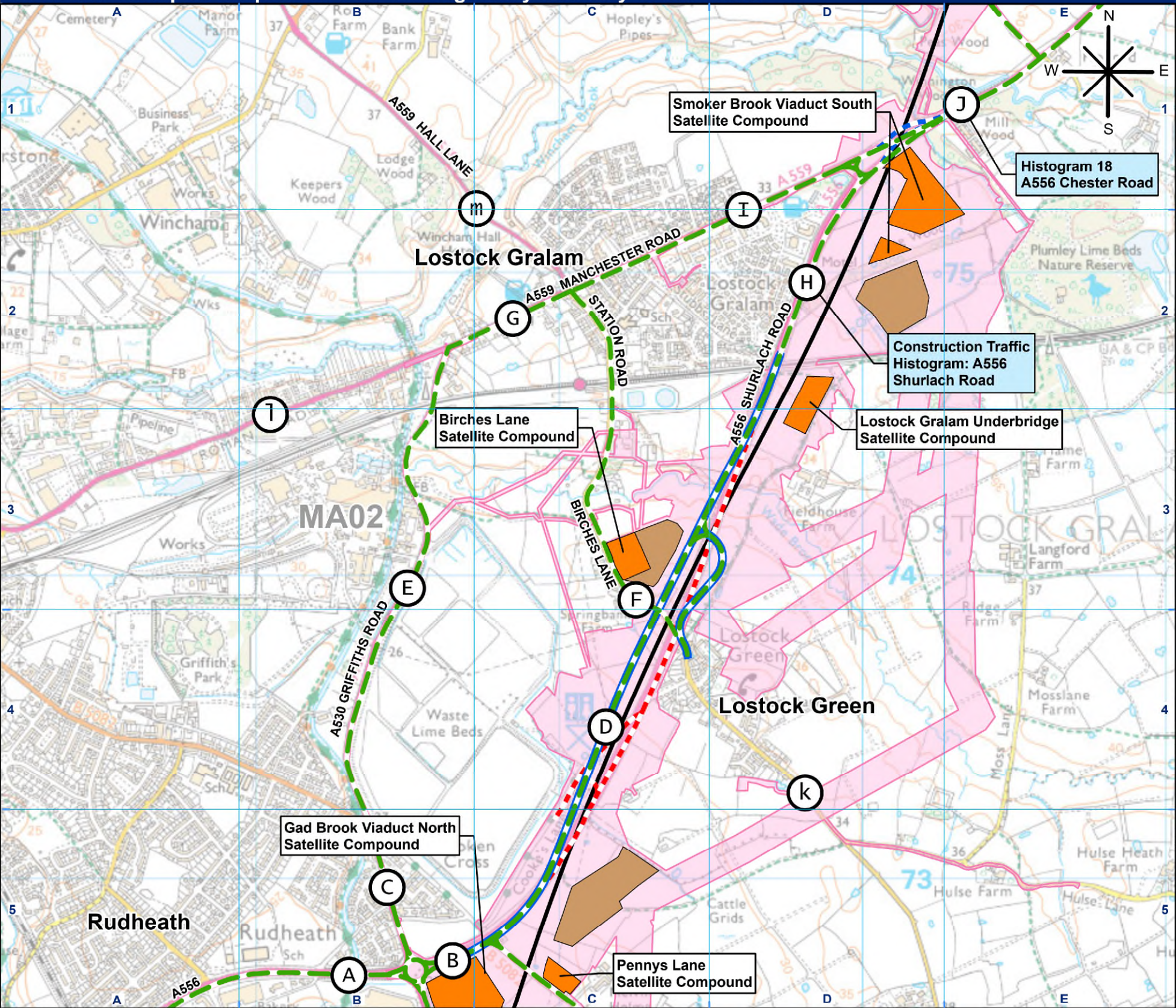
A low embankment is easier to screen compared with a higher viaduct.

Embankments can spread the load of proposed railway more easily.

Viaducts typically have a higher capital cost than a similar embankment.

Construction of viaducts typically requires greater use of concrete, in turn increasing the Proposed Scheme's carbon footprint.

EXHIBIT TYPE:  
 Traffic and Transport Bespoke Exhibit - Average Daily Weekday Traffic Flows



Location	2030 Future Baseline			Peak HS2 Construction Traffic		2030 with HS2 Traffic and Diversionary Effects			Net change in all vehicles
	All vehicles	HGVs	HGVs as a % of all vehicles	All vehicles	HGVs	All vehicles	HGVs	HGVs as a % of all vehicles	
<b>ROADS ON HS2 CONSTRUCTION TRAFFIC ROUTES</b>									
<b>A</b>	<b>A556 Shurlach Road (between Gadbrook Road and A530 King Street)</b>								
	EB	17,894	294	2%	114	8	17,732	287	2%
<b>B</b>	<b>A556 Shurlach Road (between A530 King Street and B5082 Pennys Lane)</b>								
	EB	20,499	347	2%	870	346	20,081	671	3%
<b>C</b>	<b>A530 King Street (between A556 Shurlach Road and B5082 Middlewich Road)</b>								
	NB	6,949	135	2%	17	10	6,922	143	2%
<b>D</b>	<b>A556 Shurlach Road (between B5082 Pennys Lane and Birches Lane)</b>								
	NB	17,012	331	2%	645	142	17,375	452	3%
<b>E</b>	<b>A530 Griffiths Road (between A559 Manchester Road and B5082 Middlewich Road)</b>								
	NB	3,370	67	2%	10	10	2,602	77	3%
<b>F</b>	<b>Birches Lane (between Birches Lane Compound and A556 Shurlach Road)</b>								
	NB	Local Access only			178	104	HS2 and Local Access only		
<b>G</b>	<b>A559 Manchester Road (between A530 Griffiths Road and A559 Hall Lane)</b>								
	EB	8,160	114	1%	14	10	8,212	135	2%
<b>H</b>	<b>A556 Shurlach Road (between Birches Lane and A559 Manchester Road)</b>								
	NB	13,997	298	2%	912	414	14,297	692	5%
<b>I</b>	<b>A559 Manchester Road (between Stubbs Lane and Fryer Road)</b>								
	EB	5,709	86	2%	63	10	6,050	106	2%
<b>J</b>	<b>A556 Chester Road (between A559 Manchester Road and Linnards Lane)</b>								
	EB	16,742	369	2%	1,128	489	17,985	834	5%
<b>k</b>	<b>Birches Lane (between A556 Shurlach Road and B5082 Holmes Chapel Road)</b>								
	NB	1,022	0	0%	5	0	1,382	0	0%
<b>l</b>	<b>A559 Manchester Road (between New Warrington Road and A530 Griffiths Road)</b>								
	EB	7,241	78	1%	4	0	7,025	93	1%
<b>m</b>	<b>A559 Hall Lane (between Townshend Road and Green Lane)</b>								
	NB	5,038	68	1%	112	0	4,977	64	1%

Note: NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound

- HS2 Phase 2b route alignment (on surface)
- Land potentially required during construction
- Satellite construction compound
- Temporary material stockpile
- P184 construction traffic route
- Permanent highway infrastructure (new/realignment/diversion)
- Temporary highway infrastructure (realignment/diversion)
- Permanent highway infrastructure used as a HS2 construction traffic route
- Highway closure

Notes:  
 1. HS2 construction traffic represents the overall peak on each road for each scenario shown. This may occur at different times for each road.  
 2. The impacts of the AP1 Revised Scheme may cause some non-HS2 traffic to divert onto other routes during the construction period. As a result of these diversionary impacts, the 'With HS2' traffic flows do not generally equal the sum of the Future Baseline and Peak HS2 Construction traffic flows.  
 3. The traffic data on this exhibit is based on the period during construction when there is the greatest level of change in traffic flows on each road as a result of the scheme. In some locations, this may not coincide with the overall peak in HS2 construction traffic flow.

Scale at A3: 1:15,000

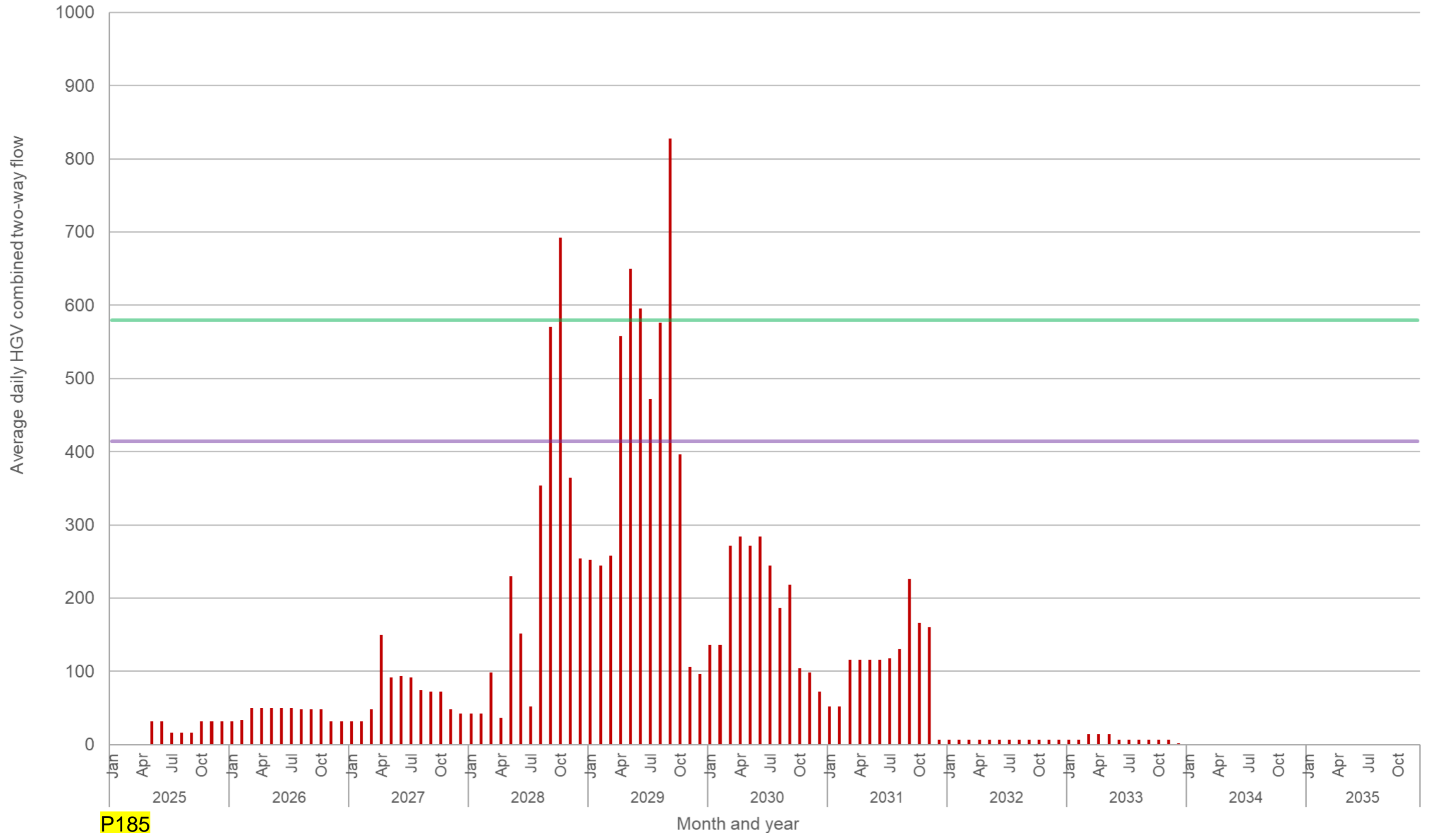
Metres

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 Date: 12/04/23



P185

■ Average daily Phase 2b HG V combined two-way flow     
 — Busy period where HG V flows exceed 50% of the peak month     
 — Peak period where HG V flows exceed 70% of the peak month

# Pedestrian crossing on A559 Manchester Road

## Review of existing conditions

### Existing Pedestrian Facilities

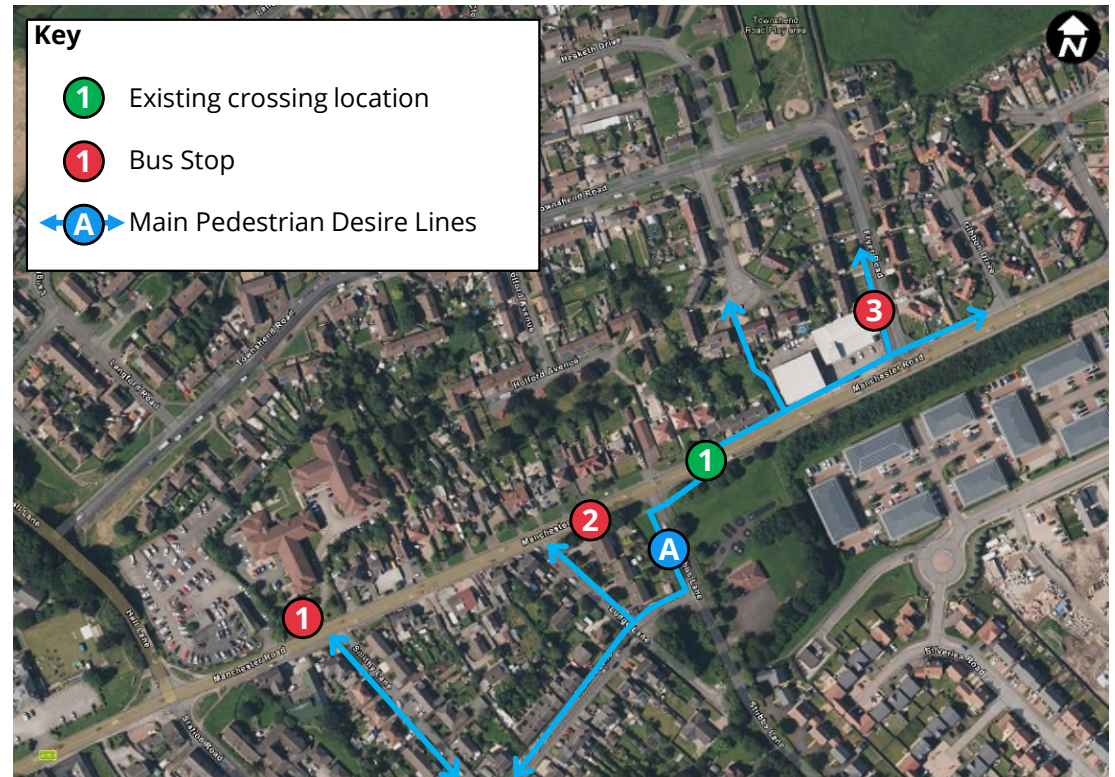
- ① Uncontrolled (dropped kerb) crossing with pedestrian refuge island.
- Ⓐ Pedestrian desire line to/from Lostock Gralam Primary School.

### Existing Land Uses

- Residential/retail uses to the north.
- Commercial/leisure/residential uses to the south.

### Road Network

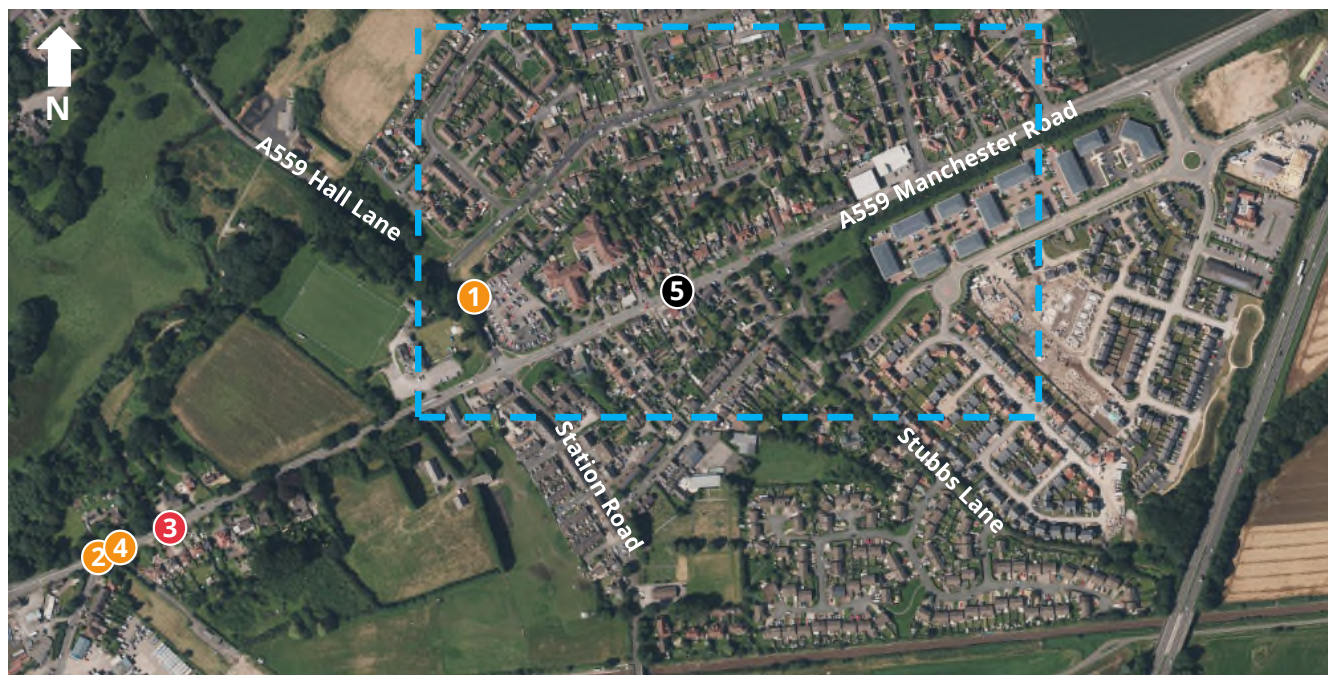
- Two-way single carriageway road with a 30mph speed limit.
- ① Eastbound bus stop.
- ② Westbound bus stop.
- ③ Bus stops on Fryer Road just to north of junction with A559 Manchester Road.



Source: Maximar, Microsoft, ESRI UK, ESRI, HERE, Garmin, Foursquare, Geotechnologies, Inc, METI/NASA, USGS

# Pedestrian crossing on A559 Manchester Road

Reported personal injury collisions on the A559 Manchester Road between 2018 and 2022



Between 2018 and 2021, there were 4 collisions on the A559 resulting in 1 serious and 3 slight casualties.

Three collisions were at/close to the junction with the A530 Griffiths Road and one was on Hall Lane, so these incidents are not relevant to the request for improved crossing facilities on the A559 Manchester Road.

A fatal collision involving a child occurred on the A559 Manchester Road in 2008. However, this incident was 100m to the west of Stubbs Lane, so was not on the desire line to/from the primary school.

It is considered unlikely that this incident would have been avoided if a controlled (signalised) crossing had been provided on the A559 in the vicinity of Stubbs Lane.

Ref	Date of collision	Location	Severity	No. of vehicles involved	No. of casualties involved
1	26/06/21	A559 Hall Lane (near junction with A559 Manchester Road)	Slight	1	1
2	09/07/19	A559 Manchester Road / A530 Griffiths Road junction	Slight	2	1
3	25/06/19	A559 Manchester Road (between A530 Griffiths Road and Station Road)	Serious	2	1
4	28/05/19	A559 Manchester Road (between A530 Griffiths Road and Station Road)	Slight	2	1
5	01/07/08	A559 Manchester Road (between Stubbs Lane and Station Road)	Fatal	2	1

# Pedestrian crossing on A559 Manchester Road

## ADPV<sup>2</sup> Assessment

- HS2 has assessed whether there is a justification for upgrading the pedestrian crossing facilities on the A559 Manchester Road in the vicinity of Stubbs Lane using the ADPV<sup>2</sup> calculation, which is used to inform decisions on the need for/form of pedestrian crossing facilities.
- The ADPV<sup>2</sup> calculation assesses the level of conflict between pedestrian (P) and vehicles (V), taking into account the number of Accidents (A) over the last three years and the difficulty (D) level of crossing the road, which is influenced by road width, traffic speeds and the number of lanes being crossed.
- To justify the provision of a controlled (signalised) crossing in this location, the ADPV<sup>2</sup> assessment indicates that there would need to be over 90 pedestrians using the crossing in the peak hour during construction of the AP1 revised scheme.

# Highway works and construction traffic routes

## A556 Chester Road and A559 Manchester Road temporary realignment

During construction of the Smoker Brook viaduct, it will be necessary to temporarily realign the A556 Chester Road at its junction with the A559 Manchester Road 22m north of its existing alignment over a distance of 240m to allow construction of the viaduct piers and deck.

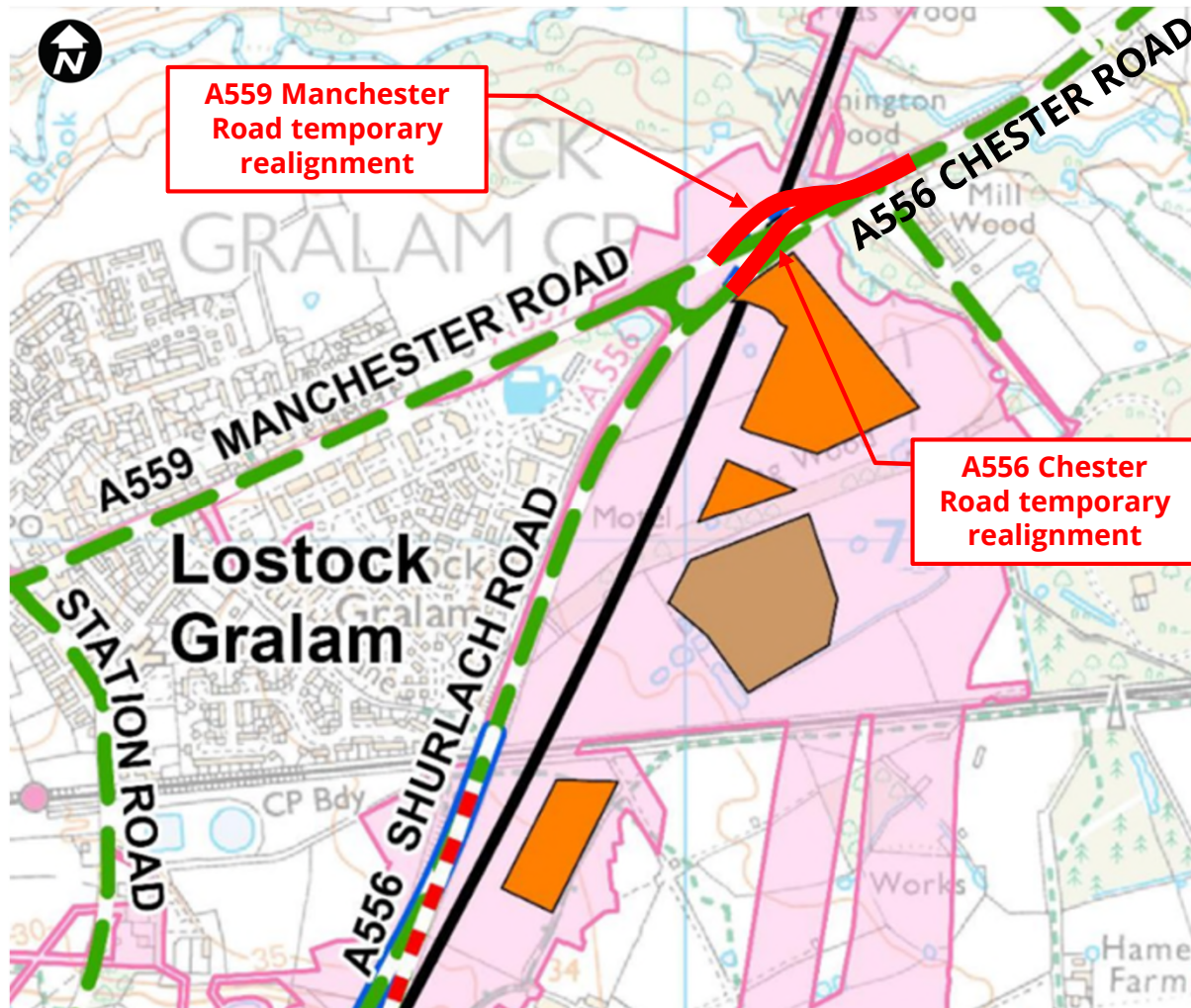
The temporary realignment will be in use from Q2 2028 to Q3 2029 and will result in a negligible change in journey length.

The temporary realignments will be constructed off-line, with the existing alignments of A556 Chester Road and A559 Manchester Road remaining open to traffic.

Once the viaduct works are complete in this area, the current road layout will be reinstated.

# Highway works and construction traffic routes

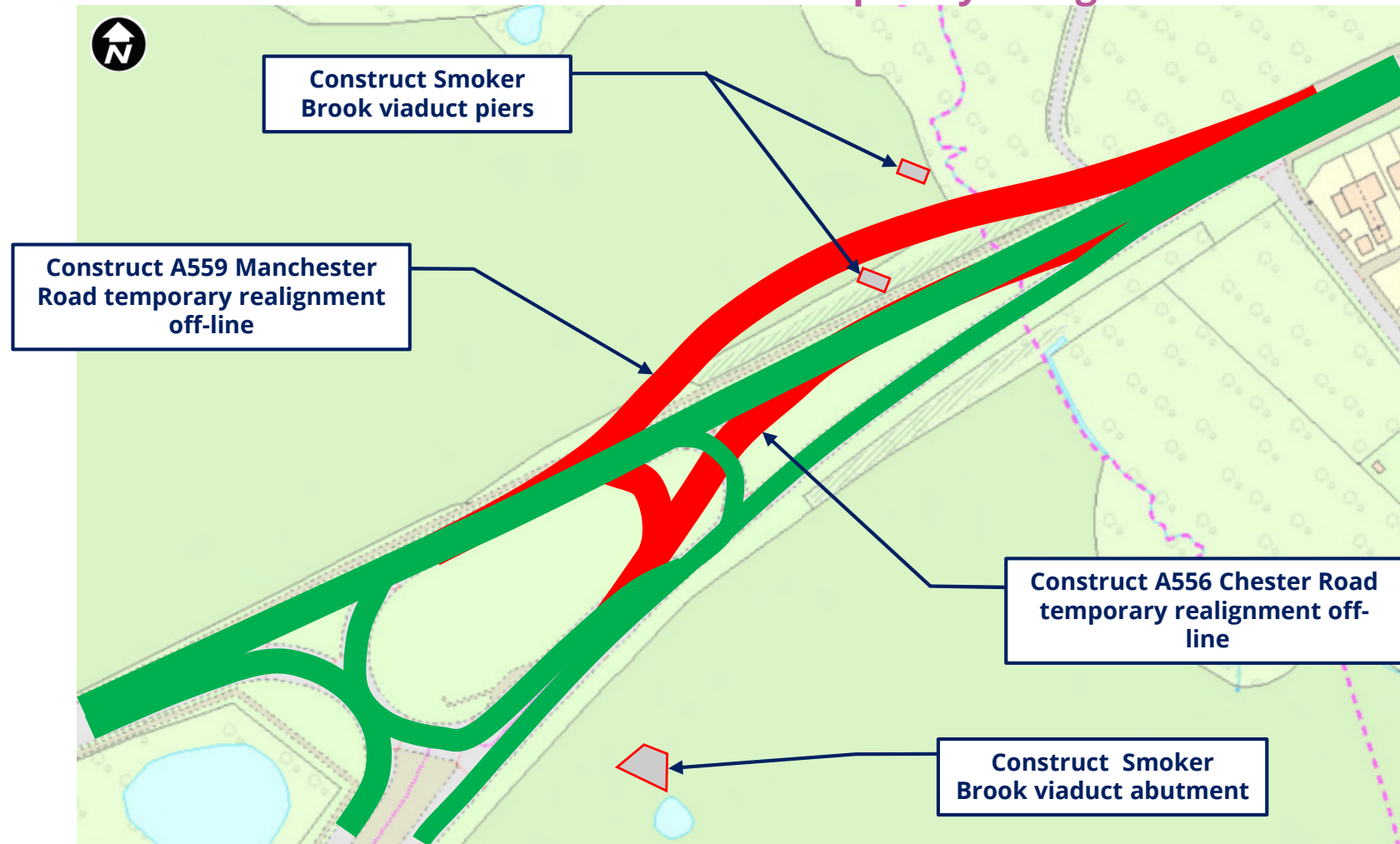
## A556 Chester Road and A559 Manchester Road temporary realignment



The A556 Chester Road and A559 Manchester Road temporary realignments would be constructed 'off-line'. No long term signed traffic diversion routes would be necessary.

# Highway works and construction traffic routes

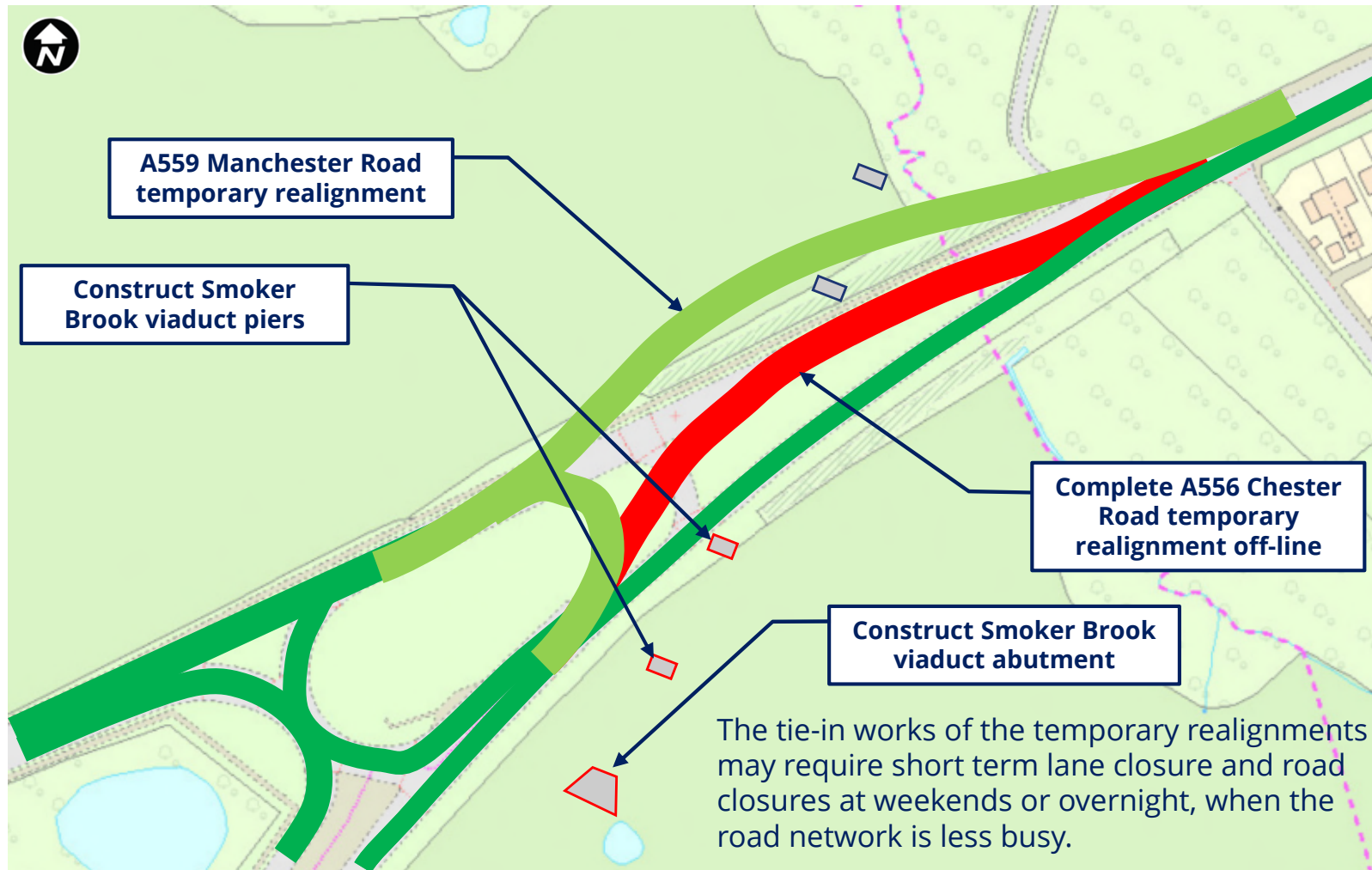
## A556 Chester Road and A559 Manchester Road temporary realignment



During the A556 Chester Road and A559 Manchester Road temporary realignments off-line construction works, the existing alignment of A556 Chester Road and A559 Manchester will remain open to traffic (**April 2028 to March 2029**).

# Highway works and construction traffic routes

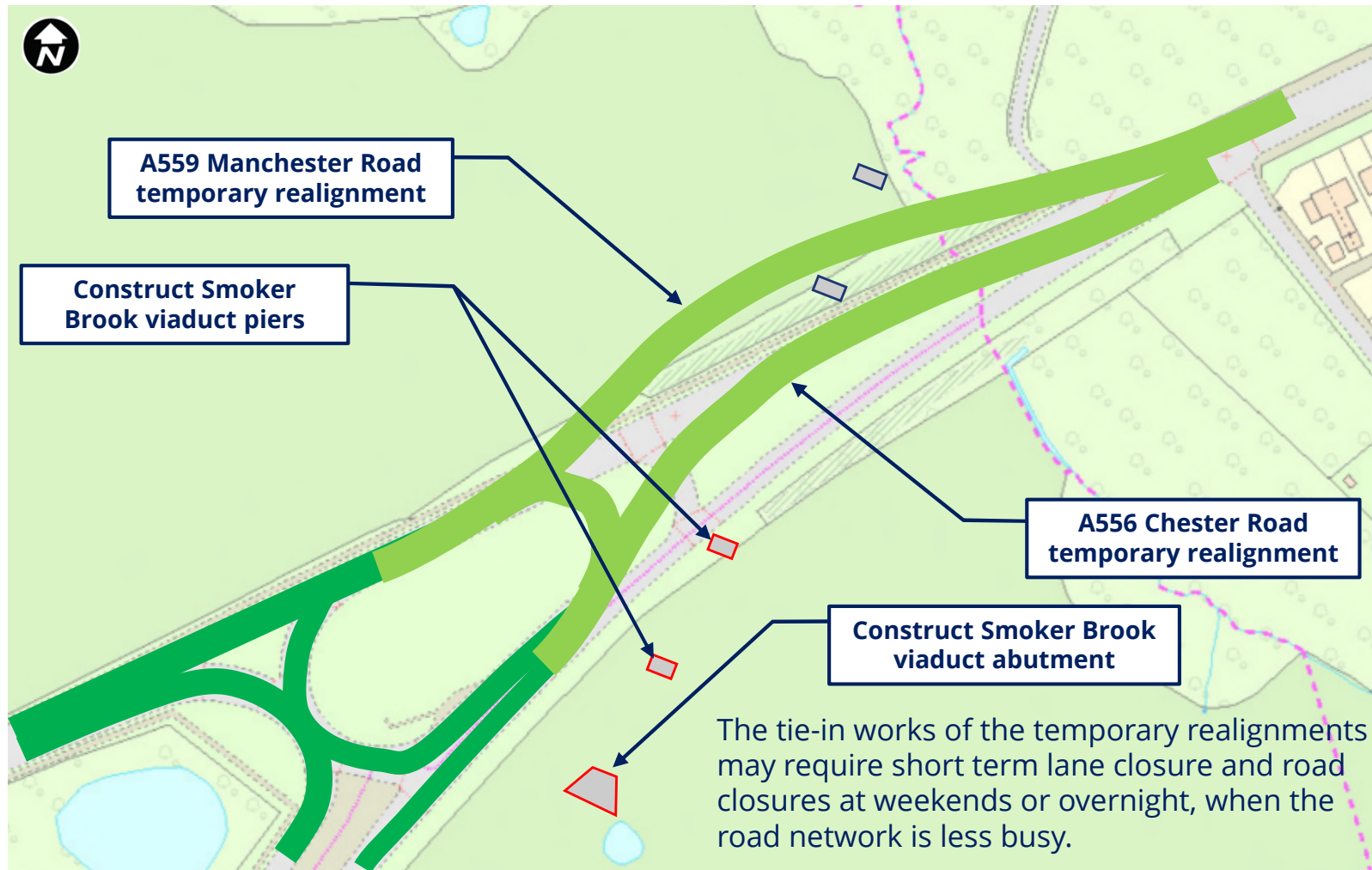
## A556 Chester Road and A559 Manchester Road temporary realignment



Traffic management would be required to construct the tie-in of the A559 Manchester Road temporary realignment at its interface with the existing road network (**early April 2029**).

# Highway works and construction traffic routes

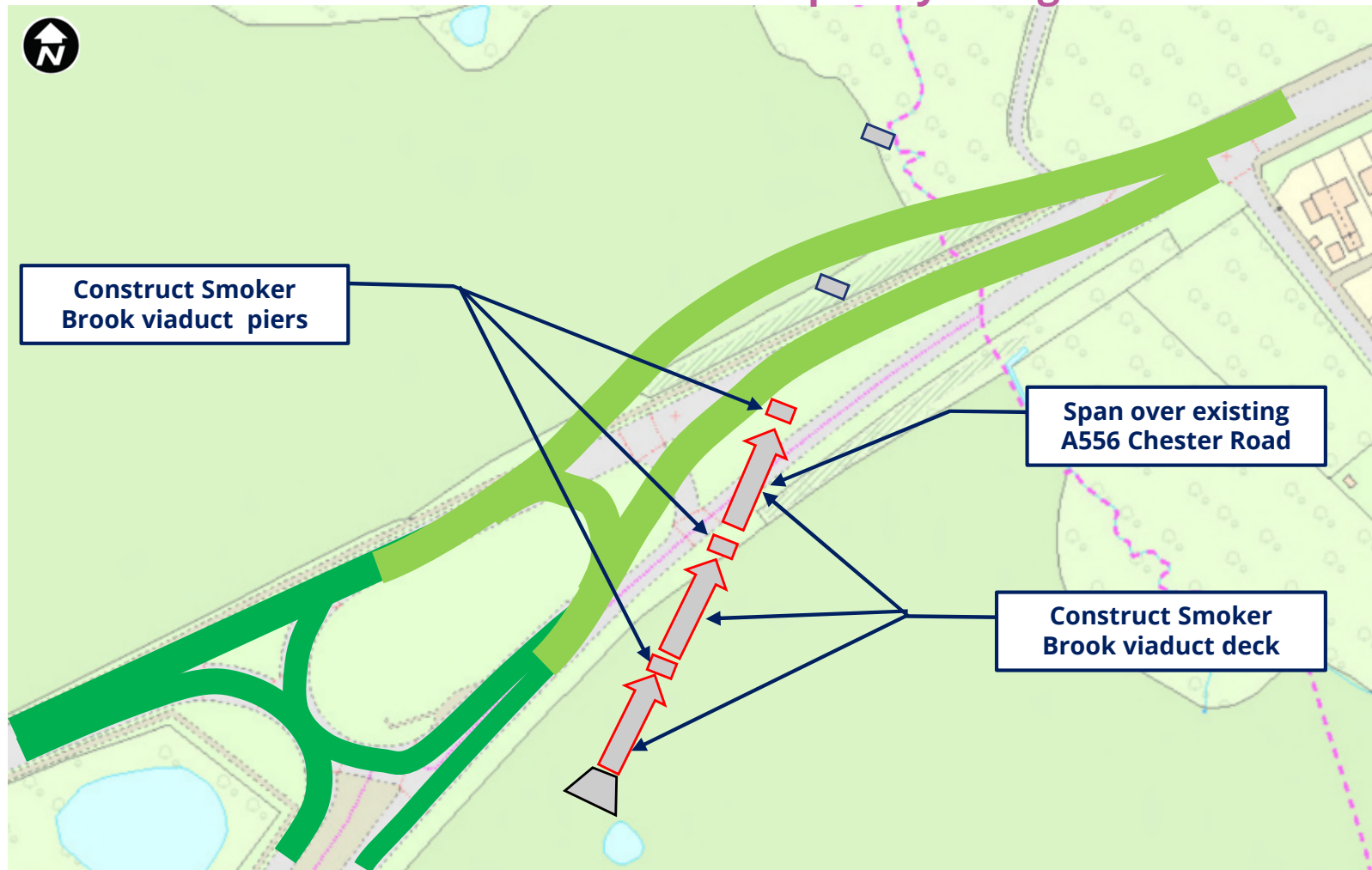
## A556 Chester Road and A559 Manchester Road temporary realignment



Traffic management would be required to construct the tie-in of the A556 Chester Road temporary realignment at its interfaces with the existing road network (**late April 2029**).

# Highway works and construction traffic routes

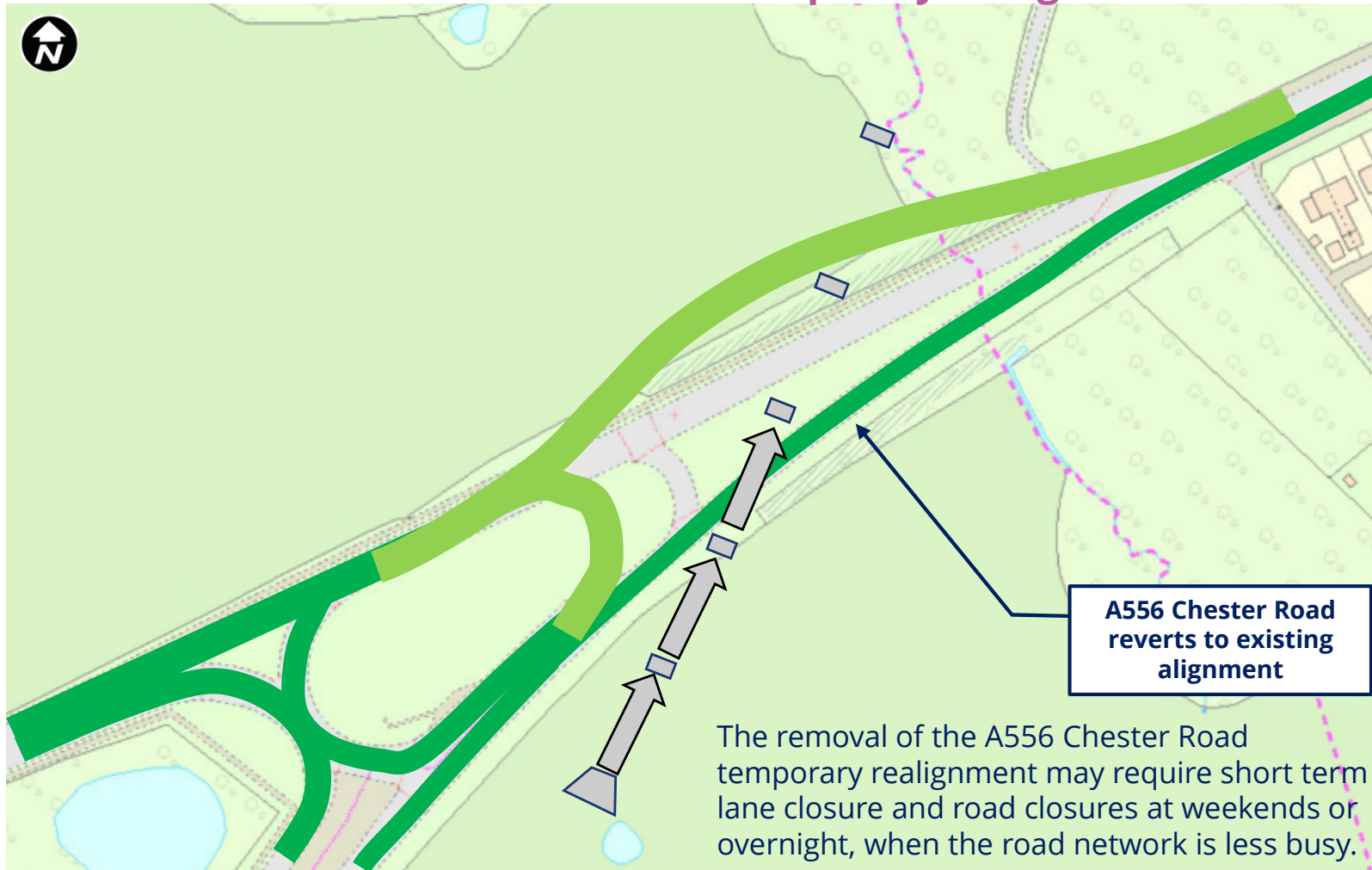
## A556 Chester Road and A559 Manchester Road temporary realignment



The A556 Chester Road and A559 Manchester Road temporary realignments would be open to traffic during the construction of the Smoker Brook viaduct sections over the existing A556 Chester Road **(May 2029 to June 2029)**.

# Highway works and construction traffic routes

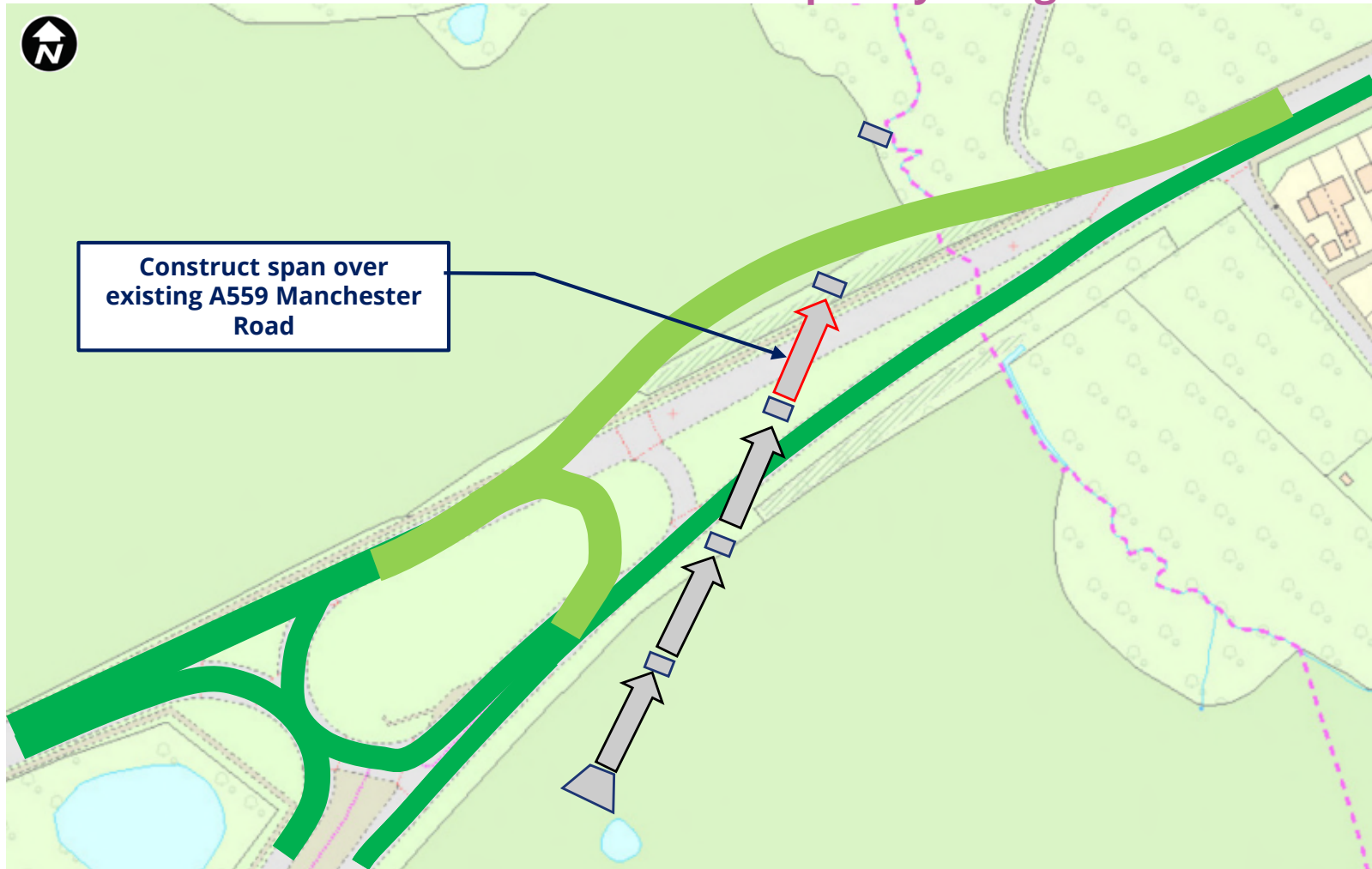
## A556 Chester Road and A559 Manchester Road temporary realignment



Traffic management would be required to remove the A556 Chester Road temporary realignment at the interface with the existing road network and return traffic onto the original alignment (**early July 2029**).

# Highway works and construction traffic routes

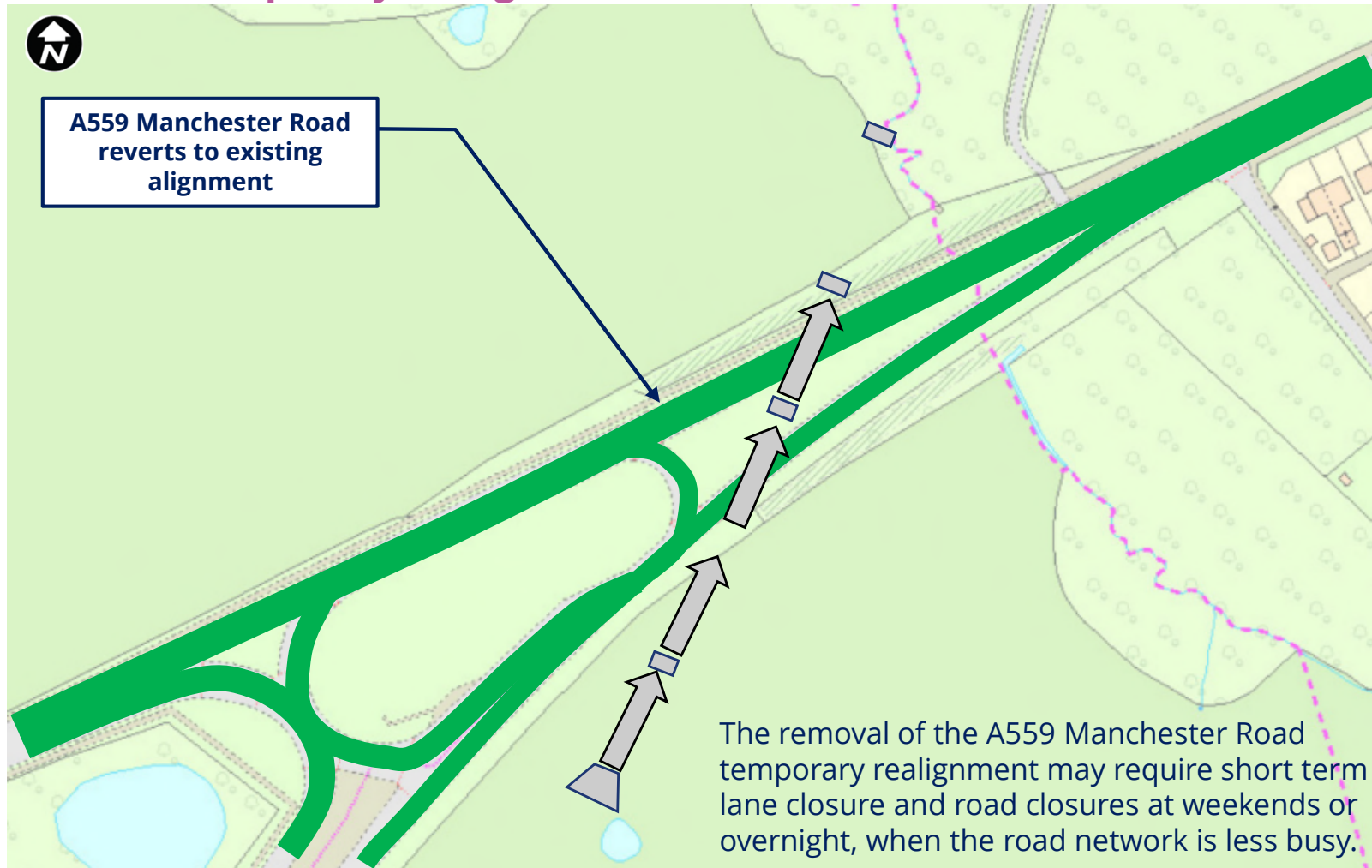
## A556 Chester Road and A559 Manchester Road temporary realignment



The A556 Chester Road and A559 Manchester Road temporary realignment would be open to traffic during the construction of the Smoker Brook viaduct sections over the existing A559 Chester Road (**late July 2029**).

# Highway works and construction traffic routes

## A556 Chester Road temporary realignment



Traffic management would be required to remove the A559 Manchester Road temporary realignment at the interface with the existing road network and return traffic onto the original alignment (**August 2029**).

# A556 Shurlach Road Auto-transformer Station

## Location justification

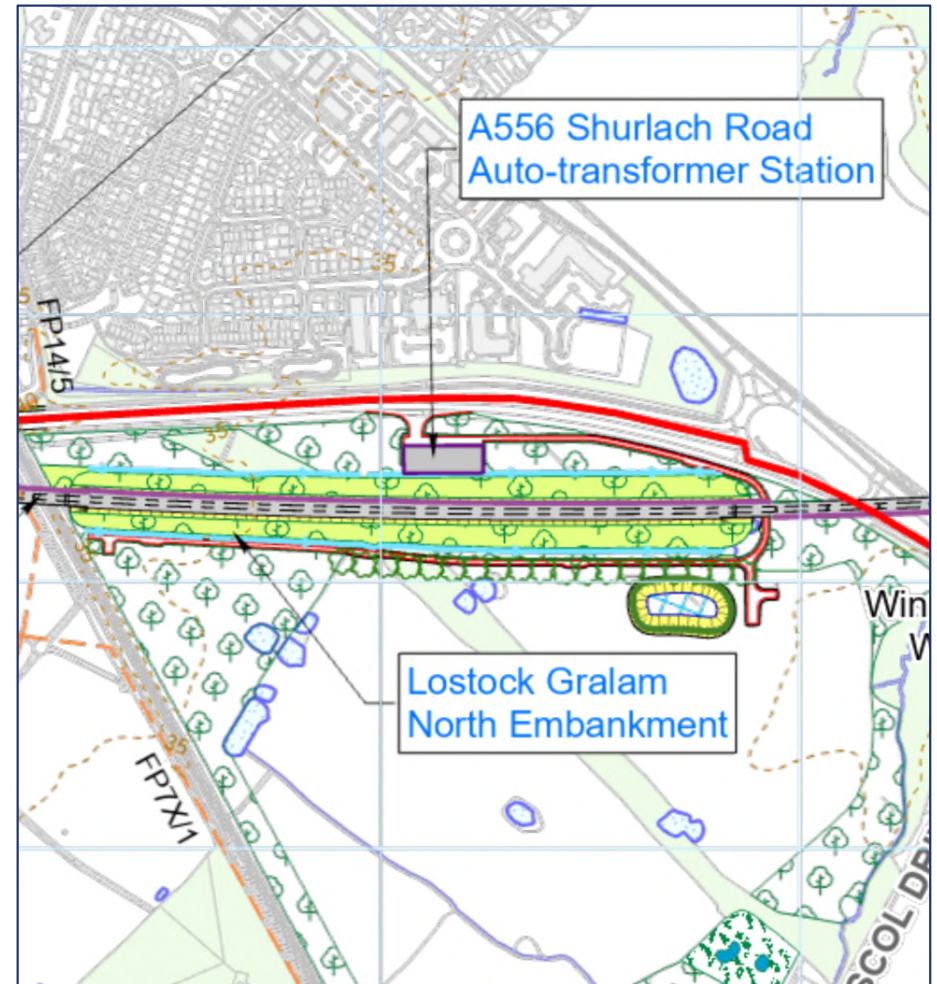
Auto-Transformer Stations locations must be evenly spaced at approximately 3 mile intervals along the HS2 railway corridor to enable safe and efficient distribution of traction power for HS2 train operations.

The proposed location is approximately 3 miles north of the Davenham Road Express Feeder ATS, and approximately 3 miles south of the Budworth Road ATS.

The advantages of the A556 Shurlach Road ATS AP1 location are:

- Utilises islanded land between the HS2 railway and the A556 Shurlach Road
- Direct access to and from the A556 for construction and maintenance of equipment

Impacts to local receptors were considered in the design, including screening to reduce visual impacts of the ATS. At year 15 the ES reports no significant adverse effects.

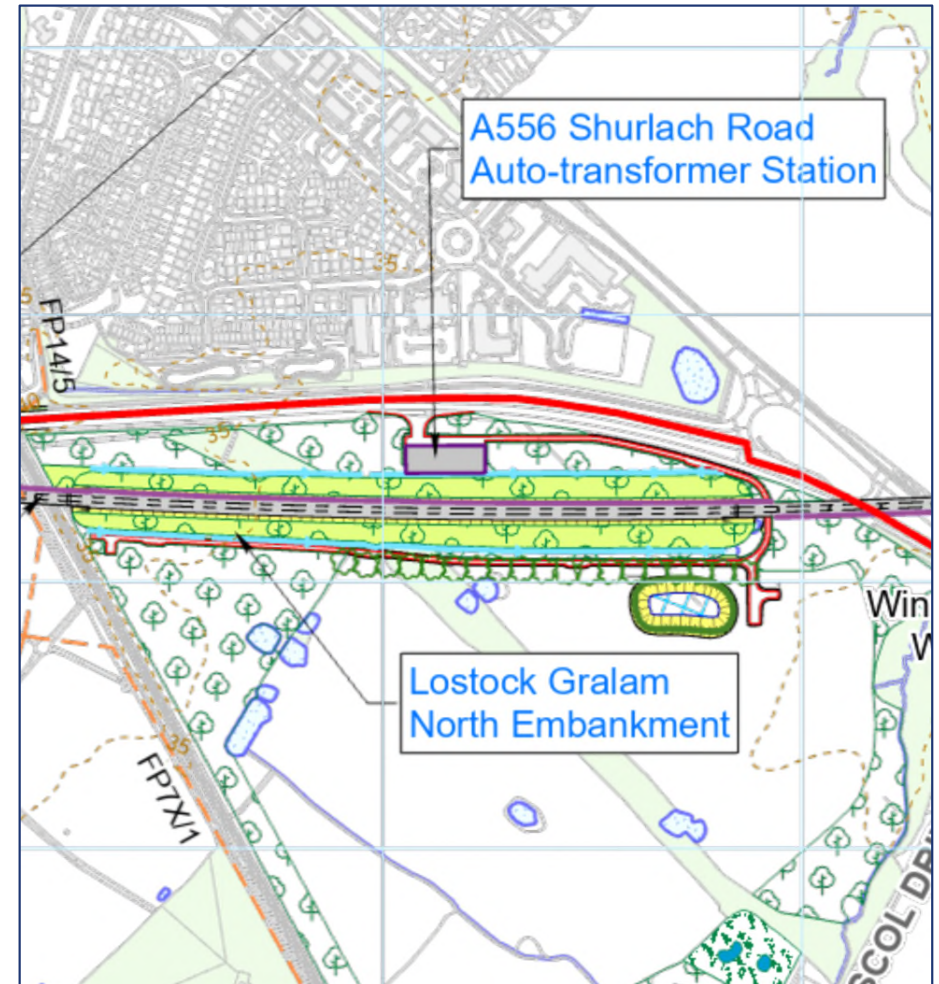


# A556 Shurlach Road Telecommunications mast

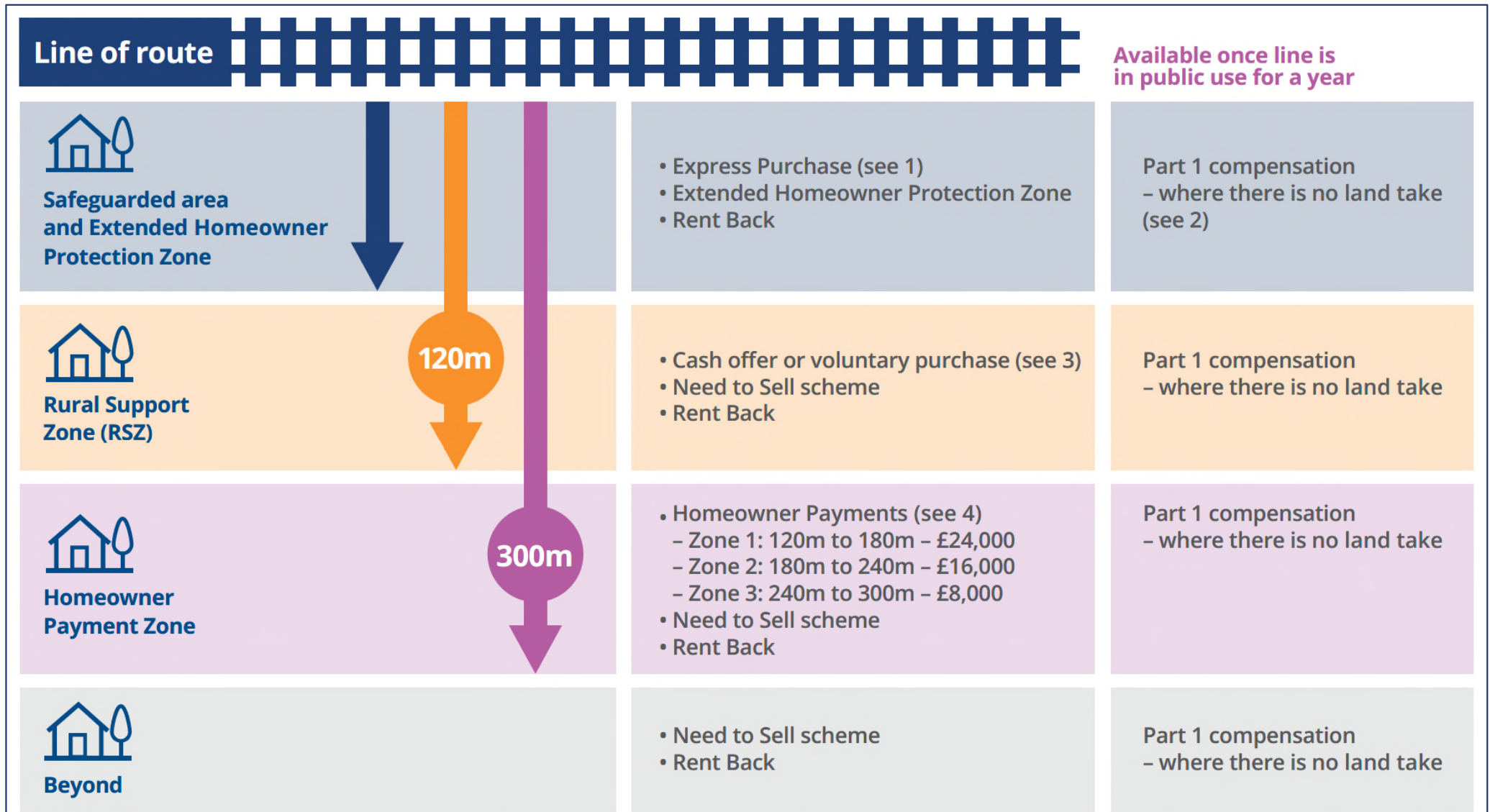
Telecommunications mast locations must be evenly spaced at approximately 1.5 mile intervals along the HS2 railway corridor for safe HS2 operations. The proposed mast would be approximately 20m in height.

The advantages of the proposed location are:

- Utilises islanded land between the HS2 railway and the A556 Shurlach Road
- Direct access to and from the A556 for construction and maintenance of equipment



# HS2 Property Schemes



1) Surface safeguarding only. 2) Compensation for any reduction in the value of property as a result of the physical effects of the operation of the railway. 3) Applies to rural areas only and does not extend to areas beyond deep tunnels. 4) Available now for Phase One and Phase 2a. Applies to rural areas only and does not extend to areas beyond deep tunnels.

# HS2 Property Schemes – Home Owner Payment Zones

Safeguarding is designed to protect land that has been earmarked for a major infrastructure project from competing development.

Safeguarding directions trigger ‘Statutory Blight’ where a qualifying owner-occupier is able to serve a Blight Notice, asking the Government to purchase the property from them.

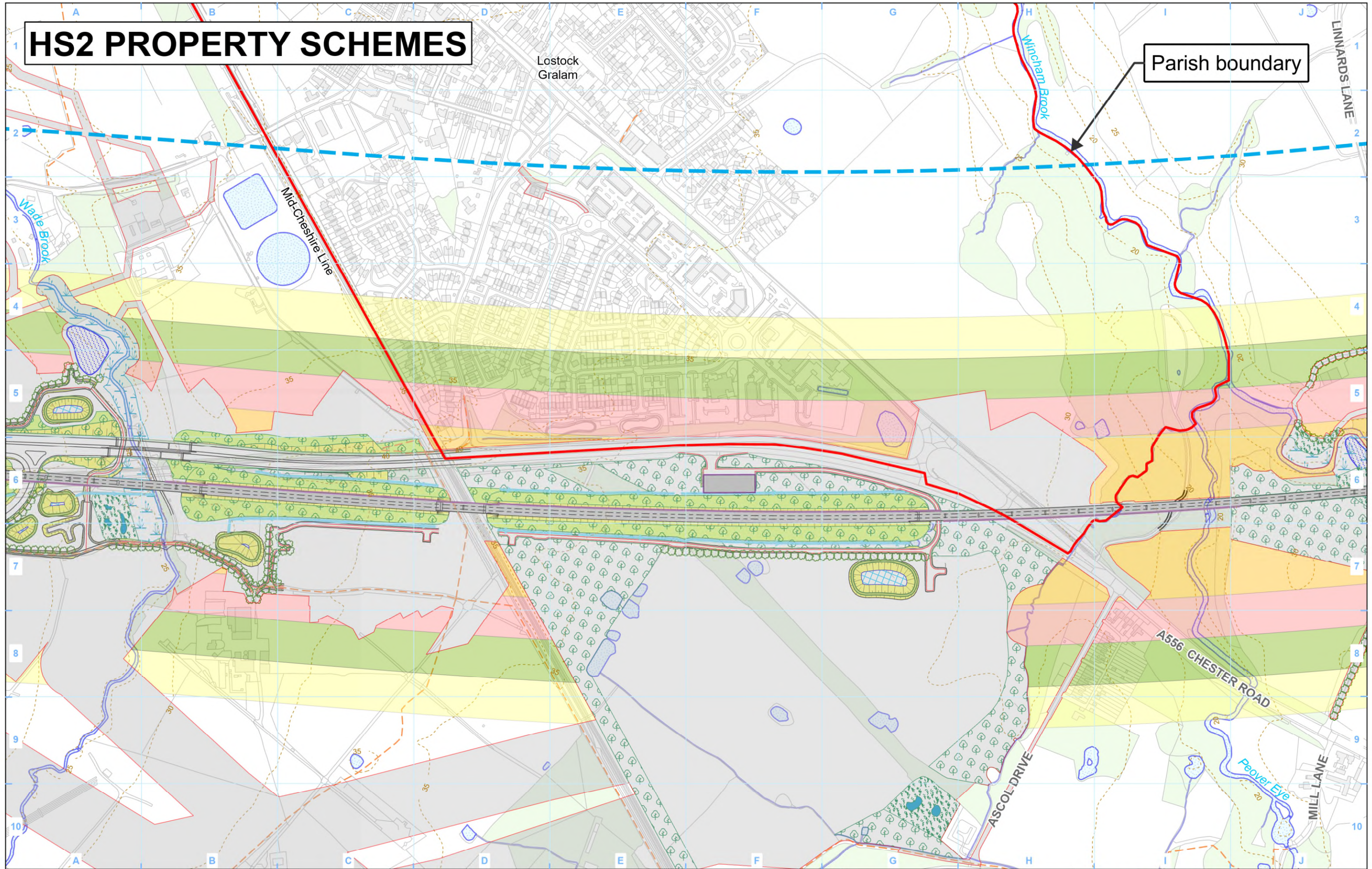
The Homeowner Payment Scheme (HOP) is a non-statutory scheme which will be launched after Royal Assent. It is intended to share the benefits of HS2 with property owners in rural areas that are further away from stations. It is not a compensation scheme for any actual or perceived loss of property value. Owner occupiers of property are also entitled to make a claim for compensation under Part 1 – Land Compensation Act 1973 for any diminution in the value of their homes due to physical factors caused by the use of the railway or altered highways.

There are three HOP zones and home-owners within the HOP3 (240m-300m from the centreline of route) are eligible for a payment of £8,000.

If the request to extend the HOP3 from 300m to 500m then a change would have to be applicable to the whole of HS2 including Phase 1, Phase 2a and Phase 2b.

Based on current predictions of the uptake rate on Phase 1 the estimated cost of extending HOP3 to 500m each side of the line of route would be in the region of £52.2m.

# HS2 PROPERTY SCHEMES



Legend	
Indicative extents of Petitioner(s) land interests	Grassland habitat creation
Railway systems site	Wetland habitat creation
Ecological mitigation pond (Indicative only)	Woodland habitat creation
Balancing pond	Landscape mitigation planting (scrub / woodland)
P191 placement floodplain storage	Hedgerow
New ditches	Watercourse diversion
Engineering earthworks	Rail alignment formation
Existing public right of way	New, diverted or realigned public right of way
Existing buildings	Existing woodland
Existing inland water	Existing watercourse
HS2 access	Noise fence barrier
Rail alignment	Safeguarded area
5m contours	Rural Support Zone (RSZ)
	Homeowner Payment (HOP) Zone 1
	Homeowner Payment (HOP) Zone 2
	Homeowner Payment (HOP) Zone 3
	Rail alignment

Petitioner  
**Lostock Gralam Parish Council**

Petition number  
**HS2-010**

**HS2**

Registered in England. Registration number 06791686.  
 Registered office: Two Snowhill, Snow Hill Queensway, Birmingham B4 6GA.

Scale at A3: 1:5,000

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 OS 100049190

Doc Number: 2PT24-MWJ-PT-MAP-M000-001081-HS2-010 Date: 20/03/2023

Department for Transport Briefing Note:

## **Extending the Homeowner Payment (HOP) zone from 300m to 500m from the centre line of HS2**

30 September 2022

### **Executive Summary**

If the eligibility boundary of the Homeowner Payment (HOP) scheme were to be extended from 300m to 500m, a further 9,825 residential properties would meet the location criterion across Phases One, 2a and 2b (West). Based on the current Phase One application and acceptance rates, we would expect this to result in 5,983 additional successful applications.

Keeping all other aspects of the policy the same, this in turn would represent an additional cost of £52.2m to the public purse. Under the existing policy, costs are projected to reach £8.5m. The proposed policy change would therefore increase the cost by more than 500%.

### **Background**

The Homeowner Payment (HOP) scheme is a discretionary (ie non-statutory) payment from the Government, intended to share the benefits of HS2 with property owners in rural areas that are further away from stations. It is emphatically not a compensation scheme for any actual or perceived loss of property value.

Homeowners within the HS2 Rural Support Zone (RSZ) whose properties are located between 120m and 300m from the line of route and who meet the eligibility criteria<sup>1</sup>, can claim a Homeowner Payment of up to £24,000. There are three different bands and eligible homeowners within the third band (240m-300m from the line of route) are eligible for a payment of £8,000. This band is known as HOP3.

On Phase One and Phase 2a there are a combined total of 1,048 residential properties currently identified to meet the location criterion for HOP3 and with access to the scheme. Once Phase 2b West has secured Royal Assent, a further 537 residential properties are expected to gain access. Allowing for current application and acceptance rates, this is projected to result in payment costs of £8.5m (including legal fees).

Lostock Gralam Parish Council, near Northwich in Cheshire, has petitioned the Bill, asking that the boundary for eligibility for HOP be extended from 300m to 500m. This note offers some preliminary estimates of the additional costs such an amendment to the scheme would introduce. It is assumed that in the proposed scenario the additional properties

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<sup>1</sup> Explained in: <https://www.hs2.org.uk/about-us/our-documents/homeowner-payment/>

would become eligible for HOP at the lowest rate of £8,000 (HOP3). It is also assumed that all other existing eligibility criteria would remain in place. It is further assumed that the extension to HOP3 must apply across the HS2 route, not just within the boundaries of Lostock Gralam Parish Council.

### Analysis

The Lostock Gralam Parish Council petition asks that the HOP boundary should be extended to 500m from the line of route “due to the extensive work and timeline to complete HS2 at Lostock Gralam”. We consider that this proposal a.) misunderstands the purpose of HOP, which is not to provide a form of compensation; b.) seeks to vary a route-wide scheme for a local problem and c.) would hence be unaffordable.

It is also relevant to note that other schemes exist that are potentially better suited to addressing the issues raised by the petitioner, such as HS2 Ltd’s [Community and Business Funds](#).

Table 1 below projects the number of additional properties that would become eligible on Phase One, Phase 2a and Phase 2b West if the outer boundary was extended to 500m from the present 300m. The analysis draws on the buffer zone data contained within the 2022 property count and assesses the total number of residential properties between 300m and 500m from the line in rural locations. Table 2 sets out the projected costs.

For each table, a current trend scenario and worst-case scenario are presented. The current trend scenario applies the current application (70%) and acceptance (87%) rates for Phase One. The worst-case scenario assumes a successful application is received from all residential properties identified to be within the extended 500m HOP3 zone.

For comparison, tables 3 and 4 apply the same approach to the property count for properties that meet the location criterion for HOP3 under the existing policy.

The costs are based on the capital cost of the payments (£8,000) plus legal fees (£720 per property) only. The analysis does not account for HS2 Ltd or Department for Transport Opex costs or the potential resourcing requirements for processing an increased volume of applications. There is no indexation applied and further economic analysis would be required to provide a complete picture of additional costs.

**Table 1: Projected number of additional properties likely to apply for extended HOP3**

Phase	Current trend scenario	Worst case scenario
1	3,705	6,084
2a	340	558
2b West	1,938	3,183

<b>TOTAL</b>	<b>5,983</b>	<b>9,825</b>

**Table 2: Projected cost of additional HOP3 applications**

Phase	Current trend scenario	Worst case scenario
1	£32.3m	£53.1m
2a	£3m	£4.9m
2b West	£16.9m	£27.8
<b>TOTAL</b>	<b>£52.2m</b>	<b>£85.8m</b>

**Table 3: Projected number of properties likely to apply under existing policy**

Phase	Current trend scenario	Worst case scenario
1	562	923
2a	76	125
2b West	327	537
<b>TOTAL</b>	<b>965</b>	<b>1,585</b>

**Table 4: Projected cost of HOP3 applications under existing policy**

Phase	Current trend scenario	Worst case scenario
1	£4.9m	£8m
2a	£0.7m	£1.1m
2b West	£2.9m	£4.7m
<b>TOTAL</b>	<b>£8.5m</b>	<b>£13.8m</b>

## House of Commons

### High Speed Rail (Crewe - Manchester) Bill

#### 1. Petitioner information

In the box below, give the name and address of each individual, business or organisation submitting the petition.

Mrs Lyndsey Sandison  
**Lostock Gralam** Parish Clerk & Responsible Finance Officer  
Lostock Gralam Parish Council  
PO BOX 768  
Northwich  
Cheshire  
CW9 9TS

In the box below, give a description of the petitioners. For example, “We are the owners/tenants of the addresses above”; “My company has offices at the address above”; “Our organisation represents the interests of...”; “We are the parish council of...”.

Your Petitioners are Lostock Gralam Parish Council, representing the inhabitants and Parish of Lostock Gralam, in Northwich. The Bill will result in a high-speed railway line, running alongside the south edge of the parish. A number of residential properties, businesses and a dementia care home lie within close proximity of the proposed line. The nearest properties are located 100m west of the scheme.

The parish of Lostock Gralam is bordered by the industrial and residential fringes of Northwich to the west, the Stubblach Plain to the south and the wooded area Marthall to the north.

The proposed high-speed railway line will be constructed to the south of Lostock Gralam on the Lostock Plain, which has a network of footpaths mainly following farm tracks and field boundaries. The Lostock Plain is also a major brine extraction area which is also utilised for underground gas storage. The A556 Shurlach Road south of the parish of Lostock Gralam, on the Lostock Plain is a busy commuter route serving Northwich, Chester to Manchester and Junction 19 of the M6 and is proposed to be realigned to make way for the high-speed railway line.

## 2. Objections to the Bill

In the box below, write your objections to the Bill and why your property or other interests are **directly and specially affected**. Please number each paragraph.

Only objections outlined in this petition can be presented when giving evidence to the Committee. You will not be entitled to be heard by the Committee on new matters not included in your written petition.

### **LAND QUALITY (L1)**

BID LQ-002-0MA02

L1.0 The Lostock Gralam Parish Council **object** to a high-speed railway line being built across the Holford Brinefields, to the south of our parish. The Holford Brinefield measures approximately 3.7km (east to west) and 3km (north to south) and is located partially under the land required for the operation of the proposed HS2 scheme. The land across this stretch of route has poor ground conditions, extensive ground instability due to rapid dissolution of rock salt in the presence of fresh water and /or unsaturated brine, complex geological issues and extensive salt industry infrastructure.

L1.1 INOVYNS operations at the Holford Brinefields focus on the solution mining and processing of brine for the supply to the INOVYN site at Runcorn where it is used as one of the key raw materials for the production of chlorine, caustic soda, chlorinated derivatives and food grade salt. Brine is also supplied to the TATA Ash Plant at Northwich. The Holford Brinefields pump around 30 million cubic metres of water every year, with some 2.5 million tonnes of salt being solution mined. The site comprises a field of some 200 caverns within the Northwich Halite member. Caverns typically range from 100m to 150m in diameter, 100m to 200m high with cavern crown (top) depths of some 200m to 350m below ground level around Lostock Gralam, depending on the depth of the Northwich Halite Member.

L1.2 The effects of solution mining can result in erosion, sinkholes, loss of biodiversity, or the contamination of soil, groundwater and surface water by the chemicals emitted from the mining process.

L1.3 Cavities can be used to store gas due to their minimal permeability to liquids and gases. The underlying mudstones-including those at Holford Brinefields - can then prevent the downward migration into more sensitive aquifers such as the Sherwood Sandstone. On completion of salt extractions, the caverns located in this area are licensed for the storage of waste salt processing products and caverns utilities for gas storage.

### **CONSTRUCTION TIMELINE (CT2)**

CT2.0 We **object** to the ten year timescale HS2 will take to be built at Lostock Gralam. The parish of Lostock Gralam is to be exposed to a potential construction time of ten years; starting quarter two of 2025 with the Birches Lane satellite compound and ending in quarter three 2035 with testing and commissioning. This does not take into account any unforeseen delays.

CT2.1 The main construction time will be taken up with the building of the Rudheath embankment, north and south Lostock Gralam embankments and the Wade Brook, Lostock Gralam and Smoker Brook viaducts and the realignment of the A556 and rerouting of utilities.

CT2.2 Lostock Gralam residents and local businesses will endure a significant increase in sound, noise, vibration, dust and light pollution, traffic delays and blight for the duration of construction.

CT2.3 It is noted that HS2 has not carried out extensive groundwork investigations despite local resident and Former Mining Geologist and Applied Geology/ Geophysics Lecturer Rosalind Todhunter Bsc PhD producing an abundance of information and evidence demonstrating the vulnerable, complex geology of the Lostock Plain. It is therefore inexcusable for HS2 to start work on the high-speed railway line and then find that the route is going to take longer to build due to unforeseen ground complexities which hadn't been accounted for. The proposed construction time for the high-speed railway line is in our opinion unacceptable.

### **VISUAL IMPACT (VI3)**

This section of route is illustrated on maps CT-06-314 to CT-06-316a in the Volume 2:MA02 Map Book.

VI3.0 Your petitioners **object** to the significant visual impact that the Rudheath embankment, Lostock Gralam south embankment, Lostock Gralam viaduct, Lostock Gralam north embankment and the Smoker Brook viaduct will have on the Lostock Plain which is predominantly an area of flat agricultural land which was formerly heath and is now characterised in part by the extraction of brine.

VI3.1 Embankments up to 14 metres in height will cut off communities that currently enjoy open views of mature countryside. The Lostock Gralam south embankment and Lostock Gralam north embankments will both have landscape mitigation planting on both sides to help integrate the proposed scheme into the surrounding landscape. In all honesty planting isn't going to hide or blend in a 14m high embankment which is 353m in length (south) and a 655m in length (north) embankment, we therefore **object** to embankments being built across the Lostock Plain. The change in visual impact would be enormous and not in keeping with a predominantly flat landscape.

VI3.2 Lostock Gralam is the first Northwich parish to welcome commuters, visitors and Northwich residents home when travelling along the A556 Chester Road to Lostock Gralam/Northwich. The first thing which will be seen is the Smoker Brook viaduct, this will be like a gateway into our parish and town, it is

therefore absolutely essential that the viaduct design is sympathetic to our landscape and existing bridges. The viaduct design is something we feel very passionate about and want to be involved with.

VI3.3 Noise barriers up to 5m in height, extending from Wade Brook, along the western side of the Wade Brook Viaduct, Lostock Gralam south embankment, Lostock Gralam viaduct, to the northern end of Lostock Gralam north embankment for the provision of acoustic screening for properties in Lostock Gralam (see Volume 2: MA01 Map Book, map CT-06-315, E5 to map CT-06-316a, B4) is obviously wanted and needed however the example noise fence barrier (Figure 13- Environmental Statement Pg.30) visual included in the HS2 Environmental Statement is yet another imposing, ugly addition to our parish which enjoys rural views and walks.

VI3.4 NV4.2 An A556 auto-transformer station to be sited directly opposite the Travelodge and Lostock Lodge Care home. This was not in previous bills and has caused grievance within the community. It will be in permanent direct view of Lostock Lodge Care Home, Lostock Gralam Travelodge and properties located on Salary Row.

#### **HIGHWAYS (H4)**

H4.0 Lostock Gralam Parish Council **object** to the realignment of the A556 Shurlach Road by up to 90 metres to the north. We are extremely concerned about the impact of traffic flow through Lostock Gralam on Manchester Road and the wider impact on Northwich.

H4.1 If traffic is at a standstill on Manchester Road and on the A556 Shurlach Road this may impact emergency vehicle response times, from the Fire brigade getting to Lostock Gralam from Leftwich, Ambulances getting to Leighton Hospital at Crewe and the Police from Northwich Town centre.

H4.2 The Lostock Gralam Parish Council instructed CWAC Highways to carry out a traffic survey on Manchester Road in 2019, the results of this survey told us that 4619 vehicles travelled east to west over a 12-hour period with 501 of those vehicles being HGV. Travelling west to east over a 12-hour period there were 4580 vehicles of which 547 were HGV. This figure has no doubt increased with the growing number of new properties in the area and HGV's looking for the shortest routes to save on fuel and time. When road works or traffic collisions occur on the A556, Manchester Road becomes very congested and side residential roads used as cut throughs.

H4.3 Heavy traffic on Manchester Road not only has an environmental impact, made worse by idling HGV's waiting to turn right onto Hall Lane (A559) from Manchester Road but also a health impact on our local residents whose properties line Manchester Road and for the children who walk to preschool and school along this route.

H4.4 We **object** to the proposed construction traffic routes along Manchester Road and Station Road which are unacceptable. Lostock Hollow is susceptible to subsidence due to a naturally occurring spring under the road, this road is also classed as unsuitable for HGVs from the A556. Lostock Hollow runs into Station Road after the Lostock Gralam railway bridge, Lostock Tiny Tots preschool is on the left just after the bridge followed by St. John the Evangelist Church to the right. The local primary school is just off Station Road onto School Lane. The area is densely residential with on street parking which results in vehicles travelling on the wrong side of the road on the approach to the Hall Lane/Station Road traffic lights.

H4.5 We **object** to Station Road being used as a construction route. Station Road is not suitable for any additional traffic, children, pedestrians and local residents will be put at risk by this proposed construction route. There will also be a significant increase in air pollution of diesel particulates from the construction vehicles. Damage will also be caused to the already depleted road surfaces in our parish. By using Station Road HS2 will impose a significant effect on young children's lives and our community.

H4.6 The use of heavy HGV's transporting earth for the embankments will increase traffic volume, and potentially damage the existing road structure surface around our parish. We **object** to HGVs being used to transport earth and instead suggest the railway is used.

H4.7 HS2 should be aware that the Lostock Sustainable Energy Plant (LSEP) currently under construction at the Lostock Works on Griffiths Road, will look to start operation Q4 2025 which is the same time HS2 plan to start the A556 realignment.

H4.8 LSEP currently has permission for a capacity of 600,000 tonnes of residual waste per year with a Section 36 variation application yet to be determined by BEIS to increase the capacity to 728,000 tonnes per year. This would increase HGV movements from 262 round trips per day to 434, and would require increased operating hours from 07:00-19:00 to 07:00-23:00. Bearing in mind this plant isn't operational yet, this equates to a new HGV lorry movement every two minutes over a 16-hour period travelling from the M6 motorway to Griffiths Road and back. The A556 will be the main route for HGV deliveries. This is yet another reason why Lostock Gralam Parish Council **object** to the A556 being realigned.

#### **NOISE AND VIBRATION (NV5)**

Volume 2: MA02 Map Book SV-02, SV-03, SV-05, SV-08 and SV-09 (volume 5, sound, noise and vibration Map Book).

NV5.0 We **object** to construction traffic noise at Station Road. HGV traffic noise at Station Road, will be significant and have an impact on Lostock Tiny Tots and toddler groups who use the Church Hall on Station Road.

NV5.1 HGV and HS2 construction noise will have an adverse effect on around 40 properties on Salary Row, Broseley Way, Gralam Grove, Wells Avenue, Lostock Gralam Travelodge guests, Celandine Court an over 50's apartment block of 64 apartments and Lostock Lodge a specialist dementia care home for up to 66 residents, and homes on the Harris Road estate in the vicinity of the A556.

NV5.2 The Birches Lane Satellite Compound will have a significant effect on properties along Harris Road as these properties are in direct line of sight and are located 530mtrs away, Lostock Gralam Viaduct Satellite Compound is located 110mtrs away from properties on Harris Road, Smoker Brook Viaduct South Satellite Compound is located 250mtrs from Lostock Lodge a specialist dementia care home. All of these residential locations will be exposed to significant increase in noise pollution for up to 6 years and will have a substantial impact on the local community.

#### **MUD, DUST AND LIGHT POLLUTION (MDL6)**

MDL6.0 The Lostock Gralam Parish Council is concerned about potential mud and contamination of the road network, along with dust and light pollution.

#### **BLIGHT, SOCIO-ECONOMICS (BSE7)**

BSE7.0 Lostock Gralam residents are going to be adversely impacted by the high-speed railway line over a long period of time, it will affect community well-being and mental health and growth in the Northwich area.

#### **ENVIRONMENTAL (E8)**

E8.0 The Lostock Plain has a network of footpaths mainly following farm tracks and field boundaries. The Lostock Plain is also a major brine extraction area which is also utilised for underground gas storage. Ditches are found across much of the land to take away excess water, HS2 may well have a detrimental impact on the way water is managed with the potential for flooding.

E8.1 Work associated with the diversion of three high pressure gas pipelines and the underground diversion of an existing 11kV power line between Lostock Gralam and Plumley Lime Beds SSSI will result in the permanent loss of 1.1ha (79%) of Square Wood. The loss of this woodland will have a permanent adverse effect that is significant at the district/borough level.

E8.2 Construction of Lostock Gralam north embankment and Smoker Brook viaduct will result in the permanent loss of 1.0ha (38%) of deciduous woodland within Long Wood LWS. The diversion of three high pressure gas pipelines between Lostock Gralam and Plumley Lime Beds SSSI and temporary works associated with Lostock Gralam north embankment will result in the permanent

loss of a further 1.3ha (50%) of the woodland. The loss of this woodland will have a permanent adverse effect that is significant at the county/metropolitan levels.

E8.3 The land grab, construction compounds, rerouting of roads, utilities, loss of public footpaths, hedgerow removal and destruction of natural habitats are likely to impact wildlife species as a result of this build.

E8.4 There is a clear risk of land collapse, gas explosion, economic decline, destruction of ancient woodland and natural habitats, major decrease in the quality of life, permanent sound pollution and permanent visual destruction of the landscape.

E8.5 Lostock Gram Parish Council **objects** to the environmental impact HS2 will have on our parish and the destruction of woodland, natural habitats and ecosystems.

#### **UTILITIES (U9)**

U9.0 We are very concerned about the major utility re-routing which is required, not only the impact this will have on traffic flow in the area but also the safety of our community.

### 3. What do you want to be done in response?

In the box below, tell us what you think should be done in response to your objections to the Bill. You do not have to complete this box if you do not want to.

You can include this information in your response to section 3 'Objections to the Bill' if you prefer. Please number each paragraph.

#### **LAND QUALITY (LR1)**

LR1.0 The Lostock Gralam Parish Council is not satisfied with the current level of groundwork investigations which HS2 have carried out. It is still unfathomable that the stretch of track from Rudheath to Lostock Gralam is the best option for building the highspeed railway. We ask that extensive groundwork investigations are carried out and that HS2 look again at an alternative route alignment away from Northwich.

LR1.1 We want assurances from HS2 that our community will not be put at risk of ground collapse, flooding, or explosion from the build process of HS2. We are particularly concerned about the rerouting of high-pressure gas mains and gas storage and the proposed HyNet hydrogen pipeline which may be routed across this parish around the same time HS2 is proposed to begin construction.

#### **CONSTRUCTION TIMELINE RESPONSE (CTR2)**

CTR2.0 The longer the HS2 line takes to construct from the first construction compound to track testing, the more blight, economic hardship, effects of quality-of-life HS2 impose on Lostock Gralam and Northwich.

CTR2.1 We note that the Smoker Brook viaduct at 806m in length and up to 25m in height (see Volume 2: Map Book, map CT-06-316a, B4 to F4) will take 2.5 years to construct, in comparison to the Lostock Gralam north embankment at 655m in length and up to 14m in height (see Volume 2:MA02 Map Book, map CTR-06-315, H6 to map CT-06-316a, B4) which will take 3 years to construct. This suggests to us that by asking HS2 to replace the Rudheath embankment, Lostock Gralam south embankment and Lostock Gralam north embankment with one viaduct straight through from the Gadbrook Viaduct to the Smoker Brook Viaduct that construction time of the high-speed railway line can be reduced thus resulting in less impact on our parish and town of Northwich.

CTR2.2 By using the construction techniques of the Colne Valley viaduct, we are confident that a launch girder system which will pick up each individually cast segment, put them into position, post tension in place, then repeat the process to construct the viaduct can not only reduce the currently proposed build time but also reduce the lifespan of each of the construction compounds and earth stockpiles.

CRT2.3 At what cost is too much? We ask HS2 to openly detail the cost of HS2 crossing Lostock Gralam and whether it is the best financial option for the tax payer.

**VISUAL IMPACT RESPONSE (VIR3)**

VIR3.0 With HS2 unable to use railway cuttings and tunnelling in our parish, we will be left with a visual legacy of HS2. It is therefore our duty as the Lostock Gralam Parish Council to ensure that the design and visual appearance of HS2 is as sympathetic to our landscape as possible. As one of the gateways into Northwich we would like to see viaduct design which is sympathetic to our existing arched bridges which surround the Northwich Town. We particularly prefer the Colne Valley viaduct design to that of a generic high viaduct (Figure 6. Illustration of a generic high viaduct Pg 25 Environmental Statement, Non-technical summary).

VIR3.1 We are very concerned about the visual impact of 14m high embankments to the degree that we would prefer to see a viaduct. Long high embankments are a total block on the vision of what is beyond, they act as a wall dividing communities. It is simply not enough to plant shrubs on the embankments, a sympathetically designed viaduct would allow light and views through and beyond the HS2 line over the Lostock Plain.

VIR3.2 As with the Colne Valley Viaduct design we ask HS2 to, where possible, use innovative transparent sound barriers to reduce the apparent scale of the viaducts and embankments experienced at ground level. We want the barriers to be designed to appear as light as possible to ensure that HS2 passes through the Lostock Plain as sensitively as possible.

VTI3.3 The Auto-transformer station would ideally be located on the southern side of the HS2 line away from view of properties on Salary Row, Lostock Lodge Care Home and Celandine Court. Mature planting to screen the auto-transformer station would be welcomed.

**HIGHWAYS (HR4)**

HR4.0 We note that the proposed timeline for the A556 Shurlach Road realignment is from Q4 2025 to the end of 2028. This is simply unacceptable, the disruption from recent utility works at Roberts Bakery in Rudheath which lasted around 6 months was unbearable for local residents and Lostock Gralam residents who had to endure Manchester Road being used as an alternative route.

HR4.1 The realignment work must be carried out in a way that ensures that two lanes of traffic continue to flow in both directions. If HS2 remove the embankments and instead build one viaduct across the Lostock plain, the land grab required may reduce and therefore lessen the realignment requirement of the A556 Shurlach Road.

HR4.2 We request that the road surface of the realigned A556 Shurlach Road is low noise due to the impact on properties and the Lostock Lodge dementia care home.

HR4.3 We ask that the Manchester Road/Hall Lane traffic lights be modernised to incorporate a right hand turn onto Hall Lane, this would allow traffic to continue flowing towards Northwich despite vehicles waiting to turn right, something which does not currently happen.

HR4.4 With increased traffic proposed for Manchester Road, we would like to ask that a controlled pedestrian crossing be installed on the existing traffic refuge island near to the Stubbs Lane junction on Manchester Road. This would allow school children and members of our community to safely cross the road to the Stubbs Lane play area and primary school on School Lane. We also suggest that a 'Keep Clear' is painted on the Stubbs Lane junction to Manchester Road, as residents of Stubbs Lane struggle to safely pull out of the junction when traffic is backed up along Manchester Road heading towards Northwich.

HR4.5 Construction traffic should not be permitted past the Lostock Gralam train station onto Station Road, for the safety of pre-school and school children and due to the parked vehicles, which line the road up to the Station Road/Hall Lane traffic lights.

HR4.6 The realignment of the A556 is not in our opinion an option. It is the main artery bringing in and taking away traffic to the M6 motorway and Chester. By disrupting this road, HS2 will not only inflict long delays and traffic congestion but also impact businesses operating in the area, adding to the negative economic impact of HS2 at Northwich.

#### **NOISE AND VIBRATION (NVR5)**

NVR5.0 The Lostock Gralam Parish Council urge HS2 not to use Station Road as a construction traffic route due to the number of young children who attend Lostock Tiny Tots, toddler play groups at the Church Hall and primary school age children walking along this route to the Lostock Gralam Primary School on School Lane. This is a residential area with vehicles parked on the road.

NVR5.1 HGV and construction noise may well become too much for the properties in close proximity to the A556, provision should be in place to offer noise insulation e.g. triple glazing and if necessary alternative temporary housing. The Parish Council through the local authority will want to be kept abreast of noise and vibration monitoring data to demonstrate compliance with all noise and vibration commitments.

NVR5.2 To reduce likely community significant effects, taller screening (provided by solid temporary hoarding, temporary stockpiles, screening close to activities or other means to provide equivalent noise reduction) should be used to lessen the noise effects for properties on Harris Road, and homes in close proximity to the A556.

NVR5.3 Power driving alternatives should be considered to reduce noise. We note that Lostock Sustainable Energy are using a piling process which is virtually vibration free and dramatically reduces the level of noise created, by using

continuous flight auger (CFA) piles. Is this something HS2 could consider? This method removed the need for the use of a piling hammer to drive piles into the ground, dramatically reducing the level of noise and vibration generated.

#### **MUD, DUST AND LIGHT POLLUTION (MDLR6)**

MDLR6.0 Restricted working hours must be fixed with no option of variations to increase work hours from that proposed in the Hybrid Bill.

MDLR6.1 Dampening down for dust management and wheel wash systems should be in place at all construction compounds. A light management plan should be agreed to limit light pollution.

#### **BLIGHT, SOCIO-ECONOMICS (BSER7)**

BSER7.0 The Lostock Gralam Parish Council request that the homeowner payment zone be increased to 500 metres due to the extensive work and timeline to complete HS2 at Lostock Gralam.

BSER7.1 HS2 will not bring any benefit to Northwich, the effect the build will have on our community and local businesses will cripple our ability to thrive whilst construction takes place between 2025 and 2035. We ask HS2 to consider offering apprenticeships to our community and promote learning, use local contractors to support the town, hold regular community engagement events to bring some benefit to a community that will not likely be able to afford to travel on HS2.

#### **ENVIRONMENTAL (ER8)**

ER8.0 The Lostock Gralam Parish Council is concerned about the negative effect embankments will have on the Lostock plain, particularly the way water runoff will be controlled and the impact the weight will have on the brine fields. We believe a viaduct will have less impact as ditches and natural animal tracks can be reinstated, and less woodland and natural habitats destroyed due to the lesser land grab. Local footpaths and walking routes could also be retained, allowing neighbouring communities to stay connected and not severed as currently proposed.

ER8.1 We ask for evident plans to achieve the very best outcome for nature. We ask that HS2 improves its environmental mitigation and compensation commitment. Nature should be left in a better state than before, with provision for bat nesting, provision for birds and crested newts. We would welcome a compensation plan to achieve a 'no net losses of biodiversity. For every one tree cut down, we ask HS2 to plant two.

ER8.2 Will HS2 be resilient against climate change effects as the track lifespan is 120 years?

ER8.3 With the move towards cleaner transport we expect that fully electric vehicles will be used as much as possible to reduce the impact of diesel engine emissions in our parish.

ER8.4 We ask that the high-speed railway, carefully, tiptoes across our landscape watching where to place each step as opposed to the proposed destructive clomping across our landscape without a care of what's destroyed.

**UTILITIES (UR9)**

UR9.0 We do not have the knowledge required to make recommendations on the utility rerouting and trust that HS2 will work with the utility companies to ensure that disruption is kept to a minimum and that safety of our community is paramount.

**February 2023**

**HIGH SPEED RAIL (CREWE -  
MANCHESTER) BILL**

**HOUSE OF COMMONS  
SELECT COMMITTEE**

**Petition No. HS2-P2B-010:  
Lostock Gralam Parish Council**

**Promoter's Response Document**

## **INTRODUCTION**

This Promoter's Response Document (PRD) forms the Promoter's response to Petition No. HS2-P2B-010, from Lostock Gralam Parish Council.

In this PRD, 'the Promoter' means the Secretary of State and HS2 Ltd acting on their behalf.

The purpose of the PRD is to advise you and the Select Committee of the Promoter's position in relation to the petitioning points raised. It is intended that the PRD will alleviate many of the concerns raised in the petition.

The Table of Contents overleaf lists the page number, petitioning points in the order they appear in the petition, and a summary statement of the issue(s) contained in the petition for quick reference. Other supporting material (e.g., reports, drawings, and photographs) referred to in the response are attached where applicable.

Copies of the HS2 Phase 2b Information Papers referred to in the response can be found at  
HS2 Phase 2b (Crewe – Manchester) Information Papers - GOV.UK ([www.gov.uk](http://www.gov.uk)).

Department for Transport  
High Speed Two (HS2) Limited

## **BACKGROUND**

Lostock Gralam Parish Council represents the inhabitants of the village and civil parish of Lostock Gralam in Northwich, within the local authority administrative area of Cheshire West and Chester.

**PETITION NO. HS2-P2B-010**

**LOSTOCK GRALAM PARISH COUNCIL**

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## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** LR1.0 – LR1.1

**ISSUE RAISED:** Land quality

#### **PETITION**

**PARAGRAPH:** LR1.0 The Lostock Gralam Parish Council is not satisfied with the current level of groundwork investigations which HS2 have carried out. It is still unfathomable that the stretch of track from Rudheath to Lostock Gralam is the best option for building the highspeed railway. We ask that extensive groundwork investigations are carried out and that HS2 look again at an alternative route alignment away from Northwich.

LR1.1 We want assurances from HS2 that our community will not be put at risk of ground collapse, flooding, or explosion from the build process of HS2. We are particularly concerned about the rerouting of high-pressure gas mains and gas storage and the proposed HyNet hydrogen pipeline which may be routed across this parish around the same time HS2 is proposed to begin construction.

#### **PROMOTER'S RESPONSE:**

##### *Ground conditions*

1. HS2 is in consultation with the operators of the Salt Industry infrastructure and discussions are ongoing with the business owners/operators to ensure public safety and their safe continued business operations during constructing and operating the Proposed Scheme.
2. HS2 has undertaken a significant amount of data gathering to inform the design with specific reference to the geology and ground conditions. HS2 has held discussions with relevant agencies that have significant knowledge and information on existing infrastructure assets within the area and captured data on the interaction between their activities and the ground conditions. These agencies include Network Rail, The Canal and Rivers Trust, the relevant Salt Industry companies and the Cheshire Brine Subsidence Compensation Board. In addition, HS2 has listened to local

communities who have knowledge of the local geology and taken note of their observations and opinions.

3. A comprehensive desk study has been compiled for the Phase 2B Western Leg route. Following a review of desk study information, two phases of ground investigations have already been carried out.

4. It is industry practice to undertake Ground Investigation in a phased manner, with each phase building on the next. HS2 has planned a routewide Ground Investigation activity which is proposed to commence in 2023. This proposed routewide Ground Investigation will involve closely spaced exploratory sampling points along the full route from Crewe to Manchester, with more frequent and site-specific exploration at specific locations, where the ground risk may be greater due to the local geological conditions. Future contractors will normally also deploy additional ground investigations in the later stages of design and the early stages of construction to finalise design elements that could be sensitive to ground conditions along the HS2 corridor. This ensures the engineering solutions proposed are verified and the safety of the Proposed Scheme is validated and assured.

5. The Promoter has previously given commitments on the design of the Proposed Scheme in HS2 Phase 2b Western Leg Information Paper D1: Design, in particular the Promoter would highlight Sections 3.1 of this publication, which states:

*"The Promoter and the nominated undertaker will seek to ensure that:*

- the design is safe, efficient, and meets with the requirements of whole life operation and maintenance alongside initial buildability and will integrate with the local setting;
- the design is developed through engagement to seek peoples' views and including integration with setting design of the visible buildings and permanent structures."

6. HS2 continues to work with its design partners to optimise the Proposed Scheme with respect to engineering design and cost as more information relating to the ground conditions emerges.

#### *Route alignment*

7. Volume 1 of the Environmental Statement (main ES) contains a summary of the main strategic, route-wide and local alternatives that were considered in the development of HS2 Phase 2b Crewe – Manchester Proposed Scheme, providing a factual and chronological description of the consideration of strategic options (both pre-consultation and post-consultation), modal alternatives, wider network options, alternative speeds and upgrades to the existing main lines. Volume 1 of the main ES also covers the Proposed Scheme component options, and routes from Crewe to Manchester. In addition, in section 2.5 of each community area report in Volume 2 of the main ES, a summary for the main alternatives in each area are reported.

8. The alignment between Middlewich and Pickmere (route through salt mining areas) was considered as part of the post 2013/2014 consultation for the Phase 2b Western Leg prior to the July 2017 preferred route announcement. The 2016 preferred route to Manchester was maintained as the baseline option on the basis that the alternative options would have similar or greater impacts on the local environment but have greater construction complexity and cost. An option was adopted that runs at a minimum elevation of approximately 1m above the ground (rather than in partially in cutting and at ground level) to avoid salt mining and gas storage areas compared to the 2013 scheme for consultation. North of Crewe the route would initially follow a similar horizontal profile to the 2013 scheme for consultation but would then cross the River Dane on a viaduct up to 26m high, as opposed to a 10m high viaduct, and then cross the Trent and Mersey Canal on three occasions. The route would head north-east alongside the existing A556 and to the west of Lostock Green, before continuing north to the east of Lostock Gralam and Pickmere Telescope.

9. The Proposed Scheme has developed through an established route refinement process referred to as sifting. The sifting process consisted of a sequentially more detailed appraisal of alternative route options. At the end of each appraisal stage (or sift) environmental sustainability performance was considered alongside cost, operational and engineering considerations. Shortlisted options were identified to progress to the next level of sift for a more detailed appraisal.

10. The following environmental factors were considered as part of the appraisal of sustainability performance: climatic factors and adaptability; greenhouse gases; landscape; townscape and cultural heritage; biodiversity and geodiversity; water resources; flood risk; air quality; noise and vibration; community integrity; accessibility; health and well-being; security and safety; economic prosperity; economic welfare; soil and land resources; waste generation; and resource use.

11. The principle of the route of the Proposed Scheme was voted on at second reading of the Bill in the House of Commons. The Bill cleared second reading by 205 votes to 6 and any consideration of an alternative route would therefore be outside the scope of the petitioning process.

#### *Controls during construction*

12. As explained in section 7, Volume 1, of the main ES, the purpose of environmental impact assessment is to identify the likely significant environmental effects of the Proposed Scheme. It does this by identifying the baseline conditions, anticipating how these may change in the future and predicting the potential impacts of constructing and operating the development. Where relevant for each environmental topic, key assumptions and limitations underpinning the assessment methodology have been explained, and their consequences on the completeness or potential accuracy of the conclusions have been identified. Local assumptions and limitations are described within the Volume 2, Community Area reports in the ES.

13. In respect of the level of detail, the draft Code of Construction Practice (CoCP) sets out general standards/controls that the nominated undertaker would put in place to manage environmental effects arising from construction activity. As part of the draft EMRs, it is accepted that the draft CoCP will evolve and is subject to refinement, amendment and expansion as necessary as the project design, assessment and Parliamentary processes develop. The final version of the draft CoCP would be produced at Royal Assent.

14. Paragraph 3.5 of HS2 Phase 2b Western leg Information Paper E1: Control of environmental impacts states that any nominated undertaker will be contractually bound to comply with the controls set out in this paper and as may be developed during the passage of the Bill through Parliament.

*Rerouting of proposed HyNet hydrogen pipeline*

15. The Promoter is aware of the proposed new hydrogen pipeline scheme, as part of the HyNet North West project, and that an indicative pipeline route is proposed to cross the HS2 safeguarded route in community area MA02.

16. The Promoter has actively engaged with the HyNet project team through responding to two initial consultations on the proposed pipeline (in March and November 2022 respectively). Through that process the Promoter has confirmed it is supportive in principle of the pipeline but has also stressed the need for collaborative working in respect of the interfaces identified between the two schemes and how it would be necessary to secure the protections required through a legal agreement between the parties and, in due course, protective provisions in the future Development Consent Order.

17. Developments expected to be completed between 2025 and 2038 (i.e. before the Proposed Scheme is operational), may give rise to cumulative effects. However, smaller projects are unlikely to give rise to significant cumulative effects, as the scale of their construction impact, in combination with the Proposed Scheme, would not generate any noticeable increases in effects.

18. Developments likely to take place after 2038 have generally not been taken into account. This is because development planning usually does not extend so far into the future and even where such developments can be identified, there is generally insufficient information available for an assessment of cumulative effects. In these cases, it is assumed that the planning process for those developments will take the Proposed Scheme into account (and will therefore consider any cumulative effects at that time).

19. Local plan allocations which do not provide sufficient information to make reasonable assumptions to inform the future baseline or have potential to result in likely significant cumulative effects have been identified as committed developments but have not been included in the assessment.

20. Planning applications yet to be determined and sites where proposed allocations in development plans are yet to be adopted, are termed proposed developments and have not been included in the assessment. However, the progress of these proposals will continue to be monitored by HS2 Ltd until Royal Assent.

21. A list of committed and proposed developments is contained within Volume 5: Appendix CT-004-00000 and Appendix CT-004-OR000. Committed developments are also shown on Map Series CT-13. Volume 2, Community Area reports and Volume 4, Off-route effects set out the committed developments that have been considered in determining the future baseline and/or in assessing the cumulative effects for each topic.

22. The Promoter's response to the diversion and protection of existing high-pressure gas pipes is covered in the subsequent section under the heading "Utilities" later in this document in response to paragraph UR9.0 of the petition. Further information on the HyNet North West Hydrogen Pipeline, including proposed pipeline routes in Cheshire, can be found at: [www.hynethydrogenpipeline.co.uk](http://www.hynethydrogenpipeline.co.uk).

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** CTR2.0 – CTR2.3

**ISSUE RAISED:** Construction timeline response

**PETITION PARAGRAPH:** CTR2.0 The longer the HS2 line takes to construct from the first construction compound to track testing, the more blight, economic hardship, effects of quality-of-life HS2 impose on Lostock Gralam and Northwich.

CTR2.1 We note that the Smoker Brook viaduct at 806m in length and up to 25m in height (see Volume 2: Map Book, map CT-06-316a, B4 to F4) will take 2.5 years to construct, in comparison to the Lostock Gralam north embankment at 655m in length and up to 14m in height (see Volume 2:MA02 Map Book, map CTR-06-315, H6 to map CT-06-316a, B4) which will take 3 years to construct. This suggests to us that by asking HS2 to replace the Rudheath embankment, Lostock Gralam south embankment and Lostock Gralam north embankment with one viaduct straight through from the Gadbrook Viaduct to the Smoker Brook Viaduct that construction time of the high-speed railway line can be reduced thus resulting in less impact on our parish and town of Northwich.

CTR2.2 By using the construction techniques of the Colne Valley viaduct, we are confident that a launch girder system which will pick up each individually cast segment, put them into position, post tension in place, then repeat the process to construct the viaduct can not only reduce the currently proposed build time but also reduce the lifespan of each of the construction compounds and earth stockpiles.

CTR2.3 At what cost is too much? We ask HS2 to openly detail the cost of HS2 crossing Lostock Gralam and whether it is the best financial option for the tax payer.

## **PROMOTER'S RESPONSE:**

### *Replacement of embankments with viaducts*

1. The Promoter notes the Petitioner's suggestion that the Rudheath embankment, Lostock Gralam south embankment and Lostock Gralam north embankment be replaced by one viaduct between the Gadbrook Viaduct and Smoker Brook viaduct in order to reduce the construction time of the Proposed Scheme and to reduce impacts on Lostock Gralam Parish and the town of Northwich.
2. The Proposed Scheme has been designed to limit adverse environmental and visual impacts during construction and operation. The approach to assessment of these impacts is set out in Section 8.11 of the HS2 Phase 2b Scope and Methodology Report.
3. This has included keeping the railway low in the landscape, where reasonably practicable. In other locations the design has incorporated landscaped earthwork and tree planting (screening) to help integrate the railway into the surrounding landscape.
4. The design of the Proposed Scheme provides a level of detail necessary for the purposes of the Phase 2b Bill and the requirements of the Standing Orders of Parliament. The detailed design will reflect the best engineering solution. Once the detailed design of the Proposed Scheme is complete the nominated undertaker would then need to apply to local authorities along the route for approval of the detailed design of a range of elements of the Proposed Scheme in accordance with the planning regime established under Schedule 17 to the Bill.
5. Individual elements of the project, such as bridges and viaducts, would be designed to ensure that they are in keeping with local landscape character and setting.
6. Detailed design, materials and finishes would be subject to approval by relevant planning authorities under the planning regime established under Schedule 17 to the Bill. This is explained in HS2 Phase 2b Western Leg Information Paper B2: The Main Provisions of the Planning Regime.
7. As HS2 Phase 2b Western Leg Information Paper D1: Design, sets out, ongoing engagement with planning authorities is critical to the design development process.
8. Such engagement with local planning authorities would ensure that the detailed design of the Proposed Scheme has regard to planning authority aspirations and fits within the local environment.
9. In terms of design development and public engagement, paragraph 6.2 of HS2 Phase 2b Western Leg Information Paper D1: Design outlines the Promoter's planned approach, as below:
  - Key design elements - the nominated undertaker will engage the public on the design development of key elements of infrastructure - including main viaducts and maintenance buildings in sensitive areas. The engagement exercise is likely

to focus on engaging the public in the locality where the infrastructure is located. These key design elements are outlined in Table 1 in Appendix A to the Information Paper; and

- Common design elements - the nominated undertaker will develop standard or common designs for certain permanent structures associated with the railway (such as road-bridges, foot-bridges, noise barriers). The Promoter will undertake wider public engagement on design development for common design elements, including for example interactive on-line materials, with associated local and route-wide publicity.

10. The Promoter is in ongoing discussions with Cheshire West and Chester Council, and other relevant stakeholders regarding the form of railway construction (viaducts, bridge, embankments etc) in the Lostock Grlam area. HS2 Phase 2b Western Leg Information Paper D1: Design would apply to viaducts and embankments in or near to the parish of Lostock Grlam.

#### *Code of Construction Practice*

11. The nominated undertaker would require its contractors to apply and to comply with the requirements of the draft Code of Construction Practice (CoCP) and would ensure the use of best practicable means to minimise the effect of the construction site on the local environment.

12. The nominated undertaker and other contractors would comply with the Environmental Minimum Requirements (EMRs) which set out commitments to mitigate the environmental impact of the Proposed Scheme, which would sit alongside the environmental controls contained in the Bill. Controls on the environmental impacts of construction works include:

- the control of environmental impacts of construction arrangements through planning conditions under Schedule 17 of the Bill. For construction arrangements relating to handling of re-useable spoil or topsoil; storage sites for construction materials, spoil or topsoil; works screening; artificial lighting; dust suppression and road mud control measures approval may be granted through a class approval from the Secretary of State. For construction arrangements relating to road transport and construction compounds, approval will be sought from the relevant qualifying authority who may refuse to grant approval or impose conditions subject to the grounds set out in paragraphs 4(6) and 6 of Schedule 17. HS2 Phase 2b Western Leg Information Paper B2: Main provisions of the planning regime, provides further detail; and
- the requirement to obtain consents from the relevant local authority for the proposed construction works, excluding non-intrusive surveys under Section 61 of the Control of Pollution Act 1974. Further information can be found in the draft CoCP.

13. The nominated undertaker and other contractors would also prepare and operate an Environmental Management System in accordance with BS EN ISO 14001 appropriate to the scale and nature of the construction works. These would form part of the Local Environment Management Plan (LEMP), which would be prepared in accordance with the CoCP.

14. To improve liaison with the regulatory authorities a contact person would be identified for each construction compound.

#### *Construction programme*

15. The Promoter notes the Petitioner's suggestion that longer viaducts in the Lostock Gralam area could potentially reduce construction timescales for the Proposed Scheme. This opportunity would be taken into consideration by a contractor during the detailed design stage after Royal Assent.

16. The construction and commissioning of the Proposed Scheme is currently expected to take place in stages between 2024 and 2035.

17. The duration, intensity and scale of works along the route would vary. In some areas an earlier start would be required for enabling works, such as utility diversions, ahead of the main construction works.

18. As set out in the Supplementary Environmental Statement 1 (SES1), Volume 2 Community Area report MA02, Section 6, the Smoker Brook viaduct would take two years and four months to complete (Quarter one 2028 to Quarter two of 2030). The Lostock Gralam north embankment would take three years to complete (Quarter four 2028 to Quarter three of 2031).

19. Enabling works would include the establishment of compounds and worksites, and preliminary activities such as utility diversions. Preparatory mitigation works would also take place at this time, including, where appropriate, habitat creation and transfer of protected species to suitable alternative locations. This would be followed by the period for the main construction works comprising the construction of tunnels, cuttings, embankments, bridges, and viaducts. Once these major components have been built, activity would focus on the installation of track, overhead line equipment, train control and telecommunications systems. A period of testing and commissioning would then follow, including the trial running of trains.

20. Indicative construction programmes have been published for each compound in the Volume 2 Community Area reports in the main ES, and then amended in the SES1 and AP1 ES.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** VIR3.0 – VIR3.3

**ISSUE RAISED:** Visual impact response

**PETITION PARAGRAPH:** VIR3.0 With HS2 unable to use railway cuttings and tunnelling in our parish, we will be left with a visual legacy of HS2. It is therefore our duty as the Lostock Gralam Parish Council to ensure that the design and visual appearance of HS2 is as sympathetic to our landscape as possible. As one of the gateways into Northwich we would like to see viaduct design which is sympathetic to our existing arched bridges which surround the Northwich Town. We particularly prefer the Colne Valley viaduct design to that of a generic high viaduct (Figure 6. Illustration of a generic high viaduct Pg 25 Environmental Statement, Non-technical summary).

VIR3.1 We are very concerned about the visual impact of 14m high embankments to the degree that we would prefer to see a viaduct. Long high embankments are a total block on the vision of what is beyond, they act as a wall dividing communities. It is simply not enough to plant shrubs on the embankments, a sympathetically designed viaduct would allow light and views through and beyond the HS2 line over the Lostock Plain.

VIR3.2 As with the Colne Valley Viaduct design we ask HS2 to, where possible, use innovative transparent sound barriers to reduce the apparent scale of the viaducts and embankments experienced at ground level. We want the barriers to be designed to appear as light as possible to ensure that HS2 passes through the Lostock Plain as sensitively as possible.

VIR3.3 The Auto-transformer station would ideally be located on the southern side of the HS2 line away from view of properties on Salary Row, Lostock Lodge Care Home and

Celandine Court. Mature planting to screen the auto-transformer station would be welcomed.

**PROMOTER'S RESPONSE:**

*Landscape: Landscape and visual effects of the Smoker Brook viaduct*

1. The landscape and visual effects of the Smoker Brook viaduct have been assessed in the ES and reported in section 11, Community Area MA02 Report. The following viewpoints have been used within the assessment as being representative of views potentially affected by the Proposed Scheme:

- viewpoint 312-02-006, views north-west Footpath Lostock Gramam 4/2, east of Fieldhouse Farm;
- viewpoint 312-02-007, view east from Bromley Way, Lostock Gramam;
- viewpoint 312-03-008, view west from Footpath Gramam 8/2, Plumley Lime Beds Nature Reserve;
- viewpoint 312-02-009, view east from A559 Manchester Road, Lostock Gramam;
- viewpoint 313-02-004, view west from the A556 Chester Road, Holford Cottages.

2. During construction, the following viewpoints are reported as experiencing significant effects due to views of the railhead and the construction of the Proposed Scheme:

- viewpoint 312-02-006, views north-west Footpath Lostock Gramam 4/2, east of Fieldhouse Farm;
- viewpoint 312-02-007, view east from Bromley Way, Lostock Gramam;
- viewpoint 312-03-008, view west from Footpath Gramam 8/2, Plumley Lime Beds Nature Reserve;
- viewpoint 312-02-009, view east from A559 Manchester Road, Lostock Gramam; and
- viewpoint 313-02-004, view west from the A556 Chester Road, Holford Cottages.

3. The draft Code of Construction Practice (CoCP) includes measures to limit landscape and visual impacts during construction. These include protecting existing trees where possible, use of well-maintained fencing around construction areas and designing lighting to avoid intrusion on adjacent residential properties. This is explained further in HS2 Phase 2b Western Leg Information Paper D3: Code of Construction Practice.

4. The Proposed Scheme design includes the following areas landscape mitigation in order to reduce the visual effects of the Smoker Brook viaduct on nearby viewpoints and to assist in integrating the railway infrastructure into the surrounding landscape:

- an area of woodland habitat creation to the west of the route of the Proposed Scheme east of the A556 Shurlach Road at Lostock Gralam, to provide connectivity and habitat replacement;
- landscape mitigation planting on both sides of the Lostock Gralam North embankment, to help integrate the Proposed Scheme into the surrounding landscape;
- an area of woodland habitat creation to the east of the route of the Proposed Scheme south of Ascol Drive, to provide connectivity and replacement habitat; and
- an area of woodland habitat creation either side of the route of the Proposed Scheme along either side of the Smoker Brook, to provide habitat replacement.

5. During operation, by year 15 the maturing proposed mitigation planting would partially screen views of the Smoker Brook viaduct, however the following viewpoints are reported as experiencing significant effects:

- viewpoint 312-02-006, views north-west Footpath Lostock Gralam 4/2, east of Fieldhouse Farm;
- viewpoint 312-02-007, view east from Bromley Way, Lostock Gralam; and
- viewpoint 312-03-008, view west from Footpath Gralam 8/2, Plumley Lime Beds Nature Reserve.

6. By year 30 of operation, the proposed mitigation planting would have matured and serve to partially screen views of the Smoker Brook viaduct, however the following viewpoint is reported as experiencing a significant effect:

- viewpoint 312-02-006, views north-west Footpath Lostock Gralam 4/2, east of Fieldhouse Farm.

*Design: Standards, quality, integration with landscape (route-wide)*

7. HS2 Phase 2b Western Leg Information Paper D1: Design outlines the design policy for the Proposed Scheme which includes aesthetics and quality. As stated in paragraph 3.1 of the Information Paper, the Promoter and the nominated undertaker would seek to ensure that:

- the design is safe, efficient, and meets with the requirements of whole life operation and maintenance alongside initial buildability and will integrate with the social setting;
- the design contributes to the Government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life supported by integrated spatial planning and design;
- the design of all visible elements of the built and landscaped environment in both rural and urban areas have an integrated design that is sympathetic to the local context, environment and social setting and supports naturally engineered systems including flood risk management and biodiversity where possible;
- the design cohesion is achieved through a strong aesthetic ethos and a recognisable architectural language;
- the design is developed through engagement to seek peoples' views and including integration with setting design of the visible buildings and permanent structures;
- the design has a culture of cost awareness and integrates design decision making early to give cost/quality and sustainability decisions which achieve best value for the funders;
- the design innovation is encouraged to generate best value to funders, users and those affected by the railway; and
- the design considers the passenger experience and delivers a consistent design ethos between the various contracts.

8. HS2 Phase 2b Western Leg Information Paper D1: Design also explains the Promoter's approach to design development, that engagement with planning authorities is critical to the design development process and would continue as the process moves forward, with the Promoter engaging on detailed design and the role of the planning authority.

9. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment in accordance with the Standing Orders of Parliament. The level of

detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out and, although detailed design development may commence as the Bill progresses through Parliament, it will not be completed until after the Bill has secured Royal Assent. As part of the development of the design following Royal Assent, the nominated undertaker would need to apply for approval of the detailed design of a range of elements of the Proposed Scheme from planning authorities along the route, as set out in the planning regime of the Bill.

10. This would allow planning authorities to ensure that the design of permanent structures fits into the local environment taking account of other relevant considerations.

11. The Promoter recognises the importance of public engagement in the design development process. The HS2 Phase 2b Western Leg Information Paper D1: Design recognises the Smoker Brook Viaduct as a Key Design Element for engagement. As such, the nominated undertaker would engage with the public on the design development of the Smoker Brook viaduct, with the engagement exercise likely to focus on engaging the public in the locality where the infrastructure would be located.

#### *A556 Chester Road Auto-transformer Station*

12. As set out in the main ES, Volume 2 Community Area report for MA02, 2.2.25, the A556 Chester Road auto-transformer station would occupy an area of 75m by 26m to the west of the Proposed Scheme and include a railway telecommunications mast up to 20m in height and signalling equipment. Highway access would be provided from the A556 Shurlach Road.

13. Volume 1 of the main ES, sections 5.19.1 to 5.19.11 outline the need for power supply infrastructure. The Proposed Scheme incorporates a variety of visual mitigation measures, including cuttings, earthwork bunds and screen planting, to effectively conceal and integrate substations and auto-transformers into the landscape.

14. The auto-transformer station would be screened by an area of woodland habitat creation. As reported in the main ES, Volume 2, Community Area report for MA02, Table 38 (Viewpoint 312-02-009), at year 1, the immaturity of landscape mitigation planting would not integrate the Proposed Scheme resulting in a moderate adverse significant effect. Effects would reduce to non-significant due to the growth and maturity of the landscape mitigation planting.

15. The Promoter would welcome further discussion with the Petitioner in relation to location of the A556 Chester Road Auto-transformer Station.

**HOUSE OF COMMONS SELECT COMMITTEE**

**HIGH SPEED RAIL (CREWE - MANCHESTER) BILL**

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** HR4.0 – HR4.6

**ISSUE RAISED:** Highways

**PETITION PARAGRAPH:** HR4.0 We note that the proposed timeline for the A556 Shurlach Road realignment is from Q4 2025 to the end of 2028. This is simply unacceptable, the disruption from recent utility works at Roberts Bakery in Rudheath which lasted around 6 months was unbearable for local residents and Lostock Gralam residents who had to endure Manchester Road being used as an alternative route.

HR4.1 The realignment work must be carried out in a way that ensures that two lanes of traffic continue to flow in both directions. If HS2 remove the embankments and instead build one viaduct across the Lostock plain, the land grab required may reduce and therefore lessen the realignment requirement of the A556 Shurlach Road.

HR4.2 We request that the road surface of the realigned A556 Shurlach Road is low noise due to the impact on properties and the Lostock Lodge dementia care home.

HR4.3 We ask that the Manchester Road/Hall Lane traffic lights be modernised to incorporate a right hand turn onto Hall Lane, this would allow traffic to continue flowing towards Northwich despite vehicles waiting to turn right, something which does not currently happen.

HR4.4 With increased traffic proposed for Manchester Road, we would like to ask that a controlled pedestrian crossing be installed on the existing traffic refuge island near to the Stubbs Lane junction on Manchester Road. This would allow school children and members of our community to safely cross the road to the Stubbs Lane play area and primary school on School Lane. We also suggest that a 'Keep Clear' is painted on the Stubbs Lane junction to Manchester Road, as residents of Stubbs Lane struggle to safely pull out of the junction when

traffic is backed up along Manchester Road heading towards Northwich.

HR4.5 Construction traffic should not be permitted past the Lostock Gralam train station onto Station Road, for the safety of pre-school and school children and due to the parked vehicles, which line the road up to the Station Road/Hall Lane traffic lights.

HR4.6 The realignment of the A556 is not in our opinion an option. It is the main artery bringing in and taking away traffic to the M6 motorway and Chester. By disrupting this road, HS2 will not only inflict long delays and traffic congestion but also impact businesses operating in the area, adding to the negative economic impact of HS2 at Northwich.

#### **PROMOTER'S RESPONSE:**

##### *A556 Shurlach Road realignment*

1. Figure 14 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES indicates the permanent realignment of the A556 Shurlach Road, including the Wade Brook viaduct would take three years and three months to complete. The realigned carriageway would be constructed offline, with two traffic lanes retained in each direction on the existing alignment of the A556 Shurlach Road during these offline works.
2. Temporary traffic management would be required to construct the tie-ins of the A556 Shurlach Road realignment at its interface with the existing road alignment, which may require short term lane closures or road closures at weekends or overnight when the road network is less busy.
3. Given that the A556 Shurlach Road realignment works would primarily be undertaken offline, the Promoter considers that the disruption to other road users would be reduced as far as reasonably practical.
4. The Promoter notes the Petitioner's comment that if the embankments were replaced by one viaduct across the Lostock plain, the land required may reduce and therefore lessen the realignment requirement of the A556 Shurlach Road. Whilst it might be possible at the detailed design stage to reduce the permanent land take of the Proposed Scheme, the need for the realignment of the A556 Shurlach Road would remain.

### *Road surfacing*

5. The impact of highway noise is included within the noise modelling used to inform the operational impacts of the Proposed Scheme on its surroundings, including Lostock Lodge Care Home (Assessment location 612595). It is not anticipated that the identified residual effects of the Proposed Scheme would require the installation of low noise road surfaces to address any effects.

6. The likely impact of noise from altered roads is reported within the operational noise assessments published in the Community Area reports in Volume 2 of the ES. HS2 Phase 2b Western Leg Information Paper E9: Control of Airborne Noise sets out the Promoter's objectives for controlling noise from altered roads and the operational railway and HS2 Phase 2b Western Leg Information Paper E12: Operational Noise and Vibration Monitoring Framework, describes the Promoter's operational noise monitoring framework.

### *A559 Manchester Road/A559 Hall Lane/Station Road junction*

7. The Promoter has noted the Petitioner's comments in relation to this junction, which is a four-arm signal-controlled crossroads in Lostock Gram in Community Area MA02.

8. The A559 Manchester Road and Station Road are designated as HS2 construction routes. Table 14-5 in the Transport Assessment Part 3 Addendum for Wimboldsley to Lostock Gram (MA02) in Volume 5, Appendix: TR-003-00002 of the SES1 and AP1 ES summarises the peak daily construction traffic flows associated the AP1 revised scheme. This indicates that:

- the A559 Manchester Road (between A559 Hall Lane and A556 Shurlach Road) would carry a peak daily two-way combined flow of 20 HGVs over an assumed 10-hour working day, which equates to one HGV every 30 minutes on average; and
- Station Road (between School Lane and A559 Manchester Road) would carry a peak daily two-way combined flow of 20 HGVs over an assumed 10-hour working day, which equates to one HGV every 30 minutes on average.

9. A major adverse effect on traffic congestion and delay at this junction during construction was forecast in paragraph 14.4.26 in Volume 2, Community Area report: Wimboldsley to Lostock Gram (MA02) of the main ES.

10. The changes to the performance of the junction during construction of the Proposed Scheme are reported in Table 14-53 in the Transport Assessment Part 3 for Wimboldsley to Lostock Gram (MA02) in Volume 5, Appendix: TR-003-00002 of the main ES.

11. This indicated that the junction would operate within capacity in the AM peak hour and overcapacity in the PM peak hour during the 2030 future baseline. As a result, vehicles were forecast to experience queues and delays in the PM peak hour.

12. During construction of the Proposed Scheme, traffic flows through the junction were forecast to increase by up to 138 vehicles in the AM peak hour compared with the 2030 future baseline (an increase of 9%) and by up to 81 vehicles in the PM peak hour (an increase of 5%). As a result, there was forecast to be an increase in queues and delays compared with the 2030 future baseline. The junction was forecast to operate close to capacity in the AM peak hour and over capacity in the PM peak hour. The greatest impact on congestion was on the A559 Manchester Road (west) approach in the PM peak hour. The congestion indicator (VoC) on the A559 Manchester Road (west) approach would increase from 100% in the 2030 future baseline to a maximum of 108% during construction, with a corresponding increase in queue length from 12 to 13 vehicles.

13. The AP1 revised scheme incorporates changes to the routing of HS2 construction HGV traffic from the Birches Lane satellite compound, which would reduce the number of HS2 construction HGVs that are assigned to and from the Birches Lane Satellite Compound via Station Road to a maximum of 20 vehicles per day. This reduced level of use reflects that the route via Station Road is only expected to be used occasionally by HS2 construction HGVs, should direct access to/from the Birches Lane Satellite Compound via the A556 Shurlach Road not be possible.

14. The assessment of the A559 Manchester Road/A559 Hall Lane/Station Road junction has been updated in the SES1 and AP1 ES. As set out in Table 21 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the SES1 and AP1 ES, the major adverse effect on traffic congestion and delay at this junction during construction reported in the main ES is removed with the AP1 revised scheme.

15. The changes to the performance of the junction during construction of the AP1 revised scheme are reported in Table 14-53 in the Transport Assessment Part 3 Addendum for Wimboldsley to Lostock Gralam (MA02) in Volume 5, Appendix: TR-003-00002 of the SES1 and AP1 ES.

16. The updated assessment indicates that the junction would operate close to capacity in the AM peak hour and over capacity in the PM peak hour during the 2030 future baseline. As a result, vehicles may experience queues and delays in the AM and PM peak hours.

17. During construction of the AP1 revised scheme, traffic flows through the junction are forecast to decrease by 55 vehicles in the AM peak hour compared with the 2030 future baseline (a decrease of 3%) and increase by up to two vehicles in the PM peak hour. The junction would continue to operate close to capacity in the AM peak hour and over capacity in the PM peak hour. The greatest impact on congestion is predicted on Station Road in the PM peak hour. The congestion indicator (VoC) on Station Road would increase from 99% in the 2030 future baseline to up to 106% during construction.

18. Whilst there would be limited use of the A559 Manchester Road / Station Road junction by HS2 construction HGVs and there would be no adverse effect on traffic

congestion and delay as a result of the AP1 Revised Scheme, the Promoter is in an ongoing dialogue with the local highway authority in relation to this location.

*A559 Manchester Road/Stubbs Lane junction*

19. The Promoter has noted the Petitioner's comments in relation to a controlled pedestrian crossing near to the Stubbs Lane junction on the A559 Manchester Road.

20. Table 14-5 in the Transport Assessment Part 3 for MA02 in Volume 5 of the main ES reports the peak daily HGV construction traffic on the A559 Manchester Road past Stubbs Lane, which is 147 HGVs per direction. This reduces to 10 HGVs per direction for the AP1 revised scheme, as reported in Table 14-5 in the Transport Assessment Part 3 for MA02 in Volume 5 of the SES 1 and AP1 ES. A moderate adverse effect on traffic-related severance for non-motorised users on the A559 Manchester Road past Stubbs Lane previously reported in the main ES has been removed as a result of this reduction in HGVs, as set out in Table 23 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam of the SES1 and AP1 ES. The Promoter does not therefore consider it necessary to provide mitigation in this location.

*Station Road construction traffic*

21. The Promoter notes the Petitioner's comments in relation to Station Road, which is a single carriageway urban road between Lostock Hollow and the A559 Manchester Road, to the west of Lostock Green.

22. Station Road is designated as an HS2 construction route. Station Road between School Lane and A559 Manchester Road would carry a peak daily two-way combined flow of 20 HGVs over an assumed 10-hour working day, which equates to an HGV every 30 minutes on average.

23. There was a moderate adverse effect on traffic-related severance due to changes in HGVs forecast on Station Road during construction of the Proposed Scheme, as set out in Table 51 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

24. The assessment of this road has been updated for the AP1 revised scheme, and is reported in Table 23 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the SES1 and AP1. The moderate adverse effect on traffic-related severance on Station Road during construction as reported in the main ES has been removed in the SES1 and AP1 ES.

25. The changes to the performance of Station Road during construction of the AP1 revised scheme are reported in Table 14-7 and Table 14-8 in the Transport Assessment Part 3 Addendum for Wimboldsley to Lostock Gralam (MA02) in Volume 5, Appendix: TR-003-00002 of the SES1 and AP1 ES.

26. This indicates that, in the 2030 future baseline, this section of road would carry 168 vehicles per hour in the AM peak hour and 197 vehicles per hour in the PM peak hour during the 2030 future baseline.

27. During construction of the AP1 revised scheme, traffic flows on Station Road (between School Lane and A559 Manchester Road) are forecast to increase to a maximum of 202 vehicles per hour in the AM peak hour, an increase of 34 vehicles (20%) compared with the 2030 future baseline. In the PM peak hour, traffic flows would increase to a maximum of 204 vehicles per hour, an increase of seven vehicles (4%) compared with the 2030 future baseline.

28. The Promoter considers that Station Road is capable of accommodating the forecast traffic flows during construction of the AP1 revised scheme. The Promoter therefore does not consider that the additional construction traffic associated with the AP1 revised scheme would materially impact the operation of Station Road.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** NVR5.0 – NVR5.3

**ISSUE RAISED:** Noise and vibration

**PETITION PARAGRAPH:** NVR5.0 The Lostock Gralam Parish Council urge HS2 not to use Station Road as a construction traffic route due to the number of young children who attend Lostock Tiny Tots, toddler play groups at the Church Hall and primary school age children walking along this route to the Lostock Gralam Primary School on School Lane. This is a residential area with vehicles parked on the road.

NVR5.1 HGV and construction noise may well become too much for the properties in close proximity to the A556, provision should be in place to offer noise insulation e.g. triple glazing and if necessary alternative temporary housing. The Parish Council through the local authority will want to be kept abreast of noise and vibration monitoring data to demonstrate compliance with all noise and vibration commitments.

NVR5.2 To reduce likely community significant effects, taller screening (provided by solid temporary hoarding, temporary stockpiles, screening close to activities or other means to provide equivalent noise reduction) should be used to lessen the noise effects for properties on Harris Road, and homes in close proximity to the A556.

NVR5.3 Power driving alternatives should be considered to reduce noise. We note that Lostock Sustainable Energy are using a piling process which is virtually vibration free and dramatically reduces the level of noise created, by using continuous flight auger (CFA) piles. Is this something HS2 could consider? This method removed the need for the use of a piling hammer to drive piles into the ground, dramatically reducing the level of noise and vibration generated.

## **PROMOTER'S RESPONSE:**

### *Construction traffic routes*

1. Under the planning regime established in the Bill, the nominated undertaker would be required to seek approval from the relevant qualifying authority for the use by large goods vehicles of any routes to and from a working or storage site, a site where material would be re-used, or a waste disposal site (this does not apply to routes that only provide access to a site that generates less than 24 large goods vehicle movements per day, nor to motorways and trunk roads or any part of the route beyond a motorway or trunk road). This is explained further in HS2 Phase 2b Western Leg Information Paper B2: The Main Provisions of the Planning Regime.

2. The draft CoCP provides a consistent approach to the management of construction traffic. As set out in HS2 Phase 2b Western Leg Information Paper E3: Management of Traffic During Construction, the nominated undertaker would be required to prepare a Route-wide Traffic Management Plan and Local Traffic Management Plans in liaison with local highway and traffic authorities, and emergency services.

3. The Birches Lane and Station Road route north from the Birches Lane Satellite Compound to the A560 are not a primary HS2 construction traffic route. The route would be used to access utility works to the east and west of Birches Lane during the enabling works and may provide a route for a small volume of construction traffic for short periods of time during the main works. The primary construction traffic routes for the Birches Lane Satellite Compound would use the southern end of Birches Lane, then traffic would go north along the A556 Shurlach Road towards the M6 at junction 19, or south towards the M6 at junction 18.

### *Noise from construction activities*

4. The main ES did not identify any significant effects due to construction noise in the area identified in the petition (Lostock Gralam Primary School), but as a result of the AP1 revised scheme construction traffic in this area would give rise to a new likely temporary residual adverse significant noise effect on residential dwellings on Salary Row, Broseley Way and Harris Road, which are adjacent to the A556 Shurlach Road between Birches Lane and the A559 Manchester Road. Also as a result of the AP1 revised scheme, construction traffic in this area would give rise to a new likely temporary residual adverse significant noise effect on the following non-residential buildings:

- Parish Church of St John the Evangelist, Church Hall, Lostock Gralam;
- Lostock Tiny Tots Pre-School, Lostock Gralam; and
- Lostock Lodge Care Home, Cheshire Avenue.

5. Where significant effects have been predicted at a property, the nominated undertaker would be required to take all reasonable steps to avoid them during detailed design. In doing so the nominated undertaker would continue to engage with stakeholders to fully understand the receptors, their use and the benefit of any identified measures.

6. As HS2 Phase 2b Western Leg Information Paper E3: Management of Traffic During Construction explains, the nominated undertaker would be required to prepare a Route-wide Traffic Management Plan and Local Traffic Management Plans. As set out in the draft CoCP at 14.2.2 to 14.2.6, as appropriate, these would include:

- a list of roads which may be used by construction traffic in the vicinity of the site including any restrictions to construction traffic on these routes, and including any commitments set out in the register of Undertakings and Assurances;
- temporary and permanent closures or stopping up and diversions of highways and other public rights of way;
- lorry route signing strategy;
- means of monitoring lorry use and any routes prohibited from use;
- dealing with large goods vehicles and abnormal loads; and
- clear identification for construction heavy goods vehicles under the lead contractors' control.

7. As part of these controls, the nominated undertaker would require contractors to reduce the impacts on local communities from construction traffic, and for public vehicle access to be maintained where reasonably practicable.

#### *Piling techniques*

8. In relation to the use of continuous flight auger piling referred to in the petition, the majority of piling required to construct viaducts and bridges is bored piling, which is not a significant source of vibration. In some situations, other forms of piling (including vibratory, sheet or impact piling) are considered likely to be necessary. Best practical means would be applied during construction to control noise and vibration from piling, including review of the piling methodology to consider quieter methods.

**HOUSE OF COMMONS SELECT  
COMMITTEE**

**HIGH SPEED RAIL (CREWE - MANCHESTER) BILL**

<b>PROMOTER'S RESPONSE TO PETITION OF:</b>	Lostock Gralam Parish Council
<b>PETITION NO:</b>	HS2-P2B-010
<b>PARAGRAPH NO:</b>	MDLR6.0 – MDLR6.1
<b>ISSUE RAISED:</b>	Mud, dust and light pollution
<b>PETITION PARAGRAPH:</b>	<p>MDLR6.0 Restricted working hours must be fixed with no option of variations to increase work hours from that proposed in the Hybrid Bill.</p> <p>MDLR6.1 Dampening down for dust management and wheel wash systems should be in place at all construction compounds. A light management plan should be agreed to limit light pollution.</p>

**PROMOTER'S RESPONSE:**

*Working hours*

1. Core working hours for the construction of the Proposed Scheme would be from 08.00 to 18.00 on weekdays (excluding bank holidays) and from 08.00 to 13.00 on Saturdays. The nominated undertaker would require that its contractors adhere to these core working hours for each site as far as reasonably practicable or unless otherwise permitted under section 61 of the Control of Pollution Act 1974. This is explained in HS2 Phase 2b Western Leg Information Paper D5: Working Hours.
2. Except in the case of an emergency, any work required to be undertaken outside core hours (not including repairs or maintenance) would be agreed with the local authority prior to undertaking the works under section 61 of the Control of Pollution Act 1974 within the framework set out by the relevant Local Environmental Management Plan and the draft Code of Construction Practice (CoCP). In an emergency, the relevant local authority would be informed as soon as reasonably practicable of the reasons for the works outside core hours and their likely duration. This is explained in HS2 Phase 2b Western Leg Information Paper D5: Working hours.

*Dust management*

3. Section 7 of the draft CoCP outlines the measures the nominated undertaker would require its contractors to control and limit dust, air pollution, odour and exhaust emission during the construction works as far as reasonably practicable and in accordance with best practicable means. This would include the following as appropriate:

- reference to the general site management and good housekeeping procedures (relevant to limiting dust and air pollution);
- controls and measures to control or mitigate the effect of potential nuisance caused by the construction works, as determined by an up-to-date and site-specific assessment of the risks;
- strict emission standards for all construction vehicles and Non-Road Mobile Machinery; and
- dust and air pollution monitoring measures to be employed during construction of the Proposed Scheme.

4. More information can be found in HS2 Phase 2b Western Leg Information Paper E14: Air Quality:

#### *Light pollution*

5. The draft CoCP requires controls on lighting/ to minimise visual intrusion or any adverse effect on sensitive residential or ecology receptors. Site lighting would be provided at the minimum luminosity necessary and use low-energy-consumption fittings. Where appropriate, lighting to site boundaries would be provided and illumination would be sufficient to provide a safe route for the passing public. Precautions would be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. It would comply with the Institute of Lighting Professionals' Guidance notes for the reduction of obtrusive light and the provisions of BS 5489, Code of practice for the design of road lighting, where applicable.

6. Lighting would also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic. This provision would apply particularly to sites where night working would be required. In addition, at construction sites where potentially significant impacts are identified, the lead contractor would develop and implement lighting controls as part of their Environmental Management System.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** BSER7.0

**ISSUE RAISED:** Blight

**PETITION PARAGRAPH:** BSER7.0 The Lostock Gralam Parish Council request that the homeowner payment zone be increased to 500 metres due to the extensive work and timeline to complete HS2 at Lostock Gralam.

#### **PROMOTER'S RESPONSE:**

##### *Homeowner Payment Scheme*

1. The Homeowner Payment (HOP) Scheme is a discretionary (i.e., non-statutory) payment from the Government, intended to share the benefits of HS2 with property owners in rural areas that are further away from stations. It is not a compensation scheme for any actual or perceived loss of property value.
2. As set out in HS2 Phase 2b Western Leg Information Paper C5: Property schemes for non-statutory purchases, the HOP Scheme for the Proposed Scheme would be launched after Royal Assent. The HOP Scheme would be available for property owners living in rural areas near the route of the Proposed Scheme, where the line is not in a bored tunnel.
3. Eligible property owners would be able to apply for a cash payment of £8,000, £16,000 or £24,000, depending on how close they live to the line of route. The HOP Scheme would operate within a fixed 'HOP zone', 120 metres to 300 metres either side of the centre-line of the route. A claim may be made at any time following Royal Assent of the Bill.
4. The Petitioner has requested that the area over which the HOP scheme operate be extended from 300m to 500m either side of the centre line on the route. The HOP Scheme is a route-wide scheme and is already in operation on Phase One and Phase 2a and would be launched on Phase 2b (West) after Royal Assent.

5. If the boundaries of HOP Zone 3 were to be extended to 500m, this would have to be applicable to all the Phases of HS2. On the current rate of successful applications on Phase One, this would represent an additional cost of £52.2m to the public purse. This additional cost is not considered to be justifiable in the context of the objectives of the HOP Scheme.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** BSER7.1

**ISSUE RAISED:** Socio economics

#### **PETITION**

**PARAGRAPH:** BSER7.1 HS2 will not bring any benefit to Northwich, the effect the build will have on our community and local businesses will cripple our ability to thrive whilst construction takes place between 2025 and 2035. We ask HS2 to consider offering apprenticeships to our community and promote learning, use local contractors to support the town, hold regular community engagement events to bring some benefit to a community that will not likely be able to afford to travel on HS2.

#### **PROMOTER'S RESPONSE:**

##### *HS2 Programme*

1. HS2 remains on track and within the funding envelope. HS2 is already having a transformative affect in towns, cities and regions across the UK, driving investment and regeneration outside the Southeast, rebalancing the UK economy. It is already providing jobs and developing skills, with 2,000 businesses already delivering work to support the project and 7,000 people throughout Britain employed directly or indirectly by HS2. Building on technology developed across the world over the past 50 years, HS2 will increase rail capacity, boost reliability, reduce journey times and support transport infrastructure across the UK. In total, £23 billion has been contracted into the supply chain, including a £2billion contract to design and build HS2 trains in Britain.

2. HS2 Ltd has committed to providing a minimum of 2,000 apprenticeships over the lifetime of the entire project (which includes Phase One and Phase Two). The majority of these apprenticeships will be delivered through the supply chain across a wide range of trades and professions from construction to accountancy, quantity surveying to business administration.

3. The nominated undertaker and its contractors will consider local employment, apprenticeships and educational initiatives when recruiting staff. HS2 Phase 2b Western Leg Information Paper H2: Skills and employment contains more information.

*Community: Community Investment Programme (CIP)*

4. In line with the Public Services (Social Value) Act 2012, the nominated undertaker is expecting its contractors to provide a service that benefits and improves the local areas they work in - going beyond their immediate construction role.

5. This equates to the contractors having a strong commitment to Corporate Social Responsibility (CSR) by investing their time, skills, people and equipment in the local community. In addition, there is the potential for contractors to support local projects and activities, provided there's no conflict with the Promoters route-wide community funds.

6. Each contractor is required to identify, plan and manage this local CSR activity through a Local Community Investment Programme (LCIPs).

7. The LCIPs should prioritise opportunities that have the greatest impact on the local community. However, the activities should also be proportionate to the extent of the impact as a result of the Proposed Scheme on a particular community.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** ER8.0 – ER8.4

**ISSUE RAISED:** Environmental

**PETITION PARAGRAPH:** ER8.0 The Lostock Gralam Parish Council is concerned about the negative effect embankments will have on the Lostock plain, particularly the way water runoff will be controlled and the impact the weight will have on the brine fields. We believe a viaduct will have less impact as ditches and natural animal tracks can be reinstated, and less woodland and natural habitats destroyed due to the lesser land grab. Local footpaths and walking routes could also be retained, allowing neighbouring communities to stay connected and not severed as currently proposed.

ER8.1 We ask for evident plans to achieve the very best outcome for nature. We ask that HS2 improves its environmental mitigation and compensation commitment. Nature should be left in a better state than before, with provision for bat nesting, provision for birds and crested newts. We would welcome a compensation plan to achieve a 'no net losses of biodiversity. For every one tree cut down, we ask HS2 to plant two.

ER8.2 Will HS2 be resilient against climate change effects as the track lifespan is 120 years?

ER8.3 With the move towards cleaner transport we expect that fully electric vehicles will be used as much as possible to reduce the impact of diesel engine emissions in our parish.

ER8.4 We ask that the high-speed railway, carefully, tiptoes across our landscape watching where to place each step as opposed to the proposed destructive clomping across our landscape without a care of what's destroyed.

## PROMOTER'S RESPONSE:

### *Surface water runoff*

1. HS2 Phase 2b Western Leg Information Paper D1: Design, sets out the Promoter's general design policy for the Proposed Scheme, which includes aesthetics and quality. As stated in paragraph 3.1 of the Information Paper, the Promoter and the nominated undertaker would seek to ensure that:

*"The design of all visible elements of the built and landscaped environment in both rural and urban areas have an integrated design that is sympathetic to the local context, environment and social setting and supports naturally engineered systems including flood risk management and biodiversity where possible."*

2. HS2 Phase 2b Western Leg Information Paper E15: Water Resources, Flood Risk and Authorisation of Related Works sets out that it is the design aim of the Proposed Scheme for no increase in the risk of flooding, including for vulnerable receptors such as residential property during the lifetime of the development, taking projected climate change impact into account. The Promoter will continue to engage with the statutory authorities, including the Environment Agency and Lead Local Flood Authorities during the development of the Proposed Scheme to discuss potential issues.

3. A comprehensive assessment of the effect of the Proposed Scheme on surface water drainage and flood risk was undertaken and detailed within Volume 5, Water Resources Flood Risk Assessment of the ES published in January 2022. Updates to the original assessment were included within the SES1 and AP1 ES published in July 2022.

4. These included an assessment of changes in runoff as a result of construction and operation, as well as changes to surface water flow paths and drainage ditches resulting from the presence of the Proposed Scheme as a linear feature intersecting natural surface water drainage ditches and flow paths.

5. In relation to the control of surface water runoff during operation and construction, HS2 Phase 2b Western Leg Information Paper E15: Water Resources, Flood Risk and Authorisation of Related Works explains how the design of the Proposed Scheme includes Sustainable Drainage Systems (SuDS) to control the rate, volume and quality of runoff from the rail corridor and other infrastructure, taking projected climate change impacts into account. These systems would help to avoid an increase in flood risk and would help to maintain natural flow regimes by encouraging storm water to soak into the ground or, where that is not reasonably practicable, would discharge it into watercourses or surface water/combined sewers at a controlled rate. Examples of SuDS include balancing ponds, swales, infiltration trenches and other forms. Where possible, these drainage systems would also help to avoid having an adverse effect on the quality of the water which the runoff flows into by removing soluble and suspended pollutants.

6. Where necessary, further surveys, ground investigation and monitoring would be undertaken as the design and implementation details are developed.

7. Protective provisions, included at Part 4 of Schedule 32 to the Bill, require approval for details of works likely to affect flood risk, water quality, or groundwater by the appropriate body, prior to undertaking works. In relation to surface water the appropriate body for approval is explained at section 10 of HS2 Phase 2b Western Leg Information Paper E15: Water Resources, Flood Risk and Authorisation of Related Works.

8. The appropriate body for approval in relation to groundwater is the Environment Agency in England and the Scottish Environment Protection Agency in Scotland. Therefore, no works affecting groundwater or surface water could be undertaken until the appropriate body is satisfied that the impacts from both construction and operation of the works are properly understood and that any mitigation and monitoring is adequate.

### *Biodiversity*

9. The Promoter considers that the ecological mitigation measures included in the Bill have taken due account of the 'Lawton' Review principles'. The location and design of habitat creation areas has sought to adhere to the key Lawton principles of 'more, bigger, better and joined'. These aim to result in habitat creation areas which would also enhance and connect habitat parcels within the local area and, where possible, contribute to local, regional and national conservation strategies.

10. The Proposed Scheme supports the creation of a 'permeable' railway (and associated infrastructure) with appropriately designed underpasses and culverts linked to existing habitat, which is consistent with the recommendations of the Lawton Review. This also supports climate change requirements by increasing the resilience of ecological networks and allowing species to move more freely in response to changing climatic conditions.

11. The Promoter recognises and supports the Government's aspiration to achieve environmental net gains as set out in the 25-year plan and the Environment Act. The Promoter is looking to reposition its biodiversity aims from seeking to achieve no net loss in biodiversity to seeking to deliver net gains in biodiversity for replaceable habitats by the end of construction for each Phase of HS2, including a 10% gain in biodiversity for replaceable habitats on Phase 2b Western Leg. This would be achieved by developing and delivering new opportunities within the route corridor whilst also seeking to work in collaboration with relevant stakeholders and engaging in partnership working to deliver opportunities outside the route corridor.

12. The Promoter is developing a Biodiversity Action Plan, due to be published in 2023, which will set out mechanisms for the project to achieve its ambition of securing biodiversity gains across all Phases of HS2.

### *Resilience against climate change*

13. A high-level climate change risk and resilience assessment has been undertaken to identify the potential risks of climate change on the Proposed Scheme, and to assess the Proposed Scheme's resilience and capacity to cope with these potential risks. In addition, a comprehensive flood risk assessment has been carried out for each community area in consultation with the Environment Agency and can be found in the Volume 2 and supporting Volume 5: Community Area collections. A route-wide flood risk assessment has also been carried out and can be found in the Volume 3 and supporting Volume 5: Route-wide reports.

14. Climate change risks have been managed or avoided through embedded mitigation measures. These include:

- in locations where the route of the Proposed Scheme would cross watercourses or surface water flow paths, the Proposed Scheme is designed to accommodate flood flows up to and including the 1 in 100-year peak river flow plus an appropriate allowance for climate change. In addition, the railway infrastructure would be protected from the 1 in 1000-year return period flood event, ensuring that HS2 can return to operation without undue delay; and
- drainage is designed to the 1 in 100 year plus climate change allowance (40% increase) peak rainfall event.

15. Climate change resilience assessments would continue to take place throughout the design, construction and operation stages of the Proposed Scheme.

16. Further information can be found in HS2 Phase 2b Western Leg Information Paper: E26: Climate change adaptation and resilience

### *Public rights of Way*

17. HS2 Phase 2b Western Leg Information Paper E5: Roads and Public Rights of Way details how in some places, road diversions or realignments may be required to connect with a new crossing over or under the railway. Where reasonably practicable these would adopt the shortest route consistent with design and safety requirements. As well as aiming to reduce the impacts on vehicular traffic, the needs of non-motorised users (i.e. pedestrians, cyclists and equestrians) would also be considered when developing new road layouts.

18. Temporary arrangements required during construction would remain in place until the public right of way is either re-established or a permanent diversion or realignment is constructed. Public rights of way would also be re-established where cut and cover tunnelling techniques are used. Where several nearby public rights of way are affected by closures during construction, temporary closures would be phased, where reasonably practicable, to help maintain public access.

19. As with roads, the intention is that any new, realigned or diverted routes should retain similar characteristics to other public rights of way in the locality.

20. Further information on local construction and operational impacts of the Proposed Scheme on temporary and permanent road and public right of way closures and stopping up of streets is outlined in the Phase 2b hybrid Bill ES Volume 2, Community Area Reports, Traffic and transport Section. A detailed report on traffic and transport impacts within each community area is contained in the Transport Assessment (see Volume 5: Appendices TR-002 and TR-003).

21. Any changes or amendments to the potential impacts on roads and public rights of way are reported in the Phase 2b SES1 and AP1 Volume 2 Community Area Reports and SES1 and AP1ES Volume 5 Transport Assessments.

22. This is explained further in HS2 Phase 2b Western Leg Information Papers E3: Management of Traffic During Construction, E4: Highways and Traffic During Construction – Legislative Provisions, and D3: Code of Construction Practice.

#### *Use of electric vehicles*

23. The main impacts from the Proposed Scheme on air quality would result from vehicles and machinery required for construction. The draft CoCP sets out measures to mitigate impacts on local air quality, including requiring all construction vehicles and non-road mobile machinery to comply with minimum emission standards. The Promoter has set route-wide emission requirements and targets for the engines of contractor heavy goods vehicles, vans and cars used during the construction of the Proposed Scheme, as set out in Appendix A of the HS2 Phase 2b Western Leg Information Paper E14: Air Quality.

24. In addition, the Promoter published its Net Zero Carbon Plan in January 2022, which sets out targets for the project that would allow it to offset its annual residual carbon emissions by 2035. In order to achieve this the Promoter aims to:

- achieve an 11% reduction in HGV carbon emissions compared with 2020 by 2027; and
- remove diesel on all HS2 construction sites by 2029.

25. Further information can be found in the HS2's Net Zero Carbon Plan.

#### *Landscape effects*

26. HS2 Phase 2b Western Leg Information Paper D1: Design outlines the design policy for the Proposed Scheme which includes aesthetics, quality and the design's integration into the surrounding landscape. As stated in paragraph 3.1 of the Information Paper, the Promoter and the nominated undertaker would seek to ensure that:

- the design is safe, efficient, and meets with the requirements of whole life operation and maintenance alongside initial buildability and will integrate with the local setting;
- the design contributes to the Government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life supported by integrated spatial planning and design;
- the design of all visible elements of the built and landscaped environment in both rural and urban areas have an integrated design that is sympathetic to the local context, environment and social setting and supports naturally engineered systems including flood risk management and biodiversity where possible;
- the design cohesion is achieved through a strong aesthetic ethos and a recognisable architectural language;
- the design is developed through engagement to seek peoples' views and including integration with setting design of the visible buildings and permanent structures;
- the design has a culture of cost awareness and integrates design decision making early to give cost/quality and sustainability decisions which achieve best value for the funders;
- the design innovation is encouraged to generate best value to funders, users and those affected by the railway; and the design considers the passenger experience and delivers a consistent design ethos between the various contracts.

27. Ongoing engagement with planning authorities is critical to the design development process. It will ensure the detailed design of the Proposed Scheme has regard to planning authority aspirations and fits within the local environment. The Phase 2b (Crewe – Manchester) Planning Forum will consider common designs for certain structures. Discussions between the nominated undertaker and the relevant planning authority will determine the appropriateness of the common designs to the local environment.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** HS2-P2B-010

**PARAGRAPH NO:** UR9.0

**ISSUE RAISED:** Utilities

**PETITION PARAGRAPH:** UR9.0 We do not have the knowledge required to make recommendations on the utility rerouting and trust that HS2 will work with the utility companies to ensure that disruption is kept to a minimum and that safety of our community is paramount.

#### **PROMOTER'S RESPONSE:**

##### *Engagement with utility companies*

1. As set out in HS2 Phase 2b Western Leg Information Paper D8: Maintenance of public utilities, the proposed HS2 route intersects utility company networks throughout its length. There are approximately 950 individual utilities assets (including water, sewerage, electricity, gas and telecommunications) contained within the area that would be affected by the Proposed Scheme. The Promoter has worked with utility owners and operators since 2017 during the development of the Proposed Scheme and will continue to develop design and construction arrangements that would limit and avoid disruption to utility operators and their customers as far as reasonably practicable.
2. Working with the utility companies, the nominated undertaker would carry out further work to identify and protect all utility plant and equipment affected by the Proposed Scheme. The Promoter is actively engaging with major utility companies on the protection and proposed diversions of existing and future assets.
3. The Promoter has made a commitment in the draft Code of Construction Practice (CoCP) to engage further with local communities on construction matters. Paragraph 5.1.1 of the draft CoCP requires the nominated undertaker and its contractors to produce and implement a community engagement framework and provide appropriately experienced community relations personnel to implement the framework, to provide appropriate information, and to be the first point of contact to resolve community issues.

4. The Community Engagement Framework will set out how local people would be informed in advance of works taking place in their area. The notifications would detail the estimated duration of the works, the working hours and the nature of the works. In the case of works required in response to an emergency, the local authority, parish council, local residents, businesses and community resources would be advised as soon as reasonably practicable. All notifications would include the community helpline number. The nominated undertaker would provide information on noise, dust and air quality monitoring to local communities via channels established under the Community Engagement Framework. The community helpline would be staffed 24 hours, 7 days a week to handle enquiries from the general public and local businesses regarding construction activities.

5. Contractors that undertake utility diversions for the nominated undertaker would be required to establish and maintain community liaison arrangements with the owners and occupiers of property affected by their work. The contractors would be required to produce advance information sheets that would be circulated at least two weeks before the start of construction works, where possible to do so.

6. Further details can be found in HS2 Phase 2b Western Leg Information Paper G2: Community relations.

#### *Disconnections of utilities*

7. As set out in Section 8 of HS2 Phase 2b Western Leg Information Paper C2: Rural landowners and occupiers guide, where private utilities for a holding are affected by proposed works, alternative supplies would be provided where practicable.

8. Where the public utilities for a holding are affected by the proposed works, except when agreed otherwise, alternative supplies would be installed before disconnecting the existing supply. Further information can be found in HS2 Phase 2b Western Leg Information Paper D8: Maintenance of public utilities.

## House of Commons

# High Speed Rail (Crewe - Manchester) Bill – First Additional Provision

### 1. Petitioner information

In the box below, give the name and address of each individual, business or organisation submitting the petition.

Mrs Lyndsey Sandison  
**Lostock Gram** Parish Clerk & Responsible Finance Officer  
Lostock Gram Parish Council  
PO BOX 768  
Northwich  
Cheshire  
CW9 9TS

In the box below, give a description of the petitioners. For example, “We are the owners/tenants of the addresses above”; “My company has offices at the address above”; “Our organisation represents the interests of...”; “We are the parish council of...”.

Your Petitioners are Lostock Gram Parish Council, representing the inhabitants and Parish of Lostock Gram, in Northwich. The Bill will result in a high-speed railway line, running alongside the south edge of the parish. A number of residential properties, businesses and a dementia care home lie within close proximity of the proposed line. The nearest properties are located 100m west of the scheme.

The parish of Lostock Gram is bordered by the industrial and residential fringes of Northwich to the west, the Stubblach Plain to the south and the wooded area Marthall to the north.

The proposed high-speed railway line will be constructed to the south of Lostock Gram on the Lostock Plain, which has a network of footpaths mainly following farm tracks and field boundaries. The Lostock Plain is also a major brine extraction area which is also utilised for underground gas storage. The A556 Shurlach Road south of the parish of Lostock Gram, on the Lostock Plain is a busy commuter route serving Northwich, Chester to Manchester and Junction 19 of the M6 and is proposed to be realigned to make way for the high-speed railway line.

## 2. Objections to the First Additional Provision to the Bill

In the box below, write your objections to the First Additional Provision to the Bill and why your property or other interests are **directly and specially affected**. Please number each paragraph.

Only objections outlined in this petition can be presented when giving evidence to the Committee. You will not be entitled to be heard by the Committee on new matters not included in your written petition.

### HIGHWAYS

H.0 Your Petitioners welcome the 3m wide shared-use pedestrian and cycle path proposal for the A556 Shurlach Road.

H.1 The Lostock Gralam Parish Council **object** to the A559 Manchester Road and Station Road being used as a temporary construction traffic route. Increased traffic will have a significant effect on the A559 Hall Lane/ A559 Manchester Road traffic signals. Your Petitioners do not understand why Station Road has been selected as an HGV construction traffic route, not only is Birches Lane / Lostock Hollow unsuitable for HGVs, but Station Road is a residential road with Lostock Tiny Tots preschool, a Church Hall providing toddler groups and community café events and the St. Johns Church. The Lostock Gralam Primary School is also located just off Station Road onto School Lane.

H.2 Your Petitioners **object** to the A556 Shurlach Road realignment. Lostock Gralam residents will be heavily impacted by traffic congestion on Manchester Road. How will HS2 manage traffic flow in the area? Many of the roads and junctions in this vicinity are already operating at near or full capacity. It should also be noted that the A559 Manchester Road can not be used as a diversion route for HGVs to access Griffiths Road due to the low Mid Cheshire line railway bridge.

H.3 Your Petitioners are concerned about how the volume of traffic being generated at the Lostock Works on Griffiths Road is going to be managed through the construction phase. The Lostock Works and Jack Richards Haulage on Griffiths Road are dependent on the A530 King Street and the A556 Shurlach Road for access to the M6 both north and southbound. It should be noted that there are businesses on Gadbrook Park and on Griffiths Road which operate 24 hours a day.

H.4 The A556 is often used as an alternative route for when the M6 Motorway has closures and diversions. These closures and diversions also impact on the traffic flow on the A559 Manchester Road. How will HS2 deal with this?

H.5 The proposed widening from a single carriageway in both directions to enable the formation of a right-turn lane and the introduction of traffic signals at the junction of the A530 Griffiths Road and A559 Manchester Road is both positive and negative. We welcome the traffic signals but note that the work will take 12 months which will impact local residents and those who live in close proximity to the junction. We also note that additional land is required.

H.6 Lostock Gralam residents, walkers and cyclists often cross the A556 Shurlach Road to Lostock Green and vice versa. It is important that communities are not severed and that existing walking/cycling routes are protected. The proposed new crossing of the A556 Shurlach Road is out of the way, and may make lone walkers/cyclists feel vulnerable.

**NOISE**

N.0 The Lostock Gramam Parish Council is concerned about the changes to the sound, noise and vibration assessment results of new construction traffic noise effects on properties in the vicinity of the A556 for approx. one year and three months.

N.1 Your Petitioners are concerned that the addition of a rail expansion device at the Smoker Brook viaduct may create an additional noise.

N.2 Your Petitioners **object** to Lostock Tiny Tots preschool having to experience new significant effects from indirect noise, as well as HGV construction traffic. This will not only impact the children but also may discourage parents and carers from choosing to send their children to the establishment.

N.3 Your petitioners **object** to Lostock Lodge Care Home, Salary Row, Broseley Way and Harris Road residents having to experience new significant effects from indirect noise.

**LAND GRAB**

LB.0 Your Petitioners are concerned about the additional land permanently required for the realignment and extension of the Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012).

LB.1 Your Petitioners are concerned about the additional land permanently required for modifications to the A530 Griffiths Road and Manchester Road junction (AP1-002-013).

### 3. What do you want to be done in response?

In the box below, tell us what you think should be done in response to your objections to the First Additional Provision to the Bill. You do not have to complete this box if you do not want to.

You can include this information in your response to section 3 'Objections to the First Additional Provision to the Bill' if you prefer. Please number each paragraph.

#### HIGHWAYS RESPONSE (HR)

HR.1 Your Petitioners ask for traffic signal improvements at A559 Hall Lane/A559 Manchester Road to include a right-hand filter lane from Manchester Road to Hall Lane to help manage traffic flow. Vehicles waiting to turn right, hold up other traffic wishing to proceed across the traffic lights towards Northwich. We ask for a controlled pedestrian crossing at the refuge island on Manchester Road near to the Stubbs Lane junction to enable children and families to safely cross the A559 Manchester Road. We ask that 'KEEP CLEAR' be painted on the Stubbs Lane junction to enable residents to safely pull out of the junction when traffic is backed up along Manchester Road heading towards Northwich.

HR.2 We **sternly object** to Station Road being used as a construction traffic route and therefore ask that no construction traffic goes beyond the Lostock Gralam train station from Lostock Hollow. The children attending education settings must come first, not only for their safety, but for their health. Our young children should not be adversely impacted by HGV emissions or indirect noise affecting their learning. If HS2 ignore or discount this request, we want assurances that emissions will be monitored and reported, that additional sound proofing be offered, and a restriction on the times when HGVs can use the route i.e., not at 9.00am or 3.00pm Monday to Friday when children will be walking to and from education settings.

HR.3 It is unclear how HS2 propose to carry out the A556 realignment and manage traffic flow in the area. Your Petitioners seek assurances from HS2 that;

- a. Emergency Service response time to our community and Town will not be affected by the building of HS2.
- b. That local businesses will be able to continue their operations and not be affected by longer journey times or road closures.
- c. That the realignment of the A556 is carried out in a way that two lanes of traffic continue to flow in both directions, without delays.
- d. That the A559 Manchester Road will not be used as a diversion route for A556 traffic.

HR.4 HS2 should be aware that flooding often occurs under the Mid-Cheshire Line railway bridge on Griffiths Road, and that there is a pump installed to take away excess water. We would therefore welcome any improvements to drainage in this area. The properties to the left of the Griffiths Road junction may be impacted by the loss of natural screening, we therefore ask HS2 to provide alternative screening i.e., a fence. We request that the new traffic signals include a controlled pedestrian crossing on the A559 Manchester Road.

HR.5 We ask HS2 to install a pedestrian/cycle overbridge to enable walkers and cyclists from Lostock Gralam to cross the A556 to Lostock Green. We also ask that the overbridge is lit to minimise vulnerability of loan walkers/cyclists.

HR.6 Your Petitioners are concerned about the sound, noise and vibration effects on residents at the Lostock Lodge Care Home and other properties in the vicinity of the A556. Provision should be in place to offer noise insulation e.g., triple glazing and if necessary alternative temporary housing. The Parish Council through the local authority will want to be kept abreast of noise and vibration monitoring data to demonstrate compliance with all noise and vibration commitments.

**February 2023**

**HIGH SPEED RAIL (CREWE -  
MANCHESTER) BILL**

**HOUSE OF COMMONS  
SELECT COMMITTEE**

**Petition No. AP1-P2B-007:  
Lostock Gralam Parish Council**

**Promoter's Response Document**

## **INTRODUCTION**

This Promoter's Response Document (PRD) forms the Promoter's response to Petition No. AP1-P2B-007, from Lostock Gralam Parish Council.

In this PRD, 'the Promoter' means the Secretary of State and HS2 Ltd acting on their behalf.

The purpose of the PRD is to advise you and the Select Committee of the Promoter's position in relation to the petitioning points raised. It is intended that the PRD will alleviate many of the concerns raised in the petition.

The Table of Contents overleaf lists the page number, petitioning points in the order they appear in the petition, and a summary statement of the issue(s) contained in the petition for quick reference. Other supporting material (e.g., reports, drawings, and photographs) referred to in the response are attached where applicable.

Copies of the HS2 Phase 2b Information Papers referred to in the response can be found at  
HS2 Phase 2b (Crewe – Manchester) Information Papers - GOV.UK ([www.gov.uk](http://www.gov.uk)).

Department for Transport  
High Speed Two (HS2) Limited

## **BACKGROUND**

Lostock Gralam Parish Council represents the inhabitants of the village and civil parish of Lostock Gralam in Northwich, in the administrative area of Cheshire West and Chester.

In February 2023 the Petitioner was sent a PRD for their Petition against the High Speed Rail (Crewe - Manchester) Bill (Petition No. HS2-P2B-010) [attached at Annex A and B].

**PETITION NO. AP1-P2B-007**

**LOSTOCK GRALAM PARISH COUNCIL**

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13	N.0 – N.3, HR.6	Noise
16	LB.0, LB.1	Land required

**ATTACHMENTS**

<b>Title</b>	
Annex A	Petition No. HS2-P2B-010
Annex B	HS2-P2B-010 Lostock Gralam Parish Council PRD

**HOUSE OF COMMONS SELECT COMMITTEE**

**HIGH SPEED RAIL (CREWE - MANCHESTER) BILL**

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** AP1-P2B-007

**PARAGRAPH NO:** H.1 - H.6, Request HR.1 - HR.5

**ISSUE RAISED:** Highways

**PETITION PARAGRAPH:** H.1. The Lostock Gralam Parish Council object to the A559 Manchester Road and Station Road being used as a temporary construction traffic route. Increased traffic will have a significant effect on the A559 Hall Lane/ A559 Manchester Road traffic signals. Your Petitioners do not understand why Station Road has been selected as an HGV construction traffic route, not only is Birches Lane / Lostock Hollow unsuitable for HGVs, but Station Road is a residential road with Lostock Tiny Tots preschool, a Church Hall providing toddler groups and community café events and the St. Johns Church. The Lostock Gralam Primary School is also located just off Station Road onto School Lane.

H.2. Your Petitioners object to the A556 Shurlach Road realignment. Lostock Gralam residents will be heavily impacted by traffic congestion on Manchester Road. How will HS2 manage traffic flow in the area? Many of the roads and junctions in this vicinity are already operating at near or full capacity. It should also be noted that the A559 Manchester Road can not be used as a diversion route for HGVs to access Griffiths Road due to the low Mid Cheshire line railway bridge.

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and diversions also impact on the traffic flow on the A559 Manchester Road. How will HS2 deal with this?

H.5. The proposed widening from a single carriageway in both directions to enable the formation of a right-turn lane and the introduction of traffic signals at the junction of the A530 Griffiths Road and A559 Manchester Road is both positive and negative. We welcome the traffic signals but note that the work will take 12 months which will impact local residents and those who live in close proximity to the junction. We also note that additional land is required.

H.6. Lostock Gralam residents, walkers and cyclists often cross the A556 Shurlach Road to Lostock Green and vice versa. It is important that communities are not severed and that existing walking/cycling routes are protected. The proposed new crossing of the A556 Shurlach Road is out of the way, and may make lone walkers/cyclists feel vulnerable.

#### Requests

HR.1. Your Petitioners ask for traffic signal improvements at A559 Hall Lane/A559 Manchester Road to include a right-hand filter lane from Manchester Road to Hall Lane to help manage traffic flow. Vehicles waiting to turn right, hold up other traffic wishing to proceed across the traffic lights towards Northwich. We ask for a controlled pedestrian crossing at the refuge island on Manchester Road near to the Stubbs Lane junction to enable children and families to safely cross the A559 Manchester Road. We ask that 'KEEP CLEAR' be painted on the Stubbs Lane junction to enable residents to safely pull out of the junction when traffic is backed up along Manchester Road heading towards Northwich.

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- a. Emergency Service response time to our community and Town will not be affected by the building of HS2.
- b. That local businesses will be able to continue their operations and not be affected by longer journey times or road closures.
- c. That the realignment of the A556 is carried out in a way that two lanes of traffic continue to flow in both directions, without delays.
- d. That the A559 Manchester Road will not be used as a diversion route for A556 traffic.

HR.4. HS2 should be aware that flooding often occurs under the Mid-Cheshire Line railway bridge on Griffiths Road, and that there is a pump installed to take away excess water. We would therefore welcome any improvements to drainage in this area. The properties to the left of the Griffiths Road junction may be impacted by the loss of natural screening, we therefore ask HS2 to provide alternative screening i.e., a fence. We request that the new traffic signals include a controlled pedestrian crossing on the A559 Manchester Road.

HR.5. We ask HS2 to install a pedestrian/cycle overbridge to enable walkers and cyclists from Lostock Gralam to cross the A556 to Lostock Green. We also ask that the overbridge is lit to minimise vulnerability of lone walkers/cyclists.

#### **PROMOTER'S RESPONSE:**

##### *Construction traffic on the A559 Manchester Road and Station Road*

1. The Petitioner has previously raised the issues of Station Road being selected as a construction traffic route in Petition No. HS2-P2B-010 against the Bill attached at Annex A. Please refer to the response set out in the Promoter's Response Document for petition HS2-P2B-010, attached at Annex B.

2. Station Road is identified as a construction traffic route in both the Environmental Statement published in January 2022 (main ES) and Supplementary Environmental Statement 1 and Additional Provision 1 (SES1 and AP1) published in July 2022. In the transport assessment accompanying the main ES, up to 55 HS2 construction heavy goods vehicles (HGV) per day were assigned to and from the Birches Lane Satellite Compound via Station Road. However, the AP1 Revised Scheme incorporates changes

to the routing of HS2 construction HGV traffic from the Birches Lane satellite compound, which would reduce the number of HS2 construction HGVs assigned to and from the Birches Lane Satellite Compound via Station Road to a maximum of 20 vehicles per day on average. This reduced level of use reflects that the route via Station Road would only be expected to be used occasionally by HS2 construction HGVs, should direct access to or from the Birches Lane Satellite Compound via the A556 Shurlach Road not be possible.

3. A559 Manchester Road is identified as a construction traffic route in both the main ES and the SES1 and AP1 ES. The AP1 Revised Scheme incorporates changes to the routing of HS2 construction HGV traffic which would reduce the number of construction HGVs on the A559 Manchester Road between A530 Griffiths Road and A556 Shurlach Road to a maximum of 20 vehicles per day, on average.

4. The Promoter recognises the local nature of some of the roads identified as construction site access routes. It is noted that there is an existing 20mph speed limit on Station Road.

5. The draft Code of Construction Practice (CoCP) provides a consistent approach to the management of construction traffic, as explained in paragraphs 6 – 8, page 26 of the original Promoter's Response Document, attached at Annex B.

6. Further information on the traffic management controls that would apply to the nominated undertaker can be found in HS2 Phase 2b Western Leg Information Paper E3: Management of Traffic During Construction, HS2 Phase 2b Western Leg Information Paper E4: Highways and Traffic During Construction – Legislative Provisions, and HS2 Phase 2b Western Leg Information Paper D3: Code of Construction Practice.

#### *Air quality*

7. As a result of the AP1 revised scheme, no significant effects are predicted along Station Road with regard to emissions.

8. The methods outlined within the draft CoCP are considered effective at reducing traffic emissions, and therefore, no significant residual adverse effects are anticipated.

9. The provisions to reduce and control potential impacts on air quality from construction vehicles are set out in Chapter 7 – Air Quality of the draft CoCP.

10. In order to mitigate impacts on local air quality, the nominated undertaker would require all construction vehicles during construction to be powered by set minimum vehicle emission standard engines. Euro class standards have been set for heavy goods vehicles and light duty vehicles. Targets have also been set for the use of ultra-low emission vehicles. Full details are set out in HS2 Phase 2b Western Leg Information Paper E14: Air quality.

11. The draft CoCP will evolve and is subject to refinement, amendment and expansion as necessary as the project design, assessment and parliamentary processes develop. Engagement with stakeholders - especially through the planning forum, the national environment forum and local communities - will inform its future development.

12. This is explained further in HS2 Phase 2b Western Leg Information Paper D3: Code of Construction Practice.

*A559 Hall Lane/A559 Manchester Road/Station Road junction*

13. The Petitioner has previously raised the request for traffic signal improvements at the A559 Hall Lane/A559 Manchester Road/Station Road junction in Petition No. HS2-P2B-010 against the Bill attached at Annex A. Please refer to the original Promoter's Response Document in respect of this issue, attached at Annex B.

*A556 Shurlach Road realignment*

14. The Petitioner has previously raised the issues of the A556 Shurlach Road realignment and the impact of traffic congestion on the A559 Manchester Road in Petition No. HS2-P2B-010 against the Bill attached at Annex A. Please refer to the original Promoter's Response Document in respect of this issue, attached at Annex B.

15. For the permanent realignment of the A556 Shurlach Road, the realigned carriageway would be constructed offline, with two traffic lanes retained in each direction on the existing alignment of the A556 Shurlach Road during these offline works.

16. The Promoter would work with the relevant highway authorities to coordinate the timing of tie-in works for the A556 Shurlach Road realignment. These tie in works would be carefully scheduled in advance to avoid any planned use of the A559 Manchester Road as a diversion route for the A556 Shurlach Road, as far as is reasonably practicable.

17. As previously set out, the nominated undertaker would ensure that a Route-wide Traffic Management Plan (RTMP) and Local Traffic Management Plans (LTMPs) would be produced in consultation with the highway and traffic authorities as well as emergency services, prior to the commencement of the works.

18. Emergency vehicles would be able to operate on a blue light system should the need arise and therefore would be able to circumvent other road traffic including queuing traffic and general traffic congestion, using manoeuvres that are not normally permitted.

19. The RTMP would set out the requirement for specific liaison with the emergency services at a local level, through the relevant local Traffic Liaison Group meetings, as well as specific meetings with the emergency services in accordance with the draft CoCP.

20. Given that the A556 Shurlach Road realignment works would primarily be undertaken offline and works will be planned in coordination with stakeholders including the local highway authority (Cheshire West and Chester Council) and the emergency services, the Promoter considers that impacts on the road network and disruption to other road users would be reduced as far as reasonably practical.

#### *A530 Griffiths Road*

21. In the transport assessment accompanying the main ES, up to 294 HS2 construction HGVs per day were assigned to and from the Birches Lane Satellite Compound via the A530 Griffiths Road.

22. The AP1 Revised Scheme incorporates changes to the routing of HS2 construction HGV traffic from the Birches Lane satellite compound, which would reduce the number of HS2 construction HGVs that are assigned to and from the Birches Lane Satellite Compound via the A530 Griffiths Road to up to 20 vehicles per day, on average. This reduced level of use reflects that the route via the A530 Griffiths Road would only be expected to be used occasionally by HS2 construction HGVs, should direct access to/from the Birches Lane Satellite Compound via the A556 Shurlach Road not be possible.

23. In relation to access to local businesses, during construction works for the Proposed Scheme, the nominated undertaker would require the impacts on the local community from construction traffic to be reduced by its contractors and for public access to be maintained where reasonably practicable. Impacts on local traffic would be managed in accordance with LTMPs.

24. The LTMPs would include, as appropriate: the contractors' construction traffic flow assumptions; the local routes to be used by large goods vehicles (approved by the relevant planning authority where applicable), including any lorry holding areas required for construction of the Proposed Scheme; and significant works affecting roads and public rights of way, including temporary and permanent closures and diversions.

25. This and other measures to control traffic impacts are set out in the draft CoCP and would be developed further during the detailed design phase.

26. The Environmental Minimum Requirements provide effective safeguards to ensure that detailed design and implementation of the Proposed Scheme would have no greater effects than the effects reported in the ES, unless certain circumstances apply.

#### *A530 Griffiths Road/A559 Manchester Road*

27. The AP1 Revised Scheme proposes the permanent modification of the existing A530 Griffiths Road/A559 Manchester Road junction layout to increase capacity and mitigate the impact of the construction and operation of HS2 on existing road users.

28. The HS2 Phase 2b Western Leg Information Paper E5: Roads and Public Rights of Way sets out that:

4.3 All alterations to major rural roads will be designed using the UK's national standards given in the Design Manual for Roads and Bridges (DMRB) produced by Highways England.

29. This information paper further sets that:

4.5 In both urban and rural areas, local authority design standards will be used, where appropriate, together with national guidance including the Manual for Streets and Manual for Streets 2 and 'Designing Streets: A Policy Statement for Scotland.

30. The carriageway of the A559 Manchester Road would be widened from a single carriageway to enable the formation of a right-turn lane, 36m in length, on to the A530 Griffiths Road. This additional lane would enable safer right-turns and would mitigate potential vehicular conflicts for road users caused by construction traffic. Traffic signals and a stop line would also be provided for Tannery Cottage, to allow safe turning into and out of the property's access.

31. The proposed highway works would be constructed over a period of up to 12 months, of which a portion would be utility works. During construction of the junction modifications temporary traffic management would be required, comprising a sequence of lane closures under three-way signal control. The work would be carried out from the carriageway. As set out above, the nominated undertaker would require contractors to minimise the impacts on local communities from construction traffic and will produce an LTMP in consultation with the local highway authority.

#### *A556 Shurlach Road severance for pedestrians and cyclists*

32. The Proposed Scheme would require the permanent realignment of a section of the A556 Shurlach Road up to 90m to the north-west of its current alignment for 2.3km. The Proposed Scheme would also require the permanent realignment of a section of footway that runs along the eastern side of Birches Lane. The realigned footway would follow the realigned Birches Lane beneath Wade Brook viaduct, then turn north to pass beneath Wade Brook offline overbridge, before turning south as a new public right of way (PRoW) to re-join Birches Lane to the west of the original Scheme and the realigned A556 Shurlach Road. As a result, pedestrian users of Birches Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, because of an increase in journey length of up to 881m.

33. As set out in Section 5.10 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the SES1 and AP1 ES, the AP1 revised Scheme includes modifications to alignment of the new PRoW) at Lostock Green.

34. In the AP1 revised scheme, the new PRoW would connect Birches Lane on the western side of the A556 Shurlach Road realignment and Restricted Byway Lostock Gralam 1/1 on the eastern side of the A556 Shurlach Road realignment. This would

enable the segregation of cyclists from motorised vehicular traffic, which would provide safety benefits and reduce the risk of collisions between motorised vehicles and cyclists. These modifications would reduce the journey length for cyclists by up to 2.6km compared to the original Scheme, resulting in a moderate beneficial effect on non-traffic related severance, which is significant.

35. The Promoter understands the Petitioner's comments in relation to separated crossing facilities for non-motorised users across the A556 Shurlach Road from Lostock Gralam to Lostock Green. The Promoter is in an ongoing dialogue with the local highway authority (Cheshire West and Chester Council) in relation to this topic.

#### *Flooding on Griffiths Road*

36. A comprehensive assessment of the effect of the Proposed Scheme on surface water drainage and flood risk has been undertaken, as explained in paragraphs 3 – 7, page 33 of the original Promoter's Response Document, attached at Annex B.

37. Where works have the potential to increase flood risk, the design of the Proposed Scheme reflects the approach required by the National Planning Policy Framework and the supporting Technical Guidance (such as the incorporation of flood risk mitigation measures). The design aim is for no increase in the risk of flooding, including for vulnerable receptors such as residential property during the lifetime of the development, taking projected climate change impacts into account. The design would mitigate loss of floodplain by creating replacement storage areas for the 1 in 100 (1%) annual rainfall probability event, with an allowance for climate change. This is explained in the HS2 Phase 2b Information Paper E15: Water Resources, Flood Risk and Authorisation of Related Works.

38. The Promoter will continue to engage with the statutory authorities, including the Environment Agency and Lead Local Flood Authorities during the development of the Proposed Scheme to discuss potential issues.

#### *Visual impact – Griffiths Road*

39. Since the main ES an opportunity has been identified to permanently modify the existing A530 Griffiths Road/A559 Manchester Road junction layout to increase capacity and mitigate the impact of the construction and operation of HS2 on existing road users. The carriageway of the A559 Manchester Road would be widened, as explained in paragraph 31 above.

40. To enable widening of the carriageway up to 170m<sup>2</sup> of grass verge and tree planting would be lost from within the highway boundary. No planting would be lost from within the property boundary on the A530 Griffiths Road/A559 Manchester Road junction.

41. Section 12.2 of the draft CoCP outlines how the Promoter would require its contractors to employ an arboricultural consultant to oversee works relating to the protection of trees. Retained trees would be protected, with contractors employing

measures set out in 12.2.3 of the draft CoCP as appropriate, in line with the recommendations in British Standard 5837: Trees in relation to design, demolition and construction.

42. This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.

43. The assessment of the changes to construction traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments is reported in the SES 1 and AP1, Volume 2, Community Area Report for MA02, Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7, including air quality.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** AP1-P2B-007

**PARAGRAPH NO:** N.0 – N.3, HR.6

**ISSUE RAISED:** Noise

**PETITION PARAGRAPH:** N.0 The Lostock Gralam Parish Council is concerned about the changes to the sound, noise and vibration assessment results of new construction traffic noise effects on properties in the vicinity of the A556 for approx. one year and three months.

N.1 Your Petitioners are concerned that the addition of a rail expansion device at the Smoker Brook viaduct may create an additional noise.

N.2 Your Petitioners object to Lostock Tiny Tots preschool having to experience new significant effects from indirect noise, as well as HGV construction traffic. This will not only impact the children but also may discourage parents and carers from choosing to send their children to the establishment.

N.3 Your petitioners object to Lostock Lodge Care Home, Salary Row, Broseley Way and Harris Road residents having to experience new significant effects from indirect noise.

HR.6. Your Petitioners are concerned about the sound, noise and vibration effects on residents at the Lostock Lodge Care Home and other properties in the vicinity of the A556. Provision should be in place to offer noise insulation e.g., triple glazing and if necessary alternative temporary housing. The Parish Council through the local authority will want to be kept abreast of noise and vibration monitoring data to demonstrate compliance with all noise and vibration commitments.

## **PROMOTER'S RESPONSE:**

### *Sound, noise and vibration assessment*

1. The operational sound, noise and vibration assessment of the Proposed Scheme takes into account both the route-wide and localised control measures proposed in the main ES as updated by the SES1 and AP1 ES.

2. The construction sound, noise and vibration assessment takes into account the implementation of the draft CoCP and localised control measures proposed in the main ES as updated by SES1 and AP1 ES.

3. As the design progresses these proposals would continue to be reviewed to ensure that the Promoter's noise and vibration policy commitments are met. These are set out in:

- HS2 Phase 2b Western Leg Information Paper E9: Control of Airborne Noise from altered roads and the operational railway;
- HS2 Phase 2b Western Leg Information Paper E10: Control of Ground-borne Noise and Vibration from the Operation of Temporary and Permanent Railways;
- HS2 Phase 2b Western Leg Information Paper E11: Control of Noise from the Operation of Stationary Systems;
- HS2 Phase 2b Western Leg Information Paper E12: Operational Noise and Vibration Monitoring Framework; and
- HS2 Phase 2b Western Leg Information Paper E13: Control of Construction Noise and Vibration.

4. As a result of changes in traffic flows associated with a combination of SES1 changes and AP1 amendments, construction traffic in this area would give rise to a new likely temporary residual adverse significant noise effect on residential dwellings and non-residential buildings within Lostock Gramam parish, as set out in the original Promoter's Response Document, attached at Annex B.

5. There are no significant effects identified as a result of operational noise from the AP1 revised scheme within Lostock Gramam parish. This assessment has taken account of all AP1 amendments including the additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012) which would enable the installation of a rail expansion device.

6. The Promoter's policy on assessing and controlling the noise and vibration impacts set out in HS2 Phase 2b Western Leg information Papers E9, E10, E11, E12, E13 represents its interpretation of the Government's Noise Policy Statement for England. Each policy includes noise or vibration effect levels which are used in the assessment to determine the appropriate policy action. The Promoter's setting of the level had due regard to established practice, research results, guidance in national and international standards, guidance from national and international agencies, and independent review by academic, industry and Government employees. They have also been subjected to further independent scrutiny during parliamentary proceedings for HS2 Phase One and Phase 2a and are provided as draft route-wide assurances for the Proposed Scheme where they will be subject to further scrutiny during the parliamentary proceedings for Phase 2b.

#### *Construction noise mitigation*

7. Airborne noise may be caused by construction activities such as demolition, earthworks, viaducts, bridges, road realignments, station construction, utility works and track works.

8. Best practicable means (BPM) as defined by the Control of Pollution Act 1974 and Environmental Protection Act 1990 would be applied to control noise during construction.

9. Measures to control noise would be applied in the following order: selection of quiet and low vibration equipment, review of construction methodology to consider quieter methods, location of equipment on site, control of working hours, the provision of acoustic enclosures, the use of less intrusive alarms, local screening of equipment, and perimeter hoarding.

10. Should, despite the implementation of BPM, the noise exposure exceed the criteria defined in the draft CoCP, noise insulation or ultimately temporary rehousing would be offered in accordance with the noise insulation and temporary re-housing policy set out in HS2 Phase 2b Western Leg Information Paper E13: Control of Construction Noise and Vibration.

11. Contractors would undertake and report such monitoring as is necessary to assure and demonstrate compliance with all noise commitments. Monitoring data would be provided regularly to and be reviewed by the nominated undertaker and would be made available to the local authorities.

12. Contractors would be required to comply with the terms of the draft CoCP and appropriate action would be taken by the nominated undertaker as required to ensure compliance.

13. This is explained further in HS2 Phase 2b Western Leg Information Paper D3: Code of Construction Practice and HS2 Phase 2b Western Leg Information Paper E13: Control of Construction Noise and Vibration.

## HOUSE OF COMMONS SELECT COMMITTEE

### HIGH SPEED RAIL (CREWE - MANCHESTER) BILL

**PROMOTER'S RESPONSE TO PETITION OF:** Lostock Gralam Parish Council

**PETITION NO:** AP1-P2B-007

**PARAGRAPH NO:** LB.0, LB.1

**ISSUE RAISED:** Land required

**PETITION PARAGRAPH:** LB.0 Your Petitioners are concerned about the additional land permanently required for the realignment and extension of the Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012).

LB.1 Your Petitioners are concerned about the additional land permanently required for modifications to the A530 Griffiths Road and Manchester Road junction

#### **PROMOTER'S RESPONSE:**

*Land required for realignment and extension of Smoker Brook viaduct*

1. The Bill provides for the Smoker Brook viaduct on which the HS2 route would cross over:

- Peover Eye;
- Smoker Brook and its associated floodplain;
- the A559 Manchester Road;
- the A556 Shurlach Road; and
- Linnards Lane.

2. The Smoker Brook viaduct would be 806m in length and up to 25m in height above ground level. To the south of the viaduct, the HS2 route would be carried along Lostock Gralam North embankment and to the north of the viaduct the route would continue for 2.5km on Pickmere embankment in the Pickmere to Agden and Hulseheath area (MA03). A 3m tall noise barrier would be provided on the eastern side of the route extending from the A559 Manchester Road to Peover Eye, to provide acoustic screening for properties on Ascol Drive.

3. Two areas of wetland habitat would be created to the west of the proposed route either side of Smoker Brook to provide replacement habitat and maintain connectivity to the floodplain. Since the main ES, further design development has identified the need for the inclusion of a rail expansion device within Smoker Brook viaduct, which would result in a maximum shift in the horizontal track alignment of up to 15m west. The vertical alignment of the HS2 route through this section would remain unchanged.

4. In addition, the length of Smoker Brook viaduct would also be extended by 21m to the south to become 827m in total. This change in the length of the viaduct would accommodate a rail expansion device and the revised location of an access track adjacent to the south abutment that would be moved 8m west. To accommodate this change, a number of other amendments would be required and these are detailed in the SES1 and AP1 ES, Volume 2, MA02, Section 5.12.2.

5. The AP1 amendment would result in the permanent requirement for an additional 1.79ha of land. The amendment would also reduce the amount of land that is required by 1.09ha. The net increase in additional land required would be approximately 0.7ha.

6. The construction period would remain the same as set out in the hybrid Bill ES, over a period of two years and six months.

*Land required for modifications to the A530 Griffiths Road and Manchester Road junction*

7. The Bill provides for a temporary construction traffic route along the A559 Manchester Road (between the A530 Griffiths Road and the A556 Chester Road), as an alternate access to Birches Lane satellite compound. The main ES proposed no mitigation works for this location.

8. Since the main ES, an opportunity has been identified to permanently modify the existing A530 Griffiths Road/A559 Manchester Road junction layout to increase capacity and mitigate the impact of the construction and operation of HS2 on existing road users.

9. The majority of the land required for the modification of the A530 Griffiths Road / A559 Manchester Road junction would be within the existing Cheshire West and Chester Council highway boundary. There may however be a small area of private land affected due to the need to provide traffic signal control for the Tannery Cottage access, and for any tie in works where this private access joins the carriageway of the public highway. Land outside the existing highway boundary would only be required on a temporary basis to enable the construction of the proposed traffic signals and associated carriageway works.

Mrs Lyndsey Sandison  
Lostock Gralam Parish Council  
PO BOX 768  
Northwich  
Cheshire  
CW9 9TS

Sent by email to: [clerk@lostockgralamparishcouncil.co.uk](mailto:clerk@lostockgralamparishcouncil.co.uk)

18 April 2023

Dear Mrs Sandison,

**HIGH SPEED RAIL (CREWE – MANCHESTER) BILL – HOUSE OF COMMONS SELECT COMMITTEE: PETITION HS2- P2B - 010 and AP1-007– LOSTOCK GRALAM PARISH COUNCIL**

I am writing to you in my capacity as Director of Hybrid Bill Delivery at HS2 Ltd, which is acting on behalf of the Promoter of the High Speed Rail (Crewe – Manchester) Bill (“the Bill”) currently before Parliament. As you know, the Bill seeks powers to authorise the construction of Phase 2b (Crewe- Manchester) of High Speed 2 (known as “the Proposed Scheme”).

Further to the Promoters Response Document sent to you on 17 February 2023 which set out the Promoter’s position on the issues raised in Lostock Gralam Parish Council’s petitions against the Bill and first Additional Provision to the Bill in the House of Commons, I am writing to you, on behalf of the Secretary of State for Transport, to set out our position in relation to issues that have raised in the petition lodged by the Parish Council against the Bill in the House of Commons, and the measures identified to address those concerns.

I understand concern has been expressed by the Parish Council to relocate the auto transformer station on the A556 Shurlach Road (“the Shurlach Road ATS”) and the adjacent telecoms mast in the Proposed Scheme, both of which are critical infrastructure for the operation of the high speed railway. The Parish Council have asked that this infrastructure is located on the southern side of the HS2 line away from the view of properties on Salary Row, Lostock Lodge Care Home and Celandine Court (Petition HS2-101, page 9, paragraph VT1.3.3). The Proposed Scheme includes provision for the Shurlach Road ATS and the telecoms mast as shown on Plan 1.

The Parish Council’s concerns are recognised and the assurance proposed below is intended to provide comfort that HS2 Ltd will continue to consider design options as regards to the location

of the Shurlach Road ATS and the telecoms mast. Accordingly, I am writing, on behalf of the Secretary of State for Transport to formally offer to the Parish Council the following specific assurance:

1. During the detailed design of the Proposed Scheme, the Secretary of State will require the nominated undertaker, subject to the conditions in paragraph 2 below, to explore design options regarding the location of the Shurlach Road ATS and the telecoms mast, including the opportunity to move the Shurlach Road ATS and telecoms mast to the south-east side of the proposed HS2 trace in the area (being the opposite side of the railway that is currently proposed).
2. The conditions referred to in paragraph 1 above are that:
  - 2.1 The relocation of the Shurlach Road ATS and the telecoms mast will be located within the Bill Limits;
  - 2.2 The relocation of the Shurlach Road ATS and the telecoms mast can be delivered without giving rise to any new or difference significant effects from those assessed in the Environmental Statement;
  - 2.3 The relocation of the Shurlach Road ATS and the telecoms mast does not prejudice the timely, economic and safe delivery and operation of the Proposed Scheme; and
  - 2.4 The nominated undertaker obtains any required consents and approvals from the local planning authority under Schedule 17 of the Bill for the relocation of the Shurlach Road ATS and the telecoms mast, and provided that such consents and approvals can reasonably be implemented.
3. Unless otherwise defined in this letter of this Assurance, the following defined terms apply:
  - 3.1 "the Bill" means - the High Speed (Crewe – Manchester) Bill originally introduced into Parliament on 24 January 2022 and references to "the Bill" includes any Act of Parliament enacting the Bill, and references in this assurance to clauses and provisions of, and works authorised by, the Bill are taken from the Bill as introduced into the House of Commons on 24 January 2022 but shall be modified as far as may be necessary to reflect changes in any Act of Parliament enacting the Bill;
  - 3.2 "the Bill Limits" means the limits of deviation and the limits of land to be acquired or used as defined in section 63 of the Bill;
  - 3.3 "the Environmental Statement" means the environmental statement deposited with the Bill;
  - 3.4 "nominated undertaker" means High Speed Two (HS2) Limited, or such other person as may be appointed nominated undertaker under clause 42 of the Bill;

- 3.5 “the Promoter” means the Secretary of State for Transport (or any successor Secretary of State or Minister holding the Transport portfolio) in his capacity as Promoter of the Bill and includes, so far as relevant, any nominated undertaker exercising any powers or functions under the Bill once enacted; and
- 3.6 “Secretary of State” means the Secretary of State for Transport or any successor Secretary of State or Minister holding the Transport portfolio.

Should the Parish Council accept the above assurances, the assurances shall be added to the Register of Undertakings and Assurances which is held by the Department for Transport. The nominated undertaker will be contractually obligated to comply with all relevant undertakings and assurances set out in the Register. The assurance process is set out in Annex A.

If you have any further queries please don't hesitate to contact Kirsty Clarke, Petition Manager, on 07826886543 or [kirsty.clarke@hs2.org.uk](mailto:kirsty.clarke@hs2.org.uk).

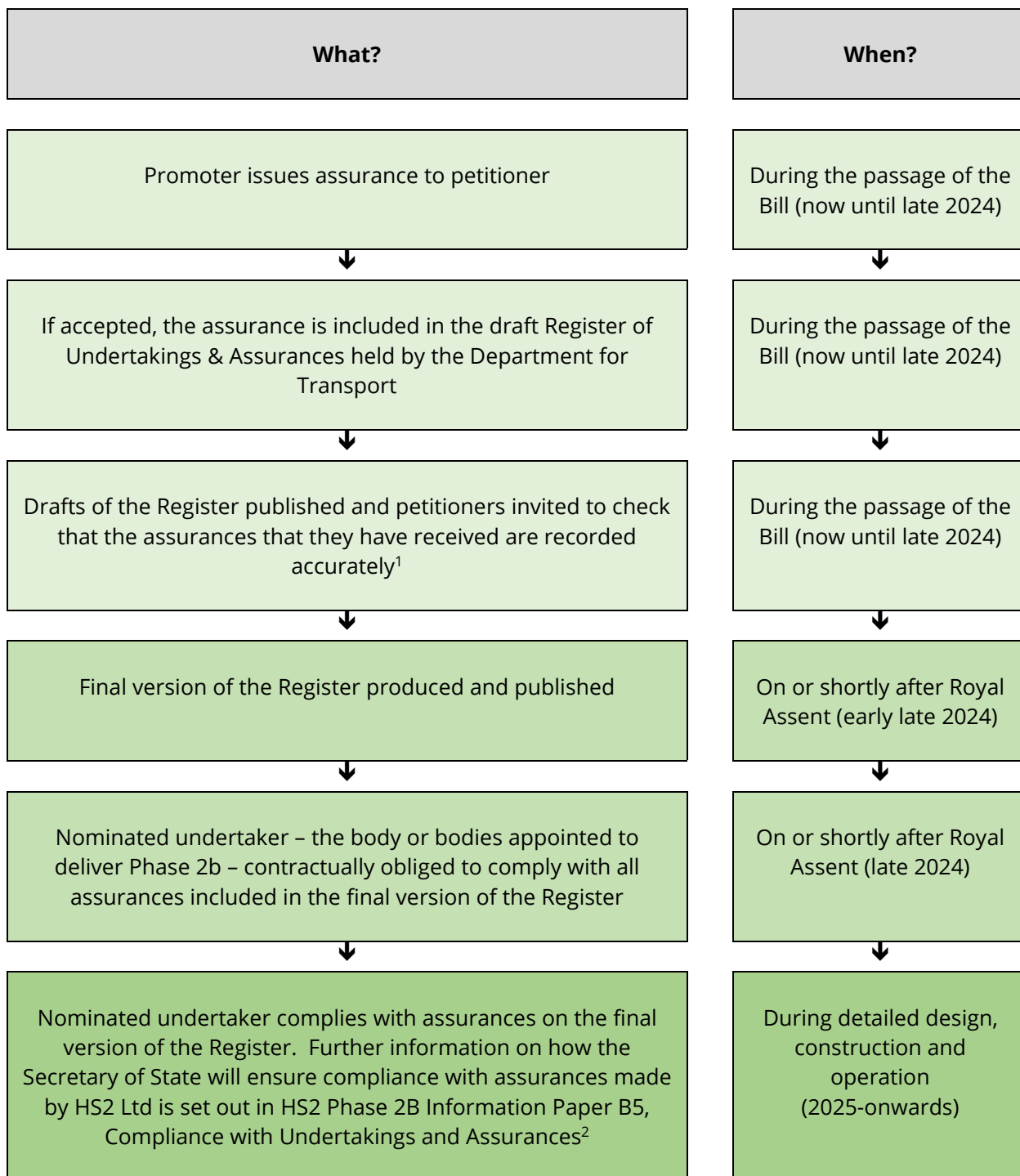
Yours sincerely



Lucy Lagerweij  
Director, Hybrid Bill Delivery  
High Speed Two (HS2) Limited

## Annex A

### ASSURANCES: STEPS AND TIMING

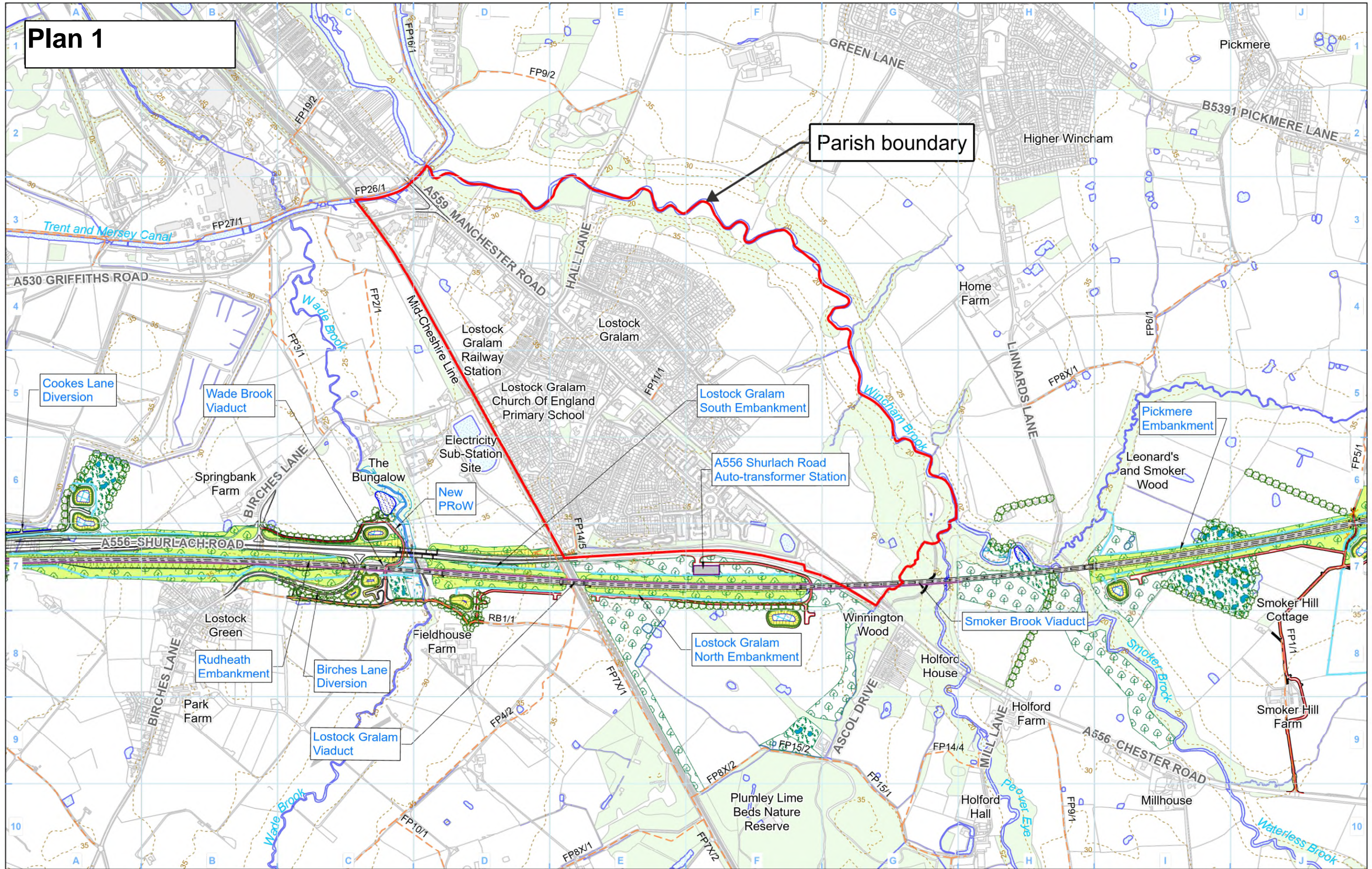


<sup>1</sup> The latest draft of the Register can be found at <https://www.gov.uk/government/publications/hs2-phase-2b-crewe-manchester-register-of-undertakings-and-assurances>

<sup>2</sup> A copy can be found at

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1048801/B5\\_Compliance\\_with\\_undertakings\\_and\\_assurances\\_v1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1048801/B5_Compliance_with_undertakings_and_assurances_v1.pdf)

# Plan 1



Legend			
Indicative extents of Petitioner(s) land interests	Replacement floodplain storage area	Hedgerow	Existing public right of way
Railway systems site	Grassland habitat creation	New ditches	New, diverted or realigned public right of way
Ecological mitigation pond (Indicative only)	Wetland habitat creation	Watercourse diversion	Public right of way closure
Balancing pond	Woodland habitat creation	Engineering earthworks	Existing buildings
Landscape mitigation planting (scrub / woodland)	Landscape mitigation planting (scrub / woodland)	Landscape earthworks	Existing woodland
		Rail alignment formation	Existing inland water
			Existing watercourse
			HS2 access
			Noise fence barrier
			Rail alignment
			5m contours

Petitioner  
**Lostock Gralam Parish Council**

Petition number  
**HS2-010**

**HS2**

Registered in England. Registration number 06791686.  
 Registered office: Two Snowhill, Snow Hill Queensway, Birmingham B4 6GA.

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**P193(5)**