

High Speed Rail (Crewe – Manchester)

**Background information and data
accompanying SES2 and AP2 ES**

Water resources and flood risk

BID WR-004-0MA06 SES2 and AP2 ES

Water resources assessment baseline data

MA06: Hulseheath to Manchester Airport

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Department
for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

High Speed Two (HS2) Limited
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

A report prepared for High Speed Two (HS2) Limited:

ARUP+ ERM | FOSTER + PARTNERS | JACOBS
RAMBOLL | TYPISA | COSTAIN

MWJV

Mott MacDonald | WSP

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1 Introduction

1.1 Structure of this report

- 1.1.1 This report presents baseline data relating to the water resources assessment and forms part of the Background Information and Data (BID) that accompanies the High Speed Two (HS2) High Speed Rail (Crewe – Manchester) Supplementary Environmental Statement 2 (SES2) and Additional Provision 2 Environmental Statement (AP2 ES)¹ for the Hulseheath to Manchester Airport (MA06) community area.
- 1.1.2 This report provides details of changes to the water resources assessment baseline since the production of the High Speed Two (HS2) High Speed Rail (Crewe – Manchester) Environmental Statement (ES)² (the main ES), and the HS2 High Speed Rail (Crewe – Manchester) Background Information and Data (BID)³ reports which accompanied the main ES published in 2022.
- 1.1.3 This report should be read in conjunction with the HS2 High Speed Rail (Crewe – Manchester) main ES and the BID reports that accompanied it.
- 1.1.4 This report is structured into two parts: Part 1 – data used in the SES2, and Part 2 – data used in the AP2 ES. It should be read in conjunction with the SES2 and AP2 ES Water resources assessments (see SES2 and AP2 ES, Volume 5, Appendix: WR-003-OMA06).
- 1.1.5 In order to differentiate between the original scheme and the subsequent changes, the following terms are used:
- ‘the original scheme’ – the Bill scheme submitted to Parliament in 2022, which was assessed in the main ES;
 - ‘the SES1 scheme’ – the original scheme with any changes described in SES1 that are within the existing powers of the Bill;
 - ‘the AP1 revised scheme’ – the original scheme as amended by SES1 changes and AP1 amendments;

¹ High Speed Two Ltd (2023), High Speed Rail (Crewe – Manchester), *Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-2-and-additional-provision-2-environmental-statement>.

² High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

³ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data*. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

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- ‘the SES2 scheme’ – the original scheme with any changes described in SES1 (submitted in July 2022) and the SES2; and
- ‘the AP2 revised scheme’ – the original scheme as amended by SES1 and SES2 changes (as relevant) and AP2 amendments.

Part 1: Supplementary Environmental Statement 2

2 New environmental baseline information relevant to water resources

2.1 Changes to design or construction assumptions which do not require changes to the Bill relevant to water resources

- 2.1.1 There are no changes to design or construction assumptions which would lead to changes in the water resources baseline.

2.2 Environmental baseline

Surface water

- 2.2.1 Since the main ES, the Environment Agency has issued updated datasets for licensed surface water abstractions. However, these updated datasets do not introduce any new surface water receptors or change existing receptors for the surface water resources topic in this area.
- 2.2.2 The Manchester Airport High Speed station is located over Timperley Brook, and an inverted siphon is proposed to allow the watercourse to pass beneath the station footprint. This siphon will lead to the loss of open channel to Timperley Brook which will cause permanent changes to the river's flow and morphology. In the original scheme, to mitigate this significant effect, a 330m permanent realignment of Timperley Brook was included. This realignment will realign the watercourse away from an existing 300m long culvert thought to be positioned along Brooks Drive and create new open channel habitat.
- 2.2.3 Since the main ES was prepared, engagement with the Environment Agency has identified that the 300m long culvert along Brooks Drive, reported in the main ES, does not exist. It is now understood that Timperley Brook crosses the HS2 route from Davenport Green Wood, passes perpendicular beneath Brooks Drive in an approximately 60m long culvert and then re-emerges on the western side of Brooks Drive at the boundary of Ringway Golf Club golf course.

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2.2.4 In the main ES, Tributary of Timperley Brook 1 was assigned a low value due to evidence from surveys carried out at very limited access points. Since the main ES, additional surveys of the watercourse have been carried out. These surveys have found that Tributary of Timperley Brook is a spring fed watercourse, with visually clear water, containing more flow than the Timperley Brook in this vicinity and has the potential to provide ecological habitat. Therefore, in SES2 the value of this watercourse has been increased to moderate value.

Water quality

2.2.5 No water quality data was available for the Highways England Water Risk Assessment Tool⁴ assessments carried out for the main ES. Therefore, precautionary significant effects on water quality in four watercourses were reported in the main ES relating to changes in traffic flows due to construction and operation of the original scheme. Since the main ES was published, water quality data has been collected for six watercourses within the area to better understand the effects of highways drainage discharges on water quality. These are:

- four samples from River Bollin (collected 23 March 2022, 28 July 2022, 26 August 2022 and 1 September 2022);
- four samples from Tributary of River Bollin 2: one from the western branch and three from the central branch (collected 23 February 2022, 21 March 2022 and 25 November 2022);
- nine samples from Tributary of River Bollin 3: two from the lower end of the catchment (collected 22 March 2022 and 1 September 2022) and seven from the upper end of the catchment (collected 23 February 2022, 21 March 2022, 23 March 2022, 28 July 2022, 26 August 2022, 1 September 2022 and 25 November 2022);
- two samples from Tributary of River Bollin 5 (collected 22 March 2022 and 1 September 2022);
- three samples from Timperley Brook (collected 22 March 2022, 28 July 2022 and 29 September 2022); and
- three samples from Tributary of Timperley Brook 1 (collected 10 August 2021, 10 January 2022 and 30 March 2022).

2.2.6 The results of the laboratory analysis of the water quality sampling are shown in Table 1.

⁴ Standards for Highways (2020), *Design Manual for Roads and Bridges (DMRB) – LA 113 Road Drainage and the Water Environment Revision 1*. Available online at: <https://standardsforhighways.co.uk/tses/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true>.

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Table 1: Water quality sampling results

Determinant (unit)	Date	pH	Total calcium (mg/l)	Copper (µg/l)	Zinc (µg/l)	Dissolved Organic Carbon (mg/l)
Limit of detection (LoD)		N/A	5.0	0.5	2.5	2.0
River Bollin	23/03/22	7.7	87	0.8	6.2	9.9
	28/07/22	8.5	44	3.1	6.2	-
	26/08/22	7.7	53	3.2	7.1	34
	01/09/22	7.2	51	2.7	6.5	5
Tributary of River Bollin 2 (western branch)	21/03/22	7.8	410	2.2	3.8	66
Tributary of River Bollin 2 (central branch)	23/02/22	7.9	67	2.8	11	19
	21/03/22	8	56	3.2	3.6	51
	25/11/22	7.7	40	10	4.8	14
Tributary of River Bollin 3 (downstream)	22/03/22	8.2	100	3.1	5	62
	01/09/22	7.6	140	3.5	4.4	55
Tributary of River Bollin 3 (upstream)	23/02/22	8	58	2.5	18	18
	21/03/22	7.7	90	1.6	8.1	77
	23/03/22	8.2	48	2.5	6.6	5.3
	28/07/22	8.5	56	4.5	6.1	-
	26/08/22	8.1	60	3.9	4.9	47
	01/09/22	7.4	44	11	23	190
	25/11/22	7.8	78	4	7.5	8.8
Tributary of River Bollin 5	22/03/22	8.1	42	1.4	5.8	29
	01/09/22	7.4	44	1.7	4.6	28
Timperley Brook	22/03/22	8.1	100	3.1	14	74
	28/07/22	7.2	160	16	120	59
	29/09/22	7.4	32	16	59	12
Tributary of Timperley Brook 1	10/08/21	-	44	16	BDL	-
	10/01/22	8	98	5.9	14	8.4
	30/03/22	8.4	130	3.6	11	70

BDL = below detection limit, N/A = not applicable, - = no data collected

Groundwater

2.2.7 Since the main ES, the Environment Agency has issued updated datasets for groundwater source protection zones (SPZ), discharge consents and licensed water abstractions. However, these updated datasets do not introduce any new groundwater receptors or change existing receptors for the groundwater resources and groundwater flood risk topics in this area.

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Groundwater – surface water interactions

- 2.2.8 No new groundwater – surface water interactions have been identified as receptors since the main ES.
- 2.2.9 In the main ES, one of the potential groundwater – surface water interactions identified was the potential spring at Keeper’s Cottage, Sunbank Lane (north). This was previously included as a high value receptor. Surveys undertaken since the main ES show that there was no indication of a spring emergence point, channel or culvert in this location. Therefore, since no groundwater – surface water interaction feature is present at this location, this feature is now confirmed to not be a receptor and can be removed from the assessment.

Water dependent habitats

- 2.2.10 In the main ES, Wood near Chapel Lane Site of Biological Importance (SBI) (including Hennersley Bank Ancient Woodland Inventory (AWI) site) was identified as a potential water dependent habitat. National vegetation classification (NVC) surveys have been undertaken since the main ES. These surveys indicate that this site is an ash woodland which is not anticipated to be dependent on groundwater flows. Therefore, this feature is not considered to be a water dependent habitat and can be removed from the assessment.
- 2.2.11 No new water dependent habitats have been identified as receptors since the main ES.

Part 2: Additional Provision 2 Environmental Statement

3 Environmental baseline information relevant to water resources

3.1 Changes to design or construction assumptions which require changes to the Bill relevant to water resources

- 3.1.1 There are no changes to design or construction assumptions which would lead to changes in the water resources baseline.

3.2 Environmental baseline

Surface water

- 3.2.1 Since the main ES, the Environment Agency has issued updated datasets for licensed surface water abstractions. However, these updated datasets do not introduce any new surface water receptors or change existing receptors for the surface water resources topic in this area.

Groundwater

- 3.2.2 Since the main ES, the Environment Agency has issued updated datasets for groundwater SPZ, discharge consents and licensed water abstractions. However, these updated datasets do not introduce any new groundwater receptors or change existing receptors for the groundwater resources and groundwater flood risk topics in this area.

Groundwater – surface water interactions

- 3.2.3 No new groundwater – surface water interactions have been identified as receptors since the main ES.

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Water dependent habitats

- 3.2.4 There are no changes to baseline data for groundwater dependent habitats that are relevant to the AP2 assessments.

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4 References

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High Speed Two (HS2) Limited

Two Snowhill

Snow Hill Queensway

Birmingham B4 6GA

Freephone: 08081 434 434

Minicom: 08081 456 472

Email: HS2enquiries@hs2.org.uk

