HS2

Environmental Sustainability Progress Report Appendix

April 2021 – March 2022

Our approach to environmental sustainability.

Environmental sustainability performance data, independent assurance statement and Global Reporting Initiative (GRI) index.

Contents

Front cover image: Bluebells at South Cubbington Wood, Warwickshire, have grown from wild seeds contained in soil that was moved, or translocated, during HS2 early works.

Introduction

This Environmental Sustainability Progress Report Appendix is a supplement to our Environmental Sustainability Progress Report and covers April 2021 to March 2022.

It sets out our approach to environmental sustainability and contains environmental sustainability performance data on HS2. The data section includes our methodology and scope, the independent assurance statement and our **Global Reporting Initiative (GRI) Standards index**.

'Reasonable' assurance[1] on the key performance indicators (KPIs) and data in this document has been provided by LRQA. The independent assurance statement is on page 31. Further context and narrative supporting the data in this appendix and our progress against our commitments can be found in the **Environmental Sustainability Progress Report**.

Further reading

We offer a suite of corporate reporting and disclosures for environmental sustainability. Where possible, references to these documents have been built into this appendix. Key reference documents are also linked here:

- **Environmental Sustainability Progress Report 2021–2022**
- **Environmental Sustainability Vision**
- **Corporate Plan 2022–2025,** and
- **Annual Report and Accounts 2021–2022.**

Our approach: Environmental sustainability governance

Our environmental sustainability governance regime for the reporting year is detailed below. We are making improvements to our governance during 2022 that are also referenced below.

HS2 Ltd Board

The HS2 Ltd Board provides oversight on environmental sustainability for HS2. There were two Board sub-groups for environment: the Environmental Sustainability Committee (ESC) and the Health, Safety, Security and Environment (HSSE) Committee.

Environmental Sustainability Committee

The ESC is responsible for strategic direction and scrutinises delivery of our environmental sustainability objectives. Membership of the ESC includes non-executive directors, the DfT and senior executives with responsibility for technical requirements, project delivery and stakeholder engagement. The ESC meets every two months and is responsible for oversight of environmental reporting. After each meeting, it submits a report to the Board for information.

Health, Safety, Security and Environment Committee

From an environmental perspective, the HSSE Committee monitors compliance with statutory and regulatory requirements. Its responsibilities include reviewing performance against targets, monitoring risk, reviewing our independently certified environmental management system and assuring lessons learned. The HSSE Committee is chaired by our Chief Executive Officer.
Its membership includes non-executive directors and senior executives with responsibility for safety and assurance, infrastructure, human resources, delivery, environment, land and property and Phase Two. The HSSE Committee meets at least bi-monthly. It submits a report to the Board for information after each meeting.

HS2 Ltd Executive Committee

The Executive Committee manages our day-to-day governance and operations. Members are measured on the delivery of our corporate priorities, which are set out in the key performance indicators (KPIs) in our Corporate Plan. In 2021 – 2022, this included commitments on carbon management and biodiversity. The CEO's remuneration is linked to effective delivery of our KPIs.

Technical authority panel

The technical authority panel is a decision-making and review body responsible for managing technical change, technical communication to suppliers and setting technical baselines.

Sub-groups and forums

The Safety, Health, Wellbeing, Environmental Leadership Team is a forum consisting of senior leadership from HS2 Ltd, including two executive committee members, and board directors from Phase One contractors. Meetings are monthly and include sharing learning.

Specific aspects of environmental sustainability such as BREEAM and CEEQUAL, carbon, heritage and responsible sourcing are managed by topic-specific working groups, forums and sub-groups.

Department for Transport

The Department for Transport (DfT) is the responsible department for HS2 Ltd. Its governance responsibilities on environmental sustainability include ensuring that environmental sustainability benefits are realised. A dedicated HS2 Minister keeps Parliament informed about the performance of HS2 Ltd, including on environmental matters.

Note: The section 'Our approach' is outside the scope of LRQA verification.

Our approach: Environmental sustainability governance continued

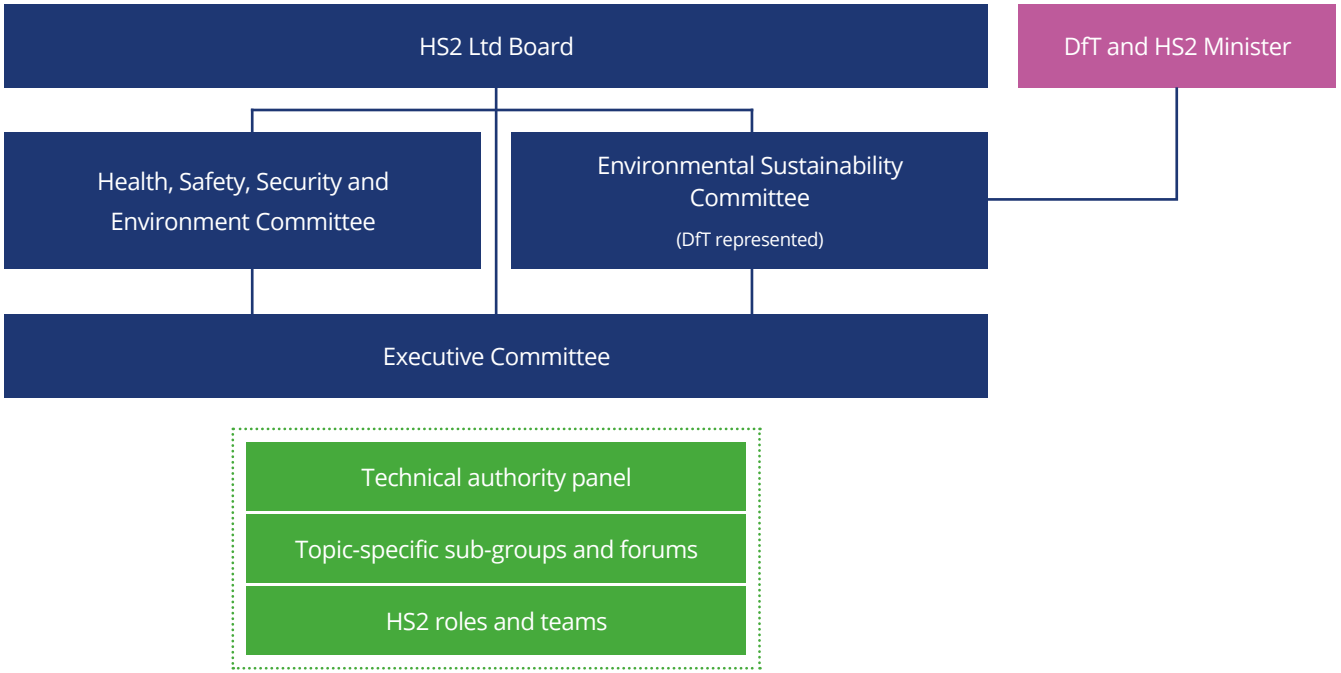
HS2 roles and teams

Our environment and town planning director and their direct reports are responsible for specialist topics and help set and oversee policy and assure outputs. The heads of environment and engineering in Phase One and head of environment in Phase Two make sure delivery by contractors and consultants meets environmental sustainability policies and contributes towards our requirements. For more information on governance, please visit **here**.

Changes to governance

In 2022 – 2023, we plan to enhance our environmental governance. As we continue to expand our construction activity and have multiple delivery 'faces' or vehicles, we will provide greater management focus on environmental delivery and performance. We plan to introduce a quarterly Environmental Performance Review, chaired by our CEO, and will hold delivery teams to account for achieving our environmental targets as well as reviewing operational performance and lessons learned.

Environmental sustainability governance



Our approach: Prioritising environmental sustainability topics

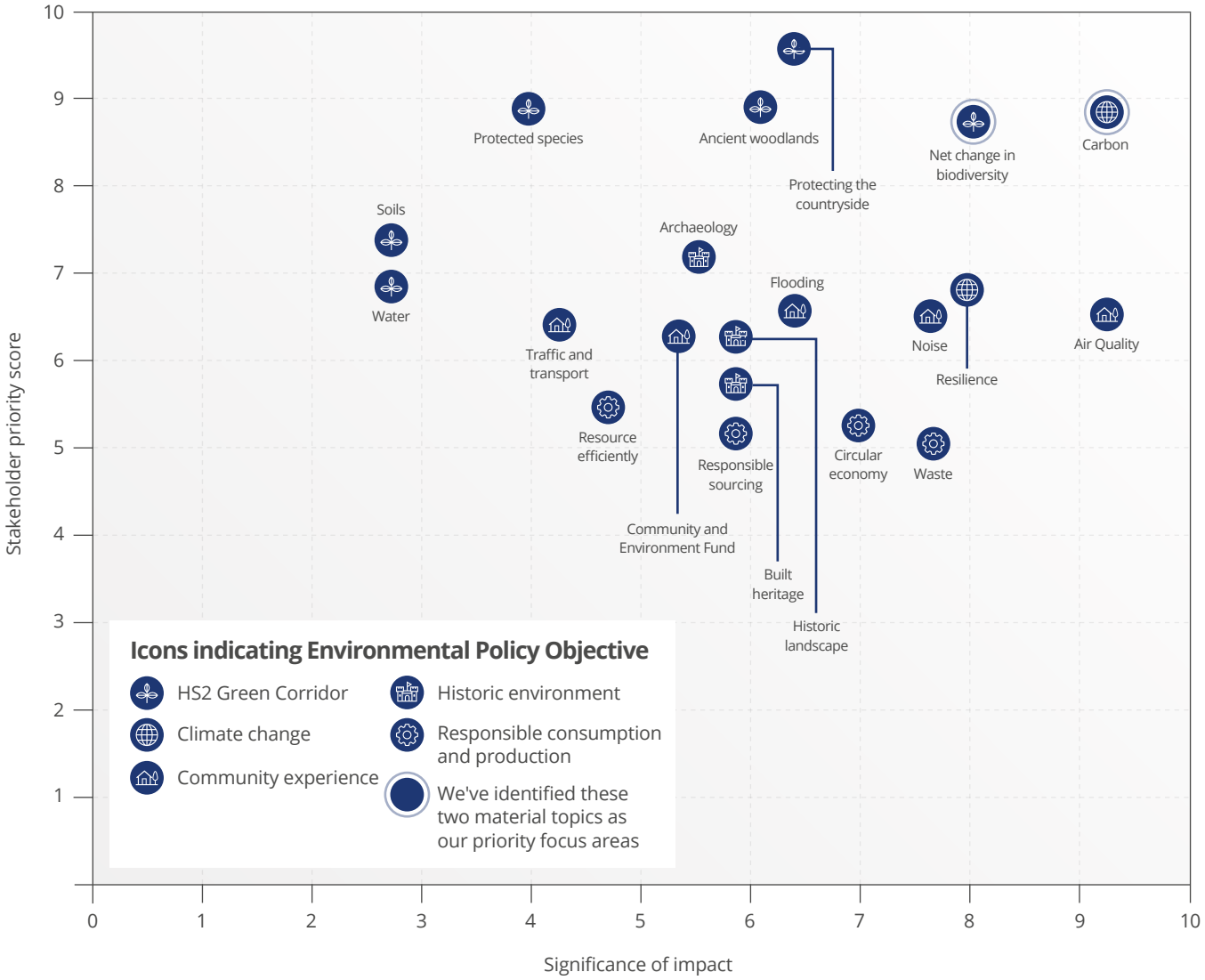
We need to prioritise the different areas of our environmental sustainability work to make sure we act on the issues that are most important to HS2 and to our stakeholders. The process we use to prioritise our environmental topics is called materiality.

A materiality assessment was carried out in late 2020 and early 2021, following the Global Reporting Initiative Standard foundation principles. The process we undertook can be found in our first **Environmental Sustainability Progress Report 2020 – 2021**.

Prioritising material topics

All material topics have been included in this report in the relevant objective's section. The materiality assessment (below) shows us where we should provide greater focus. Topics in the top right-hand corner of the matrix reflect the most important priorities for HS2 and our stakeholders. As the matrix shows, 'carbon' and 'net change in biodiversity' score the highest on both stakeholder priority and significance of impact. For this reason, they are the focus of our Environmental Sustainability Vision.

Our material topics



Our approach: Stakeholder and community engagement

Our approach

HS2's contractors and work sites are becoming increasingly visible along the route as our construction activity expands. It is important that we continue to work with local communities and understand their concerns, particularly people who are directly affected by the new railway.

We work closely with our environmental stakeholders to make sure we respect people and places in our decision-making and actions. In last year's report, we included a comprehensive table of our stakeholders and how we interact with them. The table is **here**.

Respecting people, respecting places

Our work planning and building HS2 is disrupting the lives of local people. We will always try to do the right thing and reduce any disruption as much as we can. In October 2021, we published our updated community engagement strategy, '**Respecting people, respecting places**'. The strategy sets out how we will:

- tell communities what we are going to do and when;
- let communities know if things change; and
- if we get something wrong, we will listen to communities and do our best to make it right.

The strategy also outlines the roles of the independent Residents' Commissioner and Construction Commissioner. The Construction Commissioner mediates on disputes about construction, which can include environmental issues such as noise and dust.

Working with our environmental stakeholders

We have several service level agreements (SLAs) with statutory authorities to ensure they have the resources to review our applications for licences and permits and provide technical advice. They also, where possible, review our designs, mitigations and assessments and they help us to reduce risk and consider solutions. Key organisations include the Environment Agency, Natural England, the Forestry Commission and the Canal & River Trust.

SLAs provide a three-year agreement, which is reviewed and extended as HS2 develops. Due to the size, speed and demands of the project, the SLAs are an important way to make sure organisations are staffed to provide the required level of service. Our environmental SLAs help to 'ringfence' the necessary support of more than 40 full-time employees each year. We also work with non-governmental organisations such as the Woodland Trust and the National Trust. An example of the way we worked with the National Trust can be found **here**.

Our approach: HS2 and the UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs)[1] are "a blueprint to achieve a better and more sustainable future for all". They represent 17 social, economic and environmental priorities, designed to combat the global challenges facing humanity by 2030.

As Europe's biggest infrastructure project, HS2 has an important part to play in the UK's progress toward the UN SDGs. As a public body, we report on the SDGs in line with the **Sustainability Reporting Guidance 2021 – 2022** published by the HM Treasury.

We have mapped our environmental sustainability work to seven of the 17 SDGs. We have looked at the goals where we can have the most impact based on our efforts and contributions, and measured our performance. Our contributions listed here reflect our work on environmental sustainability and do not include our work on economic or social sustainability.

Our approach: HS2 and the UN Sustainable Development Goals continued

How our environmental policy objectives contribute to the delivery of the UN SDGs.

SDG	Link to topic	Our performance towards the SDGs
6 Clean water and sanitation 	Responsible consumption and production	• More than 120 piles have been installed to support the Colne Valley viaduct in the Chilterns. Public water supplies have not been affected by this significant programme of work and we will continue to monitor HS2's environmental impacts as the project progresses.
7 Affordable and clean energy 	Climate change and community experience	• Canterbury Road vent shaft in north-west London has become HS2's first diesel-free site using a variety of mains and battery-powered equipment including an electric compressor and one of the UK's first 160-tonne fully electric crawler cranes. • Old Oak Common station's design includes natural and low carbon ventilation and 3,215 square metres of solar panels generating zero carbon electricity.
9 Industry, innovation and infrastructure 	Responsible consumption and production	• Our innovation portfolio has the potential to remove over 1.5 million tonnes of carbon dioxide across the project. • We have sponsored a Loughborough University student for a PhD on "Embedding circular economy principles into infrastructure".
11 Sustainable cities and communities 	About HS2 Historic environment	• HS2 will be the backbone of a low carbon transport network for the UK. It will provide extra capacity and is integral to rail projects in the North and Midlands, helping to rebalance the economy. Linking London, the Midlands, the North and Scotland, HS2 will serve more than 25 stations and will connect millions of people. • We have taken precautions to protect and safeguard the historic environment around HS2. We have investigated and recorded our heritage and engaged the public in our cultural and natural heritage.

Our approach: HS2 and the UN Sustainable Development Goals continued

SDG	Link to topic	Our performance towards the SDGs
12 Responsible consumption and production 	Responsible consumption and production	• 99.8% of steel responsibly sourced. • 100% of concrete responsibly sourced. • 100% of timber responsibly sourced. • 99.1% of waste diverted from landfill. • 99.1% of excavated material converted into beneficial use. • 15.8% of felled timber beneficially reused.
13 Climate action 	Climate change	• 24.8% carbon emissions reduction against the carbon baseline for HS2 Phase One by March 2022. • PAS 2080 accreditation maintained. • HS2 is designed to be resilient to our changing climate, four Climate Change Adaptation and Resilience Reports have been completed by our Phase One contractors and assured by HS2 Ltd.
15 Life on land 	HS2 Green Corridor	• 844,854 trees successfully planted to date during the construction of HS2. • 123.65 hectares of additional new woodland created to date through the Woodland Fund. • £1,456,074 funding provided to 34 schemes to date through the Woodland Fund via the Forestry Commission.

Scope and methodology

Reporting period

The reporting period is April 2021 to March 2022. However, due to the way data is reported by our main reporting platform, the data used is from March 2021 to February 2022 unless stated otherwise. This is in line with our annual corporate reporting period.

Methodology

We have presented the data in line with our environmental policy objectives and our overarching commitments on environmental sustainability. This means the data covers:

- HS2's Green Corridor;
- climate change;
- community experience;
- responsible consumption and production; and
- overarching commitments.

We have not provided data for the historic environment in this appendix due to the nature of the topic. This is because the value of our heritage cannot be quantified easily. For example, archaeological works vary in size but can be equally informative and numbers do not adequately portray the value of the activities. However, our progress on the historic environment objective can be found in the **Environmental Sustainability Progress Report**.

As this is our second year reporting environmental sustainability data, we have provided a summary table after each data table with a progress comparison to our 2020 – 2021 baseline data. The 2020 – 2021 data received 'limited' assurance by LRQA and can be found in the **2020 – 2021 Environmental Sustainability Data Appendix**. Our environmental sustainability data has been prepared with reference to the Global Reporting Initiative (GRI) Standards: Core option. The GRI Standards index on page 34 of this appendix can be used as a reference for our disclosures against the relevant requirements. This report has also been written in line with the HM Treasury **Sustainability Reporting Guidance 2021– 2022**.

Data collection/calculation

Notes explaining the methodology we use for data collection and calculations are included next to the relevant data table.

Scope

All data relates to the Phase One route we are building between London and the West Midlands. The only exceptions are: the biodiversity accounting process on page 14, which also includes the baseline for the Phase 2a route to Crewe; and the carbon footprint data on page 17, which includes some Phase 2a contracts. This has been noted next to the relevant data points.

Phase One data has been grouped into three categories:

- enabling works contractors (EWCs) – CS Joint Venture (JV), Fusion, LM JV;
- main works civils contractors (MWCCs) – SCS, Align, EKFB and BBV; and
- stations – Euston and Old Oak Common.

Our stations at Interchange, Solihull and Curzon Street, Birmingham, are still at design stage so they are only included in the BREEAM/CEEQUAL data sets.

The Phase One project data only refers to current contracts. When more contracts are awarded, the data set of future reports will include these.

Scope and methodology continued

Geographic cover of the works being undertaken by HS2 construction partners

Contract type	Partnership	Contractors	Geographic cover of works
Enabling works contracts	CS JV	Costain Group Plc, Skanska Construction UK Ltd	Within M25
	Fusion	Morgan Sindall Construction & Infrastructure Ltd, BAM Nuttall Ltd, Ferrovial Agroman (UK) Ltd	Leamington Spa, Warwickshire to M25
	LM JV	Laing O' Rourke Construction, J Murphy & Sons	Birmingham to Leamington Spa
Main works civils contracts	SCS JV	Skanska Construction UK Ltd, Costain Group Plc, STRABAG SE	Within M25
	Align JV	Bouyges Travaux Publics, Volkerfitzpatrick, Sir Robert McAlpine	Chiltern tunnel and associated works
	EKFB	Eiffage, Kier, Ferrovial Construction and BAM Nuttall	Leamington Spa to M25
	BBV JV	Balfour Beatty Group, VINCI Construction UK Ltd	Birmingham to Leamington Spa
Stations	MD JV	Mace Limited and Dragados SA.	Euston station, London
	BBVS	Balfour Beatty Group Ltd, VINCI Construction UK Ltd, VINCI Construction Grands Projects SAS and SYSTRA Ltd	Old Oak Common station, west London

External assurance

'Reasonable' assurance on the key performance indicators (KPIs) in this appendix for environmental sustainability performance data has been provided by LRQA. This features more extensive sampling and reviews on both our internal data managing systems and our supply chain's primary data compared with the 'limited' assurance provided for 2020 – 2021. We have also included our independent assurance statement. The GRI Standards index is outside the scope of LRQA verification.

Environmental sustainability performance data

Overarching commitments

Environmental incidents

Contract type	Contractor	Level 1 incidents	Level 2 incidents	Level 3 incidents	Level 4 incidents	Hours worked	Weighted Environmental Incident Rate
Enabling works contracts	CS JV	0	0	0	0	1,178,312	0
	Fusion	0	0	45	13	2,924,650	15.8
	LM JV	0	3	6	49	2,295,466	17.8
Main works civils contracts	Align	0	1	7	51	4,671,998	4.7
	BBV JV	0	3	22	51	8,137,045	7.0
	EKFB JV	0	2	26	43	7,255,933	6.9
	SCS JV	0	5	12	106	8,504,577	8.5
Stations	BBVS	0	0	2	14	2,032,064	1.7
	MD JV	0	0	3	12	1,255,963	3.3
Total Phase One contracts		**0**	**14**	**122**	**339**	**38,256,008**	**7.8**

Year-on-year progress comparison

Year	Contract type	Level 1 incidents	Level 2 incidents	Level 3 incidents	Level 4 incidents	Hours worked	Weighted Environmental Incident Rate
2020/21	Total Phase One contracts	0	12	112	240	22,875,633	11.2
2021/22		**0**	**14**	**122**	**339**	**38,256,008**	**7.8**

Notes:

Methodology

- The reporting period for this dataset is from April 2021 to March 2022.
- Methodology: (Level 1 x 1000) + (Level 2 x 100) + (Level 3 x 10) + (Level 4 x 1) / (Total hours worked/100000).

Definitions

- The definition of the incident levels is the following:
  - Level 1: incident with a significant and extensive event or failure to comply with legislation likely to result in prosecution.
  - Level 2: incident with damage/disturbance event or failure to comply with legislation with potential to result in regulatory enforcement action.
  - Level 3: minor incident/disturbance. Breach of monitoring threshold or trigger level attributable to site activities.
  - Level 4: incident which resulted in no harm, loss or damage. Failure to comply with HS2 Code of Construction Practice.

Environmental sustainability performance data continued

Considerate Constructors Scheme (CCS)

Contract type	Contractor	CCS Score (average for site visits in 2021/22)
Enabling works contracts	CS JV	No site visit
	Fusion	No site visit
	LM JV	43.5/50
Main works civils contracts	Align	40.7/50
	BBV JV	44/50
	EKFB JV	39.2/50
	SCS JV	43.3/50
Stations	BBVS	41.5/50
	MD JV	47/50
Total Phase One contracts		**42.7/50**

Year-on-year progress comparison

Year	Contract type	CCS Score (average for site visits in a reporting period)
2020/21	Total Phase One contracts	45/50
2021/22		**42.7/50**

Notes:

About this KPI

- HS2's target is for all sites to achieve a score of at least 40/50.
- The **Considerate Constructors Scheme** is a not-for-profit, independent organisation founded to raise standards in the construction industry.
- CS JV and Fusion had no CCS visits this reporting period due to the stage of their programme.

Methodology

- Where a site was assessed more than once in the reporting period, the average score was used.

Environmental sustainability performance data continued

BREEAM/CEEQUAL

BREEAM buildings

Contract	Target rating	Design rating (as of March 2022)	Post-construction rating (as of March 2022)
Euston	Excellent (70%)	On target	On target
Old Oak Common	Excellent (70%)	On target	On target
Interchange	Excellent (70%)	Outstanding achieved (86%)	On target
Curzon Street	Excellent (70%)	On target	On target

BREEAM infrastructure/CEEQUAL

		BREEAM infrastructure	CEEQUAL
Contract	Target rating	Design rating (as of March 2022)	Post-construction rating (as of March 2022)
SCS JV	Excellent (70%)	Excellent achieved (82.6%)	On target
Align JV	Excellent (70%)	On target	On target
EKFB JV	Excellent (70%)	On target	On target
BBV JV	Excellent (70%)	On target	On target

Notes:

Methodology

- Enabling work contracts don't have a separate BREEAM/CEEQUAL environmental assessment but feed information to the main work civils contracts.

Definitions

- Environmental Assessments definitions:
  - **BREEAM** is the world's leading sustainability assessment method for master planning projects, infrastructure and buildings. It recognises and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment.
  - **CEEQUAL** is the evidence-based sustainability assessment, rating and awards scheme for civil engineering, infrastructure, landscaping and public realm projects.
- An 'Excellent' rating is achieved if the projected score is ≥70%+ for BREEAM infrastructure and ≥75%+ for CEEQUAL.
- 'On target' achieved if 'current projected score' – 'credits targeted, high risk' ≥ target rating.
- High risk definition – for a credit to be classified as high risk, one or more of the following criteria must be associated with it at the time when the quarterly progress report is submitted to HS2:
  - The evidence for the credit should have been in place prior to the current stage in the programme, hence immediate action is required to avoid losing the credit.
  - The credit, or at least one of its compliance details, is unlikely to be achievable due to non-compliance, technical uncertainty, design changes or programme changes.
  - The credit, or at least one of its compliance details, is prohibitively expensive and there is a low financial return (outside the agreed budget).
  - The credit is complex and there are a number of compliance details that are often missed or can easily be lost through not obtaining one piece of evidence or the project team have little experience of gaining the credit.

Performance commentary

- The target rating for Interchange station is 'Excellent' but we have achieved a design rating of more than 85%, which is the threshold for 'Outstanding'.

Environmental sustainability performance data continued

HS2 Green Corridor

Biodiversity accounting process

	Pre-construction		Post-construction		Summary		
Phase	Area (ha)	Biodiversity units baseline	Area (ha)	Biodiversity units generated	Area difference (ha) (pre- vs post-)	Biodiversity unit difference (pre- vs post-)*	**% change in biodiversity units**
Phase One (2017 baseline)	6,775	22,059	6,777	20,484	+2	-1575	**-7.14%**
Phase One (December 2020 update)	6,361	21,091	6,419	20,423	+58	-668	**-3.17%**
Phase One (June 2021 update)	6,425	21,389	6,433	20,834	+7.86	-555.72	**-2.6%**
Phase One (March 2022 update)	6,426	21,043	6,434	20,427	+7.47	-616.54	**-2.93%**
Phase 2a (2019 baseline)	2,979	7,887	2,973	6,545	-4	-1342	**-17.01%**

* Biodiversity unit difference is the difference in biodiversity units as calculated before construction of the railway (pre-construction) compared with completion of the railway (post-construction). It is based on the design at that point in time. As the design evolves and improvements or savings are made, this number will change.

Notes:

About this KPI

- We are seeking to achieve a net gain in biodiversity, excluding irreplaceable habitats such as ancient woodlands, at a route-wide level. To measure progress towards our goal, we developed a modified version of the Department for Environment, Food & Rural Affairs (Defra) pilot biodiversity offsetting metric, in consultation with Defra and Natural England. It is called 'the HS2 metric'. The HS2 metric uses habitats as a proxy for considering losses and gains of biodiversity and measures these losses and gains in 'biodiversity units'. The HS2 metric was updated in 2019 for Phase 2a to capture updates associated with the Defra Biodiversity Metric 2.0 (beta-testing version). More information about our biodiversity targets is outlined in the **HS2 Environmental Sustainability Vision**.

Methodology

- The HS2 metric has not been used to define the level of biodiversity compensation that has been included in the scheme. It has been used as an 'accounting tool' and applied to the habitats present pre- and post-construction. It allows us to compare the losses and gains in biodiversity units due to HS2. This accounting process has been referred to as the 'no net loss calculation'. (For more information please see the **HS2 London-West Midlands, No net loss in biodiversity calculation** report). Since the launch of our Environmental Sustainability Vision, the 'no net loss' process has been renamed the 'biodiversity accounting' process to reflect our goal to achieve net gains on all phases of the project.
- Ancient woodlands are irreplaceable and for this reason any measures that could be seen as an attempt to compensate for their loss are not included in our calculation. HS2's impact on ancient woodlands are the subject of separate reporting and data for 2021 – 2022 has been published in our online ancient woodland interactive map and associated report.
- The metric calculates losses and gains to biodiversity on an area basis, except for linear features (hedgerows and watercourses). Separate calculations are made for these based on the length of the habitats affected. Further details are provided in the **HS2 London-West Midlands, No net loss in biodiversity calculation** report.
- Methods are outlined in the technical notes that accompany the Environmental Statements for each phase of HS2:
  - **Phase One** (page 364)
  - **Phase 2a** (page 203)

These outline technical approaches as well as changes made to calculations between each phase of HS2.

Environmental sustainability performance data continued

Limitations:

- The biodiversity accounting data represents a snapshot in time. Contractors are still progressing design work.
- Although achievement of net gain in biodiversity is being considered by contractors throughout the design stage, the calculation of biodiversity accounting is only realised toward the end of a design stage. Only assets which have reached an approved design stage have been taken into account.
- Contractors undertake and complete different stages of design using different timescales and this means the level of maturity of design and the resulting figures are not consistent across Phase One. For example, some design elements have completed proposed scheme design while other elements have completed detailed design or 'as-built' design.

Number of trees and shrubs planted

Year	Trees planted	Trees replaced	Net trees planted
2017–18	218,624	–	218,624
2018–19	125,852	6,553	119,299
2019–20	169,850	45,125	124,725
2020–21	271,707	30,405	241,302
2021–22	**164,991**	**24,087**	**140,904**
Total	**951,024**	**106,170**	**844,854**

Notes:

Methodology

- This data refers to Phase One only.
- The annual planting season is from November to March. We replace trees that fail to grow in line with site-specific maintenance monitoring and management plans.

Environmental sustainability performance data continued

Woodland Fund

Phase One Woodland Fund £5m	Number of schemes	Value	Area of woodland creation	Area of PAWS* restoration	Total tree numbers
Committed	11 (+ 5 schemes partially complete)	£1,029,603	121.97ha 216,978 trees	5.37ha 17,931 trees	234,909 trees
Completed	34	£1,456,074	123.65ha 210,443 trees	71.95ha 110,016 trees	320,459 trees

* Plantations on Ancient Woodland Sites, or PAWS (previously referred to as Ancient Woodland Restoration), are ancient semi-natural woodlands that have been felled and replanted with other tree species, typically non-native ones such as spruce, fir and larch.

Notes:

Methodology

- This data refers to Phase One as of 31 March 2022.

Definitions

- Committed: new woodland creation or ancient woodland restoration projects where funding has been allocated, either firmly or tentatively. These projects have not yet been delivered. This category also includes restoration projects that are underway or where we have received an application or approved an application.
- Completed: new woodland creation or ancient woodland restoration projects that have been completed since the start of the Woodland Fund scheme.

Environmental sustainability performance data continued

Climate change

Whole-life carbon footprint – progress against targets per contract

Phase One

Contract type	Contractor	Total carbon reduction target by contract	Baseline carbon footprint (tCO_2e)	Current carbon footprint (tCO_2e) (March 2022)	Current % reduction against baseline (March 2022)
Enabling works contracts	CS JV	30%	N/A	N/A	N/A
	Fusion		11,000	8,000	31.1%
	LM JV		161,000	84,000	48.2%
Main works civils contracts	SCS	50%	1,399,000	1,050,000	25.0%
	Align		1,095,000	719,000	34.3%
	EKFB		2,262,000	1,510,000	33.3%
	BBV		4,148,000	2,750,000	33.7%
Stations	Euston	50%	710,000	435,000	38.8%
	Old Oak Common		367,000	211,000	42.5%
	Interchange		194,000	102,000	47.2%
	Curzon Street		158,000	71,000	55.2%
Rail Systems*		50%	1,887,000	1,887,000	0%
Rolling Stock*	Hitachi-Alstom	N/A	2,107,000	2,107,000	0%
Phase One total		**50%**	**14,488,000**	**10,934,000**	**24.8%**

Phase 2a

Contract type	Contractor	Total carbon reduction target by contract	Baseline carbon footprint (tCO_2e)	Current carbon footprint (tCO_2e) (March 2022)	Current % reduction against baseline (March 2022)
Rail Systems*		50%	478,000	478,000	0%
Early Civils Works 2*	Kier	50%	86,000	86,000	0%
Phase 2a total			**564,000**	**564,000**	**0%**
Programme to date total			**15,052,000**	**11,498,000**	**23.6%**

* Carbon data not yet available. Contracts either not yet awarded or at an early design stage, hence 0% progress against targets reported.

Environmental sustainability performance data continued

Whole-life carbon footprint – progress against targets per contract

Year-on-year progress comparison

Year	Contractor	Total carbon reduction target by contract	Baseline carbon footprint (tCO_2e)	Carbon footprint at the end of the reporting period (tCO_2e)	Percentage reduction against baseline at the end of the reporting period
2020/21	Phase One total	**50%**	14,544,000	10,855,000	25.4%
	Phase 2a total		478,000	478,000	0%
	Programme to date total		15,022,000	11,333,000	24.6%
2021/22	**Phase One total**		**14,488,000**	**10,934,000**	**24.8%**
	Phase 2a total		**564,000**	**564,000**	**0%**
	Programme to date total		**15,052,000**	**11,498,000**	**23.6%**

Notes:

- No permanent HS2 assets are being constructed by CSJV, therefore a carbon footprint calculation is not required.
- The tables above show the contract types with baselines produced to date. For Phase 2a and future phases, contract types will be added in future years when these contracts have baselines.
- Carbon reduction targets apply to the whole-life carbon footprint and are to be delivered during the contract period.
- Rail systems include: track, overhead catenary system, tunnel and lineside mechanical and electrical equipment, Calvert infrastructure maintenance depot and Washwood Heath depot and control centre.

Methodology

- The carbon data has been quantified in accordance with best practice industry standards (e.g. BS EN ISO 14040, BS EN ISO 14044, BS EN 15978).

Limitations

- The carbon data represents a snapshot in time. Contractors are still progressing design work.

Environmental sustainability performance data continued

Energy and fuel consumption data

Contract type	Contractor	Total grid electricity kWh	Onsite renewables kWh	Petrol (100% mineral) litres	Petrol (average fuel blend) litres	Diesel (average biofuel blend) litres	Gas oil (red diesel) litres	LPG litres	Hydrogen litres	Other fuel types kWh	Other fuel types litres
Enabling works contracts	CS JV	26,718	0	0	0	95,009	60,794	1,564	0	0	0
	Fusion	1	0	21,950	26,337	620,335	502,213	0	0	0	0
	LM JV	0	0	140	518	35,432	980,922	0	0	0	0
Main works civils contracts	Align	19,254,241	0	57	2,792	865,546	3,725,200	293,535	0	0	62,807
	BBV JV	1,749,119	0	0	145	370,019	7,069,485	162	0	368,167	0
	EKFB JV	0	3,682	4,077	9,411	388,472	8,994,816	1,698	0	0	0
	SCS JV	1,096,696	0	40	200	37,252	845,298	0	0	0	2,985,697
Stations	BBVS	3,036	0	50	5,294	9,791	1,006,502	372	0	0	3,350
	MD JV	324,560	0	0	0	14,266	122,835	0	2,560	0	0
Total Phase One contracts		**22,454,371**	**3,682**	**26,314**	**44,697**	**2,436,122**	**23,308,065**	**297,331**	**2,560**	**368,167**	**3,051,854**

Year-on-year progress comparison

Year	Contractor	Total grid electricity kWh	Onsite renewables kWh	Petrol (100% mineral) litres	Petrol (average fuel blend) litres	Diesel (average biofuel blend) litres	Gas oil (red diesel) litres	LPG litres	Hydrogen litres	Other fuel types kWh	Other fuel types litres
2020/21	Total Phase One contracts	1,038,184	4,323	16,686	47,091	1,400,483	9,289,152	1,175	0	104,874	16,402
2021/22		**22,454,371**	**3,682**	**26,314**	**44,697**	**2,436,122**	**23,308,065**	**297,331**	**2,560**	**368,167**	**3,051,854**

Notes:

Definitions

- Petrol (average fuel blend): standard grade petrol sold in the UK contains a blend of just under 5% bioethanol and around 95% petrol.
- Diesel (average biofuel blend): the most common biodiesel blend is B20, which ranges from 6% to 20% biodiesel blended with petroleum diesel. However, B5 (a biodiesel blend of 5% biodiesel, 95% diesel) is also commonly used in fleet vehicles.
- LPG: liquefied petroleum gas.
- The 'Other' categories include:
  - natural gas received through the gas mains grid network in kWh;
  - hydrotreated vegetable oil (HVO) in litres; and
  - white diesel (i.e. taxed diesel) in litres.
- More information about the supply of renewable road fuels in the UK is on the **renewable fuel statistics** webpage.

Environmental sustainability performance data continued

Performance commentary:

- Align's electricity usage figure significantly increased as two electrically powered 2,000 tonne tunnel boring machines (TBMs) became operational in May and June 2021.
- SCS's 'Other fuel type' usage increased in comparison to the previous year due to the replacement of petrol and diesel with HVO biofuel.

Community experience

Air Quality

Non-road mobile machinery (NRMM)

		Target proportion of NRMM that meets HS2's emission standards*	Proportion that was compliant in 2021/22*
Contract type	Contractor	Percentage	Percentage
Enabling works contracts	CS JV	100%	100%
	Fusion	100%	100%
	LM JV	100%	100%
Main works civils contracts	Align	100%	100%
	BBV JV	100%	100%
	EKFB JV	100%	99.80%
	SCS JV	100%	99.72%
Stations	BBVS	100%	100%
	MD JV	100%	100%
Total Phase One contracts		**100%**	**99.86%**

* Including approved exemptions.

Environmental sustainability performance data continued

Air Quality

Heavy goods vehicles (HGVs)

		Target proportion of HGVs that are Euro VI or better*	Proportion that was compliant in 2021/22*
Contract type	Contractor	Percentage	Percentage
Enabling works contracts	CS JV	100%	100%
	Fusion	100%	96.89%
	LM JV	100%	99.95%
Main works civils contracts	Align	100%	99.81%
	BBV JV	100%	99.84%
	EKFB JV	100%	99.81%
	SCS JV	100%	99.99%
Stations	BBVS	100%	99.94%
	MD JV	100%	99.87%
Total Phase One contracts		**100%**	**99.87%**

* Including approved exemptions.

Light duty vehicles (LDVs)

		Target proportion of LDVs that are Euro 6 diesel or Euro 4 petrol	Proportion that was compliant in 21/22
Contract type	Contractor	Percentage	Percentage
Enabling works contracts	CS JV	100%	90.90%
	Fusion	100%	68.29%
	LM JV	100%	84.21%
Main works civils contracts	Align	100%	95.61%
	BBV JV	100%	87.63%
	EKFB JV	100%	92.75%
	SCS JV	100%	99.28%
Stations	BBVS	100%	94.29%
	MD JV	100%	99.90%
Total Phase One contracts		**100%**	**88.69%**

Environmental sustainability performance data continued

Air Quality

Year-on-year progress comparison

Year	Contract type	Vehicle type	Target Percentage	Proportion that was compliant Percentage
2020/21	Total Phase One contracts	Non-road mobile machinery	100%	99.8%
		Heavy goods vehicles	100%	99.2%
		Light duty vehicles	100%	83.9%
2021/22		**Non-road mobile machinery**	**100%**	**99.9%**
		Heavy goods vehicles	**100%**	**99.9%**
		Light duty vehicles	**100%**	**88.7%**

Notes:

Methodology

- HS2 emission standards are included in both the **Code of Construction Practice** (Chapter 7) as well as the HS2 **Information Paper E31**.
- The reporting period is April 2021 to March 2022.

Definitions

- Non-road mobile machinery emissions (NRMM) standards: HS2 has applied **NRMM engine emission requirements**, route-wide, for all machines with an engine power of between 37kW and 560kW.
- NRMM: refers to all mobile machines and transportable industrial equipment or vehicles that are fitted with an internal combustion engine, not intended for transporting goods or passengers on roads, for example, excavators, cranes and dump trucks.
- Light duty vehicles: vehicles with a permissible maximum weight less than or equal to 3.5 tonnes.
- Heavy goods vehicles: vehicles with a permissible maximum weight greater than 3.5 tonnes.
- NRMM exemptions policy: The Greater London Authority exemptions policy set out in the Supplementary Planning Guidance (SPG) and applies route wide to HS2. It can be viewed at: **nrmm.london/nrmm/about/nrmm-exemption-policy**. They are awarded on a case-by-case basis to specialist plant and machinery or for short term use where the NRMM may not be suitable for retrofit technology following clear justifications and review.
- HGVs exemptions policy: Certain HGVs may be exempted on the grounds of:
  a. Specialism: being a specialist vehicle (not readily available as Euro VI compliant); and/or
  b. Unforeseen circumstances: for example, breakdowns or mechanical failure requiring a replacement vehicle that is not readily available as Euro VI compliant; and/or
  c. Triviality: if it is expected that a particular vehicle is planned to and only makes no more than 12 visits in any 12-month rolling period to all HS2 works in the London Low Emission Zone, then the vehicle may be given a specific exemption.

The totality of the exemptions shall account for no more than 8% of unique vehicles on an annual basis.

Environmental sustainability performance data continued

Responsible consumption and production

Responsible sourcing

Timber

Contract type	Contractor	Target for responsibly sourced timber	Certified timber	Total timber	Proportion of responsibly sourced timber
		Percentage	Tonnes	Tonnes	Percentage
Enabling works contracts	CS JV	100%	19	19	100%
	Fusion	100%	600	600	100%
	LM JV	100%	28	28	100%
Main works civils contracts	Align	100%	573	573	100%
	BBV JV	100%	0	0	–
	EKFB JV	100%	195	195	100%
	SCS JV	100%	2,105	2,105	100%
Stations	BBVS	100%	778	778	100%
	MD JV	100%	55	55	100%
Phase One total		**100%**	**4,353**	**4,353**	**100%**

Environmental sustainability performance data continued

Responsible sourcing

Steel

Contract type	Contractor	Target for responsibly sourced steel Percentage	Certified steel Tonnes	Total steel Tonnes	Proportion of responsibly sourced steel Percentage
Enabling works contracts	CS JV	100%	8	8	100%
	Fusion	100%	105	105	100%
	LM JV	100%	38	38	100%
Main works civils contracts	Align	100%	6,874	6,874	100%
	BBV JV	100%	6,387	6,478	98.6%
	EKFB JV	100%	1,549	1,549	100%
	SCS JV	100%	8,523	8,523	100%
Stations	BBVS	100%	16,195	16,195	100%
	MD JV	100%	546	546	100%
Phase One total		**100%**	**40,225**	**40,316**	**99.8%**

Environmental sustainability performance data continued

Responsible sourcing

Concrete

Contract type	Contractor	Target for responsibly sourced concrete Percentage	Certified concrete Tonnes	Total concrete Tonnes	Proportion of responsibly sourced concrete Percentage
Enabling works contracts	CS JV	100%	2,317	2,317	100%
	Fusion	100%	1,794	1,794	100%
	LM JV	100%	6,097	6,097	99.9%
Main works civils contracts	Align	100%	462,049	462,049	100%
	BBV JV	100%	218,594	218,594	100%
	EKFB JV	100%	32,927	32,927	100%
	SCS JV	100%	167,736	167,738	100%
Stations	BBVS	100%	96,888	96,888	100%
	MD JV	100%	10,639	10,639	100%
Phase One total		**100%**	**999,041**	**999,043**	**100%**

Environmental sustainability performance data continued

Responsible sourcing

Other material

Contract type	Contractor	Target for responsibly sourced other material types Percentage	Certified other material types Tonnes	Total other material types Tonnes	Proportion of responsibly sourced other material types Percentage
Enabling works contracts	CS JV	25%	9,042	9,042	100%
	Fusion	25%	800	800	100%
	LM JV	25%	72,341	143,774	50.3%
Main works civils contracts	Align	25%	386,008	386,008	100%
	BBV JV	25%	4,069,799	4,069,799	100%
	EKFB JV	25%	1,240,142	1,281,125	96.8%
	SCS JV	25%	0	0	–
Stations	BBVS	25%	44,086	48,290	91.3%
	MD JV	25%	701	701	100%
Phase One total		**25%**	**5,822,919**	**5,939,539**	**98%**

Year-on-year progress comparison

Year	Contract type	Material	Proportion responsibly sourced (percentage)	Tonnes	Proportion responsibly sourced
2020/21	Total Phase One contracts	Timber	100%	10,561	99.9%
		Concrete	100%	501,759	100%
		Steel	100%	907,140	100%
		Other materials	25%	585,791	69.8%
2021/22		**Timber**	**100%**	**4,353**	**100%**
		Concrete	**100%**	**999,043**	**100%**
		Steel	**100%**	**40,316**	**99.8%**
		Other materials	**25%**	**5,939,539**	**98%**

Environmental sustainability performance data continued

Notes:
Methodology

- Responsible sourcing schemes are those identified in **BREEAM Guidance Note GN18.**
- The 'other material' section includes all related materials apart from timber, concrete and steel, for example, glass and metal. For a list of applicable materials please refer to table 44 on page 265 of the **BREEAM UK 2014 New Construction (Non-domestic Buildings) technical manual**.

Construction and demolition waste

Contract type	Contractor	Target: proportion construction and demolition waste diverted from landfill	Total construction waste diverted from landfill in 2021/22	Total demolition waste diverted from landfill in 2021/22	Total construction and demolition waste diverted from landfill in 2021/22	Total construction and demolition waste in 2021/22	Proportion construction and demolition waste diverted from landfill in 2021/22
		Percentage	Tonnes				Percentage
Enabling works contracts	CS JV	95%	197	6,443	6,640	6,640	100%
	Fusion	95%	1,790	49	1,839	1,879	97.9%
	LM JV	95%	15,952	124	16,076	16,250	98.9%
Main works civils contracts	Align	95%	6,263	0	6,263	6,312	99.2%
	BBV JV	95%	2,453	2,170	4,623	4,649	99.4%
	EKFB JV	95%	11,931	2,569	14,500	15,744	92.1%
	SCS JV	95%	49,975	58,430	108,405	108,405	100%
Stations	BBVS	95%	2,573	938	3,511	3,570	98.3%
	MD JV	95%	1,449	8,322	9,771	9,771	100%
Total Phase One contracts		**95%**	**92,583**	**79,045**	**171,628**	**173,220**	**99.1%**

Year-on-year progress comparison

Year	Contract type	Target: proportion construction and demolition waste diverted from landfill	Total construction waste diverted from landfill	Total demolition waste diverted from landfill	Total construction and demolition waste diverted from landfill	Total construction and demolition waste	Proportion construction and demolition waste diverted from landfill
		Percentage	Tonnes				Percentage
2020/21	Total Phase One contracts	95%	52,732	8,441	61,173	63,030	97.1%
2021/22		**95%**	**92,583**	**79,045**	**171,628**	**173,220**	**99.1%**

Environmental sustainability performance data continued

Excavated materials

Contract type	Contractor	Target (proportion of excavated material beneficially reused) Percentage	Total Excavated Material Placed in Permanent Deposition or Removed From Site in 2021/22 Tonnes	Proportion of excavated material beneficially reused in 2021/22 Percentage
Enabling works contracts	CS JV	95%	17,913	99.9%
	Fusion	95%	25,706	100%
	LM JV	95%	183,388	87.5%
Main works civils contracts	Align	95%	67,576	99.9%
	BBV JV	95%	80,876	79.1%
	EKFB JV	95%	4,081,614	99.8%
	SCS JV	95%	541,030	99.8%
Stations	BBVS	95%	355,409	99.8%
	MD JV	95%	24,416	100%
Total Phase One contracts		**95%**	**5,377,928**	**99.1%**

Year-on-year progress comparison

Year	Contract type	Target (proportion of excavated material beneficially reused) Percentage	Total Excavated Material Placed in Permanent Deposition or Removed From Site Tonnes	Proportion of excavated material beneficially reused Percentage
2020/21	Total Phase One contracts	95%	880,764	94.6%
2021/22		**95%**	**5,377,928**	**99.1%**

Notes:

Definition

- Beneficial reuse of excavated materials:
  For an excavated material management activity to be classified as beneficial reuse it must meet the following tests:
  - The activity will lead to a beneficial reuse and bring land back into use or provide ecological benefit.
  - In the case of quarries or landfill sites, the activity has a planning requirement to be restored.
  - The material is suitable for its intended use and would not harm human health or the environment.
  - The minimum amount of material would be used to achieve the restoration required by any planning consent.
  - Alternative material, whether waste or not, would be required if material was not to be used.

Performance commentary

- Total excavated material quantity only includes material that has either been placed in its final destination, for example, within the scheme earthworks, or removed from site. Any excavated material that has been placed in a temporary stockpile is excluded from these figures. This snapshot provides a 'false-negative' view of some of our contractors' performance in percentage terms.

Environmental sustainability performance data continued

Beneficial reuse of timber

		Felled timber beneficially reused	Total felled timber	Proportion of felled timber beneficially reused
Contract type	Contractor	m^3	m^3	Percentage
Enabling works contracts	CS JV	0	0	–
	Fusion	2,695	61,893	4.4%
	LM JV	72	4,230	1.7%
Main works civils contracts	Align	44	130	33.8%
	BBV JV	49	49	100%
	EKFB JV	10,717	19,593	54.7%
	SCS JV	0	0	–
Stations	BBVS	26	26	100%
	MD JV	0	0	–
Total Phase One contracts		**13,603**	**85,921**	**15.8%**

Year-on-year progress comparison

		Felled timber beneficially reused	Total felled timber	Proportion of felled timber beneficially reused
Year	Contract type	m^3	m^3	Percentage
2020/21	Total Phase One contracts	6,787	55,629	12.2%
2021/22		**13,603**	**85,921**	**15.8%**

Notes:

Methodology

- The beneficial reuse of timber includes:
  - reused on site;
  - provided for community uses; and
  - used for solid wood production.
- The beneficial reuse of timber does not include:
  - used for reconstituted board production;
  - used for biomass;
  - other type of reuse (not disposal); and
  - landfill.
- There is no set target for this KPI. Contractors look to beneficially reuse timber when it is possible.

Environmental sustainability performance data continued

Water usage

Contract type	Contractor	Total water use m^3	Proportion of water consumption that is non-potable Percentage
Enabling works contracts	CS JV	1,817	0%
	Fusion	6,277	7.7%
	LM JV	6,280	46.2%
Main works civils contracts	Align	1,006,402	34.3%
	BBV JV	68,660	48.6%
	EKFB JV	11,340	79.2%
	SCS JV	99,091	11.3%
Stations	BBVS	25,709	0%
	MD JV	5,886	0%
Total Phase One contracts		**1,231,462**	**32.7%**

Year-on-year progress comparison

Year	Contract type	Total water use m^3	Proportion of water consumption that is non-potable Percentage
2020/21	Total Phase One contracts	714,060	11.5%
2021/22		**1,231,462**	**32.7%**

Notes:

Definitions

- Water types:
  - Potable water is mains water.
  - Raw water is recycled and 'grey' water.
  - Abstracted water is abstracted directly from the environment.

Methodology

- Non-potable water is the sum of raw and abstracted water.
- Water use is a challenge for infrastructure projects and we use mains water, or potable water, as long as there is capacity, in part due to the cost of transporting water. This means our use of non-potable water – that is recycled or 'grey' water and water taken directly from the environment – is small.

LRQA Independent Assurance Statement

Relating to the Environmental Sustainability Progress Report Appendix of the HS2 Ltd Environmental Sustainability Report 2021/22 for the financial year ending 31st March 2022.

This Assurance Statement has been prepared for High Speed Two Ltd (HS2) in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

LRQA was commissioned by High Speed Two Ltd (HS2) to provide independent assurance on key performance indicators in the environmental sustainability performance data section of the Environmental Sustainability Progress Report Appendix against the assurance criteria below to a reasonable level of assurance using LRQA's verification procedure.

Our assurance engagement covered HS2 Enabling Works Contracts, Main Works Civil Contracts and Stations Contracts in Phase One of the project. Specifically, we verified conformance with HS2 Ltd Technical Standards for Environmental Sustainability Reporting and the associated technical standards for the following selected datasets:

- Environmental Incidents
- Considerate Constructors Scheme
- BREEAM/ CEEQUAL
- Biodiversity Accounting Process*
- Number of trees and shrubs planted
- Woodland Fund
- Whole life carbon footprint*
- Energy and fuel consumption data
- Air quality
- Responsible sourcing
- Construction and demolition waste
- Excavated material
- Beneficial reuse of timber
- Water use

Note: * The Biodiversity Accounting Process also includes the baseline for the Phase 2a route to Crewe, and the whole life carbon footprint data includes some Phase 2a contracts.

LRQA's responsibility is only to HS2. LRQA disclaims any liability or responsibility to others as explained in the end footnote. HS2's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of HS2.

LRQA's Opinion

Based on LRQA's approach, we believe that HS2 has, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable performance data and information.

The opinion expressed is formed on the basis of a reasonable level of assurance and at the materiality of the professional judgement of the verifier.

LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- Interviewing HS2 Subject Matter Experts who were responsible for the HS2 Technical Standards which enable efficient and effective environmental sustainability reporting.
- Interviewing the HS2 Environmental Management System & Reporting Analyst who was responsible for reviewing and assuring the contractor data submissions.
- Interviewing Enabling Works Contractors, Main Works Civil Contractors and Stations Contractors responsible for submitting data into the HS2 data management system (HORACE).
- Auditing the HS2 data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification.
- Interviewing the HS2 Senior Environmental Managers of the Project Delivery Team who were responsible for the collation of data and information disclosed in the data download.

Observations

Further observations and findings, made during the assurance engagement, are:

- Material errors were identified by LRQA in the monthly energy and fuel consumption, air quality, responsible sourcing, construction and demolition waste, excavated material, beneficial reuse of timber and water use data submitted by Enabling Works Contractors, Main Works Civil Contractors and Stations Contractors into the HS2 data management system. The material errors occurred due to contractor data being incomplete at monthly reporting deadlines and an ineffective HS2 data quality assurance system.
- Corrective action was taken by HS2 to carry out a full year review of contractor data submissions. The LRQA Opinion is based on the revised contractor data and follow up interviews held with the HS2 Environmental Management System & Reporting Analyst and contractor staff responsible for compiling the data.
- Effective processes are established to assure the Biodiversity Accounting Process and Life Cycle Assessment data submissions.
- The methodology used for the Biodiversity Account Process is based on consultation with the Department for Environment, Food & Rural Affairs (DEFRA) and Natural England. Ancient Woodland is considered to be irreplaceable and is not included in the calculation.
- HS2 should reduce the probability of material errors in energy and fuel consumption, air quality, responsible sourcing, construction and demolition waste, excavated material, beneficial reuse of timber and water use data by implementing a more robust data quality assurance process.

LRQA's standards, competence, and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LRQA is HS2's certification body for ISO9001, ISO14001, ISO45001 and PAS2080. The verification and certification assessments are the only work undertaken by LRQA for HS2 and as such does not compromise our independence or impartiality.

Steve Fletcher
LRQA Lead Verifier

Dated: 26 July 2022

On behalf of LRQA Ltd
1 Trinity Park
Bickenhill Lane
Birmingham
B37 7ES

LRQA reference: LRQ00004067

GRI Standards index

The Environmental Sustainability Progress Report and the data appendix have been prepared with reference to the Global Reporting Initiative (GRI) Standards: Core option. The full list of disclosures covered can be found in the GRI index below.

GRI index

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
GRI 101: Foundation			
GRI 102: General disclosures (2016)			
Organisational profile			
102-1	Name of the organisation	• **ES Progress Report** (front cover) • **Annual Report and Accounts (ARA)** (front cover)	
102-2	Activities, brands, products, and services	• ES Progress Report (About HS2, p7-8) • ARA (Business Model, p12-13)	
102-3	Location of headquarters	• ARA (CEO's review, p6 and Business model, p13); ARA (Notes to financial statements, p71); ARA (back cover, p92) • ES Progress Report (back cover, p70)	
102-4	Location of operations	• Direct answer	HS2 Ltd is operational in the United Kingdom.
102-5	Ownership and legal form	• ARA (Notes to financial statements, p71)	
102-6	Markets served	• ES Progress Report (About HS2, p7-8)	Disclosure of geographic locations where products and services are offered.
102-7	Scale of the organisation	• ARA (Notes to financial statements, p67, 78-79, 81)	Disclosure of total number of employees and incomes generated for the year.
102-11	Precautionary Principle or approach	• ES Progress Report (Climate change, p23-33)	Our risk management approach incorporates the 'precautionary principle', which implies our responsibility to protect the natural environment from harm where there is a plausible risk.
Strategy			
102-14	Statement from senior decision maker	• ES Progress Report (Leadership statement, p1-2)	Statement from the CEO.
Ethics and integrity			
102-16	Values, principles, standards, and norms of behaviour	• **Our guiding principles and values**	

GRI Standards index continued

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
Governance			
102-18	Governance structure	• **ES Progress Report Appendix** (Environmental Sustainability Governance, p2-3)	
Stakeholder engagement			
102-40	List of stakeholder groups	• ES Progress Report Appendix (Stakeholder and Community Engagement, p5)	Our list of stakeholders have not changed from last year. The link provided on p6 of the ESPR Appendix redirects to our ES Progress Report from last year. The detailed list of stakeholder groups are disclosed on p58-59 of the report.
102-42	Identifying and selecting stakeholders	• ES Progress Report Appendix (Stakeholder and Community Engagement, p5)	Our list of stakeholders have not changed from last year. The link provided on p6 of the ESPR Appendix redirects to our ES Progress Report from last year. Tour approach to engaging with stakeholders has been disclosed on p57-59 of the report.
102-43	Approach to stakeholder engagement	• ES Progress Report Appendix (Stakeholder and Community Engagement, p5)	Disclosure on our approach to stakeholder engagement is offered.
Reporting practice			
102-45	Entities included in the consolidated financial statements	• ARA (p67 onwards)	Disclosure of all entities included in HS2's consolidated financial statements or equivalent documents can be found in the reference cited here. All entities included in HS2's consolidated financial statements or equivalent documents are covered in this report.
102-46	Defining report content and topic boundaries	• ES Progress Report Appendix (Scope and methodology, p9)	Reference to Reporting scope and methodology also provided in the ES Progress Report 'About this Report' section p61.
102-47	List of material topics	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4)	
102-48	Restatements of information	• Direct answer	There are no restatements of informations.
102-49	Changes in reporting	• Direct answer	The material topics and topic boundaries remain the same as per the previous reporting period. The only difference this reporting period is that the data is presented per contract type rather than per portfolio, providing a more comprehensive approach.
102-50	Reporting period	• ES Progress Report (About this report, p59) • ES Progress Report Appendix (Scope and methodology, p9)	
102-51	Date of most recent report	• Direct answer	The most recent report was published on 11 January 2022.
102-52	Reporting cycle	• ES Progress Report (About this report, p59) • ES Progress Report Appendix (Scope and methodology, p9)	

GRI Standards index continued

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
102-53	Contact point for questions regarding the report	• ES Progress Report (About this report, p59) • ES Progress Report Appendix (Scope and methodology, p9)	
102-55	GRI content index	• ES Progress Report Appendix (GRI Index, p34)	
102-56	External assurance	• ES Progress Report Appendix (Independent assurance statement, p31)	
HS2 Green Corridor			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its boundary	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4) • ES Progress Report (Green Corridor, p13-14, 16, 19-22)	
103-2	The management approach and its components	• ES Progress Report (Green Corridor, p13-22)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.
103-3	Evaluation of the management approach	• ES Progress Report (Green Corridor, p14-22)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.
GRI 304: Biodiversity (2016)			
304-3	Habitats protected or restored	• ES Progress Report (Green Corridor, p14-22) • ES Progress Report Appendix (HS2 Green Corridor Biodiversity accounting process; No. of trees and shrubs planted; Woodland fund, p14-16)	Disclosure on partnerships with third parties to protect or restore habitat areas distinct from where the organisation has overseen and implemented restoration or protection measures. Location of biodiversity work and HS2's Green Corridor can be found here: **hs2.org.uk/building-hs2/hs2-green-corridor/**
Climate change			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its boundary	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4) • ES Progress Report (Climate change, p24-25)	
103-2	The management approach and its components	• ES Progress Report (Climate change, p23-25, 30-31)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.

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Disclosure	Disclosure title	Location	Direct answers, notes and omissions
103-3	Evaluation of the management approach	• ES Progress Report (Climate change, p24-33)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.
Community experience			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its boundary	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4) • ES Progress Report (Community experience, p35-36, 38, 42-43)	
103-2	The management approach and its components	• ES Progress Report (Community experience, p34-36, 42-43)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.
103-3	Evaluation of the management approach	• ES Progress Report (Community experience, p34-43)	Any specific calculation methodologies, HS2 standards or codes used, exemptions related notes for the quantitative performance data are included under the 'Performance data' section in the ES Progress Report Appendix published.
Historic environment			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its boundary	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4) • ES Progress Report (Historic environment, p46-47)	
103-2	The management approach and its components	• ES Progress Report (Historic environment, p45-48)	The report offers disclosures around progress achieved on historic environment related performance during the year.
103-3	Evaluation of the management approach	• ES Progress Report (Historic environment, p45-48)	The report offers disclosures around progress achieved on historic environment related performance during the year.
Responsible consumption and production			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its boundary	• ES Progress Report Appendix (Prioritising environmental sustainability topics, p4) • ES Progress Report (Responsible consumption and production, p50-51)	

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Disclosure	Disclosure title	Location	Direct answers, notes and omissions
103-2	The management approach and its components	• ES Progress Report (Responsible consumption and production, p49-53)	The report includes disclosures around progress achieved on responsible consumption and production related performance during the year.
103-3	Evaluation of the management approach	• ES Progress Report (Responsible consumption and production, p50-53)	The report includes disclosures around progress achieved on responsible consumption and production related performance during the year.
GRI 306: Waste (2020)			
306-1	Waste generation and significant waste-related impacts	• ES Progress Report (Responsible consumption and production, p50-53)	
306-2	Management of significant waste-related impacts	• ES Progress Report (Responsible consumption and production, p50-51, 53)	Disclosure for parts a. and b. of disclosure requirement offered.
GRI 301: Materials (2016)			
301-3	Reclaimed products and their packaging materials	• ES Progress Report Appendix (Excavated materials, p28; Beneficial reuse of timber, p29)	Disclosure of percentage of reclaimed products offered, and disclosure on how this data was collected offered.
GRI 303: Water and Effluents (2018)			
303-5	Water consumption	• ES Progress Report Appendix (Water usage, p30)	Disclosure of total water consumption from all areas offered. Water consumption measured in m^3.

Endnotes

Introduction

1 Note there are two types of assurance: 'reasonable' and 'limited'. A reasonable level of assurance is defined as where sufficient evidence has been obtained to support the statement that the risk of the conclusion being in error is very low but not zero. This features more extensive sampling and reviews on both our internal data managing systems and our supply chain's primary data. A limited assurance requires less detail than reasonable assurance with smaller sample sizes. If no errors are found, the verifier will confirm that nothing has come to their attention to suggest that the information is incorrect or incomplete in relation to the agreed criteria.

Our approach

1 UN Sustainable Development Goals: **sdgs.un.org/goals**

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