

1MCo4 Main Works – Contract Lot S2

Subcontract Works Information- Generic Lot S1 and S2

SWI-300 Environment and Sustainability

Document no: 1MCo3-SCJ-EV-PLN-S001-000028

Revision	Author	Checked by	Approved by	Date approved	Reason for revision
Co1	Ali Thomas	Geri Badura	Isabel Coman	18-03-2019	Implementation
Co2	Ali Thomas Athina Papakosta	Stephen Parker Phil Bailey	Isabel Coman	29-01-2020	Updated procurement processes
Co3	Athina Papakosta	Phil Bailey	Geri Badura	09-07-2021	Implementation
Co4	Athina Papakosta Beatrice Ubani	Phil Bailey	Geri Badura	13-10-2021	Clarification on the responsible sourcing targets
Co5	Athina Papakosta Beatrice Ubani	Phil Bailey	Geri Badura	22-12-2021	Updates in line with latest contract delivery requirements
	 				

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: None



Contents

1	Introduction	4
	1.1 General	4
2	Definitions and abbreviations	4
3	Environmental Minimum Requirements (EMRs)	5
4	Environmental Management System (EMS)	6
5	Site-specific Environmental Management Plan	7
6	Pre-start environmental meetings	7
7	Key targets and objectives	8
8	Environmental sustainability reporting	9
9	Competence	10
10	Environmental consents	10
11	Climate change & carbon management	11
12	Ecology	11
	12.1 Introduction	11
	12.2 Vegetation/ tree clearance and working around trees	11
13	Land quality	12
14	Air quality/equipment (vehicles and plant)	12
	14.1 Vehicle Emissions Standards	12
	14.2 Non-Road Mobile Machinery (NRMM)	13
	14.3 Generator requirements	14
	14.4 Power factor correction	14
	14.5 Telematics requirements	15
15	Traffic and transport	15
	15.1 Workforce traffic	15
	15.2 Construction traffic	15
	15.3 Deliveries	15
	15.4 Transport and logistics	16
16	Energy and fuel	16
	16.1 Introduction	16
	16.2 Monitoring & submetering	17
	16.3 Fuel storage	17
17	Noise and vibration	17
18	Archaeology and heritage	19
	18.1 Introduction	19

18.2	Discovery of suspected area of archaeological/ historic interest	19
19	Welfare	20
19.1	General	20
19.2	Waste requirements	20
19.3	Cabin requirements	21
19.4	Heating requirements	21
19.5	Kitchen and canteen requirements	21
19.6	Toilet and shower requirements	22
20	Artificial lighting management	22
21	Water resource management	23
21.1	Introduction	23
21.2	Pollution prevention	24
21.3	Refuelling	24
22	Waste	25
23	Sustainable materials	26
23.1	Introduction	26
23.2	Responsible sourcing	27
23.3	Requirements for substances used in subcontract works	31
23.4	Reducing packaging	31
23.5	Promote the recovery of materials	31
23.6	Legal sourcing	31
23.7	Local sourcing	31
23.8	Ethical sourcing	31
24	Imported recycled/recovered material	32
25	European Conformity markings	32
26	Community	33
26.1	Notification of subcontract works	33
26.2	Complaints	33
27	Geographic Information System (GIS) and Surveying	33
28	Environmental engagement	33
29	Environmental assurance	33
30	Environmental incident investigation	34
31	References	34
32	Standard forms and templates	35
33	Appendices	35
	Appendix A: HS2 Environmental Strategies, Policies & Technical Standards	35

List of figures

Figure 1 Diesel-free by 23 – Power source hierarchy	17
Figure 2 Waste hierarchy	25

List of tables

Table 1 – List of abbreviations and definitions used in this document	4
Table 2 – Topic Specific Environmental Management Plans	6
Table 3 – Vehicle Emissions Standards	13
Table 4 – Non-Road Mobile Machinery Standards	13
Table 5 – Resources specific responsible sourcing requirements	27
Table 6 – Responsible sourcing schemes	28
Table 7 – Materials included in target	29
Table 8 – References to relevant SCSJV documentation	34
Table 9 – Forms and templates	35

1 Introduction

1.1 General

1.1.1 This document outlines the requirements of the *Contractor's* Environment Management System (EMS) and the provisions for Providing the Subcontract Works.

1.1.2 The requirements of this document are in line with:

- The *Employer's* (HS2) Works Information WI 285 – Sustainability and Environmental Minimum Requirements (1MCo1-HS2-PR-ITT-000-000417);
- EN ISO 14001:2015 Environmental Management Systems – Requirements and the *Contractor's* EMS;
- PAS2080:2016 Carbon Management in Infrastructure;
- SCSJVJV Environmental Policy (1MCo3-SCJ-EV-POL-S001-000001) – See Section 31 References
- SCSJVJV Carbon Management Plan (1MCo3-SCJ-EV-PLN-S001-000002)
- SCSJVJV Sustainable Sourcing Plan (1MCo3-SCJ-EV-PLN-S001-000010)
- Contractual obligations that the *Contractor* is bound to comply with; and
- Relevant HS2 standards listed in Appendix A

2 Definitions and abbreviations

Table 1 – List of abbreviations and definitions used in this document

Abbreviation	Definition
BREEAM	Building Research Establishment Environmental Assessment Method
CEEQUAL	Civil Engineering Environmental Quality Assessment and Awards Scheme
CITB	Construction Industry Training Board (CITB) one day training course
CoCP	Code of Construction Practice
COSHH	Control of Substances Hazardous to Health
CPET	Central Point of Expertise on Timber
EMAS	Eco-Management and Audit Scheme
EMP	Environmental Management Plan
EMRs	Environmental Minimum Requirements
EMS	Environmental Management System
ETA	European Technical Assessment
FORS	Fleet Operators Recognition Scheme
FSC	Forest Stewardship Council

Abbreviation	Definition
GIS	Geographical Information Systems
hEN	harmonised European standard
HS2	High Speed 2 Limited
LBC	London Borough of Camden
LED	Light-emitting diode
LEMPs	Local Environmental Management Plans
NRMM	Non-Road Mobile Machinery
PEF	Programme for the Endorsement of Forest Certification
RAMS	Risk Assessment Method Statement
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation
REC	Retrofit emission control devices
REGO	Renewable Energy Guarantees of Origin
SEATS	Site Environmental Awareness Training Scheme
SWI	Subcontract Works Information
WRAP	Waste and Resources Action Plan

3 Environmental Minimum Requirements (EMRs)

3.1.1 The *Subcontractor* complies with the requirements of the High Speed Rail (London - West Midlands) Act 2017, including its Environmental Minimum Requirements (EMRs). Primarily, no impacts are to be worsened from those identified in the impact assessments and efforts shall be made to reduce these impacts further, as far as reasonably practicable.

3.1.2 The *Subcontractor* adheres to all control measures and standards set out in the 'HS2 Phase One Code of Construction Practice' (CoCP) to protect communities and the environment during construction works, including the *Subcontractor's* obligations in Providing the Subcontract Works:

<https://www.gov.uk/government/publications/environmental-minimum-requirements>

3.1.3 The *Subcontractor* adheres to the sustainability requirements set out in the *Employer's* Sustainability Approach document:

<https://www.gov.uk/government/publications/hs2-supplier-guide>

3.1.4 The *Subcontractor* is required to adhere to the principles set out in the *Employer's* Environmental Policy document:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/616657/HS2_Environmental_Policy_P01.pdf

4 Environmental Management System (EMS)

4.1.1 The *Subcontractor* needs to hold a third party verified ISO14001 Environmental Management Systems and/or EMAS certification (for companies >250 employees); or an Environmental Management System structured along the lines of ISO14005/ISO14001 (as a minimum for small & medium enterprises SMEs); or an environmental impact minimisation statement (as a minimum for micro-enterprises).

4.1.2 Where appropriate, other ways of managing environmental impacts could also potentially be taken into account by the *Contractor*. This shall be prior to contract award and in agreement with HS2 Ltd.

4.1.3 The *Subcontractor* complies with the *Contractor's* EMS which is laid out within the Environmental Management Plan (EMP) (Stage 2: Construction and Detailed Design S1 and S2) (1MC03-SCJ-EV-PLN-S001-000003) and the *Contractor's* Topic Specific Environmental Management Plans set out in the EMP. A summary is contained in Table 2 below:

Table 2 – Topic Specific Environmental Management Plans

Title	Document Number
Air Quality Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000014
Historic Environment Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000018
Agricultural, Forestry and Soils Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000013
Carbon Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000002
Ecology and Biodiversity Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000007
Excavated Materials Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000017
Waste and Excavated Materials Management Procedure S1 and S2	1MC03-SCJ-EV-PRO-S001-000007
Land Quality Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000012
Landscape and Visual Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000019
Noise and Vibration Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000009
Environmental Incident Control Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000008

Title	Document Number
Site Waste Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000016
Resource Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000021
Water Resources Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000036
Lighting Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000027
Provision of welfare facilities	1MCo3-SCJ-HS-GDE-S001-000054

4.1.4 The *Subcontractor* complies with all requirements applicable to the *Subcontract*, including the *subcontract* works and any design undertaken by the *Subcontractor*.

4.1.5 Where necessary, the *Subcontractor* complies with specific processes and procedures contained within or referred to in the *Contractor's* EMS and supports the *Contractor* in meeting its contractual obligations towards the *Employer* (Hs2).

5 Site-specific Environmental Management Plan

5.1.1 The *Subcontractor* adheres to all site-specific control measures set out in the Local Environmental Management Plans (LEMPs) developed by the *Contractor* in consultation with the relevant Local Authority.

<https://www.gov.uk/government/publications/local-environmental-management-plans-for-hs2-phase-one>

5.1.2 The *Subcontractor* adheres to all relevant Site-Specific Environmental Control Plans (SSECPs) by the *Contractor* that set out the key risk mitigations and control measures that apply to each area of works.

6 Pre-start environmental meetings

6.1.1 Prior to any *Subcontract* works commencing on site, a recorded pre-start meeting must be held between the *Contractor* and *Subcontractor* to discuss environmental sustainability and associated environmental management matters. The *Subcontractor* must submit details of its risk assessments and systems of work for the *subcontract* works they will be undertaking to the *Contractor* upon request.

6.1.2 For high impact key packages, regular catch ups between the appropriate representatives of the *Contractor* and the *Subcontractor* shall be held to ensure the environmental sustainability side of the works is kept on track.

7 Key targets and objectives

7.1.1 It is important that the *Subcontractor* is aware of and will be expected to contribute to achieving the following targets in accordance with the *Subcontract Works Information*:

- The *Contractor* is committed to achieving 50% carbon reduction across the MWCC works against the agreed baseline that represents the initial position of the project, as tendered.
- The *Contractor* is committed to achieving a **CEEQUAL 'Excellent' rating**. The *Subcontractor* is required to regularly provide relevant evidence of compliance with CEEQUAL requirements to support the obtainment of targeted credits;
- The *Contractor* is committed to using **sustainably and ethically sourced materials**, as well as minimising the carbon footprint of every aspect of the Works. This will require industry leading practice and innovation by the *Subcontractor* as detailed in the sections to follow;
- The *Employer* is committed to **no net loss of biodiversity**, this not only means improving what is put back restoratively, but also minimising the land used to build the scheme in the first place.
- The *Contractor* will meet **HS2 air quality standards** and support HS2 air quality targets by conforming with vehicle and plant (equipment) requirements detailed in section 1.9 below. The *Subcontractor* is expected to meet these standards and contribute to achieving these targets.
- The *Contractor* and the supply chain are expected to achieve Fleet Operators Recognition Scheme (FORS) Bronze level prior to start of works and achieve a minimum level of Silver within 6 months of commencement.
- The *Contractor* is expected to ensure that the following products purchased for either temporary or permanent inclusion shall be supplied with a CEEQUAL recognised responsible sourcing scheme, certified by a third party:
 - 100% of timber;
 - 100% of concrete;
 - 100% of steel; and
 - 100% aggregates

Refer to section 23.11 for further detail.

- The *Contractor* is expected to follow and contribute to the following resource efficiency and effective waste management targets:
 - 95% beneficial reuse for excavated material;
 - 95% diversion from landfill for & demolition waste; incl. municipal waste from site welfare;
 - 98% diversion from landfill for construction;
 - 100% beneficial reuse of topsoil onsite

8 Environmental sustainability reporting

- 8.1.1 The *Subcontractor* will be required to submit key environmental documentation upon contract award via the *Contractor's* SRM platform.
- 8.1.2 The *Subcontractor* will be required to report on the following, as applicable to the scope of the *Subcontract*, in a format determined by the *Contractor*:
- **Vehicles** – Details of all movements and vehicle types related to the delivery of the *Subcontract*. *Subcontractors* will be expected to fill out details on the vehicles & mileage as well as on type and amount of the goods provided to the *Contractor* at the time of booking the delivery of loads to SCSJV sites. This will take place via the *Contractor's* digitised logistics platform (Datascop) that will in turn feed into the project's Vehicle Management System (VMS). Access to Datascop will be provided by the *Contractor*.
 - **Waste** – Types and quantities of waste generated by the *Subcontract* works on a monthly basis.
For waste managed by the *Subcontractor* (rather than disposed as appropriate into the *Contractor's* waste receptacles), *Subcontractors* are expected to use the *Contractor's* digital data collection system (Datascop) to generate electronic Waste Transfer Notes (WTN) and any Hazardous Waste Consignment Notes (HWCN). Access to Datascop platform will be provided by the *Contractor*.
 - **Materials** – Details on the type and quantity of materials used/delivered as part of the *Subcontract*, certifications on sustainable sourcing, LCA and carbon footprint and any other relevant environmental credentials for the main items of the package e.g. concrete, timber, steel, aggregates, aluminium, bricks.
 - **Water consumption** – Meter readings or volumes imported for all site activities associated with the *Subcontract*.
 - **Energy and fuel consumption** – Detailed meter readings and/or quantities of fuel used for all site activities associated with the *Subcontract*.
 - **Observations and incidents**
 - **Best practices & innovations**
 - Staff commuting, where relevant.
- 8.1.3 Further information specific to the type of goods/services provided by the *Subcontractor* may be required on an ad-hoc basis, e.g., equipment specification including sound pressure data and locations on-site for *Subcontractors* supplying plant as part of their scope.
- 8.1.4 The sustainability reporting template will be provided to the *Subcontractor* prior to the start of *subcontract works* on the site and is available upon request.
- 8.1.5 The *Subcontractor* is required to provide any information on request to demonstrate compliance with accommodation set up requirements to provide compliance against CEEQUAL and the *Contractor's* EMS. This information should be provided by the *Subcontractor* on request to the *Contractor* in a timely manner.

- 8.1.6 It is advisable that the *Subcontractor* allows for suitable resources to adequately fulfil all reporting requirements.

9 Competence

- 9.1.1 All Site Managers and Supervisors will (as a minimum) have attended the Construction Industry Training Board (CITB) one day training course 'Site Environmental Awareness Training Scheme (SEATS)' within the last 5 years. This must be attended within 3 months of joining the Project and a certificate demonstrating attendance of this training (within the last 5 years) must be submitted to the *Contractor's* Training Team.
- 9.1.2 The *Subcontractor* shall have at least 1 nominated person responsible for environmental requirements as far as applicable to the subcontract works. Any staff with specific environmental responsibility will have demonstrable suitable training to fulfil their role to the satisfaction of the *Contractor's* Environmental Manager.
- 9.1.3 All site-based staff, regardless of parent organisation will need to undergo site-specific briefings and trainings aligned with key environment risks on the site at any given time. Suitable training time allowance shall be made. Other full-time staff (based on the project for more than 3 months) that have a role in implementing sustainability initiatives (e.g., commercial/ procurement/ designers/ planners) shall be nominated for environmental training by the *Contractor's* Training Team.

10 Environmental consents

- 10.1.1 The *Subcontractor* shall discuss the requirement of any consents, permits, licences or exemptions required for the *subcontract* works with the *Contractor's* Environment Team in advance of commencement of any applicable *subcontract* works. The *Subcontractor* adheres to the timescales required for the preparation of applications for any consents, permits, licences or exemptions as detailed in the relevant Technical Standards set out in Appendix A.
- 10.1.2 The *Contractor* applies for all consents, permits and licences on behalf of the *Subcontractor* (unless agreed otherwise with the *Contractor's* Environment Team). The *Subcontractor* provides all necessary information in a timely manner to the Contractor, so the conditions of any Environmental Permit, Licence or Exemption can be incorporated within the *Contractor's* relevant environmental control plans.
- 10.1.3 The *Subcontractor* ensures that they adhere to the conditions of any Environmental Permit, Licence or Exemption and that these conditions are incorporated within their risk assessments and method statements (RAMS) and briefed to relevant site staff.
- 10.1.4 For further detail of environmental consents, refer to SWI – 1700 Community, Consents and Third-Party Interface Management (1MCo3-SCJ-IN-PLN-S001-000008).

11 Climate change & carbon management

- 11.1.1 SCSJV are required to minimise the project's carbon footprint as far as practicable and are certified to the PAS 2080 standard: Carbon Management in Infrastructure to help enable that.
- 11.1.2 In line with the principles of PAS2080, the *Subcontractor* is required to collaborate with the *Contractor* and any other suppliers involved in the delivery of the *Subcontract* to identify and materialise relevant carbon reduction opportunities and foster innovation with the aim of mitigating emissions across the value chain of the *Subcontract* activities.
- 11.1.3 The *Subcontractor* should identify 'carbon hotspots' (i.e., biggest sources of GHG emissions) associated with the *subcontract* works and describe the management strategies that will be employed to minimise those in the delivery of the contract.
- 11.1.4 The *Subcontractor* is encouraged to propose solutions and innovations that could be implemented that bring resource and carbon efficiencies alongside any cost and programme implications these may incur.
- 11.1.5 More specific requirements relating to carbon efficiency from different relevant aspects such as energy & fuel consumption, materials, waste, etc. are explained in more detail in the respective sections below.

12 Ecology

12.1 Introduction

- 12.1.1 Prior to the commencement of any subcontract works on site, the *Subcontractor* must liaise with the *Contractor's* Environment Team in a timely manner to understand any site-specific ecological receptors and requirements.
- 12.1.2 The *Subcontractor* ensures that the *subcontract* works (including any temporary works required to provide the *subcontract* works) complies with any conditions of any ecological licences.

12.2 Vegetation/ tree clearance and working around trees

- 12.2.1 Where any *subcontract* works are due to take place in an area that has the potential to impact on trees, the *Subcontractor* undertakes an assessment to determine: i) if any trees within or near to the site and/or working areas exist and ii) whether there are any areas designated as Ancient Woodland.
- 12.2.2 The *Subcontractor* ensures that it adheres to the *Contractor's* EMS to protect Ancient Woodland, Veteran and other trees that are to be retained. The *Subcontractor* ensures that trees to be retained have measures put in place to protect them from any damage during construction works (including the *subcontract* works) with careful attention provided to Root Protection Areas.

- 12.2.3 The *Subcontractor* ensures that prior to commencing any *subcontract* works near Ancient Woodland or Veteran Trees, they engage with the *Contractor's* Environment Team to ensure adequate protection to the trees is provided.
- 12.2.4 All vegetation clearance requires a Vegetation Clearance Permit to be obtained and signed off by the *Contractor's* Construction Manager and the *Contractor's* Environmental Manager. The *Subcontractor* ensures that they work to this permit. The Vegetation Clearance Permit template will be provided to the *Subcontractor* by the *Contractor* in advance of any clearance activities.
- 12.2.5 Prior to the removal of any trees, a timber valuation report will be provided to the by the *Contractor* for the *Subcontractor* to adhere to and steer towards the most sustainable timber reuse options. Upon tree removal, the *Subcontractor* should confirm their end use/destination for inclusion in the *Contractor's* timber beneficial reuse reports.
- 12.2.6 The removal of any trees or any limbs of trees located in the London Borough of Camden (LBC) must be reviewed by the HS2 LBC Tree Panel. The Panel has the remit to review and challenge, as necessary, justifications for tree removal in the LBC area. The *Contractor* provides support at these meetings. The *Subcontractor* liaises with the *Contractor's* Environment Team in advance of any tree clearance, especially in the LBC area.

13 Land quality

- 13.1.1 The *Subcontractor* liaises with the *Contractor's* Environment Team with regards to suspected or actual presence of any contaminated land on the site. On identification of any suspected contaminated land, the *Subcontractor* ensures that the relevant *subcontract* works are stopped immediately, areas are cordoned off, access is restricted, and the *Contractor's* Environment Team are notified.

14 Air quality/equipment (vehicles and plant)

14.1 Vehicle Emissions Standards

- 14.1.1 The *Subcontractor* complies with the HS2 Highway Vehicle Emissions Standards. These are stipulated in the HS2 Phase One, Information Paper E31: Air Quality and the CoCP. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31_-_Air_Quality_v1.5.pdf), the *Contractor's* EMS and the below Table 3.

Table 3 – Vehicle Emissions Standards

Vehicle Class and Minimum Vehicle Emission Standard	Emissions Target
HGVs (>3.5 Tonnes) – EURO VI	100% requirement Target 50% of HGVs to exceed this requirement from 2020
LDVs – EURO 6 diesel, EURO 4 petrol	100% requirement
ULEV* Cars	Produce a plan to achieve 100%
ULEV* Vans (Medium Vans, 2,000 to 2,600 kgs)	Produce a plan to achieve 75%
Fleet Average gCO ₂ /km Cars	Target 75gCO ₂ /km decreasing by 5gCO ₂ /km every 3 years
Fleet Average gCO ₂ /km Vans	Target 160gCO ₂ /km decreasing by 20gCO ₂ /km every 3 years

*Definition of ULEV cars and vans for the purposes of HS2 Ltd will be 'emissions lower than 75gCO₂/km and zero-emission range greater than 10 miles, or for an all-electric vehicle, range greater than 60 miles

14.2 Non-Road Mobile Machinery (NRMM)

14.2.1 The *Subcontractor* operating any NRMM complies with the HS2 NRMM Emissions Standards, as stipulated in [HS2 Information Paper E31](#) and the *Contractor's* EMS - see Table 4.

14.2.2 A delay to the application of the HS2 NRMM standard has been granted according to which the *Subcontractor* ensures that their NRMM complies with the 2017 emission standards until the end of 2021. **From the start of 2022, the *Subcontractor* ensures that their NRMM complies with the 2020 emissions standards.**

Table 4 – Non-Road Mobile Machinery Standards

Areas of London	HS2 Non-Road Mobile Machinery (NRMM) Engine Emissions Minimum Requirements Engine power 37kW – 560Kw	
	2017 standards	2020 standards
Central Activity Zone (includes Euston)	Euro IV	Euro V
Greater London (rest of S1 and S2)	Euro IIIB	Euro IV

Retrofit emission control devices (REC) applied to the previous stage of engine may be permitted

Exemptions in line with the Greater London Authority Policy can be applied for with suitable notice

<http://nrmm.london/content/nrmm-exemption-policy>

- 14.2.3 The *Subcontractor* ensures that any diesel powered NRMM use ultra-low-sulphur diesel or sustainable biofuels e.g., HVO.
- 14.2.4 Cleaner alternatives like sustainable biofuels are preferred to traditional diesel/gas oil, where liquid fuels are required.
- 14.2.5 The *Subcontractor* submits details of all equipment (vehicles and plant) that will be used as part of the *subcontract works* to the *Contractor* on a monthly basis prior to commencing any part of the *subcontract works* on the site to demonstrate vehicles emission and NRRM compliance. Non-compliant equipment will not be permitted on the site unless a dispensation has been obtained from the *Employer*.

14.3 Generator requirements

- 14.3.1 The *Contractor* encourages the use of renewable (solar, wind, sustainable biofuels, etc.) energy sources in lieu of fossil-fuelled generators, as much as possible. Cleaner fuels like hydrogen should also take precedence over traditional fossil fuels.
- 14.3.2 The *Subcontractor* shall seek to eliminate the use of diesel generators and consider alternatives as a priority before opting for standard fossil fuel generators. Hybrid generators should be preferred against diesel powered ones.
- 14.3.3 The *Contractor* has a mandatory requirement to use generators on silent operation in areas where noise is an issue.
- 14.3.4 The *Contractor* has the following mandatory requirements:
- Power output to meet site needs and must be compliant with the *Employer's* emission standards (Euro IIIB or Euro IV) location dependant (see requirements in the general environmental scope document).
 - Double banded fuel tank is required.
 - Web-based system for monitoring fuel use is required.
 - The *Subcontractor* is encouraged to consider the use of energy storage with banks of batteries that store the surplus energy from solar panels.

14.4 Power factor correction

- 14.4.1 The *Subcontractor* shall apply power factor correction either centrally on the circuit board or directly onto items with motors such as conveyors, mixers, compressors, escalators, lifts and other high voltage AC equipment to achieve higher efficiencies in electricity consumption.
- 14.4.2 Viability of voltage optimisation shall be reviewed for all accommodation set ups by the *Subcontractor*.

14.5 Telematics requirements

- 14.5.1 Plant and equipment are required to be fitted with telematics systems, particularly for larger pieces of kit e.g., tower & crawler cranes, piling rigs, etc. The *Subcontractor* is required to provide the *Contractor* with such data on request. This includes but is not limited to information such as telematics datasheets and online portal logins.

15 Traffic and transport

15.1 Workforce traffic

- 15.1.1 The *Contractor* shall prepare workforce travel plans to minimise construction worker traffic and associated risks by encouraging car sharing, public transport, co-ordinated staff transport, cycling and walking. The *Subcontractor* shall adhere to such plans as far as reasonably practicable.
- 15.1.2 The *Subcontractor* provides data on commuting travel distances and mode of transports to the *Contractor* on request in a timely manner.

15.2 Construction traffic

- 15.2.1 The *Subcontractor* shall adhere to the *Contractor's* Local Traffic Management Plans and are required to liaise with the *Contractor's* Logistics Team to discuss any proposed vehicle access routes to work locations. The *Subcontractor* must only use approved lorry/vehicle routes to access the site and/or working areas. For more information on Local Traffic Management Plans, please refer to SWI-400 Logistics (1MCo3-SCJ-CL-PLN-S001-000012)..
- 15.2.2 The *Subcontractor* shall ensure that approved transport access routes to specific work locations are appropriately communicated to all of the *Subcontractor's* employees and its supply chain that will be accessing the site.

15.3 Deliveries

- 15.3.1 Various environmental aspects with regard to deliveries must be considered by the *Subcontractor* in adherence with the *Contractor's* EMS. This includes, but is not limited to, keeping accesses free from mud and litter and deliveries to be appropriately planned with specified storage areas.
- 15.3.2 Deliveries will take place to adhere to agreed working hours or times as set out in the *Contractor's* Local Traffic Management Plans. For more information on Local Traffic Management Plans, please refer to SWI-400 Logistics (1MCo3-SCJ-CL-PLN-S001-000012).

15.3.3 All delivery personnel will follow instruction from the *Contractor* in the delivery of materials to the correct area on the site in order to reduce wastage through inappropriate materials handling, storage and delivery.

15.4 Transport and logistics

15.4.1 The *Subcontractor* ensures consideration of lower carbon transport options such as rail and ship vs. standard road transport to deliver any goods/equipment that form part of the *Subcontract*.

15.4.2 The *Subcontractor* ensures consideration of any offsite manufacture and modularisation is undertaken. Data to demonstrate compliance with this must be provided to the *Contractor* on request in a timely manner by the *Subcontractor*. This may include but is not limited to information such as prefab specifications and design drawings.

16 Energy and fuel

16.1 Introduction

16.1.1 The *Subcontractor* ensures that any electricity for the subcontract works that is NOT provided by SCSJV comes from the mains grid and the power supply renewably sourced from a high-quality green energy tariff, covered by REGO certification (unbundled).

16.1.2 Where mains power is demonstrated to be reasonably unpracticable, the use of equipment (including generators) shall be powered preferably by renewable or cleaner energy technology. Hybrid systems are preferred over fossil fuel-powered only.

16.1.3 Cleaner fuel alternatives that are more sustainable (hydrogen – for bigger volumes, sustainable biofuels, etc.) are preferred over standard fossil fuels like red diesel.

16.1.4 The *Contractor* is rolling out the Diesel-free by '23 initiative, as part of the efforts to decarbonise site activities and move towards minimised GHG emissions. Please see preferred power source hierarchy to be followed in the graphic below.

Diesel-free by 23

Power Source hierarchy

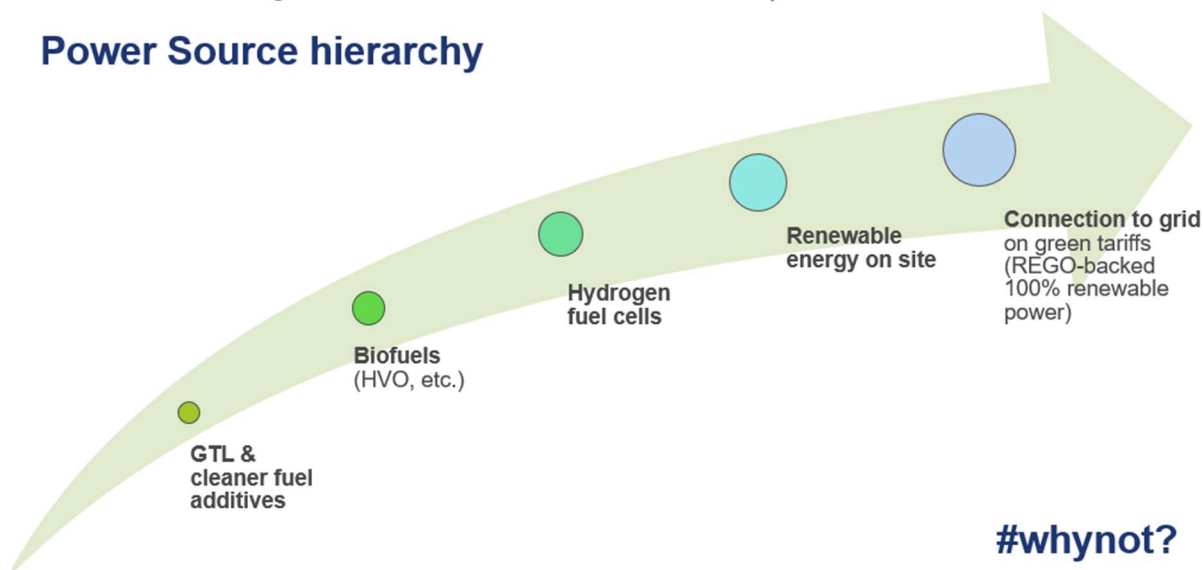


Figure 1 Diesel-free by 23 – Power source hierarchy

16.2 Monitoring & submetering

- 16.2.1 Each electricity connection point of the site (including accommodation) shall be sub-metered and have the capacity to provide hourly data.
- 16.2.2 The *Subcontractor's* energy & fuel use will be monitored by the *Contractor* through the sustainability reporting process described in Section 8.

16.3 Fuel storage

- 16.3.1 Any long-term storage of fuels or chemicals (bulk) that is to be provided by the *Subcontractor* needs to be approved by the *Contractor* to ensure adequate bunding/spill controls and protection from accidental plant strikes is in place. Best practice states that we should be bunding to 110% of the largest receptacle or 25% of the cumulative receptacles within the bund area (drip tray etc).

17 Noise and vibration

- 17.1.1 Consents under Section 61 of the Control of Pollution Act 1974 are required for all construction works (including the *subcontract* works) excluding non-intrusive surveys. Details of construction activities, methodologies, equipment types and sound power levels along with programme and work location shall be provided to the Contractor's Noise Specialist in a timely manner (approx. 3 months prior to the commencement of site activities), so they can

produce noise modelling and the appropriate consent application. Core working hours are 08:00 to 18:00 on weekdays excluding public holidays, and 08:00-13:00 on Saturdays.

- 17.1.2 Tunnelling and directly associated activities (such as removal of excavated material, supply of materials and maintenance of tunnelling equipment) may be carried out on a 24-hour day, seven days a week basis. Where reasonably practicable, material will be stockpiled within the site boundary for removal during normal working hours.
- 17.1.3 Work within existing stations, track-laying activities and work requiring possession of major transport infrastructure may be undertaken during night-time, Saturday afternoon, Sunday and/or bank holiday working for reasons of safety or operational necessity and will often involve consecutive nights of work over weekend possessions and may on occasion involve longer durations. Activities outside core working hours that could give rise to disturbance will be kept to a reasonably practicable minimum.
- 17.1.4 Out of hours work that does not fall into the categories stated above need to be agreed with the relevant Local Authority through the Section 61 process. Construction methodologies and activities will be reviewed by the *Subcontractor* to ensure that, where possible, Best Practicable Means (BPM) are applied. The *Subcontractor* shall plan work in advance to ensure that the noise from any equipment (including plant) is kept as low as reasonably practicable. Where required, additional barriers and/or acoustic enclosures shall be used to minimise noise further from site activities, as provided by the *Subcontractor*.
- 17.1.5 The *Subcontractor* complies with the following noise control measures whilst providing services at the Site (including the Delivery Place as the context permits):
- All equipment will comply with the noise limit and noise marking requirements prescribed by the Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 and the Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 implementing the EU Directives 2000/14/EC,
 - Noise and vibration control provided at source including the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods, location of equipment on the Site (including the Delivery Place as the context permits), control of working hours, the provision of acoustic enclosures and the use of less intrusive alarms, such as broadband vehicle reversing warnings,
 - Local screening of equipment,
 - All equipment shall be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. Equipment found to be defective will not be operated until repaired,
 - All generators shall be super-silenced units. Where reasonably practicable, other fixed items of construction plant should be electrically powered in preference to diesel or petrol driven,

- Vehicles and mechanical equipment employed for any activity associated with the services will be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable,
- Equipment in intermittent use will be shut down or throttled down to a minimum during periods between works, and
- Noise from reversing alarms from delivery vehicles will be controlled and limited as far as reasonably practicable through the following means:
 - The use of *Contractor*- provided traffic management at the Site entrance gates (including the Delivery Place as the context permits) and within the Site footprint (including the Delivery Place as the context permits),
 - Reversing alarms incorporating directional sounders, broadband signals, self-adjusting output sounders or flashing warning lights, and
 - Setting reversing alarms to the minimum output noise level required for health and safety compliance.

17.1.6 *Subcontractors* are expected to collaborate with the *Contractor* to take the lead and/or assist in triggering alert investigations and implementing mitigation measures.

17.1.7 For *Subcontractors* supplying plant and equipment, Noise and vibration information and data in a format specified by the *Contractor* will be required. Typical information needed is equipment specification, manufacturer or real-world sound pressure data, BPM considerations, locations on site, percentile 'on-time', etc.

18 Archaeology and heritage

18.1 Introduction

18.1.1 Prior to undertaking any *subcontract* works, the Subcontractor shall liaise with the *Contractor* to understand the potential presence of any assets of heritage or archaeological importance.

18.2 Discovery of suspected area of archaeological/historic interest

18.2.1 The *Subcontractor* manages archaeology and heritage on the site in accordance with the *Contractor's* EMS.

18.2.2 In the event that the *Subcontractor* encounters suspect archaeological remains or anything of historic interest, work shall stop immediately with areas cordoned off and access restricted. The *Contractor's* Environment Team must then be notified without delay.

19 Welfare

19.1 General

19.1.1 Where welfare facilities are being provided by the *Subcontractor*, these must comply with the *Contractor's* environmental and sustainability welfare requirements, as detailed within this *Subcontract Works Information*. More detail can be found in the *Contractor's* Guidance for the Provision of Welfare facilities (1MCo3-SCJ-HS-GDE-S001-000054).

19.1.2 Where applicable (i.e. if the *Subcontractor* is providing temporary accommodation), the *Subcontractor* must adhere to the following requirements and must ensure that they are met to enable the *Contractor* to achieve its CEEQUAL 'Excellent' standard:

19.2 Waste requirements

19.2.1 The *Subcontractor* ensures that it follows all waste duty of care evidence in line with legal requirements and provides it to the *Contractor* on request in a timely manner.

19.2.2 The *Subcontractor* ensures that they manage any waste in adherence with the *Contractor's* overarching Environmental Management Plan, Waste Management Procedure and Site Waste Management Plan S1 and S2.

19.2.3 Office waste requirements:

- Separate bins for paper/confidential paper with clear signage on what items to be deposited in the bin (preferably to be made from recycled material and of distinct colour, different to the that of other types of bins: general waste, etc.)
- Separate bins for mixed recyclables with clear signage on what items to be deposited in the bin (preferably to be made from recycled material and of distinct colour, different to the that of other types of bins: general waste, etc.)
- Separate bins for office general waste with clear signage on what items to be deposited in the bin (preferably to be made from recycled material and of distinct colour, different to the that of other types of bins: recycling, etc.)
- Batteries & Electrical equipment recycling area

19.2.4 Canteen waste requirements:

- Waste facilities for segregation of waste & recycling is required: Separate bins for general waste and mixed recycling, with clear signage on what items to be deposited in each bin.
- Compost bins for food waste are desirable.

19.2.5 Where appropriate, the use of paper towels in bathrooms and canteen areas should be minimised.

19.3 Cabin requirements

- 19.3.1 Energy efficient cabins with an EPC rating of A or B is required.
- 19.3.2 Smart meters are required for measuring electrical and water consumption.
- 19.3.3 All lighting shall be LED where practicable.
- 19.3.4 Accommodation shall be procured with consideration for energy efficiency (i.e. PIRs for efficient lighting control, timed distribution boards, insulation, remotely-controlled timers for heating, dehumidifiers).
- 19.3.5 Fitting of air filters / purifiers to reduce air pollution where appropriate and practicable.
- 19.3.6 If not connected to mains power, all temporary site cabin generators shall confirm to the requirements set out in Section 14.3.
- 19.3.7 The fitting of programmable timers within the Mains Distribution Unit (MDU) to the supply to the cabins to enable automatic control of consumption at times of low occupation is required.

19.4 Heating requirements

- 19.4.1 Self-closures are required on all entrances/ exits required i.e. reception areas. Where space allows, ensure the lobby can retain heat.

19.5 Kitchen and canteen requirements

- 19.5.1 Equipment/ appliances:
- There is a requirement that all new appliances must be A+++ rated.
 - For non-new appliances (reused from other projects), there is a suggested energy rating of A or above for TV, coffee machines, toasters, dishwashers, microwaves, and fridge.
 - A water boiler (for hot water) is preferred to a kettle, due to energy efficiency benefits.
- 19.5.2 Kitchen taps:
- Must have flow rate of 5 litres/minute or less.
 - Trigger control must be fitted to any pre-rinsing facilities.
- 19.5.3 Dishwashers:
- Must be energy efficient – A+++ rating.
 - Needs 175 litres/ place setting.

19.6 Toilet and shower requirements

- 19.6.1 Where appropriate, the use of paper towels in bathrooms and canteen areas should be minimised.
- 19.6.2 Toilets:
- Effective flush volume of 4.5 litres or less (6+ 4 litres of dual flush or 4.5 litres single flush) is required.
 - Rainwater harvesting – shall be considered for toilets, where practicable.
 - Sanitary/ medical waste
- 19.6.3 Wash hand basin taps:
- Flow rate of 5litres/minute and self-closing mechanism is required.
- 19.6.4 Urinals:
- Waterless urinals or PIR Sensor flush are required to be installed.
 - If PIR is fitted, hydraulic valves to be fitted to each urinal or bowl to manage water consumption based on occupancy. A flow rate of 3 litres/bowl/hour or less is required.
- 19.6.5 Showers:
- Water saving shower heads to be installed with a flow rate of 8L/minute or less.
- 19.6.6 Hand dryers:
- Low power hand dryers required.
 - Ensure dryers have a good response time of motion detectors (so that needless operation of the dryer upon users have removed their hands is minimized.)
- 19.6.7 Rainwater harvesting:
- The use of rainwater recycling / grey water recycling should be installed on all welfare blocks, unless justifiably impracticable.

20 Artificial lighting management

- 20.1.1 The *Subcontractor* shall ensure all lighting adheres with CEEQUAL Excellent requirements as set out in the *Contractor's* Lighting Management Plan (1MCo3-SCJ-EV-PLN-S001-000027).
- 20.1.2 Energy efficient and low carbon lighting is preferred at all times. LED luminaires should be used, unless justifiably impracticable.

- 20.1.3 Lighting levels & lamp type solutions shall be appropriate for the application (security, site or task lighting) and should not significantly exceed the illuminance requirements appropriate for the function of the relevant area and should consider:
- Appropriate lumen output to achieve appropriate illuminance levels;
 - Physical size and form enabling optical control for light distribution and glare;
 - Lamp characteristics which enable operational controls (to limit light pollution and energy wastage); and colour rendering.
 - Integrated LED Light Sources - Average initial luminous efficacy of the light fittings must be greater than /equal to 60 luminaire lumens per circuit watt. All other light sources - initial lamp efficacy of each light fitting to be greater than / equal to 80 lamp lumens per watt.
- 20.1.4 *The Subcontractor* shall control and direct illumination to minimise the risk of spill light into adjacent properties, sensitive ecological receptors and to reduce contribution to sky glow.
- 20.1.5 All tower lights must be VB9-ECO LED Battery Hybrid type or better. (Note: This lighting unit utilises modern LED lighting with advanced battery systems and auto light sensing technology).
- 20.1.6 Where noise restrictions exist in an area and where practicable, solar powered hybrid lighting towers shall be used by the *Subcontractor*.
- 20.1.7 The *Contractor* shall utilise motion sensor activated lighting where appropriate and practicable.

21 Water resource management

21.1 Introduction

- 21.1.1 The *Subcontractor* is required to work in a manner that ensures efficient use of water resources and complies with the *Contractor's* EMS.
- 21.1.2 The *Subcontractor* is responsible for obtaining and implementing any specialist water treatment equipment that may be required to treat any water prior to discharge to foul or surface water, unless otherwise agreed to be provided by the *Contractor*. Approval for water management methodologies and of any water treatment equipment to be used by the *Subcontractor* shall be sought from the *Contractor's* Environment Team prior to installation on site. The *Subcontractor* shall actively engage with the *Contractor's* Environment team ahead of any dewatering activities.
- 21.1.3 The *Subcontractor* shall engage with the *Contractor's* Environment Team and provide information to inform discussions with stakeholders or regulators with regards to water management requirements.

- 21.1.4 Minimising demand of potable water from mains and using water abstracted as part of construction activities taking place on site (dewatering, etc.) should be considered as the first option, where available. The possibility of drawing water from nearby watercourses should also be explored. The *Subcontractor* should collaborate with the *Contractor* to determine the viability of such options.
- 21.1.5 The *Subcontractor* shall consider water reuse options and shall install water saving measures (e.g., trigger nozzles in order to vary flow rates) on dust suppression vehicles and hose pipes.
- 21.1.6 Rainwater harvesting should be installed to all site welfare/accommodation provided by the *Subcontractor*. Justification should be provided in case this is deemed to be impracticable.

21.2 Pollution prevention

- 21.2.1 The *Subcontractor* ensures that their activities on the *Contractor's* sites comply with the relevant permit(s) by the EA.
- 21.2.2 Appropriate pollution prevention techniques shall be used, including but not limited to bunded COSHH storage, controlled concrete washout facilities and drainage protection. 110% of the largest receptacle or 25% of the cumulative receptacles within the bund area (drip tray etc) should be bunded.
- 21.2.3 Where possible, the *Subcontractor* seeks to use environmentally less harmful COSHH products or environmentally friendly alternatives, especially when working near or over sensitive receptors including watercourses, aquifers, and groundwater Source Protection Zones. Biodegradable oils should be preferred in such conditions.
- 21.2.4 The *Subcontractor* provides portable spill kits with all mobile equipment. Plant nappies shall be used under equipment in preference to drip trays. These shall be sized appropriately.
- 21.2.5 All substances shall be used in compliance with the provisions of the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation.
- 21.2.6 All pollution related incidents should be immediately reported to the *Contractor's* Environment Team in adherence with the *Contractor's* EMS.
- 21.2.7 The *Subcontractor* is responsible for proactive management of potential pollution risks, assisting with clean-up of pollution incidents and reporting to the *Contractor*.

21.3 Refuelling

- 21.3.1 All refuelling of equipment must be carried out away from potential receptors, such as rivers, streams and onsite foul or surface water drains. The *Subcontractor* shall follow the site-specific mitigation measures and controls to prevent pollution, as set out in the *Contractor's* EMS.

22 Waste

22.1.1 The *Subcontractor* shall minimise the waste generated from activities associated with the *Subcontract* works as far as reasonably practicable to support the achievement of the following targets, outlined in the relevant HS2 Technical Standard (HS2-HS2-EV-STR-000-000004):

- 95% beneficial reuse for excavated material;
- 95% diversion from landfill for & demolition waste; incl. municipal waste from site welfare;
- 98% diversion from landfill for construction;
- 100% beneficial reuse of topsoil onsite

22.1.2 The *Subcontractor* shall assist in reducing waste to landfill in line with the waste hierarchy: reduce-reuse-recycle-(energy) recovery.

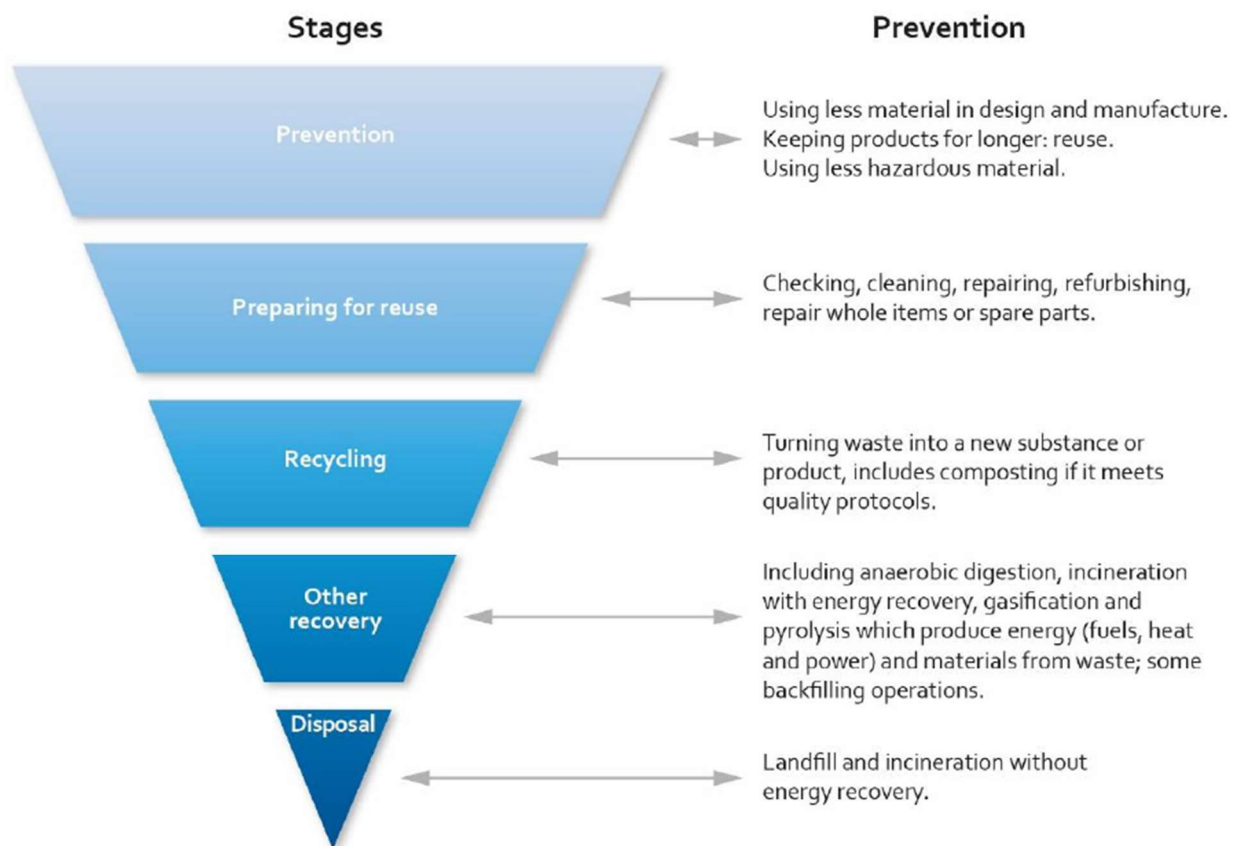


Figure 2 Waste hierarchy

- 22.1.3 The *Subcontractor* shall comply with the waste Duty of Care requirements and other waste standards, procedures and plans set out in the *Contractor's* EMS.
- 22.1.4 Any waste arising from *Subcontract* works shall be sorted, segregated, stored and managed in accordance with the Waste and Excavated Materials Management Procedure.
- 22.1.5 The *Subcontractor* is required to minimise any packaging used and the subsequent packing waste generated from their operations. Take-back schemes shall be used where practicable to ensure packaging is reused or recycled.
- 22.1.6 The *Subcontractor* should provide forecasts of the main waste streams, quantities and management options expected from their works at tender stage.
- 22.1.7 The *Subcontractor* shall provide details about the main waste streams and quantities from their works and shall report what is generated during their activities in line with the *Contractor's* EMS, Site Waste Management Plan and sustainability reporting requirements. Any exceedance or variations of the initial waste volume estimates should be appropriately justified.

23 Sustainable materials

23.1 Introduction

- 23.1.1 The *Subcontractor* shall adhere to the *Employer's* and the *Contractor's* requirements for embedding the sustainable sourcing of materials throughout the supply chain.
- 23.1.2 The term 'material' should be read interchangeably with materials, composite materials, component materials, products or substances. This applies to all products and services required to deliver the construction of the railway and associated works. This includes the materials used in the final assets, consumables used during construction such as packaging, temporary works, scaffold boards, hoarding, plant and machinery, temporary and construction offices, personal protective equipment and uniforms.
- 23.1.3 The *Subcontractor* ensures materials used are responsibly, sustainably and locally sourced as much as practicable. The *Subcontractor* adheres to the *Contractor's* EMS, specifically the *Contractor's* Sustainable Sourcing Plan (1MCo3-SCJ-EV-PLN-S001-000010).
- 23.1.4 Minimising the environmental impacts: carbon and pollutant emissions, toxic residues & contamination of all sorts, etc. from material extraction and production is key alongside maximising resource efficiency.

- 23.1.5 Re-used and recycled materials are in principle preferred to virgin (primary) resources, notwithstanding them meeting all applicable performance and durability requirement, in line with the HS2 Sustainable Materials Strategy (HS2-HS2-SU-STR-000-000004).
- 23.1.6 Specifically, temporary materials that come with moderate durability requirements, should have the lowest environmental footprint possible. Technically suitable reused and/or refurbished items from previous projects are preferred, over new virgin ones, where relevant, e.g., gantries, scaffolding, hoardings, etc. For new temporary materials such as concrete for hardstanding's, loose hardcore for piling mats and temporary backfills, etc. the lowest carbon alternatives (that often have high recycled content) are referred.
- 23.1.7 Prefabricated materials manufactured off-site are generally preferable to those constructed on the site, since wastage can be more effectively controlled.
- 23.1.8 The *Subcontractor* ensures that it adopts measures such as 'just in time' deliveries, undertakes careful storage of materials on site and considers opportunities to manage materials sustainably and minimise any wastage and material loss.

23.2 Responsible sourcing

- 23.2.1 The *Subcontractor* shall demonstrate compliance with a recognised responsible sourcing scheme. The table 5 below provides specific targets for third party-verified responsible sourcing certification. Table 6 provides details on the recognised responsible sourcing schemes.

Table 5 – Resources specific responsible sourcing requirements

Requirement	Target
Proportion of timber products purchased for either temporary or permanent inclusion that are supplied with a third-party certificate such as FSC, PEFC, or an equivalent BREEAM recognised responsible sourcing certificate.	100%
Proportion of concrete products purchased for either temporary or permanent inclusion that are certified at BES 6001 Excellent level, or equivalent.	100%
Proportion of steel products purchased for either temporary or permanent inclusion that are certified to BES 6001, CARES Sustainable Constructional Steel scheme, or equivalent.	100%
Proportion of other materials purchased for either temporary or permanent inclusion that have a BREEAM recognised responsible sourcing scheme, certified to BES 6001, Concrete Sustainability Council (CSC) Supply Chain Certificate, or equivalent.	25%

The requirements above are 'by mass' - HS2 Technical Standard - Environment Sustainability Reporting

Minimum rating required in the sustainable sourcing certificates is Good (or equivalent); Very Good (or equivalent) and above is recommended

Guidance Note 18: BREEAM Recognised Responsible Sourcing (Certification Schemes V3.5)

Table 6 – Responsible sourcing schemes

Responsible Sourcing Schemes	Materials Products covered
Aluminium Stewardship Initiative (ASI)	Aluminium
BES 6001 Framework Standard for Responsible Sourcing	Not sector specific – any material, product or product group can be certified against the standard
CARES Sustainable Constructional Steel Scheme	Steel - Reinforcing carbon steel, reinforcing stainless steel, other structural steels, hot rolled flat steel, steel rail and other steels
Concrete Sustainability Council (CSC)	Concrete, cements and aggregates
Eco Reinforcement Responsible Sourcing Standard, Steel Products for the Reinforcement of Concrete	Steel – Reinforcing steel
FSC	Wood, paper and other forest products such as cork and natural latex
PEFC	Wood, paper and other forest products such as cork and natural latex
SFI	Wood, paper and other forest products such as cork and natural latex
VinylPlus® Product Label	PVC products
Environmental Management Systems (EMS) (certified)	Timber / timber-based products, concrete /cementitious, metals, stone, clay based, glass, plastic, polymer, resin, paint, chemicals and bituminous, insulation, other, etc

23.2.2 The *Subcontractor* shall provide Environmental Product Declarations (EPDs – to EN 15804+A2 or ISO 21930 verified by a third party) or equivalent life cycle data (LCA) for any materials / products provided as part of the subcontract works. If such information is currently unavailable, the *Subcontractor* should explain how they will address this requirement over the course of the *subcontract*.

23.2.3 The *Contractor's* preference is that *Subcontractors* work with manufacturers which have developed and implemented a carbon management process.

Requirements for timber used in the subcontract works

23.2.4 All timber and wood-derived products supplied by the *Subcontractor* to be used in the *subcontract* works (including any temporary works) must be from independently verifiable legal and sustainable sources, as defined by the UK Government Central Point of Expertise on Timber (CPET). This includes timber packaging that is received on site. Relevant Chain of

Custody certifications (Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC) or equivalent shall be provided in advance of the *Subcontract* works commencing.

Requirements for concrete used in the subcontract works

23.2.5 All concrete products used to provide the *subcontract* works shall be certified to BES6001, CSC, or equivalent.

Requirements for steel used in the subcontract works

23.2.6 All steel products used to provide the *subcontract* works shall be certified to BES6001, CARES Sustainable Constructional Steel scheme, or equivalent (Eco-reinforcement, etc.)

Requirements for other materials used in the subcontract works

23.2.7 The 25% target excludes concrete, steel and timber purchased for temporary or permanent inclusion in the project. The % also excludes excavated materials, including soil, as this has not been purchased but sourced from excavation activities on-site. Based on the Construction Life Cycle Assessment Dataset, materials excluded from the requirement are –

- Concrete block
- Excavated materials/soils
- Formwork – timber
- Galvanised steel
- In-situ concrete
- Polyester concrete channels with galvanised steel grating
- Precast concrete
- Sprayed concrete
- Steel coil
- Steel fibres
- Steel rebar
- Steel sections and plates
- Steel sheet
- Steel sheet cold formed
- Timber

23.2.8 The table below lists the materials that are included in the requirement. Based on the table, targeting responsible sourcing for aggregates would significantly exceed the target.

Table 7 – Materials included in target

Material	Other materials mass (tonnes)	% of 'other materials' mass total	Schemes
Aggregates	1,020,628	88.43%	BES 6001, CSC*
Cement grout	97,779	8.47%	BES 6001, CSC
Lime & cement	14,179	1.23%	BES 6001, CSC
Asphalt	8,695	0.75%	BES 6001

Material	Other materials mass (tonnes)	% of 'other materials' mass total	Schemes
Brickwork	5,536	0.48%	BES 6001
Stone	2,802	0.24%	BES 6001
Screed	1,952	0.17%	BES 6001
Floor finish	792	0.07%	BES 6001
PT tendons	345	0.03%	BES 6001
Waterproofing	264	0.02%	BES 6001
HDPE	255	0.02%	BES 6001
Green roof	233	0.02%	BES 6001
Sand	206	0.02%	BES 6001
Geotextile	127	0.01%	BES 6001
Paint - intumescent	67	0.01%	BES 6001
Insulation	66	0.01%	BES 6001
Insulation & waterproofing	45	0.004%	BES 6001
Insulation & finish	44	0.004%	BES 6001
Geotextile PP fibre	40	0.004%	BES 6001
Aluminium	27	0.002%	ASI, BES 6001
Paint	18	0.002%	BES 6001
Rubber	15	0.001%	BES 6001, FSC, PEFC, SFI
PVC	4	0.0004%	BES 6001, VinylPlus® Product Label
Epoxy resin	4	0.0004%	BES 6001
EPDM	2	0.0002%	BES 6001
LDPE foam	2	0.0002%	BES 6001
Foaming agent	0	0%	BES 6001
Glazed panels	0	0%	BES 6001
Total	1,154,127	100%	

The details above are from the Construction Life Cycle Assessment Dataset

* Regarding recycled aggregates in particular, responsible sourcing can be evidenced through compliance with the EA Quality protocol and sourcing within 175km of distance.

23.3 Requirements for substances used in subcontract works

23.3.1 All substances shall be used in compliance with the provisions of the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) Regulation.

23.4 Reducing packaging

23.4.1 The *Subcontractor* shall demonstrate the use of materials from manufacturers who have optimised their packaging to prevent damage in transit whilst using less materials, utilising reusable packaging and/ or using packaging take back schemes.

23.4.2 The *Subcontractor* and its supply chain shall minimise single-use plastic usage where practicable and participate in any initiatives implemented by the *Contractor* on this matter.

23.5 Promote the recovery of materials

23.5.1 All temporary materials shall be reusable, recyclable or compostable (not just biodegradable); the *Subcontractor* shall provide evidence of adherence to this requirement upon request from the *Contractor* in a timely manner.

23.5.2 Any timber used in temporary works that is going to be removed by the *Subcontractor* upon fulfilling its purpose, should be re-purposed: re-used or recycled as applicable. If this is proven not practicable, timber residues should be incinerated for energy recovery. No timber should be sent to landfill.

23.5.3 The *Subcontractor* and shall ensure all paper used as part of their works (packaging, office supplies, towels, etc.) is FSC/PEFC certified. Use of recycled paper is preferred, where possible.

23.6 Legal sourcing

23.6.1 The *Subcontractor* shall provide evidence to the *Contractor* that all materials are legally sourced.

23.7 Local sourcing

23.7.1 The *Subcontractor* shall demonstrate how local sourcing has been prioritised and how this may have improved the economic, social and environmental well-being of the communities affected.

23.8 Ethical sourcing

23.8.1 The *Subcontractor* shall demonstrate that they are using due diligence to procure materials from companies that comply with the Ethical Trading Initiative (ETI) Base Code.

23.8.2 The *Subcontractor* shall demonstrate they are using all reasonable efforts to select products that are healthy and safe.

24 Imported recycled/recovered material

- 24.1.1 Loose material that has been recycled/ recovered from prior waste streams (i.e. material which was once a waste and has been processed to make a product now suitable for use) such as secondary aggregate from crushed concrete, must have been processed in accordance with the Quality Protocol: aggregates from inert waste- as required by the Construction Demolition and Excavation Waste Strategy – Technical Standard (HS2-HS2-EV-STR-000-000004). More details on the production or importation of recycled aggregates can be found in the following document: Importing and Producing Recycled Aggregates Procedure S1 and S2 (1MCo3-SCJ-EV-PRO-S001-000009).
- 24.1.2 As mentioned in 23.1.5 and 23.1.6., re-used and recycled materials are preferred. In the case of standard loose aggregates, that are typically available and of low embodied environmental impact, a high level assessment should be undertaken to ensure that any processing (e.g. concrete crushing) and transport emissions of secondary items do not outweigh the benefits against equivalent virgin products.
- 24.1.3 The Importing and Producing Recycled Aggregates Procedure S1 and S2 (1MCo3-SCJ-EV-PRO-S001-000009) document is key to all aspects of this process and must be adhered to especially when procuring third party suppliers, e.g. auditing the supplier and their products before purchasing. Upon importation testing and monitoring shall be undertaken in accordance with the above-mentioned procedure.

25 European Conformity markings

- 25.1.1 All materials, constituent products, accessories and fabricated elements supplied by the *Subcontractor* must comply with “Construction Products Regulations 2011” where such materials, constituent products or fabricated elements are covered by a harmonised European standard (hEN) or European Technical Assessment (ETA).
- 25.1.2 From 1st July 2013, it is mandatory for manufacturers, distributors or importers of construction products to apply European Conformity (CE) marking/labelling to any of their products which are covered by a harmonised European standard (hEN) or European Technical Assessment (ETA).
- 25.1.3 From 1st July 2014, it is mandatory, where the *Subcontractor* is providing fabricated structural steelwork, to apply CE marking/labelling in accordance with BS EN 1090.

26 Community

26.1 Notification of subcontract works

26.1.1 The *Subcontractor* liaises with the *Contractor's* Community and/or Interface Teams to ensure timely notification of the *subcontract works* to Local Authorities, affected parties, residents and businesses. The *Contractor* is obliged to give two weeks' notice of any works (including the *subcontract works*). For further information please refer to SWI-1700 Community, Consents, Third party Interface Management (1MCo3-SCJ-IN-PLN-S001-000008).

26.2 Complaints

26.2.1 All environmental complaints should be reported by the *Subcontractor* to the *Contractor's* Community Team. The *Subcontractor* is required to assist in the investigation and resolution of all complaints.

27 Geographic Information System (GIS) and Surveying

27.1.1 The following disciplines include GIS deliverables – transport modelling, cultural heritage, dust monitoring risk assessments, Water Resource and Flood Risk, Agriculture, Landscape and Environmental Surveys. Where the *Subcontractor* is undertaking any *subcontract works* in these topic areas, these will need GIS capturing/ reporting capabilities.

28 Environmental engagement

28.1.1 The *Subcontractor* shall support, contribute to and input into hazard/ observation reporting, inspections and environmental campaigns on a regular basis and to support the *Contractor* in incident investigations and to share lessons learnt.

29 Environmental assurance

29.1.1 The *Subcontractor* shall monitor and record their environmental performance, including regular site inspections by the *Subcontractor's* site supervision and/ or off site management, and regular visits by Environmental Advisors. The *Subcontractor* shall forward any results and mitigation actions to the *Contractor*.

29.1.2 Inspection records must include confirmation that previous remedial actions have been carried out. The *Subcontractor* conducts, records and make available environmental inspections to the *Contractor*.

29.1.3 The *Subcontractor's* person responsible for the environment must carry out an inspection every month (as a minimum).

30 Environmental incident investigation

- 30.1.1 All environmental incidents must be investigated immediately internally by the *Subcontractor* and closed out within the timeframes advised by the *Contractor's* Environment Team.
- 30.1.2 On request, the *Subcontractor* must provide information and support to the *Contractor's* team(s) to assist with the conduction of incident investigations undertaken by the *Contractor*.
- 30.1.3 In case your Company been prosecuted or fined for any environmental offences during the last 3 years, please provide information on the number of and remedial actions for such environmental incidents, EA/SEPA/NRW warning letters, and/or environmental prosecutions.

31 References

Table 8 – References to relevant SCSJV documentation

Title	Reference
Main Works Civils Contract Works Information WI-285 – Sustainability and Environmental Minimum Requirements	1MCo1-HS2-PR-ITT-000-000417 (not supplied, but available on request)
SCSJV JV Environmental policy	1MCo3-SCJ-EV-POL-S001-00001 (contained within SWI-1000)
Environmental Management Plan (Stage 2: Construction and Detailed Design) S1 and S2	1MCo3-SCJ-EV-PLN-S001-000003
SCSJV Local Traffic Management Plan – London Borough of Camden S1	1MCo3-SCJ-HW-PLN-S001-000002 (contained within SWI-400 Logistics)
SCSJV Local Traffic Management Plan – London Borough of Brent S1	1MCo3-SCJ-HW-PLN-S001-000004 (contained within SWI-400 Logistics)
SCSJV Local Traffic Management Plan – London Borough of Ealing S2	1MCo4-SCJ-HW-PLN-S002-000002 (contained within SWI-400 Logistics)
Local Traffic Management Plan – London Borough of Hillingdon S2	1MCo4-SCJ-HW-PLN-S002-000004 (contained within SWI-400 Logistics)
SCSJV Sustainable Procurement Policy	1MCo3-SCJ-PR-POL-S001-000002 (contained within SWI-1000)
Procurement Plan S1 and S2	1MCo3-SCJ-PR-PLN-S001-000001
Sustainable Sourcing Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000010
Air Quality Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000006
Historic Environment Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000018
Agricultural, Forestry and Soils Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000013
Carbon Management Plan S1 and S2	1MCo3-SCJ-EV-PLN-S001-000002

Title	Reference
Ecology and Biosecurity Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000007
Land Quality Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000012
Landscape and Visual Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000019
Noise and Vibration Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000009
Environmental Incident Control Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000008
Site Waste Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000016
Water Resources Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000036
Lighting Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000027
CEEQUAL Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S000-000003
Importing and Producing Recycled Aggregates Procedure S1 and S2	1MC03-SCJ-EV-PRO-S001-000009
Excavated Materials Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000017
Waste and Excavated Materials Procedure S1 and S2	1MC03-SCJ-EV-PRO-S001-000007
SWI-1700 Community, Consents, Third party Interface Management	1MC03-SCJ-IN-PLN-S001-000008
SWI-400 Logistics	1MC03-SCJ-CL-PLN-S001-000012

32 Standard forms and templates

Table 9 – Forms and templates

Title	Reference
Sustainability Reporting Template	-HS2-SU-TEM-000-000007

33 Appendices

Appendix A: HS2 Environmental Strategies, Policies & Technical Standards

Appendix A: HS2 Environmental Strategies, Policies & Technical Standards

Title	Reference
Environmental minimum requirements for HS2 Phase One	https://www.gov.uk/government/collections/hs2-phase-one-environmental-statement-documents#guide-to-the-environmental-statement
HS2 Environmental Policy	HS2-HS2-EV-POL-000-000024
HS2 Sustainability Approach Document	HS2-HS2-SU-STR-000-000006
HS2 Environmental sustainability strategy	HS2-HS2-EV-STR-000-00031
LEMPs	Publicly available here
HS2 Phase One, Information Paper E31: Air Quality	Publicly available here
Waste Management Policy	HS2-HS2-EV-POL-000-000021
Technical Standard - Instrumentation and monitoring	HS2-HS2-CV-STD-000-000004
HS2 Technical Standard - Environment Sustainability Reporting	HS2-HS2-SU-STD-000-000007
Technical Standard - Flood Risk	HS2-HS2-EV-STD-000-000011
Technical Standard - Groundwater Protection	HS2-HS2-EV-STD-000-000010
Technical Standard - Routewide soil resource plan	HS2-HS2-EV-STD-000-000008
Technical Standard - Waste Environmental Permitting Framework	HS2-HS2-EV-STD-000-000007
Technical Standard - Materials Management Plan Framework	HS2-HS2-EV-STD-000-000006
Technical Standard - Lineside vegetation	HS2-HS2-EV-STD-000-000005
Procedure for the unexpected discovery of archaeological remains of potential national importance	HS2-HS2-EV-PRO-000-000009
Technical Standard - Ecology	HS2-HS2-EV-STD-000-000017
Technical Standard - Water Resources and Flood Risk Consenting Strategy	HS2-HS2-EV-STD-000-000015
Technical Standard - Watercourse Diversions and Realignments	HS2-HS2-EV-STD-000-000014
Technical Standard -Hydraulic Modelling	HS2-HS2-EV-STD-000-000013
Specification for Watercourse and Floodplain Surveys	HS2-HS2-EV-STD-000-000026
Technical Standard - Landscape and Visual Effects Compliance Checklist	HS2-HS2-EV-STD-000-000025
Technical Standard – Public Open Space, Recreation and Play Areas	HS2-HS2-EV-STD-000-000024
Technical Standard – Landscape Earthworks Design	HS2-HS2-EV-STD-000-000021

Title	Reference
Technical Standard - Tree Survey Specification - Stage 1	HS2-HS2-EV-STD-000-000020
Technical Standard Tree Survey Specification - Stage 2	HS2-HS2-EV-STD-000-000030
Water Resources and Flood Risk Monitoring Strategy	HS2-HS2-EV-STD-000-000029
Tree Survey and Assessment (Stages 1 and 2) Guidance Notes	HS2-HS2-EV-STD-000-000028
Technical Standard - Historic environment digital data management and archiving procedure	HS2-HS2-EV-STD-000-000040
Technical Standard - Historic environment physical archiving procedure	HS2-HS2-EV-STD-000-000039
Technical Standard: Archaeology and built heritage approach to ground investigation	HS2-HS2-EV-STD-000-000038
Technical Standard - Specification for historic environment project plans and location specific written schemes of investigation	HS2-HS2-EV-STD-000-000036
Technical Standard - Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
Phase One heritage Consents Strategy	HS2-HS2-EV-STR-000-000008
Lineside Vegetation Management Strategy	HS2-HS2-EV-STR-000-000009
GIS Standards	HS2-HS2-GI-STD-000-000002
GIS Data Request Procedure	HS2-HS2-GI-STD-000-000004
GIS Data Naming Standards	HS2-HS2-GI-STD-000-000006
Metadata Standards	HS2-HS2-GI-STD-000-000007
Technical Standard - Geotechnical Baseline Report (GBR)	HS2-HS2-GT-STD-000-000002
HS2-HS2-IM-ADD-000-000017 - Archaeology AD4 Po1	HS2-HS2-IM-ADD-000-000017
Technical Standard - Climate Change Adaptation and Resilience	HS2-HS2-SU-STD-000-000003
Technical Standard - Carbon Management	HS2-HS2-SU-STD-000-000004
Technical Standard - CEEQUAL Infrastructure	HS2-HS2-SU-STD-000-000013
Technical Standard - Sustainable Sourcing	HS2-HS2-SU-STD-000-000012
Sustainable Materials Strategy	HS2-HS2-SU-STR-000-000004
Technical Standard - Carbon footprinting and life cycle assessment	HS2-HS2-SU-STD-000-000010
Technical Standard - Materials efficiency	HS2-HS2-SU-STD-000-000009
Construction Demolition and Excavation Waste Strategy – Technical Standard	HS2-HS2-EV-STR-000-000004
Policy Document Water Resources and Flood Risk Policy	HS2-HS2-EV-POL-000-000013
Policy Document Flood Storage Policy	HS2-HS2-EV-POL-000-000006

Title	Reference
Policy Document Flood Storage Policy Annex 1	HS2-HS2-EV-POL-000-000006