

Local Environmental Management Plan for City of Westminster

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1 Introduction

- 1.1.1 This Local Environmental Management Plan (LEMP) sets out site specific control measures to be adopted by the HS2 Contractors working within the Westminster City Council (COW). This LEMP builds upon, but does not repeat, the HS2 general environmental requirements set out in the Control of Construction Practice (CoCP) (available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/593592/Code_of_Construction_Practice.pdf).
- 1.1.2 This LEMP contains control measures and standards to be implemented within COW. The sections within this LEMP should not be read in isolation from other sections due to the interconnected nature of the measures between disciplines.
- 1.1.3 For ease of reference the LEMP mirrors the topic headings in the CoCP.
- 1.1.4 Information of relevance to the formation and development of this LEMP (as shown in Figure 1) is contained within this document, or links are provided to where it can be accessed. This includes:
- Information from traffic, environmental surveys and ground investigation works. This could either be seasonal ecological surveys, tree surveys, air quality monitoring, noise monitoring, ground settlement or the results of ground investigations detailing levels of contamination (where present) and the nature of the ground;
 - Feedback on pertinent information from on-going engagement; and
 - Results of petitions of the Parliamentary process which have resulted in amendments to the mitigation measures contained within the CoCP.



Figure 1: Key work streams that will provide additional information for the LEMPs.

- 1.1.5 This LEMP has been prepared taking into account findings of the Environmental Statement (ES), Supplementary Environment Statement (SES) and Additional Provision 2 ES (AP2 ES) and the SES2 and AP3 ES where relevant. It has evolved during the Parliamentary process and engagement with the Local Authority and other stakeholders, such as members of the National Environment Forum, which have informed its development. This LEMP may be subject to further refinement, amendment and expansion as necessary as the project design progresses.
- 1.1.6 The Contractors will implement the requirements of the LEMPs and the CoCP through their own Environmental Management System (EMS), which will be certified to BS EN ISO 14001.
- 1.1.7 The Nominated Undertaker (HS2 Ltd)¹ and/or its Contractors will continue to engage with the local stakeholders. This will take the form of engagement events which will be carried out to introduce and brief the communities on local environmental information, management and mitigation as detailed within this document.
- 1.1.8 The HS2 Environmental Memorandum identifies key worksites along the route of HS2 Phase One that are environmentally sensitive in terms of nature conservation, terrestrial and aquatic ecology, water resources, geomorphology, recreation and amenity, landscape, public open space and agricultural land. The criteria for inclusion are 'worksites where a key significant impact (that has been agreed with the HS2 National Environment Forum members) is generated in any

¹HS2 Ltd is the nominated undertaker. The two terms are used interchangeably throughout this LEMP.

of the environmental topics' as mentioned above. There are currently no such sites identified in the City of Westminster.

- 1.1.9 The controls within this LEMP, as with those in the CoCP, are in line with HS2's Safe at Heart health and safety brand. Safe at Heart seeks to ensure that health and safety are at the heart of everything that we do including in the design, construction and operation of the scheme. This aim stretches beyond the scheme itself, through instruments such as this LEMP, and into the communities along the scheme to ensure that we protect their health, safety and wellbeing.
- 1.1.10 HS2 documents referenced within this LEMP can be found on the www.gov.uk website.

1.2 Area and scope

- 1.2.1 Plans showing an overview of the local authority area covered by this LEMP are shown within the Environmental Statement (ES) maps (CFA4 Volume 2 Map Books ES Ref 3.2.2.4) – CT-05-003b, CT-05-005, CT-05-006a, CT-05-006b, CT-05-007 and CT-05-007-L1.

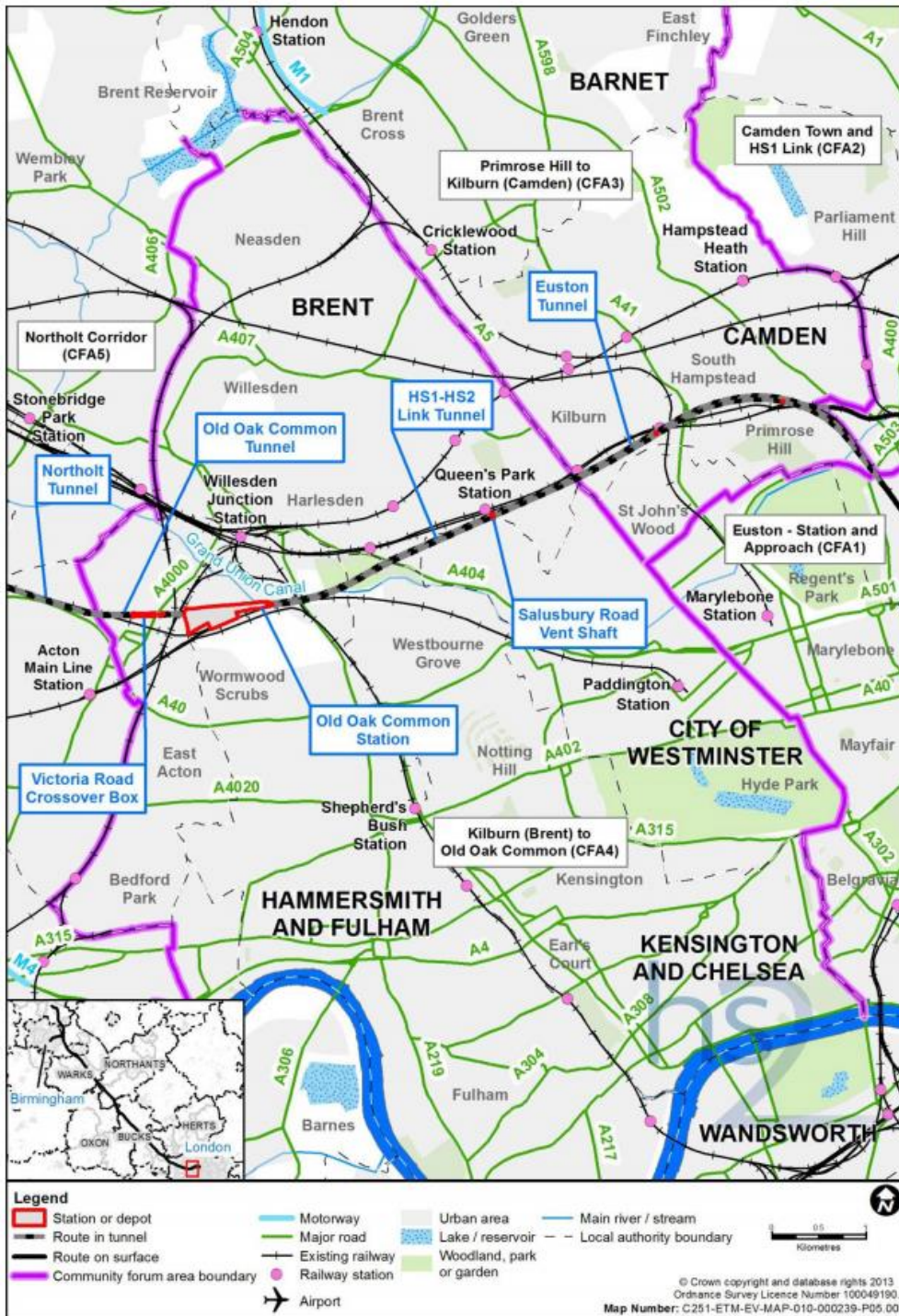


Figure 2: City of Westminster Area Context Map

1.2.2 The Main Works Civils Contractors (MWCC), Skanska Costain STRABAG Joint Venture (SCSJV) Railways mobilised to site in November 2019 to undertake

preparation works. MWCC were given full notice to proceed with the Main Works on 15th April 2020.

1.2.3 There are no construction worksites within COW. However, several construction traffic routes pass through the local authority. The Canterbury Works vent shaft site is located adjacent to COW within London Borough of Brent (LBB).

1.2.4 The following assets to be delivered by MWCC in COW include:

- Euston Tunnels including associated cross passages.

1.2.5 The Euston Tunnels pass underground through COW. To support the delivery of the Main Works including this asset, there may be associated ground investigations works and utilities works across the borough which may require temporary site compounds.

1.2.6 Required ground investigation work may be required to inform detailed design and will include but is not limited to:

- Survey Control Network;
- Geospatial Monitoring;
- Topographical Surveys;
- Utility Surveys;
- Condition Surveys;
- Obstructions; and
- Temporary Works.

1.2.7 Utilities include water, gas, electricity and telecommunication. Utility work may be required to facilitate the Main Works and will consist of but is not limited to:

- Diversions;
- Protection;
- Removals; and
- New Connections.

2 Purpose of the Local Environmental Management Plan

- 2.1.1 This LEMP focuses on the area specific control measures by topic as relevant to construction works within COW. The measures described will be applied by the nominated undertaker and its Contractors throughout the construction period to reduce the potential environmental and community impacts within COW during construction.
- 2.1.2 The nominated undertaker's Contractors will develop detailed environmental site management mitigation through their EMS, taking into account this LEMP and the Environmental Minimum Requirements (EMRs).

3 Policy and environmental management principles

- 3.1.1 Information relating to the HS2 Ltd Sustainability Policy and environmental management principles is provided in Section 3 of the CoCP.

4 Implementation

- 4.1.1 Details relating to implementation, such as enforcement and site management measures, are provided in Section 4 of the CoCP.

5 General requirements

- 5.1.1 General control measures relating to community relations, hours of work, pollution incident control and security etc. are identified in Section 5 of the CoCP.
- 5.1.2 To reduce the likelihood of an environmental incident or nuisance occurring, measures from Section 5 of the CoCP will be implemented, as detailed in sections 5.2 to 5.16 below, including:
- Effective preventative pest and vermin control and prompt treatment of any pest and vermin infestation on site, including arrangements for disposing of food waste or other attractive material. If infestation occurs, the Contractor will take action to eliminate the infestation and prevent further occurrence.

5.2 Community relations

- 5.2.1 As detailed within Section 5 of the CoCP, HS2 and the Contractors will implement the Community Engagement Framework. The Framework will focus on engagement during construction with the local communities and on the specific needs of protected groups (as defined in the Equalities Act 2010) especially those who may be affected by construction impacts in the immediate vicinity of the works. A range of tools will be used to achieve this that will tailor engagement to local needs.
- 5.2.2 Successful management of the project will involve understanding communities and their needs, actively engaging, listening and responding. The arrangements for this are set out in the HS2 Community Engagement Framework. Liaison with the local community will take place to consistently provide timely, clear tailored information on the construction programme, updates on forthcoming works. It will also provide the opportunity for members of the public to respond, discuss issues and provide feedback that can be acted upon. This information will be included in the local area plan for community engagement.
- 5.2.3 The local area plan will take account both of distinct geographic distribution of the communities in COW and will involve the Contractors and any relevant third parties² and Stakeholders, for which there will be co-ordination arrangements.
- 5.2.4 In addition, information on the construction of HS2 in COW will be made available to the local community through the HS2 website (available online at: <https://www.hs2.org.uk/in-your-area/local-community-webpages/>).
- 5.2.5 Ongoing engagement with local interests and community groups will occur during construction, as listed in Appendix 2 of this LEMP. (NB: This list is indicative and will be subject to change as more information becomes available.)

Advanced notice of works

- 5.2.6 The Nominated Undertaker and its Contractors are committed to informing communities on matters of interest and relevance. Therefore, they will ensure that stakeholders affected by the proposed construction works, as outlined in the ES, will be informed in advance of works by methods outlined in the Community Engagement Framework and as per Section 5.1.4 of the CoCP.

² For the purposes of this LEMP, a third party is an organisation with whom HS2 Ltd has entered into a legal agreement to undertake works on its behalf, to be delivered under the powers of the High Speed Rail (London – West Midlands) Act (the Act), or the third party's own powers (e.g. permitted development). Such agreements require the third parties to comply with the requirements of the Act and the EMRs, including the CoCP. Third parties relevant to this LEMP include Network Rail, Highways England, and utility companies such as Thames Water and National Grid.

5.3 Working hours

Consents

- 5.3.1 The framework for seeking consents from the COW for working hours under Section 61 of the Control of Pollution Act 1974 is set out in the CoCP.

Core working hours

- 5.3.2 Core working hours will be from 08:00 – 18:00 on weekdays (excluding bank holidays) and 08:00 – 13:00 on Saturdays. See also HS2 Information Paper D4: Working Hours.
- 5.3.3 A period of up to one hour before and up to one hour after core working hours will be required for start-up and close down activities as detailed within the CoCP. To maximise the productivity within the core working hours, the 1hr start up and close down periods will include activities such as deliveries, workforce arrival/departure, unloading, maintenance and general preparation works etc. During this period plant and machinery that is likely to cause disturbance to local residents will not be allowed to operate. This period will not be an extension of the core working hours. Working outside of these hours would need to be agreed through the section 61 consenting process with COW. Emergencies (not repairs and maintenance) may be undertaken outside core hours.
- 5.3.4 No work activities are currently identified to take place within COW outside of core working hours.
- 5.3.5 To limit possessions, a protective barrier will be installed, where practicable, between the existing railway and HS2 sites to maximise the works to be carried out during core working hours where stipulated clearance can be met. In circumstances where this is not practicable, the work will typically be carried out during possessions either during midweek nights or extended weekend nights. Every effort will be made to reduce work outside of core hours so as to avoid excessive community disturbance.
- 5.3.6 Road Rail Vehicles (RRVs) will generally be delivered and operated outside of normal working hours for works associated with the existing railway. Material delivery and removal for these works interfacing with conventional rail will be carried out during the same periods.

5.4 Construction site layout and good housekeeping

5.4.1 No construction sites are located within COW. For construction sites adjacent to COW, the measures set out in Section 5.3 of the CoCP will be used to reduce the likelihood of an environmental incident or nuisance occurring.

5.5 Site lighting

5.5.1 No construction sites are located within COW. Construction sites adjacent to COW will be lit in accordance with the requirements of the CoCP as detailed within Section 5.4 and approval of site lighting in Schedule 17 Part 1 of the High Speed Rail (London – West Midlands) Act (the Act).

5.5.2 Site lighting will be designed to avoid light pollution to surrounding buildings, ecological receptors, local residents, railway operations, passing motorists, pedestrians, cyclists and other sensitive land uses, where reasonably practicable.

5.6 Worksite security

5.6.1 The intention is to achieve safe and secure worksites, with balanced and appropriate security measures that are commensurate with the risk, as detailed within Section 5.5 of the CoCP.

5.6.2 A security plan will be required for each site and where appropriate, security fencing and gates provided to perimeters of construction locations and site compounds. Fence type and construction will be appropriate to the level of security required and depend upon the likelihood of intruders, level of danger and visual impact to the environment.

5.6.3 Contractors will be responsible for ensuring that the site/working areas and plant and materials are secure from use by unauthorised persons at all times and plant machinery will be securely locked away and immobilised each night. Securing sites will involve the use of physical, electronic and human resources in a proportionate and cost effective manner.

5.6.4 In some situations, particularly in an urban setting, consideration will be given to extra visibility for the public and workforce at night, e.g. use of half-timber / half-infill (i.e. perspex) at hoarding corners together with convex mirror to prevent blind spots.

5.6.5 Security provisions will be deployed at all HS2 sites and working areas on a 24/7 basis this may include CCTV cameras, alarms and security personnel. This

approach will help protect assets with measures that deter, delay and detect intrusion.

5.7 Hoardings, fencing and screening

- 5.7.1 The site perimeters will generally be fenced with 2.4m high solid hoardings that will be appropriately decorated, in line with measures described within Section 5.6.1 of the CoCP, if appropriate.
- 5.7.2 At the Canterbury Road vent shaft site, which is in the vicinity of COW, taller hoardings will be erected along the along the construction site boundary between the construction site at Canterbury Works and the residential communities to provide further noise mitigation.
- 5.7.3 At locations where existing fencing may need to be removed, suitable alternatives will be used.
- 5.7.4 The type of fence will be dependent upon the nature of use of the adjacent land, as well as environmental, design and safety considerations.
- 5.7.5 Opportunities to include temporary landscaping measures including but not limited to green hoardings, ivy screens, artificial ivy and instant hedging will be considered and where reasonably practicable implemented where there are clear benefits to local air quality, biodiversity and visual appearance of the area, taking into account costs, longevity and ease of maintenance.

5.8 Unexploded ordnance

- 5.8.1 A risk assessment for the possibility of unexploded ordnance being found within construction areas will be carried out, as detailed within Section 5.7 of the CoCP.

5.9 Electromagnetic interference

- 5.9.1 The impacts of electromagnetic interference during design and construction will be undertaken, as detailed within Section 5.8 of the CoCP.

5.10 Temporary living accommodation

- 5.10.1 There will be no temporary living accommodation for construction workers in COW.

5.11 Occupational healthcare

5.11.1 The Nominated Undertaker will ensure there is provision for either access to on-site or near site occupational healthcare for site workers, as detailed within Section 5.10 of the CoCP.

5.12 Clearance and re-instatement of sites on completion

5.12.1 This will be carried out as detailed within Section 5.11 of the CoCP.

5.13 Pollution incident control and emergency preparedness

5.13.1 The Contractors' pollution incident control and emergency preparedness plan(s) will need to have due regard to local receptors as detailed in Sections 6 to 16 of this LEMP.

5.13.2 The Contractors will also consider measures and processes to be implemented in the event of environmental non-conformances.

Local control measures

5.13.3 The Contractors' pollution incident control and emergency preparedness plan(s) will need to include the following pollution prevention and control measures:

- Static plant will be used with secondary containment measures such as plant nappies to retain any leakage of fuel or oil to reduce the risk of pollution;
- Spill kits will be provided where appropriate to reduce the risk of pollution; and
- The use of oil interceptors at site offices and work compounds.

5.14 Fire prevention and control

5.14.1 The Contractors will ensure all construction sites and welfare facilities will have in place appropriate plans and management controls to prevent fires. See also section 5.13 of the CoCP.

5.15 Extreme weather events

5.15.1 The Contractors' pollution incident control and emergency preparedness plan(s) will need to have due regard to the potential of extreme weather events and key receptors and take into account any proposed risk management or mitigation measures. See also Section 5.14 of the CoCP. Where necessary, the statutory bodies will be consulted with regards to emergency planning.

5.16 Carbon management plans

5.16.1 The Contractors will produce carbon management plans, in accordance with the HS2 Carbon Minimisation Policy as detailed within Section 5.15 of the CoCP.

5.17 Interface management between adjacent construction areas

5.17.1 The Nominated Undertaker will oversee the interface between the Contractors as detailed within Section 5.15 of the CoCP, which may be within the same or adjacent local authority boundaries.

6 Agriculture, forestry and soils

6.1.1 General control measures relating to agriculture, forestry and soils are provided in Section 6 of the CoCP.

6.2 Sensitive receptors

6.2.1 There is no agricultural land likely to be affected within Westminster.

6.3 Local control measures

6.3.1 In respect of storage areas for soil and excavated materials, and within the wider construction site, the presence and spread of invasive, non-native species (plants and animals) and noxious weeds will be controlled through the adoption of an appropriate management regime.

6.3.2 Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to invasive species and noxious weeds. Route-wide measures will also be implemented to promote bio-security and reduce the risk that invasive non-native species and diseases are spread as a consequence of the project. Further details are provided in the CoCP.

7 Air quality

- 7.1.1 General control measures relating to air quality are provided in Section 7 of the CoCP.
- 7.1.2 Contractors will be required to manage dust, air pollution, odour and exhaust emissions during the construction works in accordance with Best Practicable Means (BPM) and refer to current publications on 'best practice'³.

7.2 Sensitive receptors

- 7.2.1 The Contractor's working methods will have due regard to local sensitive receptors where there may be impacts due to dust emissions from construction works and exhaust emissions of air pollutants from onsite machinery and construction traffic vehicles travelling to and from construction areas.
- 7.2.2 For air quality, relevant sensitive receptors include locations where there are residential properties, other types of property where there is human exposure over extended periods, for example hospitals and schools, and locations where there are designated ecological sites with sensitive vegetation. The potential impacts are considered in terms of dust soiling on people and property; human health effects of dust and air pollutant emissions; and effects of dust deposition on vegetation.
- 7.2.3 There are no construction worksites within COW. However, several construction traffic routes pass through the local authority.
- 7.2.4 Receptors within COW affected by emissions from anticipated construction traffic are mainly along A41 Finchley Road, Boundary Road and A5 Edgware Road, between A40 Marylebone Flyover and Blomfield Road.

7.3 Local control measures

- 7.3.1 All the relevant methods outlined within the CoCP will be applied to control and manage potential air quality effects. These methods are considered to be sufficiently effective within areas in and around those listed in Section 7.2. In COW, the key measures will include compliance with required vehicle emission

³ Guidance on the assessment of dust from construction and demolition: Institute of Air Quality Management (IAQM), February 2014

Air Quality Monitoring in the Vicinity of Demolition and Construction Sites: IAQM, November 2012

The Control of Dust and Emissions during Demolition and Construction: GLA Supplementary Planning Guidance Document, July 2014

requirements and covering materials, deliveries or loads for vehicles on construction routes.

7.3.2 HS2 has set emission requirements and targets for the engines of Contractor cars, vans, and heavy road vehicles. These have been developed for the whole route and are categorised as follows: London Low Emission Zone, Clean Air Zone and Rest of Route.

7.3.3 For COW the relevant category of vehicle emission standard is the London Low Emission Zone. Within the London Low Emission Zone there are requirements for heavy road vehicles to be powered by EURO VI (or cleaner) engines and for cars and vans to be Euro 6 diesel and Euro 4 petrol. There are also targets for the use of Ultra Low Emission Vehicles.

7.3.4 HS2 has also set requirements for Non- Road Mobile Machinery (NRMM) (i.e. stationary plant and off road vehicles). These have been developed for the whole route and are categorised as follows: Central Activity Zone, Rest of Greater London and Rest of Country. Although HS2 has set NRMM requirements, they are not relevant to COW as there are no above ground works taking place in COW.

7.3.5 The HS2 Information Paper E31: Air Quality gives further information on the HS2 emissions standards.

7.4 Monitoring Procedures

7.4.1 An inspection and monitoring programme will be implemented by the Contractors to assess the effectiveness of the control measures as outlined in section 7.3 of the CoCP. In COW, the monitoring procedures include monitoring of nitrogen dioxide around highways. The monitoring being undertaken by HS2 supplements existing air quality monitoring which is part of national and local authority surveys.

7.4.2 The HS2 monitoring of nitrogen dioxide around highways commenced in June 2016 and is being undertaken using diffusion tubes. There are currently 13 monitoring locations within COW and includes locations where the Environmental Statement, as amended, identified significant effects, certain locations not expected to be affected by the scheme for comparison purposes, and locations co-located with automatic monitoring sites which are part of national and local authority surveys for comparison purposes. Monthly reports of monitoring data from HS2 air quality surveys will be made publicly available throughout construction.

- 7.4.3 Details of the locations of NOx tubes & dust monitoring equipment will be included in the monthly air quality reports uploaded to the <https://www.gov.uk/government/organisations/high-speed-two-limited> website.

8 Cultural heritage

- 8.1.1 General control measures relating to cultural heritage are provided in Section 8 of the CoCP. Further control measures for Cultural Heritage are provided in the Hs2 Phase One Heritage Memorandum within the Environmental Minimum Requirements and the specific documents identified therein.
- 8.1.2 A route-wide Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI:HERDS) has been prepared which sets out the general principles for design, evaluation, mitigation, analysis, reporting and archive deposition to be adopted for the design development and construction of the Scheme. HS2 works will affect both designated and non-designated assets in COW. Full details of the works to be undertaken (i.e. archaeological investigations and built heritage recording) will be determined during the detailed design and will be set out in Project Plans, Location-Specific Written Scheme of Investigations (LS-WSI) and Heritage Agreement Method Statements (HAMS).
- 8.1.3 Works associated with the Scheme will impact both designated and non-designated archaeological and built heritage assets in COW4. Full details of the works to be undertaken (i.e. archaeological investigations and built heritage recording) will be determined during the detailed design and will be set out, if required in Heritage Agreement Method Statements (HAMS), Project Plans and Location-Specific Written Scheme of Investigations (LS-WSI).
- 8.1.4 Schedule 18 and Schedule 19 of the Act concern how legislation in respect of listed buildings and scheduled monuments respectively apply to the Phase One works. Schedule 20 to the Act provides a regime for the removal of human remains and related funerary monuments.

8.2 Sensitive receptors

- 8.2.1 Details of all designated and non-designated heritage assets within 500m of the land required, temporarily or permanently, for the construction of the Scheme

⁴ There are no construction worksites within COW, however the Euston Tunnel passes underground through COW.

are listed in Volume 5 of the ES (Appendix CH-002-003 and CH-002-004 and Cultural Heritage Map Book – Euston and London Metropolitan, ES 3.5.1.4.1).

8.2.2 Contractors will have due regard for the follow designated heritage assets:

- Three Grade II listed buildings/structures:
- 156-170 (even) Fifth Avenue, Paddington;
- 147-167 (odd) Fifth Avenue, Paddington; and
- Beethoven Street School, Beethoven Street W10

8.3 Local control measures

8.3.1 Where practicable, construction methodologies will be required to reduce the impacts on heritage assets. The CoCP sets out the provisions that will be adopted to control those effects, including the use of appropriate equipment and methods to limit ground disturbance and settlement followed by monitoring, protection and remediation. A programme of settlement monitoring and the implementation of avoidance measures where appropriate will be undertaken by the Contractors. Detailed provisions with regard to settlement and listed buildings are outlined in the Settlement Policy / HS2 Information Paper: C3 Ground Settlement.

8.3.2 Those listed buildings which may require works to maintain or restore their character, or for the affixing of monitoring apparatus are named in Table 2 of Schedule 18 of the Act. Listed buildings named in Table 2 are also covered by a Heritage Agreement with COW, which sets out arrangements for obtaining approvals for protective or monitoring works to these buildings.

8.3.3 The programme of archaeological and built heritage works will be undertaken by specialist Contractors appointed by the Nominated Undertaker prior to and during, the construction period in accordance with the provisions of the Location-Specific Written Scheme of Investigation for archaeology and built heritage.

8.4 Monitoring

8.4.1 Appropriate monitoring of heritage assets will be undertaken as necessary as detailed within Section 8.4 of the CoCP.

9 Ecology

9.1.1 General control measures relating to ecology are provided in Section 9 of the CoCP.

9.2 Sensitive receptors

9.2.1 The following locations which lie within or are adjacent to the Scheme in COW are designated for nature conservation. These locations are shown within the Volume 5 map books of the ES:

- Regent's Park Site of Metropolitan Importance (SMI)⁵ - comprising mature parkland trees, a small, enclosed woodland, an ornamental lake and a grassland area managed specifically for wildlife.

9.3 Local control measures

9.3.1 Local control measures related to ecological issues include those detailed in the CoCP. Further information on the control of ecological impacts is provided in HS2 Information Paper E2: Ecological Impact, Section 9 of the CoCP, in Technical Note: Ecological principles of mitigation within Volume 5 of the ES and SES3 and AP4 ES (Scope and methodology report addendum (CT-001-000/2)).

9.4 Monitoring

9.4.1 Contractors will be required to undertake appropriate monitoring of the consequences of construction works on ecological resources and of the effectiveness of the management measures designed to control ecological effects, as detailed within Section 9.3 of the CoCP.

10 Ground settlement

10.1.1 General control measures relating to ground settlement are provided in Section 10 of the CoCP. Specific measures to reduce and repair settlement and requirements with regard to assessment, surveys and monitoring are contained in the Settlement Policy / HS2 Information Paper C3: Ground Settlement.

10.1.2 Requirements for monitoring will be confirmed by the settlement report prepared during the detailed design stage. Where determined as necessary, monitoring will be undertaken on selected adjacent buildings, structures and the

⁵ As there are no construction worksites within COW, Regent's Park SMI will not be directly impacted by the works.

conventional railway tracks. Baseline readings will be taken prior to the commencement of excavation.

- 10.1.3 The monitoring strategy, methodology and programme, including the choice and location of any monitoring equipment, will be discussed and agreed with the local authorities and land/building owners prior to commencement of construction.
- 10.1.4 Where significant building movement is predicted to be caused by excavation induced ground movements, ground treatment/improvement techniques might be required to ensure that if ground movement occurs, it stays within agreed and acceptable limits thereby limiting the impacts on buildings.
- 10.1.5 Monitoring may be required where existing sensitive buildings/structures/utilities are in close proximity to the planned excavation works. An assessment of the sensitivity of each building/structure/utility in close proximity to the excavation works will be carried out at the detailed design stage. This will then inform the design/specification of the monitoring system for that building/structure/utility and will also inform the design of any movement mitigation works if these are deemed necessary by the designer.
- 10.1.6 Prior to the commencement of construction, structural surveys and condition/defect surveys will be commissioned where structures are at likely risk of potentially damaging settlements.

11 Land quality

- 11.1.1 Land quality study work including intrusive ground investigation (where needed) and analysis has been conducted prior to construction in order to confirm areas of suspected land contamination within the Scheme. These investigations have enabled identification and safe design of any needed remediation works. Contaminated sites beyond the Scheme will be considered only in terms of potential impact on the Scheme. No new land quality constraints have been identified during pre-construction surveys to date but these are still ongoing. If new constraints are identified then the LEMP would be updated accordingly.
- 11.1.2 General control measures relating to land quality are provided in Section 11 of the CoCP.

11.2 Potential contamination sources and sensitive receptors

- 11.2.1 There are no existing or historical land uses within COW that have been identified as a possible contaminative risk to HS2 works.

11.3 Local control measures

- 11.3.1 Ground investigations are being undertaken to assess areas of potential contamination within the Scheme. Following development of a conceptual site model and a risk assessment a remedial strategy will be prepared, as needed. Consultation with COW and the Environment Agency should take place, as appropriate, during the formulation of any remedial strategy, which will include measures to be taken if unexpected contamination is encountered as outlined in Section 11 of the CoCP.
- 11.3.2 Contaminated soils excavated from the site are to be separated from other materials and treated, as necessary. Where reasonably practicable, material will be reused within the Scheme, where it is suitable for use. Treatment techniques could include stabilisation methods, soil washing, appropriately permitted bio-remediation to remove oil contaminants and disposal off site. For material from COW, this would take place off-site at a soil treatment facility or an appropriately permitted landfill site.
- 11.3.3 Both tunnelling and excavation will be required in COW. Should the ground investigation discover contaminated materials within the area required to construct the works in these locations, it will be excavated, then treated and re-used, or removed, as appropriate. In addition ground (landfill) gas and/or leachate control systems will be constructed where necessary to manage ingress to the Scheme or control migration pathways external to the works where pathways have been affected adversely by the construction.
- 11.3.4 Similar measures will be undertaken as needed at any other sites where contaminated soils or groundwater are identified during the investigation and / or construction processes.

11.4 Minerals

- 11.4.1 There is no record of mining or quarrying activities, or identified active mining or mineral sites or Preferred Areas (PA) within the area.

12 Landscape and visual

12.1.1 General control measures relating to landscape and visual are provided in Section 12 of the CoCP.

12.2 Sensitive receptors

12.2.1 With reference to the set-up and location of temporary works, the Contractors will have due regard to limiting impacts of the character of the following landscape character areas (LCAs):

- South Hampstead Station LCA; and
- Kilburn Lane and Carlton Vale Post-War Residential and Community LCA.

12.2.2 The Contractors will also have due regard to limiting visual intrusion on visual receptors along construction traffic routes within COW.

- Tower blocks on Victoria Road, the University of Arts London and the Holiday Inn Express London Park Royal; and
- Users of Mandeville Road and Northolt London Underground Station.

12.3 Local control measures

12.3.1 As no construction works are taking place within COW, no control measures will be implemented within the COW. However, for work sites in proximity to the COW, including Canterbury Works vent shaft site, measures that have been incorporated into the CoCP to avoid or reduce landscape and visual effects during construction include the following (see Volume 5):

- Maximising the retention and protection of existing trees and vegetation where possible;
- Use of well-maintained hoardings and fencing;
- Designing lighting to avoid unnecessary intrusion onto adjacent buildings and other land uses;
- Replacement of any intended retained trees accidentally felled or die as a consequence of construction works;
- Prevention of damage to the trees and landscape features adjacent to the construction sites due to movement of construction vehicles and machinery
- Appropriate design, implementation and maintenance of planting and seeding works and implementation of management measures, to continue through the construction period as landscape works are completed;

- The design of construction compound layouts to prevent damage to the retained trees as well as reduce visual and other impacts where practicable; and
- The specific location of temporary material stockpiles to reduce visual impacts.
- Use of hoardings and noise barriers will be used to minimize impact.

12.4 Trees

12.4.1 The Contractors will give consideration to where trees and other planting can be established early in the construction programme. For example, where trees require removal due to utility works early in the programme, replacement trees will be provided at the earliest possible opportunity, where reasonably practicable. The nominated undertaker will ensure any early planting during construction is maintained to promote healthy growth.

12.4.2 Where practicable, the Contractors will determine the details of tree protection measures, in accordance with BS5837, with COW, in advance of any works in the vicinity of trees.

12.5 Site Buildings for Office and Welfare

12.5.1 No site buildings for office or welfare are currently anticipated within COW.

13 Noise and Vibration

13.1.1 General control measures relating to noise and vibration are provided in Section 13 of the CoCP and additional information is provided in Information Paper E23: Control of construction noise and vibration.

13.2 Sensitive receptors

13.2.1 Noise and vibration construction assessment locations, at sensitive residential and non-residential properties, are identified in the main ES on plan(s) SV-03-002b within Noise and Vibration Volume 5 map book (ref.: ES 3.5.1.9.1). For further details of these receptors and the potential adverse impacts identified, refer to the main ES, Volume 2: CFA3 Report.

13.2.2 Noise insulation (NI) is being offered for qualifying buildings as defined in the noise insulation and temporary rehousing (TRH) policy within HS2 Information Paper E23. Noise insulation or temporary rehousing will mitigate residents being significantly affected by levels of construction noise inside their dwellings.

13.2.3 Qualifying buildings will be identified early enough so that noise insulation can be installed, or temporary rehousing provided, before the start of the works predicted to exceed noise insulation or temporary rehousing criteria.

13.2.4 Currently no properties have been identified that qualify for NI or TRH.

13.3 Local control measures

13.3.1 Site-specific best practicable means measures to control noise and vibration have been identified through the Parliamentary process and discussions with CoW, and reflected in this document. Furthermore, site-specific measures will be identified by the Contractors on a site-by-site and activity-by-activity basis and agreed through the Section 61 process. As identified in the ES, examples of best practicable means that may be employed by the Contractors to control noise and vibration include:

- Controlling noise and vibration at source - for example the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods i.e. hydraulic pulveriser excavator attachment for demolition;
- Arranging the layout of compounds to reduce noise impacts where construction compounds are in close proximity to noise sensitive receptors. This may include placing any stacked portacabins between noisy works and sensitive receptors; and
- Additional height hoardings which may, on occasion, be used to control construction noise. These will be subject to approval in accordance with the requirements of Schedule 17 Part 1 of the Act.

13.3.2 Local control measures will be periodically reviewed, including following any material changes in the proposed construction method and appointment of the Contractors.

13.4 Monitoring

13.4.1 The Nominated Undertaker requires its Contractors to undertake and report such monitoring as is necessary to ensure and demonstrate compliance with all noise and vibration commitments and the requirements of the CoCP.

13.4.2 As set out in section 4.3.10 of the CoCP, where the Nominated Undertaker's Contractors are monitoring noise, dust and air quality with equipment capable of streaming data in real time, this will be made available to COW if a written request is received by the Nominated Undertaker. In addition, monthly noise monitoring reports will be made publicly available throughout construction. The

monthly reports will include information such as measurement methodology and monitoring locations.

- 13.4.3 Details of locations of monitoring equipment and results can be found in the monthly noise monitoring reports and data uploaded to the <https://www.gov.uk/government/organisations/high-speed-two-limited-website> and <https://data.gov.uk/dataset/24542ae7-dd44-444f-b259-871c4cc43b5e/environmental-monitoring-data> sites respectively.

14 Traffic and transport

- 14.1.1 Route-wide, local area and site-specific traffic management measures will be implemented during the construction of the project on or adjacent to public roads, bridleways, footpaths and other Public rights of way (PRoW) affected by the Scheme as necessary. These measures are guided by Section 14 of the CoCP.
- 14.1.2 The CoCP sets out a number of measures to ensure the impacts from construction traffic on the local community are reduced by its Contractors where reasonably practicable:
- A Route-wide Traffic Management Plan (RTMP) setting out generic traffic management measures to be implemented during the construction of the project;
 - The Local Traffic Management Plans (LTMP) will set out matters such as planned worksites, lorry routes and the programme of major traffic management measures expected to be necessary within particular areas along the route;
 - Contractors will prepare site specific traffic management measures, which will be subject to consultation and, as necessary, consent;
 - Contractors will prepare construction workforce travel plans with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses;
 - For road cleanliness Contractors will be required to use all reasonably practicable measures to avoid/limit and mitigate the deposition of mud and other debris on the highway; and
 - HS2 will require its Contractors to undertake such appropriate monitoring as is necessary to ensure compliance with the requirements of the CoCP, and this will include the maintenance of records of traffic management measures installed.
- 14.1.3 Information relating to construction traffic is also provided in the following Information Papers:

- D11: Maintaining access to residential and commercial property during construction;
- E13: Management of traffic during construction;
- E14: Highways and traffic during construction – legislative provisions; and
- E30: Vehicle flow management and safety requirements during construction.

14.2 Local control measures

Sensitive Receptors

14.2.1 In relation to traffic and transport, key sensitive receptors will need to be considered when the Contractors develop the overall programme within the LTMP and the site specific traffic management schemes.

Site access

14.2.2 A number of vehicle access points to the construction sites will be required and so the construction vehicle movements will be spread over a number of roads within the area of the works. Highway access notifications and/or approvals will be undertaken in accordance with Schedule 4 of the Act.

14.2.3 Routes for construction traffic will be subject to approval of the relevant planning authority in accordance with the Schedule 17 of the Act when large construction vehicle movements exceed 24 single movements (12 two way movements) per day to and/or from a site.

14.2.4 Any permanent highway works outside the limits of deviation as outlined in the Act will be subject to normal Highways legislation and Highway Authority powers.

14.3 Works to the Highway and Access Measures

14.3.1 No temporary road or Public right of way (PRoW) closures or diversions are likely to be required in COW.

14.4 Monitoring procedures

14.4.1 Each Contractor will be responsible for monitoring to ensure compliance with the relevant requirements of the RTMP, LTMP, the requirements of the provisions of the Act, assurances and undertakings, site specific drawings and site specific traffic requirements and conditions.

15 Waste and materials

15.1.1 All waste will be managed in accordance with the waste hierarchy which aims to reduce waste at source and to reduce the quantity that requires final disposal to landfill. This applies to excavated material arising on-site, which will be reused within the Scheme as far as reasonably practicable, as well as material from demolition and construction activities. This approach is described in greater detail in HS2 Phase One Information Paper E3: Excavated Material and Waste Management and in Section 15 of the CoCP.

15.2 Local control measures

Testing and classification of materials

15.2.1 The 'basic characterisation'⁶ of excavated material will be determined by the Contractors to ascertain the potential for reuse, recycling, recovery or disposal to inert, non-hazardous or hazardous landfill.

15.2.2 A Materials Management Plan will be developed in accordance with the Definition of Waste: Development Industry Code of Practice⁷ to set out the processes to be adopted in respect of the reuse of excavated materials either on the Scheme or transferred to another development site.

15.2.3 In the event that excavated material is to be sent for disposal, which shall be the option of last resort, testing and classification will be undertaken by the Contractors in line with the Environment Agency's guidance. This includes:

- Waste Sampling and Testing for Disposal⁸; and
- WM3 – Guidance on the classification and assessment of waste (1st edition 2015)⁹.

Transport of waste and materials

15.2.4 Further information on the management of material and waste is provided in HS2 Information Paper E3: Excavated Material and Waste Management.

⁶ Basic characterisation' refers to the characterisation of excavated material to help define the type of re-use for which it is suitable (e.g. DMRB soil classes). Characterisation of waste would include the allocation of an EWC code (in accordance with The List of Wastes (England) Regulations 2005 SI No. 895) and a detailed evaluation of the waste properties. The latter is based on a combination of the detailed knowledge of the source process and chemical testing.

⁷ CL:AIRE Definition of Waste: Development Industry Code of Practice, version 2, March 2011

⁸ Environment Agency (2013), *Waste Sampling and Testing for Disposal to Landfill*, March 2013.

⁹ Environment Agency (2015), Technical Guidance WM3 – Guidance on the classification and assessment of waste (1st edition 2015) (1st Edition 2015).

- 15.2.5 Excavated material from Euston Tunnels will be transported through the tunnelling process and carted away from the borough via rail.

16 Water resources and flood risk

- 16.1.1 General control measures relating to water resources and flood risk are provided in Section 16 of the CoCP.

16.2 Sensitive receptors

- 16.2.1 The Contractors will have due regard to the following sensitive local water resource receptors:

- Local aquifers, including Lambeth Group (secondary A aquifer), Thanet Sand Formation (Secondary A aquifer); and White Chalk Subgroup (Principal aquifer); and
- Artificial water bodies, including: Grand Union Canal (Paddington Arm).

- 16.2.2 There are two groundwater abstraction points within COW, although these are in excess of 1km from the proposed works.

- 16.2.3 The Contractor's pollution incident control plan will have due regard to the local flood risk sources (i.e. surface, artificial, groundwater and sewers) and key receptors and take into account any proposed risk management and / or mitigation measures.

- 16.2.4 The Contractors will have due regard to the following local flood water receptors and their respective flood histories:

- Surface water – the flood map for surface water and preliminary flood risk assessment modelling suggests that there are areas within this study area that have a high risk of surface water flooding. Surface water flood risk locations are identified on plans WR-01-003 and WR-01-004 within water resources – London- West Midlands Map book ref: ES 3.5.1.11.1; and
- Sewers (Thames Water Utilities Ltd) - Thames Water Utilities Ltd historical sewer flooding records show that there have been a number of sewer flooding incidents in the study area.

16.3 Potential sources of contamination

16.3.1 Potential sources of contamination are detailed within Section 11 of this LEMP.

16.4 Local control measures

16.4.1 Measures identified in Section 16 of the CoCP, including detailed method statements, will aim to mitigate and reduce potential adverse effects on surface water or groundwater quality or flows associated with construction.

16.4.2 This will include release to ground, groundwater, watercourses or surface water sewers in the surrounding receptors.

16.4.3 As outlined in the CoCP, best practice measures will be used (e.g. through the use of silt traps and appropriate attenuation, if required) prior to the discharge of water to watercourses, groundwater or surface water sewers, subject to obtaining the required permits or consents. This could apply to runoff from wheel washing facilities or from general construction activities. As noted in Section 5.12 of this document, pollution incident control and emergency preparedness plan(s) will incorporate procedures for alerting relevant water supply companies and reducing impacts to public supply Source Protection Zones (SPZs) and local private abstractions in this area.

16.4.4 Where there is the possibility that work may materially affect groundwater, a groundwater monitoring plan will be implemented, as outlined in Section 16 of the CoCP. If dewatering from excavations is required, it will be carried out in consultation with the Environment Agency and will take into consideration risks posed to water quality and quantity.

16.4.5 A programme of groundwater and surface water monitoring will be undertaken prior to, during and following completion of the construction works. The monitoring programme scope and duration will be developed and agreed with the Environment Agency and where appropriate in consultation with relevant Stakeholders that will cover any physical mitigation required for the protection of public water supply.

16.4.6 Temporary excavated material stockpiles, construction compounds and site offices will be located outside of areas at risk of flooding where reasonably practicable, to avoid having an impact on the risk of flooding. Where construction compounds cannot be located outside flood risk areas, there will be a site-specific flood risk management plan prepared prior to construction to manage

the potential risks. These plans will take account of the flood risk assessments produced for the ES and include any proposed risk management or mitigation measures, if required.

- 16.4.7 Drainage from the works will be attenuated and discharged to watercourses or sewers, under agreement, at a controlled rate and, where required, with approval of the Environment Agency and, where appropriate, the drainage authority in accordance with Schedule 33 Part 5 of the Act.
- 16.4.8 Additional information, such as how the Scheme complies with the Water Framework Directive, as well as further provisions for engagement with Stakeholders, monitoring and protection of local water resources are outlined in HS2 Information Paper E1: Control of Environmental Impacts and HS2 Information Paper E4: Water resources and flood risk.

Appendix 1: Glossary of Terms

CFA	Community Forum Area
CoCP	Code of Construction Practice
Contractor	The Contractor on a construction site is responsible for planning, managing and co-ordinating themselves and/or the works and all other sub-Contractors working on their site, or any other Contractors directly employed by the nominated undertaker to undertake key construction works on site.
CoW	City of Westminster
EMS	Environmental Management System
ES	Environmental Statement
HS2	High Speed Two
HS2 Ltd	High Speed Two Limited - is a company wholly owned by the Department for Transport, established in 2009 to develop plans for a new high speed network and present a proposed route connecting London - West Midlands.
IAQM	Institute of Air Quality Management
IP	Information Paper
LBB	London Borough Brent
LBC	London Borough Camden
LCAs	Landscape Character Areas
LEMP	Local Environmental Management Plan
LTMP	Local Traffic Management Plan
MMP	Materials Management Plan

Nominated undertaker	The body or bodies appointed to implement the powers of the Act to construct and maintain the railway.
PRoW	Public rights of way
RRVs	Road Rail Vehicles – vehicles which can be operated both on roads and railway tracks.
RTMP	Route-wide Traffic Management Plan
Scheme	The Scheme to which this LEMP relates is the proposed high-speed railway between London - West Midlands. This is a high speed railway between London - West Midlands with a connection via the West Coast Main Line at conventional speeds to the North West and Scotland. It includes four high speed rail stations at London Euston, Old Oak Common (West London), Birmingham Airport (Birmingham Interchange) and Birmingham (Curzon Street).
Section 61	Section 61 of the Control of Pollution Act 1974 (which sets out procedures seeking and obtaining local authority consent to measures for the control of noise and vibration on construction sites).
SES	Supplementary Environmental Statement
SSMP	Site Specific Management Plan
SMI	Site of Metropolitan Importance
SPZ	Source Protection Zone
UKAS	United Kingdom Accreditation Service
WSI	Written Scheme of Investigations