

HS2

Local Environmental Management Plan - Warwick District Council

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1. Introduction

1.1 Purpose

- 1.1.1 This Local Environmental Management Plan (LEMP) sets out site specific control measures to be adopted by HS2 Contractors working within the Warwick District Council (WDC) area. This LEMP builds upon but does not repeat the HS2 general environmental requirements set out in the Code 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 WDC area throughout. 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, 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 workstreams that will provide additional information for the LEMP

- 1.1.5 This LEMP has been prepared taking into account findings of the Environmental Statement (ES) hereafter referred to as the Main ES, Additional Provision (AP) ES, Supplementary Environment Statement (SES) and AP2 ES, SES3 and AP4 ES and SES4 and AP5 ES documents 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 Forum¹, 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)² 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

¹ The National Environment Forum comprises Government departments and statutory bodies and was established to advise on environmental policy for HS2, including project wide strategies for reducing the environmental impact of the line and principles for a Code of Construction Practice.

² HS2 Ltd is the Nominated Undertaker. The two terms are used interchangeably throughout the LEMP.

inclusion are ‘worksites where a key significant impact (that has been agreed with the HS2 National Environment Forum members) is generated in any of the environmental topics as mentioned above. There are currently no such sites identified in WDC.

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

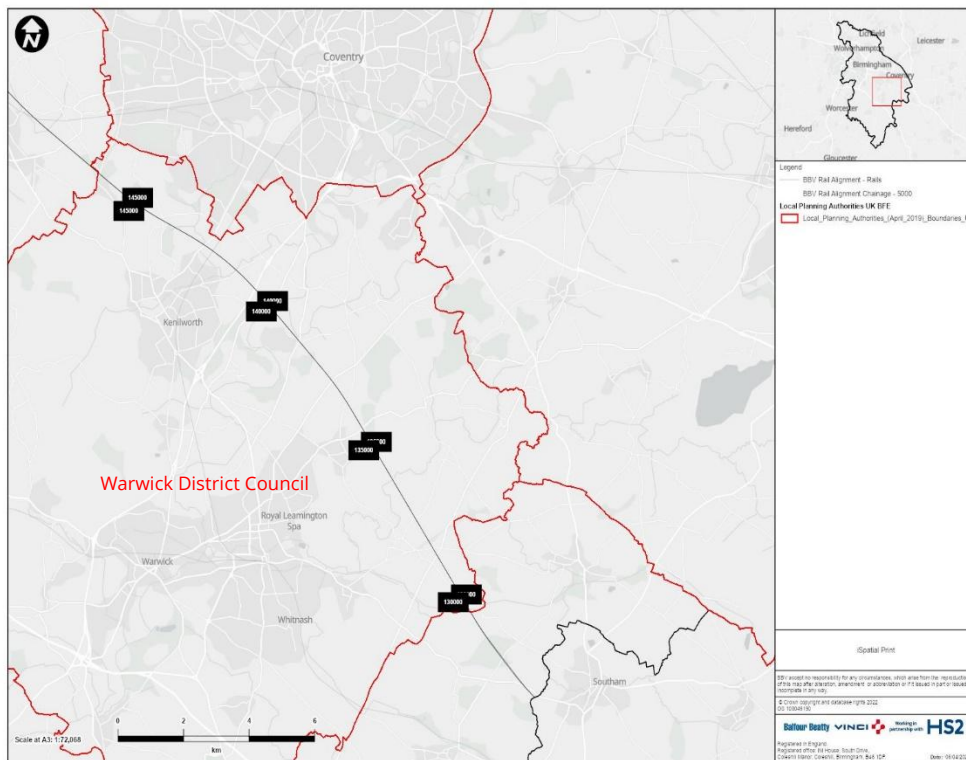


Figure 2: Route of HS2 through Warwick District Council Area

1.2.1 Plans showing an overview of the local authority area covered by this LEMP are presented in the Environmental Statement (ES) maps (CFA17 and CFA18 Volume 2

Map Books CT-05-088b to CT-05-100a). The HS2 route through the WDC Area is also shown above in Figure 2.

1.2.2 It is anticipated that the following work activities are taking place during the construction period within WDC:

- Advance works, including site investigations, ground investigations and associated environmental surveys and surveys further to those already undertaken;
- Enabling works, including utilities works in the wider area; highway and public right of way (PRoW) diversions; building demolitions; translocation of animal species, archaeological investigations, vegetation clearance and fencing of the route, and environmental mitigation measures;
- Civil engineering works including those associated with stations: establishment of construction compounds; site preparation; main earthworks and attenuation ponds to manage water run-off, structure works, building works and fit out, retaining structures and erection of bridges/viaducts, subsurface tunnelling and excavations, site restoration and removal of construction compounds;
- Works to conventional railway track, signalling and other railway systems; and
- High speed railway installation works, and systems fit out including:
 - Establishment of construction compounds; infrastructure installation, traction power supplies, overhead line equipment and communications features; connections to utilities; removal of construction compounds; and
 - System testing and commissioning.

1.2.3 On 16 November 2016 contracts were awarded for three Enabling Works Contractors (EWC) working on behalf of HS2 Ltd across Phase One of the project. The EWC covering the WDC area is the LM Joint Venture, a joint venture between Laing O'Rourke and J. Murphy & Sons. The EWC works within the WDC area have been complete in September 2023.

1.2.4 On 17 July 2017 contracts were awarded for HS2's Main Works Civils Contractors (MWCC). The MWCC for the WDC area is Balfour Beatty Vinci (BBV). BBV is a joint venture made of Balfour Beatty Group Ltd, VINCI Construction Grands Projects, VINCI Construction UK Ltd, VINCI Construction GeoInfrastructure.

1.2.5 Construction activities include;

- Construction of the Longhole viaduct which spans the Grand Union Canal and continues north encompassing Grand Union Canal Embankment, Offchurch Cutting, Ash Beds Embankment, Ash Beds Cutting and River Leam Embankment;
- Construction of Welsh Road Embankment which will accommodate for the launching of the Longhole Viaduct from the south over the Grand Union Canal, as well as noise screening of the HS2 railway for adjacent neighbours;
- A small section of the existing tributary discharging into the Grand Union Canal will be permanently realigned to accommodate the Welsh Road Embankment, as well as the diversion of several existing utilities intersecting the HS2 railway;
- Construction of a temporary bridge over the river Avon to enable direct access from the compound to the construction works at Stoneleigh Park, other structures include;
- Leamington Road Cutting-
- LIW Green Tunnel
- LIW Tunnel
- LIW North Portal
- Ufton Wood Cutting
- LIW North Portal MEP Building
- South Portal Building
- Longhole Viaduct
- Welsh Road Underbridge
- B4455 Fosse Way Overbridge
- Offchurch Greenway Cycle Bridge
- Offchurch Greenway Green Overbridge
- Hunningham Road Overbridge
- Offchurch EFATS
- Ash Beds Drop Inlet Culvert
- Footpath W129y Overbridge
- River Leam Temporary Bridge
- River Leam Viaduct
- Lower Grange Embankment
- Cubbington Cutting
- Mill Lane Acm Green Overbridge
- Footpath W130 Overbridge
- B4453 Rugby Road Overbridge
- Coventry Road Overbridge
- Furzen Hill Embankment
- Furzen Hill Cutting
- 1A445 Leicester Lane Overbridge
- Cubbington Embankment

- Furzen Hill ATS
- Stonehouse Cutting South
- Stonehouse Cutting Central
- Stoneleigh Park Retaining Wall Pump Station
- B4113 Stoneleigh Road Green Overbridge
- B4113 Stoneleigh Road Green Underpass
- Stoneleigh Park South Acc. Overbridge
- Stonehouse Cutting North
- Stoneleigh Park North Acc. Overbridge
- Agricultural Centre Embankment
- Glasshouse Wood Embankment
- River Avon Viaduct
- Glasshouse Wood Cutting
- B4115 Ashow Road Overbridge
- B4115 Ashow Road Underpass
- A46 Kenilworth Bypass Overbridge
- Footpath K29 Overbridge
- Finham Brook Embankment
- Dalehouse Lane Overbridge
- Finham Brook Viaduct
- Dalehouse Embankment

1.2.6 Due to the elevation of the HS2 trace against the existing ground topography in the Stoneleigh Park area, construction is predominantly an open cut method or retaining wall. Some overbridge structures will also be constructed within Stoneleigh Park;

1.2.7 Construction of the following structures and associated road realignments in Sublot 2B:

- Milburn Grange overbridge
- Coventry to Leamington Spa overbridge
- A429 realignment and Kenilworth Road Overbridge
- Canley Brook Viaduct
- W164 Overbridge
- Crackley Road Culvert
- Crackley Lane Overbridge
- W168 Overbridge
- Burton Green Tunnel (section)
- Burton Green Tunnel Buildings

2. Purpose of the Local Environmental Management Plan

- 2.1 This LEMP focuses on the area specific control measures by topic as relevant to construction works within the WDC area. The measures described will be applied by the Nominated Undertaker and its Contractor throughout the construction period to reduce the potential environmental and community impacts within the WDC area during construction.
- 2.2 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 Information relating to the HS2 Ltd sustainability policy and environmental management principles is provided in Section 3 of the CoCP.

4. Implementation

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

5. General Requirements

5.1 Community Relations

- 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.
- 5.1.3 Effective preventative pest and vermin control and prompt treatment of any pest and vermin infestation, 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.
- 5.1.4 General control measures are detailed in the following sections.
- 5.1.5 HS2 and its Contractors will be running a series of engagement events and activities that will cover the upcoming programme of works and associated environmental controls where appropriate.
- 5.1.6 As detailed within Section 5 of the CoCP, the Nominated Undertaker and its 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.
- 5.1.7 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, and 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. HS2 and its Contractors have initiated engagement along the route via focussed engagement events.
- 5.1.8 The Local Area Plan will take account both of distinct geographic distribution of the communities within WDC and will involve the Contractors and any relevant third parties and stakeholders, for which there will be co-ordination arrangements.
- 5.1.9 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 Severn Trent Water, National Grid, Cadent and Western Power Distribution.

- 5.1.10 Ongoing engagement with local interests and community groups will occur during construction, as listed in Appendix B of this LEMP. (NB: This list is indicative and will be subject to change as more information becomes available).
- 5.1.11 In addition, information on the construction of HS2 in WDC 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/>).

Advanced Notice of Works

- 5.1.12 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.

5.2 Working Hours

Consents

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

Core Working Hours

- 5.2.2 Core working hours will likely 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.
- 5.2.3 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 productivity within the core working hours, the one hour start up and close down periods will include activities such as deliveries, workforce arrival/departure, unloading, maintenance and general preparation works. 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 WDC.

- 5.2.4 Please note that emergencies (not repairs and maintenance) may be undertaken outside core hours.
- 5.2.5 Certain work activities at specific locations within the WDC area will need to take place outside of the core working hours for safety and engineering purposes. These work activities (which may include construction associated with station, infrastructure and rail works, including possessions and road closure tie-in's) will be covered by the Section 61 process and are likely to include a number of railway possessions (to be carried out during non-core hours), and will be required for the Coventry to Leamington Spa Railway Line crossing at Millburn Grange Farm / A429 Kenilworth Road. A Section 61 variation is also agreed with the local authorities (WDC and SMBC) for out of hours working at Burton Green Tunnel for critical works.
- 5.2.6 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.
- 5.2.7 To limit the number of possessions that will be undertaken, a protective barrier is likely to be installed between the existing railway and HS2 worksites to allow the works to be carried out during core working hours where stipulated clearances can be met, in accordance with Section 61 processes with WDC.
- 5.2.8 Road Rail Vehicles (RRVs³) 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.

5.3 Construction Site Layout and Good Housekeeping

- 5.3.1 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.

5.4 Site Lighting

- 5.4.1 All construction sites will be lit in accordance with the requirements of the CoCP (as detailed within Section 5.4 of that document) and approval of site lighting in Schedule 17 Part 1 of the Act.

³ Road Rail Vehicles (RRVs) will generally be delivered and operated outside of normal working hours associated with the existing railway. Material delivery and removal for these works interfacing with conventional rail will be carried out during the same periods

5.4.2 Where reasonably practicable site lighting will be designed to avoid light pollution to surrounding buildings, ecological receptors, structures used by protected species, local residents, railway operations, passing motorists and other sensitive land uses.

5.5 Worksite Security

5.5.1 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.

5.5.2 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.

5.5.3 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. Plant and 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.

5.5.4 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. All sites will have security lighting to ensure the safety of passing pedestrians and other traffic. Details can be found in Information Paper D10: Worksite Security.

5.5.5 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.

5.6 Hoardings, Fencing and Screening

5.6.1 The site perimeter 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.

5.6.2 Hoardings up to 3.6m high may, on occasions, be used to control construction noise. At locations where existing fencing may need to be removed suitable alternatives will be used.

5.6.3 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.

5.6.4 Where there are earthworks along the line of route, such as cuttings and embankments, temporary fencing will be erected along the site boundaries. The type of fence will be dependent upon the nature of use of the adjacent land, as well as environmental, design and safety considerations. Details can be found in Information Paper D10: Worksite Security.

5.7 Unexploded Ordnance

5.7.1 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.

5.8 Electromagnetic Interference

5.8.1 An assessment of the impacts of electromagnetic interference during design and construction will be undertaken, as detailed within Section 5.8 of the CoCP.

5.9 Temporary Living Accommodation

5.9.1 No on-site temporary workers living accommodation is proposed for the Main Works.

5.9.2 The provision of on-site workers' temporary living accommodation will be considered and approved in advance by the local authority, as detailed within Section 5.9 of the CoCP.

5.10 Occupational Healthcare

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

5.11 Clearance and Re-instatement of Sites on Completion

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

5.12 Pollution Incident Control and Emergency Preparedness

5.12.1 The Contractor's 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.

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

5.12.3 In the event of a serious spillage, which cannot be contained and/or cleaned-up by the project team, contact will be made with the specialist spill response contractor. The decision whether emergency spill contractor is required lies with the Agent/ Project Manager/ Environment Manager.

Local Control Measures

5.12.4 The Contractor's pollution incident control and emergency preparedness plan(s) will include the following pollution prevention and control mechanisms:

- 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;
- There will be the use of oil interceptors at site offices and work compounds;
- Appropriate measures such as use of bunds of non-erodible material, or silt or sediment fences will be used adjacent to watercourses;
- A surface water or groundwater monitoring plan will be implemented, particularly in relation to works that may affect aquifers, for example, excavations and piling; and

5.12.5 Work that might have an impact on groundwater quality will need formal approval by the EA via Schedule 33 Part 5 in the Act.

5.12.6 Spill training and drills provided for site personnel on a 6-monthly basis

5.12.7 The Contractor's pollution incident control and emergency preparedness plan(s) will need to have due regard to local context such as surface and groundwater.

5.13 Fire Prevention and Control

5.13.1 The Contractor's will ensure all construction sites and associated accommodation, and welfare facilities will have in place appropriate plans and management controls to prevent fires. See also section 5.13 of the CoCP.

5.14 Extreme Weather Events

5.14.1 The Contractors' pollution incident control and emergency preparedness systems will need to have due regard for the potential of extreme weather events and key receptors and consider 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.

- 5.14.2 Contractor has signed up to the EA Flood Warning/Alert service so advanced notice can be given to site teams to react to any flooding risks by moving out of the 'at risk' area and moving any materials to a safe place.
- 5.14.3 Site teams working near a watercourse such as the Finham Brook will sign up to receive flood alerts from the Environment Agency. In the event a flood warning has been issued, all plant and equipment will be moved out of all areas that are at risk of flooding. Site teams will ensure all potentially polluting liquids have been removed from all areas at risk of flooding to a safe location

5.15 Carbon Management Plans

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

5.16 Interface Management Between Adjacent Construction Areas

- 5.16.1 The Nominated Undertaker will oversee the interface between the Contractors as detailed within Section 5.16 of the CoCP, which may be within the same or adjacent local authority boundaries.

6. Agriculture, Forestry and Soils

6.1 General

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 Following consultation with individual farmers, arrangements are being made with the farmers and documented in Farmers and Growers' packs. Details on the scope of these packs are included in the HS2 Guide for Farmers and Growers.

6.2.2 Approximately 436 ha of agricultural land will lie within the construction boundary in WDC area. Approximately 92% of this land is of the best and most versatile quality (Grades 2 and 3a) and 8% is moderate quality land (Subgrade 3b).

6.2.3 Approximately 372ha of the agricultural land will be required permanently for the scheme, with the remaining 64ha restored to agriculture.

6.2.4 The generally high-quality soils that will be permanently displaced and reused in the design of the scheme for agriculture and other uses represent a sensitive receptor.

6.2.5 Some land uses situated adjacent to the construction boundary may be considered sensitive receptors, particularly in respect of farm infrastructure and crops. This includes interruptions to drainage systems, livestock water supplies and irrigation systems; the potential for dust deposition on crops, particularly field vegetables; interruptions to farm and field accesses; and the maintenance of appropriate stock-proof fencing. This also applies to the approximately 64ha of land within the construction boundary in WDC area that is to be restored to agriculture.

6.3 Local Control Measures

6.3.1 Where topsoil and subsoil will be stripped across the site, a Soil Resources Plan (SRP) will be prepared. The SRP will establish the type and volume of the topsoil and subsoil to be stripped, the designated location of the stockpiles and the proposed use of conserved soils for land restoration. There is a commitment in the main ES for the reuse of soils on the scheme.

6.3.2 In areas where compounds are to be created, it is envisaged that each area will be stripped of topsoil in accordance with the SRP. Temporary material stockpiles will be clearly recorded, and the topsoil will be reinstated.

6.3.3 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 appropriate management regimes. These will identify and effectively treat areas that could also threaten adjoining agricultural areas.

- 6.3.4 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 minimise the risk that invasive non-native species and diseases are spread by the scheme. Further details are provided in the CoCP.
- 6.3.5 Measures for the protection of farm infrastructure and crops will be subject to liaison with landowners, occupiers, and land agents.

7. Air Quality

7.1 General

- 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’⁴.

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 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 have been 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 Air quality construction assessment locations and the impacts at relevant receptors are identified in the main ES (Volume 2: CFA 17 and CFA 18 Reports, Chapter 4 Air quality and the Volume 5: Appendices AQ-001-017 and AQ-001-018), SES and AP2 ES (SES and AP2 ES Volume 2: CFA 18), and SES3 and AP4 ES (SES3 and AP4 ES Volume 2: CFA 17 and SES2 and AP4 ES Volume 2: CFA 18). The receptors considered most sensitive are those located within 20m of construction works and/or routes used by construction vehicles; these are specifically referred to in this LEMP.
- 7.2.4 Within the WDC area, the specific locations with relevant receptors that should explicitly be considered in the Contractor’s working methods include:
- Properties along Welsh Road, Offchurch, south of B4455 Fosse Way;
 - Properties at the junction of Welsh Road and Hunningham Road, Offchurch;
 - Properties along A445 Leicester Lane southwest and northeast of the HS2 route;

⁴ Guidance on the assessment of dust from construction and demolition, Institute of Air Quality Management, 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.

- Milburn Grange, Kenilworth Road, Crackley; and
- Properties in Burton Green along Red Lane, Cromwell Lane, and Hodgetts Lane.
- Stoneleigh Park

7.2.5 Additionally, within the WDC area, the specific locations with relevant ecological receptors that should explicitly be considered in the Contractor’s working methods include:

- South Cubbington Wood Local Wildlife Site (LWS);
- River Avon LWS;
- Kenilworth Road Spinney Local Nature Reserve (LNR) and LWS; and
- Broadwells Wood LWS.

7.2.6 The Institute of Air Quality Management (IAQM) methodology for assessment of dust from demolition and construction⁵ has been used to classify the risk of dust impacts as ‘low,’ ‘medium’ and ‘high’ risk at the locations of relevant sensitive receptors. Sites assessed as medium or high will have dust monitoring installed. The locations to be explicitly considered in the Contractor’s working methods were assessed to have a low to high risk of dust impacts without mitigation measures.

7.2.7 For each work site, at the appropriate stage (e.g., detailed design stage), a dust risk assessment of construction activities shall be undertaken using the latest published IAQM methodology to derive the risk of each site. A dust risk assessment is produced and sites with moderate/high risk of dust emissions will require dust monitoring throughout the works.

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. Measures can include; planning the site layout; provision of dust suppression measures in all areas of the construction sites that are likely to generate dust; measures to keep roads, accesses and vehicles clean; and the enclosure, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries. Specific measures for each site should be developed with regard to the particular activity being undertaken in proximity to sensitive receptors.

⁵ Institute of Air Quality Management (2011) Guidance on the assessment of the impacts of construction on air quality and the determination of their Local Control Measures.

- 7.3.2 Dust suppression measures and works screening will be subject to approval in accordance with Schedule 17 of the Act. Further measures are detailed within Section 7 of the CoCP.
- 7.3.3 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. For WDC the relevant category of vehicle emission standard is the Rest of Route. There are requirements for heavy road vehicles to be powered by EURO VI (or lower) engines and for cars and vans to be Euro 6 diesel and Euro 4 petrol from 2020⁶. 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. For WDC the relevant category of NRMM emission standard is the Rest of Country within which the requirement is for NRMM to be powered by Euro stage IIIB⁷ from 2017 and from EU stage IV from 2020⁸. The HS2 Information Paper E31: Air Quality gives further information on the HS2 emission standards.

7.4 Monitoring Procedures

- 7.4.1 An inspection and monitoring programme will be implemented by the Contractor to assess the effectiveness of the control measures as outlined in section 7.3 of the CoCP. In WDC, the monitoring procedures may include continuous automatic monitoring of airborne dust, including the setting of a relevant site action level for dust (defined as a dust measurement threshold above which investigation will be required). The monitoring being undertaken by HS2 supplements existing air quality monitoring which is part of national and local authority surveys.
- 7.4.2 The monitoring programme, including locations for dust monitoring is in place. Monthly reports of monitoring data from HS2 air quality surveys will be made publicly available throughout construction on the following website: [Monitoring the environmental effects of HS2 - GOV.UK \(www.gov.uk\)](http://www.gov.uk).
- 7.4.3 The HS2 Air Quality Strategy gives further information on monitoring, including the process to determine where monitoring would be required and the monitoring methods to be used. This document is available at the same website address as referenced in paragraph above.

⁶ Euro standards for heavy vehicles are given in terms of roman numerals. Euro standards for light vehicles are given in terms of numerical values and different Euro standards apply for petrol and diesel vehicles.

⁷ IIIA for constant speed engines of any power, as there is no corresponding Stage IIIB or IV at EU level.

⁸ Roman numerals are also used within the NRMM EU regulations but are not directly comparable to the road vehicle Euro standards.

8. Cultural Heritage

8.1 General

- 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.
- 8.1.3 Works associated with the scheme will impact both designated and non-designated assets in WDC. 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 and Location-Specific Written Scheme of Investigations (LS-WSI).
- 8.1.4 Schedule 18 and Schedule 19 to the Act concern how legislation, in respect of listed buildings and scheduled monuments respectively, apply to the Phase One works.

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 are listed in Volume 5 of the main ES (Appendices CH-001-017, CH-002-017, CH-003-017, CH-004-017, CH-001-018, CH-002-018, CH-003-018 and CH-004-018 and Maps CH-01-105b, CH-01-106, CH-01-107, CH-01-108, CH-01-109, CH-01-110 and CH-01-111) and Volume 5 of the SES and AP2ES (Appendices CH-002-017, CH-003-017, CH-002-018 and CH-003-018 and Maps CH-01-106, CH-01-107, CH-01-109 and CH-01-111).
- 8.2.2 Contractors will have due regard for the following designated heritage assets:
- East Lodge – Grade II listed building adjacent to the scheme;
 - Stare Bridge – Grade II* listed building adjacent to the scheme;
 - Stoneleigh Abbey – Grade II* Registered Park partly within the scheme;
 - Dale House Farmhouse – Grade II listed building adjacent to the scheme; and

- South Hurst Farm Cottages – Grade II listed buildings adjacent to the scheme.
- Stoney Thorpe Hall Lodge Gates and Gatepiers – Grade II listed building adjacent to the Scheme
- Bascote Heath and Stoneythorpe War Memorial - Grade II listed building adjacent to the Scheme
- Church of St Michael, Ufton – Grade II* listed building adjacent to the Scheme

8.2.3 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 Contractor. Detailed provisions regarding settlement and listed buildings are outlined in the Settlement Policy / HS2 Information Paper: C3 Ground Settlement.

8.2.4 For the buildings listed in Schedule 18 Table 2 of the Act⁹, the Heritage Agreement would set out the process by which protective or monitoring works will be approved and the specific arrangements for each building. These Heritage Agreements will ensure that appropriate mitigation measures are in place and that any works undertaken are appropriate to the special architectural or historic interest of the listed building and its significance as a heritage asset.

8.2.5 In addition, those listed buildings which may require works to maintain or restore their character, or the affixing of monitoring apparatus are named in Table 2 of Schedule 18 of the Act⁹. Listed buildings named in Table 2 of Schedule 18 are also covered by a Heritage Agreement with WDC, which sets out arrangements for obtaining approvals for protective or monitoring works to these buildings.

8.2.6 Where practicable, below ground assets will be preserved in situ beneath mitigation earthworks through the adoption of appropriate design measures.

8.2.7 Where practicable, construction methodologies will reduce the impacts on buried and upstanding remains.

8.2.8 The programme of archaeological and built heritage works will be undertaken by a specialist Contractor appointed by the Nominated Undertaker prior to and during the construction period in accordance with the provisions of the LS-WSI for archaeology and built heritage

⁹ High Speed Rail (London- West Midlands) Act 2017. Schedule 18, Section 25 “Listed buildings”, Table 2

8.3 Monitoring

- 8.3.1 Appropriate monitoring of heritage will be undertaken as necessary, as detailed within Section 8.4 of the CoCP.

9. Ecology

9.1 General

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 Contractor will be made aware of the following locations designated for nature conservation that require specific protection consideration, which are located within or adjacent to the scheme as per this LEMP boundary (and which are shown within the Volume 5 map books of the ES). The relevant sites within the WDC area comprise:

- South Cubbington Wood LWS and ancient woodland, within the land required for the construction of the scheme;
- Waverley and Weston Woods LWS and ancient woodland, partially within the land required for the construction of the scheme;
- River Avon LWS, which is crossed by the route of the scheme;
- Broadwells Wood LWS and ancient woodland comprises two areas of ancient semi-natural woodland joined by an area of replanted ancient woodland. Part of the wood is within the land required for the construction of the scheme; and

9.2.2 Sensitive habitat receptors outside of designated sites are shown in the Volume 5 map books of the ES (Volume 5, Ecology Map Books CFA17-18) and SES and AP2 ES (Volume 5 Environmental Topic Map Books: Ecology CFA17-18). From south to north these include:

- Grand Union Canal on the border between Stratford District and South Warwickshire District;
- Burnt Firs ancient woodland within the land required for construction of the scheme;
- Broadleaved woodland and associated habitats along the Offchurch Greenway which form a wildlife corridor within the land required for construction of the scheme;
- Ash Beds broadleaved woodland;
- The River Leam;

- North Cubbington Wood ancient woodland, adjacent to the land required for construction of the scheme;
- Broadleaved woodland close to Stoneleigh Park including Brick Kiln Spinney and Hare’s Parlour within and adjacent to the land required for construction of the scheme;
- The River Avon
- King’s Wood ancient woodland adjacent to land required for construction of the scheme;
- Unnamed ancient woodland near the B4115 Ashow Road within land required for construction of the scheme;
- Finham Brook;
- Canley Brook;
- Crackley Wood North and Crackley Wood North Extension ancient woodland, and Birches Wood ancient woodland adjacent to and within the land required for construction of the scheme respectively;
- Roughknowles Wood ancient woodland within the land required for construction of the scheme; and
- Broadleaved woodland and associated habitats along the Kenilworth Greenway that forms a wildlife corridor within the land required for construction of the scheme.

9.2.3 Key protected or important species known to occur near to the works are:

- Bats (roosts and key commuting and foraging habitat);
- Birds;
- Great crested newts and other amphibians;
- Otter;
- Water vole;
- Dormouse;
- Veteran trees associated with Stoneleigh area and veteran wild pear tree near South Cubbington Wood);
- Notable plants (e.g., a population of Orpine Stonecrop on near the edge of Roughknowles Wood);
- Badger; and

- Common reptiles.

9.2.4 The Contractor should be aware of the potential presence of legally notifiable non-native invasive species within or in the vicinity of land required for the scheme, including:

- Japanese knotweed,
- Himalayan balsam,
- Waster fern, and
- Ragwort.

9.2.5 Further information on designated sites and legally protected species occurring in this area can be found within Volumes 2 and 5 of the main ES.

9.2.6 Contractors will minimise the loss of sensitive habitat receptors wherever possible. Translocation of soils from ancient woodland sites will be undertaken following the design specifications set out in the relevant Ecology Site Management Plans.

9.2.7 Contractors will check whether any protected species licences are required prior to work commencing or where such licences have been obtained, to ensure compliance with the requirements of the licence.

9.2.8 All actions required to comply with licences will be undertaken by suitably qualified specialist ecologists licensed to undertake the work.

9.3 Local Control Measures

9.3.1 The standard ecological issues and associated control measures outlined in Table 1 are of particularly relevance to this area.

Table 1: Standard ecological issues and control measures relevant to this area

Receptor	Issue	Standard Control Measure
Designated Sites	The scheme affects statutory and non-statutory wildlife sites and ancient woodland.	<p>Measures to reduce habitat loss should be included in planning of construction works, such as avoiding siting temporary material stockpiles, construction materials and vehicle parking within designated sites.</p> <p>Potentially hazardous materials should also be located away from designated sites and stored correctly.</p> <p>Specific measures for control of surface water and for air and water-borne pollution should also take account of the proximity of these designated sites.</p>

Receptor	Issue	Standard Control Measure
Ancient Woodland	The scheme will result in the loss of ancient woodland.	<p>Measures to reduce habitat loss should be included in planning of construction works.</p> <p>Translocation of ancient woodland soils and vegetation will be undertaken following the design specification set out in the relevant Ecology Site Management Plans. All works on or within 100 metres of ancient woodlands will be notified to the Woodland Trust.</p>
Bats	<p>All UK bat species and their roosts (even if bats are not present) are fully protected under both UK and European legislation.</p> <p>The scheme will result in the loss of confirmed bat roosts in trees and buildings.</p>	Adhere to requirements of licenses and, where relevant, Ecology Site Management Plans.
	The scheme will result in the loss of trees and buildings identified as having moderate or high potential to support roosting bats. Ecological surveys have identified trees and buildings with high and medium bat roost potential.	<p>Confirmed bat roosts in trees will be felled under Natural England Bat License at specified times of the year.</p> <p>Moderate potential bat roosts in trees will be soft felled under a Precautionary Method Statement (PWMS) with an Ecological Clerk of Works (ECoW) present.</p>
	Retained bat roosts are present in close proximity to the scheme. Caution is required to ensure that these roosts are not disturbed during works.	<p>Where practicable, undertake activities causing disturbance during seasonal periods when bats are likely to be absent.</p> <p>Ensure lighting is directed away from known roosts.</p> <p>Reduce night-time working in close proximity to retained roosts.</p> <p>Where practicable, temporary structures will be erected to screen the entrances/exits of retained roosts from construction areas.</p>
	The scheme will result in the loss of and disruption to bat foraging areas and commuting routes.	<p>Where practicable, undertake activities causing loss or disruption during seasonal periods when bats are likely to be less active.</p> <p>Retain as much of the key habitat for as long as possible and establish new areas as quickly as possible to reduce the effects.</p> <p>Ensure lighting is directed away from foraging areas and commuting routes.</p>

Receptor	Issue	Standard Control Measure
		Reduce night-time working in close proximity to foraging areas and commuting routes.
Breeding Birds	<p>The nests and eggs of all bird species are legally protected against being damaged or taken. Some species are specially protected against disturbance whilst nesting.</p> <p>The scheme will result in the loss of nesting bird habitat, including vegetation, buildings, and structures.</p>	<p>Habitat clearance should be conducted outside of the bird nesting season (March to August inclusive) unless unavoidable.</p> <p>If unavoidable, a PWMS will be required and an ECoW present on site.</p>
Great Crested Newt	<p>Great crested newts and their habitats are fully protected under both UK and European legislation.</p> <p>The scheme will result in the loss of water bodies and terrestrial habitat used by great crested newts.</p>	<p>Adhere to requirements of HS2 great crested newt organisational license, method statements, and Ecology Site Management Plans.</p> <p>A PWMS will be required for non-licensable activities with an ECoW present on site.</p>
Common amphibians	<p>The scheme will result in the loss of water bodies supporting common amphibians. Clearance during peak periods of occupation could result in the loss of these populations.</p>	<p>Common amphibians will be captured during reptile surveys and GCN translocations and moved to receptor sites.</p> <p>Drain down of ponds will be conducted outside of the main breeding period for amphibians (March to August) where practicable.</p>
Common reptiles	<p>Common species of reptile (grass snake, adder, common lizard, and slow worm) are protected from intentional killing or injury.</p> <p>Common reptiles are widespread, and the scheme will result in the loss of confirmed and potential reptile habitat.</p>	<p>Where works have the potential to kill or injure reptiles, but there is suitable habitat immediately adjacent to the work site that could support a viable population (with enhancements where necessary), the habitat manipulation and displacement approach should be followed. A PWMS will be produced in advance of works commencing and an ECoW will be present on site. Where there is no suitable habitat immediately adjacent to the work site, the reptile translocation approach will be followed.</p> <p>A PWMS will be produced in advance of works commencing and an ECoW will be present on site. This will include details of the approach, any exclusion fencing required, and details of the receptor site.</p>
Badger	<p>Badgers and their setts are protected under the</p>	<p>Adhere to the requirements of the HS2 badger organisational license, method statements, and Ecology Site Management Plans.</p>

Receptor	Issue	Standard Control Measure
	<p>Protection of Badger Act 1992.</p> <p>Badgers are widespread and the scheme will result in the loss of badger habitat, including setts.</p>	<p>Avoid badger setts to reduce disturbance where they do not need to be closed. Some works may be carried out under PWMS and an ECoW will be present on site to create exclusion zones and brief the workforce.</p> <p>Badgers are a mobile species and can create new setts in a short period of time.</p> <p>Contractors to be aware of the potential for badger setts to be present within or adjacent to work sites – works to be stopped if potential setts are identified.</p>
Otter	<p>Otters are fully protected under both UK and European legislation.</p> <p>All major watercourses crossed by the scheme have otters present or are potentially suitable to support them. It is not expected that there will be any fragmentation of otter movement routes, however there is the potential for disturbance of otter territory during construction.</p>	<p>Adhere to requirements of licenses and, where relevant, Ecology Site Management Plans.</p> <p>A PWMS will be required to ensure that routes of safe passage for otters are maintained throughout construction at crossing points.</p> <p>Use fencing as required to prevent otters being forced over existing road crossings.</p> <p>Specific mitigation will be required for working on otter territory at night.</p>
Hazel Dormouse	<p>Dormouse activity has been identified at Black Waste Wood.</p>	<p>All works to comply with the BBV Hazel Dormouse License.</p>
Water vole	<p>Water voles are fully protected under UK legislation.</p> <p>The scheme will result in the loss of confirmed and potential water vole habitat.</p>	<p>An appropriate PWMS will be produced in advance of works commencing, where works are taking place on water vole habitat.</p> <p>Adhere to the requirements of the translocation license, where relevant.</p> <p>Contractors are to be made aware of the potential for water voles to be present within or adjacent to work sites – works are to be stopped if water vole evidence is identified and an ecologist contacted for advice.</p>
Aquatic wildlife such as fish, eels, and aquatic invertebrates	<p>There are watercourses within the vicinity of the works, some of which have been identified as supporting aquatic wildlife which could be at risk of direct impacts</p>	<p>Part of the monitoring strategy for watercourses, informed by work carried out for the Environmental Statements and for Water Framework Directive assessments, is to include a plan for monitoring pre, during, and post construction where aquatic species are identified as sensitive receptors. These monitoring plans will be agreed by the Environment Agency.</p>

Receptor	Issue	Standard Control Measure
	during channel works or indirectly from contamination.	Local control measures will include protection of aquatic species, where necessary. Moving fish will be undertaken in accordance with the necessary Environment Agency authorisation.
Invasive plants	There is a risk of work sites and adjacent land supporting invasive/ non-native species (INNS), as defined in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).	All land required for the works and immediately adjacent land (where practicable) shall be surveyed for the presence of INNS, with a focus on high-risk species. A Biosecurity Management Plan shall be produced in advance of works commencing, where required. A PWMS will be required where works are carried out and an ECoW present on site.
General	Unexpected discovery of legally protected species during works.	There will be a procedure to follow in the unexpected event that protected species are identified during construction. This will include seeking appropriate licenses and consulting with Natural England. Unexpected finds of Great Crested Newts or badgers are covered by the organisational licenses and works must be in accordance with those licenses.

9.3.2 Further information on the control of ecological impacts is provided in HS2 Information Paper E2: Ecological Impact, Section 9 of the CoCP, and in Technical Note: Ecological principles of mitigation within Volume 5 of the main ES (identified within the SMR Addendum (Volume 5: Appendix CT-001-000/2)).

9.4 Ecological Mitigation Sites

9.4.1 A number of ecological mitigation sites have been constructed to compensate for the loss of habitats due to the construction of the HS2 scheme, to form receptor sites for species translocated from the construction area to create biodiversity gain. The sites constructed to date in the Warwick District Council area are detailed in the table below:

Table 2: Ecological mitigation sites in the WDC area

Name of site	Location	Details of site
Finham Brook SK073	National Grid Reference: SP 31149 73105, bound by Dalehouse Lane to the north and Kenilworth Golf Club to the west	Finham Brook SK073 provides mitigation and compensation for Great Crested Newts including the creation of two ponds and terrestrial hibernacula.

Name of site	Location	Details of site
		Wetland and marginal habitats and semi-improved neutral grassland; oak woodland core and oak woodland edge have been planted.
Finham Brook SK085	National Grid Reference: SP 310 733, Dalehouse Farm, off Dalehouse Lane	Finham SK085 provides mitigation and compensation for Great Crested Newts, reptiles and an important hedgerow and includes the construction of four ponds a reptile basking bank and four terrestrial hibernacula. Wetland and marginal habitats, semi-improved neutral grassland, hedgerow and oak woodland edge have been planted.
Stoneleigh Park	National Grid Reference: SP 32550 72202), near the National Agricultural Exhibition Centre (NAEC) in Stoneleigh Park, east of Kenilworth	<p>The Stoneleigh Park site is to provide suitable habitat for otter and bats. A backwater feature has been constructed that will fill from ground and rainwater and in the event of the river Avon overtopping its banks.</p> <p>An artificial otter holt has been created within the bank of the backwater feature to provide a suitable breeding site for otters. Two kingfisher nest tunnels have been created in the steep bank of the backwater feature. A bat house has been constructed with a number of bird boxes.</p> <p>Semi-improved neutral grassland, wet scrub (to provide foraging habitat for bats and cover for otters) and wet woodland edge to provide foraging habitat for bats and cover for otters have been planted.</p>
SK118A and SK118B, c, D Kenilworth Cluster	As above	Woodland, ancient soils, screening
SK130, A, B	As above	Woodland, ancient soils
Burton Green SK139	National Grid reference SP 278 750, south of Broadwells Wood	<p>Burton Green eco mitigation site provides mitigation and compensation for Great Crested Newts, and loss and severance of ancient woodland from Broadwells Wood and Black Waste Wood. The site includes the creation of two ponds for Great Crested Newts and provision of terrestrial hibernacula.</p> <p>Grassland, wetland and marginal pond habitats, woodland core and woodland edge habitat have been planted. Ancient woodland soils and vegetation from Broadwells Wood LWS has been translocated.</p>
SK146 Burton Green		The aim of establishing this woodland is to create a forest of native woodland species that support a wide range of native flora and fauna.

Name of site	Location	Details of site
		<p>This site has been constructed to establish ponds of high value for great crested newts, habitat suitable to support reptiles, bats, and birds.</p> <p>The aim of creating this woodland sub-type is to establish and maintain scrub communities that are of high value for wildlife whilst also contributing to the natural beauty of the landscape.</p>
SK142 Burton Green		<p>The aim in this area is to create ‘ponds of high value’ which include sunny, shaded, permanent or temporary pond habitats to compensate for those lost to HS2, particularly those from GCN assumed meta populations.</p> <p>The aim of establishing this woodland is to create a forest of native woodland species that support a wide range of native flora and fauna.</p> <p>The aim of creating this woodland sub-type is to establish and maintain scrub communities that are of high value for wildlife whilst also contributing to the natural beauty of the landscape.</p> <p>The aim is to create hedgerows that are composed of more than 80% native hedgerow woody species from Schedule 3 of the Hedgerow Regulations 1997 and contain, on average, five or more native woody species within a 30- metre length.</p> <p>The aim is to establish and maintain conditions that are favourable to biodiversity and breeding amphibians.</p> <p>The aim is to establish and maintain features that are suitable to support reptiles.</p>
SK157 Burton Green		<p>The aim of establishing this woodland is to create a forest of native woodland species that support a wide range of native flora and fauna.</p> <p>The aim of creating this woodland sub-type is to establish and maintain scrub communities that are of high value for wildlife whilst also contributing to the natural beauty of the landscape.</p>
SK146	Black Waste Wood	<p>Improvements to retained Black Waste Wood and small watercourse following along southern edge of wood. Measures include removal of invasive plant species and management of deadwood habitat and trees.</p>
SD06	Beechwood	Ponds for amphibian use

Name of site	Location	Details of site
SD26	Park Lane	Woodland habitat creation using native broadleaved woodland species
SD177	Marlowe's Wood	Marlowe's wood enhancement
OC006	Burnt Firs	Native broadleaved woodland and scrub planting between the Canal and the realigned Ridgeway Lane.
OC034	Burnt Firs	Native species woodland planting along top of cutting and tying in to Offchurch Greenway.
OC060 Ash Beds	Near Ash Beds woodland	Habitat creation of wet woodland to link with wet woodland at Ash Beds. Additional woodland planting link to offset severance of Ash Beds woodland.
OC070	Cubbington area	Native species woodland planting to connect to woodland alongside the Leam.
OC082	Cubbington area	Habitat creation woodland planting - to be advance planting area; possible receptor sites for translocation of ancient woodland materials and soils from South Cubbington Wood. Plus, inclusion of bat route features.
OC105	Cubbington area	Planting to provide compensation for loss of ancient woodland and to provide receptor site for material translocated from South Cubbington Wood. Advance planting. Mitigation includes retaining the degraded rush pasture in the southern part of LWS, bulk up hedgerows and plant woodland edges for connectivity and then enhance the grassland areas remaining.

9.4.2 Other SL2A Mitigation sites

Table 3: Further ecological mitigation sites

Cluster/Name	Mitigation Site ID	ESMP Number
Longhole Cluster	OC006,LS147, LS151, ESMP	1EW04-LMJ-EV-PLN-NS01_NL02-054036
Burnt Firs Cluster	OC016,OC034 ESMP	1EW04-LMJ-EV-PLN-NS01_NL02-054037
Ash Bed Woods	OC060 ESMP	1EW04-LMJ-EV-PLN-NS01_NL02-05403
Cubbington Cluster	OC070,OC080, OC082,OC083, OC084,OC092 OC105	1EW04-LMJ-EV-REP-NS01_NL02-054039
Stoneleigh Overbridge	SK021, SK033	1EW04-LMJ-EV-PLN-NS01_NL03-054035
Ashow Road Cluster	SK052, SK053	1EW04-LMJ-EV-PLN-NS01-054009

9.4.3 Further ecological mitigation sites are yet to be designed and will be detailed in further versions of the LEMP once the design is complete.

9.5 Monitoring

9.5.1 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 General

- 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 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 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 General

- 11.1.1 Further land quality study work including intrusive ground investigation (where needed) and analysis will be conducted prior to construction in order to confirm areas of suspected land contamination that could be disturbed or encountered during construction of the scheme. Contaminated sites beyond the scheme will be considered only in terms of its potential impact on the scheme. No new land quality constraints were identified during these pre-construction surveys. No contaminated sites (in accordance with the meaning defined in Part 2a of the Environmental Protection Act, 1990) have been formally identified by the Regulator (in accordance with and the Contaminated Land (England) Regulations 2000) within the scheme.
- 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 The following list outlines land with potentially contaminative existing or historical uses, which have been identified as possible contaminative risks to HS2 works within the WDC area:
- Offchurch Cutting historical landfill to the east of Offchurch,
 - Infilled pond to the east of Decoy Spinney,
 - Stoneleigh Park,
 - Assumed infilled well off Leamington Road,
 - Coventry to Leamington Spa railway line to the northeast of Crackley and
 - Dismantled railway line at Burton Green.
- 11.2.2 The following lists outlines land that has been identified within or up to 250m from the area of land required to build the scheme with contaminative potential:
- Assumed infilled well at Brickyard Cottages;
 - Burnt Heath Farm located off Long Itchington Road;
 - Assumed infilled well located to the east of Offchurch;
 - Infilled pond to the northwest of Field's Farm;
 - Infilled pond located to the southeast of the river Leam;

- Timber yard in the northwest of Cubbington Wood;
- Former nursery located to the northeast of Decoy Spinney;
- Assumed infilled well to the northwest of Park Farmhouse;
- Area of disturbed and possible infilled ground located to the east of Stoneleigh Road;
- Tanks located to the west of Stoneleigh Park;
- Partially infilled pits between Dalehouse Lane and the Coventry to Kenilworth railway line;
- Infilled pit to the east of Crackley Wood;
- Infilled quarry in the south of Burton Green;
- Infilled pit to the south of Burton Green Farm; and
- Assumed infilled well located at Burton Green.

11.2.3 Regarding the above identified contaminative risks, the Contractor will have due regard to the following sensitive receptors:

- People, including residents in existing properties, local employees, construction and/or maintenance workers;
- Controlled waters, including groundwaters in the Warwickshire Group bedrock (Principal aquifer) and various Secondary A and Secondary B aquifers;
- The built environment, including buildings, property and underground structures and services; and
- The natural environment.

11.3 Local Control Measures

11.3.1 Ground investigations are to be undertaken to assess areas of potential contamination within the scheme. Following a conceptual site model and risk assessment a remedial strategy will be prepared, as needed. Consultation with WDC and the Environment Agency will 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, and appropriately permitted bioremediation to

remove oil contaminants. Contaminated soil disposed off-site will be taken to a soil treatment facility, another construction site (for licensed treatment, as necessary, and reuse) or an appropriately permitted landfill site.

- 11.3.3 Excavation through Offchurch Cutting historical landfill, New Kingswood Farm and Dalehouse Farm in the WDC area will be required. Should the ground investigation discover contaminated materials within the area required to construct the cutting 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 at other sites where contaminated soils or groundwater are identified during the investigation and / or construction processes.

11.4 Minerals

- 11.4.1 The scheme crosses a number of Mineral Safeguarding Areas in the WDC area, including those for building stone, sand and gravel, deep coal, and brick clay.
- 11.4.2 Mitigation of potential impact on these mineral resources can include prior extraction of the resource for use within the scheme or elsewhere. Extraction may be limited to areas of environmental mitigation earthworks within the scheme, adjacent to rather than beneath the track bed, which will require good founding conditions. A plan will be discussed in advance of the construction works with the landowner and/or mineral owner, the mineral planning department at WDC and any other interested parties to assist in achieving an effective management of minerals within the location of the affected Mineral Safeguarding Areas.

12. Landscape and Visual

12.1 General

12.1.1 General control measures relating to landscape and visual effects 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 Contractor will have due regard to limiting impacts of the character on the following landscape character areas (LCAs):

- Leamington Plateau Fringe LCA;
- Bubbenhall Plateau Farmlands LCA; and
- Stoneleigh Parklands LCA.

12.2.2 The Contractor will also have due regard to limiting visual intrusion on the following visual receptors (the word 'area' in this context means the study area of the HS2 main ES):

- Residents in the area, particularly on the edges of Kenilworth, Gibbet Hill, and Burton Green, and on the higher ground at Offchurch and Cubbington, and as isolated groups of residences interspersed throughout the landscape;
- Recreational users on PRoW throughout the area, including the Centenary Way, Offchurch Greenway (PRoW W192), the Kenilworth Greenway and Shakespeare's Avon Way (PRoW W130); and
- People travelling through the area along scenic roads, including along on the B4455 Fosse Way, Welsh Road, Crackley Lane and Hodgetts Lane.

12.3 Local control measures

12.3.1 Measures that have been incorporated into the CoCP to avoid or reduce landscape and visual effects during construction include the following (see main ES Volume 5):

- Maximise retention and protection of existing trees and vegetation where possible;
- Use well-maintained hoardings and fencing;
- Design lighting to avoid unnecessary intrusion onto adjacent buildings and other land uses;

- Trees intended to be retained which may be accidentally felled or die as a consequence of construction works will be replaced;
- 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;
- Position temporary bunds to be positioned to screen views to the route construction;
- The design of construction compound layouts to prevent damage to the retained trees as well as reduce visual and other impacts where practicable; and
- Identify specific locations of temporary material stockpiles to reduce visual impacts.

12.4 Trees

- 12.4.1 Where reasonably practicable the contractors will give consideration to where trees and other potential planting could be established early in the construction programme.
- 12.4.2 The Contractor will carry out surveys and agree the details of tree retention and protection measures, in accordance with BS 5837:2012 - Trees in relation to design, demolition and construction recommendations.

12.5 Site Buildings for Office and Welfare

- 12.5.1 Buildings will generally be of a temporary modular type; they will typically be multi-storey to maximise construction space and limit land take.

13. Noise and Vibration

13.1 General

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 within the main ES, Map Series SV-03 (Volume 5, Sound, noise, and vibration map book: country north, ref ES 3.5.1.9.3). For further details of these receptors and the potential adverse impacts identified, refer to the main ES (Volume 2: CFA17 and CFA 18 reports, Section 11, and the Volume 5: Appendices SV-003-017 and SV-003-018 reports).

13.2.2 Noise insulation is being offered for qualifying buildings as defined in the noise insulation and temporary rehousing 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 If a risk of eligibility is identified, then as a first action further BPM of noise control will be adopted to avoid noise insulation being triggered. If following the application of further BPM in the modelling, any dwellings still qualify for noise insulation then offers for noise insulation, or temporary rehousing, will be issued to residents. Where a resident accepts an offer of noise insulation or temporary rehousing, the noise insulation package (or temporary rehousing) will be installed before the start of the works predicted to exceed noise insulation or temporary rehousing criteria. Residents are given a six-month period in which to accept or reject noise insulation before the start of the works predicted to exceed noise insulation criteria.

13.2.4 There are numerous residential and non-residential properties located in proximity to the proposed works sites which without appropriate mitigation are likely to experience adverse effects from construction noise and/or vibration. Specific noise sensitive receptors identified include:

Residential

- Welsh Road, Offchurch;
- Stonebridge Lane, Offchurch;
- Valley Fields, Hunningham Road, Offchurch;
- Rugby Road, Cubbington;

- Oakdene, Coventry Road, Cubbington;
- Heathfield, Leicester Lane, Cubbington;
- Furzon Hill Cottages, Leicester Lane, Cubbington;
- Stareton, Kenilworth;
- Stoneleigh business park, Stoneleigh Park, Kenilworth;
- Crewe Lane
- Kingswood Farmhouse, Dalehouse Lane, Kenilworth;
- Dalehouse Lane, Kenilworth;
- Dale House Farm, Dalehouse Lane, Kenilworth;
- Millburn Grange, Kenilworth Road, Kenilworth;
- Kenilworth Road, Kenilworth;
- South Hurst Farm, Crackley Lane, Kenilworth;
- Red Lane, Burton Green;
- Cromwell Lane, Burton Green; and
- Hodgett’s Lane, Burton Green.

Non-residential

- Metcalfe Timber Ltd, Rugby Road, Cubbington;
- Oakdene Day Nursery, Coventry Road, Cubbington;
- Stoneleigh business park, Stoneleigh Park, Kenilworth; and
- Two Oaks Day Nursery, Red Lane, Burton Green.

13.3 Local Control Measures

- 13.3.1 Consents under Section 61 of the Control of Pollution Act 1974 will be obtained for the construction works and applications will normally be made at least 28 days before the relevant work is due to start. The works will be carried out in accordance with the conditions of the consent. Furthermore, site specific measures will be identified by the works Contractor on a site-by-site and activity-by-activity basis and agreed with WDC through the Section 61 process, as set out in the HS2 S61 guidance document.

- 13.3.2 Site specific best practicable means (BPM) measures to control noise and vibration have been identified through the Parliamentary process, and discussions with WDC, and are reflected in this document. Furthermore, site specific measures will be identified by the Contractor on a site-by-site and activity-by-activity basis and agreed with WDC through the Section 61 process.
- 13.3.3 As identified in the CoCP, examples of BPM measures that may be employed by the lead Contractor 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;
 - Arranging the layout of compounds to reduce noise impacts where compounds are in proximity to noise sensitive receptors. This may include placing any stacked porta-cabins 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.
- 13.3.4 Where, despite the implementation of BPM, the noise exposure exceeds the criteria defined in the CoCP (section 13), the Contractor may offer noise insulation or ultimately temporary re-housing.
- 13.3.5 Taking account of the avoidance and mitigation measures as set out in the CoCP, for residential buildings, there are two dwellings located at eastern boundary of Stoneleigh Park adjacent to Stoneleigh Road and two dwellings along Hodgett's Lane whose rear facades face onto the Kenilworth Greenway (represented by assessment location IDs 219016 and 204103 on plans SV-03-047 and SV-03-050a respectively within the Volume 5, Sound, noise and vibration - Country North map book) and are forecast to experience noise levels higher than the noise insulation trigger levels as defined in the CoCP for both day time and night time periods.
- 13.3.6 Local control measures will be periodically reviewed, including following any material changes in the proposed construction method and appointment of the works Contractor.

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 Where predicted noise or vibration levels are close to the SOAEL values, noise and/or vibration monitoring will be undertaken throughout the construction period.

- 13.4.3 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 WDC if a written request is made. 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. These can be found on the HS2 website at this address:
<https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>.
- 13.4.4 All noise and vibration monitoring equipment should hold a valid calibration certificate issued by either a United Kingdom Accreditation Service (UKAS) accredited calibration laboratory or equipment manufacturer.

14. Traffic and Transport

14.1 General

- 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.
- 14.1.3 A Route-wide Traffic Management Plan (RTMP) setting out generic traffic management measures to be implemented during the construction of the project will work in conjunction with the WDC specific Local Traffic Management Plans (LTMP). The 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; and
 - 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.
- 14.1.4 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.
- 14.1.5 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 Contractor develops the overall programme within the LTMP and the site-specific traffic management schemes.
- 14.2.2 These key sensitive receptors and the requirements for considering how impacts can be mitigated, as far as reasonably practicable, will be addressed appropriately through the development of the LTMPs or site-specific measures and discussed at the Local Traffic Liaison Group meeting, established in accordance with the CoCP and the Route-wide Traffic Management Plan.
- 14.2.3 In the WDC area these include local roads that are affected by the scheme and include the following:
- B4455 Fosse Way, between A425 Southam Road and approximately 180m north-east of Long Itchington Road;
 - B4455 Fosse Way, between A425 Southam Road and B4100 Banbury Road;
 - A425 Southam Road west of Fosse Way;
 - B4100 Banbury Road from B4455 Fosse Way to A452;
 - Welsh Road, south of the B4455 Fosse Way to Ridgeway Lane;
 - Welsh Road, north of the B4455 Fosse Way to Hunningham Road;
 - Hunningham Road, between Welsh Road and Fields Farm Cottages access road;
 - B4453 Rugby Road, between Kenilworth Road and approximately 100m to the east of Church Lane;
 - Kenilworth Road, between B4453 Rugby Road and A445 Leicester Lane;
 - West Hill Road and Bericote Road between A445 Leicester Lane and A452 junction;
 - A452 between Bericote Road and A46 junction;
 - B4113 Stoneleigh Road between Bericote Road and Stoneleigh Business Park;
 - B4115 Ashow Road between A452 and Stoneleigh Road;
 - Stoneleigh Road between Ashow Road and A429; and

- A429 Kenilworth Road between Stoneleigh Road and the line of route of the scheme.

Site Access

- 14.2.4 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.
- 14.2.5 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 goods vehicle movements exceed 24 single movements (12 two-way movements) per day to and/or from a site.
- 14.2.6 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 Temporary and permanent road closures, overnight and at weekends, and diversions will be required. The scope is assumed as following:
- Ridgeway Lane north of the Oxford canal;
 - Welsh Road west of Ridgeway Lane;
 - Welsh Road between Fosse Way and Long Itchington Road;
 - B4455 Fosse Way south of the junction with Fosse Way to north of its junction;
 - with Long Itchington Road;
 - Long Itchington Road either side of Fosse Way;
 - Hunningham Road;
 - B4453 Rugby Road;
 - Kenilworth Bypass;
 - Dalehouse Lane;
 - A429 Kenilworth Coventry Road west of Cubbington;
 - A445 Leicester Lane;
 - Stareton Road;
 - B4113 Stoneleigh Road;

- B4115 Ashow Road;
- A46 Road;
- Crackley Lane, west of A429; and
- Cromwell Lane in Burton Green.

14.3.2 In addition to the above, highways will also be permanently realigned as part of the final scheme as they pass under or over the route of HS2, although the A46 Kenilworth Bypass will be reinstated on its existing alignment and Cromwell Lane will be reinstated online.

14.3.3 Alternative temporary routes are required for the following PRow:

- Offchurch Greenway east of Offchurch;
- Kenilworth Greenway through Burton Green; and
- Footpath M182 in Burton Green.

14.3.4 Alternative temporary routes and permanent diversions are required for the following PRow:

- Fields Farm footpath W129y, west of Hunningham Road;
- Mill Lane footpath 129d, east of Cubbington;
- Shakespeare's Avon Way (footpath w130), east of Cubbington;
- Footpath K29 temporarily diverted via Dalehouse Lane; and
- Footpath W167 east of Burton Green.

14.3.5 In addition to the above, permanent realignments are required as follows:

- Footpath W192 as it crosses the route of HS2 near Offchurch;
- National Cycle Route 41 diverted onto Offchurch Greenway east of Offchurch;
- Footpath W128 diverted to Hunningham Road;
- Footpath W130b diverted to run via Rugby Road;
- Footpath W171 near Stoneleigh Business Park;
- Bridleway W164 north of Kenilworth;
- Bridleway W165x north of Kenilworth;
- Footpath W168 east of Burton Green; and

- Footpath 169 east of Burton Green.

14.3.6 There will be permanent stopping up of Long Itchington Road between the B4455 Fosse way and the route of HS2 as part of the final scheme.

14.3.7 All temporary closures and diversions will be subject to submissions and notifications to the relevant highway authority.

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 General

- 15.1.1 General control measures relating to waste and materials are provided in Section 15 of the CoCP.
- 15.1.2 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'¹⁰ 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 Practice¹¹ 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.

¹⁰ 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 WM3) 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.

¹¹ CL:AIRE Definition of Waste Development Industry Code of Practice, version 2, March 2011.

- 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 Disposal¹²; and
 - WM3 – Guidance on the classification and assessment of waste (Version 1.2, 2021).¹³

15.3 Transport of Waste and Materials

- 15.3.1 Excavated material produced in WDC is unlikely to be surplus to the requirements of the scheme. However, in the event of surplus excavated material being produced, it will be managed in accordance with the waste hierarchy as described above and the HS2 Excavated Materials Policy, which can be found at the following link: <https://assets.hs2.org.uk/wp-content/uploads/2018/10/19140026/Excavated-Material-and-Waste-Management.pdf>.
- 15.3.2 Opportunities for the off-site re-use of surplus excavated material will therefore be identified and utilised where reasonably practicable. Surplus excavated material will only be sent to landfill as an option of last resort. Further detail on the approach to the management of all excavated material may be found in the HS2 Phase One Information Paper E3: Excavated Material and Waste Management.
- 15.3.3 Excavated material from WDC will be transported by rail where reasonably practicable to do so. If rail transport is not reasonably practicable material will be transported by road.

¹² Environment Agency (2013), Waste Sampling and Testing for Disposal to Landfill, March 2013.

¹³ Environment Agency (2021) Technical Guidance WM3 – Guidance on the classification and assessment of waste (Version 1.2 2021)

16. Water Resources and Flood Risk

16.1 General

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 Contractor will have due regard to the following sensitive local water resource receptors:

- Local aquifers:
 - The Grand Union Baginton Sand and Gravel (Secondary A aquifer);
 - Dunsmore Gravel (Secondary A aquifer);
 - Wolston Sand and Gravel Formation (Secondary A aquifer);
 - Alluvium (Secondary A aquifer); Head (Secondary undifferentiated aquifer);
 - River terrace deposits (Secondary A aquifer);
 - Glaciofluvial deposits (Secondary A aquifer);
 - Bedrock - Mercia Mudstone Group (Secondary B aquifer);
 - Bromsgrove Sandstone Formation (Principal aquifer);
 - Kenilworth Sandstone Formation (Principal aquifer);
 - Ashow Formation (Principal aquifer); and
 - Tile Hill Mudstone Formation (Principal aquifer).
- The route crosses a catchment SPZ (SPZ3) just north of Cubbington.
- Surface water features:
 - River Leam, including tributaries;
 - The Grand Union Canal; River Avon;
 - Finham Brook; and
 - Canley Brook and its tributaries and ponds located within and outside of the land required for the construction of the scheme.
- Water dependent habitats:
 - Coleshill Park Ash Beds (LWS);
 - River Leam (LWS);
 - South Cubbington Wood (LWS);
 - Knowle Hill (LWS);
 - Kenilworth Common (LNR);
 - Wainbody Wood and Stivichall Common;

- Kenilworth Road Spinney (LNR);
 - Tocil Wood and Meadow (LNR);
 - Crackley Wood (LNR);
 - River Avon and tributaries (LWS);
 - Broadwells Wood (Ancient Woodland and LWS); and
 - Black Waste Wood (Ancient Woodland and LWS).
- Abstractions – public / private and licensed / unlicensed:
 - Licensed surface water abstractions from River Avon, River Soar and Finham Brook;
 - Groundwater licensed abstractions from the Mercia Mudstones, Bromsgrove Sandstone; and Ashow Formation and Kenilworth Sandstone.
 - Artificial water bodies:
 - The Grand Union Canal.

16.2.2 The Contractor’s pollution incident control management system 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 or mitigation measures.

16.2.3 The Contractor will have due regard to the following areas within Environment Agency Flood Zones 2 and 3, which are at risk of river flooding:

- River Leam and its tributaries;
- River Avon;
- Finham Brook; and
- Canley Brook and its tributaries.

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

- Parts of Kenilworth at risk from river flooding.

16.2.5 Areas at risk of surface water flooding are shown on the Environment Agency’s Updated Flood Maps for Surface Water. These are mostly associated with watercourses. Details are also held by the local authority/lead local flood authorities.

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 reduce potential adverse effects on surface water or groundwater quality or flows associated with construction; this will include release to groundwater or surface water from sewers in the surrounding area.
- 16.4.2 As outlined in the CoCP, BPM 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 run off from wheel washing facilities or from general construction activities. As noted in Section 5.13 of this document, a pollution incident control management system will incorporate procedures for alerting relevant water supply companies and reducing impacts to public supply SPZs and local private abstractions in this area.
- 16.4.3 Where there is the possibility that work may affect aquifers, a groundwater monitoring plan will be implemented, as outlined in Section 16 of the CoCP.
- 16.4.4 A programme of groundwater and surface water monitoring has been undertaken prior to, during construction, and following completion of the construction works. The monitoring programme scope and duration has been developed and agreed with the Environment Agency in consultation with relevant stakeholders as necessary (Lead Local Flood Authority (LLFAs) and Internal Drainage Board (IDBs)). Monitoring of water quality is carried out in accordance with consent conditions imposed by the regulatory authorities.
- 16.4.5 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 or quantity through issuing a Permit to Pump.
- 16.4.6 If required, appropriate guidance will be adhered to, including the Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. Groundwater and surface water monitoring plans will be prepared, where piling could result in below ground contamination.
- 16.4.7 Temporary excavated material stockpiles, construction compounds and site offices will be located outside of areas at risk of flooding where reasonably practicable, to avoid affecting the level of risk of flooding. Where construction compounds cannot be located outside of 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 main ES and will include any proposed risk management or mitigation measures, if required.
- 16.4.8 Drainage from the works will be attenuated through the construction of attenuation ponds with robust silt management 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.

- 16.4.9 Cuttings (both retained and open) in the area may need to be excavated below the natural water table, although this is uncertain in the absence of detailed ground investigation. The impact of both temporary and permanent dewatering will be reassessed as more information becomes available and mitigation measures identified. Mitigation measures may include re-infiltration of abstracted groundwater, pumping to support sensitive features or the use of engineering control, such as grouting or secant piling to reduce the amount of water flowing from the aquifer.
- 16.4.10 Additional information, such as how the scheme complies with the Water Framework Directive (WFD), 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 A: Glossary of terms

Abbreviation	Full phrase
BPM	Best Practicable Means
CFA	Community Forum Area
CoCP	Code of Construction Practice
Contractor	The Contractor is responsible for planning, managing, and coordinating themselves and/or the works and all other contractors working on their site, or any other contractor directly employed by the Nominated Undertaker to undertake key construction works on site.
CPC	Safe Urban Driving Certificate of Professional Competence
DRI	Demolition Recovery Index
ECoW	Ecological Clerk of Works
EMR	Environmental Minimum Requirements set out environmental and sustainability commitments to be complied with by HS2 and its contractors. These form part of the High-Speed Rail (London –West Midlands) Act 2017 and are legally binding
EMS	Environmental Management System
ES	Environmental Statement
FORS	Fleet Operators Recognition Scheme
GWSI: HERDS	Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy
HGVs	Heavy Goods Vehicles
HS2	High Speed 2
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
LCAs	Landscape Character Areas
LEMP	Local Environmental Management Plan
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LSWSI	Location Specific Written Scheme of Investigation

Abbreviation	Full phrase
LWS	Local Wildlife Site
NBRI	New Build Recovery Index
NEF	National Environment Forum, comprised of Government departments and statutory bodies and established to advise on environmental policy for HS2, including project-wide strategies for reducing the environmental impact of the line and principles for the Code of Construction Practice
Nominated Undertaker	The body or bodies appointed to implement the powers of the Act to construct and maintain the railway
NRMM	Non-Road Mobile Machinery
PFRA	Preliminary Flood Risk Assessment
PRoW	Public Rights of Way
PWMS	Precautionary Working Method Statement
RRVs	Road Rail Vehicles
RTMP	Route-wide Traffic Management Plan
Scheme	The scheme to which this CoCP relates is the 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 Northwest and Scotland and to the Channel Tunnel via HS1. 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)
SSMP	Site Specific Management Plan
SES	Supplementary Environmental Statement
SFRA	Strategic Flood Risk Assessment
SLI	Site of Local Importance
SMI	Site of Metropolitan Importance
SPZ	Source Protection Zone
SRP	Soil Resources Plan
TfL	Transport for London
Third Party	For the purposes of the LEMPs, an organisation with whom HS2 Ltd has entered into a legal agreement to undertake works on its behalf, to be delivered under Act powers or the third party's own powers (e.g., permitted development). Such agreements require the third parties to

Abbreviation	Full phrase
	comply with the requirements of the Act and the EMRs, including the CoCP. Third parties might include Network Rail, Highways England, and utility companies
TMP	Traffic Management Plan
TPC	Traffic Plan Coordinator
UKAS	United Kingdom Accreditation Service
WDC	Warwick District Council
WFD	Water Framework Directive
WSI	Written Scheme of Investigation

Appendix B: Non-exhaustive list of community groups in WDC

It is likely engagement with the following groups may be undertaken during construction including, but not limited to:

- Local Member of Parliament;
- HS2 Community Forums;
- Offchurch & Cubbington (CFA 17);
- Stoneleigh, Kenilworth & Burton Green (CFA 18);
- Highways England;
- landowners/occupiers directly affected by the scheme;
- the Warwickshire, Solihull, and Coventry Local Access Forum;
- Warwick District Council;
- Warwickshire County Council;
- Ashow Parish Council;
- Burton Green Parish Council;
- Cubbington Parish Council;
- Ashow Parish Council;
- Kenilworth Town Council;
- Offchurch Parish Council;
- Stoneleigh Parish Council;
- Weston under Wetherley Parish Council;
- Burton Green Church of England Primary School;
- Burton Green Residents Group;
- Burton Green Residents Association;
- Burton Green Village Hall Trustees;
- Crackley Residents Association;
- Hedgerow Day Nursery;
- Two Oaks Day Nursery;
- Kenilworth and District Agricultural Society;
- Kenilworth Golf Club;
- National Farmers Union;
- The Ramblers (Local Group);
- Woodland Trust;
- British Horse Society;
- Peak and Northern Footpath Society;
- Environment Agency;
- Natural England;

- Canals and Rivers Trust;
- RSPB Lichfield and District Local Group;
- National Trust;
- Royal Leamington Spa Cycling Club;
- Kenilworth Wheelers Cycling Club;
- Wolf Run;
- Sustrans;
- Warwickshire Wildlife Trust;
- National Agricultural and Exhibition Centre;
- Stoneleigh Estate; and
- Stoneleigh Park Residents Association.

NB: This list is not exhaustive and may be subject to change as more information becomes available

Appendix C: Glossary of Construction Activity Terminology

Construction Activity	Full Explanation
Removal of invasive species	Invasive plant species such as Japanese knotweed and Himalayan Balsam will be removed where required and disposed of according to technical standards.
Remediation works	Areas of ground contamination will be removed, and material 'cleaned' on site via a bespoke remediation strategy before being reinstated. This will minimise the risk of contamination compromising deep foundations that will be installed. Remediation works will involve drilling boreholes to monitor groundwater quality and testing the quality of materials prior to reinstatement.
Earthworks and piling platform preparation	Due to a disparity in height of site pre-existing land will be removed, moved by wagons, and reinstated across site to ensure an even surface level. Material of an appropriate specification will then be installed in areas where deep foundation works will be undertaken.
Dewatering	Groundwater encountered during deep foundation works (for example piling) will be pumped out of the excavation to ensure a dry working area can be maintained.
Finishing works and landscaping	After the completion of the civil structures the works area will be landscaped, and key details of the final design will be installed.
Non-intrusive ground investigation	Scanning of the ground throughout the works to monitor underground services and utilities.
Utilities diversion, protection & removal	Utilities will be diverted protect and removed throughout the works to enable HS2 to be constructed.
Piling platform preparation	Pre-existing land is removed and reinstated with material of an appropriate specification to ensure deep foundation works can be undertaken.
Piling	A method of cylindrical deep foundations used to support the structures we are constructing. These structures will be supported by concrete piles which have been drilled metres into the ground.
Sheet piling	A method of piling which involves driving flat steel plates into the ground to reduce groundwater ingress into an area when excavating into the water table. Sheet piles will be installed where deep excavations are required and removed once the works are complete.
Pier construction	Concrete piers will hold up the deck of viaducts and overbridges. These will be cast on site by pouring concrete into formwork which have been fitted out with steel reinforcement.