

A14
Cambridge to Huntingdon
improvement scheme
Development Consent Order Application

HE/A14/EX/244

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Environmental Statement Appendix 20.2

Code of Construction Practice

November 2015

A14 Cambridge to Huntingdon improvement scheme

Development Consent Order Application
Environmental Statement Appendices
Appendix 20.2 – Code of construction practice

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Summary

1. This Code of Construction Practice (CoCP) outlines the measures and standards the main contractors are required to implement during the construction of the A14 Cambridge to Huntingdon improvement scheme. All contractors working on the scheme will be required to comply with this document. This document has been developed to ensure that likely significant construction effects reported in the Environmental Statement will either be avoided or mitigated. The CoCP has been subject to consultation with the appropriate local authorities and statutory environmental bodies.

2. The key measures by which the CoCP will manage the effects of the scheme during construction are summarised below:

General site operations

- Working hours - core working hours, start up and close down periods and anticipated additional working hours.
- Construction site layout and appearance –specific measures to be implemented on site by contractors to reduce the likelihood of an environmental incident or nuisance occurring.
- Pollution prevention –specific measures to be adopted by main contractors to manage the risk of pollution incidents, and to investigate and report on any potential or actual significant pollution incident requirements for emergency preparedness and emergency access will be established.
- Other – Other measures to be implemented are for construction lighting and signage, unexploded ordnance, temporary living accommodation, occupational healthcare, security, fire prevention and control of extreme weather events.

3. Specific environmental protection measures will be established in line with the CoCP to address predicted impacts in relation to the following environmental topics:

Environmental protection measures

- Air quality;
- Cultural heritage;
- Community and private assets (including agricultural land and farms);
- Geology and soils;
- Landscape;
- Materials resources;
- Nature conservation;
- Noise and vibration;
- Road drainage and the water environment; and
- Traffic and transport.

4. In addition to the CoCP, Local Environmental Management Plans (LEMPs) will be produced in consultation with local authorities, local communities and other stakeholders. These will set out site-specific environmental and community protection measures at a local level. As the scheme extends across the area of jurisdiction of the district councils of Huntingdonshire and South Cambridgeshire, two LEMPs will be produced (one for each district council).

5. The LEMPs will build upon general environmental requirements outlined in the CoCP and will be informed by the local knowledge of local authorities and other local stakeholders. The LEMPs will be developed and updated as more information is available to contractors during the detailed design stage.

6. A community engagement strategy will be developed to support the above work through detailed design and construction. This strategy will provide the approach to community engagement and a guide to the enquiries and complaints procedures.

7. The strategy will be enhanced by ongoing community engagement through detailed design and construction. It will be effected by means of online tools, newsletters, parish, community, landholder and environment forums, updates on progress of construction works and notification to local residents, businesses and parish councils. An enquiries and complaints procedure will be established and provide for contact by telephone, email and through a project website.

1 Introduction

1.1 Background

- 1.1.1 This document is the code of construction practice (CoCP) for the highway construction, improvement and alteration between Huntingdon and Cambridge, covering a distance of approximately 34km, and online improvements of the A1, covering a distance of approximately 6km.
- 1.1.2 Powers to construct the scheme will be sought by the Highways Agency through an application for a development consent order (DCO) to the Secretary of State through the Planning Inspectorate (as responsible agency) in autumn 2014.
- 1.1.3 The CoCP contains control measures and the standards to be implemented throughout construction of the A14 Cambridge to Huntingdon improvement scheme. At a local level, site specific control measures will be included within local environmental management plans (LEMPs), which will be developed following consultation with the relevant stakeholders (refer to *Section 3*).
- 1.1.4 The scheme extends across the administrative area of Cambridgeshire County Council and includes the district councils of Huntingdonshire and South Cambridgeshire. The CoCP will provide a consistent approach to the management of construction activities along the entire route of the proposed works and with a wide range of key stakeholders.
- 1.1.5 The CoCP has been subject to consultation with the appropriate local authorities and statutory environmental bodies.

1.2 Structure of this document

- 1.2.1 This document comprises following sections:
- Introduction (*Section 1*).
 - A14 scheme description (*Section 2*) – describing the six sections of the scheme.
 - Environmental management and implementation (*Section 3*) – outlining measures and standards to protect communities and the environment during construction works.
 - Community relations (*Section 4*) – outlining the approach to community engagement.
 - General site operations (*Section 5*) – including mitigation of the impact of general site operations and construction activities, and the environment and pollution incident control measures.
 - General requirements by environmental topic (*Sections 6 to 15*) – setting out the measures that will be implemented to limit

disturbance from construction activities, as far as reasonably practicable, in relation to the following topics which respond directly to the scheme *Environmental Statement (ES)*:

- Air quality;
- Cultural heritage;
- Community and private assets (agricultural land and farms);
- Geology and soils;
- Landscape;
- Materials resources;
- Nature conservation;
- Noise and vibration;
- Road drainage and the water environment; and
- Traffic and transport.

1.3 Purpose of the code of construction practice

1.3.1 This CoCP sets out a series of proposed measures and standards of work that will be applied by Highways England and its main contractors throughout the construction period to:

- provide effective planning, management and control during construction with the aim of controlling potential impacts upon people, businesses and the natural and historic environment; and
- provide the mechanisms to engage with the local community and their representatives throughout the construction period.

1.3.2 The main contractors will comply as a minimum with applicable environmental legislation at the time of construction together with any additional environmental controls imposed by the DCO. For this reason the applicable statutory requirements are not repeated within this CoCP. Further guidance on specific areas, such as soil handling and dust management, will be applied where appropriate from industry good practice guidance documents as set out in each discipline section of this CoCP. The references to guidance documents within this document are not intended to be exhaustive.

1.3.3 This CoCP has been produced in conjunction with the ES documentation with the aim of ensuring that likely significant construction effects that are reported in the ES will either be avoided or mitigated. Site specific controls, which will be included within LEMPs, will be developed following the publication of the ES.

1.3.4 Particular requirements of this CoCP could be discharged with like requirements in the DCO.

Table 1.1 Anticipated timescales for development of the CoCP

Document	Timescales for development
Code of construction practice	Completed at the end of the DCO examination period.
Local environmental management plans (LEMPs)	Developed during detailed design for implementation during construction.
Construction environmental management plan (CEMP)	Developed during detailed design and implemented and reviewed during the construction.
Third party consent applications	Submitted as appropriate during detailed design and construction.
Contractors method statements	Developed during construction.

2 A14 scheme description

2.1 Overview

- 2.1.1 The A14 Cambridge to Huntingdon improvement scheme would extend east from the existing A14 at Ellington to the *Cambridge* northern bypass at Milton, a distance of approximately 34km (21 miles). It would extend south and east from Ellington to create a new southern bypass of approximately 20km (12½ miles) in length around Huntingdon before re-joining the existing A14 near Swavesey. From there it would continue east, with carriageway widening as far as Milton, at the east end of the Cambridge northern bypass. The scheme would also include the widening of the existing A1 trunk road between Brampton and Alconbury, together with the construction of a local road between Fen Drayton and Girton a distance of 8km (5 miles) measured following the route of the A14. The existing A14 trunk road would be downgraded to county road status (de-trunked) between Brampton Hut and Swavesey, as well as between Alconbury and Spittals interchange and the road viaduct over the East Coast mainline railway in Huntingdon would be removed.
- 2.1.2 The scheme can be broken down geographically into the following sections:

2.2 Section 1 – A1 Alconbury to Brampton Hut

- 2.2.1 The A1 trunk road would be widened from the existing two lane dual carriageway to a dual three-lane carriageway between Alconbury and Brampton Hut over a length of approximately 3km (1.9 miles). A single carriageway local access road would also be constructed to connect the Ellington junction with Woolley Road.

2.3 Section 2 – A1/A14 Brampton Hut to East Coast mainline railway

- 2.3.1 A new section of the A1 would be constructed as dual three lane carriageway on the western side of the existing A1 alignment between Brampton Hut junction and Brampton interchange. Two new slip roads would provide connections between the A1 and A14 north of Buckden for traffic travelling from A1 southbound onto A14 southbound and for traffic travelling from A14 northbound onto A1 northbound.
- 2.3.2 The A14 Huntingdon southern bypass would be commence at Ellington, crossing the line of the new section of A1 south of Brampton Hut junction and joining the line of the existing A1 as it heads south to a new junction to the south-west of Brampton. The A14 Huntingdon southern bypass would continue as a three lane dual carriageway between Brampton interchange, where there is a lane gain southbound and a lane drop northbound, to a bridge across the East Coast mainline railway.

2.4 Section 3 – A14 East Coast mainline railway to Swavesey

2.4.1 The new Huntingdon southern bypass would continue as a three lane dual carriageway from the bridge over the East Coast mainline railway to join the existing alignment of the A14 at an improved junction south of Swavesey. Swavesey junction would maintain the connection between the A14 and the local road network, Cambridge Services and Buckingham Business Park and also provide connection to the new local access road. The new section of bypass would include a junction with the A1198 south of Godmanchester with west facing slip roads only, facilitating exit of eastbound traffic and entry of westbound traffic.

2.5 Section 4 – A14 Swavesey to Girton

2.5.1 The existing A14 would be widened over approximately 7.9km (5 miles) to provide three lanes in each direction between Swavesey and Bar Hill and four lanes in each direction between Bar Hill and Girton. Girton interchange would be reconfigured to include an improved A14 westbound link and the realignment of the A428.

2.5.2 A new local access road, approximately 8km (5 miles) in length, would be constructed as a dual carriageway link between the existing A14 near Fen Drayton and Swavesey junction, and as a single carriageway between Swavesey and Girton. This road would provide a route for local traffic between Cambridge and Huntingdon as well as providing access to properties and businesses along the route corridor. At Dry Drayton Road the existing overbridge would be maintained, linking to the new local access road east and west of the A14 which provides connection to the A14 at Bar Hill Junction to the north and to Huntingdon Road to the south. The existing connection to the A14 at Dry Drayton Road would be removed.

2.5.3 There would be an improved Bar Hill junction which would maintain access to Bar Hill while improving NMU facilities and providing a connection to the new local access road east of the A14. The junction capacity would be increased to cater for forecasted traffic growth generated by Stage 2 of the proposed development at Northstowe.

2.6 Section 5 – A14 Cambridge northern bypass – Histon to Milton

2.6.1 A 2.5km (1.5 miles) section of the Cambridge northern bypass between Histon and Milton would be widened from the existing two lane dual carriageway to a three lane dual carriageway.

2.6.2 By the time of this scheme's construction, the section of the A14 between Girton interchange and Histon will have been widened as part of the A14 Junction 31 to 32 Eastbound and Westbound improvements scheme, and as such does not form part of the A14 Cambridge to Huntingdon improvement scheme.

2.7 Section 6 – Huntingdon viaduct demolition and A14 De-trunking

- 2.7.1 The existing A14 trunk road would be downgraded to county road status (de-trunked) between Brampton Hut and Swavesey, as well as between Alconbury and Spittals interchange. Approximately 21km (13 miles) of the existing A14 route would be downgraded to county road status.
- 2.7.2 As part of this section of the scheme the road viaduct over the East Coast mainline railway in Huntingdon would be removed.
- 2.7.3 A new link road would be constructed to improve access into Huntingdon from the south and east by connecting the existing A14 with the Huntingdon ring road near the bus station and by constructing a new link road from Brampton Road to connect with the A14 to the west. The Brampton Road bridge would remain as the crossing over the East Coast mainline railway for lightweight traffic.
- 2.7.4 This is a large highway improvement scheme. By dividing the scheme into six sections, it enables more than one main contractor to be employed. When referring to the 'main contractors' in this document, all contractors shall comply with the relevant terms as described.
- 2.7.5 This scheme would also require borrow pits to be created along the length of the scheme and these areas are also covered by the CoCP. Borrow pits are described within *Chapter 3 of the ES*.

3 Environmental management and implementation

3.1 Introduction

3.1.1 Similar to other large infrastructure projects, during the A14 scheme construction phase environmental issues will be managed and controlled through a number of measures outlined in the documents described below. There are two main mechanisms of environmental control, these are:

- Environmental mitigation measures; and
- Management processes and procedures for ensuring compliance.

3.1.2 The approach is explained below with reference to the scheme specific management documents.

Environmental mitigation measures and controlling documents

3.1.3 Code of Construction Practice (CoCP) – This CoCP sets out the general route-wide environmental good practice measures that must be complied with, with the aim of mitigating the impact of general site operations and construction activities.

3.1.4 Local Environmental Management Plans (LEMPs) (see Section 3.2) – The LEMPs will outline area and site specific environmental good practice measures for each local authority area. One will be prepared for Huntingdonshire District Council's area and one for South Cambridgeshire District Council's area, in consultation with these authorities and other relevant stakeholders as appropriate. The LEMPs will be developed as more information is available from contractors during the detailed design stage of the scheme. A template for the LEMPs is included in Annex 1 of this CoCP.

3.1.5 Topic specific plans – Further detailed management measures are required for certain environmental issues as the detailed design is developed e.g. within site species or habitat management plans. These will be appended to the LEMPs.

3.1.6 Legislative, consent and licence compliance – In addition to the above, the contractors will be required to comply with all legislative requirements, including the provisions of the DCO, and will obtain necessary licences and consents for the works e.g. in accordance with relevant national legislation.

Management Processes and documents for ensuring compliance

3.1.7 Main contractors' Environmental Management Systems (EMSs) / CEMPs (see section 3.5) - The primary process for ensuring

compliance with all environmental requirements, including those outlined above, are the main contractors' EMSs. The EMSs will be documented within CEMPs. The CEMPs will primarily include processes and procedures for managing compliance, training, monitoring, auditing and management reviews. The procedures will outline specific roles and responsibilities within the main contractors' organisations.

- 3.1.8 The EMSs will be externally audited and certified by an accredited body to ISO 14001 and is likely to reference relevant processes and procedures within the main contractors' corporate and project management systems, such as for quality assurance and health and safety. One of the key aims of an EMS is to continually improve performance and therefore aspects of the system are regularly reviewed, audited and updated. Each CEMP will therefore be regularly reviewed and updated as appropriate by the main contractors to reflect the changes in their EMS.
- 3.1.9 Method statements (see Section 3.10) – As part of the main contractors' management processes, method statements for undertaking the construction works will be prepared prior to commencing a relevant construction activities on site. The method statements will set out the health, safety, site security and environmental issues associated with the particular construction operations.
- 3.1.10 Employer's Representative EMS (see Section 3.3) - The Employer's Representative will also have an EMS documenting the processes for the overall management of the works, with the aim of ensuring compliance and the effectiveness of all environmental requirements on the scheme
- 3.1.11 Handover Environmental Management Plan (HEMP) (see Section 3.11) – During construction of the scheme, the relevant main contractors will jointly prepare a HEMP. This will provide the relevant information on existing and future environmental commitments, objectives, ongoing actions and risks that need to be managed in the operational phase of the scheme. The HEMP will be reviewed and updated as necessary throughout the construction period.

3.2 Local environmental management plans

- 3.2.1 Two LEMPs will be prepared, one for Huntingdonshire District Council's area and one for South Cambridgeshire District Council's area. Each LEMP will include for the relevant local authority area, specific measures as relevant to the works being undertaken and the environmental issues specific to each section of the scheme, as set out in Section 6 onwards of this CoCP. The LEMPs will build on the general environmental requirements given below and will set out how the project will adapt and deliver the required environmental and community protection measures within each relevant local authority

area. The LEMPs will be developed and updated as more information is available from contractors during the detailed design stage. Sections 1, 2 and 6 of the scheme are within the jurisdiction of Huntingdonshire District Council and Sections 4 and 5 are within the jurisdiction of South Cambridgeshire District Council. Section 3 is split across Huntingdonshire District and South Cambridgeshire District. All sections of the scheme are within the administrative area of Cambridgeshire County Council.

- 3.2.2 The LEMPs will include appropriate information for sub-areas of the scheme for example the control of works in close proximity to residential areas or for specific activities such as within the borrow pit sites. Site species or habitat management plans (*see Section 12*) will also be appended to the LEMPs to provide local scale information.
- 3.2.3 The proposed measures within the LEMPs will consider, as appropriate, other relevant local scheme's activities.
- 3.2.4 Highways England/employer's representative and/or its main contractors will engage with the local communities, local authorities and other stakeholders on the LEMPs. This will include Cambridge City Council where it is reasonably foreseeable that its residents will be impacted by the construction works.
- 3.2.5 Highways England/employer's representative and/or its main contractors will use reasonable endeavours to agree the relevant LEMPs with Huntingdonshire District Council and South Cambridgeshire District Council.
- 3.2.6 A template for the LEMPs is included in *Annex 1*.

3.3 Employer's representative environmental management system

- 3.3.1 The employer's representative (of Highways England) will establish a process to require the relevant mitigation measures identified in the ES are addressed through the construction phase by main contractors. The process will set out:
 - all relevant environmental aspects of the work and how they will be managed;
 - staff competence and awareness requirements and how these are achieved and maintained;
 - the approach to be implemented to plan and monitor compliance with environmental legislation and the environmental provisions in the DCO;
 - monitoring compliance and the effectiveness of the measures included within this CoCP;
 - the measures to be taken to address non-compliance or unexpected impacts; and

- engagement and consultation with local authorities, other statutory bodies and the local community.

3.4 Collaboration and co-ordination across concurrent projects

3.4.1 Whilst the detailed procurement strategy for the scheme is not yet confirmed, it is anticipated that construction would be split into a number of packages of work along the length of the scheme and that some of these would proceed concurrently, i.e. that there would be on-going construction activity in more than one location under the control of different main contractors.

3.4.2 As a consequence, there would be a need for co-ordination of activity outside site boundaries to reduce risk of conflict and to maximise opportunities for reducing overall impact on surrounding communities and the environment. This role would be fulfilled by the employer's representative, with technical support as appropriate.

3.4.3 The employer's representative would have particular regard to co-ordination of activity by main contractors, and collaboration between main contractors, in respect of:

- community liaison: communicating upcoming activity to affected communities and responding to questions/concerns raised;
- emergency response: maintaining communication with emergency services and ensuring that emergency response plans do not conflict;
- traffic management: working collaboratively with the aim of avoiding potential conflict in arrangements and minimising disruption to road users;
- access to site: communication and collaboration in respect of arrangements for site access and abnormal loads with highway authorities and emergency services;
- construction workforce: monitoring the impact of the workforce on the community in its travel to and from work and its use of temporary accommodation; and
- other construction projects: maintaining communication between the works on the scheme and those of other relevant schemes in the area.

3.5 Main contractors' construction environmental management plan

3.5.1 Highways England will require each of its main contractors to have a construction environmental management plan (CEMP) certified to *BS EN ISO14001 Environmental Management Systems – specification with guidance for use* (BSI, 2004). Each CEMP will include for that contractor roles and responsibilities, together with appropriate control measures, training and briefing procedures, risk assessments,

stakeholder engagement and monitoring systems to be employed during planning and constructing the works for all relevant topic areas.

- 3.5.2 As part of their CEMP, each main contractor will be required to plan their works in advance to ensure that measures to reduce environmental effects are integrated into the construction methods and commitments from the ES, LEMPs and DCO are complied with.
- 3.5.3 Each main contractor's CEMP will cover the activities of all their contractors. Each main contractor will also be required to coordinate with other contractors and relevant parties that may affect their works. This will be documented in its CEMP, as appropriate.
- 3.5.4 Each main contractor's CEMP will include procedures or plans to monitor compliance with the project's environmental requirements including statutory and consent requirements together with provisions for any corrective actions required.
- 3.5.5 The detailed provisions of the main contractors' CEMPs will be subject to review and acceptance as being suitable by Highways England/employer's representative.

3.6 Enforcement

- 3.6.1 The provisions of the CoCP will be imposed by Highways England on the main contractors by means of the works contracts. The contracts will incorporate both:
- general requirements; and
 - site specific requirements, including the requirements of the LEMPs.
- 3.6.2 The main contractors and their contractors will be required to comply with the terms of the CoCP and appropriate action will be taken by Highways England/employer's representative as required with the aim of ensuring compliance.

3.7 Site management

Monitoring

- 3.7.1 The main contractors will undertake the necessary monitoring as outlined for each environmental topic (*see Sections 6 to 15*) to comply with the requirements of this CoCP, the relevant LEMP, any additional consent requirements and their EMS. Monitoring will assess the effectiveness of mitigation measures and the impact of construction works. Additional actions that may be necessary to enable compliance will also be considered.
- 3.7.2 Monitoring, together with provisions for any corrective action required, will be implemented using the systems set out under their individual main contractors' CEMP.

3.8 Training and competence

- 3.8.1 Highways England will require all main contractors to employ an appropriately qualified and suitably experienced workforce. Where appropriate, this will include holding a registration with relevant recognised competence schemes.
- 3.8.2 The main contractors will be responsible for identifying the training needs of their personnel to enable appropriate training to be provided and engaging suitably qualified and experienced professionals for this purpose. The training will include site briefings and toolbox talks to equip relevant staff with the necessary level of knowledge on health, safety, community relations and environmental topics, and an ability to follow environmental control measures and to advise employees of changing circumstances as work progresses.

3.9 Considerate constructors

- 3.9.1 All main contractors will be required to sign up and adhere to the Considerate Constructors Scheme (see *Section 16* for more information).

3.10 Contractors' method statements

- 3.10.1 The main contractors will set out the procedures to be followed for construction operations in method statements that will address health, safety, site security and the environmental issues associated with construction operations. The operations requiring a method statement will be identified using a risk based approach. As a minimum, method statements will be prepared for site preparation, construction activities and reinstatement of land and/or infrastructure following completion of the main construction works.
- 3.10.2 Method statements will define any specific environmental control measures, including environmental and cultural heritage protection works, to be implemented to meet the requirements of this CoCP and the LEMPs, and will consider the cumulative effects of concurrent construction activities.
- 3.10.3 The main contractors' approach to method statements will be reviewed and accepted by the employer's representative. An assurance programme will be established by the employer's representative and its main contractors to monitor compliance with these planned arrangements.

Supervision

- 3.10.4 Sufficient suitably qualified and experienced personnel will be appointed by the main contractors to supervise the main construction works. This will include professionally qualified environmental management staff, with relevant experience in the environmental

disciplines included within the ES and this CoCP. They will be present on site during the main construction works, as appropriate, to advise the main contractors and the contract management team, and supervise and report on the implementation of appropriate environmental mitigation measures and safeguards.

Contact person

3.10.5 At each construction site, a contact person will be identified by main contractors, who will be the single point of contact for the regulatory authorities. The main contractors will provide the regulatory authorities with relevant contact details prior to the commencement of construction.

3.11 Handover environmental management plan

3.11.1 During the construction phase of the scheme the relevant main contractors will jointly prepare a handover environmental management plan (HEMP) in consultation with Highways England and/or the employer's representative. This will be implemented during the long term management of the route.

3.11.2 The HEMP will provide the relevant information on existing and future environmental commitments and objectives that would need to be honoured and ongoing actions and risks that need to continue to be managed. It will include as built information and other details in a form that can be utilised by the body responsible for long term management so they can update their environmental management plans for the operational phase.

4 Community relations

4.1 Engaging with communities

4.1.1 Highways England will prepare a community engagement strategy for the detailed design and construction stage of the scheme that will provide the approach to community engagement and a step-by-step guide to the enquiries and complaints procedure. The strategy will include procedures to:

- maintain effective community engagement throughout the detailed design and construction period to build on existing relationships with the communities alongside the scheme;
- engage on those detailed design issues relevant to the community (such as the design of the Great Ouse crossing) and to landowners;
- inform affected communities in advance of the relevant construction works commencing about how the effects of construction activities will be managed and, as appropriate, mitigated;
- inform affected communities in advance of the relevant construction works commencing about the timetable of the construction works; and
- provide information on the enquiry and complaints procedures and how this is operated.

4.1.2 This approach will be enhanced and further enabled by ongoing and continuing community engagement through an already established structure of stakeholder engagement boards and community focus groups for the project. The membership of these groups will have been informed by formal consultation and on-going collaborations and partnership working and will include the relevant local authorities, local community organisations, landowners, businesses, contractors and other relevant parties.

4.1.3 Highways England will be a key member of the community focus groups providing strategic insight and feedback to and from the wider scheme. Meetings will be attended by the employer's representative and a Community Liaison Officer together with members of the main contractor's site team and local authorities as may be necessary to cover the matters to be discussed.

4.2 Community engagement requirements

4.2.1 During detailed design and construction, a programme of high quality, effective and sustained communications will include:

- Online – Highways England's website and other digital media including relevant links to its partners' and stakeholders'

websites. These will be updated to reflect status of the scheme; including the latest information on the progress of the construction works, areas affected by construction, mitigation in place to reduce adverse effects of construction, information regarding planned construction works, road closures and works recently completed.

- Newsletter – a scheme newsletter will be issued on a regular basis and will provide information regarding the scheme's progress and planned construction works. The main contractors will contribute to and support preparation of the scheme newsletter.
- Parish, community, landowner and environment forums – these forums would engage with certain stakeholders in respect of the detailed design, implementation and establishment of the scheme. Further detail on the implementation and operation of these is provided in *Section 4.3* below.
- Provision of information on progress of construction works –the relevant local authority, district councils, parish councils, councillors, constituency and regional members of Parliament and other relevant persons will be kept informed of the progress and effects of construction works.
- Notification to local residents, businesses and parish councils – the main contractors will notify occupiers of nearby or affected properties, businesses and adjacent or affected parish councils a minimum of two weeks in advance of the nature and anticipated duration of planned construction works that may affect them, including both principal and ancillary works. As a minimum, the main contractors will take steps including direct correspondence and/or mail drops, as well as providing information in local community centres. The notification will also provide details of the enquiries and complaints procedure developed in accordance with the requirements below. Information included in the notifications will include, as appropriate:
 - The location of the planned works;
 - The activities to be carried out;
 - The duration of the planned works and the periods within which works will be undertaken (i.e. whether during normal working hours, during the evening or overnight);
 - The anticipated effects of the planned works;
 - The measures to be implemented in line with the *ES* and this CoCP to mitigate the impact of the planned works; and

- Enquiries and complaints procedure – as described in *Section 4.4*.

4.3 Stakeholder forums and detailed design engagement

- 4.3.1 Highways England will engage with relevant stakeholders on detailed design matters that arise as a result of the refinement of the scheme design secured by the DCO. This will include large elements of the scheme (e.g. the river Great Ouse crossing), as well as more localised elements (e.g. tree planting). These will be raised at the appropriate forums.
- 4.3.2 Highways England will implement four forums, reflecting areas of stakeholder ‘focus’. Each area will be led by a named Highways England individual and the overall process will be overseen and managed by the Stakeholder Manager, a Highways England representative. The four forums will be:
- parish;
 - community;
 - environment; and
 - landowners.
- 4.3.3 In addition, the Strategic Stakeholder Board (“SSB”) has been in place since 2014. The SSB consists of strategic stakeholders comprising Cambridgeshire County Council, Greater Peterborough and Cambridge Local Enterprise Partnership, the Department for Transport, South Cambridgeshire District Council, Huntingdonshire District Council, Cambridge City Council, Network Rail and the Port of Felixstowe. It also reports directly to the Highways England A14 Project Board.
- 4.3.4 In respect of detailed design issues, the SSB will discuss the direction of the community forums and monitor the ongoing activities and proceedings of all of the forums (details of which are set out below).
- 4.3.5 Highways England will also continue to work closely with the local authorities, meeting them regularly to update them on detailed design issues and to hear their views.
- 4.3.6 Each of the proposed forums will have individual terms of reference which will describe the stakeholders involved in each, as well as how Highways England will actually engage with these stakeholders, particularly the mechanisms for responding to issues raised in respect of detailed design. The terms of reference will be developed by each forum in a collaborative manner in the course of their establishment, allowing stakeholders to be part of that process.
- 4.3.7 The Stakeholder Manager will co-ordinate all stakeholder meetings. The frequency of the meetings will be predominantly stakeholder driven – as such, it may be that a ‘forum’ will meet quarterly, but be

supplemented by a number of individual one-to-one meetings if the stakeholders so wish. Fundamentally the process will be designed to achieve effective engagement with stakeholders, however this may be. As such, there needs to be an element of flexibility in the terms of reference of the forums.

- 4.3.8 Highways England will listen and engage with the stakeholders on any concerns and consider how best to respond to those (including, where appropriate, considering and developing alternative design options). Stakeholders will be kept informed as to what the proposed course of action is, with discussions as appropriate to seek to reach a satisfactory outcome. As outlined above, the mechanism for this will be contained in each forum's terms of reference.

Parish forums

- 4.3.9 Three Parish Forums are currently in existence and primarily attended by parish councillors and town councillors who represent areas that are affected by the scheme.
- 4.3.10 The purpose of the forums during the DCO application process has been to update and inform parish and town councils on the status and progress of the scheme. They will however be adjusted to allow full dialogue and feedback as the scheme moves forward into detailed design and construction.
- 4.3.11 It is expected that the forums will meet regularly. Meetings will be scheduled according to need, but it is anticipated that they will usually be monthly.

Community forums

- 4.3.12 The proposed Community Forums would be open to all attendees from the local community, i.e. there would be no 'closed' membership per se. Attendance and membership would be publicised in the local areas.
- 4.3.13 The scope of the forums will be as broad as necessary to deal with detailed design issues but specifically will be for input on detailed design, ahead of such details being finalised and then submitted for approval by the Secretary of State under the DCO's Requirements.
- 4.3.14 Highways England also envisages that the community forums will be able to perform a dual role of consultation by both Highways England and the local authorities on detailed design particularly if, as Highways England envisages, the local authorities provide representatives to attend the forums.
- 4.3.15 Highways England will set up a community forum for each relevant community. Each forum will be structured to provide the mechanism for Highways England and its contractors to discuss the design issues

that affect a particular community, take comments and feedback on Highways England's responses.

- 4.3.16 Highways England will endeavour to respond to issues raised by responding at the next scheduled meeting, or at a time to be agreed with forum members where more time is required (e.g. if significant further information would need to be obtained).
- 4.3.17 It is expected that the forums will meet regularly. Meetings will be scheduled according to need, but it is anticipated that they will usually be monthly.

Landowner forums

- 4.3.18 The proposed Landowner Forums would be attended by invitation only, to ensure attendees are only those with landholdings directly affected by the scheme.
- 4.3.19 The landowner forums would, in addition to detailed design issues, deal with matters relating to compulsory acquisition and temporary possession.
- 4.3.20 Highways England will endeavour to respond to issues raised by responding at the next scheduled meeting, or at a time to be agreed with forum members where more time is required (e.g. if significant further information would need to be obtained).
- 4.3.21 Meetings will be scheduled according to need, but it is anticipated that to begin with they will be monthly.

Environment forum

- 4.3.22 The proposed Environment Forum would be attended by the environmental statutory bodies and other specific environmental stakeholders with an interest in the scheme - Natural England, the Environment Agency and local wildlife trusts are prime examples of attendees.
- 4.3.23 The matters discussed at this forum would focus on issues that have been agreed as being suitable for 'deferral' to the detailed design stage through the Statement of Common Ground process during the examination of the DCO application, as well as any other environmental issues identified throughout the refinement of the design.
- 4.3.24 Highways England will endeavour to respond to issues raised by responding at the next scheduled meeting, or at a time to be agreed with forum members where more time is required (e.g. if significant further information would need to be obtained).
- 4.3.25 Meetings will be scheduled according to need, but it is anticipated that they will usually be monthly.

Disagreement at the forums

- 4.3.26 Where there are areas of disagreement at the Forums outlined above, Highways England anticipates that these would be primarily resolved through further discussion. However if that does not produce agreement, the issue would be referred for review to the Chief Highways Engineer, who would assemble an independent panel of experts, including representatives from local authorities and other members of the SSB as appropriate for the issue being considered.
- 4.3.27 Highways England will have due regard to the recommendation of that panel, before making the final decision using its expertise and knowledge as to what would be appropriate (and operationally feasible) in the context of the scheme.

Local authorities

- 4.3.28 As touched upon above, Highways England will continue to engage with the relevant local authorities throughout the detailed design and construction phases of the scheme. Highways England is aware that certain elements of the scheme are of particular interest to the local authorities and engagement will reflect this. For example, Highways England will, before finalising the detailed design of the river Great Ouse crossing and Huntingdon Town Centre elements of the scheme, consult with Huntingdonshire District Council and have regard to any comments made by the Council.

Design Council Design Review panel

- 4.3.29 In addition to the stakeholder engagement in the development of detailed design process outlined above, Highways England is currently confirming arrangements for a design review with the Design Council. It is envisaged that the Design Council's Design Review panel will comprise representation from the Design Council complemented by individuals representing a number of the organisations that form the Highways England Design Panel. The selection of individuals will reflect the technical nature of the review and the consequential skills and experience needed.
- 4.3.30 It is envisaged that the review process will consider; the overall visual identity of the A14 between Cambridge and Ellington, the viaduct, the two landmark footbridges, bridges carrying local roads and Huntingdon in the vicinity of the new link road and railway station.
- 4.3.31 An information pack will be provided to those carrying out the review, with the contents of the pack then being presented by members of the A14 project team with the necessary understanding to respond to any questions. The Design Review panel will subsequently issue a report, giving advice where it considers it appropriate which Highways England will then consider.

4.4 Enquiries and complaints procedure

4.4.1 The Highways England Customer Contact Centre (HECCC) will be used to deal with enquiries and complaints from the public. This consists of a phone line, email and website contact facility. The information line is staffed by Highways England's 24 hours a day, 7 days a week. The relevant contact number, email and website addresses for HECCC will be displayed on signs around the construction site.

4.4.2 The system and procedure will:

- Log enquiries and complaints in a register;
- Deal with enquiries and complaints appropriately, recognising that they may be due to the effect of construction works on the interests of, and impacts on persons and their properties;
- Pass on the enquiry or complaint to the correct person for review and appropriate action if the person recording it cannot do so;
- Take appropriate action and response to enquiries or complaints; and
- Outline the process for the employer's representative to review enquiries and complaints regularly to assess the adequacy, efficiency and effectiveness of the enquiries and complaints system and procedure and the measures being taken to respond to any enquiries or complaints.

4.4.3 The extent of the action taken will depend on the nature of the complaint. All complaints will be investigated to establish the cause of the complaint and whether the works comply with the scheme's environmental requirements and other relevant requirements such as legislation, standards and codes of practice.

5 General site operations

5.1 Working hours

Consents

- 5.1.1 The main contractors will seek to obtain consents from the relevant local authority where required under Section 61 of the *Control of Pollution Act 1974* for the proposed construction works, excluding non-intrusive surveys (see *Section 12*). Applications will include details on proposed working hours.

Core working hours

- 5.1.2 Core working hours will be from 08:00 to 18:00 on weekdays (excluding bank holidays) and from 08:00 to 16:00 on Saturdays. The contractors will adhere to these core working hours for each site as far as is reasonably practicable or unless otherwise permitted under *Section 61* of the *Control of Pollution Act 1974*.
- 5.1.3 Guidance on the site specific variations to core hours and/or additional hours likely to be required will be included within the LEMP following consultation with the relevant local authority.
- 5.1.4 Except in the case of an emergency, any work required to be undertaken outside of core hours (not including repairs or maintenance) will be agreed with the local authority prior to undertaking the works under Section 61 of the *Control of Pollution Act 1974* within the framework set out by the LEMP and this CoCP.

Start up and close down periods

- 5.1.5 To maximise productivity within the core hours, the contractors will require a period of up to one hour before and up to one hour after normal working hours for start-up and close down of activities. This will include but not be limited to deliveries, movement to place of work, unloading, maintenance and general preparation works. This will not include operation of plant or machinery likely to cause a disturbance to local residents or businesses. These periods will not be considered an extension of core working hours.

Anticipated additional working hours

- 5.1.6 The online sections of the new alignment of the scheme (sections 1, 4, 5 and 6 as described in *Section 2*) would require night time working to facilitate traffic management and installation of signs and technology, and surface tie-ins. For example, the majority of the online road surface could have to be laid during night time working hours. These working hours are dictated by network occupancy criteria.

- 5.1.7 Section 6 of the scheme, consisting of the demolition of the Huntingdon viaduct, requires some working close to the East Coast mainline railway line. To ensure the safety of construction personnel and railway operations, certain activities will be required to be undertaken during closures (known as possession) of the East Coast mainline.
- 5.1.8 Where practicable, railway possessions will be used to install safety systems (e.g. protection decks, railway protection barriers) to enable a greater amount of the construction activities to be undertaken during core hours. The offline sections of the scheme (2 and 3) are expected to be constructed during core working hours.
- 5.1.9 Certain operations such as earthworks are season and weather dependent. In these instances the main contractors will seek to extend the core working hours and/or days for such operations to take advantage of daylight hours, with the consent of the relevant local authority.
- 5.1.10 Certain other specific construction activities will require extended working hours for reasons of engineering practicability. These activities include, but are not limited to; major concrete pours and piling/diaphragm wall works. Surveys, e.g. for wildlife or engineering purposes, may also need to be carried out outside of core working hours.
- 5.1.11 Repairs or maintenance of construction equipment that is required to be carried out outside of core working hours will normally be carried out on Saturday afternoons (13:00 to 18:00) or Sundays and bank holidays between 09:00 and 17:00.
- 5.1.12 In the case of work required in response to an emergency or which if not completed would be unsafe or harmful to the works, staff, public or local environment, the relevant local authority will be informed as soon as reasonably practicable of the reasons for, and likely duration of, the works. Examples of the type of work envisaged includes: where pouring concrete takes longer than planned due to equipment failure or where unexpectedly poor ground conditions, encountered whilst excavating, require immediate stabilisation.

Abnormal deliveries

- 5.1.13 Abnormal loads or those that require a police escort may be delivered outside core working hours subject to the requirements and approval of the relevant authorities e.g. delivery of prefabricated bridge beams or heavy plant.

5.2 Construction site layout and appearance

- 5.2.1 To reduce the likelihood of either an environmental incident or nuisance occurring the following measures will be used by contractors, where relevant:

- 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;
- Prohibition of open fires, and a requirement to take measures to reduce the likelihood of fires;
- Removal or stopping and sealing of drains and sewers taken out of use;
- No discharge of site runoff to ditches, watercourses, drains, sewers or soakaways without agreement of the appropriate authority;
- Maintenance of wheel washing facilities or other containment measures;
- Location of storage, machinery, equipment and temporary buildings to reduce environmental effects and where practicable, outside flood risk areas;
- The use of modern specification noise alarms that meet the particular safety requirements of the site, such as broadband reversing warnings, or proximity sensors to reduce the requirement for traditional reversing alarms;
- Controls on lighting/illumination to reduce visual intrusion or any adverse effect on sensitive ecology;
- The location of site accommodation to avoid overlooking residential property;
- Management of staff congregating outside of site prior to commencing or leaving work;
- Security measures, including closed circuit television (CCTV). The location and direction of view of security cameras or blocking software to prevent intrusion to residential properties will be considered;
- Avoidance of use of loudspeaker or loudhailer devices;
- Containing and limiting visual intrusion of construction sites, as far as reasonably practicable;
- Provision of maps showing sensitive areas and buffer zones where no pollutants are to be stored or used;
- Where reasonably practicable, maintenance of public rights of way (including diversions) for pedestrians, cyclists and equestrians affected by the scheme, including reasonable adjustments to maintain or achieve inclusive access;
- Adequate welfare facilities for staff; and

- Smoking areas at site offices/compounds or work sites equipped with containers for smoking wastes - these would not be located at the boundary of working areas or adjacent to neighbouring land.

5.3 Unexploded ordnance

- 5.3.1 The main contractors will raise awareness of hazards from unexploded ordnance (UXO) through the site induction process and toolbox talks. This would assist in establishing appropriate actions to take in the event that a suspect item is uncovered.
- 5.3.2 In the areas with a moderate UXO hazard level, clearance certification for borehole or pile locations will be undertaken. Where deep excavations are required in these areas, investigation by non-intrusive geophysical methods will be undertaken if practical, and excavations will be supervised by an explosive ordnance clearance (EOC) operative.
- 5.3.3 In the areas with a low UXO hazard level, the main contractors will follow recommendations on risk mitigation suitable for the planned work activities.
- 5.3.4 Given the potential presence of UXO an emergency response procedure will be prepared in accordance with *Unexploded ordnance, A guide for the construction industry CIRIA C681 (CIRIA, 2009)* as part of the main contractors' CEMP and implemented by the main contractors to respond to any discovery of UXO. This will include notifications to the relevant local authorities and emergency services.

5.4 Lighting

- 5.4.1 Site lighting and signage will be provided by main contractors to enable the safety and security of the construction sites. It will be at the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting to site boundaries will be provided and illumination will be sufficient to provide a safe route for the passing public. In particular, precautions will be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas. Where appropriate, lighting will be activated by motion sensors to prevent unnecessary usage. It will comply with *the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01 (2011)* and the provisions of *BS 5489, Code of Practice for the Design of Road Lighting (BSI, 2013a)*, where applicable.
- 5.4.2 Lighting will also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, or passing motorists. This provision will apply particularly to sites where night working will be required. In addition, at

construction sites where potentially significant impacts are identified, the main contractors will develop and implement lighting controls as part of their EMS.

5.5 Temporary living accommodation and welfare facilities

5.5.1 Accommodation, offices, welfare (canteen and washing facilities), fleet parking and storage depots are planned to be located within compounds. The locations of these will be confirmed once main contractors have been appointed.

5.6 Occupational healthcare

5.6.1 The main contractors will ensure there is provision for either access to on-site or near site occupational healthcare in relevant locations, which may include occupational health nurses and doctors. This service will include campaigns such as promotion of healthy living and wellbeing.

5.7 Security

5.7.1 Construction worksites will be under the control of main contractors, who have a statutory duty to prevent unauthorised access to the site. Main contractors will carry out site specific assessments of the security and trespass risk at each site and implement appropriate control measures.

5.7.2 The following measures may be used by the main contractors to prevent unauthorised access to the site:

- Use of high perimeter fencing or hoarding but only where necessary for site security and public safety, and placed so that public rights of way are maintained where reasonably practicable, or appropriately diverted;
- Lighting at site perimeters;
- Security guards and patrols;
- CCTV and infrared surveillance and alarm systems where required;
- Communications initiatives for local schools to warn of dangers;
- Consultation with neighbours on site security matters;
- Consultation with local crime prevention officers on security proposals for each site with regular liaison to review security effectiveness and response to incidents; and
- Immobilisation of plant out of hours, removing or securing hazardous materials from site, securing fuel storage containers and preventing unauthorised use of scaffolding to gain access to restricted areas and neighbouring properties.

5.8 Pollution incident control and emergency preparedness

Pollution prevention measures

- 5.8.1 The main contractors will develop and implement appropriate measures to control the risk of pollution due to construction works, materials and extreme weather events. This will include a pollution incident control plan, as part of the main contractors' CEMP, which recognises the risk of pollution from construction activities and presents pro-active management practices to ensure that any pollution incident that may occur, such as a diesel spillage, is minimised, controlled, reported to relevant parties and remediated. The plan will define the criteria for implementing the relevant measures.
- 5.8.2 The following measures will be adopted by main contractors to manage the risk of pollution incidents:
- Provision of maps showing the locations, together with address and contact details, of local emergency services facilities such as police stations, fire authorities, medical facilities and other relevant authorities.
 - Ensure that site drainage plans and flood risk management plans are available on site and are kept up-to-date.
 - Statement of appropriate information which will be held on site and to be provided immediately in the event of any incident such as a spillage or release of a potentially hazardous material.
 - Ensure that pollution shut off valves are used in compounds with positive drainage systems.
 - Ensure staff competence and awareness in implementing plans and using pollution response kit.
 - Provision of contact details for the relevant authorities, such as the Environment Agency, and the persons responsible on the construction site and within the main contractors' organisation for pollution incident response.
 - Provision of contacts with a competent spill response company which can be contacted at short notice for an immediate response.
 - Notification of relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required.
 - Notification of appropriate emergency services, authorities and personnel on the construction site.
- 5.8.3 In the preparation of local pollution incident response measures, the main contractors will consult with relevant organisations, including, but

not limited to, statutory bodies and other relevant parties, such as the Health and Safety Executive (HSE) (Construction), the Fire Authority, the Ambulance Service, the Environment Agency, Natural England, utilities companies and the respective local authorities (emergency planning and pollution control functions). Reference should also be made to the *Environment Agency Pollution Prevention Guidelines 21 (Incident Response Planning)* Environment Agency, 2014).

- 5.8.4 In the event of any incident arising as a result of any failure of control procedures, Highways England would work with the contractor, relevant statutory body and landowners to ensure that appropriate corrective action was taken in a timely manner.

Monitoring

- 5.8.5 The main contractors will put in place arrangements to investigate and provide reports on any potential or actual significant pollution incidents, including, as appropriate:
- a description of the pollution incident, including its location (and Ordnance Survey (OS) grid reference), the type and quantity of contaminant and the likely receptor(s);
 - contributory causes;
 - adverse effects;
 - measures implemented to mitigate adverse effects; and
 - any recommendations to reduce the risk of similar incidents occurring.

Emergency preparedness

- 5.8.6 The main contractors will ensure that emergency procedures for each work site are developed. The procedures will be standardised as far as practicable across the various work sites and will be appropriate to the anticipated hazards and the specific layout. The emergency procedures will be produced in consultation with the emergency services and for works on the existing railway and highway networks will be produced in accordance with established industry procedures. Further guidance is contained within *Guidance on Development of a Site Clearance Capability in England and Wales* (ODPM, 2005) and *BS6164 Code of practice for health and safety in tunnelling in the construction industry* (BSI, 2011).
- 5.8.7 The emergency procedure will contain emergency phone numbers and the method of notifying statutory authorities. Contact numbers for the key staff of the main contractors will also be included.

Emergency access

- 5.8.8 The main contractors will ensure that the requirements of the relevant fire authority will be followed for the provision of site access points. The accesses may vary over time and will be updated as required, and should also be suitable for emergency services.

5.9 Fire prevention and control

- 5.9.1 The main contractors will ensure that all construction sites and associated accommodation and welfare facilities will have in place appropriate plans and management controls with the aim of preventing fires.

5.10 Extreme weather events

- 5.10.1 The main contractors will pay due consideration to the impacts of extreme weather events and related conditions during construction. The main contractors will use a short to medium range weather forecasting service from the Met Office or other approved meteorological data and weather forecast provider to inform short to medium term programme management, environmental control and impact mitigation measures.
- 5.10.2 The main contractors will ensure the relevant measures within this CoCP are implemented and, as appropriate, additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events.
- 5.10.3 The main contractors' CEMP should consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements. As appropriate, method statements should also consider extreme weather events where risks have been identified.

6 Air quality

6.1 Dust and air pollution general provisions

6.1.1 The main contractors will manage dust, air pollution, odour and exhaust emission during the construction works in accordance with best practicable means (BPM). This will include the following as appropriate:

- reference to the general site management and good housekeeping procedures (relevant to limiting dust and air pollution);
- controls and measures to control or mitigate the effect of potential adverse effects caused by the construction works; and
- dust and air pollution monitoring measures to be employed during construction of the project.

6.1.2 The main contractors will reference, as appropriate, national / industry standards and codes of best practice and guidance when developing the LEMPs including the following:

- Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites - Institute of Air Quality Management (IAQM, 2012);
- Guidance on the assessment of dust from demolition and construction - Institute of Air Quality Management (IAQM, 2014);
- The Control of Dust and Emissions During Construction and Demolition, Supplementary Planning Guidance (SPG) (Mayor of London / Greater London Authority, July 2014); and
- Statutory Process Guidance Notes PG3/01(12), PG3/08(12) and PG3/16(12).

6.2 Site management

6.2.1 Obligations for the contractors in relation to using best practicable means to prevent or counteract the effects of any nuisance are set out in *Section 6.3 – 6.9*.

6.2.2 The main contractors will plan the site layout to locate machinery and dust-causing activities away from sensitive receptors, where reasonably practicable. The main contractors will also use appropriate methods, such as the erection of hoardings or other barriers along the site boundary, where appropriate, to mitigate the spread of dust to any sensitive buildings or other environmental receptors.

6.3 Construction plant and vehicles

6.3.1 Measures will be implemented by the main contractors to limit emissions from construction plant and vehicles, including the following, as appropriate:

- The main contractors will operate construction plant in accordance with the manufacturer's written recommendations.
- All vehicles and plant will be switched off when not in use.
- Vehicle and construction plant exhausts should be directed away from the ground and be positioned at a height to facilitate appropriate dispersal of exhaust emissions.
- On plant likely to generate excessive quantities of dust beyond the site boundaries, enclosing, shielding or provision of filters will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used.
- The movement of construction traffic around the site will be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the scheme.
- Construction plant will be located away from site boundaries which are close to sensitive receptors where reasonable and practicable.
- Site access points will be designed to avoid queuing traffic.
- The use of diesel or petrol powered generators will be reduced by using mains electricity or battery powered equipment where reasonable and practicable.
- All non-road mobile machinery will use ultra-low sulphur tax-exempt diesel where available. Machinery with power outputs of over 37kW will be fitted with appropriate exhaust after-treatment from approved Energy Saving Trust list (achieving filtration efficiency of over 85%).
- Cutting and grinding operations will be conducted using equipment and techniques which incorporate appropriate dust suppression measures.
- Vehicle, plant and equipment maintenance records will be kept on site and these will be made available to the employer's representative upon request.

6.4 Transportation, storage and handling of materials

6.4.1 Measures will be implemented by the main contractors to limit pollution due to the transportation and storage of materials, including the following, as appropriate:

- Materials deliveries or loads entering and leaving the construction site will be covered by a fixed cover or sheeting appropriately fixed and suitable for the purposes of preventing materials and dust spillage. This will apply to the transport of materials by road, rail or waterway;
- Vehicles transporting materials within or outside the construction site will not be overloaded;
- Stockpiles and mounds will be kept away from sensitive receptors, watercourses and surface drains and sited to take into account the predominant wind direction;
- Stockpiles and mounds will be at a suitable angle of repose and avoid sharp changes in shape to prevent material slippage;
- Materials stockpiles will be enclosed or securely sheeted or kept watered by the contractor;
- Surfaces of long-term stockpiles, which give rise to a risk of dust or air pollution, will be stabilised or be covered with appropriate sheeting;
- Fine dry material will be stored inside buildings or enclosures;
- Mixing of large quantities of concrete or bentonite slurries will be undertaken in enclosed or shielded areas;
- The number of handling operations for materials will be kept to the minimum practicable;
- Materials handling areas will be maintained to constrain dust emissions and appropriate measures such as watering undertaken to reduce or prevent escape of dust from the site boundaries; and
- Mixing of grout or cement-based materials will be undertaken using a process suitable for the prevention of dust emissions.

6.5 Haul routes

6.5.1 Haul routes will be provided on site by main contractors for use by construction vehicles to access works areas. The construction and maintenance of haul routes will include the following measures, as appropriate:

- The maintenance of haul routes to control dust emissions as far as reasonably practicable, taking into account the main contractors intended level of traffic movements;
- Inspection of haul routes regularly and their prompt repair if required;
- Reuse of haul route materials where the locations of haul routes change during the course of construction;

- Provision of areas of hard-standing at site access and egress points to be used by any waiting vehicles;
- Methods to clean and suppress dust on haul routes (including watering) and in designated vehicle waiting areas. The frequency of cleaning will be suitable for the purposes of suppressing dust emissions from the site boundaries; and
- Enforcement of speed limits on haul routes for safety reasons and for the purposes of suppressing dust emissions.

6.6 Demolition activities

6.6.1 Measures to limit dust pollution from demolition activities will be implemented by main contractors through the use of the following measures, as appropriate:

- The main contractors will spray any buildings or structures to be demolished with water prior to and during demolition;
- Appropriate screening of buildings or structures to be demolished will be used;
- Waste chutes will be shielded and skips covered and secured; and
- Where reasonable, the main contractors will avoid prolonged storage of waste materials on site.

6.7 Excavations and earthworks activities

6.7.1 Measures by main contractors to limit dust pollution from excavations and earthworks activities will include the following, as appropriate:

- Topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation;
- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the minimum practicable to control dust generation associated with the fall of materials;
- Suppressing dust emissions by spraying with water or using other appropriate measures;
- Compacting deposited materials, with the exception of topsoil, as soon as possible after deposition; and
- Soiling, seeding, planting or sealing of completed earthworks will be undertaken by the main contractors as soon as reasonably practicable following completion of the earthworks.

6.8 Drilling activities

6.8.1 Measures by main contractors to limit dust pollution associated with drilling activities will include the following, as appropriate:

- On plant likely to generate excessive quantities of dust beyond the site boundaries measures such as enclosing, shielding or provision of filters will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used, as appropriate;
- Where appropriate dust will be extracted at source to prevent exposure of workers to excessive dust inhalation;
- Where drilling is used for the purposes of excavating within rock, the exposed surfaces will be watered to limit dust emissions as necessary;
- Materials used such as cements or pulverised fuel ash, will be stored in accordance with the requirements of for materials storage (Section 6) to prevent them becoming an airborne hazard; and
- Mixing of grout or cement based materials will be undertaken using a process suitable for the prevention, as far as reasonably practicable, of dust emissions.

6.9 Processing, crushing, cutting and grinding activities

6.9.1 Appropriate measures will be used by main contractors for any processing, crushing, cutting and grinding activities as required to limit dust pollution. Permits will be sought for concrete crushing and batching plant operations as required.

6.10 Monitoring

6.10.1 The main contractors will implement inspection and monitoring procedures to assess the effectiveness of measures to prevent dust and air pollutant emissions. Relevant local authorities will be consulted regarding the monitoring procedures to be implemented which will include the following measures, as appropriate:

- Site inspections covering the establishment of operation of the construction site.
- Inspection procedures for areas adjacent to the construction site to visually assess any dust and air pollution which may be generated.
- Reference to inspection and maintenance schedules for construction vehicles, plant and machinery.
- Inspection procedures relating to the level of trafficking, use and condition of haul routes.

7 Cultural heritage

7.1 Cultural heritage general provisions

7.1.1 The main contractors will manage the impact of construction works on cultural heritage assets, including:

- designated assets: scheduled monuments; listed buildings; registered parks and gardens; and conservation areas; and
- undesignated assets: archaeological and palaeoenvironmental remains including geological deposits that may contain evidence of the human past, historic landscapes and historic buildings and the built environment (this includes locally designated assets).

7.1.2 All works will be managed in accordance with accepted industry practice and guidance, including that produced by Historic England and the Chartered Institute for Archaeologists standards and guidance. The work will also be in line with policies in section 12 of the *National Planning Policy Framework (NPPF) (2012)*.

7.1.3 General management measures for cultural heritage assets will include:

- provision to relevant main contractors of locations and descriptions of all known cultural heritage assets within and adjacent to construction works, including restrictions to construction methods to protect cultural heritage assets, where these have been identified in the ES;
- a programme detailing the implementation of cultural heritage investigation works prior to and during construction;
- the main contractors will ensure that the cultural heritage investigation works are properly programmed by its contractors;
- the main contractors will monitor compliance against the programme of cultural heritage investigation works using appropriately qualified environmental management staff;
- during all stages, the main contractors will facilitate archaeological and built heritage specialists undertaking the works as specified as an appropriate mitigation measure (including purposive investigation);
- all cultural heritage intervention, recording, analysis, dissemination and archiving will be undertaken by a suitably qualified and demonstrably experienced organisation; and
- consultation through all stages of the implementation of the programme of cultural heritage investigation works; including final publication and archiving, by main contractors with Cambridgeshire County Council and Historic England (where appropriate).

7.1.4 Reference should be made to *Section 10 and 12* in relation to the management measures for landscape and nature conservation.

7.2 Heritage assets

7.2.1 Suitable scheme-wide measures and procedures, to be developed by main contractors in consultation with Historic England (where appropriate), Cambridgeshire County Council and the local authorities, will include the following, as appropriate:

- implementation of controls at each site to avoid damage by settlement where reasonably practicable (and to record effects should these occur) and the movement of construction vehicles and machinery as they relate to cultural heritage assets comprise standing archaeological remains and historic buildings;
- the main contractors will develop procedures for topsoil stripping and excavation before commencement of such works and the interface of those works with archaeological investigations, including procedures to be adopted in the event of a potentially nationally significant unanticipated discovery or disturbance of significant archaeological remains;
- procedures adopted to preserve archaeological remains *in situ* beneath earthworks, where appropriate;
- procedures for the recording, removal and reinstatement of structures of heritage significance;
- management of protective measures that will be implemented for heritage assets that are to be retained within the land required for construction; and
- if unknown archaeological assets, such as buried remains or artefact(s), are exposed during the course of construction, these will immediately be reported to the main contractor's project manager and appropriate procedure(s) for the discovery of unexpected assets will be implemented, including informing Cambridgeshire County Council.

Written scheme of investigation

7.2.2 An outline scheme-wide written scheme of investigation (WSI) has been prepared, in consultation with Cambridgeshire County Council and Historic England (where appropriate). This document details the principles, standards, methods and techniques to be employed on the project for cultural heritage investigation works. It identifies all areas requiring archaeological investigation that will take place in advance of construction. This 'outline' WSI is a certified document under the DCO.

- 7.2.3 All cultural heritage works will be undertaken in accordance with the outline WSI.
- 7.2.4 A site specific WSI will be developed by main contractors for each area or site-specific cultural heritage works, in accordance with the outline WSI. These documents will be developed in consultation with Cambridgeshire County Council and Historic England (where appropriate).
- 7.2.5 All cultural heritage investigation works will be undertaken in accordance with the outline and site specific WSIs.

Metal detectors

- 7.2.6 During site preparation and construction the use of metal detectors will be prohibited within areas of identified/defined archaeological interest unless deployed by archaeological specialists or other appointed persons in the execution of their activities.

Human remains

- 7.2.7 Should human remains be located during construction either during archaeological works or as part of construction activity, the main contractors will comply with all relevant legislative and project specific requirements, and record the discovery of any such remains.
- 7.2.8 The removal of human remains shall be undertaken in accordance with the Burial Act 1857 and an exhumation licence obtained from the Ministry of Justice (MoJ) prior to the removal of any remains. Excavation of human remains will consider guidance contained in *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England (English Heritage and the Church of England, 2005)*.

Treasure Act

- 7.2.9 Should artefacts be located during the course of construction that are deemed by their material content or context to be treasure, as defined by the Treasure Act 1996, then all necessary measures to comply with the requirements of the Act, including reporting such finds, and any project specific requirements will be implemented by the main contractors.

7.3 Measures in the event of unexpected discoveries of national significance

- 7.3.1 Should unexpected cultural heritage assets of potential national significance be identified during construction, a procedure for dealing with the assets will be agreed by main contractors with Historic England and Cambridgeshire County Council and implemented. Mitigation may include the following, as appropriate:

- investigation and assessment of discoveries to determine their significance if this cannot be determined from the asset as found;
- assessment of potential project impacts to inform design of appropriate mitigation measures;
- preparation of a written scheme of investigation for any stage of archaeological work required;
- excavation, recording and reporting on any discoveries; and
- recording and implementing measures to preserve any discoveries in situ, if required or if appropriate.

7.4 Mitigation of potential impacts on cultural heritage assets

- 7.4.1 Physical impacts will occur during the development of the scheme; this includes the removal of six historic buildings comprising three listed milestones, and three undesignated structures: a World War 2 pillbox, a pair of 19th century worker's cottages, and a public house.
- 7.4.2 The main contractors will provide appropriate fencing and hoarding as may be necessary to protect cultural heritage assets within or adjacent to the construction site, including unknown sites discovered during construction.
- 7.4.3 If archaeological investigations or works to protect listed buildings are required on land which is to be occupied temporarily or land adjacent to the construction site, the owners and occupiers of that land, and the District Council (where appropriate) will be consulted by main contractors in advance of the works being undertaken.
- 7.4.4 The main contractors will implement additional watching briefs and archaeological monitoring during construction works adjacent to sites of archaeological or cultural heritage interest and during topsoil stripping.
- 7.4.5 Should any cultural heritage assets be discovered or revealed during construction, the main contractors will consult with Cambridgeshire County Council and Historic England (where appropriate) to enable appropriate measures to be implemented to mitigate potential impacts. Measures to be implemented may include the following, as appropriate:
- investigation and assessment of the discoveries to determine their significance;
 - assessing the potential impacts due to the scheme to inform the design of appropriate mitigation measures;
 - excavating, recording and reporting on any discoveries;
 - recording and taking measures to potentially preserve any discoveries in situ; and

- if required or appropriate, agreeing these measures with Cambridgeshire County Council and Historic England.

7.4.6 The nature, extent and frequency of monitoring will be appropriate and agreed with Cambridgeshire County Council and Historic England (where appropriate), taking into consideration the nature of the planned construction works and proximity of the relevant site.

7.5 Monitoring

7.5.1 Risk assessments, appropriate structural or condition surveys and vibration monitoring will be undertaken by main contractors at sites of archaeological or built heritage interest adjacent to the construction site prior to, during and following construction works. The risk assessments will include, but not be limited to, specific buildings identified in the environmental statement.

7.5.2 The main contractors will implement appropriate monitoring of the consequences of construction work on all cultural heritage assets (designated and non-designated) to ensure the effectiveness of management.

7.6 Publication and archive

7.6.1 On completion of the archaeological investigations a programme of post-excavation assessment will be undertaken by the archaeological contractor. The work will follow the procedure presented in *Management of Research Projects in the Historic Environment* (MoRPHE) by Historic England (2015). The work will assess the results of the investigations and associated assemblages of artefacts and any palaeoenvironmental material, such as pollen, insect remains or plant remains.

7.6.2 The assessment phase will identify the requirement for further analysis and publication. This phase will include analysis of the palaeoenvironmental, artefactual and the results of fieldwork. The results of this will be published in a suitable format as identified in the post-excavation assessment. This may be as a monograph, article in the county archaeological journal or as a popular publication. Historic England and Cambridgeshire County Council will be consulted through the programme of work.

7.6.3 On completion of the analysis phase, the resulting archive will be deposited within Cambridgeshire County Council's archaeological archives. The archive will be ordered following the requirements presented in the *Deposition of archaeological archives in Cambridgeshire*.

8 Community and private assets

- 8.1.1 Each of the main contractors will appoint a liaison officer who will be responsible for liaising with affected landowners, occupiers and agents, as appropriate. This will be overseen by Highways England/employer's representative.
- 8.1.2 The main contractors will advise landowners, occupiers and agents, as appropriate, regarding the intended commencement of construction works in areas of the site adjacent to agricultural holdings. The main contractors will also liaise with landowners, occupiers and agents, as appropriate, regarding the provision of accommodation works and to agree the programme of works and access routes to be used.

8.2 Mitigation of potential impacts on agricultural resources

- 8.2.1 The main contractors will consult with, and implement appropriate measures in accordance with guidance produced by DEFRA in relation to undertaking works on or adjacent to agricultural land. The main contractors will implement appropriate measures in accordance with the *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009)*.
- 8.2.2 The main contractors will implement appropriate procedures in relation to the stripping, handling, storage and replacement of agricultural soils to mitigate risks associated with soil degradation. The main contractors will undertake reinstatement of land used temporarily for construction in accordance with the requirements of the DCO.
- 8.2.3 Prior to works commencing on agricultural land that will be used temporarily or land that will be returned to agricultural use following construction, the main contractors will undertake surveys to record the existing quality of land, including the condition of the following, as appropriate:
- topsoil and subsoil;
 - drainage;
 - roads, accesses and paths; and
 - agricultural land adjacent to the construction site.
- 8.2.4 The main contractors will implement appropriate measures in relation to storage of agricultural soils, including the following, as appropriate:
- handling and storing different soils separately, particularly top soils and sub soils;
 - taking appropriate measures to prevent contamination of soils with chemicals or other materials; and

- undertaking soil movement in dry weather and ground conditions, where reasonably practicable to avoid damaging the soil through compaction or loss of soil by erosion.
- 8.2.5 The main contractors will comply with the requirements of *Section 9* and *Section 11* relating to handling and storage of material and *Section 14* in relation to control of run-off insofar as they are applicable to protecting agricultural soils.
- 8.2.6 Appropriate measures will be implemented during the construction of the scheme to identify, protect and maintain existing land drainage systems.
- 8.2.7 The main contractors will comply with the requirements of DEFRA and appropriate guidance to avoid, as far as possible, the spread of soil borne, crop and animal diseases. The main contractors will implement appropriate measures to control run-off to reduce any risks associated with disease transmission.
- 8.2.8 The main contractors will implement appropriate measures to identify locations of potential carcass burial sites through liaison with the landowners within the construction site to mitigate risks associated with the existence of any unrecorded sites.
- 8.2.9 The main contractors will liaise with landowners, occupiers and agents, as appropriate, to establish requirements and measures to be implemented to maintain livestock water supplies which may be affected due to construction works.

8.3 Agricultural restoration and establishment

Pre - construction

- 8.3.1 The Main Contractor will advise landowners / tenants of the stages and timing of the survey, testing and recording of the existing topsoil and subsoil conditions in accordance with the soil management strategy (SMS). The contractor will inform the affected parties of the methodology of the soil storage and movement also in accordance with the SMS. The results of the pre-construction surveys will be available for use by the landowners and tenants.
- 8.3.2 The contractor will also at the pre-construction stage engage with the landowner / tenant to establish the exact nature of the existing field drainage system including any associated farm drainage affected by the scheme. The pre-construction investigations and surveys will make use of existing drainage plans supplied by the landowner/tenant where available and will take account of the existing outfalls and the wider drainage patterns to ensure that the full implications and impacts of the scheme are taken into account. The contractor will seek to agree with the landowner / tenant the scheme of restoration of the drainage, which will include all land drains, carrier drains, outfalls and culverts where applicable. The restoration proposals will include

pipe and culvert sizes based on drainage calculations and replacing existing capacity to ensure that field drainage is of the same level of effectiveness as was present before scheme construction. The contractor will inspect and survey the ground conditions with the landowner/tenant at the preconstruction stage to record the existing condition of field drainage. It is expected that where available the landowner/tenant will provide all existing plans and records of works already carried out to assist the contractor in carrying out pre-construction assessment and recording. Whilst carrying out this process the contractor will take on board any local knowledge that they consider appropriate for the individual circumstances.

- 8.3.3 At the point of restoration the contractor will engage with the landowner/tenant to set out the detail of timing and restoration on each specific area of farmland, restoration works will proceed on the basis of the SMS and associated drainage will proceed on the basis of agreed layouts, falls, pipe size/type and outfalls. In the case of grazing land the contractor will seek to agree the suitable pasture seed mix appropriate to the farming type. It is noted that landowners / tenants may wish to carry out certain operations post hand over themselves, this is considered good practice and the contractor would work with landowner/tenant to facilitate the preferred procedure where appropriate. The restoration process will proceed in full consultation with the landowner/tenant including inspection of works where applicable and in strict accordance with site health and safety procedures.

Post construction establishment of restored agricultural land

- 8.3.4 Following completion of the restoration the landowner/tenant will inspect and agree with the contractor the acceptability of the works. It is accepted that agricultural restoration does not normally return the land immediately to its original condition and productivity. Resulting claims for compensation are to be dealt with by respective valuers, under the heads of Injurious Affection and Disturbance, in accordance with the compensation code.
- 8.3.5 The contractor will further undertake inspections of the site post construction, with the landowner/tenant and Highways England's valuer to assess the progress of the restoration. These will be carried out once a year for three years with timing appropriate to any perceived issues or concerns. Concerns will be assessed by all parties and appropriate remedial actions or compensation agreed within the parameters of the compensation code and any previous agreements made at the time of acceptance of the initial restoration works and handover to the landowner/tenant.

8.4 Monitoring

- 8.4.1 The main contractors will ensure that their approach includes monitoring of topsoil stripping, handling and storage as appropriate to facilitate compliance with this section of the CoCP in relation to agricultural soils.
- 8.4.2 The main contractors will undertake monitoring as necessary to maintain security of the site as required to comply with *Section 7*.

9 Geology and soils

9.1 Mitigation of potential impacts

- 9.1.1 Measures will be implemented by main contractors to assess and control risks to humans (construction workers, site visitors and nearby residents) including risks from encountering contaminated dust, soils and groundwater and where the presence of ground gas and/or vapours may lead to confined space risks, such as in excavations. If significant ground gas issues are identified, appropriate monitoring will be undertaken and/or appropriate ground gas protection measures provided by the main contractors.
- 9.1.2 An assessment of soils to be reused will be undertaken by the main contractors to identify any potential risks posed to the water environment from reused soils to be used as engineering fill. This section of the CoCP requires a number of assessments and/or risk assessments to be undertaken. Where determined necessary by these assessments, appropriate mitigation will be provided.
- 9.1.3 Main contractors will, as appropriate, undertake risk assessments, monitor groundwater levels and undertake structural or dilapidation surveys of buildings or structures adjacent to the works where there may be potential settlement risks or a risk of lateral ground movements which may damage structures.
- 9.1.4 The main contractors will be obliged to comply with the soil management strategy (SMS) included in *Appendix 12.2 of the ES* and a SMS Technical Annex, the latter of which outlines the approach to the management of topsoil resources required of construction contractors. The aim of the SMS is to ensure that as much topsoil as practicable is retained in good condition for re-use within the landscaping proposals for the scheme. The SMS takes account of guidance within the *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites* (Defra, 2009).

9.2 Construction on or adjacent to land affected by contamination

- 9.2.1 Measures will be implemented by the main contractors for construction activities on or adjacent to the land identified as affected by contamination. This will include the following, as appropriate:
- Waste water generated by vehicle washing, wheel washes, excess surface water, dewatering of underground structures and tanks or lowering groundwater for geotechnical purposes will be collected, and appropriately stored and disposed of;
 - Redundant services near potentially contaminated areas will be either removed or cut off and sealed to avoid creating migration pathways for contamination;

- Material known or suspected to be contaminated will be stockpiled and tested prior to reuse or disposal. Stockpiles will be segregated depending on the source of the material and the apparent nature of the contamination. Stockpiles will be placed on a low permeability liner, suitably protected from damage by earthmoving plant, to prevent leaching of contaminants into underlying groundwater and surface watercourses. Proposed known/suspected contamination stockpile areas will be tested adequately prior to and after use to prove that no cross-contamination has occurred;
- Earthworks materials deemed unacceptable for direct reuse will if practical be treated at a soil treatment facility prior to reuse;
- Prior to reuse of site-won materials, pre-classification testing of soils will be undertaken. Pre-classification test data will be assessed against appropriately derived criteria for potential unacceptability. The testing scope and frequency and assessment criteria are to be derived during the detailed design stage;
- All imported fill is required to meet the soil and soil leachate acceptance criteria derived in the detailed design stage;
- Piled foundations and ground improvement works located within 50m of potential or known areas of land contamination or with potential to impact the Woburn Sands Formation (principal aquifer) where present will require a site-specific environmental risk assessment. The main contractors will adhere to appropriate guidance including the *Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, (National Groundwater and Contaminated Land Centre, 2001)*;
- Within areas of known or suspected contamination, buried services such as highways drainage, utilities and telecom ducts will be protected from the ingress of mobile and aggressive contaminants. Furthermore, the ingress and migration of contamination along service ducts and drainage will be prevented. In the case of drainage runs, the infiltration of surface water into the underlying contaminated ground should be prevented and clean or lined service corridors will be installed to provide a suitable barrier to migrating ground gases adjacent to known/potential sources; and
- Any material used for the scheme (or re-instating borrow pits) will be proven 'suitable for use' by adoption of acceptance criteria and will be deposited under either environmental permitting regulations or the *Definition of Waste. Development Industry Code of Practice (CL:AIRE, 2011)*.

9.2.2 Greater consideration will be required for mitigation measures in areas where there is an increased risk of encountering or interfering with existing contamination (notably at Buckden Fuel Depot, Buckden South Landfill and Milton Landfill), further information will be included, as appropriate, within the relevant LEMP.

9.3 Site ground investigation

9.3.1 Ground investigation is due to be undertaken, primarily to inform detailed design. Where necessary, further targeted ground investigation (and monitoring) may be required to be undertaken by the main contractors to accommodate changes in design or to delineate and/or validate contamination conditions. Where required, this investigation will be undertaken in accordance with UK best practice, including *BS 5930:1999+A2 Code of practice for site investigations* (BSI, 1999) and *BS 10175:2011+A1 Investigation of potentially contaminated sites code of practice* (BSI, 2011).

9.3.2 Where significant contamination is encountered, a risk based approach will be applied by main contractors in line with *Contaminated Land Report 11, Model Procedures for the Management of Land Contamination (CLR11)* (DEFRA and Environment Agency, 2004). A risk assessment and, where required remedial options appraisal will be undertaken to define the most appropriate remediation techniques. The relevant regulatory authorities will be advised as soon as reasonably practicable in accordance with Schedule 2, paragraph 6 of the DCO, and consulted during the risk assessment process. This appraisal will be undertaken based on multi-criteria attribute analysis that considers environmental, resource, social and economic factors in line with *Sustainable Remediation Forum UK: A Framework for Assessing the Sustainability of Soil and Groundwater Remediation* (Sustainable Remediation Forum UK, 2010). The preferred option will then be developed into a remediation strategy, which will be consulted on with the relevant regulatory authorities prior to implementation.

9.3.3 Where appropriate, the risk to ground and surface water resources, processes and abstractions will be assessed. In addition to the excavation and treatment of contaminated soils, it may also be necessary to install gas and leachate control systems within affected sites, on a temporary or permanent basis, in order to ensure that gas and leachate migration pathways are controlled and do not adversely affect the scheme or the wider environment as a consequence of the scheme.

9.3.4 Sites where remediation is minimal or not required may include sites that are not found to contain significant contamination, sites that are both contiguous with and beyond the scheme or temporary sites where no significant earthworks are proposed.

9.4 Monitoring

- 9.4.1 The main contractors will prepare and implement a gas monitoring procedure as appropriate due to the potential for presence of ground gases. Gas monitoring will be undertaken in accordance with *BS576:2013 (Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)* (BSI, 2013).

10 Landscape

10.1 Landscape management – general provisions

10.1.1 The main contractors will employ appropriate measures to protect the landscape from construction activities; to manage and maintain landscape works provided as part of the scheme and to protect visual amenity.

10.1.2 Appropriate controls will be put in place by main contractors to protect landscape and visual amenity in rural and urban areas from construction activities. Controls will include, as appropriate:

- a plan showing areas of existing trees and vegetation within and adjacent to the construction site to be retained (and protected), and those to be removed;
- the involvement of an arboricultural and/or ecological specialist and/or landscape manager as required, in relation to vegetation clearance, tree works and the creation of new wildlife habitats;
- provision of appropriate temporary protective fencing to reduce the risks associated with vehicles trafficking over root systems or beneath tree canopies;
- a schedule of plant species and planting and seed mixes to be used and provision of sufficient stock and seed of specified species and provenance that typify the local area, including details of plant suppliers to be used;
- a programme for undertaking all forms of landscape works;
- protection of existing and new areas of planting and other vegetation by appropriate fencing or other barrier to prevent storage of material or equipment over root systems or beneath tree canopies;
- a programme for regular inspection, and the maintenance and management of existing and new landscape areas;
- prevention of damage to the landscape and landscape features adjacent to the construction site by movement of construction vehicles and machinery;
- use of appropriate techniques for the removal, handling, storage and transplanting of any vegetation which is to be reused, relocated or transplanted;
- adoption of other procedures set out in this CoCP so far as they are relevant for the protection of the landscape;
- provision of suitably qualified and experienced specialists in landscape management with specific responsibility for monitoring and supervising landscape works and maintenance, i.e. works in

relation to the clearance of vegetation, topsoil and subsoil stripping, handling, storage and replacement, works to trees, seeding, protective fencing, planting creation of new wildlife habitats, and subsequent maintenance; and

- use of well-maintained temporary hoardings or fencing, as described in *Section 5*.

10.2 Mitigation of potential impacts on the landscape or landscape resources

- 10.2.1 Planting and other landscape measures will be implemented as early as is reasonably practicable where there is no conflict with construction activities or other requirements of the scheme. Highways England will require its main contractors to consider where measures can be implemented early and programme the landscape works accordingly. Locations for landscape measures will relate to the findings of the *ES*, and will be aimed at the protection and mitigation of adverse effects on sensitive and valued landscape features and characteristics, and on visual receptors.
- 10.2.2 A record of how the implementation of the works meets control measures, relevant to protection of the landscape and key landscape features, will be maintained and regularly reviewed by the main contractors.
- 10.2.3 Relevant local authorities, Natural England, Historic England, the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire and other bodies (where they have an interest) and adjacent landowners will be consulted by main contractors regarding the landscape and planting proposals.
- 10.2.4 Access to the construction site will be controlled in accordance with the requirements of *Section 15*. Potential impacts on trees or other mature vegetation will be considered, to avoid unnecessary impact, when positioning site access and egress points.
- 10.2.5 Reusable excavated material will be handled in an appropriate manner to ensure it remains of sufficient quality to be used for either structural embankments, environmental mitigation earthworks or agreed third party use. Appropriate construction good practice in handling all material re-use will be followed, and controls set out in *Sections 9 and 11* will apply.
- 10.2.6 The procedures set out in *Section 8* relating to the handling of agricultural soils will be applied equally in relation to soils used in areas to be seeded or planted. The sourcing, testing, stripping, handling, storage and spreading of site-won and imported topsoil will comply with *BS 6031: 2009 Code of practice for earthworks* (BSI, 2009). Imported topsoil will comply with the *BS 3882: 2007 Specification for topsoil and requirements for use* (BSI, 2007).

10.2.7 The following measures will be implemented by main contractors:

- compliance with the requirements of *Section 12* in relation to preventing the spread of invasive and non-native species;
- avoidance of unnecessary tree and vegetation removal and protection of existing trees in accordance with *BS5837:2012 Trees in relation to design, demolition and construction* (BSI, 2012);
- compliance with the requirements of *National Highways Sector Scheme for Landscape and Ecology (NHSS18)*;
- protection of habitat areas and ecological features;
- procurement, movement, handling, storage, planting and maintenance of plant material in accordance with *BS 3936 - 1: 1992 Nursery stock (BSI, 1992). Specification for trees and shrubs*; and
- maximising use and recycling of plant material salvaged during enabling works, and of plant material propagated from flora on the site prior to commencement of the works.

10.2.8 Planting, seeding, wildflower seeding and other landscape works by main contractors will consider the recommendations of the latest version of British standards, *BS4428: 1989 Code of practice for general landscape operations - excluding hard surfaces* (BSI, 1989)).

10.2.9 The protection of habitats and ecological features will be integrated by main contractors with the landscape works and will follow *BS 42020:2013 Biodiversity. Code of practice for planning and development* (BSI, 2013). For details of habitats and ecological features to be protected reference should be made to *Section 12*.

10.3 Protection of trees

10.3.1 The main contractors will employ an arboricultural consultant to oversee works relating to the protection of trees.

10.3.2 The main contractors will protect trees in line with the recommendations in *BS5837:2012 Trees in relation to design, demolition and construction* (BSI, 2012). Trees will be considered to be those covered by *BS5837* with stem diameter greater than 75mm measured at 1.5m above ground level. Such trees to be protected will be identified by the main contractor's arboricultural consultant.

10.3.3 Measures to protect trees will be discussed by main contractors with the local authority prior to implementation, including the following, as appropriate:

- provision of appropriate protective fencing to reduce the risks associated with vehicles trafficking over root systems or beneath canopies;

- measures to prevent compression of soils;
 - maintenance of vegetation buffer strips, where practicable; and
 - procedures for the selective removal of lower branches to reduce the risk of damage by construction plant and vehicles.
- 10.3.4 Any tree surgery operations will comply with the recommendations in *BS 3998; 2010 Tree work*. Recommendations, as appropriate.
- 10.3.5 Tree felling will be carried out by main contractors taking appropriate consideration of the *Forestry Commission's Forest and Water Guidelines* (Forestry Commission, 2003) to mitigate risks from felling of trees on the freshwater environment. Where there are no windthrow or visual issues, tree felling will be reduced to that necessary to allow the safe construction and operation of the scheme. Where appropriate, tree surgery, e.g. crown reduction, pollarding etc., will be employed in preference to felling so as to maintain the maximum biodiversity/landscape interest. Any tree surgery or felling operations must consider the legal protection given to roosting bats and breeding birds (*Section 12*).
- 10.3.6 Tree felling within land authorised by the DCO will not require any secondary consent. Any tree felling in land outside the extents of the DCO application boundary which is occupied with the agreement of the relevant landowner will require consent in accordance with *Forestry Act 1967*. The main contractors will obtain any consents necessary in this regard.
- 10.3.7 The arboricultural consultant should liaise with the main contractor to identify the quantities of cut timber and brash that should be retained on site for habitat creation measures e.g. the creation of log piles and hibernacula.

10.4 Tree planting and replacement

- 10.4.1 Any trees intended to be retained which are felled or die as a consequence of construction works will be replaced by main contractors. Where reasonably practicable, the size and species of replacement trees will be selected to achieve a close resemblance of the original trees most effectively using locally occurring native species of local provenance and taking cognisance of any management plans for immediately adjacent areas of woodland.
- 10.4.2 The supply, storage, handling, planting and maintenance of new planting will be undertaken by main contractors in accordance with appropriate British standards, including *BS 4428;1989 Code of practice for general landscape operations (excluding hard surfaces)* (BSI, 1989) and other guidance including the UK Forestry Standard and the *United Kingdom Woodland Assurance Standard* (UKWAS, 2008).

10.5 Monitoring

- 10.5.1 The main contractors will undertake appropriate inspection, monitoring and maintenance of landscaping and planting provided as part of the scheme to facilitate the effective establishment of vegetation and record the effectiveness of landscaping proposals.

11 Material resources

11.1 General provisions

- 11.1.1 The principal objectives of sustainable resource management are to use material resources more efficiently, reduce waste at source and reduce the quantity of waste that requires final disposal to landfill.
- 11.1.2 These are translated to the proposed scheme with the aim to achieve a cut and fill balance, through segregating construction and demolition materials on-site, or by maximising diversion from landfill by re-use, recycling and recovery.

11.2 Management of excavated materials and waste

- 11.2.1 All waste will be managed by main contractors in accordance with the waste hierarchy (i.e. prevention, preparing for reuse, recycling, other recovery and disposal as set out in the *Waste (England and Wales) Regulations 2011*) and in such a way as to prevent harm to human health, amenity and the environment.
- 11.2.2 The main contractors will be responsible to reduce waste generated from the construction activities where reasonably practicable. This will include measures such as careful storage of materials on site and 'just in time' deliveries.
- 11.2.3 The main contractors will be responsible for the storage and management of the earthworks material excavated from the borrow pits. This material will be used wherever practicable to construct the engineering earthworks and to mitigate the environmental effects of the scheme.
- 11.2.4 There will be dedicated areas for handling and storing excavated material. The main contractors will be responsible for managing these areas in such a way as to prevent harm to human health, amenity and the environment. The earthworks material excavated from areas of cutting and borrow pits will vary in its engineering properties and these will need to be assessed and utilised to ensure the best use of all materials.
- 11.2.5 A site waste management plan (SWMP) will be prepared by main contractors in accordance with the *Waste and Resources Action Programme (WRAP) guidance*.
- 11.2.6 The SWMP sets a framework to facilitate good practice and the following will be recorded in the SWMP:
- the classification of all waste;
 - the types, quantities and locations of waste materials generated during construction;
 - measures to be implemented to reduce waste generation;

- measures to be implemented for recycling and/or re-use of spoil material;
 - measures to be adopted for management of waste on site;
 - the permitting arrangements for waste transfer, treatment and disposal; and
 - details of the waste carriers and off-site treatment and disposal sites to be used.
- 11.2.7 Opportunities will be considered and measures will be implemented in the design and construction of the scheme by main contractors to reuse waste or surplus materials, as appropriate. The main contractors will need to demonstrate that where possible reuse has been maximised and where this is not possible this needs to be recorded. The main contractors will also be expected to investigate, secure and record where the reuse of materials and waste has been used elsewhere off site.
- 11.2.8 The main contractors will investigate the potential for developing a register for primary materials used on the scheme to inform potential future reuse opportunities.
- 11.2.9 Collection points will be provided at site offices and compounds and the main contractors will arrange for the appropriate transfer of materials to recycling and disposal facilities as appropriate.
- 11.2.10 Necessary waste management permits will be obtained or applications to the Environment Agency will be made by main contractors for registration of any relevant exemption from waste permitting necessary during construction works.

11.3 Identification and classification of waste

- 11.3.1 The SWMP will be used to identify the specific types and quantities of waste likely to arise during the construction process. Where generated, waste will be classified in accordance with the statutory controls governing the management of inert, non-hazardous and hazardous wastes.

11.4 Segregation and storage of waste

- 11.4.1 The main contractors shall ensure that waste materials are sorted into separate waste groups, (according to the waste streams generated by the scope of the works), either on-site or off-site by a licensed contractor for recovery.
- 11.4.2 On-site hazardous excavated material or waste will be kept separate from other materials and removed and managed by main contractors in accordance with legislative requirements.
- 11.4.3 Any waste leaving the scheme will be accompanied by appropriate duty of care documentation in line with the relevant statutory

requirements for waste transfer and hazardous wastes (as appropriate). Duty of care documentation will be retained by the contractors in line with statutory requirements. The edoc online system may also be used as an alternative to paper waste transfer notes and season tickets.

11.5 Duty of care

- 11.5.1 The main contractors shall comply with all legal 'duty of care' requirements to protect the interests and safety of others from the potential effects of handling, storing, transporting and depositing excavated materials and demolition/construction wastes arising from the project.
- 11.5.2 The main contractors will manage material use with the aim of maximising the environmental and development benefits from the use of surplus material and reducing the adverse environmental effects and risks associated with disposal off-site.
- 11.5.3 All waste material will be appropriately transported and disposed of by the main contractors (or their contractors) at permitted or designated sites.
- 11.5.4 The SWMP will include detailed procedures for compliance with the requirements for waste transfer notes, in accordance with the *Waste (England and Wales) Regulations 2011*, and arrangements for auditing the actions of other parties in the waste handling chain.
- 11.5.5 The arrangements for registering the scheme, consigning, handling and transporting hazardous wastes will be followed by main contractors in the context of duty of care and the specific consignment note procedures applicable under the *Hazardous Waste (England and Wales) Regulations 2005 (SI 2005 No.894)* or any succeeding relevant legislation.
- 11.5.6 Where appropriate the main contractors will consider using the edoc system with regards to fulfilling the duty of care requirements.

11.6 Use of materials

- 11.6.1 The main contractors shall where practicable implement measures to manage material usage during construction including:
- using sustainably sourced materials¹;
 - using recycled or secondary materials; and
 - minimising the use of materials that have the potential to harm human health or the environment.

¹ This is the sourcing of materials that takes into account social and environmental responsibility to reduce resource depletion.

11.6.2 The main contractors shall consider sourcing recycled or secondary materials locally.

11.7 Monitoring

11.7.1 The main contractors will undertake regular audit and inspection of waste management activities to ensure compliance with the requirements of this CoCP, statutory controls and other scheme policies and procedures relevant to the management of surplus excavated material and waste.

11.7.2 The types, quantities and fate of waste generated during the construction process will be identified, measured and recorded by way of a SWMP. This information shall be reported on a periodic basis.

11.7.3 A register of all waste loads leaving the site will be maintained by main contractors to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities and management methods.

12 Nature conservation

12.1 General provisions

12.1.1 Relevant information (including pre-construction survey requirements) will be included in site species or habitat management plans. The management plans will be at a scheme-wide scale, but will also be appended to the LEMPs to provide local scale information. The site, species or habitat management plans will be prepared by main contractors for the following:

- Brampton Wood Site of Special Scientific Interest and the hedge running east from it;
- Buckden gravel pits County Wildlife Site;
- Fenstanton lakes County Wildlife Site;
- terrestrial habitats;
- aquatic habitats;
- European protected species (great crested newt, otter and bats);
- badger;
- barn owl (including the provision of nesting boxes and towers);
- breeding birds (including the provision of bird nesting boxes);
- water vole;
- reptiles;
- freshwater fish, including migratory species; and
- species of local importance (not covered by the above).

12.1.2 The main contractors will seek to reduce habitat loss within the land provided for the scheme by keeping the working area to the minimum necessary for construction of the scheme and where this area has been agreed installing appropriate exclusion measures to prevent accidental incursion.

12.1.3 Where appropriate (and in line with the commitments in the *ES*), the main contractors will mitigate the loss of ecologically important habitats through habitat creation including enhancements to any habitats in Buckden Gravel Pit County Wildlife Site that lie within the land provided for the scheme but outside the minimum area required for construction. Where replacement planting is provided, this mitigation will be integrated with landscape planting, as appropriate, and use native species of local provenance.

12.1.4 The main contractors will have regard to the requirements of *Sections 6, 13 and 14* relating to dust and air quality, noise and vibration, and protection of the water environment, respectively, to protect

ecologically important habitats and species adjacent to the construction site.

- 12.1.5 The main contractors will consult with the local authorities, Natural England the Environment Agency and the local wildlife trusts, as appropriate, regarding preparation of the ecological aspects of the relevant LEMPs and associated appendices.
- 12.1.6 An Ecological Clerk of Works (ECoW) will oversee the implementation of the ecological mitigation.
- 12.1.7 In accordance with the mitigation and other measures set out in the ES, the main contractors will undertake pre-construction surveys to determine the current status and distribution of protected species (including bats, water vole, otter, great crested newt, badger, breeding birds (including barn owl) and white clawed crayfish) and locally important species and their current status and distribution along the scheme. The contractor will ensure that exclusion zones in line with best practice (and which are appropriate considering the nature of the construction works to be undertaken) are maintained.
- 12.1.8 General measures to be implemented by main contractors on the scheme include as appropriate:
- Ensure careful siting of compounds, materials storage areas, haul routes etc. to avoid semi-natural habitats and protected species wherever possible.
 - Avoid night-time working where practicable – particularly in the vicinity of sensitive habitats such as woodland, hedgerows and watercourses.
 - Avoid the use of lighting, generators (and other noisy equipment) at night where possible – particularly in the vicinity of sensitive habitats and in accordance with Bat Conservation Trust (2009), Bat Conservation Trust (2014) and the Highways Agency (2008).
 - Covering all excavations overnight (where practicable) or providing appropriate escape ramps for mammals (where practicable) in the form of a sloped face to the excavation or a scaffold plank or similar.
 - Uncovered excavations to be visually checked for the presence of wildlife each morning before works commence. The main contractor will seek advice from the ECoW if a protected species is found or suspected.
 - Where practicable reducing the severance impact of vegetation removal by maintaining the feature intact as long as possible; keeping any gap to the minimum required for the purpose and considering filling gaps with brash or similar when work is not being undertaken (e.g. on a bat commuting route at night) so that it can continue to function as a wildlife corridor.

- Careful and regular management of soil storage areas to maximise their future value in landscape planting and to dissuade badgers and other burrowing animals from colonising them in the interim.

12.1.9 The main contractors will obtain and comply with the requirements of any protected species licences and approved method statements necessary for construction of the scheme. Licences and approved method statements may include those in relation to the following:

- European protected species derogation licences – in respect of any works likely to breach the *Conservation of Habitats and Species Regulations 2010*, as amended. Species potentially requiring a derogation licence include great crested newt, otter and bats;
- Badger development licences - in respect of any works likely to result in the disturbance, damage or destruction of a badger sett;
- Water vole conservation licence – in respect of any works likely to result in the disturbance, obstruction, damage or destruction of breeding or resting habitat;
- Breeding bird method statement – a document that details how breeding birds and their nests will be safeguarded from damage or disturbance during construction. A copy of this document will be submitted to Natural England for their comment and incorporated into the breeding bird species management plan; and
- Approved reptile method statement - a document that details how the four common species of reptile (as applicable) will be safeguarded from killing and injury during construction. A copy of this document will be submitted to Natural England for their comment and incorporated into the reptiles species management plan..

12.1.10 The programming of construction works will take cognisance of the requirements set out in the *ES*; including seasonal constraints for a range of species and their habitats (e.g. great crested newt breeding ponds, reptile hibernation habitat and bat breeding roosts as applicable). In particular, to prevent illegal disturbance of breeding birds or their nests, no removal of vegetation will take place within the bird breeding season (typically March to August), unless a competent ecologist has first undertaken an appropriate inspection of the vegetation for active birds' nests prior to its clearance. Having completed the inspection, the ecologist will provide confirmation that no birds or their nests will be harmed or disturbed whilst breeding and/or that there are appropriate measures in place to protect nesting birds on the site. Consideration should also be given to impacts on nesting birds outside of but adjacent to the site. These seasonal

constraints will be a consideration when developing the LEMPs and the construction programme.

12.2 Control of invasive and non-native species

12.2.1 The main contractors will implement appropriate treatment of any invasive non-native species in order to comply with the legislation and prevent their further spread, including, as appropriate:

- Japanese knotweed (*Fallopia japonica*);
- New Zealand pigmyweed (*Crassula helmsii*);
- Canadian pondweed (*Elodea canadensis*);
- *Cotoneaster* sp.; and
- Signal crayfish (*Pacifastacus leniusculus*).

12.2.2 The strategy adopted will comply with appropriate construction, handling, treatment and disposal procedures in relation to these and any other species listed in Schedule 9, Part II of the Wildlife and Countryside Act 1981, as amended, or the Weeds Act 1959 to prevent the spread of such species. Appropriate measures will also be set out to control other invasive species such as Himalayan balsam (*Impatiens glandulifera*) in line with Kelly *et al.*, (2008). Control measures will be implemented following appropriate guidance such as the *Guidance for the Control of Invasive Weeds in or Near Freshwater* (Environment Agency, 2003) and the *Approved Code of Practice for Managing Japanese Knotweed* (Environment Agency, 2013).

12.2.3 Additionally, ragwort (*Senecio jacobaea*) is a native wildflower that can be harmful to livestock and so must be controlled where it occurs close to livestock in accordance with the *Code of practice on how to prevent the spread of ragwort* (Defra, 2011).

12.3 Monitoring

12.3.1 The main contractors will consult with relevant authorities including Highways England, Natural England, the local authorities, the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire and the Forestry Commission regarding monitoring and survey works to be undertaken prior to construction to update the baseline ecological and arboricultural conditions set out in the *ES*. The survey works will be planned to provide sufficient baseline data to inform the development of appropriate construction programmes, methods and mitigation measures which will be set out in the LEMPs.

12.3.2 The main contractors will undertake appropriate monitoring of construction works and implementation of mitigation measures to enable the effectiveness of these measures to be identified.

13 Noise and vibration

13.1 Measures to reduce potential noise and vibration impacts

Best practicable means

- 13.1.1 The main contractors will assess, consider and implement best practicable means (BPM) at all times in order to control noise and vibration from the works.
- 13.1.2 BPM is defined in *Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990* as those measures which are ‘reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications’.
- 13.1.3 The main contractors will consider mitigation in the following order:
- BPM, including:
 - Noise and vibration control at source - for example the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods (including non-vibratory compaction plant, where required), location of equipment on site, control of working hours (see *Section 5.1*), the provision of acoustic enclosures and the use of less intrusive alarms, such as broadband vehicle reversing warnings; and
 - Screening - for example local screening of equipment, perimeter hoarding or the use of temporary stockpiles.
 - Then, if situations arise where despite the implementation of BPM, the noise exposure exceeds the criteria defined in this CoCP, the main contractors may offer:
 - Noise insulation; or ultimately
 - Temporary re-housing.
- 13.1.4 The recommendations of *BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites – Noise*², and *BS 5228-2:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites – Vibration*³, will be implemented, together with the specific requirements of this CoCP.

13.2 Noise and vibration management

- 13.2.1 The effects of noise and vibration from construction sites will be controlled by introducing management and monitoring processes to

² Hereafter referred to as BS 5228-1

³ Hereafter referred to as BS 5228-2

ensure that BPM are planned and employed during construction. As part of the main contractors' CEMP, a noise and vibration management plan will be prepared and will set out these processes. The plan will include management and monitoring processes to ensure as a minimum:

- Integration of noise control into the preparation of method statements;
- Ensuring proactive links between noise management activities and community relations activities (*see Section 4*);
- Preparing details of site hoardings, screens or bunds that will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features;
- Developing procedures for the installation of noise insulation or provision of temporary re-housing and to ensure such measures are, where required, in place as early as reasonably practicable;
- Preparing risk assessments to inform structural surveys of buildings and structures which may be affected by vibration from construction;
- Developing a noise and vibration monitoring protocol including a schedule of noise and vibration monitoring locations and stages during construction of the scheme when monitoring will be undertaken;
- Preparing and submitting Section 61 consent applications;
- Undertaking and publishing all monitoring required to ensure compliance with all acoustic commitments and consents; and
- Implementing management processes to ensure ongoing compliance, improvement and rapid corrective actions to avoid any potential non-compliance.

13.3 Section 61 consents

13.3.1 The main contractors will seek to obtain consents from the relevant local authority under *Section 61 of the Control of Pollution Act 1974* for the proposed construction works, excluding non-intrusive surveys. Applications will be made to the relevant local authority for a Section 61 consent at least 28 days before the relevant work is due to start or earlier if reasonably practicable.

13.3.2 Details of construction activities, prediction methods, location of sensitive receivers and noise and vibration levels will be discussed with the relevant local authority, or authorities, both prior to construction work and throughout the construction period. Prediction, evaluation and assessment of noise and vibration as well as discussion between the employer's representative and its main

contractors and the relevant local authority will continue throughout the construction period.

- 13.3.3 Unless otherwise agreed with the relevant local authority, noise levels will be predicted in accordance with the methods set out in *BS 5228 – 1*.
- 13.3.4 All construction noise levels will be predicted or measured at a distance of 1m from any affected eligible facade, which must have windows to bedrooms or living rooms.
- 13.3.5 *Annex A of BS 5228-1* provides a flow diagram demonstrating the process of a Section 61 application.
- 13.3.6 The employer's representative and or the main contractors will seek to agree with local authorities a common format and model consent conditions for Section 61 applications or any dispensations and variations to an existing consent. An example application form is included in *Annex 2*.
- 13.3.7 The application for a Section 61 consent will require noise (and where appropriate vibration) assessments to be undertaken and BPM measures set out to manage noise associated with construction of the scheme. The main contractors will submit the assessment initially to the employer's representative for review, prior to submission to the relevant local authority (refer to *Section 13.3.5*).
- 13.3.8 The main contractors will carry out noise (and vibration where appropriate) predictions for Section 61 applications.
- 13.3.9 In the event that works for which Section 61 consent has been applied for have to be rescheduled or modified (e.g., method or working hours) for reasons not envisaged at the time of submitting the Section 61 consent application, the main contractor will apply for a dispensation or variation from the appropriate local authority, before commencing those works, at the time specified within the Control of Pollution Act 1974.
- 13.3.10 The dispensation will be sought by means of an application to vary the agreed matters, setting out the revised construction programme or method and the relevant noise calculations.

13.4 Noise insulation and temporary re-housing policy

- 13.4.1 Highways England/employer's representative will implement a noise insulation and temporary rehousing policy. The policy is intended to provide additional protection to residents in the event that it is not practicable to mitigate airborne noise, or reduce their exposure to it, to levels that are tolerable during certain intensive construction phases.

- 13.4.2 The main contractors will submit a noise insulation/temporary rehousing appraisal at least six⁴ months prior to starting that phase of work on site or such time appropriate to the scale and nature of the works. It is essential that the assessment is carried out early enough so that noise insulation can be installed before the start of the works predicted to exceed noise insulation or temporary re-housing criteria.
- 13.4.3 Typically a noise insulation package will include secondary glazing, an alternative method of ventilation and on certain aspects venetian blinds.
- 13.4.4 The main contractors will use BPM to minimise the extent to which noise insulation work or temporary re-housing of occupiers of dwellings adjacent to the works needs to be considered.
- 13.4.5 Notwithstanding the measures set out in this CoCP and any Section 61 consents, noise insulation or temporary re-housing will be offered to qualifying parties when:
- noise levels are predicted or measured by the main contractors to exceed the relevant trigger level defined in *Table 13.1* at that property for at least ten days out of any period of fifteen consecutive days or alternatively 40 days in any six month period;
 - the property complies with all other requirements of the *Noise Insulation (Amendment) Regulations 1988*;
 - the property is be lawfully occupied as a permanent dwelling; and
 - in respect of insulation, noise insulation does not already exist that is of an equivalent standard to that which would be allowed for under the *Noise Insulation (Amendment) Regulations 1988*.
- 13.4.6 The relevant trigger levels are shown in *Table 13.1* which is taken from *BS5228-1 Appendix E4*.

Table 13.1: Noise thresholds for noise insulation/temporary re-housing

Day	Time (hrs)	Average period T	Noise insulation trigger level $L_{Aeq,T}$ (dB) */**	Temporary re-housing trigger level $L_{Aeq,T}$ (dB) */**
Monday-Friday	07:00-08:00	1 hr	70	80
	08:00-18:00	10 hrs	75	85
	18:00-19:00	1 hr	70	80
	19:00-22:00	1 hr	65	75

⁴ Where noise insulation is potentially required at a listed building the appraisal shall be submitted at least nine months prior to starting of the phase of work on site.

Day	Time (hrs)	Average period T	Noise insulation trigger level $L_{Aeq,T}$ (dB) */**	Temporary re-housing trigger level $L_{Aeq,T}$ (dB) */**
Saturday	07:00-08:00	1 hr	70	80
	08:00-13:00	5 hrs	75	85
	13:00-14:00	1 hr	70	80
	14:00-22:00	1 hr	65	75
Sunday and public holidays	07:00-22:00	1 hr	65	75
Any day	22:00-07:00	1 hr	55	65

*Proposed Scheme construction sound only. Trigger levels are defined as 1m in front of the closest facade of a habitable room.

**Where the current ambient noise level is greater than the noise insulation trigger level:

- a) the ambient noise level shall be used as the noise insulation trigger level, and
- b) the ambient noise level +10dB shall be used as the temporary rehousing trigger level.

13.4.7 Highways England/employer’s representative will develop and seek to agree with local authorities a noise insulation and temporary re-housing policy that will set out all roles, responsibilities and actions required in respect of these measures.

13.4.8 Highways England/employer’s representative will consider at its discretion applications supported by evidence for noise insulation or temporary rehousing from occupiers who may have special circumstances. Special circumstances could include night workers, those working in home occupations, local businesses or buildings that provide community facilities requiring a particularly quiet environment and those with a medical condition which will be seriously aggravated by construction noise, and provide noise insulation or temporary re-housing where it is demonstrated that this is necessary.

13.5 Vibration thresholds and actions

13.5.1 Criteria and/or procedures for vibration control are specified for three purposes and assessed using three different sets of parameters:

- To protect the occupants and users of buildings from disturbance, for which vibration dose values are assessed (vibration dose values (VDVs) are defined and their application to occupants of buildings is discussed in *BS 6472- 1 Guide to evaluation of human exposure to vibration in buildings – vibration sources other than blasting, 2008*);
- To protect buildings from risk of physical damage, for which peak component particle velocities are assessed in accordance with

BS 7385-2 Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration, 1993; and

- To protect particularly vibration-sensitive equipment and processes from damage or disruption, for which peak component acceleration, velocity or displacement are assessed as appropriate to each process or item of equipment.

13.5.2 In some buildings, two or three of the above parameters may apply, and in those cases Highways England will require its main contractors to evaluate the criteria separately. In establishing criteria, controls and working methods, the main contractors will take account of guidance in *BS 6472-1 Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting 2008: BS 5228 – 1 and BS 5228 – 2 , ISO 4866: Mechanical vibration and shock, vibration of fixed structures. Guidelines for the measurement of vibrations and evaluation of their effects on structures and BS 7385- 2 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration 1993.*

13.5.3 In the following sections vibration thresholds are set out. The thresholds are trigger levels at which a set of actions will be carried out by the main contractors. Except where stated otherwise, they are not designed to be maximum permitted levels.

Protection of building occupants from disturbance

13.5.4 To protect the occupants and users of buildings from disturbance, BPM will be used by main contractors to control vibration levels so that the vibration dose values in *Table 13.2*, as measured in accordance with *BS6472-1 Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting (2008)* are not routinely exceeded (considered to be ten days in any 15 consecutive days) as a result of the works.

Table 13.2: Vibration trigger levels for protection of occupants of buildings from disturbance.⁵

Building type	Period	VDV (ms-1.75)
Eligible dwellings ⁶	07:00 to 23:00	0.4
	23:00 to 07:00	0.2
Education buildings, offices and similar ⁷	Over normal period of use (daytime)	0.8
Commercial ⁸	Over normal period of use (daytime)	1.6

- 13.5.5 The vibration thresholds in *Table 13.2* will be weighted in accordance with *BS6472-1 Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting, 2008*.
- 13.5.6 For application of threshold levels, it will be assumed that people are standing or sitting during daytime, and lying down during night-time hours as defined in the table.
- 13.5.7 The orientation of the person is important as it determines the vibration weighting factor to be applied.
- 13.5.8 When considering human response to vibration *BS 5228 – 2* provides other guidance levels in terms of peak particle velocity (PPV), which are presented in *Table 13.3*. Where information is not available to complete an assessment against the trigger levels in *Table 13.2*, an assessment shall be undertaken using the guidance in *BS5228-2*.

⁵ Based upon the professional judgement of suitably qualified and experienced specialists, as listed in *Appendix 6.1* of the ES.

⁶ Measured on a normally-loaded floor of any bedroom or living room. For this purpose, eligible dwellings include dwelling houses, residential institutions, hotels, and residential hostels.

⁷ Measured on a normally-loaded floor of areas where people normally work. This category of receiver will include all areas where clerical work meetings and consultations are regularly carried out (e.g. Doctors' surgeries, day-care centres but not shop floors of industrial premises).

⁸ Measured on a normally-loaded floor of areas where people normally work. Commercial premises include retail and wholesale shops.

Table 13.3: Guidance on effects of vibration levels⁹

Vibration level ^{10 11} ¹²	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

13.5.9 Temporary respite will be provided by main contractors if the following levels are triggered (using the same temporal scope as the noise insulation and temporary rehousing policy):

- The predicted or measured vibration exceeds the following trigger values set at the centre of any floor inside the property (highest vibration):
 - Daytime (7am to 11pm): a vibration dose value (VDVb) of $0.8\text{m/s}^{1.75}$; and
 - Night-time (11pm to 7am): a vibration dose value (VDVb) of $0.4\text{m/s}^{1.75}$.
- The predicted or measured groundborne noise exceeds as 45 dB $L_{A\text{Smax}}$ measured near, but not at, the centre of any room in a property.
- The predicted or measured groundborne noise or vibration exceeds the relevant trigger value for a period exceeding one day.

13.5.10 Details of the temporary respite process will be included within the noise insulation and temporary rehousing policy.

⁹ Based upon the professional judgement of suitably qualified and experienced specialists, as listed in Appendix 6.1 of the ES.

¹⁰ The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

¹¹ A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

¹² Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.

Protection of buildings from damage

13.5.11 To protect buildings from damage, Highways England / employer’s representative will require its main contractors to use BPM to control vibration levels so that the peak particle velocity (PPV) in *Table 13.4*, as measured in accordance with *BS6472-1 Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting 2008*, are not exceeded as a result of the works at the building foundation unless agreement is sought from the local authority.

Table 13.4: Vibration trigger levels for building damage¹³

Category of building	Impact criteria: (PPV at building foundation)	
	Transient vibration	Continuous vibration
Structurally sound buildings	≥12 mm/s	≥6 mm/s
Potentially vulnerable buildings ¹⁴	≥6 mm/s	≥3 mm/s

13.5.12 To determine whether a detailed assessment needs to be undertaken or whether the levels in *Table 13.4* are likely to be exceeded, or whether there is a potential for building damage, the main contractors will carry out a scoping vibration assessment. Activities requiring an assessment could include vibratory compaction, impact or vibratory piling and other driven processes.

13.5.13 If predicted vibration levels exceed 1mm/s component PPV at occupied residential buildings or 3mm/s PPV at occupied commercial buildings more detailed assessment should be carried out in accordance with *BS 7385-2 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration 1993*. If this identifies that people occupying buildings may experience levels in excess of the threshold values in *Table 13.4* those potentially affected will be notified as soon as practicably possible in advance of the works. The notification will describe the nature and duration of the works and any associated proposals for vibration monitoring.

13.5.14 Highways England/employer’s representative will require its main contractors to be cognisant of the advice given in *BS ISO 4866*

¹³ Based upon the professional judgement of suitably qualified and experienced specialists, as listed in *Appendix 6.1* of the ES.

¹⁴ BS7385 highlights that the criteria for aged buildings may need to be lower if the buildings are structurally unsound. The standard also notes that criteria should not be set lower simply because a building is important or historic (e.g. listed). Where information about these structures is not currently known, the more onerous criteria on this row of the table shall be adopted on a precautionary basis until condition surveys have been undertaken.

Mechanical vibration and shock, vibration of fixed structures. Guidelines for the measurement of vibrations and evaluation of their effects on structures and BS 7385-2 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration 1993.

13.5.15 Highways England/employer's representative will require its main contractors to notify and consult it and the relevant local authority regarding any works predicted to generate a PPV above 10mm/s. Where it is agreed that there is no reasonable or practicable means to reduce predicted or measured vibration then the main contractors will:

- Agree with Highways England/employer's representative and seek to agree with the local authority under the relevant Section 61 consent⁵, monitoring for vibration and strain induced in the building during the works;
- Seek to agree with occupiers of properties;
- The surveys to be carried out and any consequent actions;
- Any additional reasonable and practicable mitigation to be provided for occupants;
- Carry out a condition survey before and after the relevant works; and
- Advise the local authority through the relevant Section 61 consent application.

13.5.16 In addition, any old buildings, or buildings that may be unusually vulnerable to vibration, that are located within 50m of any activities that may give rise to significant vibration shall be identified.

13.5.17 Where the predicted vibration at the foundations of such buildings exceeds 5mm/s PPV then Highways England/employer's representative will require its main contractors to undertake an initial structural survey of the building. Based on the survey, the level of vibration above which condition surveys and continuous vibration monitoring are required will be confirmed and agreed with the building owner. The local authority will be notified through the relevant Section 61 consent application.

13.5.18 Where the condition and vibration monitoring surveys demonstrate that vibration from the works has given rise to building damage then Highways England/employer's representative will require its main contractors to make good that damage.

Protection of particularly vibration-sensitive equipment/processes

13.5.19 The main contractors will endeavour to avoid any impact on sensitive equipment. Any actions to control or mitigate impacts will be agreed between its contractors and the operator of the equipment. The local

authority will be notified through the relevant Section 61 consent application.

13.6 Monitoring

- 13.6.1 Monitoring will include physical measurements and observational checks / audits.
- 13.6.2 The main contractors will undertake and report noise and vibration monitoring, including real time noise and vibration monitoring, as is necessary to ensure and demonstrate compliance with all noise and vibration commitments, the requirements of this CoCP and any Section 61 consent(s).
- 13.6.3 Regular on site observation monitoring and checks/audits will be undertaken to ensure that BPM is being employed at all times. The site reviews will be logged and any remedial actions recorded. Such check will include:
- hours of working;
 - presence of mitigation measures, equipment (engines doors closed, airlines not leaking, etc.) and screening (location and condition of local screening, etc.);
 - number and type of plant;
 - construction method; and
 - where applicable, any specific Section 61 consent conditions.
- 13.6.4 The monitoring and compliance assurance process will be set out in each of the main contractors' noise and vibration management plan, as part of their CEMP.
- 13.6.5 Proposals for monitoring locations will be set out in each LEMP.
- 13.6.6 The Section 61 applications will include a detailed description of the monitoring and monitoring locations proposed for the particular works covered by the consent application.

14 Road drainage and the water environment

14.1 General provisions

14.1.1 Measures will be implemented by main contractors during construction for any works within or close to Water Framework Directive water bodies, other watercourses, lakes, reservoirs, or groundwater. Specific activities that might affect the water environment include borrow pits, pavement, structures (bridges, culverts and outfalls) and river realignments. Typical measures that might be implemented include:

- Prevent access to adjacent areas to prevent impacts on watercourses and water bodies;
- Implement measures to prevent sediment being washed into the watercourses. Small bunds and silt traps to be employed to isolate areas of construction. Silt traps to be regularly maintained/de-silted. Use of straw bale traps;
- Place restrictions or controls with regards to excavating within watercourses to limit disturbance to watercourse;
- In-stream works only to be carried out during periods that will avoid impact on fish populations.(to be agreed with the relevant Environment Agency officer);
- Works not to be carried out during flood flows to avoid undue erosion of the river beds and or banks;
- Surfacing or re-vegetation of bare areas to be undertaken as quickly as possible;
- Manageable parcels of land only to be cleared at a time (i.e. until stabilised);
- Demolition waste to be contained either for re-use or recycling or disposed of immediately to an agreed landfill site (to avoid a build-up on site);
- Maintain access and maintenance widths (as appropriate) on all watercourses;
- Within the operation vicinity of Borrow Pit numbers:
 - 1 – Brampton Brook;
 - 2 – Between Buckden and Grafham road east of the A1;
 - 3 – West Brook; and
 - 7 – Ellington Brook.

The temporary storage of soil and materials within flood zone 3 will be controlled such that the net volume of excavation within the flood zone 3 is always in excess of any temporary stockpiling

arising from such excavation. If soil and materials are to be temporarily stored within flood zone 2 they should be orientated so as not to obstruct flow and temporary floodplain compensation may be required subject to position, nature and duration. The exact location will be determined via written agreement with the Environment Agency prior to the commencement of works.

- Site compounds would not be located within flood zone 3; and
- Floodplain compensation areas have to be constructed before any works that remove existing floodplain on the same watercourse are progressed as defined in the flood risk assessment.

14.2 Surface water, groundwater and waste water

14.2.1 The main contractors will consult with the Environment Agency (and any other relevant statutory authorities) regarding the measures to be implemented to contain and manage surface water runoff from the construction site to prevent deterioration of the water environment and other potential adverse impacts including changes to flow volume, water levels and water quality. Measures to be implemented will include the following, as appropriate:

- Providing a suitable construction site drainage system including cut-off ditches or drains and sustainable drainage systems (SuDS), or equivalent, with suitably sized treatment facilities such as settlement or detention basins.
- U flow attenuation ponds, pollution control ponds, swales and oil interceptors required for the permanent works will be completed before the start of earthwork operations. Obtaining the necessary consents for any soakaway or filtration systems or to enable discharge of surface water run-off from the construction site to watercourses or foul sewers or disposal off-site.
- Putting in place appropriate measures such as use of bunds of non-erodible material or silt or sediment fences adjacent to watercourses.
- Implementing a surface water or groundwater monitoring plan, particularly in relation to works that could affect aquifers or drilling works.
- Adopting measures to comply with relevant Pollution Prevention Guidelines (PPG) in particular those identified in the Environmental Statement such as PPG01 to PPG06, PPG13, PPG18, PPG22 and PPG23: temporary construction methods and CIRIA publications (including Control of water pollution from construction sites. Guidance for consultants and contractors (C532), Control of water pollution from linear construction projects. Technical guidance (C648), Control of water pollution

from linear construction projects. Environmental Good Practice on Site (C741), Site guide (C649) and Site handbook for construction of SUDS (C698)).

- 14.2.2 The measures set out in *Section 6* to limit adverse dust and air pollution effects associated with construction works will apply equally in relation to limiting the likelihood of polluted surface water run-off being generated.
- 14.2.3 The main contractors will comply with *BS 6031 Code of Practice for earthworks* (BSI, 2009c) regarding the general control of site drainage including, for example, all washings, dewatering, abstractions and surface water run-off, unless otherwise agreed by the employer's representative.
- 14.2.4 If any water abstraction is required as part of the construction process, the Environment Agency will be contacted and the appropriate licenses will be obtained. Any abstraction practices will be in accordance with the guidelines and requirements of these licences.

14.3 Storage and control of oils and chemicals

- 14.3.1 The main contractors will comply with *The Control of Pollution (Oil Storage) (England) Regulations 2001* that apply in relation to storage of any oil-based materials including petrol, diesel, waste and vegetable and plant oil, but excluding uncut bitumen. Above ground fuel and oil storage tanks will also comply with *Pollution Prevention Guideline (PPG2): Above ground oil storage tanks* (Environment Agency *et al.*, 2001) which sets out requirements including those relating to positioning, specification, capacity, secondary containment and ancillary equipment for storage tanks. Stationary plant used by the contractor will be fitted with measures such as drip trays to retain any leakage of oil or fuel. The contractor will empty trays at regular intervals to prevent overflow.
- 14.3.2 Spill kits will be stored at key locations on site as set out in the main contractors' pollution incident control plan and in particular at refuelling areas. Where practicable, spill kits will also be kept with mobile fuel bowsers.
- 14.3.3 The main contractors will comply with *Pollution Prevention Guideline No.26 Drums and intermediate bulk containers* (Environment Agency *et al.*, 2011).
- 14.3.4 The main contractors will consult with the relevant local authorities and the Environment Agency regarding specific requirements in relation to establishing and operating concrete and road surfacing material batching plants on site. Wash water from any batching plants will not be discharged to the water environment without the approval of the relevant authority.

14.4 Control and management of foul drainage

14.4.1 The main contractors will manage and dispose of foul water and sewage effluents from site facilities complying with *Pollution Prevention Guideline No.4 Treatment and disposal of sewage* (Environment Agency *et al.*, 2006) where no foul sewer is available and the following measures, as appropriate:

- Containment by temporary foul drainage facilities and disposed off-site by a licensed contractor.
- Connection to the local foul water and sewage system as agreed with the relevant water authorities.
- Where a foul sewer is not present, appropriate treatment and discharge to a watercourse or soakaway with prior authorisation from the Environment Agency. Any foul drainage discharge out of the public sewer will require authorisation from the Environment Agency.

14.5 Private water supplies

14.5.1 A risk assessment will be undertaken by main contractors for excavation work associated with impacts on aquifers and private water supplies.

14.5.2 Some of the construction phase impacts can be mitigated through design. With reference to groundwater construction phase impacts can be mitigated by main contractors through the following:

- controlling run-off from construction areas;
- ensuring good vehicle maintenance;
- effective design of storage, refuelling and stock piling areas;
- appropriate design of temporary drainage systems (to meet water quality objectives);
- use of an emergency response plan to deal with spillages;
- special measures to prevent groundwater contamination (if constructing through contaminated sites (if any)); and
- groundwater quality and level monitoring to assess the performance of mitigation measures.

14.5.3 Particular attention needs to be given to areas where dewatering will occur. This could include:

- estimating surrounding area potentially impacted by dewatering (e.g. use anticipated pump rates, rate of recharge etc.);
- identifying all receptors susceptible to groundwater level changes (public and private);

- minimising dewatering as far as practicable;
- containing poor quality discharge water and treat prior to disposal;
- undertaking measurements in boreholes (subject to permission); and
- should groundwater quality deteriorate then monitoring the downstream watercourses. Corrective action should be undertaken by main contractors if required.

14.5.4 There are only a few cuttings on the project and groundwater is anticipated to be below these cuttings. In the event that groundwater is encountered, there could be a need for main contractors to establish a baseline and construction phase monitoring programme.

14.6 Flood risk

14.6.1 Construction activities will be undertaken by main contractors taking into consideration the requirements to avoid any significant increase of flood risk. Appropriate measures, such as keeping watercourses clear of obstructions and debris to reduce blockage risk, will be implemented by the main contractors to prevent, so far as is reasonably practicable, damage to equipment or the works during potential flooding events. Suitable access and safe refuges are to be identified for use in the event of a flood. Appropriate maintenance access will be made available to watercourses and associated flood risk structures, if required.

14.6.2 The main contractors will consult with the relevant regulatory bodies and other relevant risk management authorities on areas at risk of flooding and make appropriate use of the Environment Agency's Floodline flood warning service for works within areas at risk of flooding.

14.6.3 The contractors will obtain copies of the relevant regulatory bodies' flood risk management plans, maps and strategies and prepare site specific flood risk management plans for those areas of the site at risk of flooding. These site specific flood risk management plans need to be compliant and produced in accordance with the appropriate flood risk assessments. These plans would include all areas within flood zone 3, areas considered at more risk of flooding on the Environment Agency's surface water flood map and areas susceptible to groundwater flooding. Other flood risk sources, such as sewer flooding and areas at risk of reservoir flooding, will also be considered to ensure all sources of flooding are addressed appropriately.

14.6.4 The main contractors will, as far as reasonably practicable, ensure that flood risk is managed safely throughout the construction and implementation period and consider potential flooding effects when planning sites and storing materials. A risk based precautionary

approach using the source – pathway – receptor concept will be applied to temporary and permanent works. Designers and contractors must prepare construction and permanent works proposals that are safe and to ensure that flood risk (including that to third parties and the proposed works) is managed appropriately. Where necessary this will include the provision of evidence that appropriate flood warning and emergency management measures are established and detailed designs are supported by provision for long term management and maintenance. Where practicable, contractors should avoid locating temporary structures, such as accommodation and stockpiles, and the placing of construction equipment within flood zone 3 areas or areas at significant risk of flooding from other sources.

14.6.5 The main contractors will submit, as appropriate, a report on flood risk to the employer's representative. These reports will summarise:

- any applications made for flood defence consent, where required, for temporary and permanent works and the status of the works;
- any specific requirements or conditions of the approval that will be obtained from the relevant consenting bodies;
- any flood risk management or mitigation measures implemented in support of temporary and permanent works proposals; and
- A statement on the cumulative flood risk impact of temporary and permanent works with reference to the *ES*.

14.6.6 The level of detail submitted in the reports must be commensurate with the scale, nature and level of risk associated with the proposed development and the potential impact on third parties. The reports must refer to the compliance of the flood risk plans.

14.7 Monitoring

14.7.1 The main contractors will consult with the Environment Agency over any requirements for water quality monitoring of watercourses potentially affected by construction works or discharge of surface water run-off, including the following, as appropriate:

- pre-construction monitoring to establish baseline water quality conditions for watercourses;
- monitoring during construction works to enable the effectiveness of mitigation measures to limit pollution risk to be monitored and any pollution incidents to be identified; and
- monitoring of watercourses receiving surface water run-off during construction to enable the effectiveness of treatment and other SuDS measures to be determined.

14.7.2 The main contractor will carry out monitoring as appropriate to identify:

- pollution risks that are unacceptably high;
- spillages and leakages;
- non-compliance with the CoCP; and
- suspected pollution incidences.

14.7.3 The main contractors will undertake groundwater monitoring at any sensitive groundwater sensitive areas, as required, informing the design of the scheme and developing construction methods to mitigate potential impacts on the groundwater regime. The contractor will also consult with the Environment Agency regarding the pollution incident control plan that will set out the measures to be implemented to address any adverse findings from the monitoring procedures during and following completion of construction works set out above.

15 Traffic, transport and all travellers

15.1 General provisions

- 15.1.1 The main contractors will implement traffic management measures during the construction of the scheme on or adjacent to public roads, cycle tracks and other paths as necessary. A lead-in notice period may be required prior to the implementation of certain temporary traffic management measures associated with the occupation or temporary closure of existing roads in accordance with relevant statutory requirements. Traffic management works will comply with the provisions of the *Traffic Signs Manual: Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations*. Traffic signs will comply with the *Traffic Signs Regulations and General Directions* (Highways Agency, 2002).
- 15.1.2 The design of traffic management schemes by main contractors will ensure the safe transition for road users from existing roads to the traffic managed sections of road. In accordance with the *Traffic Signs Manual: Chapter 8*, the main contractors will ensure that any temporary signs are consistent with permanent signs, that the choice of sign location accords with actual site conditions and that signs are placed where they will be clearly seen and cause minimum inconvenience to road users.
- 15.1.3 A traffic management working group (TMWG) will be formed for the scheme at the construction phase which will be chaired by the employer's representative and includes representatives from the employer, main contractors, local roads authorities and the emergency services. The main contractors will consult with the TMWG regarding traffic management and other traffic related measures (including NMU issues) to be implemented in accordance with the *CoCP*. The members of the TMWG will agree a resolution procedure to be followed if there are any disputes regarding the traffic management and other traffic related measures to be implemented.
- 15.1.4 The scheme includes the provision of an intelligent transport system (ITS), which will include a system to implement variable speed limits, lane control and variable message signs. To the extent available and where reasonable and practicable, the main contractors will liaise with Highways England to use the ITS to complement traffic management schemes implemented during construction of the scheme to assist in the control and management of traffic on the road network. The main contractors will also provide Highways England with regular updates regarding any disruption caused by construction works on the road network. The information website described in *Section 4* will provide a link to Highways England's website to provide access to traffic information.

15.1.5 The main contractors will each prepare a traffic management plan in accordance with the relevant requirement contained in paragraph 9 of Schedule 2 to the DCO, which will describe the traffic management, safety and control measures proposed during construction of the scheme. The traffic management plan will include details of the following, as appropriate:

- measures to provide for the safety of traffic, the public and construction staff during traffic management works and temporary traffic control measures;
- procedures to be followed for the temporary or permanent closure or diversion of roads or accesses;
- procedures to be followed to obtain consent to work on or over railways;
- existing pedestrian, equestrian and cyclist routes, including whether the routes are used by one or more of these groups of road users;
- measures to be implemented to reduce construction traffic impacts or impacts associated with over-parking on residential streets;
- temporary and permanent access to the works;
- permitted access routes for construction traffic;
- monitoring requirements in relation to the plan;
- a programme of traffic management measures to be implemented and details of traffic management proposals for the works on or adjacent to public roads;
- details of phasing of works;
- drawings showing traffic management layouts, signing and apparatus to be implemented, including proposed routes for pedestrians, equestrians and cyclists;
- timing of operations;
- a list of roads which may be used by construction traffic in the vicinity of the site including any restrictions to construction traffic on these routes;
- the name and contact details of the contractor's traffic safety and control officer and information and advice for the public regarding ways to raise complaints or request information; and
- a register of applications for consents associated with temporary traffic management measures.

15.1.6 The responsibilities of the traffic safety and control officer will include:

- all management and implementation of traffic management measures associated with the scheme;
- ensuring that all equipment is in place and in full working order;
- ensuring compliance with all relevant health and safety directives in liaison with the contractor's Health and Safety Manager, relating to operations and live traffic;
- management of the layout of site access points;
- liaison with the employer's representative, the construction design and management (CDM) co-ordinator, the relevant authorities, the traffic safety and control officers on adjacent construction sites and continued monitoring of the traffic management measures adopted; and
- arranging for site inspections at regular intervals and equipment attended to and maintained and in the case of accidents or incidents having replacement signs, cones, bollards and lights and the like erected without delay.

15.2 Construction workers travel plan

15.2.1 Construction workforce travel plans will be prepared by the main contractors with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses. The plans will include:

- identification of a travel plan co-ordinator and a description of their responsibilities;
- key issues to consider for each compound/construction site or group of sites;
- site activities and surrounding transport network including relevant context plans;
- anticipated workforce trip generation and how it may change during the construction process;
- travel mitigation measures that will be introduced to reduce the impact of construction workforce on the transport network;
- target to reduce individual car journeys by the construction workforce;
- methods for surveying workforce travel patterns; and
- the process for monitoring and reviewing the construction workforce travel plan.

15.3 Traffic safety and control

15.3.1 The main contractors will take appropriate actions, including the design and installation of traffic management schemes:

- to accommodate the safe passage of traffic through any road works;
- to reduce the likelihood of traffic diverting onto alternative routes, which may have negative impacts upon the local community;
- to mitigate potential impacts on the local community and keep delays and disruptions to traffic to a reasonably practicable minimum.

15.3.2 This will include traffic control on local roads as may be necessary as part of the traffic management schemes. The main contractors will avoid leaving traffic management measures in place unnecessarily.

15.3.3 The main contractors will consult with the TMWG regarding the traffic management measures proposed and will undertake Road Safety Audits in accordance with the Design Manual for Roads and Bridges for complex or major traffic management schemes. Regular meetings will be held with the TMWG during the construction period.

15.3.4 Where required, as determined through consultation with the relevant authorities, the main contractors will provide speed detection cameras at temporary traffic management schemes.

15.3.5 When necessary during construction on the line of the trunk roads, the main contractors will operate a vehicle recovery system to minimise the impact of breakdowns or accidents on the flow of traffic. This will cover the removal of shed loads and vehicles that are stationary due to mechanical breakdowns, accident damage or abandoned in the trafficked road within the works to a safe location out of the works site.

15.3.6 The main contractors will operate a CCTV system for use in monitoring traffic management schemes, should this be necessary for the safe and effective monitoring of the schemes, maintaining traffic flow and operation of the vehicle recovery system.

15.3.7 The main contractors will consult with the operators of railways regarding construction works on, over or adjacent to railways or other works which may affect railways and will obtain any consents necessary for the works to be undertaken.

15.3.8 The main contractors will notify the police, the highway authorities or bridge and structure owners, as appropriate, in moving abnormal loads through the works. The main contractors will provide the employer's representative with a schedule of abnormal loads prior to commencement of construction.

15.3.9 The main contractors will consult with:

- relevant roads authorities;

- Highways England;
- the organisers of major or significant local events, and owners of significant local visitor attractions, in adjacent local authority areas; and
- other relevant organisations regarding traffic management and control measures to be implemented to accommodate abnormal traffic or unusually high traffic demands or material disruption.

15.3.10 The main contractors will ensure as part of the temporary traffic management schemes or at times of material disruption that appropriate alternative routes are signposted for currently signed destinations and visitor attractions and the contractor will agree those routes with the TMWG. The main contractors will also consult with, and take appropriate consideration of the views of, the owner and operator of the visitor attraction.

15.3.11 The main contractors will work with the relevant local authorities and Police regarding monitoring and appropriate measures to address any issues associated with hazards created by the public parking on roads to view construction of the scheme. This matter will also be considered by the TMWG.

15.4 Temporary or permanent closure or diversion

15.4.1 Where the main contractors propose to provide a temporary or substitute road or access or the like, the width and standard of construction and any lighting and signage required will be suitable for the traffic anticipated to use the route. The contractor will maintain the temporary or substitute road or access or the like to provide adequately for the traffic using the route. The contractor will apply for any consents and prepare any orders or regulations required for temporary traffic management schemes or road closures and comply with the requirements of the relevant roads authority in this regard and to ensure that temporary or substitute roads have the appropriate legal status.

15.4.2 If a road needs to be closed temporarily to facilitate construction works, for example to enable the lifting of bridge beams over an existing road, the contractor will comply with the requirements of Highways England, Cambridgeshire County Council and the Police. The contractor will demonstrate to these authorities that the construction work cannot be carried out safely without the road closure.

15.5 Public transport, pedestrian, equestrian or cycle routes

15.5.1 The main contractors will consult with relevant local authorities and relevant public transport and local bus operators regarding traffic management schemes that may affect the flow of buses and will

implement appropriate measures to mitigate disruption to bus services.

- 15.5.2 Where separate routes used by pedestrians and other non-motorised users are affected by construction works, the main contractors will provide alternative separate routes within the traffic management scheme being implemented.
- 15.5.3 The information in the traffic management plan relating to traffic management layouts, signing and apparatus to be implemented will include details of any temporary measures or signing to be implemented to maintain access to and signing of National Cycle Network routes and other existing routes designated for pedestrians or cyclists.
- 15.5.4 Where new routes for pedestrians and other non-motorised users are provided as part of the scheme, the main contractors will make these routes available for use and signpost them appropriately when they are constructed to a condition and approved as being safe for use and any traffic regulation orders necessary to designate them for use are in place.

15.6 General measures to reduce construction traffic impacts

- 15.6.1 Where appropriate, the main contractors will provide haul routes through the works for use by construction vehicles to reduce the need to use public roads. Site access points will be positioned to enable the use of haul routes to be maximised, subject to safety considerations in the design and construction of appropriate access points.
- 15.6.2 The main contractors will comply with the requirements of the relevant roads authority regarding the layout and positioning of site accesses.
- 15.6.3 Where site accesses and at-grade crossings of public roads are required for construction vehicles, the contractor will provide traffic management measures as required and design these measures to avoid unnecessary delay to vehicles on the public road.
- 15.6.4 The main contractors will keep roads, accesses and the like free from mud and other loose materials arising from the works, as far as reasonably practicable.
- 15.6.5 Where reasonable and practicable, construction vehicles will avoid travelling in convoys on public roads.
- 15.6.6 The design of temporary traffic management schemes will maintain an appropriate number of lanes on public roads in line with the requirements of *Section 15.1*. Lane closures will only be permitted with the approval of the employer's representative and the relevant roads authority.

15.7 Access routes for construction traffic

- 15.7.1 The main contractors will consult with local roads authorities regarding access routes that may be used by the main contractors to access the construction sites, including consultation regarding any particular timing restrictions on the use of roads. Signing will be provided by the contractor, including seeking any approvals or consents necessary.
- 15.7.2 Access routes for construction traffic will be limited, as far as reasonably practicable, to the trunk road network and main roads on the local road network. Access along other local roads will be restricted but may be necessary, for example, to enable transport or delivery of locally sourced materials. Access along residential roads will generally be prohibited. In instances where access along lower class local roads and roads within residential areas is required, the contractor will keep this to a reasonably practical minimum. Information regarding public roads to be used by construction traffic will be provided on the website referred to in *Section 4*.
- 15.7.3 The main contractors will keep site access points clear at all times and will design and construct site access points to a suitable standard to enable the smooth access and egress of vehicles in a forward direction to limit disruption to road users due to use of the access points. The main contractors will consult with the relevant roads authorities and emergency services regarding the positioning of site access and egress points.
- 15.7.4 Site access points will be required for each of the site offices and compounds. The positioning of access for the site offices and compounds will take cognisance of the restrictions set in relation to access routes for construction traffic and layouts detailed in the traffic management plan.

15.8 Monitoring

- 15.8.1 The main contractors will monitor traffic management schemes to maintain their effectiveness and condition and to provide for the safety of traffic, the public and construction staff during traffic management works and temporary traffic control measures. The main contractors will provide information regarding any delays to traffic due to construction works to Highways England. Any relevant safety issues will be fed back into the school engagement programme (refer to *Section 5.7.2*).
- 15.8.2 The main contractors will monitor traffic levels on roads, including undertaking monitoring where reasonably required by the police or the relevant roads authority.
- 15.8.3 The main contractors will monitor site accesses and public roads adjacent to access points to enable measures to keep accesses and roads clean to be implemented as required.

16 Glossary

Borrow pit	An area where engineering fill material is extracted for use at another location, for example as part of the scheme embankments.
BPM	Best practicable means - defined in the Control of Pollution Act 1974 and Environmental Protection Act 1990 as measures which are 'reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications'.
BS	British standard.
CCTV	Closed circuit television.
CDM	Construction design and management in relation with Construction (Design and Management) Regulations 2007.
CEMP	Construction environmental management plan.
CIRIA	Construction Industry Research and Information Association.
CL:AIRE	Contaminated land: applications in real environments – an organisation dedicated to raise awareness of practical sustainable remediation technologies.
Considerate Constructors Scheme	A UK national scheme which promotes good practice on construction sites through its codes of considerate practice, which commit registered sites to be considerate and good neighbours, as well as being respectful, environmentally conscious, responsible and accountable. For more information see: www.ccscheme.org.uk
DCO	Development consent order - the means of obtaining permission for developments categorised as nationally significant infrastructure projects (NSIP).
DEFRA	Department for Environment, Food and Rural Affairs.
EIA	Environmental impact assessment. A process by which information about environmental effects of a proposed development is collected, assessed and used to inform decision-making. For certain projects, EIA is a statutory requirement.
Employer's representative	A representative employed to act on behalf of the client organisation. This role covers a variety of areas, from contract management and cost control to stakeholder relations and so on. It can be an employee of the client or a bought in service from an organisation.
EMS	Environmental management system.
EOC	Explosive ordnance clearance.
Environmental statement	A document produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations to report the results of an EIA.
Flood zones	Flood Zones refer to the probability of river and sea flooding. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's web site.

HAIL	Highways England Information Line - provides information on anything related to Highways England's 24 hours a day.
Highways England	Highways England is an Executive Agency of the Department for Transport (DfT), and is responsible for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport.
HSE	Health and Safety Executive.
National Highways Sector Scheme 18	National Highways Sector Schemes (NHSS) are quality management systems for organisations working on the UK road network. They are based on the ISO9001:2008 standards. Scheme18 relates to landscaping.
Network Occupancy Criteria	The time stipulated for the onset of traffic management up until the complete removal of the traffic management system. The times vary from road to road dependent upon traffic volumes.
Main contractor(s)	The main contractor on a construction site responsible for planning, managing and co-ordinating themselves and all other contractors working on site.
LEMPs	Local environmental management plans.
Luminosity	The relative quantity of light.
NPPF	National planning policy framework.
Planning Inspectorate	The Planning Inspectorate deals with planning appeals, national infrastructure planning applications, examinations of local plans and other planning-related and specialist casework in England and Wales.
PPGs	Pollution prevention guidelines – EA guidance and advice on the law and good environmental practice.
PPV	Peak particle velocity.
PRoW	Public rights of way.
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).
SSSI	Site of Special Scientific Interest.
SWMP	Site waste management plan.
SuDS	Sustainable drainage systems.
TMWG	Traffic management working group.
UXO	Unexploded ordnance.
WSI	Written scheme of investigation (a programme for archaeological investigation works).

17 Bibliography

Bat Conservation Trust (2009). Bats and lighting in the UK, Bats and the Built Environment Series. Available at:

http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk_final_version_version_3_may_09.pdf. Accessed August 2014.

Bat Conservation Trust (2014). Artificial lighting and wildlife, Interim Guidance: Recommendations to help minimise the impact artificial lighting. Available at:

http://www.bats.org.uk/publications_download.php/1330/BCT_Interim_Guidance_Artificial_Lighting_June_2014.pdf&rct=j&frm=1&q=&esrc=s&sa=U&ei=BTFrVOvUA4OqgwT694DQBq&ved=0CBQQFjAA&usq=AFQjCNEdXujvQI7crEQ4NowLiTwc63cHHQ. Accessed August 2014.

British Standards Institution (1989). BS 4428 Code of practice for general landscape operations (excluding hard surfaces).

British Standards Institution (1992). BS 3936-1. Nursery stock. Specification for trees and shrubs.

British Standards Institution (1993). BS 7385-2. Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration.

British Standards Institution (2004, as amended). BS EN ISO 14001. Environmental Management Systems – specification with guidance for use.

British Standards Institution (2007). BS 3882. Specification for topsoil and requirements for use.

British Standards Institution (2008). BS 6472-1. Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting.

British Standards Institution (2009a). BS 5228-1. Code of practice for noise and vibration control on construction and open sites. Noise.

British Standards Institution (2009b). BS 5228-2. Code of practice for noise and vibration control on construction and open sites. Vibration.

British Standards Institution (2009c). BS 6031. Code of practice for earthworks.

British Standards Institution (2015). BS 5930: 2015 Code of practice for ground investigations.

British Standards Institution (2010b). BS8576:2013 (Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)).

British Standards Institution (2010c). BS ISO 4866. Mechanical vibration of fixed structures. Guidelines for the measurement of vibrations and evaluation of their effects on structures.

British Standards Institution (2010d). BS 3998. Tree work. Recommendations .

British Standards Institution (2011). BS6164 Code of practice for health and safety in tunnelling in the construction industry.

British Standards (2012). BS5837: 2012 Trees in Relation to Design, Demolition and Construction.

British Standards Institution (2013a). BS 5489, Code of Practice for the Design of Road Lighting.

British Standards Institution (2013b). BS 10175:2011+A1 Investigation of potentially contaminated sites. Code of practice.

British Standards Institution (2013c). BS4428: 1989 Code of practice for general landscape operations (excluding hard surfaces).

Cambridgeshire County Council's 'Guidance for construction traffic when crossing public rights of way (PROW)'.

(CIRIA) Construction Industry Research and Information Association (2001). Control of water pollution from construction sites. Guidance for consultants and contractors (C532)

(CIRIA) Construction Industry Research and Information Association (2006a). Control of water pollution from linear construction projects. Site guide (C649)

(CIRIA) Construction Industry Research and Information Association (2006b). Control of water pollution from linear construction projects. Technical guidance (C648)

(CIRIA) Construction Industry Research and Information Association (2007). Site handbook for construction of SUDS (C698)

(CIRIA) Construction Industry Research and Information Association (2009). Unexploded ordnance (UXO). A guide for the construction industry(C681)

(CIRIA) Construction Industry Research and Information Association (2015). Environmental good practice on site guide (fourth edition) (C741)

(CL:AIRE) Contaminated Land: Applications in Real Environments (2011). The Definition of Waste. Development Industry Code of Practice.

(DEFRA) Department for Environment, Food and Rural Affairs (2001). Guidance note for the Control of Pollution (Oil Storage)(England) Regulations. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69255/pb5765-oil-storage-011101.pdf. Accessed August 2014.

(DEFRA) Department for Environment, Food and Rural Affairs (2009a). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69308/pb13298-code-of-practice-090910.pdf. Accessed August 2014.

(DEFRA) Department for Environment, Food and Rural Affairs (2009b). Protecting our Water, Soil and Air, A Code of Good Agricultural Practice for farmers, growers and land managers. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268691/pb13558-cogap-131223.pdf. Accessed August 2014.

(DEFRA) Department for Environment, Food and Rural Affairs (2011). Code of practice on how to prevent the spread of ragwort. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69264/pb9840-cop-ragwort.pdf. Accessed August 2014.

(DEFRA) Department for Environment, Food and Rural Affairs (2012) PG3/01(12) Statutory guidance for blending, packing, loading, unloading and use of cement. Available at:
<http://webarchive.nationalarchives.gov.uk/20141106091809/http://www.defra.gov.uk/industrial-emissions/files/06092012-pgn-301.pdf>. Accessed September 2015.

(DEFRA) Department for Environment, Food and Rural Affairs (2012) PG3/08(12) Statutory guidance for quarry processes. Available at: <http://webarchive.nationalarchives.gov.uk/20141106091809/http://www.defra.gov.uk/industrial-emissions/files/06092012-pgn-308.pdf>. Accessed September 2015

(DEFRA) Department for Environment, Food and Rural Affairs (2012) PG3/016 (12) Statutory guidance for mobile crushing and screening. Available at: <http://webarchive.nationalarchives.gov.uk/20141106091809/http://www.defra.gov.uk/industrial-emissions/files/06092012-pgn-316.pdf>. Accessed September 2015.

Department for Transport (2002). Traffic Signs Regulations and General Directions.

Department for Transport/Highways Agency *et al.*, (2009). Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations. Department for Transport/Highways Agency, Department for Regional Development (Northern Ireland), Transport Scotland and Welsh Assembly Government. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/203669/traffic-signs-manual-chapter-08-part-01.pdf. Accessed August 2014.

English Heritage and the Church of England (2005). Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England. Available at: <http://www.english-heritage.org.uk/publications/human-remains-excavated-from-christian-burial-grounds-in-england/16602humanremains1.pdf>. Accessed August 2014.

Environment Agency (2010). Guidance for the Control of Invasive Weeds in or Near Freshwater. Available at: http://webarchive.nationalarchives.gov.uk/20140328084622/http://cdn.environment-agency.gov.uk/LIT_5001_d24b8c.PDF. Accessed August 2015.

Environment Agency (2004). Contaminated Land Report (CLR) 11: Model Procedures for the Management of Land Contamination. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297401/scho0804bibr-e-e.pdf. Accessed August 2014.

Environment Agency *et al.*, (2006) Pollution Prevention Guidelines. Treatment and disposal of sewage where no foul sewer is available (PPG 4). Environment Agency, Scottish Environment Protection Agency and Environment and Heritage Service. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290141/pmho0706bjgl-e-e.pdf. Accessed August 2014.

Environment Agency *et al.*, (2010). Pollution Prevention Guidelines. Above Ground Oil Storage Tanks (PPG 2). Environment Agency, Scottish Environment Protection Agency and Northern Ireland Environment Agency. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290118/pmho0811bucr-e-e.pdf. Accessed August 2014.

Environment Agency *et al.*, (2011). Pollution Prevention Guidelines. Drums and intermediate bulk containers (PPG 26). Environment Agency, Scottish Environment Protection Agency and Northern Ireland Environment Agency. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290121/pmho0511btpg-e-e.pdf. Accessed August 2014.

Environment Agency (2013). Approved Code of Practice for Managing Japanese Knotweed. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296930/LIT_2695_df1209.pdf. Accessed August 2015.

Environment Agency (2014) Pollution Prevention Guidelines 21 (Incident Response Planning), Available at: <https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg>. Accessed August 2014.

Forestry Commission (2003). Forest and Water Guidelines. Available at: [http://www.forestry.gov.uk/pdf/FCGL007.pdf/\\$FILE/FCGL007.pdf](http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf). Accessed August 2014.

Forestry Commission (2011). The UK Forestry Standard. The governments' approach to sustainable forestry. Available at: [http://www.forestry.gov.uk/pdf/FCFC001.pdf/\\$FILE/FCFC001.pdf](http://www.forestry.gov.uk/pdf/FCFC001.pdf/$FILE/FCFC001.pdf). Accessed August 2014.

Hazardous Waste (England and Wales). Regulations 2005 (SI 2005No.894).

Highways Agency (2008) Interim Advice Note 116/08: Nature Conservation Advice in Relation to Bats. Available at:

www.dft.gov.uk/ha/standards/ians/pdfs/ian116.pdf. Accessed August 2014.

Highways Agency (2012). National Highway Sector Schemes 18 (NHSS18). For the Natural Environment and Landscape including Ecology for Infrastructure. Available at:

<http://www.ukas.com/library/Technical-Information/Pubs-Technical-Articles/Pubs-List/NHSS18%20Issue%2012%20MAR14.pdf>.

Accessed August 2014.

Institute of Lighting Professionals (2011) GN01 Guidance Notes for the Reduction of Obtrusive Light. Available at:

<https://www.theilp.org.uk/documents/obtrusive-light/>. Accessed

August 2014.

(IAQM) Institute of Air Quality Management (2012). Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites.

<http://iaqm.co.uk/guidance/>. Accessed September 2015.

(IAQM) Institute of Air Quality Management (2014). Guidance on the assessment of dust from demolition and construction. Available at:

<http://iaqm.co.uk/guidance/>. Accessed September 2015.

Mayor of London / Greater London Authority (2014). The Control of Dust and Emissions During Construction and Demolition, Supplementary Planning Guidance (SPG). Available at:

<https://www.london.gov.uk/priorities/planning/publications/the-control-of-dust-and-emissions-during-construction-and->

[and](https://www.london.gov.uk/priorities/planning/publications/the-control-of-dust-and-emissions-during-construction-and-). Accessed September 2015.

(NGCLC) National Groundwater and Contaminated Land Centre (2001). Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. Report NC/99/73. Available at:

<http://webarchive.nationalarchives.gov.uk/20140328084622/http://cdn.environment-agency.gov.uk/scho0501bitt-e-e.pdf>.

Accessed August 2014.

(ODPM) Office of the Deputy Prime Minister (2005). Guidance on Development of a Site Clearance Capability in England and Wales. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7634/128905.pdf.

Accessed August 2014.

Sustainable Remediation Forum UK (2010) A Framework for Assessing the Sustainability of Soil and Groundwater Remediation.

Available at:

http://www.claire.co.uk/index.php?option=com_content&task=view&id=182&Itemid=78. Accessed August 2014.

The Noise Insulation (Amendment) Regulations (1988).

UK Government (1857). Burial Act.

UK Government (1959). Weeds Act.

UK Government (1967). Forestry Act.

UK Government (1974). Control of Pollution Act.

UK Government (1981). Wildlife and Countryside Act.

UK Government (1990). Environmental Protection Act (EPA).

UK Government (1996). Treasure Act.

UK Government (2012) National Planning Policy Framework (NPPF).

(UKWAS) UK Woodland Assurance Standard (2008). Available at: <http://www.forestry.gov.uk/pdf/ukwasguide.pdf>. Accessed August 2014.

Waste (England and Wales) Regulations 2011.

Waste Resource Action Programme (2011). The Designing out Waste Tool for Civil Engineering Projects. Guide to Reference Data Version 1.0. Available at:

<http://www.wrap.org.uk/sites/files/wrap/DoWTCE%20Data%20Report%20v1.pdf>. Accessed August 2014

18 Annex 1: Local environmental management plan template

The LEMPs will set out any site specific local control measures additional to the measures set out in the CoCP. The LEMPs are expected to follow the layout and cover, as appropriate, the broad issues outlined below.

Local authority: <Insert name>

Location/name of site(s): <Insert location of sites covered by the LEMP>

Anticipated worksite activities: <e.g. online, viaduct, bridges>

General site operations

Community relations:

- any specific local requirements for the advance notification of construction works;
- a matrix of contacts and lines of communication.

Working hours – any anticipated local variations to core working hours to be agreed under third party consents will be outlined (e.g. online road surface work or different working hours for works in the vicinity of the operational railway, where possessions may be needed). This may be presented in a table as outlined below:

Location / Activity	Location / Activity Specific Requirement
Compound Operations	The works compounds will be manned on a 24 hour basis
Earthworks	
Borrow Pits	
Online Works including Traffic Management	
Demolition of Huntingdon Viaduct	
24 hour activities e.g. dewatering	
Abnormal Deliveries	
Structures (i.e. ECML crossing,	
Etc.	

Site lighting – identifying any sensitive receptors and local control measures, for example.

	Receptor	Location	Control Measure
1	Bats	Ch ref xx	Directional cut-off lighting
2	Residence	Ch ref yy	Directional cut-off lighting
(etc).			

Worksite security and hoardings – site specific measures relating to appearance and height of security fencing and hoardings.

Temporary living accommodation – confirmation of location of temporary living accommodation.

Pollution incident control – any local requirements to be included in the main contractors’ pollution incident control plan, for example in the following format:

	Receptor	Location	Control Measure	Monitoring requirements
1	Watercourse A	Ch ref xx	Discharge testing	Sample testing monthly or as required
2	Water course B	Ch ref yy	Discharge testing	Sample testing monthly or as required
Etc.				

Extreme weather events – any receptors, and/or construction related operations and activities considered sensitive to the impacts of extreme weather events and related conditions to have additional contingency mitigation measures developed and implemented as necessary and appropriate to monitor and manage the effects of extreme weather events and related conditions during construction.

Air quality

Identify the worksites that lie within or adjacent to any sensitive areas for air quality (e.g. air quality management areas) or other sensitive receptors.

Outline the proposed control measures and monitoring requirements.

Cultural heritage

Identify known or potential heritage assets (both designated and undesignated), and any specific local control measures and monitoring requirements.

Community & private assets

Identify sites of particular interest, site specific control measures and monitoring requirements.

Geology & soils

Site-specific local controls and monitoring requirements will be set out as required for any known sites of geological interest (both designated and undesignated), together with areas of known or potential land contamination.

Landscape

Identify landscapes, townscapes or views of particular sensitivity local control measures to reduce the impact during construction e.g. screening and treatment of stockpiles and

any monitoring requirements.

Materials

For relevant activities, identify local site-specific control measures for the management of materials together with monitoring and testing requirements.

Nature conservation

Any local site-specific requirements and protection measures will be set out to avoid or limit the potential impact on ecological resources. Where known invasive, non-native species are known to be present, site specific control measures will be included. Local site specific monitoring requirements will be outlined.

Noise and vibration

Particularly sensitive receptors to construction noise or vibration will be identified, and any relevant site-specific controls and monitoring requirements proposed.

Road drainage and water environment

Measures to protect particularly sensitive water resources (watercourses, water bodies, groundwater and abstractions) will be identified. Any site-specific measures and monitoring required to limit the risk of flooding will also be identified. These will also be subject to relevant third party consents and notifications.

Traffic and transport

Local proposals for the management and monitoring of construction traffic, including any required alterations to local roads, proposed access routes for site traffic, and for all heavy vehicle movements. These will also be subject to relevant third party consents and notifications.

19 Annex 2: Example application form for Section 61 Consent

CONTROL OF POLLUTION ACT 1974

EXAMPLE APPLICATION FORM FOR SECTION 61 CONSENT

To be developed further (with explanatory notes) in consultation with the relevant local authorities

Submission No:	
Local Authority Reference:	

To the¹

I/WE HEREBY MAKE APPLICATION for prior consent in respect of works to be carried out on the [construction] site(s) specified below, under Section 61 of the Control of Pollution Act 1974.

Signed †.....
Date.....

Name and address of applicant †
(in block letters please)

.....

Telephone No:
email:

¹ Insert name of Local Authority.

4. Methods to be used in each stage of development	
5. Hours of Work	
6. Number, type and make of plant and machinery (including heavy vehicles) stating Sound Power Levels	

7. Proposed steps to manage noise and vibration	
8. Predicted Noise Levels	
9. Approximate duration of works	

10. Site Plan (Attached, yes/no)	
11. Other Information	
12. List of Plans and documents attached	

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