Thurrock Flexible Generation Plant

Outline Code of Construction Practice
Application document number. A8.6
APFP Regulations ref. 5(2)(q)

Date: March 2021

THURROCK POWER
A Statera Energy company

Outline Code of Construction Practice

Document ref. A8.6

APFP Regulations ref. 5(2)(q)

Report Number: OXF10872

Version: Post-submission rev. 1

Date: March 2021

This report is also downloadable from the Thurrock Flexible Generation Plant website at:
http://www.thurrockpower.co.uk

Thurrock Power Ltd

1st Floor

145 Kensington Church Street

London W8 7LP

Prepared by: Clare Russell

Contributors: Anna Gillespie, David Gabb

Checked by: Tom Dearing, Dan Smyth

Table of Contents

Summary

This document is the Outline Code of Construction Practice for the Thurrock Flexible Generating Plant. It provides general and topic-specific strategies, control measures and monitoring procedures to limit the potential adverse impacts from constructing the proposed plant, on the environment and the local community, as far as reasonably practicable.

Qualifications

This document has been prepared by Clare Russell, an Associate and EIA Practitioner with over 18 years' experience in environmental consultancy focusing on environmental impact assessment and management of construction impacts.

Glossary

Unit	Description
AILs	Abnormal Indivisible Loads
ALC	Agricultural Land Classification
BPM	Best Practicable Means
BRE	Building Research Establishment
BS	British Standard
BSI	British Standards Institution
CCS	Considerate Contractors' Scheme
CLO	Community Liaison Officer
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
CWTP	Construction Workers Travel Plan
DCO	Development Consent Order
Defra	Department of Environment, Food and Rural Affairs
DMMP	Dust Management and Monitoring Plan
EA	Environment Agency
ECoW	Ecological Clerk of Works
EHO	Environmental Health Officer
EMP	Ecological Management Plan
EPDs	Environmental Product Declarations
ES	Environmental Statement
GHG	Greenhouse Gas
GCN	Great Crested Newts
HGV	Heavy Goods Vehicles
IAQM	Institute of Air Quality Management
MHWS	Mean High-Water Springs
MMO	Marine Management Organisation
PM	Particulate Matter
PPE	Personal Protective Equipment
Q	Quarter
SuDS	Sustainable Drainage System

1. Introduction

1.1 General

1.1.1 This document is an Outline Code of Construction Practice (CoCP) for the Thurrock Flexible Generation Plant (i.e. the proposed development). The Outline CoCP accompanies the application for development consent and the Environmental Statement (ES) by Thurrock Power Ltd (the Applicant). The proposed development is described in Volume 2, Chapter 2: Project Description of the ES (application document A6).

1.2 Purpose of the CoCP

1.2.1 This Outline CoCP provides a framework of management measures that Thurrock Power Ltd and its construction contractors will be required to adopt and implement for all construction activities associated with Thurrock Flexible Generation Plant. They include strategies and control measures for managing the potential environmental impacts of constructing the proposed generation plant and limiting disturbance from construction activities as far as reasonably practicable. It focuses on the environmental aspects of the construction phase that may affect the interests of residents, businesses, the public and other environmental receptors near to the application site.

1.2.2 The term 'construction' in this Outline CoCP includes all site preparation, demolition, heavy goods vehicles (HGV) deliveries, waste removal, and all related engineering, construction and restoration activities as described in the ES (application document A6), specifically in Volume 2, Chapter 2: Project Description.

1.2.3 This Outline CoCP has been prepared in conjunction with the ES with the aim of ensuring that general best practice measures are followed during construction and any likely significant effects that are reported in the ES will be avoided where possible or mitigated.

1.2.4 This Outline CoCP incorporates legislative requirements, current standards and best practice measures to define the standards of construction practice that contractors will be required to adopt and implement. However, compliance with this Outline CoCP will not absolve Thurrock Power Ltd and its principal contractors or subcontractors from compliance with all legislation and byelaws relating to their construction activities.

1.3 Implementation of the CoCP

Outline and Adopted CoCP

1.3.1 The Outline CoCP establishes the principles for managing environmental impacts during the construction process and sets out a framework of management measures. It is based on the design information available at the time of the submission. The Outline CoCP will be updated as necessary during the Examination process to reflect ongoing discussions with key stakeholders.

1.3.2 The framework and principles of the Outline CoCP will be used to prepare a final CoCP which will be adopted by Thurrock Power Ltd. The adopted CoCP will be prepared during the detailed design stage (post consent) to reflect more detailed design information (e.g. construction techniques) and site-specific control measures, including any relevant Requirements set out in the DCO.

1.3.3 Construction activities will not commence until the adopted CoCP has been agreed with Thurrock Council.

1.3.4 The Outline CoCP submitted at the end of the Examination process, or the adopted CoCP (as appropriate and if available) will be incorporated into the contracts of the principal contractors for all construction works authorised by the Development Consent Order (DCO).

1.3.5 All principal contractors, subcontractors and their suppliers will be required to follow the relevant provisions of the adopted CoCP.

Construction Method Statements

1.3.6 Prior to commencement of specific construction activities, the principal contractor will develop Construction Method Statements that will set out the construction operations to be undertaken (including construction methods and types of plant required), the associated environmental and health and safety issues and the appropriate measures. The activities requiring a method statement will be identified using a risk-based approach during detailed design.

Training

1.3.7 All construction staff employed on Thurrock Flexible Generation Plant will receive training on their responsibilities for minimising the risk to the environment and implementing the measures set out in this Outline CoCP.

1.3.8 The principal contractors will ensure that contractors employ an appropriately qualified and experienced workforce. The principal contractors will also be responsible for identifying the training needs of their personnel to enable appropriate training to be provided. The training will include site briefings and toolbox talks to equip the workforce with the necessary knowledge on health, safety and environmental topics, and the relevant environmental control measures pertinent to works to be carried out that day.

1.4 Structure of the Outline CoCP

1.4.1 This Outline CoCP follows the structure below:

- Section 3 – Construction Principles;
- Section 4 – General Site Operations;
- Section 5 – Roles and Responsibilities;
- Section 6 – Management of Environmental Issues; and
- Section 7 – References.

1.5 Hierarchy of Mitigation Plans

1.5.1 This Outline CoCP provides the overarching plan setting out the general principles for managing environmental impacts during the construction phase. Construction impacts will also be controlled through measures set out in the following standalone documents:

- Outline Ecological Management Plan[1] (EMP) (application document A8.7);
- Outline Construction Traffic Management Plan (CTMP) (application document A8.8); and
- Outline Construction Workers Travel Plan (CWTP) (application document A8.9).

[1] The EMP will be developed to incorporate the landscape management and after care plan prior to the construction of each part of the proposed development

2. Background Information

2.1 Development Overview

2.1.1 In overview, the proposed development comprises the construction and operation of:

- reciprocating gas engines with rated electrical output totalling 600 MW;
- batteries with rated electrical output of 150 MW and storage capacity of up to 600 MWh;
- gas and electricity connections;
- creation of temporary and permanent private access routes for construction haul and access in operation, including a permanent causeway for the delivery of abnormal indivisible loads (AILs) by barge; and
- designation of exchange Common Land and habitat creation or enhancement for protected species translocation and biodiversity gain.

2.1.2 For the purpose of this Outline CoCP the following definitions are used.

- Main development site: the area of land within which the principal built elements of the proposed development will be constructed, i.e. gas engines, batteries and customer substations.
- Order limits: the boundary of the DCO application within which all temporary and permanent works for the proposed development will be undertaken.

2.1.3 Further information about the proposed development is provided in Volume 2, Chapter 2: Project Description of the ES.

2.2 Construction Programme

2.2.1 Subject to being granted development consent and subsequent Final Investment Decision, the earliest date of development start would be in quarter two (Q2) 2021.

2.2.2 Advance enabling works that do not require consents or licenses may be undertaken during 2020 to establish the conditions (e.g. through grass mix planting) for providing exchange Common Land, protected species management and habitat creation.

2.2.3 There may also be a further period of preliminary works, following the DCO being made but prior to discharge of all requirements necessary for commencement of the main construction works, to undertake further enabling activities requiring consent such as ditch excavation to establish water vole habitat or geo-environmental and archaeological excavations.

2.2.4 The earliest start of construction work on the main development site (zone A), causeway and haul roads and gas connection is expected to be Q2 2021.

2.2.5 The proposed development may then be constructed as a whole in a single phase of work or may be split into three phases, subject to the Final Investment Decision.

2.2.6 National Grid intends to have completed the necessary works for the proposed development's electrical export connection within Tilbury Substation by Q1 2022.

Enabling works

2.2.7 Enabling works would be in two stages, the first being works that can be undertaken without consents or licenses provided through the DCO and the second being any further works authorised by the DCO that can be carried out prior to discharge of all requirements:

- 2020 and Q1 2021: advance enabling works to establish conditions for provision of exchange common land and habitat creation / enhancement outside main development site; and
- (if required) Q2-3 2021: preliminary works such as excavation for ditches or site investigation and potential protected species relocation.

Single phase construction

2.2.8 The minimum construction period for a single-phase development is expected to be 12 months and maximum 24 months. Depending on the requirement for preliminary works and time period for discharge of requirements, the start of construction may be in Q2 2021 or later in the year. Assuming a Q2 start and a minimum 12 month programme, this would be generally as follows.

- Q2-Q3 2021: main development site preparation and ground works, construction of causeway and construction access roads, start of gas pipeline trenching;
- Q4 2021: construction/installation of gas engines, batteries and associated equipment; connection of gas supply pipeline and electricity export cables;
- Q4 2021 – Q1 2022: commissioning and energisation; completion of landscaping and permanent access road; and
- end of Q1 2022: facility is available for operation.

Three phase construction

2.2.9 If the proposed development is constructed in three phases, these are anticipated to be as follows. Each phase may last 18 months and the overall construction programme may last four and a half to six years, i.e. each phase may be back to back or there may be a gaps of around nine months between phases, depending on market conditions.

3. Construction Principles

3.1 Construction Principles

3.1.1 Thurrock Flexible Generation Plant will be constructed in an environmentally sensitive manner and will meet the requirements of all relevant legislation, codes of practice and standards as identified in the ES and any updates to legislation or standards adopted at the time of construction to limit the adverse impacts on the local community and environment as far as reasonably practicable. Opportunities to reduce emissions and embodied carbon during the construction process through the implementation of construction practices on site and the selection of materials will be considered where appropriate.

3.1.2 The appointed site manager and the associated management team will be responsible for the implementation of the CoCP provisions, for monitoring and for ensuring that the various construction contractors are in compliance with these requirements.

3.1.3 All principal contractors will be required to sign up to, and implement, the Considerate Contractors' Scheme (CCS). The scheme is a voluntary Code of Considerate Practice which seeks to minimise disturbance caused by construction sites to the immediate neighbourhood.

3.2 Health and Safety Principles

3.2.1 Specific health and safety principles will be set and implemented as part of the construction of the generation plant. These would ensure that the health and safety and welfare of employees are considered. Appropriate industry standards for health and safety will be applied and continuous actions will be taken to secure a high level of safety performance, where required.

3.2.2 Arrangements will be put in place for the discharge of all duties under the Construction (Design and Management) Regulations 2015.

4. General Site Operations

4.1 Construction Working Hours

Normal working hours

4.1.1 Normal construction working hours will be:

- Monday To Friday: 08:00 – 18:00 hours;
- Saturday: 08:00 – 13:00 hours; and
- No Sunday, bank holiday or night working, with certain exceptions detailed below.

4.1.2 Up to an hour before and after the normal construction working hours, the contractors may undertake the following activities:

- Arrival and departure of the workforce at the site and movement around the main development site that does not require the use of plant;
- Site inspections and safety checks; and
- Site housekeeping that does not require the use of plant.

4.1.3 Deliveries to the main development site will only occur during the normal construction working hours unless otherwise agreed.

Activities outside core working hours

4.1.4 In certain circumstances, work may be undertaken outside of the normal construction working hours in order to maintain the construction programme or address particular logistical, construction or environmental constraints.

4.1.5 For example, it is possible that certain construction activities may be required that cannot be interrupted, such as a continuous concrete pour. Up to 10 days of 24-hour construction working (not necessarily consecutive) per phase for such continuous activities has been assumed as a maximum for assessment in this ES.

4.1.6 Non-noisy activities such as fit-out within buildings may be undertaken outside the normal working hours where these would not cause disturbance off-site.

4.1.7 Abnormal loads, construction plant delivery, or works affecting the railway may also be undertaken outside normal working hours.

4.1.8 Activities outside of the normal working hours will be agreed with the Thurrock Council Environmental Health Officer (EHO) in consultation with relevant stakeholders (e.g. third-party asset owner) as required.

4.2 Good Housekeeping

4.2.1 A good housekeeping policy will be applied to the construction areas at all times. As far as reasonably practicable the following principles will be applied:

- All working areas will be kept in a clean and tidy condition;
- Adequate welfare facilities will be provided for construction staff;
- Smoking areas at site offices/compounds or work sites will be equipped with containers for smoking wastes – these will not be located at the boundary of working areas or adjacent to neighbouring land;
- Wheel washing facilities will be cleaned frequently;
- Open fires will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with the requirements of the local fire authority;
- Waste from the construction areas will be stored securely to prevent wind blow; and
- Waste (particularly food waste) will be removed from the welfare facilities on a daily basis.

4.3 Site Induction

4.3.1 The construction of the proposed development will require all personnel working on site to have a site induction that includes an environmental protection and good practice component. Prior to commencing work on site, personnel will have attended the site induction.

4.3.2 Site inductions will include reference to compliance with relevant planning / licence conditions, environmental requirements; environmental management structure and contacts; site specific environmental sensitivities; waste management arrangements; water and wastewater management; hazardous material management; fuel, oil and chemical management; spill contingency and environmental emergency response; reporting of incidents and complaints. More specific information will be provided to staff according to their role.

4.4 Construction Working Areas and Laydown

4.4.1 The main construction working and laydown areas will be contained within the main development site.

4.4.2 Working corridors of up to 20 m width for the construction of temporary and permanent access roads and 23 m for the gas pipeline route are assumed (within the Order Limits) to allow for construction plant access, spoil and materials laydown. An indicative cross-section of the working area for gas pipeline trenching and installation is shown in the Gas Connection Concept Design Report (application document A7.4).

4.4.3 A total of up to 2 hectares may be used for temporary construction compound(s) and materials laydown within the corridor of land south of the railway line.

4.5 Site Security, Screening and Fencing

4.5.1 The construction compound(s) will be secured to minimise the opportunity for unauthorised entry. All working areas will be fenced off from members of the public and to prevent animals from straying onto the construction areas.

4.5.2 All boundary fences/screens will be maintained in a tidy condition throughout the construction period to ensure they are fit for purpose.

4.5.3 Where possible, access to construction areas will be limited to specified entry points and all personnel entries/exits will be recorded for security and health and safety purposes. Security will be provided to prevent unauthorised entry to the site. Site gates will be closed and locked when there is no site activity and appropriate security measures will be implemented.

4.5.4 All temporary screening and fencing will be removed as soon as reasonably practicable after completion of the construction works.

4.6 Construction Lighting

4.6.1 External lighting of the main development site will be designed and positioned to manage emissions from artificial light in accordance with good practice, whilst maintaining safety and security obligations.

4.6.2 Site lighting will be positioned and directed to minimise nuisance to footpath users, residents, to minimise distractions to passing drivers on nearby public highways and to minimise skyglow, so far as reasonably practicable. Measures will also be implemented to avoid or minimise lighting spillage impacts on ecological resources, including nocturnal species.

4.6.3 Lighting during construction will take into account the requirements set out in BS EN 12464-2:2014 (British Standards Institution (BSI), 2014a). Lighting units will be designed to minimise illumination outside the construction works area (e.g. will be directional, task orientated and where possible, fully shielded). Further details regarding lighting during the construction phase will be developed post consent.

4.7 Pest Control

4.7.1 The risk of pest/vermin infestation will be reduced by ensuring any putrescible waste is stored appropriately and collected daily from the construction areas, and effective preventative pest control measures are implemented. Any pest infestation will be dealt with promptly and notified to Thurrock Council as soon as practicable.

4.8 Clearance of Site and Reinstatement on Completion

4.8.1 The construction compound(s) will be cleared on completion of construction works and all plant, temporary buildings or vehicles will be removed.

4.8.2 If works are delivered in phases, temporary construction compounds will be removed on completion of construction work associated with that phase unless otherwise approved by Thurrock Council.

4.9 Emergency Planning and Procedures

4.9.1 Emergency procedures will be developed by the principal contractor for the proposed development taking into account the anticipated hazards and the conditions at each work site.

4.9.2 The procedures will be documented in an Emergency Response Plan and will include emergency pollution control measures (based on Environment Agency guidelines where appropriate), fire and site evacuation, and spill prevention control procedures and instructions to workforce. The Plan will include pro-active management practices to ensure that any pollution that may occur is minimised, controlled, reported to relevant parties/personnel and remediated.

4.9.3 The Emergency Response Plans will also contain emergency phone numbers and the method of notifying Thurrock Council and statutory authorities. The procedures will be displayed at the main development site and other work sites where appropriate, and site staff will be required to follow them at all times.

4.9.4 A Flood Evacuation Plan for the construction and operational phases has been developed and is included as application document A8.5.

4.10 Local Community Liaison

4.10.1 Thurrock Power Ltd will take a proactive approach to communication with local residents and businesses that may be affected by the construction of Thurrock Flexible Generation plant. A local Community Liaison Officer (CLO) will be appointed prior to the commencement of construction activities and will be in place for the duration of the construction process. The CLO will manage contacts with resident groups, schools, emergency services and local businesses with regard to general construction works.

4.10.2 A website has been established for Thurrock Flexible Generation plant and it will be regularly updated before and during the construction process with overall progress and upcoming works, including the likely duration of the works.

4.10.3 Advance notice will be given of any construction works which could restrict access for residents/local businesses and, where practicable, an alternative access will be established.

4.10.4 Occupiers of nearby properties will be informed of particularly noisy construction activities and their duration, and of any potential evening and night time works.

4.10.5 A 24-hour help line will be set up to record complaints from the public. Details of the help line will be promoted on site notice boards, press releases and on the project web site. All complaints will be logged, investigated and, where appropriate, rectified by necessary action.

5. Roles and Responsibilities

5.1 Project team

5.1.1 Whilst the key roles for the construction project team will not be assigned until post consent, the environmental roles required to implement the CoCP are set out in the sections below. The Applicant and the principal contractor will agree the appointment of these roles.

Site Manager

5.1.2 The Site Manager has overall responsibility for the site and will be responsible for maintaining the CoCP document and systems as a working document; ensuring environmental standards are adhered to and monitoring compliance during construction; carrying out regular monitoring and inspections of construction work activities; and undertaking staff induction courses on environmental issues.

Environmental Co-ordinator

5.1.3 The Environmental Co-ordinator will be responsible for the interface between the environmental specialists and engineers. They will have the primary responsibility for managing environmental issues through construction and post-construction monitoring and for obtaining the relevant licenses and consents.

Clerk of Works

5.1.4 The Clerk of Works will be responsible for overseeing construction activities to ensure all environmental commitments are met and compliance with the conditions of all licences and permits.

Ecological Clerk of Works

5.1.5 The Ecological Clerk of Works (ECoW) will report on ecological matters and will be responsible for undertaking preconstruction surveys and monitoring. The ECoW will review results of protected species surveys prior to the commencement of works in different areas and will contribute to the preparation of method statements in conjunction with the principal contractors, where appropriate.

6. Management of Environmental Issues

6.1 Landscape and Visual Resources

Objectives

6.1.1 Construction works will be carried out in such a way to ensure that disturbance to landscapes and visual receptors (identified in ES Volume 3, Chapter 6: Landscape and Visual Resources) is controlled.

Management measures

6.1.2 Existing trees that are to be retained will be identified and protected during the construction process in accordance with the requirements of British Standard 5837:2012 Trees in relation to design, demolition and construction. The Arboricultural Impact Assessment and accompanying drawings (application document reference A8.1) identifies the vegetation to be retained.

6.2 Historic Environment

Objectives

6.2.1 To minimise the impact of construction works on buried archaeology, heritage assets and their setting.

Management measures

6.2.2 An Outline Written Scheme of Archaeological Investigation (Outline WSI, application document A8.11) has been prepared setting out a proposed comprehensive mitigation strategy for undertaking non-intrusive and intrusive archaeological recording for both the terrestrial and marine historic environment.

6.2.3 Geophysical surveys will be undertaken of areas not yet surveyed and where ground disturbance is proposed. The results of the surveys will inform a programme of targeted evaluation/mitigation as appropriate.

6.2.4 Additional geotechnical boreholes, geoarchaeological and deposit monitoring will be undertaken to gather further information and knowledge regarding the palaeoenvironmental sequencing of the Holocene.

6.2.5 Targeted archaeological evaluation and/or excavation and recording of the findings will be undertaken to understand the archaeological potential of the area and preserve records.

6.2.6 The results of the archaeological fieldwork will be published and disseminated.

6.2.7 Identification of unexpected archaeological assets/sites encountered during the construction phase will be undertaken in line with procedures agreed with the relevant authorities, as set out in the Outline WSI. The procedures will be contained within the Written Scheme of Investigation.

6.3 Land Use and Agriculture

Objective

6.3.1 To protect the quality and integrity of the soil resources, and to maintain farm access and agricultural businesses and employment where possible.

Mitigation measures

6.3.2 Consideration will be given to the appropriate use of different soil resources on the sites during construction. This will draw upon the soils information collected during Agricultural Land Classification (ALC) surveys reported in ES Volume 6, Appendix 8.1: Published ALC Information and ALC Site Survey Results, and will take into account the principles of good practice in soil handling and restoration as set out in the following guidance documents:

- Department for Environment, Food and Rural Affairs (Defra) (2000) Good Practice Guide for Handling Soils; and
- Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (including the Toolbox Talks).

6.3.3 A Soil Management Strategy will be produced as to ensure the above measures are implemented.

6.4 Rights of Way

6.4.1 In order to maintain access along Public Rights of Way the following will be provided.

- If it is necessary to temporarily close the northern section of FP200, a temporary signed diversion will be provided from Station Road to join the remaining length of FP200 to the south as shown in the Access and Rights of Way Plans (application document A2.4).
- Appropriate management measures as required, which may include fencing, safety signage and use of a banksman, will be provided for the crossing of the Thames Estuary Path (FP146) and NCR13 during the construction of the causeway and delivery of abnormal indivisible loads (AIL). These measures are

required to manage the interface of pedestrians/cyclists and construction traffic and are set out in the Outline CTMP for the project.

6.4.2 Prior to construction, those parts of Walton Common within the Order Limits will be de-registered, removing the right of public access. Exchange Common Land will be established to the north of the railway. Public access to it will be via Parsonage Common and via a new permissive path to be established between Fort Road and the Exchange Common Land.

6.4.3 Access will be available to the Exchange Common Land from Coopers Shaw Road from the start of construction and in addition, from Fort Road and the planned footbridge before commercial operation of the plant.

6.5 Onshore Ecology

Objectives

6.5.1 To minimise the impact of construction works on protected species and designated sites and to minimise the loss of nature conservation features such as hedgerows and mature trees.

Management plans

6.5.2 The measures in the Outline EMP (application document A8.7) will be implemented prior to, during and post construction of proposed development.

6.5.3 The Outline EMP will be updated as required during the Examination Period to reflect further consultation with key stakeholders. A detailed EMP will be prepared during the detailed design process (post consent) based on the principles of the Outline document and will be agreed with Natural England and where necessary the Environment Agency, prior to construction.

6.5.4 The Outline EMP covers measures for habitats and protected or otherwise notable species in detail for the following categories (amongst other things):

- Pre-construction measures and surveys;
- Construction measures;
- Post construction measures.

Management measures

Pre-construction Surveys

6.5.5 Pre-construction surveys, informed by existing data for protected species, will be carried out to identify potential changes in baseline conditions. These surveys will be undertaken within 12 months prior to the commencement of construction works. Surveys may need to be undertaken over several months in order to collate sufficient data to inform a licence application and any associated mitigation strategies outlined in this Outline CoCP and the Outline EMP (application document A8.7).

6.5.6 Should the 12-month survey/activity period lapse between pre-construction surveys and the commencement of works, the need to repeat surveys will be assessed by an appropriately experienced ecologist. Should surveys confirm a change in baseline conditions, which result in the need for a protected species licence, a licence will be obtained prior to the commencement of works in that area.

6.5.7 Where reptile habitat is required to be cleared for construction, a detailed method statement will be developed in order to help ensure the protection of these species. The method statement will include detailed pre-construction measures designed to ensure that impacts on reptiles are minimised, through relocation of animals from the works area and an adjacent buffer zone and post-construction habitat reinstatement. The method statement will include post-construction habitat restoration and management requirements.

6.5.8 Where trees, hedgerows or scrub, of potential value to nesting birds, are required to be cleared for construction, clearance will be undertaken outside of the bird breeding season, which is 14 February to 31 August inclusive, to prevent disturbance to nesting birds where possible. However, if this is not practicable, habitat will be surveyed prior to clearance by the Ecological Clerk of Works (ECoW). No habitat containing an active nest will be removed or disturbed, and measures will be set in place to protect the nest until the young birds have fully fledged and left the nest. Measures may include the establishment of 5 m wide buffer zones in which heavy vehicles will not be tracked and the storage of vehicles, equipment, machinery and soil storage will be prohibited. Works in the buffer zone will be delayed until the ECoW has confirmed the young birds have fully fledged and left the nest.

6.5.9 A pre-construction badger survey of the works area and 30 m buffer zone will be undertaken in order to locate any potential new active setts that could cause a constraint to construction. If mitigation cannot be carried out to protect any setts as required under legislation, then a Natural England licence to close or disturb the sett will be required. The licence will be obtained prior to the commencement of works as necessary.

6.5.10 Taking into account the mobile nature of water voles, pre-construction surveys will be undertaken to confirm the presence/absence of water voles along all watercourses of potential value to water voles. A Natural England licence would be obtained for works that affect water vole habitat.

General Measures

6.5.11 An ECoW will be present on site to oversee enabling works and construction where necessary. The ECoW will be a suitably experienced professional ecologist. The ECoW will review results of protected species surveys prior to the commencement of works and will contribute to all relevant construction method statements.

6.5.12 All ecology works described in this document and Outline EMP (application document A8.7) will be carried out under the guidance of the ECoW. All site workers will be informed of the role of the ECoW.

6.5.13 Site induction and toolbox talks will include mitigation requirements included in this Outline CoCP and in the Outline EMP (application document A8.7).

6.5.14 Vehicle speeds will be restricted to 15mph within the working corridor to minimise disturbance to various species.

6.5.15 In accordance with Section 6.9, appropriate and adequate measures will be set in place to ensure appropriate levels of dust control to ensure, as far as practicable, that no significant off-site dust effects will occur. Section 6.11, outlines pollution prevention measures that will be implemented to protect watercourses.

6.5.16 Night working will be avoided where practicable. Where night working is unavoidable, lighting fixtures will be directed away from habitat of value to protected or otherwise notable species, to minimise likely disturbance effects of light spillage.

Species Measures

6.5.17 Temporary habitat losses adjacent to Low Street Pit Local Wildlife Site where Great Crested Newts (GCN) are present, primarily affects arable land of low or no value to GCN. If practicable, works would be timed to avoid the active GCN season, however if this is not practicable, a GCN licence will be sought to include temporary fencing to exclude GCN from the works area within the vicinity of GCN ponds.

6.5.18 To protect reptile species, progressive and careful habitat clearance works such as the gradual strimming of above-ground vegetation such as brambles, rough grass and scrub, will be undertaken in select areas prior to construction, to deter reptiles from the working area where alternative habitat is available to them. Uprooting of vegetation of potential value to hibernating reptiles will be undertaken prior to the commencement of the hibernation period (November to March) to deter reptiles from hibernating in the area.

6.5.19 Method statements will include pre-construction measures to deter water voles from the working area and the establishment of an adequate buffer zone (i.e. up to 15 m where favourable habitat is present). Measures could potentially include:

- Removal of channel and bank-side vegetative cover, up to a minimum of 1.5 m inland from the top of the bank between mid-February and early April;
- The potential capture and translocation of water voles from working areas by an appropriately qualified and experienced ecologist;
- A destructive search of water vole burrows within the working corridor under the watching brief of an appropriately qualified and experienced ecologist; and
- Measures to protect sections of watercourses and ditches which will not be directly impacted.

6.5.20 Works will be conducted in accordance with Natural England guidance, which states that "*for summer works, vegetation removal should be carried out for a two-week period prior to development. Winter works should either carry out the mitigation in September and maintain unsuitable habitat until the works commence, or in the event of an emergency, trapping and vole proof fencing may have to be employed*" (Arnott, 2001). Works will also take into account best practice guidelines published in Strachan *et al.* (2011).

Biosecurity and invasive species

6.5.21 The main risk is associated with the spread of invasive species in aquatic habitats (including vectors for disease), between watercourses or waterbodies. Measures to control the spread of invasive plants, where these have been identified, will include the following:

- Ensuring vehicle tyres and wheel arches are cleared of mud, plants and other organic material before moving from one site of the proposed development to another;
- Leaving removed material on site; and
- Cleaning boots and disinfecting (away from ditches to prevent potential pollutant incidents) all equipment that might come into contact with water.

6.5.22 Appropriate measures will also be adopted when working in the vicinity of invasive terrestrial plants, if any are found. Where necessary, works will be supervised by the ECoW. Known locations of invasive plant species will be marked on site and vehicle movements restricted in the vicinity of these locations. Any spoil containing or likely to contain invasive plant material will be stored separately from non-contaminated spoil, and treated as appropriate, with the adopted control measures.

6.6 Marine Environment

Objectives

6.6.1 To minimise impacts to marine environment as a result of construction works seaward of Mean High-Water Springs (MHWS) for the proposed Thurrock Flexible Generation Plant causeway and associated works within the tidal Thames Estuary.

Management measures

6.6.2 Site induction and toolbox talks will include mitigation requirements included in this CoCP and in the Outline EMP (application document A8.7) to help ensure adherence to the ecological mitigation strategy and protection of habitats and species of nature conservation interest.

6.6.3 All works will be carried out taking full account of legislative requirements and EA guidance.

6.6.4 Measures relating to pollution prevention are set out in Section 6.11, based on ES Volume 3, Chapter 15: Hydrology and Flood Risk. Measures include the provision of pollution incident response measures as part of the emergency planning (see Section 4.9) and a drainage management plan to minimise potential pollution effects.

6.6.5 Biosecurity measures outlined in paragraphs 6.5.21 and 6.5.22 will be implemented where relevant to minimise risk of spread of marine invasive and non-native species. Further measures specific to the Marine Environment may include:

- the use of clean rock and aggregate for the construction of the causeway;
- an appropriate construction methodology and control measures to prevent the spillage of concrete into the marine environment during the construction of the causeway;
- the maintenance of dredging plant to reduce the risk of oil or fuel spillages when working in the foreshore; and
- the selection of materials appropriate for use in or near water.

6.6.6 Works in the marine environment to construct the causeway and the berth will be undertaken in accordance with the requirements set by the Marine Management Organisation (MMO) and the Port of London as appropriate.

6.6.7 Up to 60 barge deliveries will be used for delivery to the causeway, as assessed in the Environmental Statement.

6.7 Traffic and Transport

Objectives

6.7.1 To carry out construction works in such a way that maintains highway safety and avoids or minimises adverse effects on local communities and highway users.

Management plans

6.7.2 Prior to the commencement of construction traffic movements, a CTMP and a CWTP for the construction of the generation plant will be prepared in accordance with the Outline CTMP (application document A8.9) and Outline CWTP (application document A8.10) which accompany the application for development consent. The purpose of the CTMP is to document measures to manage construction traffic in accordance with the wider principles established in this Outline CoCP. The CWTP will include management measures specific to construction workers to mitigate transport impacts associated with the proposed development.

6.7.3 The CTMP will ensure that all construction traffic follows pre-prescribed routing, to avoid impacts on the wider network and conflicts with local users.

6.7.4 The CWMP will minimise the number of journeys on the local highway network by single occupancy private car, and therefore, limit the impact of congestion on local users and the environment.

6.7.5 All delivery contractors and construction staff will be instructed to use the construction access route in compliance with the CTMP and CWTP for all stages of the construction works by way of a condition of supply contracts.

Management measures

6.7.6 If deemed necessary by the relevant Local Highway Authority, where routine HGV vehicle movements are generated, e.g. during groundworks, the supplier will be requested to maintain a log, the purpose of which is to demonstrate compliance with following prescribed accesses off the A road network and delivery times in accordance with this CoCP (or any other agreed variances).

6.7.7 Along with other measures to minimise dust and dirt associated with the movement of construction vehicles outlined in Section 6.9, to minimise dust effects, where there is a risk of mud being deposited on the road, wheel wash facilities will be provided at each construction site. These may comprise a dry wheel 'wash' facility (rumble grids).

6.7.8 Parking facilities will be provided for construction workers to prevent inappropriate parking off-site.

6.7.9 Traffic management measures will be put in place at those points where cable trenches are cut across highways or where existing access rights are affected.

6.7.10 Local management of vehicle movements will be implemented to minimise the risks of vehicles meeting each other on narrow sections of the roads.

Site Access

6.7.11 To avoid adverse effects on communities and road users, suitable HGV routes have been identified.

6.7.12 Site accesses, junctions to the highway and construction haul routes will be as specified in the Outline CTMP (application document A8.9) and as shown in the Works Plan drawings forming part of the Development Consent Order or as otherwise agreed with Thurrock Council.

6.7.13 The design of the HGV access, including visibility standards and, where necessary, temporary speed restrictions on the adjacent highway, will be agreed with the relevant highway authority.

6.7.14 The construction site access will comply with the following general principles:

- Have sufficient areas available at all times for all vehicles to enter and exit in a forward gear;
- To be accepted into the works area directly without waiting on the highway;
- Suitable surface finish;
- Suitable fluming arrangements for any ditches at the side of the road; and
- Provide for road-sweeping activity in the vicinity of the access.

Reducing vehicle movements

6.7.15 Where possible, overall vehicle movement generation will be minimised through measures to encourage and promote sustainable travel and transport outlined in the CWTP.

6.7.16 Load sizes and vehicle usage will be monitored, and where possible, load and delivery consolidation to construction sites using alternative vehicles. The re-use of HGVs will be encouraged, where possible, such as backloading. Local suppliers will be used where practical to minimise the distance travelled by HGVs.

6.7.17 Where possible the principal contractor should seek to minimise overall vehicle movement generation through measures to encourage and promote sustainable travel and transport, for example by using a minibus to shuttle staff between key pick up locations and the compounds (main compound and secondary compounds).

6.7.18 It is expected that a number of loads which will reach the site via HGV will arrive via the Port of Tilbury. This will minimise the number of HGVs on the strategic highway network.

Abnormal Indivisible Loads

6.7.19 A route for AILs has been identified whereby loads will arrive via the proposed jetty causeway on the River Thames and reach the Flexible Generation Plant. AILs will not need to use the highway network.

Vehicle breakdowns and emergency events

6.7.20 In the event of a major incident in the local area that requires good accessibility along the road network, or in the event of road closures following an incident, the emergency services can direct construction vehicles to make use of alternative routes. In certain circumstances the emergency services may wish to restrict the volume of traffic in the road network. Under such circumstances, the principal contractor may instruct the temporarily delay or cancellation of deliveries to reduce the burden on the wider highway network.

Coordination with other developments

6.7.21 Thurrock Power will liaise with the Local Highway Authority and other major projects, such as Tilbury 2 and the Lower Thames Crossing (should that be consented) to manage combined construction (or operational, in the case of the port) traffic.

6.8 Noise and Vibration

Objective

6.8.1 To control and limit the noise and vibration levels generated by the construction of the proposed development, so far as reasonably practicable to minimise disturbance to sensitive receptors.

Mitigation measures

6.8.2 To manage noise and vibration generating activities, all works will be carried out in accordance with the following principles:

- Best Practicable Means (BPM), for example the use of quieter alternative methods, plant and/or equipment, where reasonably practicable; the use of site hoardings, enclosures, acoustic barriers, portable screens and/or screening of noisier items of plant, where reasonably practicable; and maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous sound from mechanical vibration, creaking and squeaking is kept to a minimum.
- Where required, construction noise management measures for specific construction activities will be agreed with Thurrock Council prior to the start of construction and set out in the final CoCP.
- As outlined in Section 4.1, normal construction working hours will be Monday to Friday 08:00-18:00 and Saturday 08:00-13:00 unless otherwise agreed with Thurrock Council. No Sunday, bank holiday or night working is proposed except where certain activities cannot be interrupted and require 24-hour working.

6.9 Air Quality

Objective

6.9.1 To minimise the generation of dusts near sensitive receptors during construction and to facilitate community engagement and a proactive approach to complaints regarding nuisance dusts.

Mitigation measures

6.9.2 These are based on the 'highly recommended' and 'desirable' (indicated by a *) mitigation measures recommended in the Institute of Air Quality Management (IAQM) dust guidance (IAQM, 2014) and are subject to refinement based on practical experience obtained during construction on site.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- *Display the head, regional or local office contact information.

Dust Management

- *Develop and implement a Dust Management and Monitoring Plan (DMMP), which may include measures to control other emissions, approved by the local authority. The level of detail will depend on the risk and should include, where relevant, the 'highly-recommended' measures in the IAQM guidance. The 'desirable' measures may be included as appropriate for the site. The DMMP will include visual inspections.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or abnormal air emissions, based on the environmental manager's judgement, either on- or off-site, and the action taken to resolve the situation in the log book.

Monitoring

- Visual Checks:
  - *Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby (within 100m of the site boundary) and along access roads for up to 500m, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, including a photographic record.
  - *Carry out regular site inspections to monitor compliance with the DMMP, record inspection results, and make an inspection log available to the local authority when asked.
  - Increase the duration of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Quantitative Monitoring:
  - The principal method of monitoring will be the log of daily visual inspections during construction hours. The need for any additional dust deposition, dust flux, and/or real-time PM_{10} continuous monitoring will be confirmed in the DMMP subject to assessment of dust risk from specific construction activities and areas to be determined in detail at the time of preparing the DMMP..

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Enclose specific operations where there is a high potential for dust production and the site is active for an extended period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clear.
- Remove materials that have a high potential to produce dust from site as soon as practical, unless being re-used on site.
- Cover, seed or fence stockpiles to prevent wind whipping in dry conditions.

Operating vehicle/machinery and sustainable travel

- *Ensure all vehicles switch off engines when stationary – no idling vehicles.
- *Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- *Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- *Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Construction Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g. suitable local exhaust ventilation systems).
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment where appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up such spillages as soon as reasonably practicable after the event using wet cleaning methods where practical.

Waste management

- Avoid bonfires and burning of waste materials.

Measures specific to earthworks

- *Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- *Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- *Where practicable, only remove the cover in small areas during work and not all at once.

Measures specific to construction

- *Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- *Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- *For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures specific to trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes where practicable, which are regularly damped down in dry weather with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

6.10 Climate Change

Objectives

6.10.1 To minimise as far as reasonably practicable effects to climate as a result of greenhouse gas (GHG) emissions generated during the construction phase.

Management measures

6.10.2 The primary impact of GHG emissions generated during the construction period would be as a result of embodied carbon within construction materials used such as concrete and steel, i.e. the indirect GHG emissions generated from the supply chain in the production of those materials. Direct GHG emissions produced during the construction phase will include on site fuel consumption and emissions form construction plant.

6.10.3 Measures to reduce construction plant and site vehicle GHG emissions, as far as reasonably practicable, will include the following:

- Vehicle engines will be switched off when stationary;
- Mains electricity or battery powered equipment will be used instead of diesel- or petrol-powered equipment/generators, where feasible;
- Re-use materials on site, as far as reasonably practicable, to minimise the number of vehicle deliveries and thus limit vehicle emissions;
- Seek a reduction on the total materials required and hence embodied carbon through lean/efficient design;
- Specify materials with low embodied carbon (e.g. based on data in the Building Research Establishment (BRE) Green Guide to Specification or product environmental product declarations (EPDs));
- Source materials locally, where possible, to reduce transport GHG emissions; and
- Consider use of an established methodology such as PAS2080 (Carbon Management in Infrastructure) (BSI, 2016) and/or life-cycle analysis to guide low-carbon design and construction, set a feasible reduction target and quantify its achievement.

6.11 Hydrology and Flood Risk

Objective

6.11.1 To minimise the risk of surface water flooding during the construction phase, to prevent pollution of surface watercourses and to minimise the impact on local surface water features.

Management measures

Best practice guidance

6.11.2 Construction work would be undertaken in accordance with the following guidance:

- Defra and EA (2018) guidance for discharges to surface water and groundwater: environmental permits;
- EA and Defra (2019) Flood risk activities: environmental permits;
- Defra and EA (2015) (updated in 2018) Oil storage regulations for businesses;
- EA Pollution Prevention Guidance, which have been withdrawn. However, still provide useful best practice guidance:
    - EA (2014a) Pollution Prevention Guidance Note 6: Pollution Prevention Guidelines – Working at Construction and Demolition Sites;
    - EA (2014b) Pollution Prevention Guidance Note 5: – Working in, near or liable to affect watercourses;
- CIRIA (2001) Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors;
- CIRIA (2015a) SuDS Manual, including the following measures:
    - Prevent surface water being affected during earthwork operations. No discharge to surface watercourses will occur without permission from the EA;
    - Wheel washers and dust suppression measures to be used as appropriate to prevent the migration of pollutants;
    - Regular cleaning of roads of any construction waste and dirt to be carried out;
    - A construction method statement to be submitted for approval by the responsible authority;
- CIRIA (2015b) Environmental good practice on site guide;
- CIRIA (2006a) Control of water pollution from linear construction projects: technical guidance;
- CIRIA (2006b) Control of water pollution from linear construction projects: site guide;
- Defra and EA (2005) Flood Risk Assessment Guidance for New Development, Phase 2.

Pollution prevention measures

6.11.3 As outlined in paragraph 6.12.8, refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. Machinery will be routinely checked to ensure it is in good working condition. Any tanks and associated pipe work containing oils and fuels will be double skinned and be provided with intermediate leak detection equipment.

6.11.4 The following specific mitigation measures for the protection of surface water during construction activities will be implemented:

- A briefing for all staff highlighting the importance of water quality, the location of watercourses and pollution prevention measures will be included within the site induction;
- Areas with prevalent run-off will be identified and drainage actively managed, e.g. through bunding and / or temporary drainage;
- Areas at risk of spillage, such as vehicle maintenance areas and hazardous substance stores (including fuel, oils and chemicals) will be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system or the local watercourses. Additionally, the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater in the event of any leakage / spillage. Bunds used to store fuel, oil etc. will have a 110% capacity of the volume of fuel, oil etc. to be stored;
- Disturbance to areas close to watercourses will be reduced to the minimum necessary for the work;
- Excavated material will be placed in such a way as to avoid any disturbance of areas near to the banks of watercourses and any spillage into the watercourses;
- Construction materials will be managed in such a way as to effectively minimise the risk posed to the aquatic environment; and
- Plant machinery and vehicles will be maintained in a good condition to reduce the risk of fuel leaks.

6.11.5 Measures to manage surface runoff will include the use of settling tanks or ponds to remove sediment, installation of a hydraulic brake and the installation of pre-installed culvert (flume) pipes in the watercourse under the construction accesses and haul road. The pipe would be of suitable size to accommodate the water volumes and flows, or temporary bridging may be installed. The accesses and haul roads would be removed at the end of the construction programme and measures would be implemented to ensure that watercourses, including their banks, are reinstated to their previous condition where possible.

6.11.6 Specific measures to avoid bentonite breakout will be specified in the method statements the relevant works. General site management principles will include checking sealed areas checking for breakout. If detected, works in the immediate vicinity will be stopped and the spill contained and removed.

6.11.7 In terms of flood defence, the existing tidal defence will maintain the current standard of protection with crest levels for embankments and tidal doors set to equal existing defence levels during the period of construction.

6.11.8 Measures will be implemented to ensure that the risk of flooding is not increased during construction. Temporary construction compound(s) will be constructed using permeable material underlain by a permeable geotextile membrane, Surface water runoff will be intercepted via a temporary drainage system. The system will manage surface runoff from the construction compound in terms of both flow rate and water quality in accordance with local policies.

6.11.9 In terms of the gas pipeline and underground cable crossings, all major watercourses will be crossed using trenchless techniques. Access roads and temporary crossings required for vehicular access during construction will provide culverts to maintain existing ditch flows. A method statement for the proposed crossing methodologies will be developed during the detailed design stage.

6.12 Geology, Hydrogeology and Land Contamination

Objectives

6.12.1 To protect the underlying secondary and principal aquifers in terms of groundwater quality and flow and to mitigate potential adverse effects to human receptors from potential sources of contamination.

Management measures

6.12.2 Good environmental practices will be implemented during the construction phase based on current legal responsibilities and guidance on good environmental management in: CIRIA C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (2001); and CIRIA C648 Control of Water Pollution from Linear Construction Projects (2006).

6.12.3 Further site investigation will be undertaken post consent and prior to the commencement of the construction phase. The scope of the investigation will be based on the findings of Appendix 16.1: Phase 1 Preliminary Risk Assessment and will include ground gas monitoring and groundwater sampling/ monitoring as appropriate.

6.12.4 Based on the findings of the site investigation, a remediation strategy will be prepared to address any areas of ground or groundwater contamination assessed as requiring remediation. Where necessary, a piling risk assessment/dewatering risk assessment will be undertaken as part of the remediation strategy. The assessment will be undertaken in accordance with relevant EA guidance, including Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (National Groundwater & Contaminated Land Centre report NC/99/73, May 2001.

6.12.5 A written scheme will be prepared to deal with any previously unidentified contamination of land or groundwater discovered during construction. This will include briefing site personnel to be vigilant for any unusual visual or odorous characteristics of soils and groundwater.

6.12.6 Sources of silt and contaminated water will be mitigated as far as practicable by implementing the following measures:

- Minimise dewatering and pumping of excavations and subsequent disposal of water;
- Minimise runoff from exposed ground and stockpiles;
- Minimise runoff from plant and wheel washing;
- Avoidance of fuel spillages;
- Use appropriate waste storage and disposal measures.

6.12.7 Measures to prevent and control spillage of oil, chemicals and other potentially harmful liquids will be implemented. Appropriate storage and handling of materials and products will be provided and will include for example:

- Designated areas for the unloading, storage and handling of materials and products will be clearly marked;
- Avoidance of oil storage within 50 metres of a spring, well or borehole;
- Avoidance of oil storage within 10 metres of a watercourse;
- Avoidance of oil storage where oil could run over hard ground into a watercourse;
- Secondary containment system that can hold at least 110% of the oil volume stored; and
- Avoidance of storage of oil in areas at risk of flooding, unless fully protected.

6.12.8 In accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001, refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. Machinery will be routinely checked to ensure it is in good working condition; and any tanks and associated pipe work containing oils and fuels will be double skinned and be provided with intermediate leak detection equipment and spill kits.

6.12.9 Any leaks or spillages of potentially polluting substances will be contained, collected and then removed from site in an appropriate manner e.g. use of absorbent material, bunding or booms. A pollution incident response plan will be prepared which all site personnel will be required to adhere to (see Section 4.9).

6.12.10 Used oils will be disposed of in accordance with Environmental Permitting (England and Wales) Regulations 2016.

6.12.11 Construction workers will be provided with appropriate risk assessments, which will address the potential for contaminated soil to be encountered. Appropriate Personal Protective Equipment (PPE) (e.g. disposable coveralls, gloves and particulate/vapour masks) will be provided to protect ground workers in the event that contaminated soils and/or groundwater are encountered.

6.12.1 Any construction work required in confined spaces will be undertaken in accordance with the appropriate health and safety controls.

6.13 Management of Construction Waste

6.13.1 Waste generated during the construction process will be managed in accordance with the principles of the waste hierarchy (i.e. avoid, reduce, reuse, recycle, recover, disposal). A Site Waste Management Plan (SWMP) will prepared prior to construction setting out the types and estimated quantities of waste that would be generated from construction. During construction the SWMP will be updated to record the movement of wastes from the site and how it is managed.

6.13.2 A dedicated area will be provided on the site to manage and provide temporary storage for waste generated during the construction process. Waste materials will either be separated at source into key materials or off site via a waste contractor. All waste will be transported and managed by appropriately licenced contractors and subject to duty of care.

7. References

Arnott, D. (2001) Water vole mitigation techniques. English Nature Research Report 415. Peterborough, English Nature.

British Standards institution (BSI) (2009) BS 5228-2:2009+A1:2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites. Vibration. London, BSI.

British Standards Institution (BSI) (2012) BS 5837:2012. Trees in relation to design, demolition and construction. Recommendations. London, BSI.

British Standards Institution (BSI) (2016) PAS 2080:2016. Carbon Management in Infrastructure. London, BSI.

British Standards Institution (BSI) (2014a) BS EN 12464-2:2014. Light and lighting. Lighting of work places. Outdoor work places. London, BSI.

British Standards institution (BSI) (2014b) BS 5228-1:2009+A1:2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites. Noise. London, BSI.

Construction Industry Research and Information Association (CIRIA) (2001) C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors. London, CIRIA.

Construction Industry Research and Information Association (CIRIA) (2006) C648 Control of Water Pollution from Linear Construction Projects. London, CIRIA.

Department for Environment, Food and Ra Affairs (Defra) (2000) Land use planning: Good practice guide for handling soils. [Online] Available at: https://webarchive.nationalarchives.gov.uk/20090317221756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm [Accessed 07 November 2019]

Department for Environment, Food and Ra Affairs (Defra) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (including the Toolbox Talks). [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf [Accessed 07 November 2019]

English Nature (2001) Great Crested Newt Mitigation Guidelines. York, English Nature

Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction. Version 1.1. [Online] Available at: http://iaqm.co.uk/wp-content/uploads/guidance/iaqm_guidance_report_draft1.4.pdf [Accessed 07 November 2019]

National Groundwater & Contaminated Land Centre (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. [Online] Available at: https://webarchive.nationalarchives.gov.uk/20140329082415/http://cdn.environment-agency.gov.uk/scho0501bitt-e-e.pdf [Accessed 07 November 2019]

Strachan, R., Moorhouse, T. and Gelling, M. (2011) Water Vole Conservation Handbook, Third Edition. Oxford, WildCRu.