Fosse Green Energy

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EN010154

9.27 Permitted Preliminary Works Environmental Management Plan (Tracked)

Planning Act 2008 (as amended)

Regulation 8(1)(k)

Infrastructure Planning (Examination Procedure) Rules 2010

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2010

Fosse Green Energy

Development Consent Order 202[ ]

9.27 Permitted Preliminary Works Environmental Management Plan

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1. Introduction

1.1 Background

1.1.1 Fosse Green Energy Limited (hereafter referred to as 'the Applicant') is seeking consent for the construction, operation, and decommissioning of Fosse Green Energy (hereafter referred to as the 'Proposed Development'). This will require an application for a Development Consent Order (DCO), which has been submitted to the Planning Inspectorate, with the decision of whether to grant a DCO being made by the Secretary of State pursuant to the Planning Act 2008 (Ref 1).

1.1.2 This Permitted Preliminary Works Environmental Management Plan (PPW EMP) has been prepared to describe the permitted preliminary works (PPW), as defined by Article 2(1) of the Draft DCO **[EN010154/APP/3.1 (Rev 4)]** and set out in Section 2 of this document, to be undertaken by the Principal Contractor and to detail the relevant mitigation, management, and monitoring measures required to appropriately control these works.

1.1.3 This document does not address the construction, operational (including maintenance), or decommissioning activities, which are subject to separate environmental management plans and procedures. A **Framework Construction Environmental Management Plan (CEMP) [EN010154/APP/7.7 (Rev 5)], Framework Operational Environmental Management Plan (OEMP) [EN010154/APP/7.8 (Rev 4)]** and **Framework Decommissioning Environmental Management Plan (DEMP) [EN010154/APP/7.9 (Rev 4)]** have been prepared to accompany the DCO Application and will be secured through Requirements of the DCO.

1.1.4 It should be noted that, unlike the framework plans noted above, this PPW EMP is a detailed plan and a certified document under Article 41 of the Draft DCO **[EN010154/APP/3.1 (Rev 4)].** Compliance with the mitigation contained within this PPW EMP is secured by Requirement 6(8) of Schedule 2 to the Draft DCO. As this is a detailed plan, no approval mechanism is necessary under the Requirements.

1.1.5 An Environmental Impact Assessment (EIA) has been undertaken for the Proposed Development and an Environmental Statement (ES) **[EN010154/APP/6.1]** has been prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) (Ref 2). In accordance with the requirements of the EIA Regulations, the ES **[EN010154/APP/6.1]** contains the assessment of the likely significant effects on the environment that may be caused during the construction (inclusive of the PPW), operation and maintenance, and decommissioning of the Proposed Development and describes a range of 'industry standard' or good practice mitigation and management measures.

1.1.6 This PPW EMP is structured as follows:

a. ‘Introduction’ – this section.

b. ‘Permitted Preliminary Works’ – provides information regarding the roles and responsibilities for those undertaking the PPW and the working hours within which the PPW would need to be carried out.

c. ‘General Mitigation Measures’ – sets out the general mitigation measures that will apply to all PPW as defined in the Draft DCO and Section 2.

d. ‘Checking and Corrective Action’ – sets out the monitoring, recording and review processes to be implemented.

1.1.7 The Applicant and any appointed Principal Contractor(s) will be responsible for working in accordance with the environmental controls documented in this PPW EMP, pursuant to the DCO.

1.1.8 This PPW EMP has been designed with the objective of compliance with the relevant environmental legislation and the mitigation measures set out within the ES **[EN010154/APP/6.1]**. Any additional licences, permits or approvals that are required will be sought as relevant/required.

1.1.9 This PPW EMP is a ‘live’ document that will be updated and shared with North Kesteven District Council whenever there is a substantial change. It will be monitored continuously and updated should planned works change, there be a change in legislation or guidance, or an amendment to the programme.

1.2 Limitations

1.2.1 As is standard for a Nationally Significant Infrastructure Project (NSIP) at this stage of the consenting process, the detailed design of the Proposed Development has not yet been undertaken, and therefore, the final programme and methods of PPW have not yet been fully determined. Therefore, the scope and methods described in this PPW EMP are provided on an indicative basis only, to give an indication of the type and magnitude of the proposed activities. The scope and methods described have therefore been determined as a best estimation using all information available at the time of preparing this PPW EMP. This means that that while the specific details of each method may change, the overarching tasks will not.

1.2.2 All PPW will be subject to the general mitigation measures set out in Section 3 of this PPW EMP as relevant. The final design of the PPW will not give rise to materially greater environmental effects than those assessed and established within the ES **[EN010154/APP/6.1]**.

2. Permitted Preliminary Works

2.1 Overview

2.1.1 The PPW, as defined in Article 2(1) of the Draft DCO **[EN010154/APP/3.1 (Rev 4)]**, comprise:

a. environmental surveys;

b. removal of plant and machinery;

c. above ground site preparation for temporary facilities for the use of contractors;

d. the temporary display of site notices or advertisements;

e. site clearance (including vegetation removal, demolition of existing buildings and structures);

f. geotechnical surveys and other investigations for the purpose of assessing ground conditions;

g. remedial work in respect of any contamination or other adverse ground conditions;

h. diversion of existing apparatus and laying of temporary apparatus;

i. the provision of temporary means of enclosure and site security for construction; and

j. advanced planting to allow for early establishment of protective screening.

2.1.2 The above works may include the use of some, limited heavy construction equipment, such as bringing in (or when levelling ground for) temporary facilities for the use of contractors, or for vegetation clearance, or diverting existing apparatus for example. These will not be dissimilar to existing farming activities, which include heavy tractor trailers but with the potential to be more focussed in certain areas.

2.1.3 As per Requirement 11 of the Draft DCO **[EN010154/APP/3.1 (Rev 4)]**, items (f) to (j) above cannot be undertaken before additional trial trenching has been undertaken, updates made to the Framework Written Scheme of Investigation (WSI) to account for the results of the additional trial trenching, and the updated WSI has been approved.

2.2 Roles and Responsibilities

2.2.1 Key roles and responsibilities during the PPW in managing environmental impacts will likely include, but are not limited to:

a. **Principal Contractor** – Appointed by the Applicant to construct the Proposed Development.

b. **Site Manager** (may also be known as a **Construction Project Manager**) – Overall responsibility for activity onsite (will be based onsite full time)

and responsibility for ensuring all elements in the DCO and all environmental legal and other requirements are implemented, and appropriately resourced, managed, reviewed and reported.

c. **Environment Manager** – Responsible for the overall management of environmental aspects on site, ensuring environmental legislation and good industry practices are complied with, and environmental mitigation and monitoring measures are implemented. The Environment Manager will oversee environmental auditing/monitoring onsite and carry out regular environmental site inspections, reporting and responding to any incidents or non-compliance. The Environment Manager will liaise with relevant environmental bodies and other third parties as appropriate.

d. **Environmental Clerk of Works (EnvCoW)** – Responsible for overseeing the management of and providing advice about environmental risks during construction including, for example, management of protected species, surface water management, pollution, air quality and noise. This may be covered by the Environment Manager.

e. **Ecological Clerk of Works (ECoW)** – Responsible for the management of the risks to biodiversity on construction sites, advising on the protection of valued biodiversity features and providing practical solutions.

f. **Flood Warden** – There will be a dedicated individual to prepare for, and to manage, the response to flood incidents and warnings. This may be covered by the Environment Manager, if the individual has adequate experience in flood matters.

g. **Health and Safety Manager** – Responsible for the monitoring and controlling of health and safety compliance and related rules and regulations onsite.

h. **Community Liaison Officer** – A Community Liaison Group, set up in accordance with the relevant DCO requirement, will be in place prior to commencement of PPW as a formal forum for local issues to be raised. A Community Liaison Officer will be appointed to lead discussions with local communities and also act as the primary point of contact should there be any queries or complaints.

2.3 Working Hours

2.3.1 Core PPW working hours on-site will be as follows:

a. Monday to Friday: 07:00 to 19:00 – all activities;

b. Saturday: 09:00 to 13:00 – all activities; and

c. Saturday: 13:00 to 18:00 – all activities, except for HGV deliveries and works likely to generate substantial levels of noise (defined as activities generating more than 45dB LAeq at neighbouring dwellings).

2.3.2 It is envisaged that there will be no PPW activities on Sundays, Bank Holidays and outside of the core hours noted above (including nights). Where this is not possible authorisation will be requested from the appropriate authorities to

enable work to take place outside of these hours and days. Details of the activities, days and times and locations will be included in this request.

2.3.3 All appropriate and applicable mitigation (detailed in this document) will be employed for all work, both within and outside of the hours and days listed above.

2.4 Responding to Environmental Incidents and Emergencies

2.4.1 Prior to commencement of PPW, the Principal Contractor will develop an Emergency Response Plan (ERP) in consultation with the relevant local authority emergency planning officer, emergency services including the local fire service, as well as the Environment Agency in relation to responding to flood warnings and events.

2.4.2 The ERP will detail the procedures for responding to incidents (such as spills, leaks or generation of silt laden runoff so as to prevent pollution) and emergencies (such as flooding) on site, and any reporting.

3. Mitigation and Monitoring

3.1 Purpose

3.1.1 This section of the PPW EMP sets out the mitigation and management measures to be implemented as part of the works, as relevant. This section also details any monitoring requirements and the responsible party identified for each mitigation/enhancement measures or monitoring requirement.

3.2 Climate Change

Table 1: Climate Change

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
CC-PPW1	Greenhouse Gas (GHG) emissions from traffic and equipment and use of natural resources in materials.	Implementation of appropriate standard and best practice control measures, including: a. Increasing recyclability by segregating waste to be re-used and recycled where reasonably practicable; b. Implementing the PPW in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon, such as locally sourced products and materials with a higher recycled content where feasible; c. Reusing suitable infrastructure and resources where possible to minimise the use of natural resources and unnecessary materials. d. Encouraging the use of lower carbon modes of transport by identifying and communicating local bus connections and pedestrian/cycle access routes to/ from the DCO Site to all PPW staff, and providing appropriate facilities for the safe storage of cycles; e. Switching vehicles and plant off when not in use and ensuring vehicles conform to current EU emissions standards; and f. Conducting regular planned maintenance of the plant and machinery to optimise efficiency.	Regular (daily/weekly) visual checks and site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation and auditing responsibility by the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
CC-PPW2	Increase in flood risk during construction as a result of Climate Change	Implementation of appropriate standard and best practice control measures, including: a. Storing topsoil and other materials outside of the 1 in 100-year floodplain extent where feasible. If areas located within Flood Zone 2 (or 3) are to be utilised for the storage of materials, this would be done in accordance with the applicable flood risk activity regulations, if required; b. Maintaining the plant and machinery in accordance with the manufacturer's guidelines and with at least annual servicing;		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		c. Environment Manager to monitor weather forecasts on a monthly, weekly and daily basis, and plan works accordingly. d. The construction laydown area site office and supervisor will be notified of any potential flood occurring by use of the Flood line Warnings Direct or equivalent service. e. Developing health and safety plans for PPW activities to account for potential Climate Change impacts on workers, such as flooding and heatwaves. To include measures such as toolbox talks on training on dangers of extreme weather conditions. f. All temporary compounds will be located outside of areas of fluvial Flood Zone 2 and 3. g. Provision of temporary settlement and drainage measures.		
CC-PPW3	Extreme weather events as a result of climate change and climate change resilience	a. Contractors will be required to monitor weather forecasts and plan works accordingly with internal methodologies to manage workers and resources in extreme weather conditions. b. Contractors will be required to sign up to receive the Environment Agency's flood alerts and plan works accordingly to manage extreme weather conditions such as storms and flooding. c. Consideration of future climate conditions when selecting planting species for use in green infrastructure. d. Covering exposed soil with grass (where applicable) during works will reduce permeability and protect against increased soil erosion and degradation. Note that stockpiles may only be left un-vegetated if they are to be moved within 3 months. e. Ensure all outdoor workers have access to indoor facilities, air conditioning, breaks in shaded areas and water breaks. Outdoor workers will have access to adequate PPE. f. Cease outdoor and non-essential work if working conditions are too dangerous, and could result in injury to workers. g. Keep stored materials away from areas of the DCO Site with potential flood risk.		

3.3 Cultural Heritage

Table 2: Cultural Heritage

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
CH-PPW1	Potential for impact upon buried archaeological remains	The Proposed Development aims to minimise impacts upon buried archaeological remains through preservation in situ, however, where impacts are not avoidable, mitigation through archaeological recording will be implemented. If deemed necessary, an Archaeological Clerk of Works can be agreed. Proposed and potential measures to minimise impacts on buried archaeological remains during PPW include: a. Existing hedgerows and woodland will be retained wherever possible (note, the Hedgerow Plan **[EN010154/APP/2.9]** sets out the anticipated maximum quantum of hedgerow removal); b. Exclusion of areas of complex archaeological remains from development where feasible; c. Additional areas where preservation in situ is the preferred strategy will be informed through the ongoing and planned evaluation.	All archaeological work will be undertaken in line with the Framework WSI (secured by requirements of the DCO). Site specific Written Schemes of Investigation (WSI) will be submitted and agreed with the local authority.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
CH-PPW2	Temporary impacts on the setting of heritage assets during works	Direct impacts to designated heritage assets are not anticipated during PPW. Temporary impacts on the setting of heritage assets will be minimised by the retention of the existing hedgerows and woodland (note, the Hedgerow Plan **[EN010154/APP/2.9]** sets	Regular (daily/weekly) visual checks and site inspections in the event hedges are being trimmed, with monthly auditing by the	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		out the anticipated maximum quantum of hedgerow removal) and provision of landscape screening as set out in the **Framework LEMP [EN010154/APP/7.15]**. The PPW will seek to retain any hedgerows deemed 'important' under the archaeology and history criteria of the Hedgerows Regulations 1997. With regards to any localised removal of Important Historic Hedgerows (as per the **Hedgerow Plan [EN010154/APP/2.9]** and **Appendix 7-E [EN010154/APP/6.3]**) to facilitate construction, where hedge removal is required for visibility splays only, where practical they will be trimmed down to a height to be agreed with County Highways, most likely 0.9m, so that it is not removed altogether and can regrow after construction.	Environment Manager during PPW.	activities with the Site Manager and Principal Contractor.

3.4 Ecology and Nature Conservation

Table 3: Ecology and Nature Conservation

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
ECO-PPW1	Potential direct and indirect impacts to designated ecological sites, habitats (including ancient woodland and individual trees, arable field margins, swamp, neutral grassland and coastal and floodplain grazing marsh), and notable species (including aquatic macroinvertebrates and macrophytes, terrestrial invertebrates and non-breeding birds)	In addition to the good practice measures that will be implemented during PPW to mitigate effects associated with dust deposition, air pollution, pollution incidents (including the safe storage of chemicals / other hazardous materials), water quality, lighting, noise and vibration detailed elsewhere in this PPW EMP, the following measures to minimise impacts on designated sites, habitats and notable species include: a. General measures: ▪ The spread of dust and sediment will be controlled through fine water spraying of vehicle routes. ▪ On-site plant will be regularly serviced, monitored and inspected for leaks to prevent spillages and to ensure pollutants do not enter any waterways/spill onto adjacent habitats. Plant and machinery will be refuelled in dedicated refuelling areas, with drip-trays used routinely and spill kits available. ▪ Measures to reduce vehicle and mechanical plant noise (as required based on existing noise levels) will include turning off plant and machinery when not in use. ▪ Any lighting used during the PPW, particularly in winter months when daylight hours are shorter, has the potential to spill into adjacent habitats (including Local Wildlife Sites (LWS)) and watercourses. Artificial lighting of these habitats may impact habitats and disrupt species' movements. Therefore, any lighting that is required for the PPW will have a maximum power output of 8kVA and will be directed away	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		from existing retained and sensitive habitats to minimise light disturbance. Any requirements for task-specific lighting during PPW will be designed to be downward directional and will only be used for the duration of the task. All temporary lighting will need to satisfy health and safety requirements, as well as minimising potential effects on the surrounding areas by minimising sky glow, glare, and light spillage. ▪ Any future construction compounds set up by PPW will be set-back from running water habitats, with a minimum 10m from the bank-top of the watercourse (as described above), and hedgerows and scrub. ▪ A security perimeter fence will be implemented to secure the works where relevant and prevent PPW activity from intruding into retained habitats within/outside of the DCO Site, including preventing PPW activity from intruding into the riparian habitats of running water (a minimum 10m from the bank-top of the watercourse). The fence design will include gaps to allow fauna that may use these habitats, including small deer, Badger, Brown Hare and Otter, to pass underneath at strategic locations to maintain ecological connectivity. The final locations of these gaps will be determined by a suitably qualified ecologist following pre-commencement surveys. ▪ Any access that is required for PPW will utilise existing access points where possible, such as those already used by agricultural machinery and will not intrude into any LWS outside of the DCO Site. Vegetation clearance in these areas will also be minimised as much as is practicable. ▪ Construction compounds will be set-back from any LWS that is adjacent to the DCO Site, with set-backs applicable to habitats within LWS, e.g. 15m set-back from woodland		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

habitats (Tunman Wood LWS (including Stocking Wood) and Tunman Wood North LWS) and a 10m set-back from Navenby Heath Road Verges LWS.

- Areas of cropland, particularly the arable margins, will be retained as much as is practicable, buffered, and their quality improved through positive management. Retained arable field margins present within the DCO Site will be protected during PPW, as the set-backs from watercourses (10m undeveloped area) and boundary habitats (such as 5m from hedgerows) will likely overlap with and include arable field margins.
- Scarce arable flora seed from fields AF17, AF29 and AF72 (see **Figure 8-B-1** of the ES **[EN010106/APP/6.2]**) would be harvested by hand and seeded in cultivated field margins within retained arable fields close to these fields.

b. River Witham, Aubourn to Beckingham Local Wildlife Site (LWS)

- A security perimeter fence will be implemented to secure the works where relevant and prevent PPW activity from intruding into the River Witham, Aubourn to Beckingham LWS. The fence design will include gaps to allow mammals, including small deer, Badger, Brown Hare and Hedgehog, to pass underneath at strategic locations to maintain ecological connectivity. The final locations of these mammal passes will be determined following pre-commencement surveys.
- Any access that is required for PPW of the connecting corridor will utilise existing access points either side of the LWS, such as those already used by agricultural machinery. Vegetation clearance in these areas will also be minimised as much as is practicable.

c. Navenby Green Man Road Verges LWS

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		▪ To limit disturbance to habitat inside the Navenby Green Man Road Verges LWS during PPW, the working area will be kept to a minimum and no spoil, materials or vehicles will be stored within the Navenby Green Man Road Verges LWS. ▪ Vegetation clearance in these areas will be minimised as much as is practicable to facilitate the PPW access track into the fields along Green Man Road. ▪ A security perimeter fence will be implemented to secure the works where relevant around the LWS and prevent PPW activity from intruding into the remainder of the LWS, which will prevent parking and driving on road verges. ▪ Vehicles/plant will be cleaned away from the water in dedicated vehicle washing areas to prevent potential pollutants entering the DCO Site (and in particular the LWS). Wheel washes will reduce the trafficking of soil onto adjacent highways, with prompt clearance as a remedial action. ▪ Vegetation clearance to facilitate access at Navenby Green Man Road Verges LWS will ensure that turves will be taken for the working area and stored, managed, monitored and watered as needed, until they can be replaced back in the verge. Underlying verge topsoils and subsoils will also be stripped and stored off the LWS in adjacent fields (separately to soil from the fields), to retain the original soil profile and seed bank.		
ECO-PPW2	Impacts to hedgerow habitat	a. Retained hedgerows and scrub along field or ditch boundaries and/ or woodland edges will be protected, with undeveloped buffers of at least 5m from the boundary of hedgerows without trees and a wider buffer, concordant with the requirements for each individual tree, for any hedgerows with trees. These areas	Regular (daily/weekly) site inspections with monthly auditing by the Environment	Compliance with mitigation responsibility with the Environment Manager, with

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		will prevent damage/compaction of roots by plant and other machinery and prevent direct or indirect impacts to hedgerows. b. The PPW will seek to retain any hedgerows deemed 'important' under the Wildlife and Landscape criteria of the Hedgerows Regulations where possible. With regards to any localised removal of Ecological Important Hedgerows (as per the **Hedgerow Plan [EN010154/APP/2.9]** and **Appendix 8-B: Terrestrial Habitats and Notable Flora** of the ES **[EN010154/APP/6.3]**) to facilitate construction, where hedge removal is required for visibility splays only, where practical they will be trimmed down to a height to be agreed with County Highways, most likely 0.9m, so that it is not removed altogether and can regrow after construction.	Manager during PPW.	the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
ECO-PPW3	Impacts to grass snake and common toad	In addition to the ~~best practice~~general measures listed above (see ECO-PPW1(a)), the following measures to minimise impacts to grass snake and common toad include: a. Surveys will be undertaken to support the baseline survey findings, the purpose of which is to ensure mitigation during the construction phase is based on the latest protected species information and Proposed Development design. Should there have been any changes to the Proposed Development design which could impact upon Grass Snake and Common Toad, where found within the DCO Site, then mitigation measures will be updated accordingly. b. Vegetation clearance throughout the DCO Site will be undertaken at an appropriate time of year so as to avoid incidental injuring or killing of reptiles (and also Common Toad), concordant with the requirements for other species, such as nesting birds and Brown Hare. Vegetation supporting reptiles will be cut in a phased approach, firstly cutting to 30cm, then,	Regular (daily/weekly) site inspections with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		following a period of no less than 24 hours, to 15cm and then to ground level, after another 24 hours. In areas where Grass Snake (and Common Toad) have been identified, any habitat features within such areas which may conceal sheltering Grass Snake (and Common Toad) such as log piles, rubble mound bunds will not be dismantled during their inactive season (November to February inclusive). There will then be no need to undertake any relocation of reptiles within the DCO Site. c. Any excavations will be covered, or a means of escape (such as a ramp) will be implemented to prevent reptiles and amphibians becoming trapped. No excavations will remain open overnight.		
ECO-PPW4	Impacts to breeding birds	In addition to the ~~good practice~~general measures listed above (see ECO-PPW1(a)), the following measures to minimise impacts to breeding birds will include: a. Vegetation clearance will avoid the nesting bird period, where practicable i.e., March to August (inclusive). Should any vegetation clearance be required within the nesting bird period then this will be checked, prior to vegetation removal, for the presence of nesting birds, by a suitably qualified ornithologist. If active nests are found, then these will be avoided with appropriate buffer zones put in place and the area monitored until the young birds have fledged and/ or the nesting attempt has ceased. b. Surveys will be undertaken to support the baseline survey findings and identify the locations of specially protected bird species, the purpose of which is to ensure mitigation during the construction phase is based on the latest information. Should there have been any changes to the Proposed Development design which could impact upon nesting Schedule 1 species, then mitigation measures will be updated accordingly.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
ECO-PPW5	Impacts to bats (foraging/commuting and roosting)	In addition to the ~~best practice~~general measures listed above (see ECO-PPW1(a)), the following additional measures to minimise impacts to roosting and commuting/foraging bats will include: a. Ground-level inspection surveys will be undertaken to support the baseline survey findings, the purpose of which is to ensure mitigation during the construction phase is based on the latest protected species information and Proposed Development design. Should there have been any changes to the design which could impact upon roosting bats (i.e. additional tree removal of trees with potential to support roosting bats), where found within the DCO Site, then further surveys will be undertaken as required (e.g. bat emergence surveys), then Natural England licences will be sought (if required) and mitigation measures updated accordingly. b. Where any temporary work is required within 15m of any tree with the potential to support roosting bats, such as enabling works or clearance for construction, then a precautionary working method statement would be provided to avoid potential impacts. This would include the use of an Ecological Clerk of Works (ECoW).	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
ECO-PPW6	Impacts to riparian mammals (Water Vole and Otter)	In addition to the ~~best practice~~general measures listed above (see ECO-PPW1(a)), the following measures to minimise impacts to riparian mammals will include: a. Surveys will be undertaken to support the baseline survey findings where intrusive crossing methods of watercourses are proposed within the DCO Site. The purpose of these surveys is to ensure mitigation during the construction phase is based on the latest protected species information. Where there have been any changes to Otter or Water Vole distribution within the DCO Site (or the status of the potential Otter holt), mitigation measures	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		(such as non-intrusive crossing for cabling) will be updated accordingly and the relevant Natural England protected species licence application would be applied for if disturbance to breeding Otter was unavoidable. b. Measures to avoid animals being injured or killed within PPW working areas, through excluding them from such areas (e.g., fencing), will prevent animals from falling into and becoming trapped in excavations. Furthermore, any excavations will be covered, or a means of escape (such as a ramp) will be implemented. No excavations will remain open overnight.		Manager and Principal Contractor.
ECO-PPW7	Impacts to badger	In addition to the ~~best practice~~general measures listed above (see ECO-PPW1(a)), the following measures to minimise impacts to badger will include: c. Surveys will be undertaken to support the baseline survey findings. The purpose of these surveys is to ensure mitigation during the PPW construction phase is based on the latest protected species information. Should there have been any changes to Badger distribution within the DCO Site, Natural England licences will be sought (if required) and mitigation measures will be updated accordingly. d. Measures to avoid animals being injured or killed within construction working areas, through excluding them from such areas (e.g., fencing), will prevent animals from falling into and becoming trapped in excavations. Furthermore, any excavations will be covered, or a means of escape (such as a ramp) will be implemented. No excavations will remain open overnight.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
ECO-PPW8	Impacts to other mammals (brown hare, hedgehog and harvest mouse)	In addition to the ~~good practice~~general measures listed above (see ECO-PPW1(a)), the following additional measures to minimise impacts to other mammals will include:	Regular (daily/weekly) site	Compliance with mitigation responsibility

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		a. Vegetation clearance will be undertaken at an appropriate time of year to avoid incidental injuring or killing of animals, such as Brown Hare and concordant with the requirements for other species such as nesting birds and reptiles. b. Any excavations will be covered, or a means of escape (such as a ramp) will be implemented. No excavations will remain open overnight.	inspections, with monthly auditing by the Environment Manager during PPW.	with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
ECO-PPW9	Potential to introduce/spread invasive non-native species (INNS) beyond the DCO Site during PPW.	Surveys will be undertaken to provide an update on the presence and location of any Invasive Non-Native Species (INNS) plant and animal species, the findings of which will inform the implementation of measures to prevent their spread into the wild. In the event that any infestations of INNS are identified prior to and or during the PPW, exclusion zones will be established around them, and an ECoW contacted for advice as required. Management of wheel wash water will be implemented, which will avoid the spread of INNS. Equipment, vehicles and plant are to be washed out and cleaned in designated areas within the construction compounds where runoff can be isolated for treatment before disposal. Wash water will be prevented from passing untreated into watercourses. A Biosecurity Management Plan (BMP) will be prepared prior to relevant PPW (i.e. items b – j, ref. paragraph 2.1.1) as part of general site mobilisation by the Principal Contractor(s) once equipment and plant are known. The BMP will include measures such as appropriate cleaning and or/ disinfection of machinery and equipment in areas considered to be at high risk.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
ECO-PPW10	Potential habitat loss.	Site preparation for any future temporary construction compounds set up by PPW will not be greater than 2ha in size and will be located on existing Cropland habitat at a minimum distance of 4.5m from hedgerow habitats.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

3.5 Water Environment

Table 4: Water Environment

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
WAT-PPW1	Leakage or accidental spillage of materials and potential pollutants used onsite, migrating to nearby surface watercourses or infiltrating to groundwater. Any flooding during PPW could flood equipment and/materials, causing release of pollutants to nearby surface watercourses or infiltrating to groundwater.	**General** No works will be undertaken within at least 10m of all watercourses and ponds, which is considered sufficient to mitigate for potential hazards such as chemical and soils spills into watercourses and avoid potential direct impacts to the watercourse and protected species.	Temporary drainage will be monitored throughout PPW, with regular (daily/weekly) site inspections, and monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.
WAT-PPW2	Leakage or accidental spillage of materials and potential pollutants used onsite, migrating to nearby surface watercourses or infiltrating to groundwater.	**Management of Site Runoff** a. All reasonably practicable measures will be taken to prevent the deposition of fine sediment or other material in, and the pollution by sediment of, any existing watercourse, arising from PPW activities. Where practical, earthworks will be undertaken during the drier months of the year. When undertaking earth moving works periods of very wet weather will be avoided, where practical, to minimise the risk of generating runoff contaminated with fine particulates. However, it is likely that some working during wet weather periods will be unavoidable, in which case other mitigation measures (see below) will be implemented to control fine sediment laden runoff.		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		Water may also be required to dampen earthworks during dry weather to reduce dust impacts, and any runoff generated will need to be appropriately managed by the Principal Contractor in accordance with the pollution prevention principles described in **Chapter 9: Water Environment** of the ES **[EN010154/APP/6.1]**; b. To protect watercourses from fine sediment runoff, topsoil/subsoil will be stored a minimum of 20m from watercourses on flat lying land. Where this is not practicable, and it is to be stockpiled for longer than a two-week period, the material will either be covered with geotextile mats, seeded to promote vegetation growth, or runoff prevented from draining to a watercourse without prior treatment; c. Appropriately sized runoff storage areas for the settlement of excessive fine particulates in runoff will be provided; d. Site runoff will either be treated on site and discharged under a Water Discharge Activity Permit from the Environment Agency to Controlled Waters (potentially also including infiltration to ground) or removed from site for disposal at an appropriate and licensed waste facility; e. Equipment and plant are to be washed out and cleaned in designated areas where runoff can be isolated for treatment before disposal as outlined above; f. Mud deposits will be controlled at entry and exit points to the DCO Site using wheel washing facilities and/or road sweepers operating during earthworks activities		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		or other times as required. Potentially contaminated water from wheel washing facilities would be removed from site for disposal at an appropriate and licensed waste facility. g. Debris and other material will be prevented from entering surface water drainage, through maintenance of a clean and tidy site and provision of clearly labelled waste receptacles; and h. Should the use of herbicide or other spray chemical be required, a method statement, operating procedure or similar will be prepared prior to the work commencing. This will include measures to protect ground and surface water, including that such work would not be undertaken during or before rainfall and high winds where practicable. Such work will only be carried out by competent personnel using products approved for UK use with adherence to manufacturer's instructions.		
WAT-PPW3	Leakage or accidental spillage of materials and potential pollutants used onsite, migrating to nearby surface watercourses or infiltrating to groundwater.	**Management of Spillage risk:** a. Fuel and other potentially polluting chemicals will either be in self-bunded leak proof containers or stored in a secure impermeable and bunded area (minimum capacity of 110% of the capacity of the containers, which includes 10% more capacity than is needed); b. Any plant, machinery or vehicles will be inspected before every use and maintained to ensure they are in good working order and clean for use in a sensitive environment. This maintenance is to take place off site if practicable or, if on site, only at designated areas within site compounds. Only equipment and		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		vehicles free of all oil/fuel leaks will be permitted on-site. Drip trays will be placed below static mechanical plant; c. All washing down of vehicles and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses; d. All refuelling, oiling and greasing of plant will take place above drip trays or plant nappies, or on an impermeable surface which provides protection to underground strata and watercourses, and away from drains as far as reasonably practicable. Vehicles will not be left unattended during refuelling; e. As far as reasonably practicable, only biodegradable hydraulic oils will be used in equipment working in or over watercourses; f. All fixed plant used within the DCO Site will be self-bunded; g. Mobile plant is to be in good working order, kept clean, fitted with plant 'nappies' at all times and are to carry spill kits; h. Spill kits and oil absorbent material will be carried by mobile plant and located at high-risk locations across the DCO Site and regularly monitored and topped up. All PPW workers will receive spill response training and tool-box talks; i. Waste/debris are to be prevented from entering any surface water drainage or water body; **a.** Surface water drains on public roads trafficked by plant or within any future construction compound locations set up by PPW will be identified and, where there is a risk that fine particulates or		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		spillages could enter them, the drains will be protected (e.g. using covers or sandbags) or the road regularly cleaned by road sweeper.		
WAT-PPW4	Any flooding during PPW could flood equipment and/materials, causing release of pollutants to nearby surface watercourses or infiltrating to groundwater.	**Management of Flood Risk:** a. Topsoil and other materials will be stored outside of the 1 in 100 year floodplain extent where feasible. If areas located within Flood Zone 2/3 are to be utilised for the storage of materials, this would be done in accordance with the applicable flood risk activity regulations, if required; b. Connectivity will be maintained between the floodplain and the adjacent watercourses, with no changes in ground levels within the floodplain as far as practicable; c. The contractor will monitor weather forecasts on a monthly, weekly and daily basis, and plan works accordingly. For example, works in the channel of any watercourse will be avoided or halted were there to be a significant risk of high flows or flooding; and d. The Environment Manager and Site Manager will be notified of any potential flood occurring by use of the Floodline Warnings Direct or equivalent service. The contractor will be required to produce an Emergency Response Plan following receipt of DCO consent and prior to works, which will provide details of the response to an impending flood and will include: a. A 24-hour availability and ability to mobilise staff in the event of a flood warning;	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		b. The removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period where there is a forecast risk that the DCO site may be flooded; c. Details of the evacuation and site close down procedures; d. Arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works areas; e. The contractor will sign up to Environment Agency flood warning alerts and describe in the Emergency Response Plan the actions it will take in the event of a flood event occurring. These actions will be hierarchical meaning that as the risk increases the contractor will implement more stringent protection measures; f. Safe egress and exits are to be maintained at all times when working in excavations. When working in excavations, a banksman is to be present at all times.		

3.6 Landscape and Visual

Table 5: Landscape and Visual

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
LV-PPW1	Loss of existing landscape features, e.g. vegetation Visibility of PPW activities	a. During PPW the retained vegetation will be protected. Measures to be employed will include the use of clearly defined stand-offs, managing the structure and integrity of the retained vegetation, and undertaking any pruning outside of the bird breeding season and in accordance with hedgerow regulations. b. Retained trees will be periodically inspected by an arboriculturist during PPW. Where PPW are adjacent to retained trees, works will be undertaken under a watching brief to record root loss and to recommend further arboricultural works where required. A grassland buffer will be maintained around retained individual trees. c. Removal of existing hedgerow or existing trees will only occur where access is required. These crossings will, wherever practical, be located at current field access locations or in areas where there are existing gaps in the hedgerow and no trees. d. Where hedgerows are present within visibility splays at access and egress points from the local highway network, vegetation management will be used to maintain safety during the period of PPW. These hedgerows will be reduced in height to 0.9m	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		to allow suitable visibility, whilst avoiding hedgerow removal. e. An Environmental Clerk of Works (EnvCoW) or the Environment Manager will be tasked with ensuring that PPW-related environmental mitigation measures are properly implemented, monitored, and maintained. These measures will include, but are not limited to, vegetation clearance, species identification, and exclusion of protected or non-protected species. The EnvCoW/Environment Manager's responsibilities will encompass activities that could impact biodiversity, such as providing advice on methods to prevent or minimise light spill, as well as delivering Toolbox Talks before starting any work that might affect habitats and species. During PPW, as far as is practicable, works will be limited to daylight hours, with focussed task specific lighting provided where this is not practicable. In winter months, mobile lighting towers will be used in isolated work areas.		

3.7 Noise and Vibration

Table 6: Noise and Vibration

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
NV-PPW1	Vibration due to activities causing annoyance at Noise Sensitive Receptors (NSR) and damage to building structures. Construction traffic, plant and machinery noise at nearby NSR.	**Best Practice Measures** Best Practicable Means would be implemented during PPW to minimise noise and vibration at NSRs, including, neighbouring residential properties and other sensitive receptors arising from PPW activities, including, as appropriate: a. Ensuring that all appropriate processes, procedures and measures are in place to minimise noise before works begin and throughout the PPW. b. All contractors to be made familiar with current legislation and the guidance in BS 5228 (Parts 1 and 2) which should form a prerequisite of their appointment. c. Ensuring that, where reasonably practicable, noise and vibration are controlled at source (e.g., the selection of inherently quiet plant and low vibration equipment), review of the PPW programme and methodology to consider quieter methods, consideration of the location of equipment on-site and control of working hours. d. Use of modern plant, complying with applicable UK noise emission requirements. e. Hydraulic techniques for breaking concrete or rocks to be used in preference to percussive techniques, where reasonably practicable. f. Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications. g. All site plant and equipment to be properly maintained, silenced where appropriate, operated to prevent excessive noise, and switched off when not in use. h. Loading and unloading of vehicles, dismantling of site equipment or moving equipment or materials around the DCO Site to be conducted in such a manner as to minimise noise generation, as far as reasonably practicable. i. All vehicles used on-site shall incorporate broadband reversing warning devices as opposed to the typical tonal reversing alarms to minimise noise disturbance where reasonably practicable.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW. Section 61 consents would be obtained where noise works are anticipated by the appointed contractor or work outside of core hours is required. The Section 61 would form the basis of noise limits and monitoring requirements including monitoring locations, noise	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		j. Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use. k. Drop heights of materials will be minimised. l. Plant and vehicles will be sequentially started up rather than all together. m. Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas. n. Working hours will be in line with **Section 2.3** of this PPW EMP. **Monitoring** o. Consents will be sought from the relevant local authority under Section 61 of the Control of Pollution Act 1974 (Ref 3~~Ref 3~~) where noisy works are anticipated by the appointed contractor or work outside of core hours is required. The Section 61 would form the basis of noise limits and monitoring requirements including monitoring locations, noise monitoring methods and frequency, and the noise control measures to be employed. **Communication strategy** a. Prior to works being undertaken, liaison will be undertaken with occupiers of sensitive receptors that may be adversely affected by noise generated by PPW. b. Noise complaints will be monitored and reported to the Applicant for immediate investigation and action. A display board will be installed on-site, and a website will be set up. These will include contact details for the Community Liaison Officer or alternative with whom nuisance or complaints can be lodged. A logbook of complaints will be prepared and managed by the Site Manager. c. Where high noise generating works are required to be undertaken outside of core daytime working hours, they will comply with the restrictions stated in above, and Section 61 consents will be sought from the relevant local authority for the PPW, excluding non-intrusive surveys, as relevant. The Section 61 application will set out	monitoring methods and frequency, and the noise control measures to be employed.	

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		the specific method of working, calculations of noise levels at nearby receptors, the actual working hours required, noise monitoring locations, details of communication measures and the mitigation measures implemented to minimise noise and vibration impacts.		

3.8 Traffic and Transport

Table 7: Traffic and Transport

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
TT-PPW1	Increased traffic flows, including HGVs on the roads leading to the DCO Site. Severance and intimidation associated with increased traffic.	Details to mitigate impacts from increased traffic associated with PPW include: a. Providing suitable points of access for vehicles with adequate visibility, with any supporting improvements (e.g. vegetation clearance) to take place within the highway boundary and the DCO Site if required; b. Delivering internal routes through the Principal Site, to allow vehicles to access all areas via the DCO Site access points; c. Maintaining access to and along PRoW and the existing permissive paths, or otherwise providing temporary or permanent PRoW and permissive path diversion routes where necessary to avoid any closures or potential conflicts with the PPW where possible; d. Managing areas where the proposed route crosses any existing local access roads, including by maximising visibility between vehicles and other users (including pedestrians and road users), implementing traffic management e.g. advanced signage to advise other users of the works, as well as manned controls at each crossing point (marshals/ banksmen), with a default priority that traffic will give-way to other users; e. Reducing HGV deliveries during certain times of the day (e.g. between 07:00 and 09:00, as well as between 17:00 and 19:00), to avoid increasing traffic levels on the surrounding highway network during the traditional weekday peak hours; f. Implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the PPW period as relevant. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance of HGV routing; g. Implementing a monitoring system to record the route of all HGVs travelling to and from the DCO Site, to record any non-compliance with the agreed routing plan/	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes are followed;

h. Developing a communications strategy including regular meetings with contractors to review and address any issues associated with travel to/ from the DCO Site, as well as to relay information including any restrictions and requirements which should be followed;

i. Encouraging local staff to car share to reduce single occupancy car trips, by promoting the benefits of car sharing such as reduced fuel costs and by providing dedicated parking spaces within the compounds for those car sharing. A Car Share scheme will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/ from site;

j. Providing sufficient on-site car parking within designated compounds across the DCO Site to accommodate the PPW staff within the Principal Site.

k. Vegetation clearance at the proposed access points where required to achieve appropriate levels of visibility at these locations;

l. Providing sufficient cycle parking spaces within the Principal Site to encourage staff to travel by bicycle where viable; and

m. Where the DCO Site adjoins the A46, any proposed fencing will be located behind the existing hedgerows which adjoin the A46.

3.9 Air Quality

Table 8: Air Quality

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
AQ-PPW1	Increased nitrogen dioxide (NO_2) and particulate matter (PM_{10}) from on-site and off-site vehicle/plant emissions. Increased particulates and deposited dust from Site activities, materials transportation, storage and handling, including use of haul roads.	**Communications** a. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. b. Display the name and contact details of person(s) accountable for air quality and dust issues on the DCO Site boundary. This may be the environment manager/engineer or the Site Manager. c. Display the head or regional office contact information. **Site Management** a. 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. b. Make the complaints log available to the local authority when asked. c. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book. **Monitoring** a. Undertake daily on-site and off-site visual inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular visual dust soiling checks of surfaces (for example, street furniture) within 100m of the DCO Site. b. Increase the frequency 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 **Preparing and Maintaining the DCO Site**	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

a. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is practicable.
b. Fully enclose specific operations where there is a high potential for dust production and the DCO Site is active for an extensive period where operations are within 100m of receptors.
c. Fully enclose site or specific operations where there is a high potential for dust production and the DCO Site is active for an extensive period.
d. Avoid site runoff of water or mud.
e. Keep site fencing, barriers and scaffolding clean using wet methods.
f. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
g. Cover, seed or fence stockpiles to prevent wind whipping.
h. Ensure all vehicles switch off engines when stationary - no idling vehicles
i. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
j. Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
k. 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.

Operations

a. Ensure an adequate water supply on the DCO Site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

b. Ensure vehicles are inspected and cleaned as required, prior to accessing the public highway.
c. Use enclosed chutes and conveyors and covered skips.
d. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
e. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
f. Avoid bonfires and burning of waste materials.

Waste Management

a. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.

Earthworks

a. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Note that stockpiles may only be left un-vegetated if they are to be moved within 3 months.
b. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
c. Only remove the cover in small areas during work and not all at once.
d. Avoid scabbling (roughening of concrete surfaces) if possible.

PPW

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		a. 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. b. 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. c. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. **Trackout** a. Avoid dry sweeping of large areas. b. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport c. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. d. Record all inspections of haul routes and any subsequent action in a site log book. e. Regularly dampen down haul routes with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. f. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the DCO Site where reasonably practicable). g. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the DCO Site exit, wherever site size and layout permits. h. Access gates to be located at least 10m from receptors where possible.		

3.10 Ground Conditions

Table 9: Ground Conditions

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
GC-PPW1	Potential for risks to human health associated with waste generation, land contamination, airborne contamination, and groundwater contamination. The discovery of ground contamination during groundworks. Levelling of the DCO Site including the possible introduction of new fill materials.	Best practice avoidance and mitigation measures proposed include: a. All workers would be required to wear Personal Protective Equipment (PPE) such as dust masks as applicable; b. Containment measures would be implemented, including drip trays, bunding or double-skinned tanks of fuels and oils; all chemicals would be stored in accordance with their COSHH guidelines, whilst spill kits would be provided in areas of fuel/oil storage; c. All plant and machinery would be kept away from surface water bodies wherever possible, checked regularly and, where necessary, the use of drip trays would be employed. Refuelling and delivery areas would be located away from surface water drains; d. An emergency spillage action plan (or similar title) will be produced, which staff would have read and understood, and provisions made to contain any leak/spill; e. Should any potentially contaminated ground, including isolated 'hotspots' of contamination and/or potential deposits of asbestos containing materials (ACM), be encountered, works will be stopped in the affected area and the contractor would be required to investigate the areas and assess the need for containment or disposal of the material. Liaison with the Local Planning Authority and the Environment Agency would be undertaken if necessary. The contractor would also be required to assess whether any additional health and safety measures are required; f. To further minimise the risks of contaminants being transferred and contaminating other soils or water, PPW workers would be briefed as to the possibility of the presence of such materials; g. In the event that contamination is identified (including groundwater), works will be stopped in the affected area and appropriate remediation measures would be agreed	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

with the appropriate authorities and undertaken to protect PPW workers, future site users, water resources, structures, and services;

h. The contractor would be required to place arisings and temporary stockpiles away from watercourses and drainage systems, whilst surface water would be directed away from stockpiles to prevent erosion;

i. The risk to surface water and groundwater from run-off from any contaminated stockpiles during PPW would be reduced by implementing suitable measures to minimise rainwater infiltration and/or capture runoff and leachates, through use of bunding and/or temporary drainage systems. These mitigation measures would be designed in line with current good practice, follow appropriate guidelines and all relevant licences/permits;

j. The contractor would ensure that all material is suitable for its proposed use and would not result in an increase in contamination-related risks on identified receptors, including any landscaped areas and underlying groundwater;

k. Any waters removed from excavations by dewatering would be discharged appropriately, subject to the relevant permits obtained from the Environment Agency;

l. The contractor will implement a dust suppression/management system to control the potential risk from airborne contamination migrating off-site to adjacent sites; Prior to work commencing, a health and safety risk assessment will be undertaken by the appointed Principal Contractor and developed in accordance with current health and safety regulations. This assessment should cover potential risks to PPW staff, permanent site staff and the local population. Based on the findings of this risk assessment, appropriate mitigation measures should be implemented during the PPW period.

A detailed Unexploded Ordnance (UXO) Assessment will be undertaken prior to the commencement of any intrusive works to assess and potentially zone the UXO hazard level at the DCO Site.

3.11 Materials and Waste

Table 10: Materials and Waste

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
MW- PPW1	Potential to impact on sensitive receptors (humans, wildlife and controlled waters) if waste not stored and managed appropriately.	The PPW will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy. This would be achieved by a combination of measures, including: a. A Site Waste Management Plan (SWMP) will be produced by the Principal Contractor, which will set out: i. The waste streams that will be generated; ii. How the waste hierarchy will be applied to these wastes; iii. Good practice measures for managing waste; iv. Roles and responsibilities for waste management; and v. Provide information on waste classification. b. All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste carriers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them. c. If required, a Materials Management Plan (MMP) would be developed under the CL:AIRE Definition of Waste: Development Industry Code of Practice (Ref 4) by the appointed Principal Contractor to support the reuse of excavated materials, minimise off-site disposal; and to demonstrate the necessary lines of evidence to support the proper reuse/off-site disposal of materials and ensure compliance with regulatory guidance.	The types, quantities and final destination of waste generated during PPW would be identified, measured and recorded through the SWMP to be produced by the Principal Contractor. A register of all waste loads leaving the DCO Site would be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities and management methods.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		d. The Principal Contractor will determine whether excavated material use will be undertaken via a waste framework directive exclusion, exemption, CL:AIRE DoW CoP Materials Management Plan or Environmental Permit. To reduce the potential impacts from materials and waste, and to achieve high levels of sustainability in the PPW, the Principal Contractor will apply the principles of the waste hierarchy and adopt best practice measures (BPM) which go beyond statutory compliance. This may include BPMs set out in construction industry guidance for example, guidance from the Considerate Constructors Scheme (CCS), Waste & Resources Action Programme (WRAP) and Construction Industry Research and Information Association (CIRIA). The following approaches will be implemented, where practicable, to minimise the quantity of waste arising and requiring disposal: a. Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme; b. Implementation of a 'just-in-time' material delivery system where practicable to avoid materials being stockpiled, which can increase the risk of damage and subsequent disposal as waste; c. Attention to material quantity requirements to avoid overordering and the generation of waste materials due to surplus; d. Reuse of materials on-site wherever feasible, e.g. reuse of excavated soil for landscaping; e. Off-site prefabrication, where practical, including the use of prefabricated structural elements;	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		f. Segregation of waste at source, where practical, to facilitate a high proportion and high-quality recycling; and g. Off-site reuse, recycling and recovery of materials and waste where reuse on-site is not practical, e.g. through use of an off-site waste segregation or treatment facility or for direct reuse or reprocessing off-site.		

3.12 Telecommunications, Television Reception and Utilities

Table 11: Telecommunications, Television Reception and Utilities

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
TEL-PPW1	Potential to affect existing utility infrastructure above and below ground as a result of excavation and engineering operations.	Precautionary measures will be implemented, including: a. Locating PPW outside of utilities protected zones; b. The use of ground penetrating radar and Cable Avoidance Tool (CAT) scans before excavation to identify any unknown utilities; and c. Consultation and agreement with relevant utility operators regarding methodologies prior to works commencing. Additionally, measures in relation to safe working beneath overhead lines will be in place during PPW, for example ensuring adequate clearances are in place when plant and equipment is being moved beneath the overhead lines. The **draft DCO [EN010154/APP/3.1]** includes protective provisions for the protection of operators of electronic communications code networks (Schedule 14, Part 2).	Monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

3.13 Arboriculture

Table 12: Arboriculture

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
ARB-PPW1	Potential to impact trees.	The **Arboricultural Impact Assessment** (**Appendix 10-H** of the ES **[EN01054/APP/6.3]**) sets out a number of measures to be implemented, including: a. Prior to the commencement of PPW, a check of ash trees within the DCO Site will be undertaken and trees removed where appropriate (e.g. where they pose an unacceptable risk to people or property). Ash trees showing late-stage symptoms of ash dieback may become embrittled, either due to degradation/dysfunction of the wood substrate from ash dieback or from secondary pathogens. The subsequent removal of trees in the late stages of ash dieback may become hazardous to contractors undertaking tree removal. Removal of ash trees prior to this stage is therefore recommended. b. Where practicable the detailed design will be further developed to avoid or minimise impacts to trees. c. Prior to the commencement of PPW, a check of trees within the DCO Site will be undertaken and remedial works actioned where appropriate (e.g. where they pose an unacceptable risk to people or property). All staff operating on the DCO Site are to be made aware of the need to look out for obvious signs of tree defects and to report them to the Site Manager who will seek further advice as necessary. d. No veteran or ancient trees or ancient woodland are to be removed. e. No trees subject to an existing TPO[1] (made prior to 10 April 2025) or within a Conservation Area are to be removed.	Regular (daily/weekly) site inspections, with monthly auditing by the Environment Manager during PPW.	Compliance with mitigation responsibility with the Environment Manager, with the overall responsibility of PPW activities with the Site Manager and Principal Contractor.

[1] Note, the Draft DCO [EN010154/APP/3.1] allows the Applicant to fell or lop a tree subject to a TPO made after 10 April 2025 if it is within or overhanging land within the Order Limits and it is reasonably necessary (Article 40).

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		f. Where possible, tree groups and especially windward edges should be retained intact. Where partial removal of tree groups and/or woodlands is to be undertaken, trees at the new edge should be assessed for retention suitability by a qualified arboriculturist to determine the final extent of tree loss (noting that this cannot generally be confirmed until initial site clearance works have been completed).		
		g. One tree (T167 – see **Appendix 10-H**: **Arboricultural Impact Assessment** of the ES **[EN01054/APP/6.3]**) has been identified to require a significant crown reduction (monolith) to circa 4-5m. This is a dead standing tree that is located within falling distance of a proposed access road. Therefore, to mitigate this safety risk the tree should be pruned prior to the commencement of PPW, as relevant. This tree is located beyond the DCO Site and therefore prior consent from the tree owner should be obtained in writing before any tree works outside those permitted under established rights in common law are carried out. No additional pruning has been identified at this stage. The requirement for any pruning will be reviewed and confirmed at the detailed design stage as part of an Arboricultural Method Statement. The final extent of pruning will be the minimum feasible and will be agreed on site with the Proposed Development arboriculturist.		
		h. All tree work is to follow the principles of BS3998: 2010 Treework – Recommendations and must be carried out by suitably qualified contractors. The Arboricultural Association provides a list of contractors who meet these requirements. Tree works and/or stump removal or stump treatment will be carried out in a way that avoids damage to any nearby trees that are being retained. Should the requirement for additional tree works be identified, this will be discussed with the Proposed Development arboriculturist and, where necessary, consent from NKDC will be required.		
		i. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general, the optimum period for works is between November to February and July to August (subject to the presence of		

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

Soils

The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave.

Access Roads

Where the use of existing roads is expected to change there will be a requirement to implement mitigation measures to ensure that trees are not negatively impacted. Mitigation measures are likely to include the use of a three-dimensional cellular raft system (such as Cellweb or equivalent), specified to the highest expected load in accordance with Appendix D Outline Tree Protection Measures of **Appendix 10-H**: **Arboricultural Impact Assessment** of the ES **[EN01054/APP/6.3]**. The final specification for mitigation measures will be detailed in the Arboricultural Method Statement.

New Services within Root Protection Areas (RPAs)

Where existing services become redundant within the RPA of a retained tree, the default position must be that they be decommissioned and left in situ. Where this is not feasible the following principles are to be observed;

a. Existing services are to be removed by winching out from an access/inspection chamber located outside of an RPA. It may be acceptable to fill redundant pipe work with an inert material or undertake pipe bursting where necessary within the RPA of retained trees; and
b. Excavation to install services has the potential to result in unacceptable root severance which could result in instability, dysfunction or the death of trees. Repeated incursions are particularly damaging and must be avoided by bundling

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

services wherever possible. The default position will therefore be that all services be routed outside of the RPA of retained trees.

All services must be bundled as far as possible and installed within RPAs using hand/compressed air excavation (e.g., for shallow service runs where all roots >25mm diameter can be retained and worked around) or trenchless techniques such as Horizontal Directional Drilling (HDD) or impact moling (thrust boring) with all access pits and inspection chambers being located outside of the RPA. The route must run as far from the main stem of a retained tree as possible and must be at a minimum depth so that the upper 2m of the soil profile is undisturbed. The depth of the run may need to be adjusted to account for soil type and species variation and this must be determined subject to the advice of the Proposed Development arboriculturist.

Services must be constructed so as to be resistant to ingress by tree roots (both existing trees, and newly planted trees) which could include the use of root barriers where appropriate. These works must take place as specified in an Arboricultural Method Statement.

Tree Planting

a. Existing areas of unsurfaced ground must be protected during the PPW phase if they are to be re-used for new plantings. Protection can be achieved using fit for purpose ground protection measures as set out in BS5837:2012 Section 6.2.3 or by creating a fenced exclusion zone. Where protection is not feasible, soil amelioration or replacement works will be required to ensure suitable growing conditions for new trees to fully establish.
b. Where new trees are to be planted, the minimum planting distances detailed in Table A.1 of BS5837:2012 (British Standards Institute, 2012) must be adhered to along with Proposed Development specific offsets to prevent direct damage to services and structures from future tree growth.

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility

c. New tree planting should be implemented in accordance with the guidance set out in BS8545:2014 (British Standards Institute, 2014) Trees: from nursery to establishment in the landscape – Recommendations.
d. The UK Forest Standard (2023) recommends that no more than 65% of a forest management unit area is allocated to a single species, with a minimum of 5% native broadleaved trees or shrubs, 10% of other tree species and 10% open ground, or ground managed for biodiversity as the primary objective is utilised for new tree planting.

Tree Protection

a. Retained trees are vulnerable to damage from PPW activities which can include physical damage to stems and branches following impacts with plant, root severance following trenching, root death or dysfunction following damage to soil structure (caused by the movement of people or machinery on unsurfaced ground) or via the spillage of materials toxic to tree health. The default position is that the RPA and canopy spread of trees to be retained will form an effective Exclusion Zone, secured with robust fencing where no access will be permitted. Where access is necessary within this area special measures such as the use of ground protection and arboricultural supervision are generally required.
b. Outline tree protection measures are considered in **Appendix D** of **Appendix 10-H**: **Arboricultural Impact Assessment** of the ES **[EN01054/APP/6.3]**. The Arboricultural Method Statement will set out the phasing of site operations, the finalised tree protection measures for the DCO Site and provide detail on how sensitive elements of work are to be achieved in proximity to retained trees. The final specification for tree protection measures will be detailed in the Arboricultural Method Statement.

Site Organisation, Storage and Use of Materials, Plant and Machinery

a. All site facilities including site huts, staff and contractor parking and areas for storage will be located outside of the RPA or crown spread of retained trees,

ID	Potential Impact	Mitigation / Enhancement Measure	Monitoring Requirements	Responsibility
		including those not specifically covered in this report. Space is likely to be constrained within the DCO Site at some locations and so the compounds set up will need to be carefully considered. The Exclusion Zones identified on the Tree Protection Plans must be fully respected and their location and significance is to be highlighted to all site staff and contractors during the formal site briefing. This will be addressed in the Arboricultural Method Statement. b. Storage of materials and any washing, mixing or refuelling will take place in agreed allocated areas at least 5m from the edge of the RPA of retained trees and at least 5m from the edge of an ancient woodland buffer zone. c. Any slope effect must be taken into account and where there is a potential for run off, heavy duty polythene sheeting and sandbags must be in place as bunding to prevent toxic materials reaching RPAs and/or ancient woodland and its buffer zone. d. Particular care is required where high sided vehicles, long reach machinery and plant with jibs, booms and counterweights are to operate with in proximity to retained trees. A banksman will be used where the movement of plant or long reach machinery occurs within 5m of any part of a retained tree to ensure no damage is sustained.		

3.14 Abortive Works

3.14.1 If the PPW are undertaken on an abortive basis, the land on which the PPW have been undertaken will be restored within 12 months. This will mean that if PPW are undertaken but the Proposed Development is not commenced within five years from the date of the Order, in accordance with Requirement 2 of the Draft DCO **[EN010154/APP/3.1 (Rev4)]**, the land on which the PPW have been undertaken would be restored.

4. Checking and Corrective Action

4.1 Monitoring

4.1.1 Environmental monitoring of the PPW and their impacts will be undertaken throughout the PPW. This will be undertaken to demonstrate the effectiveness of the measures set out in this PPW EMP and related controls and allow for corrective action to be taken where necessary.

4.1.2 As part of the monitoring process the Principal Contractor will allocate a designated Environment Manager, who will be present on-site throughout the PPW and when new activities are commencing. The Environment Manager will observe site activities and report any deviations from this PPW EMP at the earliest opportunity following identification of such deviations. The Applicant will be informed of any deviations from this PPW EMP as soon as possible following identification of such issues. The Environment Manager would also act as day-to-day contact with relevant local authorities and other regulatory agencies, such as the Environment Agency.

4.1.3 During PPW, the Environment Manager will conduct regular walkover surveys to ensure all requirements of this PPW EMP are being met. Action from these surveys will be documented on an Environmental Action Schedule, discussed with the Site Project Manager for programming requirements and issued weekly for actioning.

4.1.4 The Environment Manager and/or Site Project Manager will arrange regular formal inspections to ensure the requirements of this PPW EMP are being met. A final review will be undertaken following completion of the works.

4.2 Records

4.2.1 The Environment Manager or Site Manager will retain records of environmental monitoring and implementation of this PPW EMP. This will allow provision of evidence that this PPW EMP is being implemented effectively. These records will include:

a. Environmental Action Schedule;

b. Licences and approvals (as relevant);

c. Results of inspections by Environment Manager/Site Project Manager;

d. Other environmental surveys and investigations;

e. Environmental equipment test records; and

f. Corrective actions taken in response to incidents, breaches of the PPW EMP or complaints received from a third party.

4.2.2 This PPW EMP will be a live document and be updated as and when required, such as when there are changes to the team or when additional information becomes available.

4.3 Management Review

4.3.1 This PPW EMP will be signed off on completion of the PPW. This PPW EMP may be referred to in the future detailed CEMP, OEMP or DEMP, which will be used to manage the environmental performance of the Proposed Development throughout its lifetime.

5. References

Ref 1 The Planning Act 2008, Available at: https://www.legislation.gov.uk/ukpga/2008/29/pdfs/ukpga_20080029_en.pdf

Ref 2 HMSO (2009) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/2264/contents/made.

Ref 3 Control of Pollution Act 1974. Available at https://www.legislation.gov.uk/ukpga/1974/40

Ref 4 Contaminated Land: Applications in Real Environments (CL:AIRE) (2011). Definition of Waste: Development Industry Code of Practice.