FENWICK SOLAR FARM

Preliminary Environmental Information Report

Volume III Appendix 2-1: Framework Construction Environmental Management Plan (CEMP)

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BOOM POWER

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1. Introduction

1.1 Introduction

1.1.1 This document provides the framework for the Construction Environmental Management Plan (CEMP) for Fenwick Solar Farm (hereafter referred to as 'the Scheme'), in relation to an application for a Development Consent Order (DCO) for the construction, operation and maintenance, and decommissioning of the Scheme.

1.1.2 A DCO would provide the necessary authorisations and consents for the Scheme which comprises the construction, operation and maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating facility with a total capacity exceeding 50 megawatts (MW), and associated infrastructure including a Battery Energy Storage System Area (BESS Area) and an export and import connection to the national grid either at the Existing National Grid Thorpe Marsh Substation or at an existing overhead power line. Due to its total capacity exceeding 50 MW the Scheme is classified as a Nationally Significant Infrastructure Project (NSIP) under Sections 14(1)(a) and 15(2) of the Planning Act 2008 (Ref. 1) and therefore requires consent via a DCO.

1.1.3 Potential impacts have been identified through the Environmental Impact Assessment (EIA) process and are reported in the Preliminary Environmental Information Report (PEIR). The PEIR contains the assessment of the likely significant effects on the environment that may be caused during the construction of the Scheme and describes a range of 'industry standard' or best practice mitigation measures. This Framework CEMP outlines these construction mitigation measures and sets out the monitoring activities designed to ensure that such mitigation measures are carried out.

1.1.4 This iteration of the Framework CEMP has been produced to support the PEIR and the preliminary assessments presented within it and will be updated at the next stage of the Scheme design and submitted alongside a Framework Operational Environmental Management Plan (OEMP) and Framework Decommissioning Environmental Management Plan (DEMP), which will accompany the DCO Application.

1.1.5 A detailed CEMP would subsequently be produced for the Scheme by the appointed Contractor following grant of the DCO, when the detailed design of the Scheme is known. Compliance with the contents of the detailed CEMP is intended to provide a systematic approach to environmental management so that environmental risks are identified, incorporated in all decision-making and managed appropriately. Detailed construction techniques and supporting Risk Assessment Method Statements (RAMS), which would outline further mitigation requirements based on the measures discussed in the detailed CEMP and any supporting appendices, would be produced by the Contractor.

1.1.6 The detailed CEMP will be prepared in accordance with this Framework CEMP and would be approved by the appropriate planning authorities in advance of starting the construction works.

1.1.7 It is noted that multiple detailed CEMPs may be prepared, approved, and implemented for specific works, for example separate CEMPs may be prepared for the Solar PV Site and the Grid Connection Corridor. The detailed CEMPs would be live documents updated throughout the construction phase as required.

1.1.8 The key elements of this Framework CEMP are:

a. An overview of the Scheme and associated construction programme;

b. Prior assessment of environmental impacts (through the EIA process);

c. Proposed design and other mitigation measures to prevent or reduce potential adverse environmental effects;

d. Monitoring and reporting of effectiveness of mitigation measures;

e. Corrective action procedure; and

f. Links to other complementary plans and procedures.

1.1.9 In summary, the Framework CEMP will identify how commitments made in the EIA will be translated into actions at the Site and includes a process for implementing the actions through allocation of key roles and responsibilities.

1.1.10 The appointed Contractor will be responsible for working in accordance with the environmental controls documented in the Framework CEMP, pursuant to the DCO. The overall responsibility for implementation of the CEMP will lie with the appointed Contractor as a contractual responsibility to the Applicant, as the Applicant is ultimately responsible for compliance with the Requirements of the DCO.

1.1.11 Any additional construction licences, permits or approvals that are required will be listed in the detailed CEMP, including any environmental information submitted in respect of them.

1.2 The Applicant

1.2.1 The Applicant (Fenwick Solar Project Limited) is a wholly owned subsidiary of BOOM Developments Limited who specialise in non-subsidised solar and battery storage projects. BOOM Developments Limited was founded in 2020, and the name BOOM is an acronym for Build Own Operate Maintain. This reflects the organisation's intentions to be involved in sustainable energy projects from day one right the way through to operation.

1.2.2 Further information on BOOM Developments Limited can be found in **PEIR Volume I Chapter 1: Introduction**.

1.3 The Scheme

1.3.1 The land for which DCO consent is being sought is referred to as 'the Site' and is shown on **PEIR Volume II Figure 1-2: Site Boundary Plan**. This represents the maximum extent of land to be acquired or used for the construction, operation and maintenance, and decommissioning of the Scheme. This includes land required for temporary and permanent uses.

1.3.2 The Site comprises approximately 536 hectares (ha) of land and is located entirely within the City of Doncaster Council's administrative area. The surrounding landscape comprises largely agricultural fields and several small

rural villages, including Fenwick, Moss, and Sykehouse, as well as the hamlet of Topham.

1.3.3 The Site comprises the Solar PV Site, Grid Connection Corridor, and Existing National Grid Thorpe Marsh Substation as shown on **PEIR Volume II Figure 1-3: Elements of the Site**. The Solar PV Site would contain the solar photovoltaic (PV) panels, BESS Battery Containers and BESS Area, the On-Site Substation and associated development, comprising approximately 421 ha. The Grid Connection Corridor comprises approximately 115 ha and would connect the Solar PV Site and the Existing National Grid Thorpe Marsh Substation.

1.3.4 Temporary construction compounds comprising parking, storage, staff welfare, and waste management would be located within the Site. The indicative location of temporary construction compounds is shown in **PEIR Volume II Figure 2-3: Indicative Site Layout Plan**.

1.3.5 In the Solar PV Site, these temporary construction compounds would include one main temporary construction compound and two satellite construction compounds which would be created and 'built-out' as the solar installation progresses. In addition to the main construction compound and the two satellite compounds, smaller short-term use construction compounds will be located across the Solar PV Site. The compounds will be approximately up to 150 m by 150 m and will contain a site office, mobile welfare units, generators, canteen facilities and a fenced area for storage and waste containers.

1.3.6 Two temporary construction compounds would be established within the Grid Connection Corridor. At a number of the grid connection access points there will be 50 m by 50 m compound and lay-down areas. The compound area footprint will take into consideration topography, drainage and heritage and environmental constraints. The compounds will allow construction vehicles to turn off the public highway and park safely. They will include parking bays, portacabins, unloading and storage areas and power generators. Upon completion of construction, the compound areas will be removed and the land reinstated.

2. Construction Environmental Management

2.1 Roles and Responsibilities

2.1.1 This section of the Framework CEMP sets out the key Contractor roles and responsibilities of parties involved in the construction of the Scheme. The detailed CEMP prepared by the appointed Contractor prior to construction will confirm exact roles and responsibilities and include contact details for key members of staff. Clearly establishing roles and responsibilities is vital to ensure the successful construction of the Scheme, including the implementation of the detailed CEMP.

Project Manager

2.1.2 The Project Manager is responsible for:

a. Coordinating the delivery of all elements of the Scheme including ensuring conformance with the CEMP and other management plans, as well as any incident investigation required;

b. Facilitating the dissemination of generic environmental requirements to the project team;

c. Overseeing the implementation and review of environmental procedures throughout the Scheme;

d. Monitoring the environmental performance of the Scheme through maintaining an overview of incidents, inspections and audits;

e. Ensuring that environmental considerations form an integral part of design and implementation of the works and to include environmental reviews as part of regular meetings;

f. Reviewing environmental matters with Safety, Health, and Environment (SHE) Manager on a regular basis and as per Scheme requirements;

g. Liaising with Scheme SHE Manager on all environmental issues as appropriate;

h. Ensuring that all environmental incidents are reported to SHE Manager/Advisor according to agreed procedures; and

i. Nominating individual team members to support the Applicant in public relations and community liaison activities, including local community meetings.

Site Manager/Engineer

2.1.3 The Site Manager/Engineer, working with the Project Manager is responsible for:

a. Understanding and implementing all environmental procedures as identified in the CEMP, and ensuring that site operation and maintenance functions are in compliance;

b. Reviewing RAMS and/or environment method statements (EMS) submitted by the Contractor prior to beginning new works activities;

c. Reviewing the SHE Plan, prepared and amended by the SHE Manager/Advisor;

d. Reviewing and monitoring the implementation, and accuracy of, the CEMP;

e. Conducting incident investigation in the event of an incident or near miss being reported by any worker or member of site management staff during site walkovers or inspections;

f. Monitoring of contractor compliance with plans and procedures;

g. Liaising with the emergency services;

h. Conducting regular site inspections;

i. Reviewing applications for environmental consents and permits in line with the Project Manager; and

j. Notifying the SHE team (and/or local authority) when a variation in working time may cause impact upon local residents or upon a local authority consent.

Safety, Health and Environment Manager

2.1.4 The SHE Manager is responsible for:

a. Providing site inductions and toolbox talks on safety, health and environmental matters and sensitivities to the appropriate staff prior to works being undertaken;

b. Preparing, reviewing and updating the SHE Plan;

c. Assisting the Project Manager and Site Manager/Engineer in reviewing and approving RAMS and/or EMS;

d. Ensuring the RAMS/EMSs are implemented, ensuring compliance with procedures and legislation. Check all documents for Duty of Care requirements, including;

   i. Weekly routine audits of the Contractor's compliance with the CEMP – site activities and record keeping;

   ii. Monitoring or inspection of site activities in response to incidents, breaches of the CEMP or complaints received from a third party;

   iii. Inspections of works to ensure that environmental mitigation measures incorporated into the design have been implemented;

   iv. Implementing corrective mitigation measures where proposed mitigation results in effects over and above those within any DCO Requirement, or license; and

   v. Delivering toolbox talks on environmental matters and sensitivities to the appropriate staff prior to works being undertaken.

e. Ensuring the Duty of Care is complied with for all waste generated on Site;

f. Preparing site specific mitigation plans in consultation with statutory consultees (in line with the Stakeholder Communications Plan) to ensure works can proceed in accordance with all environmental commitments and legislation;

g. Providing technical advice on the implementation of the CEMP including changes to legislative requirements and best practice;

h. Undertaking regular site inspections/walkovers to ensure construction practice is compliant with best working practices and approved RAMS/EMS. Between the SHE Manager/Advisor and Environmental or Ecological Clerk of Works (ECoW) environmental inspections will be undertaken daily. The SHE Manager/Advisor will have the authority to stop work where non-compliant working is observed;

i. Reporting any health and/or safety incidents to Site Management as per a defined reporting procedure (to be defined in the detailed CEMP);

j. Providing health and safety advice to construction managers;

k. Attending all construction progress meetings and providing updates on safety, health and environment performance of construction works. Also ensuring regular discourse with site staff and subcontracted companies on environmental issues;

l. Investigating environmental complaints (in line with agreed procedures, and communication to be in line with the Stakeholder Communications Plan);

m. In conjunction with the Applicant, liaise with government departments, local authorities and other statutory authorities on environmental matters. Obtaining consents and permits, as per Scheme needs; and

n. Ensuring that spill kits are checked at least weekly and kept fully stocked and in good repair.

Environmental Clerk of Works

2.1.5 An ECoW will be appointed for the duration of the construction. The purpose of this appointment is to ensure that the environmental interests of areas that may be affected by the works are safeguarded. The ECoW will have the appropriate authority to review RAMS, oversee works and recommend action as appropriate, including temporarily stopping works where non-compliant working is observed, for example to safeguard protected species and their habitats, or where any other breaches of environmental legislation are likely to occur.

2.1.6 The ECoW will ensure the implementation and compliance with the provisions of the CEMP and the mitigation contained within the ES as well as licensing or other conditions imposed on the construction.

2.1.7 The ECoW may be from a company who provide a general Clerk of Works who can liaise with a team of internal specialists (Technical Specialist Advisors) on specific environmental subjects, for example, ecology, soils, noise, air quality, or pollution where required throughout construction, or a suitably qualified individual.

2.1.8 In summary, the ECoW is responsible for:

a. Inspections of the contractor’s work site to ensure compliance with environmental standards and requirements;

b. Weekly routine audits of the contractor’s compliance with the CEMP – site activities and record keeping;

c. Monitoring or inspection of site activities in response to incidents, breaches of the CEMP or complaints received from a third party;

d. Inspections of works to ensure that environmental mitigation measures incorporated into the design have been implemented; and

e. Implementation of corrective mitigation measures where proposed mitigation results in effects over and above those within any DCO Requirement, or license.

Archaeological Clerk of Works

2.1.9 An Archaeological Clerk of Works (ACoW) will be appointed and will be responsible for monitoring the work undertaken by the Archaeological Contractor. Their role will include:

a. Liaison with the Contractor/Archaeological Contractor and monitoring of construction activities to ensure compliance with the Overarching or Site-Specific Written Scheme Investigation (WSI) and the CEMP;

b. Oversight of the archaeological programme (in conjunction with the Archaeological Contractor);

c. Being (alongside the Archaeological Contractor) the principal point of contact for the Curators; and

d. Organising and attend regular site meetings with Curators.

Archaeological Contractor

2.1.10 An Archaeological Contractor will be appointed (by the Applicant or their Contractor) and will be responsible for the delivery of the archaeological mitigation programme, as set out in the Overarching or Site-Specific WSI. This responsibility will include:

a. All on-site and off-site works, including preparation of Site-Specific WSI for each site or operation;

b. Reporting and publication;

c. Oversight of the archaeological programme (in conjunction with the Archaeological Clerk of Works); and

d. Being (alongside the Archaeological Clerk of Works) the principal point of contact for the Curators.

The Land Officer

2.1.11 The Land Officer is responsible for:

a. Discussing/agreeing with landowners and tenants all conditions relating to access, including fencing, gates, access to severed land, stock relocation, reinstatement, drainage, security and the complaints handling procedure with local land owners;

b. Liaison between the Contractor, landowners/tenant farmers, other stakeholders and appointed land officer supplier;

c. Being the first point of contact for any individuals, or agents of people, with interest in land and for all land related matters;

d. Dealing with all matters relating to compensation claims or losses, and complaints, from those with land interests arising as a result of the Scheme; and

e. Attending all construction progress meetings.

2.1.12 This role may be supported by an Agricultural Liaison Officer (ALO) or similar, employed to provide local landowners and those with land-related interests information regarding daily construction activities. The ALO will also assist on activities listed above.

Traffic Safety and Control Officer

2.1.13 If not undertaken by a named member of the Contractor's SHE team, a Traffic Safety and Control Officer (TSCO) may be appointed for the duration of the construction of the Scheme to act as the main point of contact and undertake the following duties in relation to traffic management:

a. Ensure that works are being carried out in accordance with the Construction Traffic Management Plan (CTMP);

b. Check all Traffic Management drawings for compliance prior to issue;

c. Manage applications for any required temporary Traffic Regulation Orders (TRO) in relation to any required road closures, one-way restrictions or partial blocking of the highway, or implementation of temporary speed limits; applications for the introduction of temporary traffic lights; or other notification to the local highways authority;

d. Ensure sufficient resource is available to maintain traffic management on site;

e. Investigating and managing traffic related complaints (in line with agreed Scheme procedures); and

f. Monitor the traffic management schemes and layouts to ensure their effectiveness and safety to workers and public.

Community Liaison Officer

2.1.14 If not undertaken by a named member of the Contractor's team, a Community Liaison Officer will be appointed for the duration of the construction of the Scheme to act as the main point of contact (see Section 2.14).

Site Security

2.1.15 Site Security is responsible for mobilising site emergency contacts in the event of an out of hours incident occurring.

All Other Staff

2.1.16 All other staff will be expected to:

a. Understand and implement procedures relevant to their role as laid out in the CEMP;

b. Conduct their work with a view to reducing the environmental impact of the Scheme and to raise any environmental concerns with the Site Engineer/Manager or SHE Team; and

c. Report all environmental incidents to the Site Manager or SHE Team as soon as possible.

2.1.17 An environmental incident response team is to be identified. They will be trained and competent to attend environmental incidents and provided with appropriate equipment to deal with any reported incident.

2.2 Construction Programme

1.1.2 Subject to being granted consent and following a final investment decision, the earliest construction could start is in 2028. Construction of the Grid Connection Cables is anticipated to require an estimated 12 months (in tandem with Solar PV Site); construction of the solar farm is anticipated to require an estimated 24 months (in tandem with Grid Connection Corridor), with operation therefore anticipated to commence in 2030.

2.3 Working Hours

2.3.1 The core working hours are defined as:

a. Monday to Friday 07.00 to 19.00 (daylight hours permitting);

b. Saturday 07.00 to 13.00 (daylight hours permitting); and

c. No Sunday or Bank Holiday working unless crucial to construction (for example Horizontal Directional Drilling (HDD) which must be a continuous activity) or in an emergency.

2.3.2 Emergency working may extend beyond the core working hours above.

2.3.3 Working hours will be shortened if working would necessitate artificial lighting and, therefore, the working day will be shorter in months with reduced daylight hours. It is not possible to avoid working in the winter period due to the length of construction programme. However, cabling and groundworks will be prioritised during the drier summer months where practicable.

2.3.4 As an exceptional activity, trenchless cable installation via HDD may require 24-hour working, for example to cross the Thorpe Marsh Drain flood defence crossing. The City of Doncaster Council will be notified in advance of any proposed works outside the core working hours identified above.

2.4 Landscape and Ecology

2.4.1 A Framework Landscape and Ecological Management Plan (LEMP) will be produced at the ES stage to provide a framework for delivering the landscape strategy and the successful establishment and future management of proposed landscape works associated with the Scheme. It will set out the short and long-term measures and practices that will be implemented by the Applicant to establish, monitor and manage landscape and ecology mitigation and enhancement (including BNG) measures embedded in the design.

2.4.2 Whilst there will inherently be crossover with the Framework LEMP, the Framework CEMP aims at capturing all construction related mitigation. Mitigation by design and Scheme evolution will be secured in the Design Principles Statement to be submitted as part of the DCO Application.

2.5 Control of Noise

2.5.1 Where on-site works are to be conducted outside the core working hours, it is intended that the Applicant will voluntarily apply for Section 61 consent under the Control of Pollution Act 1974 (Ref. 1), and the Contractor will comply with any restrictions agreed with the relevant planning authorities through that process, in particular regarding the control of noise and traffic.

Compliance with these noise limits will ensure adverse effects are unlikely. Abnormal or emergency construction traffic movements may occur outside of normal working hours. In the event of these occurrences, specific noise mitigation measures will be put in place to reduce potential noise impacts at nearby noise sensitive receptors.

Acoustic Fencing

2.5.2 Temporary/mobile acoustic fence will be used to screen sensitive receptors where noise levels from construction activity may result in significant disturbance. Acoustic barriers are proposed where night-time HDD works are required to take place within 200 m of a sensitive receptor.

2.5.3 Further details on the control of construction noise are presented in Table 3-6.

2.6 Control of Light

2.6.1 Construction works will generally be limited to daylight hours only, with focussed task specific lighting provided where this is not practicable, for example at those HDD locations requiring night-time working. Within construction compounds, task specific and fixed ‘general’ lighting will be installed. Additionally, mobile lighting, such as torches, would be used by the roving security teams during their regular checks and emergency visits (if an alert is triggered).

2.6.2 Outside of core working hours, Passive Infra-Red (PIR) controlled lights (motion sensors) will be used at construction compounds and at welfare areas. The CCTV system will also use Infrared (IR) lighting to provide night vision functionality meaning that no visible lighting will be needed for the security system.

2.6.3 Lighting will be directional with care to minimise potential for light spillage beyond the site particularly towards houses, live traffic, and habitats, and will be designed with reference to the Institute of Lighting Professionals Guidance Notes (in particular GN-8: Bats and Artificial Lighting (Ref. 3) which was produced in collaboration with the Bat Conservation Trust, and GN-1: Reduction of Obtrusive Light (Ref. 4) in so far as it is reasonably practicable.

2.6.4 This includes the implementation of measures such as:

a. Lights installed will be of the minimum brightness and/or power rating capable of performing the desired function;

b. Light fittings will be used that reduce the amount of light emitted above the horizontal (reduce upward lighting);

c. Light fittings will be positioned correctly, inward facing and directed downwards;

d. Direction of lights will seek to avoid spillage onto neighbouring properties, highways or waterways;

e. Direction of lights will seek to avoid spillage onto neighbouring terrestrial or aquatic habitats for example to avoid potential impacts to migrating and spawning fish; and

f. PIR controlled lights (motion sensors) will be used except where temporary focussed task specific lighting is required.

2.7 Traffic Management

2.7.1 Traffic management mitigation measures will be set out in a Framework CTMP to be prepared at the ES stage. This will be updated to a detailed CTMP prior to construction and agreed with the relevant highways authorities, and secured via the DCO.

2.7.2 Initial investigation of accessibility in relation to Heavy Goods Vehicles (HGV) and abnormal indivisible loads (AIL), including Swept Path Analysis (SPA), has been undertaken to ascertain the feasibility of required manoeuvres by these vehicles on a number of potential access routes. The need for additional works such as localised carriageway widening, passing places, junction improvements and associated vegetation removal to achieve appropriate visibility splays is also being assessed and will be determined as the Scheme design develops.

2.7.3 During construction, the appointed Contractor will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised by implementing the measures set out in the detailed CTMP.

2.7.4 All construction access will be confirmed as the Scheme design progresses and in consultation with National Highways and the local highway authorities. Currently existing accesses are proposed for construction access to the Site where this is practicable.

2.8 Off Site Delivery Routes

2.8.1 The detailed CEMP would provide details of the designated routes for HGV and AIL movements and worker car movements, with reference to the CTMP (which will also be prepared as a Framework document at the ES stage). It will also detail any measures designed to reduce travel during peak hours on the local road network. **PEIR Figure 13-3: Indicative HGV Routing** shows indicative HGV routing as defined for the PEIR.

2.9 Parking Provisions

2.9.1 The temporary compounds created within the Site Boundary (see Section 1.3) will include parking provisions. Parking provision will also be provided at the Operations and Maintenance Hub.

2.10 Recovery, Recycling and Disposing of Waste

2.10.1 The Contractor will separate the main waste streams on-site, prior to transport to an approved, licensed third party waste facility for recovery, recycling or disposal.

2.10.2 A Site Waste Management Plan (SWMP) will be prepared which will provide a waste estimate, and specify key responsibilities, reporting and auditing requirements and waste recovery targets. The SWMP will be based on the Framework SWMP to be submitted with the ES and finalised with specific measures to be implemented prior to the start of construction, in accordance with a DCO Requirement.

2.10.3 Waste Duty of Care will be ensured with respect to all waste generated on Site. All waste to be removed from the Site will be undertaken by fully licensed waste carriers and taken to suitably licensed waste facilities and managed in line with the requirements of the Waste (England and Wales) Regulations (2011) (Ref. 5) and the Hazardous Waste (England and Wales) Regulations (2005) (as amended) (Ref. 6). The Scheme will apply the waste management hierarchy, in priority order: prevention, preparation for reuse, recycle, other recovery and disposal.

2.11 Security

2.11.1 Site security during construction will be managed by the Contractor. The erection of the Solar PV Site Perimeter Fencing will be the first stage of construction activities and therefore security fencing will be in place throughout the duration of the construction phase. Any storage of materials will be kept secure to prevent theft or vandalism. A safe system for accessing the materials storage areas would be implemented by the Contractor.

2.11.2 Temporary CCTV will be installed at strategic locations during construction (until the permanent system is installed) – for example to monitor construction compounds and accesses into the Solar PV Site. The CCTV will use thermal imaging and IR lighting to provide night vision functionality meaning that no visible lighting will be needed for security.

2.12 Responding to Environmental Incidents and Emergencies

2.12.1 Prior to construction, the 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.

2.12.2 The plan 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.

2.13 Good Practice

2.13.1 The Considerate Constructors Scheme (CCS) (Ref. 7) would be adopted to assist in reducing pollution and nuisance from the Scheme, by employing good practice measures which go beyond statutory compliance.

2.14 Public Consultation and Liaison

2.14.1 Prior to commencing works, the Contractor will develop and implement a Stakeholder Communications Plan that includes community engagement and will detail a complaints procedure. In line with the Stakeholder Communications Plan, a display board will be installed on-site, and a website will be set up. These will include contact details for the Site Manager or alternative public interface with whom nuisance or complaints can be lodged, and the head or regional office contact information. A logbook of complaints will be prepared and managed by the Site Manager or nominated representative.

2.14.2 Any environmental complaints received will be investigated, with appropriate action taken and recorded, so that a full audit trail is available should the complainant raise the issue(s) with the local authority.

2.14.3 A Community Liaison Group would also be set up prior to construction and a Community Liaison Officer (or alternative) would be appointed to lead discussions with local communities during construction.

3. Mitigation and Monitoring

3.1 Purpose

3.1.1 This section of the Framework CEMP sets out the mitigation and management measures to be included as a minimum in the detailed CEMP. It also illustrates how the monitoring strategy will be set out and the responsible party identified for each mitigation/enhancement measure or monitoring requirement. This section will be updated for the ES and again following consent when the Framework CEMP is updated to a detailed version.

3.2 Climate Change

Table 3-1: Climate Change

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Greenhouse Gas (GHG) emissions from construction traffic (including vehicles on site and transportation of materials) and end embodied emissions of materials and products. Extreme rainfall events leading to surface water flooding. Impact on workers – for example flooding and heatwaves.	Appropriate standard and good practice control measures will be included in the detailed CEMP, which would comprise: a. Adopting the CCS (Ref. 7) to assist in reducing pollution, including GHGs, from the Scheme by employing good industry practice measures which go beyond statutory compliance; b. Encouraging the use of lower carbon modes of transport by identifying and communicating local bus and rail connections and pedestrian and cycle access routes to/from the Scheme to all construction staff and providing appropriate facilities for the safe storage of cycles; c. Liaising with construction personnel on the potential to implement staff minibuses and car sharing options; d. Switching vehicles and plant off when not in use and ensuring construction vehicles conform to European Union (EU) vehicle emissions standards for the types of plant and vehicles to be used; e. Conducting regular planned maintenance of the plant and machinery to optimise efficiency; f. Increasing recyclability by segregating construction waste to be re-used and recycled where reasonably practicable;	SHE Manager to record compliance in a logbook. SHE Manager to monitor weather forecasts and flood alerts.	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	g. Designing, constructing and implementing the Scheme in such a way as to minimise the creation of waste; h. Where practicable, maximising the use of alternative materials with lower embodied carbon such as locally sourced products and materials with a higher recycled content; i. Storing topsoil and other construction materials outside of the 1 in 100-year floodplain extent (Flood Zone 3), as far as reasonably practicable; j. Named person(s) (likely the Safety, Health and Environment Manager/ECoW) to monitor weather forecasts and receive of Environment Agency flood alerts. This will allow works to be planned and carried out accordingly to manage extreme weather conditions such as storms and flooding; and k. Health and safety plans developed for construction activities will be required 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.		

3.3 Cultural Heritage

Table 3-2: Cultural Heritage

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Temporary impacts on the setting of heritage assets during construction associated with increased visual and noise intrusion.	Physical impacts to known heritage assets within the Site Boundary have been avoided by the Scheme design, where practicable. Fields immediately surrounding the listed buildings at Fenwick Hall Farm and Lily Hall, and the Scheduled Monument Fenwick Hall moated site, have been excluded from the Scheme. Heritage Buffer Areas have been applied to the field adjacent to the Scheduled Monument Fenwick Hall moated site and areas of archaeological interest identified from the geophysical survey that may be associated with heritage assets. The Scheme has been designed to avoid or minimise potential changes to the setting of designated heritage assets through the retention and enhancement of existing hedgerows. The planning of construction traffic routes and modes of transport has sought to reduce impacts to numerous receptors, including heritage assets. The Contractor will incorporate into the detailed CEMP the measures for managing cultural heritage during the construction phase, as set out in the WSI. These measures will include, but not be limited to:	None	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	a. Methodology for how buffer zones around heritage assets are to be maintained during the construction phase to achieve successful preservation of archaeological remains; b. Inclusion of heritage management measures in site inductions and Toolbox Talks; and c. Measures for minimising impacts to heritage assets arising from noise, vibration, light and dust intrusion during construction activities.		
Potential direct impacts on buried archaeological remains	A programme of evaluation trenching based on the results of the geophysical survey will be carried out prior to ES submission to further characterise archaeological assets likely to be impacted by the Scheme and to ground truth the geophysical survey results. Potential direct impacts on buried archaeological remains will be managed through a programme of additional mitigation which includes preservation in situ, archaeological investigation and recording, archaeological monitoring and a protocol for dealing with unexpected archaeological discoveries during construction. The guiding principles and methodology for the planning and implementation of the archaeological mitigation will be set out in an Archaeological Mitigation Strategy which will be agreed with the archaeology officer for City of Doncaster Council. The Overarching WSI will include a requirement for Site-Specific WSI to be produced by the Applicant's Archaeological Contractor to achieve the mitigation	Once the Overarching WSI is agreed, this document will establish the objectives for the historic environment works and set out the mechanisms for the appointed archaeological contractor to design the investigation, undertake evaluation, analysis, reporting and deposit the archive prior to construction.	The overall responsibility will be with the Contractor and ACoW. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	measures. The Site-Specific WSI will be agreed with archaeology officer for City of Doncaster Council prior to the commencement of the archaeological works.		

3.4 Ecology

Table 3-3: Ecology

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Potential to introduce/spread invasive non-native species beyond the Site Boundary during construction of the Scheme through vehicles/machinery and people.	Pre-construction surveys will be undertaken where required to provide an update on the presence and location of any INNS that could be impacted by the Scheme, the findings of which will inform the implementation of measures to prevent their spread. A Biosecurity Plan prior to construction (secured through DCO Requirement) will set out procedures to ensure that no invasive species are brought onto or exported out of the Site (e.g. Wildlife and Countryside Act 1981 (as amended) Schedule 9 species). In the event that any future infestations of invasive non-native species are identified prior to and or during the development process, exclusion zones will be established around them, and a suitably qualified ecologist contacted for advice as required. Site/species specific	Pre-construction site walkovers will be undertaken in advance of mobilisation/any potential advance works to re-confirm the ecological baseline conditions and to identify any new ecological risks, and any INNS present within the Site. Ongoing monitoring of habitats and species will be undertaken throughout construction, over seen by an appointed ECoW of suitable qualifications and experience, or in charge of a team of appropriately qualified ecologists. The ECoW will have the appropriate authority to review RAMS, oversee works and recommend action as appropriate, including temporarily stopping works where non-compliant working is observed, for example to	ECoW. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	method statements (or similar) will be prepared as required.	safeguard protected species and their habitats, or where any other breaches of environmental legislation are likely to occur.	
Potential for obtrusive glare and light spill to impact on ecology.	Controls on lighting/illumination to minimise visual intrusion and potential adverse effects on sensitive ecological features (e.g. water bodies, watercourses, woodlands, hedgerows and individual trees) will be implemented as far as reasonably practicable (see Section 2.6).	The SHE Manager/ECoW will undertake site checks as required, including for lighting.	SHE Manager and ECoW. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.
Potential for spillages to enter watercourses and impact ecology, noise and vibration disturbance to species, dust deposition on sensitive ecological features.	The design of the Scheme will comply with industry good practice and environmental protection legislation during construction e.g. prevention of surface and ground water pollution, fugitive dust management, noise prevention or amelioration. Table 3-4 specifies mitigation requirements in relation to the prevention of spillages and water pollution. Table 3-6 specifies mitigation requirements in relation to noise and vibration. Table 3-9 specifies mitigation requirements in relation to air quality (including dust emissions).	The SHE Manager/ECoW will undertake site checks as required.	SHE Manager and ECoW. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Prior to construction, the Contractor will develop an EMP (see also Section 2.12 and Table 3-4). With the exception of open trench crossing and HDD of watercourses for cable installation, where required, no works will be undertaken within at least 10 m of watercourses and ponds which is considered sufficient to mitigate for potential hazards such as chemical and soils spills to avoid potential direct impacts to watercourses and any protected/notable species that use them. The detailed CEMP would also specify requirements for the safe storage of chemicals/other hazardous materials (e.g. fuel) reaching watercourses during flood events during construction.		
Disturbance to species during HDD operations.	All cables installed through HDD will be installed at an appropriate depth below the bed of watercourses. A hierarchy of mitigation measures for HDD activities will ensure that where required, HDD activity noise effects (disturbance to species and habitats) will be reduced as far as reasonably practicable. This hierarchy includes (but is not limited to) the potential for the use of quieter equipment than listed in **PEIR Volume III Appendix 11-4:**	None.	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Construction and Operation Noise Modelling.		
Removal of vegetation present within the Site.	Habitats supporting the majority of breeding bird species throughout the Site, such as hedgerows and woodland areas, will be retained. Habitats of value to reptiles will be retained and avoided and sensitive vegetation clearance, under the assumption of reptile presence, will be adopted to displace reptiles into adjacent habitats and ensure no mortality occurs. Vegetation clearance will be undertaken in advance of construction and at an appropriate time of year, where necessary, so as to avoid the nesting bird period (i.e. March to August, inclusive) and minimise incidental injuring or killing of animals such as Brown Hare and reptiles. Where vegetation clearance within the nesting bird period is unavoidable, vegetation will be checked for the presence of any nests by a suitably experienced ornithologist, prior to removal. If active nests are found, appropriate buffer zones will be put in place and the area monitored until the young birds have fledged.	None.	ECoW. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.
Clearance or damage of habitat to facilitate	The following measures will be implemented during construction to protect	Updated species surveys, including but not limited to bats, breeding and	ECoW.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
construction – resulting in temporary or permanent reduction in habitat extent and potential direct and indirect effects on associated species.	retained vegetation, designated sites, protected species and other areas of biodiversity value from disturbance, and damage: a. Where cables are installed beneath watercourses/ditches by open cut techniques, habitats will be reinstated. Crossings for access will avoid the creation of new culverts and will be of sufficient width to avoid the loss of in-channel and banks; b. Where practicable, existing designated sites will be avoided and measures will be embedded within the Scheme design to ensure that they are not impacted during construction and operation, e.g. through siting construction routes away from and out with designated sites and buffer zones; c. Perimeter security fencing required for the Scheme will be implemented early in the construction phase to secure the Site. The fence design will include gaps or suitable gates to allow mammals to pass underneath at strategic locations. The fencing will also prevent construction activity in proximity to retained vegetation, in particular Priority habitats and designated sites within and adjacent to the Site and where required	non-breeding (wintering) birds, otter, water vole and badger, would be completed as appropriate to re-confirm the status of protected species identified, to support protected species licence applications, if required. Such surveys would be undertaken sufficiently far in advance of construction works to account for seasonality constraints and to allow time for the implementation of any necessary mitigation, prior to construction. Additional surveys may be required during the advance works, site clearance and construction phase as advised by the Applicant's ecologist, based on the findings of the updated walkover and protected species surveys, or otherwise as identified as appropriate by the Applicant or their appointed Contractor. Immediately prior to site clearance and the start of construction in each relevant part of the Site, further site walkover surveys would be undertaken by the ECoW (or ecologist) to confirm whether the	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	specific tree protection measures will be implemented, including fencing and construction exclusion zones; d. Preparation of mitigation strategies for protected species and, where required, application for species licences (or the District Level Licence (DLL) scheme with regards to great crested newts (GCN)) from Natural England for translocation of animals away from construction areas sufficiently in advance of the works to meet with the optimum time for mitigation and to minimise any changes to the construction programme; e. Checks for nesting Schedule 1 birds, focussing on barn owl, if the Scheme intersects or passes close to suitable breeding habitats or known breeding locations for these species. Requirements for such surveys would be established at DCO application stage. Measures to prevent disturbance would be required and would be species and site-specific. f. Reasonable avoidance measures, including appropriate buffers (of up to 30 m) around any identified active badger setts (if present), or trees with bat roost suitability (a buffer of 15 m) where practicable throughout the	risks remain as previously assessed and/or to confirm the correct implementation of impact avoidance measures (e.g. protected species stand-offs). The scope of the required walkovers would be defined on a case-by-case basis, in consultation with the team, or other relevant statutory consultees as necessary, based on the specific risks.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Scheme (e.g. Solar PV Site and along the Grid Connection Corridor). Implementation of measures to avoid animals being injured or killed within construction working areas, through excluding them from such areas and preventing them falling into and becoming trapped in excavations; g. Specific tree protection measures will be implemented, including fencing and construction exclusion zones. Tree Root Protection fencing will be erected around retained trees, in line with 'British Standard BS 5837: Trees in relation to design, demolition and construction – Recommendations' and these undeveloped buffers will be of at least 15 m for individual veteran/ancient trees, 15 m from woodlands, individual trees and hedgerows with trees and at least 5 m from hedgerows without trees; h. Habitats to be temporarily lost or damaged during construction would be fully reinstated on a like-for-like basis at the same location on completion of construction works, where practical. Some habitats would be restored and/or created and managed with the aim of increasing their biodiversity value in the		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	long-term as set out within the Framework LEMP; i. A suitably experienced Ecological Clerk of Works (ECoW) (or similar) will be employed/contracted to advise on relevant environmental commitments, the findings of the updated surveys, protected species licencing requirements and with reference to the relevant programmes; j. Relevant site staff would receive toolbox talks on the ecological risks present, legal requirements and working arrangements necessary to comply with legislation. Toolbox talks would be repeated as necessary over the duration of the relevant works; and k. In line with the Stakeholder Communications Plan, a display board will be installed on-site, and a website will be set up. These will include contact details for the Site Manager or alternative public interface with whom nuisance or complaints can be lodged. A logbook of complaints will be prepared and managed by the Site Manager.		
Effects on protected or notable species	The following precautionary working methods would be employed to minimise potential adverse effects on	The detailed CEMP (based on this Framework document) will set out the monitoring requirements.	ECoW. The overall responsibility will be

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	protected/notable species prior to, and during, construction: a. Precautionary working method statements would be produced to specify working requirements and other impact avoidance measures and would be controlled and implemented through the detailed CEMP; b. Where reasonably practicable, vegetation clearance works would be undertaken outside the bird breeding season; c. Reasonable avoidance measures would be used during clearance of any habitat suitable for reptiles, to minimise the risk of injury/killing including phased clearance of vegetation to gradually reduce suitability for reptiles, thereby encouraging animals to move away from affected areas into adjacent suitable habitat; d. Cleared ground would be maintained in a disturbed state in the run-up to construction commencing to minimise the risk of ground nesting birds attempting to nest on cleared ground; e. Precautionary measures would be implemented to prevent trapping wildlife in construction excavations in order to ensure compliance with animal welfare legislation. All excavations deeper than		with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	1 m would be covered or fenced overnight, or where this is not practicable, a means of escape would be fitted (e.g. battened soil slope or scaffold plank) to provide an escape route should any animals stray into the construction site and fall into an excavation; and f. Precautionary methods of working will be adopted for vegetation clearance within areas where reptiles, notable mammals (e.g. hedgehog, polecat, brown hare, harvest mouse) or amphibians could be present.		

3.5 Water Environment

Table 3-4: Water Environment

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Pollution of surface water or groundwater (and any designated ecology sites that are water dependent) due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals, or through uncontrolled site run-off including dewatering of excavations or piling.	The construction of the Scheme will be undertaken in accordance with standard and good industry practice as detailed below. Where not disapplied through the DCO, there may be the need for a number of secondary permissions for temporary and potentially some permanent works affecting watercourses or groundwater (e.g. flood risk activity permits, water activity permits, land drainage consents, and abstraction licences). It is assumed that all temporary	Temporary drainage will be monitored throughout construction. Specific details will be confirmed in detailed CEMP. Water quality monitoring of potentially impacted watercourses will be undertaken to ensure that pollution events can be detected against baseline conditions and can be dealt with effectively.	SHE Manager. Specific responsibilities to be confirmed in detailed CEMP

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Temporary impacts on the hydromorphology of watercourses from open-cut watercourse crossings or temporary vehicle access as may be required. Temporary changes in flood risk from changes in surface water runoff (e.g. disruption of stream flows during any potential culvert construction works) and exacerbation of localised flooding, due to deposition of silt, sediment in drains, ditches. Potential impacts on groundwater resources and local water supplies (licenced and unlicenced abstractions) and potentially the baseflow to watercourses from temporary dewatering of excavations or changes in hydrology.	works will be carried out under the necessary consents/permits and that the Contractor will comply with any conditions imposed by any relevant permission. **Good Practice Guidance** The following relevant Good Practice Guidance (Guidance for Pollution Prevention (GPP)) methods have been released to date on the NetRegs website (Ref. 8) and are listed below. While these are not regulatory guidance in England where the UK government website outlines regulatory requirements, it remains a useful resource for good practice and will be followed where applicable. The good practice approaches include: a. GPP 1 Understanding your environmental responsibilities – good environmental practices; b. GPP 2 Above ground oil storage tanks; c. GPP 3: Use and design of oil separators in surface water drainage systems; d. GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer; e. GPP 5: Works and maintenance in or near water; f. GPP 6: Working at construction and demolition sites;	Specific details will be confirmed in detailed CEMP. The WMP (to be delivered post-consent secured through a DCO Requirement) will include details of pre, during and post construction water quality monitoring. This will be based on a combination of visual observations and reviews of the Environment Agency's water quality monitoring network. For any open cut crossing installations, regular observations of the watercourses will be required post-works during vegetation re-establishment of the banks, especially following wet weather, to ensure that no adverse impacts have occurred.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	g. GPP 8: Safe storage and disposal of used oils; h. GPP 13: Vehicle washing and cleaning; i. GPP 19: Vehicles: Service and Repair; j. GPP 20: Dewatering underground ducts and chambers; k. GPP 21: Pollution incident response planning; l. GPP 22: Dealing with spills; and m. GPP 26: Safe storage – drums and intermediate bulk containers. Where new GPPs are yet to be published, previous Pollution Prevention Guidance (PPGs) still provide useful advice on the management of construction to avoid, minimise and reduce environmental impacts, although they should not be relied upon to provide accurate details of the current legal and regulatory requirements and processes. Construction phase operations would be carried out in accordance with guidance contained within the following PPGs: a. PPG7: Safe storage – the safe operation of refuelling facilities; and b. PPG18: Managing fire water and major spillages. Additional good practice guidance for mitigation to protect the water environment		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	that the Contractor will comply with includes: a. British Standards Institute (2009) BS6031:2009 Code of Practice for Earth Works; b. British Standards Institute (BSI) (2013) BS8582 Code of Practice for Surface Water Management of Development Sites; c. CIRIA C753 (2015) The SuDS [Sustainable Drainage Systems] Manual (second edition); d. CIRIA C741 (2015) Environmental good practice on site guide (fourth edition); e. CIRIA C648 (2006) Control of water pollution from linear construction projects, technical guidance; f. CIRIA C609 (2004) Sustainable Drainage Systems, hydraulic, structural and water quality advice; g. CIRIA C532 (2001) Control of water pollution from construction sites – Guidance for consultants and contractors; and h. CIRIA C736F Containment systems for prevention of pollution. **Management of Construction Site Runoff** The measures outlined below would be required for the management of fine		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	particulates in surface water runoff that may occur as a result of the construction activities: 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 construction activities. The measures will accord with the principles set out in industry guidelines including CIRIA guidance documents C532 and C648. Measures may include use and maintenance of temporary lagoons, tanks, bunds and fabric silt fences etc. or silt screens as well as consideration of the type of plant used; b. A temporary drainage system will be developed to prevent runoff contaminated with fine particulates from entering surface water drains without treatment. This will include identifying all land drains and water features in the Site and ensuring that they are adequately protected using drain covers, sandbags, earth bunds, geotextile silt fences, straw bales etc., or proprietary treatment (e.g. lamella clarifiers), etc. where required;		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	c. Mitigation measures (see below) will be implemented to control fine sediment laden runoff during wet weather. 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 Contractor in accordance with the pollution prevention principles described herein; d. To protect watercourses from fine sediment runoff, topsoil/subsoil will be stored a minimum of 20 m 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; e. Appropriately sized runoff storage areas for the settlement of excessive fine particulates in runoff will be provided; f. Construction 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 to the nearest		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	public sewer with sufficient capacity for treatment following discussions with Yorkshire Water, or else removed from site for disposal at an appropriate and licensed waste facility; g. Equipment and plant are to be washed out and cleaned in designated areas within the Scheme compound only, where runoff can be isolated for treatment before disposal as outlined above; h. Mud deposits will be controlled at entry and exit points to the Site using wheel washing facilities and/or road sweepers operating during earthworks activities or other times as required; i. Debris and other material will be prevented from entering surface water drainage, through maintenance of a clean and tidy site, provision of clearly labelled waste receptacles, grid covers and the presence of site security fencing; and j. A Water Management Plan (WMP) (which will be produced post consent along with a detailed CEMP) will include details of pre, during and post-construction water quality monitoring. This will be based on a combination of visual observations and reviews of the		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Environment Agency's automatic water quality monitoring network. **Management of Spillage Risk** The measures outlined below will be implemented to manage the risk of accidental spillages within the Site and potential conveyance to nearby water features via surface runoff or land drains. The following measures will be adopted during the construction works: a. Fuel will be stored and used in accordance with the Control of Substances Hazardous to Health Regulations 2002, and the Control of Pollution (Oil Storage) (England) Regulations 2001. Particular care will be taken with the delivery and use of concrete and cement as it is highly corrosive and alkaline; b. 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); c. Any plant, machinery or vehicles will be inspected before every use and		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	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 possible or, if on site, only at designated areas within the Scheme site compound. Only construction equipment and vehicles free of all oil/fuel leaks will be permitted on the Site. Drip trays or plant nappies will be placed below static mechanical plant; d. All washing down of vehicles and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses; e. All refuelling, oiling and greasing of plant will take place above drip trays/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; f. As far as reasonably practicable, only biodegradable hydraulic oils will be used in equipment working in or over watercourses; g. All fixed plant used on the Site will be self-bunded;		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	h. Mobile plant is to be in good working order, kept clean, fitted with plant nappies at all times and are to carry spill kits; i. A WMP (which will be produced post consent) will include details for pollution prevention and will be prepared and included alongside the detailed CEMP. Spill kits and oil absorbent material will be carried by mobile plant and located at high-risk locations across the Site and regularly topped up. All construction workers will receive spill response training and tool box talks; j. The Site will be secure to prevent any vandalism that could lead to a pollution incident; k. Construction waste/debris are to be prevented from entering any surface water drainage or water body; l. Surface water drains on public roads trafficked by plant or within the construction compound will be identified and, where there is a risk that fine particulates or spillages could enter them, the drains will be protected (e.g. using covers or sand bags) or the road regularly cleaned by road sweeper; m. Suitable facilities for concrete wash water (e.g. geotextile wrapped sealed		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	skip, container or earth bunded area) will be adequately contained, prevented from entering any drain, and removed from the Site for appropriate disposal at a suitably licenced waste facility; and n. Water quality monitoring of potentially impacted watercourses will be undertaken to ensure that pollution events can be detected against baseline conditions and can be dealt with effectively. In addition, any site welfare facilities will be appropriately managed, and all foul waste (e.g. from septic tank) disposed of by an appropriate contractor to a suitably licensed facility if it is not possible to connect to the public sewer. **Management of Flood Risk** Construction works undertaken adjacent to, beneath and within watercourses will comply with relevant guidance, including Environment Agency and other guidance documents (e.g. GPP 5: Works and maintenance in or near water). Measures aimed at preventing an increase in flood risk during the construction works include: a. To protect watercourses from fine sediment runoff, topsoil/subsoil will be		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	stored a minimum of 20 m from watercourses on flat lying land; b. Storing topsoil and other construction materials outside of the 1 in 100-year floodplain extent (Flood Zone 3), as far as reasonably practicable; c. The Main Construction Compound along with the northern most temporary Construction Compound will be located outside of areas of fluvial Flood Zones 2 and 3. The eastern most temporary Construction Compound is currently located in Flood Zones 2 and 3. The temporary works will be designed in a way to ensure it is resilient to flooding, whilst also minimise flood risk impacts to third parties through any required mitigation; d. Connectivity would be maintained between the floodplain and the adjacent watercourses, with no changes in ground levels within the floodplain as far as practicable; e. During the construction phase, the Contractor would monitor weather forecasts on a monthly, weekly and daily basis, and plan works accordingly. For example, works in the channel of any watercourses would be avoided or		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	halted were there to be a significant risk of high flows or flooding; and f. Named person(s) (likely the SHE Manager or ECoW) to monitor weather forecasts and receive of Environment Agency flood alerts ('Floodline' warning service). This will allow works to be planned and carried out accordingly to manage extreme weather conditions such as storms and flooding. This information would be immediately passed to site offices and supervisors. The Contractor would be required to produce an Emergency Response Plan (ERP) as part of the detailed CEMP which would provide detail of the response to an impending flood and include: a. A 24-hour availability and ability to mobilise staff in the event of a flood warning; 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 Site may be flooded; c. Details of the evacuation and site closedown procedures;		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	d. Arrangements for removing any potentially hazardous material and implement more stringent protection measures; 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. If water is encountered during below ground construction, suitable de-watering methods would be used. Any groundwater dewatering required in excess of the exemption thresholds would be undertaken in line with the requirements of the Environment Agency (under the Water Resources Act 1991 as amended (Ref. 9)) and the Environmental Permitting Regulations (2016) (Ref. 10); and g. 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. **Staff Awareness and Training**		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	The Contractor will ensure that construction staff are fully aware of the potential impact to water resources associated with the construction works and procedures to be followed in the event of an accidental pollution event occurring. This would be included in the site induction and training, with an emphasis on procedures and guidance to reduce the risk of water pollution. **Watercourse Crossings: HDD** Underground non-intrusive, or trenchless techniques, such as HDD, would be used to install some sections of cables beneath watercourses, and would be at a suitable depth to avoid impacting the channel or the bed, subject to design and ground conditions. Mitigation measures would include: a. Site specific risk assessment required at each crossing location in order to minimise groundwater interactions where practicable; b. Where practicable, construction activity will avoid flood defence embankments; c. A site-specific hydraulic fracture risk assessment would be developed prior to construction following further investigation of specific ground		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	conditions at the crossing locations, and appropriate mitigation developed in line with best construction practice. There is also a need to manage drilling muds and wastewater so that this would not be spilt into the channel when working close to the banks of a watercourse; d. Any wastewater/drilling products that are not recycled will be stored and removed from the Site by a suitable waste management contractor and disposed of at a licenced wastewater facility; e. The send and receive pit excavations for drilling/boring will be located at least 10 m from the watercourse edge under which they would be directional drilled; f. The exact dimensions of the send and receive pits would be determined by site and ground conditions but will be kept to a safe minimum in terms of length, width and depth; g. A shoring system appropriate to the ground conditions will be used as appropriate to minimise water ingress into the pits. This may be timbers, sheet piling, or a modular system and would be chosen based on suitability for the site conditions; h. The ingress of any groundwater will be carefully managed through design of the		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	send or receive pit, shoring method, and a pumping and treatment system where required. Excessive ingress of water would make the pit unsafe and thus it is important that ingress is minimised and that a suitable system of managing that water is implemented; and i. Once the cable is installed beneath the watercourse the pits and any cable trenches will be backfilled to the original ground level and seeded to reduce the risk of runoff and fine sediments entering the watercourse. The water column above the drill path must be continuously monitored during drilling. Should drill fluid leak into a watercourse, the drilling/boring operation would be suspended, remediation action implemented, and subsequently the methodology for that crossing re-evaluated. **Watercourse Crossings: Open-cut installation** Open-cut would be used to install cables in trenching up to 1.4 m in depth. Mitigation measures would include: a. Where underground techniques are not feasible, crossings will be installed using open-cut, or intrusive, techniques. In such cases, water flow would be		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	maintained (e.g. by over-pumping or fluming around the works). b. A pre-works morphology survey of the channel of each watercourse to be crossed will be undertaken prior to construction. The pre-works survey is to ensure that there is a formal record of the condition of each watercourse prior to commencement of works to install cables beneath the channel; c. At this stage it is assumed that where open-cut crossings are required that water flow would be maintained by damming and over pumping or fluming. Works will be carried out in the drier months where practicable as this would reduce the risk of pollution propagating downstream, particularly in the case of ephemeral watercourses; d. Once the watercourses are reinstated, silt fences, geotextile matting or straw bales should be used initially to capture mobilised sediments until the watercourse has returned to a settled state; e. Watercourses will be reinstated as found and water quality monitoring will be undertaken prior to, during, and following on from the construction activity; and		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	f. Regular observations of the watercourses will be undertaken post-works during vegetation re-establishment of the banks, especially following wet weather, to ensure that no adverse impacts have occurred. **Access Track Crossings of Watercourses** Access tracks will be constructed across the Solar PV Site, these are to access the Field Stations, the BESS Area, the On-Site Substation and the Operations and Maintenance Hub. Mitigation measures include: a. The internal road layout will be designed to avoid drainage ditch and watercourse crossings wherever possible; b. Existing watercourse crossing locations have been utilised to avoid the need for new crossing locations where practicable. The access track design round the Site utilises an existing culvert over the north tributary to Fleet Drain to cross from field NE6 to NE8. There are three areas labelled as Bridge Options where the access track will cross Fenwick Common Drain (two No.) and south tributary to Fleet Drain, west of Riddings Farm. The second Fenwick		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Common Drain Bridge Option is in the area of the confluence with Fleet Drain; c. Where new culverts are installed, the least impacting design that is reasonably practicable will be adopted (e.g. arch rather than box, rather than pipe culverts). If new culverts are required or existing culverts widened, compensatory mitigation may be necessary through enhancement of the watercourse upstream and downstream of the culvert for a commensurate length. This would be determined in consultation with the Environment Agency, the City of Doncaster Council and Danvm Internal Drainage Board, as appropriate; d. As part of the Scheme a section of culverted Fleet Drain would have the culvert removed. This current culvert is located on Fleet Drain east of Fenwick Hall; e. Depending on the design of any watercourse crossings, floodplain compensation may be required on a 'like for like' and 'level for level' basis. Alterations to surface water flow pathways will be considered and, if necessary, mitigated. In the event that open span crossings are installed, these		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	will be designed to ensure no increase in flood risk; and f. More detail on the watercourse crossings by access tracks will be known, and assessed fully, at the ES stage. The temporary access track crossings of watercourses are assumed to be culverts as a worst-case scenario for assessment purposes at this stage.		

3.6 Landscape and Visual Amenity

Table 3-5: Landscape and Visual Amenity

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Loss of existing landscape features e.g. vegetation Visibility of construction activities	The Scheme has been designed, as far as practicable, to avoid adverse effects on the landscape and views through option identification, selection of locations of structures, landscape characteristic enhancement and refinement. These principles have been embedded in the design in order to mitigate potential adverse effects and maximise the delivery of local landscape benefits. The Framework LEMP (to be submitted with the DCO Application) will set out the measures proposed to mitigate the potential impacts and effects on	A High-level Tree Survey Report, including site walkover survey and detailed tree survey (to BS5837:2012) of any potential ancient and/or veteran tree features is presented as **PEIR Volume III Appendix 10-7: Tree Survey Report**. Further arboricultural survey in line with BS5837:2012 will be undertaken to identify where trees are likely to be affected by the construction works and to inform the development of the detailed design. Such pre-construction surveys would be undertaken in accordance with the LEMP.	Contractor. The detailed LEMP (based on the Framework LEMP as secured through DCO Requirement) will set out roles and responsibilities for implementation. These will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	landscape (and biodiversity) features, and to enhance the landscape and biodiversity value of the Scheme (i.e. the green infrastructure). A detailed LEMP, which takes into account and is prepared in accordance with the principles of the Framework LEMP, will be submitted to and approved by the relevant planning authority (secured through DCO Requirement). Measures proposed include: a. To protect and retain existing trees and vegetation via construction exclusion zones and tree protective fencing (see below Tree Works); b. Lighting at the minimal levels of lux and luminance as necessary during the temporary construction lighting (see below and Section 2.6); c. Landscape and biodiversity management and enhancement measures including replacement tree planting; d. ECoW to ensure that the landscape and ecology requirements of the detailed CEMP are adhered to and that the construction works are monitored; and	Additional surveys may be required during the advance works, site clearance and construction phase as advised as necessary by the Applicant's arboricultural specialist, based on the findings of the tree survey, or otherwise as identified as appropriate by the Applicant or their appointed main Contractor.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	e. An implementation timetable for maintenance and management proposals, including an annual landscaping maintenance plan. **Tree Works** a. The findings of the pre-construction tree survey and Arboricultural Report (**PEIR Volume III Appendix 10-7: Tree Survey Report**), accompanied by an Arboricultural Method Statements, where construction works are likely to affect trees, will be taken into account by the appointed Contractor; b. Where works in close proximity to retained trees cannot be practically avoided, these works will be undertaken in accordance with current best practice, defined in British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations; and c. All necessary protective fencing will be installed prior to the commencement of any site clearance or construction works. **Conserving existing vegetation patterns** The layout of the Scheme has been designed to minimise the loss of, and		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	avoid significant impacts on, existing landscape features, where practicable. This includes minimum offsets of: a. 15 m from individual trees (or greater if required by the root protection area); b. 15 m from woodland; c. 5 m from hedgerows; and d. 10 m from watercourses. Where practicable, the layout of the Scheme will use existing farm tracks and field openings as the preferred routes for construction access, minimising loss of hedgerows, where practicable. **Sensitive Design in Relation to Form, Colour, and Materials** a. Details outlining the design principles for the Scheme includes indicative materials, colours and finishes. b. The maximum height of the Solar PV Panels would be 3.5 m. The minimum AGL would be 0.8 m. c. The proposed solar farm perimeter fencing has been designed to minimise its visual prominence. The fence will be a stock proof mesh-type with wooden posts up to approximately 2.2 m in height. **Lighting**		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	The proposed lighting has been designed to avoid and minimise the potential for adverse landscape and visual effects, as described in Section 2.6. **Screening** Existing vegetation along the Site Boundary will be retained and managed where practicable to ensure its continued presence and to aid the screening of low-level views into the Site.		

3.7 Noise and Vibration

Table 3-6: Noise and Vibration

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Vibration due to construction activities causing annoyance at Noise Sensitive Receptors (NSR) and damage to building structures. Construction traffic, plant and machinery noise at nearby NSR.	The following Best Practicable Means (BPM) will be applied, as far as reasonably practicable, during construction works to minimise noise and vibration at NSRs, including, neighbouring residential properties and other sensitive receptors arising from construction activities: a. Ensuring that all appropriate processes, procedures and measures are in place to minimise noise before works begin and throughout the construction programme; b. All contractors to be made familiar with current legislation and the guidance in BS 5228 (Parts 1	A construction noise monitoring scheme shall be developed and agreed with the relevant local authorities following appointment of a Contractor and prior to commencement of construction works. The detailed CEMP would also set out a scheme for the provision of monthly reporting information to local residents to advise of potential noisy works that are due to take place and	To be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	and 2) which should form a prerequisite of their appointment; c. Ensuring that, where reasonably practicable, noise and vibration is controlled at source (e.g. the selection of inherently quiet plant and low vibration equipment), review of the construction programme and methodology to consider quieter methods, consideration of the location of equipment on-site and control of working hours (see Section 2.3); d. Use of modern plant, complying with applicable UK noise emission requirements; e. Hydraulic techniques for breaking to be used in preference to percussive techniques, where reasonably practicable; f. When piling, use of lower noise piling where reasonably practicable; g. Off-site pre-fabrication where reasonably practicable; h. Use of screening locally around significant noise producing plant and activities; i. Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications; j. All construction plant and equipment to be properly maintained, silenced where appropriate, operated to prevent excessive noise and switched off when not in use;	for monitoring of noise complaints and reporting to the Applicant for immediate investigation and action. Further details are to be confirmed in the detailed CEMP.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	k. Loading and unloading of vehicles, dismantling of site equipment or moving equipment or materials around the Site to be conducted in such a manner as to minimise noise generation, as far as reasonably practicable; l. 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; m. Appropriate routing of construction traffic on public roads and along access tracks (see **PEIR Volume I Chapter 2: The Scheme**). Plans will be included in the detailed CEMP; n. Provision of information to local authorities and local residents to advise of potential noisy works that are due to take place; o. Monitoring of noise complaints and reporting 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 Site Manager or alternative public interface with whom nuisance or complaints can be lodged. A logbook of complaints will be prepared and managed by the Site Manager; p. Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use; q. Drop heights of materials will be minimised; r. Plant and vehicles will be sequentially started up rather than all together;		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	s. Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where practicable, loading and unloading will also be carried out away from such areas; t. Noise generating activities near residential properties, such as use of power tools, would be limited to the hours between 08:00 and 18:00 from Monday to Friday and between 08:00 and 13:00 on Saturday (with the exception of activities such as HDD which require continuous working); u. Core working hours on-site will run from 07:00 – 19:00 Monday to Friday and 07:00 to 13:00 on Saturday (see Section 2.3), but will be shortened if working would necessitate artificial lighting and therefore the working day will be shorter in the winter months (with the exception of activities such as HDD which require continuous working); and v. Where high noise generating works are required to be undertaken outside of core daytime working hours, voluntary consent will be sought from the relevant local authority under Section 61 of the Control of Pollution Act 1974 (Ref. 1) for the proposed construction works, excluding non-intrusive surveys. The Section 61 application will set out 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		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	mitigation measures implemented to minimise noise and vibration impacts. As requirements and locations for HDD activities will not be finalised until a contractor is appointed, a hierarchy of mitigation measures for HDD activities is listed below: a. Where practicable, avoid HDD works within 200 m (the distance at which significant effects are predicted at night) of residential receptors (dependent on ground conditions); b. Where HDD activities occur within 200 m of sensitive receptors, the option for open cut cable laying will be explored as an alternative to HDD; c. The potential for the use of quieter equipment than that listed in **PEIR Volume III Appendix 11-4: Construction and Operation Noise Modelling**, will be explored by the Contractor; and d. Depending on the location, plant and timing of works, acoustic fencing will be installed around the drill entry pit/exit pit boundary to screen receptors from noise emission. This mitigation could provide 10 dB of attenuation when the noise screen completely hides the sources from the receiver. Noise mitigation in relation to traffic noise is covered in Table 3-8: Transport and Access.		

3.8 Socio-Economics and Land Use

Table 3-7: Socio-Economics and Land Use

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Disruption to users of Public Rights of Way (changes to journey times, local travel patterns and certainty of routes)	A Framework Public Rights of Way Management Plan will be submitted as part of the DCO Application which will set out how PRoW would be managed during the Scheme construction phase to ensure the safety of users and Site staff.	None	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed Public Rights of Way Management Plan.
Disruption to local residents, businesses and community facilities	Primary mitigation measures are embedded within the Scheme to reduce construction effects (such as noise, air quality, transport, and landscape and visual) which in turn will mitigate the effects on the local community and existing facilities from a socio-economic and land use perspective. Measures to mitigate the effects of visual impacts during construction are outlined in Table 3-5: Landscape and Visual Amenity. Measures to mitigate the effects of construction noise are outlined in Table 3-6: Noise and Vibration. Measures to mitigate the effects of construction traffic are outlined in Table 3-8: Transport and Access. Measures to mitigate the effects on air quality are outlined in Table 3-9: Air Quality.	—	—

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Land take, loss of BMV resource and degradation to soils	Prior to start of construction, a Soil Management Plan (SMP) following the guidance in the Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and other relevant documents such as The Institute of Quarrying's Good Practice Guide for Handling Soils in Mineral Workings and the British Society of Soil Science Guidance Note - Benefiting from Soil Management in Development and Construction, will be prepared (secured through DCO Requirement). This will be based upon the Framework SMP to be submitted with the ES. Damage to the structure, function and resilience of soil resources (and consequent impacts to its ability to support agriculture) will be mitigated by the use of industry standard good practice measures for the stripping, handling and storage of soil materials, in line with the SMP. The following main rules will be observed during all soil handling tasks: a. No trafficking/driving of vehicles/plant or materials storage to occur outside designated areas; b. No trafficking/driving of vehicles/plant on reinstated soil (topsoil or subsoil); c. Only direct movement of soil from donor to receptor areas (no triple handling and/or ad hoc storage);	None	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	d. Soils should only be moved under the driest practicable conditions, and this must take account of prevailing weather conditions; e. Soil handling should not be undertaken during or immediately after rainfall events. Where the 'wet-working' of soils cannot be avoided specific methodologies will be followed. These will be set out in the detailed SMP; f. No mixing of topsoil with subsoil, or of soil with other materials; g. Soil only to be stored in designated soil storage areas, away from watercourses to avoid sediment in runoff; h. Soils of different types to be stored separately. Clear records of the stockpiles (including annotated plans) will be maintained; i. All plant and machinery must always be maintained in a safe and efficient working condition; j. Daily records of operations undertaken, and site and soil conditions should be maintained; and k. Low ground pressure (LGP models) or tracked vehicles should be used where practicable. Soil handling operations will be appropriately supervised to ensure compliance with the SMP to ensure soils are suitable for re-use within the Scheme. The appropriate management of soil		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	resources will maintain soil volumes and quality to prevent loss/lowering of Agricultural Land Classification (ALC) grade between pre- and post-construction and thus potential loss of BMV status. The SMP will be informed by soil and ALC surveys.		

3.9 Transport and Access

Table 3-8: Transport and Access

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Increased traffic flows, including HGVs on the roads leading to the Site. Severance and intimidation associated with increased construction traffic and abnormal loads.	A Framework Construction Traffic Management Plan (CTMP) will be prepared for the ES and form the framework for a detailed CTMP produced prior to construction (secured through DCO Requirement). Details to mitigate impacts from increased construction traffic will be included in these. A list of measures likely to be implemented are provided below: a. Implementing local off-site highway improvements (e.g., verge clearance, hedge cutting and/or carriageway widening) where required to support HGV movements; b. Implementing local on-site highways improvements (e.g. passing bays, localised	None	Named person as Travel Plan Co-ordinator (TBC in detailed CEMP) to oversee management, monitoring and implementation of the individual measures within the detailed CTMP . Other responsibilities are to be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	carriageway widening) where required and stipulated by the Local Highways Authority. c. Utilising internal routes between Solar PV Sites to avoid using the existing road network where practicable; d. Managing the areas where traffic may have to use the road network by providing adequate visibility splays between construction vehicles and other 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 construction traffic will give-way to other users. This will also apply where construction traffic and PRoW may intersect; e. Positioning of suitably qualified banksmen at construction access points to allow all vehicle arrivals and departures to be safely controlled during the construction phase; f. Ensure temporary traffic signals are implemented where necessary across the road network to reflect demand; g. Restricting HGV movements to certain routes as follows: Moss Road – SRN, A19, Moss Road; h. To restrict HGV movements to ensure arrivals/departures between 09:00 and 17:00 to avoid increasing traffic levels on the surrounding		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	highway network during the traditional weekday peak hours; i. Implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the construction phase. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance of HGV routing. In addition, adequate space will be made available within the Solar PV Site to ensure no queuing back onto the surrounding road network occurs; j. Implementing a monitoring system to record the route of all HGVs travelling to and from the Scheme, to record any non-compliance with the agreed routing strategy/delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes and times are followed; k. Construction staff will be directed to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN; l. Encouraging local construction staff to car share to reduce single occupancy car trips. This will promote the benefits of car sharing, such as reduced fuel costs. A car share system will be implemented to match potential sharers and to help staff identify any colleagues who could		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	potentially be collected along their route to/from the Scheme; m. Implementing a shuttlebus service to transfer non-local staff to/from local worker accommodation (assumed minibus capacity of 25), to reduce vehicle trips on the surrounding highway network; and n. Providing limited (but sufficient) on-site car and cycle parking to accommodate the expected parking demand of construction workers for the Scheme.		

3.10 Air Quality

Table 3-9: Air Quality

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Increased nitrogen dioxide (NO_2) and particulate matter (PM_{10}) from on-site and off-site construction vehicle/plant emissions.	**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 Site Boundary. This may be the environment manager/engineer or the Site manager.	Measures in the detailed CEMP will include the implementation of: a. Daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and	SHE Manager. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Increased particulates and deposited dust from Site activities, materials transportation, storage and handling, including use of haul roads.	c. Display the head or regional office contact information. d. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority (the City of Doncaster Council). The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections. **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 City of Doncaster Council 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. d. Hold regular liaison meetings with other high risk construction sites within 500 m of the Site, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes. **Preparing and maintaining the Site**	make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of Site Boundary, with cleaning to be provided if necessary. b. Regular Site inspections to monitor compliance with the DMP: record inspection results, and make an inspection log available to the Local Authority when asked. Increase the frequency of Site inspections when activities with a high potential to produce dust are being carried out and during	

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 possible. b. Erect solid screens or barriers around dusty activities or the Site Boundary that are at least as high as any stockpiles on Site. c. Fully enclose Site or specific operations where there is a high potential for dust production and the site is actives 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. Operating vehicle/machinery and sustainable travel. i. Ensure all on-road vehicles comply with the requirements of the UK/EL NRMM standards, where applicable. j. Ensure all vehicles switch off engines when stationary – no idling vehicles. k. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	prolonged dry or windy conditions. c. Inspection of maintenance schedules for construction vehicles, plant and machinery. d. Inspection and recording procedures relating to the level of traffic movements, use and condition of haul routes.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	l. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced work areas. m. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. n. Implement a Travel Plan (as part of the CTMP that will be submitted with the ES) that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). **Operations** a. 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. b. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where practicable and appropriate. 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. Waste management g. Avoid bonfires and burning of waste materials.		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Earthworks a. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. 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 **Construction** 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. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. **Trackout** a. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Site. This may require the sweeper being continuously in use. b. Avoid dry sweeping of large areas. c. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	d. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. e. Record all inspections of haul routes and any subsequent action in a Site log book. f. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. g. Access gates to be located at least 10 m from receptors where practicable.		

3.11 Glint and Glare

Table 3-10: Glint and Glare

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Potential to impact on residential receptors	Native hedgerows will be planted/infilled and maintained to a height of at least 3.5 m along the southern boundary of Field SE2, along the southwest boundary of Fields SW11 and SW12, and along the southern boundary of Field SW10.	Monitoring of hedgerows will be described in the Framework LEMP.	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

3.12 Ground Conditions

Table 3-11: Ground Conditions

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
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 Site including the possible introduction of new fill materials.	Ground investigation works will be undertaken prior to commencing construction. Results would be reviewed by the appointed Contractor, including any additional investigation or mitigation measures beyond the impact avoidance measures stated here. 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 prior to construction. This will be covered in the site induction or at separate ToolBox Talk ensuring that all staff are aware of and understand its content and the provisions made to contain any leak/spill;	To be included in the detailed CEMP.	The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	e. Should any potentially contaminated ground, including isolated 'hotspots' of contamination and/or potential deposits of asbestos containing materials (ACM), be encountered, the Contractor would investigate the areas and assess the need for containment or disposal of the material. The Contractor would assess whether any additional health and safety measures are required; f. To further seek to minimise the risks of contaminants being transferred and contaminating other soils or water, construction workers would be briefed as to the possibility of the presence of such materials; g. In the event that contamination is identified, appropriate remediation measures would be taken to protect construction 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 construction works 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 will ensure that all material is suitable for its proposed use and would not result in an increase in		

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	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 being obtained from the Environment Agency; l. The Contractor will implement a dust suppression/management system in order to control the potential risk from airborne contamination migrating off-site to adjacent sites; and m. Piling design and construction works will be completed following the preparation of a piling risk assessment. Limited intrusive ground investigation and Generic Quantitative Risk Assessment (GQRA) is proposed to be undertaken prior to construction in the areas of potential contamination, as indicated in the Phase 1 PRA reports (**PEIR Volume III Appendix 14-3: Phase 1 Preliminary Risk Assessment – Solar PV Site** and **PEIR Volume III Appendix 14-4: Phase 1 Preliminary Risk Assessment – Grid Connection Corridor**). A Preliminary Unexploded Ordnance (UXO) Risk Assessment will be obtained from Zetica at the ES stage and will indicate whether a more detailed UXO risk assessment is required. During construction, the Scheme will be undertaken in compliance with Construction Design and Management (CDM) 2015 Regulations.		

3.13 Major Accidents and Disasters

Table 3-12: Major Accidents and Disasters

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
All works will be undertaken in accordance with relevant Health and Safety legislation and guidance. Details of fire, police, emergency services and hospitals will be publicised and included in the site induction. Measures to mitigate the risks of major accidents and disasters are covered in the following tables: Table 3-1: Climate Change; Table 3-3: Ecology; Table 3-4: Water Environment; Table 3-8: Transport and Access; Table 3-13: Telecommunications, Television Reception and Utilities; and Table 3-14: Materials and Waste. A Framework Battery Safety Management Plan will be included with the DCO Application and a detailed Plan prepared prior to construction (secured through DCO Requirement).			

3.14 Telecommunications, Television Reception and Utilities

Table 3-13: Telecommunications, Television Reception and Utilities

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Potential to affect existing utility infrastructure above and below ground as a result of excavation and engineering operations.	Precautionary measures will be included as part of the embedded mitigation for the Scheme, including: a. Locating the Scheme outside of utilities protected zones; b. Reviewing available utilities data/mapping and the use of ground penetrating radar before excavation to identify any unknown utilities; and c. Agreement of construction/demobilisation methods prior to works commencing. Engagement with relevant statutory undertakers is on-going.	SHE Manager to conduct daily monitoring for signage and height barriers.	SHE Manager. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	Additionally, measures in relation to safe working beneath overhead lines will be in place at all stages of the Scheme, for example ensuring adequate clearances are in place when plant and equipment is being moved beneath the overhead lines. It is anticipated that the draft DCO will include protective provisions for the protection of electronic communication networks and utilities.		

3.15 Materials and Waste

Table 3-14: Materials and Waste

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
Potential to impact on sensitive receptors (humans, wildlife and controlled waters) if waste not stored and managed appropriately.	The Contractor will consider the objectives of sustainable resource and waste management and seek to use material resources efficiently, reduce waste at source, reduce waste that requires final disposal to landfill and apply the principles of the waste hierarchy. This would include, where reasonably practicable, segregation of construction materials on-site for appropriate re-use, recycling and recovery, with landfill as a last resort. This would be achieved by a combination of measures, including:	The types, quantities and final destination of waste generated during the construction phase would be identified, measured and recorded through the SWMP. A register of all waste loads leaving the Site would be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste	SHE Manager. The overall responsibility will be with the Contractor. Specific responsibilities will be confirmed in the detailed CEMP.

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	a. The Contractor would prepare and implement a SWMP based on the Framework SWMP; b. All waste transported off site will be transported to the appropriately permitted receivers of such waste; and c. As part of the SWMP, the Contractor would segregate construction waste to be re-used and recycled where reasonably practicable. As the Solar PV Site is relatively flat large-scale earthworks are not expected to be required, and therefore there is not expected to be either a large surplus or shortfall of fill material requiring either export or import from the Solar PV Site. The Contractor will implement the following waste management measures, where practicable, to minimise the likelihood of any localised impacts from pollution or nuisance from waste on the surrounding environment: a. Off-site pre-fabrication, where reasonably practical, including the use of prefabricated structural elements, cladding units, mechanical and electrical risers and packaged plant rooms; b. Damping down of surfaces during spells of dry weather and brushing/water spraying of heavily used hard surfaces/access points across the site as required; c. Burning of waste or unwanted materials (bonfires) would not be permitted;	types, quantities and management methods.	

Potential Impact	Mitigation/Enhancement Measure	Monitoring Requirements	Responsibility
	d. All hazardous materials including chemicals, cleaning agents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas; e. All demolition and construction workers will be required to use appropriate personal protective equipment whilst performing activities on-site; f. Any waste effluent will be tested and, where necessary, disposed of at a correctly licensed facility by a licensed specialist contractor(s); and g. Materials requiring removal from the Site would be transported using licensed carriers and records kept, detailing the types and quantities of waste moved and the destinations of this waste, in accordance with the relevant regulations.		

4. Complementary Plans and Procedures

4.1.1 A suite of complementary environmental plans and procedures will be included as part of the ES to be submitted with the DCO Application. These set out proposed mitigation for the construction phase, and in some cases the operation and maintenance phase, and include the following:

a. Framework Landscape and Ecology Management Plan (LEMP);
b. Framework Site Waste Management Plan;
c. Framework Construction Traffic Management Plan (CTMP);
d. Framework Public Rights of Way Management Plan;
e. Outline Battery Safety Management Plan;
f. Framework Soil Management Plan; and
g. Framework Surface Water Drainage Strategy.

5. Implementation and Operation

5.1.1 The detailed CEMP will set out:

a. An organogram showing team roles, names and responsibilities;
b. Training requirements for relevant personnel on environmental topics;
c. Information on-site briefings and toolbox talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
d. Measures to advise employees of changing circumstances as work progresses;
e. Communication methods;
f. Document control;
g. Monitoring, inspections and audits of site operations; and
h. Environmental emergency procedures.

6. Checking and Corrective Action

6.1 Monitoring

6.1.1 Monitoring and reporting will be undertaken for the duration of the construction phase in order to demonstrate the effectiveness of the measures set out in the detailed CEMP and related construction controls and allow for corrective action to be taken where necessary.

6.1.2 As part of the monitoring process the Contractor will allocate a designated SHE Manager and ECoW, who will be present on Site throughout the construction process and when new activities are commencing. The SHE Manager and ECoW will observe site activities and report any deviations

from the detailed CEMP, along with the action taken and general conditions at the time. The Applicant will be informed of any deviations from the detailed CEMP as soon as possible following identification of such issues. The SHE Manager would also act as day-to-day contact with relevant local authorities and other regulatory agencies, such as the Environment Agency.

6.1.3 During construction, the SHE Manager and ECoW will conduct walkover surveys to ensure all requirements of the detailed CEMP are being met. Action from these surveys will be documented on an Environmental Action Schedule (or similar), discussed with the Project Manager for programming requirements and issued weekly for actioning.

6.1.4 The SHE Manager and/or Project Manager will arrange regular formal inspections to ensure the requirements of the detailed CEMP are being met. Details of monitoring, inspection, and audits to be undertaken will be provided in the detailed CEMP.

6.2 Records

6.2.1 The SHE Manager or Project Manager will retain records of environmental monitoring and implementation of the detailed CEMP. This will allow provision of evidence that the detailed CEMP is being implemented effectively. These records will include:

a. Environmental Action Schedule;

b. Licences and approvals;

c. Results of inspections by SHE Manager/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 detailed CEMP or complaints received from a third party.

6.2.2 The detailed CEMP 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 (for example through detailed civil design or additional data supply or surveys such as pre-construction ecological surveys). A full review of the CEMP will be undertaken as required (at least quarterly) throughout the construction phase.

6.3 Management Review

6.3.1 The detailed CEMP will be signed off on completion of the construction works (by an appropriately qualified person(s) such as the SHE Manager) and will form the basis (in combination with the Framework OEMP) of the Operational Environmental Management Plan which will be developed by the Operations and Maintenance Contractor.

7. References

Ref. 1 His Majesty's Stationary Office (HMSO) (2008). The Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents [Accessed 30 October 2023].

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Ref. 3 Institute of Lighting Professionals and the Bat Conservation Trust (2018). Guidance Note 8 Bats and artificial lighting. Available at: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/. [Accessed 3 January 2024].

Ref. 4 Institute of Lighting Professionals and the Bat Conservation Trust (2021). Guidance Note 1 for the reduction of obtrusive light 2021. Available at: https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2021/. [Accessed 3 January 2024].

Ref. 5 HMSO (2011). Waste (England and Wales) Regulations 2011. Available at: https://www.legislation.gov.uk/uksi/2011/988/contents [Accessed 3 January 2024].

Ref. 6 HMSO (2005). Hazardous Waste Regulations 2005. Available at: https://www.legislation.gov.uk/uksi/2005/894/contents [Accessed 3 January 2024].

Ref. 7 Considerate Constructors Scheme (CCS) (2024) Considerate Constructors Scheme. Available at: https://www.ccscheme.org.uk/. [Accessed 3 January 2024].

Ref. 8 NetRegs (n.d.). Environmental guidance for your business in Northern Ireland & Scotland. Available at: https://www.netregs.org.uk/. [Accessed 3 January 2024].

Ref. 9 HMSO (1991). Water Resources Act 1991. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents. [Accessed 21 February 2024].

Ref. 10 HMSO (2016). The Environmental Permitting (England and Wales) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents [Accessed 21 February 2024].

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