OUTLINE CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN

In respect of

Solar Farm at Land South-East of Stansted Airport, near Takeley, Bishops Stortford

On behalf of

Manchester Airports Group/ Stansted Airport Limited

JCG24487
Outline Construction Environmental Management Plan
1.0
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rpsgroup.com

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Contents

1 INTRODUCTION

1.1 This Outline Construction Environment Management Plan (CEMP) has been prepared to support the development of a 14.3 Megawatt (MW) solar farm on land owned by Stansted Airport Limited (STAL) to the south-east of Stansted Airport, near Takeley, Bishops Stortford ('the site'). The site lies within the administrative boundary of Uttlesford District Council (UDC) and is currently subject to a planning application to the Planning Inspectorate (PINS) in accordance with the provisions of Section 62A of the Town and Country Planning Act (1990).

1.2 This report identifies necessary mitigation measures to reduce or prevent potential effects upon the environment and nearby sensitive receptors during the construction phase of the development.

1.3 This report should be read in conjunction with the Outline Construction Traffic Management Plan (CTMP) submitted with the planning application. Both the CEMP and the OCTMP will be further developed once the appointment of the Principal Contractor for the project has been confirmed and a detailed construction programme has been developed.

1.4 Construction activities at the site shall not commence until such a time as the CEMP has been approved in writing by the UDC[1], to ensure environmental effects are mitigated and controlled appropriately. The approved CEMP shall be adhered to throughout the period of construction activities unless otherwise agreed in writing by the UDC.

1.5 The purpose of this CEMP is to specify the overarching principles and detailed measures to minimise and mitigate the effects of the construction activities associated with the development of the site. It will also ensure that construction activities cause minimum disruption to the local residents and members of the public by achieving a safe and secure working environment. More specifically, the CEMP aims to:

- Ensure that relevant mitigation measures set out in the technical reports as submitted in support of the planning application are implemented during all construction activities;
- Take into account relevant planning policy as specified above; and
- Ensure that relevant legislation, Government and industry standards, and construction industry codes of practice and best practice standards are complied with.

1.6 The CEMP details the environmental controls and procedures that will need to be adopted throughout the redevelopment, thereby providing a tool to ensure the successful management of potential adverse effects as a result of the construction activities. It sets out roles and responsibilities for the management of these controls and procedures, but it should be noted that specific methodologies and procedures will be addressed in the detailed CEMP following the appointment of a Principal Contractor.

[1] A local authority has 8 weeks ("the determination period") to approve the discharge of planning conditions. However, if UDC fails to decide the application within this period, planning conditions are deemed to have been discharged in accordance with the Development Management Procedure Order 2015.

1.7 Liaison with neighbours and interested parties will continue throughout the project, and particular attention will be paid to ensure that residents of Parsonage Road to the west of the site are kept informed of progress and future works on the project.

1.8 The CEMP includes the following:

- Description of the proposed scheme, as well as the site context, identifying receptors that could be affected by any demolition and construction activities;
- Outline of the site preparation, enabling and construction programme;
- Description of the main activities, including the anticipated construction plant;
- Outline of the waste management procedures to be adopted;
- The responsibilities for managing, implementing and monitoring the CEMP;
- Training to be provided and 'site rules' to be adopted;
- Communication, including external reporting and community relations;
- General construction requirements; and
- A description of the potential environmental impacts and required measures for avoiding or minimising these impacts.

1.9 Any changes and/or improvements to the CEMP will be made in consultation with UDC, specifically, the Environmental Health Officer.

2 PROPOSED DEVELOPMENT AND SITE CONTEXT

Site and Surroundings

2.1 The solar installation will be contained within the redline boundary shown in Figure 1 below; totalling approximately 22.5 ha of land lying to the immediate south-east of Stansted Airport and east of Parsonage Road. The land comprises gently sloping open fields interspersed with some hedgerows, ditches and trees. The site and surrounding fields are wholly owned by Stansted Airport Limited (STAL). The land is on a rolling lease to G A Coleman and Partners for crop production but this lease has a termination clause with sufficient notice should consent be granted to allow for the development.

Figure 1: Redline Boundary

2.2 Taking account of the need for on-site trackways and landscaping, together with the desire to preserve and enhance existing hedgerows and other habitats on site, the developable area suitable for solar installation and associated plant is approximately 18 ha. However, this may be further reduced depending in the final design which will be confirmed upon appointment of a contractor/ development partner to STAL.

2.3 To the north of the site is a children's nursery and external play area (High House Nursery), an industrial unit with corrugated metal sheds and yard (McMillan's Engineering) and Hall Road. Beyond the road are two residential properties, a small field and tree belt and an area of hardstanding. Further north lies Terminal Road South and dedicated short-stay airport parking between it and Terminal Road North. Beyond this are the Stansted Airport train station, the airport terminal buildings and the airfield boundary itself. A narrow strip of woodland extends someway south into the site, but this is outside of the redline boundary.

2.4 The site is bound to the east by a drainage ditch and hedgerow line, with two areas of woodland copse and agricultural land beyond. To the southeast is a further drainage ditch or stream and a hedgerow line, with agricultural land immediately beyond. Further south is the A120 (Thremhall Avenue) which adjoins the M11 to the west.

2.5 The site is contained by more agricultural fields to the west which extend to Parsonage Road, joining Coopers End Roundabout to the northwest of the site. Approximately seven residential properties are located mid-way along Parsonage Road, including Le Knell's Cottage and a small cul-de-sac called Coopers Villas, which also includes a commercial property (Essex Flat Roofing Company). A further property (Stansted Guest House) is located towards at the southwest corner of the site. Beyond Parsonage Road to the west are additional agricultural fields, clumps of woodland and Pincey Brook. Further west is the airport's mid-stay car park and car rental village.

Scheme Description

2.6 Once fully built out, the solar farm would have a total rated capacity of approximately 14.3MW (Megawatt peak and Stansted Airport ceiling capacity). However, this means that during the initial 5 – 7 years of operation the site will produce some surplus power, above the anticipated airport demand. The initial surplus supply will be supplied via a "sleeving-in" arrangement to other airports in the Manchester Airports Group (MAG). Following this initial period batteries will be provided to ensure that the output from the installation is retained solely for Stansted's use.

2.7 The proposed development comprises arrays of photo-voltaic (PV) solar panels set out in rows, with a gap of approximately 4m between each row. The panels (or 'tables') will be set with a fixed orientation. The tables will have a maximum height of 3.2m above ground level. The associated infrastructure will include one or more inverter substations (with approximate dimensions of 6m x 3.2m x 3.4m) connecting the PV panels; a centrally located electricity substation building (approximate dimensions 7m x 2.5m x 3m); and battery storage units. The site will also include a circular trackway (of crushed stone, or similar) to access the infrastructure, together with security fencing, extensive landscape screening, CCTV and motion activated security lighting.

2.8 The PV panels will be attached to the metal framework which would be supported either by pile driven or screw foundations, or pre-moulded concrete blocks (shoes). The facility is likely to employ Polycrystalline Silicon PV panels as these are widely considered to be the most suitable technology for solar farms of this nature. The size and configuration of the solar panels will be chosen based on the most appropriate technology available at the time. However, the maximum height of the panels will be 3.2m and they will be configured to provide access for cleaning and maintenance.

2.9 The preferred point of connection is at 'Substation 100' - a 33 / 11kV primary substation within the boundary of the airport. The connection would be achieved through a single radial circuit from

Substation 100 to the Solar Farm; this would be a private cable installed within the verge adjacent to the existing highways and then entering the development site at the north-east corner.

2.10 The proposal also includes various enhancements to the biodiversity of the site, including the retention and enhancement of hedgerows and trees on site, together with other supplemental landscape planting, including restoration of hedgerows/ field boundaries that were previously found on the site. A new linear hedgerow will be provided along the entire western perimeter of the solar farm in order to provide effective screening of residents and users of Parsonage Road to the west. To the south, gaps in the existing hedgerow will be infilled by planting of native trees and shrubs.

2.11 In combination, this rich landscape tapestry will enhance both the aesthetics of the site as well as providing a diverse habitat for small birds, reptiles, invertebrates and other flora and fauna in accordance with the airport's own Biodiversity Strategy and Action Plan.

2.12 The solar farm will supply electricity solely to the airport itself; initially to meet the existing electrical demands of the terminal, airfield lighting, Fixed Electrical Ground Power for aircraft stands, electric vehicles and other plant. However, at an ultimate capacity of 14.3 MW, it has been specifically sized to supply and store electricity to meet the longer term 24hr energy needs of the whole airport campus and to support STAL and its service partners transition towards fully de-carbonising its ground-based operations. Thus, it will offer a 'zero carbon' energy supply in accordance with the airport's Sustainable Development Plan (2015) and related Environment and Energy policies and objectives.

3 CONSTRUCTION PROGRAMME AND ACTIVITIES

Construction Programme

3.1 The proposed solar farm has a maximum theoretical capacity of approximately 14.3 MW of electrical output. The typical build programme for a solar farm of this scale will be between 30 to 40 weeks. As previously stated, the full details of the construction programme and methodology will be developed once the Principal Contractor has been appointed, at which time the CEMP will be updated and agreed with UDC. A plan illustrating the development proposal is shown in Figure 2.

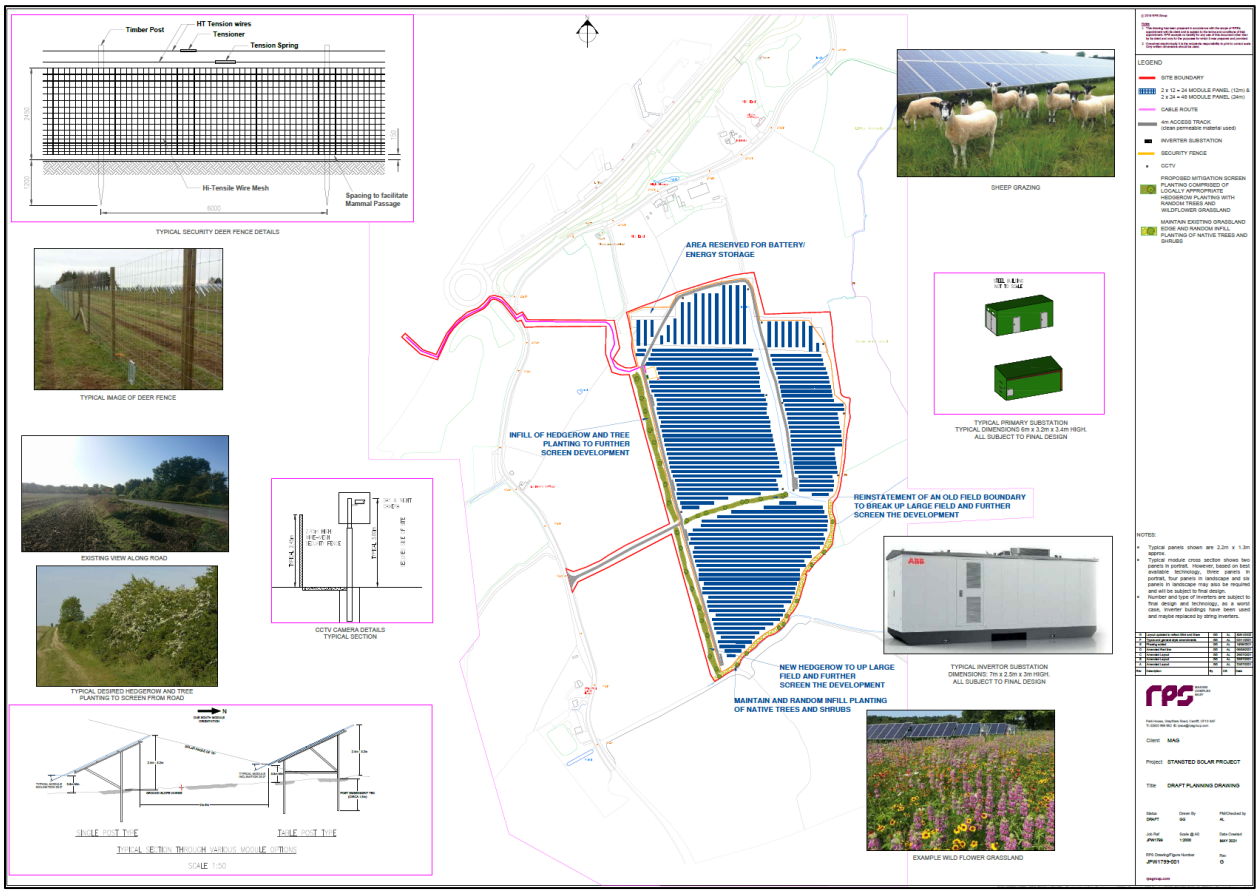

Figure 2: Development Proposal

3.2 The development will require the assembly and erection of ground mounted solar panels and battery storage units. In addition, the works will entail the establishment of a stone access track with geotextile underlay, underground cabling, a grid connection hub and associated infrastructure, landscaping and environmental enhancements. No demolition is required to facilitate the construction works.

3.3 The construction is likely to consist of the following activities:

- Site set-up works including establishment of secure site access, works signage, dedicated laydown area(s) and construction compound;
- Site preparation including soil stripping in areas of temporary hardstanding (e.g. construction compounds) to avoid soil compaction and for the establishment of the access track;
- Laying of stone aggregate to form access track through the site;
- Erection of steel frame mounting systems in rows across the site;
- Fixing of solar panels onto steel frame system;
- Installation of inverter units, battery storage units and transformer cabins;
- Digging of trenches and laying of electrical cables;
- Erection electrical transmission components;
- Installing security fencing around the site and ancillary equipment; and
- Landscaping and biodiversity enhancements.

3.4 The solar farm will have a design life of approximately 25 years. Therefore, eventual decommissioning of the site will include the removal of all equipment and the reinstatement of the land to its current condition.

Considerate Constructors Scheme

3.5 The Principal Contractor will be required to register the site under the national 'Considerate Constructors Scheme' administered by the Construction Confederation on behalf of the Construction Industry Board. This scheme seeks to:

- Minimise any disturbance or negative impact (in terms of noise dirt and inconvenience) sometimes caused by construction sites to the immediate neighbourhood;
- Eradicate offensive behaviour and language from construction sites; and
- Recognise and reward the constructor's commitment to raise standards of site management, safety and environmental awareness beyond statutory duties.

Hours of Work

3.6 It is proposed that the standard working hours for all works on site will be:

- 08.00 – 18.00 Monday to Friday; and
- 08.00 – 13.00 Saturdays.

3.7 Saturday working hours will be limited to 'mindful working' which will reduce any impacts to surrounding sensitive receptors, this will include such activities as site cleaning and clearance ready for work on Monday. Deliveries on Saturdays will be avoided where possible.

3.8 When appointed, STAL and the Principal Contractor will continue communication lines with the nearby residents to define and agree working hours. Warning of works will be made as

appropriately in a timely manner and at least two weeks prior to works commencing. No continuous 24-hour activities are envisaged and any necessary working on Sundays or Bank Holidays will be subject to reasonable notice with prior approval from the UDC. Any change to working hours will be agreed in advance with the UDC Environmental Health Officer.

3.9 These hours will be strictly adhered to unless or in the event of:

- An emergency demands continuation of works on the grounds of safety; and
- Completion of an operation that would otherwise cause greater interference with the environment / general public if left unfinished.

Access and Routing

3.10 In advance of construction activities commencing, routing of the construction traffic will be agreed with Essex County Council, by way of the aforementioned CTMP, that will be submitted in outline prior to the appointment of a Principal Contractor. All detailed traffic related issues will be dealt with within the final detailed CTMP.

3.11 As currently envisaged, the construction access will via an improved simple priority junction with Parsonage Road, located approximately 600m south of the Coopers End Roundabout in the position of the existing gated field access. The existing field entrance will be suitably improved to allow for all Heavy Goods Vehicles (HGV) movements safely to/from the site. In addition, internal access tracks will be required during the construction phase.

3.12 The access tracks around the solar farm will be constructed using a crushed rock / aggregate base laid over a geotextile membrane (or similar) with a finer ‘type 2’ stone and gravel material surface. These tracks will be fully permeable and will not affect on-site drainage.

3.13 It is proposed that construction traffic will access the site via the A120 junctions east and westbound junctions for Stansted Airport that provide access to the Bassingbourn Roundabout, Thremhall Avenue, Coopers End Roundabout and Parsonage Lane that provides access to the site and vice versa. The proposed construction traffic route will ensure that delivery vehicles arrive at the site from the north via the strategic road network (A120 and M11) and use the route to Stansted Airport to access the site. The route avoids vehicles accessing the site from the south via the village of Takeley or the B1256 Dunmow Road. In addition, the routing plan will avoid the villages of Elsenham and Stansted Mountfitchet.

3.14 Temporary signage will be used to direct construction traffic to the site along the proposed construction traffic route utilising existing street furniture (e.g. lampposts).

3.15 Pedestrian access to the site is provided via the footway on the eastern side Parsonage Road. The footway connects to the village of Takeley located approximately 1km to the south of the site. There is no pedestrian connection to connect the site to Stansted Airport to the north of the site and associated public transport facilities. A footpath extends to the mini roundabout that forms the junction of Parsonage Road and Hall Road. However, there are no pedestrian facilities on the airport’s internal road network, so connection on foot beyond the mini-roundabout is not be possible.

3.16 A Delivery Management System will be used to plan deliveries entering the site. The site management will manage this system along with its contractors and a delivery schedule provided

for the banksman to control. Given the low number of construction vehicle movements, and to reduce unnecessary land requirements, articulated and rigid HGVs will utilise the width of the access tracks and management measures will be implemented. Teleporters, or similar vehicles, will be used to offload panels and other equipment from the HGVs and to transport these to the position of installation.

3.17 The type and number of vehicles generated during construction period will vary according to the different stages of the construction programme, and the type and intensity of work being undertaken at the different stages. These are detailed within the Outline CTMP. HGV movements time will also be agreed with Essex County Council and included in the detailed CTMP.

3.18 The Principal Contractor will maintain an up-to-date log of all drivers that will include a written undertaking from them to adhere to use of the approved routes for construction traffic. Directional signage will be implemented to ensure that construction traffic utilises designated routes to minimise the effect on the surrounding road network and forms part of the CTMP.

3.19 Post construction, the solar farm will not require significant maintenance apart from occasional visits made my smaller light goods vehicles.

Security On-site

3.20 Only authorised personnel will be permitted on site. All visitors will be required to enter through the main site access and report to the Construction Manager/Site Manager. All visitors will be required to sign in and out to ensure that site management are aware of the number of people on site in the event of an emergency.

3.21 Visitors will be required to undergo induction training, wear the necessary PPE i.e. safety helmet, hi-visibility attire, safety footwear and will be accompanied by a representative on site at all times.

3.22 The construction site will be checked on a regular basis to ensure that it is maintained in good condition and remains secure. All entrance and exit gates into the site will be secure at all times and the keys positioned adjacent to them to allow personnel to safely evacuate in the event of an emergency. More information will be provided by the Principal Contractor following appointment.

3.23 Banksmen will aid construction vehicles in entering and exiting designated set-down areas. All mobile plant/equipment will be parked safely and locked within a designated area to prevent tampering, and keys to all plant/equipment will be kept in a secured location.

Lighting

3.24 Lighting on construction sites, whether natural or artificial, is essential to health and safety. Poor lighting can represent significant risks to staff members which can result in accident and injury; the quicker and easier it is to see a hazard the better the likelihood of avoiding it.

3.25 As outlined within Section 35 of The CDM Regulations (2015), the development site must be provided with suitable and sufficient lighting, which must be, so far as is reasonably practicable, by natural light. This relates to both the construction site as well as the approach and traffic route to the development site.

3.26 Site lighting will be at the minimum luminosity necessary to enable the safety and security of the construction site. Lighting will be designed to avoid any ocular distraction for pilots on approach to the airport and will consist of flat cut-off glass with no light spill above the horizontal plane. Where appropriate, lighting to site boundaries will be provided and illumination will be sufficient to provide a safe route, albeit no public access to the site will be permitted.

3.27 Where appropriate, lighting will be activated by motion sensors to prevent unnecessary usage. It will comply with the Institute of Lighting Professionals' Guidance notes for the reduction of obtrusive light.

3.28 In determining any temporary construction lighting arrangements for the site, due consideration will be given by the Principal Contractor to sensitive receptors that may experience a nuisance by the light, including wildlife. General control measures for the use of lighting on site are outlined below:

- Temporary site lighting when used adjacent to residential areas must be fixed with a noise screen to keep noise levels to a minimum;
- As far as is practical, lighting must be directed away from residential properties; and,
- Lighting should always be positioned to prevent glare.

4 CEMP RESPONSIBILITIES

Management Structure

4.1 The Construction (Design and Management) Regulations 2015 (CDM Regulations) came into force on 6th of April 2015, replacing CDM 2007. As per the requirements of the CDM Regulations, the developer (STAL) must appoint a Principal Designer and Principal Contractor prior to the commencement of works on site or carry out these duties in respect of the CDM Regulations themselves.

4.2 Responsibility for all environmental issues relating to the development of the site rests jointly with STAL, the Principal Designer and Principal Contractor. Individual responsibilities will be divulged throughout the management team relating to the co-ordination of inspection, monitoring or reporting. The Principal Contractor will have the central role in managing Safety, Heath, Environment and Quality (SHEQ) issues during construction of the development. The Principal Contractor and all sub-contractors will have to implement the environmental control measures set out within this CEMP. Such roles will be finalised at the point of appointment of a Principal Contractor.

5 TRAINING SITE RULES AND COMMUNICATION WITH THE COMMUNITY

Training

5.1 Contractual arrangements will require all contractors to provide suitably qualified staff to manage and execute works for which they are responsible. The Principal Contactor will require that all employees demonstrate an appropriate awareness of local sensitivities, expected code of conduct, working knowledge of the legislation, codes of practice, and guidance relevant to the activities in which they are engaged.

5.2 A training regime shall be implemented to ensure that all staff members, including sub-contractor's personnel, receive focused environmental training to ensure their competence in carrying out their duties on the project.

Site Induction

5.3 The Principal Contractor will operate induction schemes for all personnel to ensure that they are aware of their individual responsibility to comply with the CEMP. The Principal Contractor will be responsible for identifying the training needs of his/her personnel and will ensure that appropriate training is provided. Training will include information on local considerations and the Client's expectations on site behaviour, "toolbox talks" for site operatives to maintain an appropriate level of awareness on health, safety and environmental topics and to advise employees of changing circumstances as work progresses. Records of attendance will be kept also for auditing purpose.

Toolbox Talks and Method Statement Briefings

5.4 Toolbox talks and method statement briefings will be given as the work proceeds and will cover the environmental controls related to specific activities undertaken during the construction; for example, clearance of vegetation, protecting wildlife (including the badger sets to the east of the site), soil stripping and spill response procedures etc. A full register of toolbox talks and method statement briefing attendance shall be maintained on site.

Emergency Procedures and Incident Reports

5.5 Procedures will be implemented to respond to any emergency incidents which may occur on site. In order to ensure that compliance with the requirements of the relevant legislation and to avoid or mitigate against any significant environmental impacts, an Emergency Preparedness Plan (EPP) will be developed by the Principal Contractor following appointment.

5.6 Once completed, all staff will be trained and made aware of the EPP set in place. In the event of any incident the Principal Contractor's Environmental Health and Safety Team will be notified as well as the Client. Additionally, the UDC Environmental Health Department and any other interested bodies will be notified as required.

Training Records

5.7 All training records will be maintained and filed on site. The records shall include the content of the courses (induction and toolbox training), record of attendance and schedule of review.

Site Rules

5.8 The site rules shall be developed to include environmental controls wherever applicable. Site rules should be displayed at the site gate and in any on-site offices or welfare facilities. An initial list of site rules to be implemented on site is provided below; these will be updated and developed further by the Principal Contractor following appointment:

- All personnel visiting or working on site must complete induction training prior to accessing the site;
- All plant/equipment used during the construction activities must be compliant with the Provision and Use of Work Equipment Regulations 1998 (PUWER), maintenance and relevant certificates must be retained on site;
- All substances to be used or handled on site must have the Control of Substances Hazardous to Health (COSHH) assessment available on site for staff members to consult;
- At the end of each working day all means of access, e.g. steps, ladders left in position must be secured/removed to prevent unauthorised persons (especially children) accessing the site and hazardous areas;
- Smoking will be prohibited on site, except in designated areas, and the possession or use of alcohol and drugs is strictly prohibited;
- Site welfare facilities (e.g. portable toilets and canteen facilities) must be maintained for the duration of the demolition and construction activities;
- Standard Personal Protective Equipment (PPE) is required on site at all times, as well as additional Protective Equipment as required for specific works;
- All work areas must have clear, well maintained signage;
- All waste materials must be collected and removed from site at regular intervals;
- No fires will be permitted on site; and,
- Acts of threat or violence will not be tolerated and any offender will be removed and permanently excluded from the site.

On Site Communication

5.9 A full contact list containing names, job titles and contact numbers of the project team members, shall be produced and maintained.

Community Relations

Statutory Authorities and Interested Parties

5.10 The Principal Contractor, in conjunction with the STAL, will be responsible for the liaison on environmental matters with statutory and non-statutory authorities. In particular, liaison with nearby residents, especially those on Parsonage Road, will be required to avoid conflicts of operations, deliveries, removals and other highways matters.

5.11 Where necessary, consultation will be established and maintained with a number of regulatory bodies (e.g. UDC and Essex County Council) with regard to the environmental aspects of this project.

Local Community Engagement

5.12 The Principal Contractor will commit to providing community relations personnel, who will be the first line of response to resolve issues of concern or complaints. Reasonable steps will be taken to engage with local residents and businesses prior to and during construction (such as through the use of newsletters and fliers). Site boards outlining information on the project and forthcoming works will be erected at the entrance to the site. Site contact numbers will be displayed as appropriate, along with the complaints procedure.

Complaints Management

5.13 A formal complaints procedure will be developed; a named construction manager will be responsible for receiving, recording and responding to external complaints and will have their telephone number displayed for quick response to complaints. The complaints will be logged, together with a record of the responses and action taken.

6 ENVIRONMENTAL CONTROL MEASURES BY TOPIC

6.1 The following sections of this CEMP describe the general mitigation control measures to be implemented throughout development, on a topic-by-topic basis, to ensure the protection of the environment from potential adverse effects from the development.

Traffic and Pedestrian Access

6.2 In order to reduce the impact of construction traffic, an outline CTMP, as agreed with Essex County Council (ECC), has been prepared. The final version of this document will need to be approved prior to the commencement of the development. The principal aims of the CTMP are to ensure that the components of the solar farm development are organised and delivered in a manner that avoids or reduces any impacts on local roads and the wider highway network, and safeguards highway safety and amenity to the area surrounding the site. The CTMP provides details regarding site operations, operative staff and traffic generation, traffic management (HGV routing strategy), delivery of plant and materials and contractor staff parking.

Noise and Vibration

6.3 Due to the nature of the activities and construction works it is inevitable that a temporary, albeit negligible, increase in noise and vibration will be experienced in the area immediately surrounding the site. It is possible that local receptors will experience audible, but intermittent, noise from activities on the site including from HGV movements. However, this should be considered against the prevailing noise baseline which is already influenced by traffic and the proximity of the airport to north of the site.

6.4 Best practicable means (BPM) will be applied during construction works to minimise noise and vibration at neighbouring sensitive receptors. BPM are defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990 as those measures which are “reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications”.

6.5 The effects of noise and vibration from construction will be controlled by introducing management and monitoring processes to ensure that BPM are planned and employed to minimise noise and vibration during construction. On appointment, the Principal Contractor will further develop a detailed noise and vibration management plan, where required. All works must comply with BS 5228: Noise and vibration control on construction and open sites Part 1: Noise and Part 2: Vibration. In order to ensure compliance with BS 5228 it is expected that noise monitoring will be required, at a level to be agreed with the UDC Environmental Health Officer.

6.6 If required, noise and vibration levels will be monitored with fixed equipment within at the site boundary. Readings will be recorded and kept on site and made available for review by UDC if requested. UDC will also agree on the measures required should any formal written compliant(s) be received during the construction phase. The following measures will be adopted to reduce noise and vibration during the works:

- Construction works shall be undertaken in accordance with the BPM (as defined in Section 72 of the Control of Pollution Act 1974 (CoPA)), to minimise noise and vibration effects. BPMs may include where reasonably practicable: the use of quieter alternative methods, plant and/or equipment; the use of site hoardings, enclosures, portable screens and/or screening nosier items of plant; and maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous noise from mechanical vibration is kept to a minimum.
- Noise control measures will be consistent with the recommendations of the current version of BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014.
- Site personnel will be informed about the need to minimise noise as well as about the health hazards of exposure to excessive noise. Their training will include advice relating to the proper use and maintenance of tools and equipment, the positioning of machinery on site to reduce noise emissions to neighbouring residents, and the avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment.
- Plant movement will be managed to take account of surrounding noise sensitive receptors, as far as is reasonably practicable.
- All construction equipment will be maintained in good working order and any associated noise attenuation measures such as engine casings and exhaust silencers shall remain fitted at all times.
- Where flexibility reasonably exists, construction activities will be separated from residential neighbours by the maximum possible distances.
- Plant and machinery will be turned off when not in use.
- No music or radios shall be played on site such as to be a nuisance to noise and vibration sensitive receptors.
- Regular inspections of noise mitigation measures shall occur to ensure integrity is maintained at all times.
- Silenced equipment shall be used, as far as possible, in particular silenced power generators if night-time power generation is required for site security or lighting, etc.
- Vehicles shall not park or queue outside residential properties with engines running unnecessarily.

Dust and Air Quality

6.7 The site preparation works will include various activities which have the potential to generate particulate emissions arising from dust, particularly in dry and windy conditions. The main sources of particulate emissions during these activities include traffic and equipment usage, soil and material handling, storage and site preparation.

6.8 The Principal Contractor will be required to control and limit dust, air quality, odour and exhaust emissions during the construction works as far as reasonably practicable and in accordance with BPM. This will include reference to publications on best practice such as the following:

- Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance, Institute of Air Quality Management, January 2014 (IAQM 2014);
- Air Quality Monitoring in the Vicinity of Demolition and Construction Sites, Institute of Air Quality Management, November 2012 (IAQM 2012);
- EU Directive 97/68/EC Requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery (NRMM).

6.9 A number of mitigation methods will be implemented to minimise the nuisance and impact arising from dust. Examples of such measures are set out in the table below, although not all of these will be necessary or feasible for this particular construction project.

Table 1: Dust Mitigation Measures – Examples Taken from BPM Guidance

Sector	Mitigation
Site Management	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site; • Develop a site-specific dust management plan; • Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary; • Display the head or regional office contact information; • Record and respond to all dust and air quality pollutant emissions complaints; • Make a complaints log available to the local authority when asked; • Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the local authority when asked; • Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions and dust (sic) are being carried out, and during prolonged dry or windy conditions; • Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the logbook.
Preparing and Maintaining the Site	• Plan site layout: machinery and dust causing activities should be located away from receptors; • Erect solid screens or barriers around dust activities or the site boundary that are, at least, as high as any stockpiles on site; • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period; • Avoid site runoff of water or mud; • Keep site fencing, barriers and scaffolding clean using wet methods; • Remove materials from site as soon as possible; • Cover, seed or fence stockpiles to prevent wind whipping;

	• Put in place real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly.
Operating Vehicles/Machinery and Sustainable Travel	• Ensure all non-road mobile machinery (NRMM) comply with the standards set within the required guidance. • Ensure all vehicles switch off engines when stationary – no idling vehicles; • Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where possible; • Support and encourage sustainable travel (public transport, cycling, walking, and car-sharing); • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; • Ensure an adequate water supply on the site for effective dust/particulate matter mitigation, such as for wheel washing (using recycled water where possible); • 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. This may include for the deployment of sweepers.
Waste Management	• Reuse and recycle waste to reduce dust from waste materials; • Avoid bonfires and burning of waste materials.
Construction	• Ensure soil, 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.

Visual Impact

6.10 Appropriate controls will be put in place to protect nearby visual receptors, namely local residents, commercial receptors and users of local roads and paths. These include:

- Screening of the construction site with 2.4m high (minimum) protective barriers where necessary and feasible;
- Construction lighting will be positioned and operated to minimise visual intrusion and nuisance; and
- Stockpiles and mounds will be kept away from sensitive receptors and will be enclosed or securely sheeted where appropriate.

6.11 It should be noted that the site is well screened by existing vegetation, so it should not be necessary to install additional screening/ hoarding around most of the site to prevent any visual impacts during the construction works. Additional landscape planting will be introduced to screen views of the site once the solar panels are installed.

Ecology

6.12 The Principal Contractor will ensure that any activities associated with the construction that may have a negative effect on ecology (i.e. through direct impacts on habitats or species, or through exposure to dust air quality and noise) will be monitored and appropriate mitigation measures employed to reduce the impact to acceptable levels. As set out within the Ecological Appraisal which accompanies the planning application, an Ecological Management Plan (EMP) will be produced for the construction works. Further to the EMP, mitigatory measures included within the CEMP include:

- Site walkovers prior to commencement of construction activities;
- The planting of additional trees/ hedgerows as early as feasible within the construction programme;
- Fencing off the site in the area of the badger setts to the east;
- Installation of bird and bat boxes;
- Suitable lighting directed away from potential habitats so as not to disturb birds or bats, and the avoidance of night-working; and
- The undertaking of regular toolbox talks to make sure that construction workers are aware of the importance of avoiding pollution of water courses/ ditches and being aware of all other ecological receptors within and adjoining the site.

Archaeology

6.13 An Archaeological Desk-Based Assessment has been undertaken by RPS which provides details of the site's archaeological potential, potential impacts and proposed mitigation measures.

6.14 The site is considered to have a high potential for Late Bronze Age, Iron Age and Late Iron Age - Early Romano- British archaeological remains, as recorded in previous evaluation trenching works on and adjacent to the Site. The archaeological potential for Anglo-Saxon, post-medieval, and modern remains, besides known former field boundaries, is considered low, and a low to medium potential is identified for the medieval period.

6.15 Excavation of the cable trenches serving the solar farm could give rise to minor, localised impacts on any near surface archaeological deposits which may exist in situ within the site. However, such effects can be minimised or prevented by a programme of archaeological investigation works, the requirement and scope of which will be determined in consultation with ECC and their archaeological advisors (Place Services). Any such work would be undertaken in accordance with a Written Scheme of Investigation (WSI), approved in advance by both ECC and UDC.

Water Resources and Flood Risk

6.16 The appointed Principal Contractor will take precautions during construction activities to protect the local drainage system, nearby watercourses and groundwater from siltation or pollution. Any effluent encountered during the construction phases will not be directly discharged to surface or foul drains without the prior consent of the appropriate body.

6.17 The following additional mitigation measures will be implemented, where applicable, to protect the water environment and surface water quality during all construction activities:

- An Emergency Preparedness Plan (EPP) will be created prior to site preparation activities starting on site and will be reviewed and updated regularly by the Principal Contractor. The EPP will be an up-to-date document containing information on the location of spill response equipment, the location of sensitive receptors (e.g. live drainage systems and watercourses) and the incident response procedure to be followed;
- All staff will be trained and made aware of the EPP set in place. In the event of any incident, the Site Manager will be immediately notified and will coordinate necessary remedial actions. Additionally, the UDC Environmental Health Officer and the Environmental Agency be notified of any significant pollution event (noting that this is highly unlikely to occur given the nature of the works and the lack of hazardous substances used in the construction);
- Spill kits will be on hand to address any minor incidents such as fuel leaks from vehicles. If any fuel, oil or solvents which are temporarily stored on site will be contained within bunds or drum pallets, and covered where possible to prevent the accumulation of rainwater or damage;
- Wheel wash facilities will be provided for vehicles leaving and entering the construction site to prevent the transfer of mud and sediment to the surrounding road system drains;
- The Principal Contractor will take precautions during the construction works to protect the entire drainage system from siltation or pollution, including installing any temporary drainage as required;
- Wastewater generated from construction activities such as dewatering trenches will be disposed of in accordance with relevant legislation and should not be discharged directly to surface or foul drains without appropriate licences in place; and
- Roads and hard surfaces will be kept clean, to prevent a build-up of mud and sediment.

6.18 As the site is not in an area at risk of flooding and the proposed solar farm will not require active drainage or increase the rate of run-off from the site, no specific mitigation measures are required with respect to flood risk.

Ground Conditions, Contamination and Hazardous Material

6.19 The EPP will set out any procedures to deal with contamination if any issues were to arise, including for the negligible risk of historic contamination or buried waste being encountered during the cable trenching works. Therefore, all the workers on-site will be made aware of potential contamination issues on the site and will use best practice techniques during all activities.

6.20 The operation of construction vehicles and the handling, use and storage of hazardous materials will be undertaken as follows:

- Construction vehicles and plant will be regularly maintained and supplied with spill kits and drip trays to reduce the risk of hydrocarbon contamination;

- Refuelling would not be expected to take on site. However, were this to prove necessary, this activity would take place in specified areas with drip trays installed to collect leaks from diesel pumps;
- The handling, use and storage of hazardous materials will be undertaken in line with the current best practice, this includes secure storage of any substances falling under the Control of Substances Hazardous to Health (COSHH) system;
- If necessary, adequate bunded and secure areas will be provided for the temporary storage of fuel, oil, solvents and chemicals, as far away from drainage as possible; and
- Spill containment equipment such as absorbent material will be held on site.

6.21 A member of staff will be nominated to control and monitor the COSHH system (if applicable). Suppliers must send data sheets for every hazardous substance to the site. The assessment information sheet is completed in conjunction with Supervisors and Safety Managers who then brief staff members who will be using the substance, on its safe use, disposal and any emergency procedures. Written records of these briefings will be kept in A COSHH file held on the site.

7 MATERIALS AND RESOURCE USE AND WASTE MANAGEMENT

Waste Management

7.1 Due to the nature of the construction works, very little waste is expected to be generated. In particular, the solar panels and frames will be delivered as pre-packed components that then only need to be assemble in situ. As such, there will be no 'off-cuts' or other waste streams which you would normally find at other construction sites. However, solar farm projects can produce small quantities of the following wastes: cardboard, wood, pallets, paper, plastics (e.g. shrink wrap and banding), metals (typically aluminium), glass, concrete, gravel and waste soil. Most of this constitutes 'packaging waste' which will be returned directly to the suppliers/ manufacturers of the solar farm components. Other waste will be segregated, stored and sent for off-site disposal or recycling.

7.2 The development is likely to require some excavation of soils associated with the construction compound, access roads, cable trenching etc. Where such soil stripping occurs, topsoil and subsoil will be stripped, stored (in a manner that would satisfy STAL from a bird control and aerodrome safeguarding perspective) and replaced separately in order to minimise soil damage and to provide optimal conditions for future site restoration.

7.3 A basic Site Waste Management Plan (SWMP) will be prepared by the Principal Contractor, once appointed. This plan will set the way in waste resources will be managed during the site preparation and construction works. Such a plan will likely include the following:

- Actions to meet the waste hierarchy in accordance with the principles of the Government's "Waste Strategy 2000", and the Site Waste Management Plans Regulations 2008 (since repealed). A principal aim during construction will be to reduce the amount of waste generated and exported from site, whereby the intention is first to minimise, then to treat at source or compact and, finally, to dispose of off-site as necessary;

- Assignment of the person within the Principal Contractor's organisation with responsibility for the SWMP. The Principal Contractor will audit waste carriers and disposal facilities and maintain documentary evidence that these requirements are being met. A register of waste carriers, disposal sites (including transfer stations) and relevant licensing details

- procedures for waste will be sorted into different waste types such as cardboard, timber, metal, plastic for return to the suppliers or disposed of into skips for removal by a licenced waste carrier: and

- Any hazardous materials including solvents and chemicals, will be properly sealed in containers at the end of each day, prior to storage in appropriately protected and bunded storage areas.

8 AUDITING MONITORING AND REVIEW

Environmental Monitoring Programme

8.1 Scheduled monitoring of environmental performance and formal compliance auditing of the CEMP will be conducted as and when necessary. This will enable the overall effectiveness of the environmental mitigation measures and compliance procedures to be assessed and allow areas of underperformance to be identified so corrective actions can be taken. The monitoring programme proposed under this CEMP includes weekly and event-based inspections.

Daily Inspections

8.2 Routine visual inspections will be carried out on all activities and work areas in order to check compliance with this CEMP and regulatory conditions. The results of these inspections shall be recorded on a Weekly Site Environmental Form (WSEF).

8.3 Separately, event-based checks shall be conducted by the Principal Contractor following any significant event such as rainfall of sufficient quantity to generate run off, high winds, the receipt of an environmental complaint, issue of a non-compliance report or any exceedance in monitoring results. Event based checks should be record on a separate inspection form detailing the reasons, observations, findings and outcomes of the inspection which should then be attached to the WSEF.

Incident Reporting and Corrective Actions

8.4 All incidents including actual or potential (near miss) for injury, or damage to equipment, property or the environment will be reported to the STAL and the appropriate regulatory body as soon as practicable after the occurrence. Regardless of how minor the incident appears, it will be reported. An “Incident Investigation Report” will be completed within 18 hours of the event. Prompt reporting will allow an immediate investigation to take place and prevent similar situations occurring.

8.5 The reporting of hazards is the responsibility of all staff and if a hazard or a safety problem is identified, it will be brought to the attention of the Principal Contractor’s Site Manager who will investigate and rectify the situation as soon as practicable.

CEMP Review

8.6 The Principal Contractor will further develop the controls outlined in this CEMP and ensure they are properly implemented and regularly monitored to ensure their effectiveness. Changes to the controls will be instigated if they are not achieving their objectives. The CEMP shall be revised and refined in consultation with the STAL and UDC, as required, to ensure it remains consistent with environmental regulatory requirements and conditions of the planning permission.