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OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN:
KELHAM SOLAR FARM AND BATTERY ENERGY STORAGE SYSTEM

LAND OFF MAIN ROAD | KELHAM

www.thesirusgroup.com

PREPARED BY

PREPARED FOR

Assured Asset Solar 2 Ltd

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CONTENTS

1. INTRODUCTION

1.1 INTRODUCTION

1.1.1 This Outline Construction Environmental Management Plan (OCEMP) has been prepared by Sirius Planning on behalf of Assured Asset Solar 2 Ltd, in support of a planning application for a 49.9MW solar farm and 50MW Battery Storage Energy System (BESS) located between the villages of Kelham (to the east) and Averham (to the south west). The market town of Newark-on-Trent is located approximately 2.8km to the east of the proposal site.

1.1.2 This OCEMP describes how a detailed, site-specific CEMP will be developed to avoid, minimise or mitigate any construction effects on the environment and the surrounding community. This OCEMP covers site activities which may require operational controls in relation to potential environmental impacts and details mitigation measures to minimising risks to the environment.

1.1.3 This Outline CEMP will be monitored regularly throughout the duration of the works to ensure best practice is followed.

1.2 PROPOSED WORKS DURING CONSTRUCTION PHASE

1.2.1 The proposed development is for the construction and operation of a ground mounted solar farm and Battery Energy Storage System, below ground cabling, substations, associated infrastructure and landscape and biodiversity enhancements. The operational life of the proposal will be 40 years.

1.2.2 The application site measures c 71ha, but the proposed deployment area, BESS and substations are located across four fields measuring a total area of 65ha bisected by a Public Right of Way. The site is designated as open countryside in the Newark and Sherwood Local Development Framework.

1.2.3 The principal construction works include:

- Creation of a temporary set down area off Main Road;
- Laying of aggregate to form access tracks;
- Piling of steel frame mounting systems or mounting frames on ballast blocks;
- Fixing panels to steel frame mounted systems;
- Construction of BESS compound and electrical transmission components;
- Concrete base formation for inverters, transformers, substation and cabins;
- Trenching and laying of electrical cables;
- Installing fencing and ancillary equipment including CCTV cameras; and
- Removal of set down areas and the reinstatement of the land as per its current use.

1.3 SITE OVERVIEW

1.3.1 The application site boundary which includes the deployment areas, non-operational land and cable routes measure c.71ha. The site and surrounding areas are rural in nature, characterised by farmland, established hedgerows and woodland blocks. The proposal site can be directly accessed via existing field gates off Main Road to the east or Broadgate Lane to the north.

1.3.2 The villages of Kelham and Averham are the principal urban areas. Kelham is located adjacent to the NE site boundary and Averham is located to the south on the opposite side of Main Road.

1.3.3 The nearest residential properties to the application site, are along Broadgate Lane, located to the northeast of the site's boundary, and to the east is an established plantation beyond which lies a small, gated cul-de-sac of detached dwellings, known as 'The Rutlands'. The nearest non-residential property to the application site is, Kelham House, located beyond the established plantation to the east of the site.

1.3.4 There are no statutory ecological designations within 2km of the application site. The nearest designation is Farndon Pong Local Nature Reserve (LNR), located approximately 2km to the south of the site. There are two Site of Interest of Nature Conservation (SINC), one along the banks of the River Trent approximately 550m to the east of the site and one approximately 200m to the northwest of the

proposal site.

1.3.5 The application site does not lie within any historic environments, however Kelham Conservation Area is adjacent to the eastern boundary of the proposal site. There are numerous Listed Buildings in Kelham and Averham. The nearest Listed Building is the Grade II listed Farm Buildings at Home Farm located within Kelham, approximately 300m to the east of the site. The nearest Scheduled Monument is 'Averham moat and enclosure' located approximately 420m south of the site.

1.3.6 Environment Agency Flood Risk Maps advise that the site is largely within Flood Zone 1, with small isolated pockets of Flood Zone 2.

1.3.7 There is a high voltage overhead power line that run across the north western corner of the site in a northeast/southwest alignment.

1.4 EMEREGENCIES

1.4.1 Procedures for a general response will be included in the Health and Safety Plan detailed to be prepared by the appointed contractor. This will state the chain of command and standby operatives and will be clearly advised to all site operatives. The emergency contact details for the works will be clearly displayed at the site.

1.4.2 A list of all nearby residential properties, downstream abstractors and other sensitive receptors that could be affected by an environmental incident will be compiled by the appointed contractor.

1.4.3 Lessons learnt will be reviewed and imparted to site operatives through safety and environment briefings. The CEMP would be updated/amended where necessary.

1.5 MONITORING

1.5.1 Daily inspections will be carried out on site. Where necessary reporting will record environmental performance and any non-compliances with the detailed CEMP.

2. DETAILED ASPECTS OF THE OCEMP

2.1 SCOPE OF THE OCEMP

2.1.1 The OCEMP has been prepared with reference to the environmental assessments which have been undertaken in support of the planning application, these include; Ecological Appraisal, Noise and Vibration, Flood Risk and Drainage, Heritage and Transport Statement.

2.1.2 **Table 2.1** below identified environmental receptors and summarises potential impacts.

Table 2.1: Environmental Receptors and Potential Impacts

Receptor	Potential Impact
Designated Sites	Physical damage, pollution (water/dust/noise)
Habitats	Physical damage, pollution (water/dust/noise)
Protected Species	Disturbance, movement restriction, habitat loss
Hydrology	Pollution
Hydrogeology	Pollution
Soils	Contamination, erosion and compaction

2.1.3 The OCEMP is structed to address the above potential impacts through the following issues associated with construction works:

- Safety and Security;
- Noise;
- Air Quality;
- Ecology;
- Archaeology;
- Lighting;
- Ground Conditions;
- Contaminated Land;
- Water Pollution;
- Waste;
- Local Community Responsibility; and
- Traffic and Transport.

2.2 SAFETY AND SECURITY

2.2.1 An appointed Site Manager will have the responsibility of Health and Safety on site. Duties may include providing a daily update to a Health and Safety Board identifying potential hazards. All visitors to the site will be required to sign in and adhere to on-site Health and Safety practices. All personnel working on site will be required to wear the appropriate Personal Protective Equipment (PPE) including a high visibility vest or jacket, steel toe cap boots, and a hard hat as well as any other activity-specific safety wear.

2.2.2 Security fencing will surround the site throughout the 40-year operational life of the proposal. It is proposed to erect this fence at the start of construction work to ensure that the site is secure during this phase.

2.3 NOISE

2.3.1 It is proposed that deliveries of materials will be made to the set down area during the following hours:

- Monday to Friday: 0800 to 1800;
- Saturdays: 0800 hours to 1600; and
- Sundays and Bank Holidays: No deliveries.

2.3.2 Deliveries will be carried out within the hours above. Under exceptional circumstances, both working and deliveries outside of these hours may be required however, this would be agreed with the LPA in advance.

2.3.3 The nearest residential properties are located adjacent to the site boundaries to the north and to the east of the proposal site.

2.3.4 Any potential for noise nuisance arising from construction activities will largely be due to vehicle movements, and from plant and machinery operating on site, such as the movement of soils, piling and the construction of infrastructure, solar panels, BESS compound and associated equipment. Excavators, haulage lorries, hydraulic piling, cranes, mobile plant, concrete plant and power tools would all, at some time during the construction programme, be operating.

2.3.5 Noise and vibration impacts associated with the construction works relating to the construction of the infrastructure and associated plant could adversely affect nearby sensitive receptors. However, given the temporary nature of the construction phase noise sources would vary throughout the different stages of the construction period, and for relatively short durations.

2.3.6 To minimise noise impacts the following measures will be implemented:

- Vehicles will be fitted with effective silencers;
- Engines will be turned off when not in use;
- Vehicles will avoid reversing on site to minimise reversing and associated bleepers; and
- Plant and machinery will be maintained in good working order.

2.4 AIR QUALITY

2.4.1 Possible impacts to local air quality only have the potential to occur during the relatively short construction phase through vehicular and plant emissions and through the creation of dust.

2.4.2 The site is not within or near an Air Quality Management Area and proposed traffic generation will not lead to significant vehicle emissions. Excessive dust is unlikely to be generated through anchoring of the frames to the ground as the majority of the frames will be secured by piles that will be pushed into the ground. Excavation is limited to scraping of top and sub soil for proposed tracks, BESS compound and foundations for the inverters, transformers and substation bases and trenching thus minimising the potential for ground disturbance and the entertainment of dust. Vehicle movements on site will be limited to transportation of equipment site.

2.4.3 Measures outlined below are proposed to ensure that adequate mitigation procedures are in place during the construction phase:

- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway;
- Dust generating activities will be minimised during windy conditions where possible;
- Where necessary, loads into and out of the site will be sheeted;
- Soil stockpiles will be covered when left for extended periods;
- Where necessary a dust suppression / water spray system will be available; and
- Implement a dust monitoring scheme.

2.5 ECOLOGY

2.5.1 The application site is dominated by large arable field compartments. Poor semi-improved margins varied between 1m – 6m wide with some scrub and ruderal encroaching from the hedgerows.

2.5.2 No internationally or statutory designated sites for nature conservation interest were located within the 5km of the Site. There are records of five non-statutory sites within 1km of the Site (all Local Wildlife Sites).

2.5.3 The identification of key ecological and nature conservation features and the assessment of the likely

significant effects of the proposed development upon these features are outlined within the Ecology Appraisal presented in **Appendix I**.

2.5.4 The Principal Contractor will comply with relevant legislation for protected species and habitats and should retain habitats intact and undisturbed, and if possible, enhance natural habitats. If it is impossible to maintain habitats in their existing condition, the habitat and species it contains should be relocated / transplanted or restocked to an equivalent or richer ecological status.

2.5.5 Following pre-application discussion with the Local Authority Ecologist, the following detailed species surveys were undertaken:

- Great Crested Newts
- Breeding and wintering Birds

2.5.6 A detailed overview of the ecological baseline conditions is outlined within **Appendix I**. Enhancement and mitigations measures have been designed into the proposed development, designed to avoid and minimise impacts during the constriction and operation of the solar farm and BESS. These include setbacks from boundary features, minimisation of vehicle movements and retention of hedgerows / trees.

2.5.7 The contractor will implement the following measures, to avoid or minimise potential ecological impacts during construction:

- Good site management will be implemented to avoid generation of excessive litter, dust, noise and vibration
- Existing farm access tracks will be used wherever possible
- Establish site boundary by erecting fencing to prevent access to areas outside working areas, particularly in areas adjacent to features of ecological interest / value.
- Workforce will be restricted to working areas through the erection of fencing to prevent additional damage.
- Cover trenches over night to prevent wildlife (for example, badgers) from falling in and becoming trapped resulting in injury or death.
- Restricted night-time working and minimal lighting directed away from retained habitats.
- Temporary lighting would only be required at the set-down areas during construction.

2.6 ARCHAEOLOGY

2.6.1 The Heritage Desk Based Assessment (DBA) (**Appendix L**) identified twelve specific recorded sites of archaeological interest were identified within the development boundary, In addition, the DBA concluded a 'high' potential for further unrecorded activity spanning from the prehistoric to the post-medieval period. Given this, geophysical survey work was undertaken across the site, the results of which are presented in **Appendix M**.

2.6.2 The geophysical survey identified four areas with anomalies characteristic of archaeological features in Fields A, B and C. These anomalies correlated with cropmarks recorded by the National Mapping Programme (NMP) carried out by Historic England.

2.6.3 An extensive programme of evaluation trenching was undertaken during the spring and summer of 2023, which identified a significant amount of archaeology. The results are shown in **Appendix N**.

2.6.4 Where there is known presence of archaeological findings on some parts of the site, consideration will be given for the PV panels to be mounted on ballast blocks to ensure stability of the panels and frames without penetrating the ground and disturbing potential archaeology.

2.7 LIGHTING

2.7.1 During the construction phase it will be necessary to utilise security lighting at the temporary set down areas during hours of darkness. However, efforts will be made to ensure that the lighting will be

directed away from identified site habitats and inward facing. Furthermore, where lighting is required, cowling will be used to ensure light spill is limited to the set down areas.

2.7.2 No lighting is required during the operational phase.

2.8 GROUND CONDITIONS

2.8.1 Potential impacts to the soil resource during the construction phase include movement of vehicles and plant and incorrect soil management, which can cause damage to soil structure through compaction and erosion. This risk increases through soil wetness. The following measures should be followed to minimise adverse impacts on soil:

- No vehicle / plant movements over reinstated soil;
- Where practicable soil handling when soil moisture content is above the plastic limit will be avoided;
- Avoid handling of soils during periods of prolonged, heavy rainfall;
- No mixing of topsoil with subsoil;
- Stabilise newly created surfaces and/or re-vegetate as soon as possible;
- Soil only to be stored in designated soil storage areas; and
- Use machines with low pressure tyres.

2.9 CONTAMINATED LAND

2.9.1 The application site comprises arable fields. There is no known previous use to suggest brownfield land or contamination will exist. It is therefore reasonable to assume that none of the land to which the proposal relates is contaminated.

2.10 WATER POLLUTION

2.10.1 Construction activities may result in both direct and indirect impacts on the water quality, flooding, drainage and the hydrogeology of the site. Potential receptors may include watercourses, surface water bodies, groundwater, floodplains and flood sensitive areas.

2.10.2 Environment Agency Flood Risk Maps advise that the site is largely within Flood Zone 1, with isolated pockets of Flood Zone 2.

2.10.3 Potential impacts to the water environment may include:

- Increased surface water runoff;
- Increased sediment form runoff from rainfall on exposed ground; and
- Chemical and fuel spillages from operational areas.

2.10.4 The Flood Risk Assessment (FRA) (**Appendix S**) confirms that the proposed development is considered "essential infrastructure". Planning Practice Guidance to the NPPF states that 'essential infrastructure' uses are appropriate within Flood Zone 1 after the completion of a satisfactory FRA.

2.10.5 The following measures should be followed to minimise adverse impacts on the water environment:

- In the event of a liquid spill work shall cease immediately in the vicinity, then locate the source of the pollution and stop / contain any further flow if possible. If spillage is flammable, extinguish all ignition sources. Immediately deploy the spill kit and clean up the spill. Used spill kit materials should be disposed of in an appropriate manner.
- The surface water runoff from the hardstanding of the temporary set down areas will be directed to a swale on the hardstanding's lowest boundary. This drainage feature will be removed at the end of the construction stage and the area reinstated.
- Early preparation, seeding and protection to encourage vegetation to established on all bare areas as soon as possible after construction.
- Monitoring the weather and being alert to the implications of wet weather.
- Sewage and foul water drainage will be collected in appropriate collection tanks (toilet blocks) at welfare areas. Regulation collection and disposal of sewage and foul water will be conducted

by a licenced company.

- Any wheel wash facilities will be securely constructed with no overflow and the effluent will be contained for proper treatment and disposal.
- Use cut off ditches to prevent entry of surface water and well point dewatering or cut-off walls for groundwater. The corner of the excavation can be used as a pump sump. Do not allow personnel of plant to disturb water in excavations.

2.11 WASTE

2.11.1 The reduction of waste and the recycling of waste materials is a key environmental consideration during the construction phase. Materials such as packaging, plastic, pallets, metal, residual waste will be segregated and collected from site by a permitted waste management operator. As part of the detailed CEMP a Site Waste Management Plan will be prepared and implemented by the appointed contractor.

2.11.2 The waste management hierarchy prescribes the most sustainable approach to resource management:

- Prevention and Minimisation – Reduce the amount of waste generated at each stage of the project
- Reuse of Waste – Maximising reuse of waste generated on site. This will reduce the quantities of waste transported from site
- Recycling of Waste – Segregating materials for collection and off-site management.

2.11.3 The following measure will be implemented to minimise waste generation during the construction phase:

- Ordering of materials will be on an 'as needed' basis to prevent over supply. Requirement for take / but back surplus stock with suppliers;
- Use of materials pre-cut to length to avoid surplus waste generated on site;
- Use of suppliers that use the least amount of packaging on purchase products;
- Correct storage and handling of goods to avoid damage resulting in unnecessary disposal;
- Ensuring correct sequencing of operations; and
- Use of reclaimed / recycling materials in the construction works.

2.12 LOCAL COMMUNITY RESPONSIBILITY

2.12.1 The Site Manager will manage and co-ordinate on-site environmental activities and act as a point of contact for local residents. Liaison between the Site Manager and local residents will seek to ensure that any concerns are resolved quickly and efficiently.

2.12.2 The Site Manager will be responsible for briefing the Construction Environmental Management Plan to construction staff; fulfilling environmental obligations on site; attending to any on-site environmental incidents or concerns; reporting and monitoring any environmental incidents; and ensuring waste management procedures are followed.

2.13 TRAFFIC AND TRANSPORT

2.13.1 A Transport Statement (TS) accompanies the planning application submission. The TS sets out the predicted transport impact of the proposed development, including the likely trip generating potential of the site, the likely vehicles needing access to the site and how this will be achieved. A Construction Traffic Method Statement (CTMS) is appended to the TS.

2.13.2 Access to the application site is from Main Road (A617) which is an adopted highway which forms part of the eastern boundary of the site. Traffic will approach the site from the east from the A46 which is 4km from the site and a further 2.75km connects to the A1.

2.13.3 During the construction phase a temporary set down area will be provided within the site off Main Road.

2.13.4 A series of vehicle swept-path analyses are shown within the CTMS which demonstrate that the site can accommodate the largest articulated HGVs.

2.13.5 The construction phase would result in the temporary generation of construction and staff related traffic over a 6-month construction period. During this period, there will be approximately 790 HGV deliveries, or 1,580 two-way movements (in and out).

2.13.6 The first month will see the highest deliveries to site at 225 which is the equivalent of a maximum 1 movement every hour.

2.13.7 During the construction period up, to 50 staff will be on-site depending on the phase of the development. Staff will arrive and depart the Development Areas in transit vans with a 'crew cab', with an expected minimum capacity of 6 persons. Given this, there would be approximately 10 vehicles arriving to the Development Areas in a morning and 25 departing in an evening.

2.13.8 All vehicle parking will be provided within the temporary set down area within the development site. There will therefore be no parking on the local highway network.

2.13.9 It is acknowledged that the recommended visibility splays, commensurate with the 85th percentile recorded vehicle speeds, are not achievable when measured to the nearside kerbline.

2.13.10 It is proposed that during the construction period the speed limit will be temporarily reduced to 40mph in the vicinity of the site access. It is further proposed that the existing average speed cameras present along the A617 will be adjusted to monitor vehicle speeds throughout the construction period. An appropriate highway safety signage strategy will be prepared as part of the detailed CTMS, to be dealt with by a suitably worded planning condition, which will mitigate the risks associated with the HGV movements on the surrounding highway network.

2.13.11 Given the trip generation outlined above and the temporary nature of the construction phase, it is expected that the construction of the proposed development will have minimal impact on the local highway network and is therefore suitable.

3. DECOMMISSIONING

3.1 APPROACH TO DECCOMMISSIONING

3.1.1 At the end of the operational phase of the development, the site shall be reinstated to its former use within a year of the last export.

3.1.2 The potential impacts during the decommissioning phase are expected to be similar to those identified for the construction phase. It is therefore recommended that the pre-construction measures set out in this OCEMP should also be applied during the decommissioning stage of the development.

3.1.3 During the decommissioning phase the majority of the infrastructure will be removed from site and recycled. Due to the long-life span of the project, no details of this can be provided at present, however it is recommended that a condition outlining the requirement for a Decommissioning Method Statement is attached to any planning decision.

4. CONCLUSIONS

4.1 CONCLUSION

4.1.1 The purpose of this Outline Construction Environmental Management Plan is to detail appropriate pollution protection technologies that will be adopted by the appointed contractor for the construction of the Kelham Solar Farm and Battery Energy Storage System.

4.1.2 The purpose of this document is to demonstrate the scope of measures that could be put in place during the construction / decommissioning phases to adequately protect the identified environmental resources and sensitive receptors, including human receptors. This OCEMP should be read in conjunction with the Construction Traffic Management Plan.

4.1.3 Following a decision by LPA, this Outline CEMP will be updated in accordance with approved documentation by the appointed contractor prior to any commencement works on-site. The detailed CEMP will be submitted to LPA for approval prior to the start of construction.


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