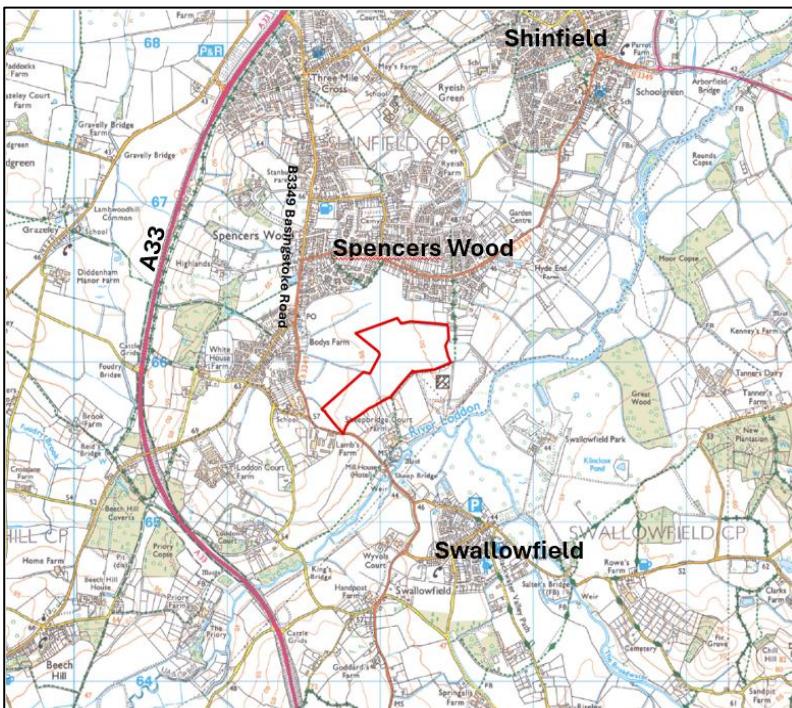


Construction Environmental Management Plan

Spencer Wood Solar Farm,
Land North Of Sheepbridge Court Farm,
Basingstoke Road, Swallowfield, RG7 1PT

Planning permission: 232653

Planning Condition: 9



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CONTENTS

| | |
|---|----|
| DOCUMENT INFORMATION & CONTROL..... | 1 |
| Information | 1 |
| Control | 1 |
| 1. Introduction..... | 2 |
| 2. Scope of thIS CEMP | 3 |
| 3 Construction Risk and Management..... | 4 |
| 3.1 Construction Risk and Management..... | 4 |
| 3.3 Project Ecologist/Ecological Clerk of Works..... | 4 |
| 3.4 Pre-Construction Ecology and Wildlife Surveys..... | 5 |
| 3.10 Pond, Watercourse, tree and Hedgerow protection..... | 6 |
| 3.13 Construction Protection Measures..... | 7 |
| 3.15 Air Quality/Dust/Dirt/Mud Control..... | 8 |
| 3.17 Soil and Water Protection Measures..... | 8 |
| 3.21 Construction Compound..... | 9 |
| 3.22 Waste..... | 10 |
| 3.27 Site Manager and Local Community Responsibility..... | 10 |
| 4. Construction Traffic Management..... | 10 |

DOCUMENT INFORMATION & CONTROL

INFORMATION

| | |
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CONTROL

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Glossary

| | |
|------|--|
| CEMP | Construction Environmental Management Plan |
| CTMP | Construction Traffic Management Plan |
| ECoW | Ecological Clerk of Works |

1. INTRODUCTION

1.1 This Construction Environmental Management Plan (CEMP) sets out the construction practices and environmental protection measures for the development of a solar farm at Land North Of Sheepbridge Court Farm, Basingstoke Road, Swallowfield, RG7 1PT. It describes the construction and environmental protection practices that are proposed for the period of construction activities at the site and has been produced as per the requirements of Condition 9 attached to planning permission 232653.

1.2 There are no sensitive sites such as SSSI's, Ramsar or nationally designated wildlife or nature conservation sites near to the solar farm site. The River Loddon, west of Basingstoke Road is the nearest SSSI. The site comprises fields surrounded by other fields in a relatively level landscape gently sloping downwards to the south and east. The site does not adjoin any waterways and does not drain into the River Loddon. The south-western field has ditches along the east, south and west boundaries and there is one small pond at the extreme south-west corner of the site. These can be dry during the summer period. Adjacent to the south-east is an existing solar farm. The south-west field includes hedgerows with trees along the south and west boundaries. The north perimeter of the site comprises managed hedgerows. There is a belt of trees to the north-east of the site, with the remainder of the east boundary open. There is a concrete track south of the east field, lined with manure heaps and the outside storage of farm equipment. A public rights of way (footpath only) extends along the south boundary (refer Figure 1 below).

1.3 The approved site layout plan with approved access is shown in Figure 1 below:

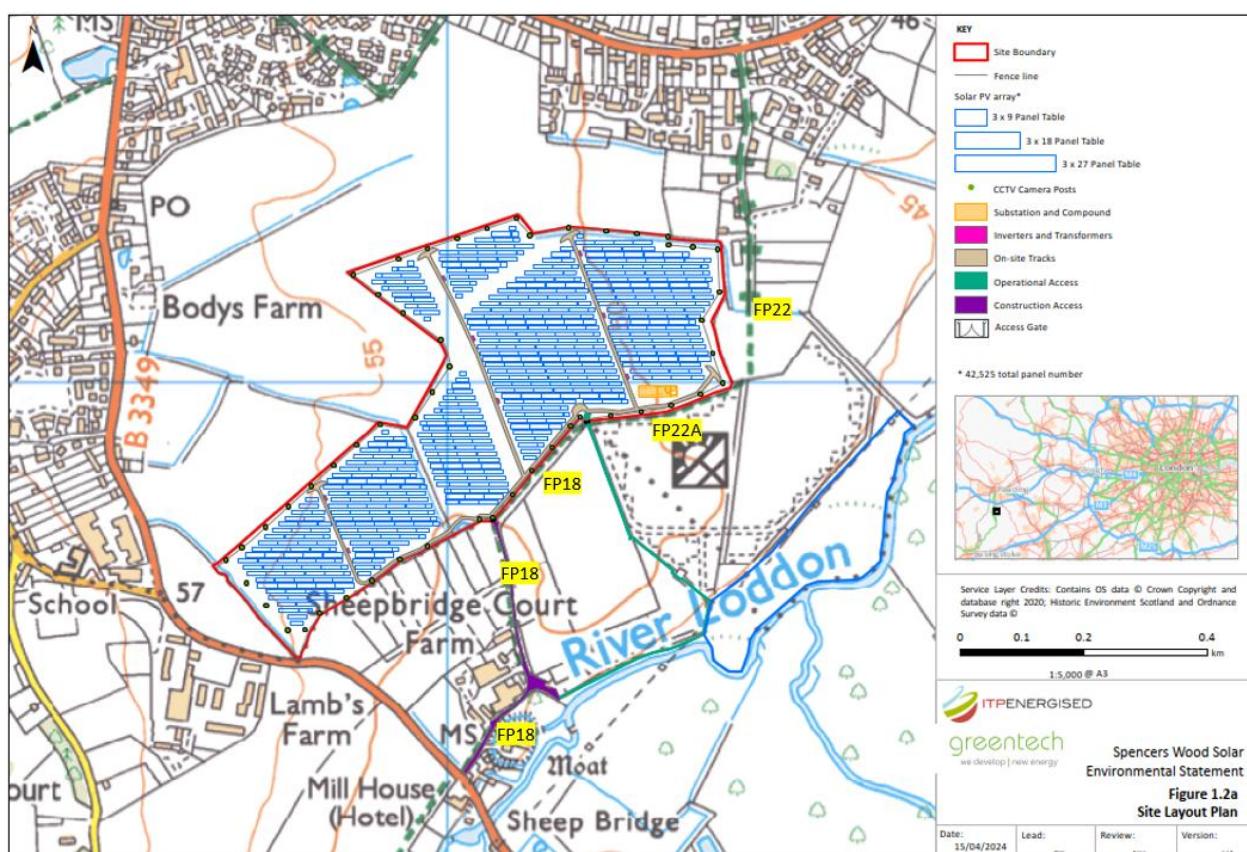


Figure 1: Site Layout Plan

2. SCOPE OF THIS CEMP

2.1 This Construction Environmental Management Plan (CEMP) has been prepared to address the construction, environmental and transport issues associated with the construction of a solar farm at land at Spencers Wood Solar Farm, Land North Of Sheepbridge Court Farm, Basingstoke Road, Swallowfield, RG7 1PT, including:

| | |
|-----------------------|-----------------------------------|
| ❖ Safety and Security | ❖ Ecology |
| ❖ Noise | ❖ Water Pollution |
| ❖ Air Quality | ❖ Construction Traffic Management |
| ❖ Dust suppression | ❖ Working hours |

2.2 The principal objective of the CEMP is to ensure delivery of the environmental commitments and requirements of the project thereby reducing the environmental effects. The CEMP will be monitored regularly throughout the duration of the works to ensure best practice is followed. All site personnel will be responsible for the effective implementation of the CEMP in accordance with Construction Industry Training Board Document GE700E Construction Site Safety E: Environment to ensure that no environmental incidents occur.

2.3 The CEMP aims to implement procedures to:

- ❖ Ensure emissions of dust and other pollutants including odour are minimised and that best practice is used to avoid the creation of a statutory nuisance thereby reducing risks to human health and avoiding unnecessary effects on sensitive habitats.
- ❖ Carry out construction activities in a manner that avoids unnecessary effects on surrounding habitats and species.
- ❖ Comply with relevant statutory provisions with regard to local hydrology in order to protect both habitat and to avoid unacceptable adverse effects.
- ❖ Undertake construction works to minimise disturbance to the landscape in order to protect the existing landscape elements such as soil, woodland, trees, hedges, grassland and other habitat.

3. CONSTRUCTION RISK & MANAGEMENT

3.1 The construction of solar farms is a straight forward assembly process and does not require heavy or large machinery for digging or concrete mixing/pouring, does not require the installation of large structures with the assistance of large machinery and does not generate dust, fumes or discharges to land, air or water. Instead, a set of methodical minimal impact sequences are followed, starting with setting out (small flags being placed where piles are to be driven) and installation of perimeter deer fencing and silt fencing (set 5-10 metres back from boundary hedgerows, making the site secure and creating a physical barrier to prevent work near to boundaries and water features) followed by establishment of a stone construction compound and tracks. At all stages of the process, material is first delivered to the construction compound and unloaded. Telehandlers then take material into the fields and place it along the rows ready for assembly/installation. This process is designed to ensure low impacts on the land. Furthermore, work activity will normally only take place in any particular location of the site over a short period as work for each installation activity moves sequentially across the site.

3.2 The project has sought to design out risk by ensuring structures are placed away from sensitive areas and hedgerows/trees and by ensuring that no hedgerow or tree removal is required. Risks will be reduced, firstly, by appointing a Project Ecologist to co-ordinate pre-work surveys, provide toolbox talks to construction staff and ensuring protection measures are put in place in sensitive locations. Risks will also be reduced by sequencing work to minimise impacts on the environment and risks of impacts. For example, by installing perimeter deer fencing first and setting it back from boundaries ensures that it will act as a physical barrier between work areas and boundaries from the outset around the entire site. By installing the stone tracks and compound next, delivery of material to the sites will not be on unprotected ground and distribution of materials across the site can be focussed on movement along the tracks to minimise impacts on ground and ensuring organised routing to minimise disturbance site wide.



Efficient sequential work practices will be undertaken to minimise the impact of work activity.

Project Ecologist/Ecological Clerk of Works

3.3 An ecology practice with all appropriate qualifications, licenses and Membership of the Chartered Institute of Ecology and Environmental Management will be retained as the Project Ecologist/Ecological Clerk of Works to ensure that construction activities do not harm protected species or their habitats and to ensure compliance with the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulation 2010 (as amended). The Project ecologist will give a toolbox talk (including distribution of work practice material) to construction staff at the start of construction activity and the main staff meeting/amenity room will have a notice board that, in addition to health and safety guidance will include guidance (with photographs) in relation to protected species, including how to minimise disturbance, Reasonable Avoidance Measures and the contact details of the Project Ecologist. Thereafter, the Project ecologist will remain on-call and weekly conference calls will be held, with site visits undertaken where necessary.



Example of Staff notice board displaying photographic evidence and description of protected species, explaining Reasonable Avoidance Measures and the contact details of the Project Ecologist.

Pre-Construction Ecology and Wildlife Surveys

3.4 Prior to construction work activity commencing on the site bird and badger surveys will be undertaken within 48 hours of projected work start by the Project Ecologist/ECoW. The Project Ecologist/ECoW will report on their findings to the Site manager within 24 hours to advise of their findings and advise of any protection measures that may be required. The measures will be implemented prior to work commencing on site and adhered to thereafter. This may include, for example, sectioning of areas and installing weatherproof wooden post mounted signs directing staff not to operate within the zone or how to proceed within the zone. Where necessary, a license will be obtained to relocate any nest by the Project Ecologist in accordance with the license.

Birds

3.5 Site assembly activities and ground preparation works will be undertaken outside of the breeding bird season (March to August inclusive), where possible. Where this cannot be achieved, a pre-construction survey for nesting birds will be undertaken by the Project Ecologist/ECoW prior to the commencement of work. The Project Ecologist/ECoW will be responsible for and advising (with a written document) of any Reasonable Avoidance Measures to be adhered to. The project manager and site manager will be responsible for ensuring adherence to these measures and the measures will be discussed in the pre-construction toolbox talk by the Project Ecologist/ECoW.

Badgers

3.6 As precautionary measure, a pre-construction badger survey will also be undertaken by the Project Ecologist/ECoW prior to work starting on the site. Should a badger sett be identified then an area around the sett with a perimeter of 30 metres will be marked out, and a weatherproof wooden post mounted sign erected directing staff not to operate within the zone. If the sett is located where installation work is required then an appropriate license will be obtained to close the original sett and relocate/rebuild the sett within the field boundaries, with work undertaken under the supervision of the Project Ecologist/ECoW.

3.7 Any ground excavations during the construction phase will be covered overnight or fitted with a means of escape suitable for badgers and other mammals that may become trapped. All construction materials will also be stored in secured compounds or raised off the ground in accordance with GE700E. Additionally, the proposed deer fencing will include mammal gates at 100 metre intervals to enable free mammal passage and appropriate additional measures installed as set out in the approved details of Condition 18.

Bats

3.8 The proposal does not include removal or work to hedgerows and trees or their margins and maximising the setback of the fence (particularly at the north-east and south-west sections of the site where trees are present) will minimise any potential impact on foraging habitat. Construction activity will only be undertaken during daylight hours and no external lighting will therefore be required.

Amphibians & Reptiles

3.9 The small pond within the site tested negative for GCN and becomes dry. The PEA also concluded that other amphibians are unlikely to be present and recommended no action. The perimeter deer fence will be set at least 5 metres from hedgerows, and greater distances in locations where the ditches and pond are located. Temporary silt fencing will be placed along any drains and around Pond 1, with a 10 metre setback, prior to the start of work as a precautionary measure. The adoption of Reasonable Avoidance Measures (RAMs), as set out by the Project Ecologist/ECoW, will avoid impacts and negate any requirement for EPS licences. Should construction activities occur outside the winter period then RAMs will be adopted based on the advice of the Project Ecologist/ECoW.

Pond, Watercourse, Hedgerow and Tree Protection

3.10 The solar farm will be predominantly a lightweight assembly operation within the fields with no pressure to work or store materials or undertake excavations near the site boundaries, hedgerows, trees or pond. The perimeter security fencing for the solar farm will be installed prior to any further works taking place. A minimum buffer of 5 metres will be established between the perimeter fence and boundary hedgerows. Temporary silt fencing will then be placed along any drains and around the pond, with a 10 metre setback. At ground level, panels will be offset from the hedgerow and perimeter fencing. This is considered an appropriate buffer given the nature of solar development and their low impact construction methods. For example, material, such as framework and solar panels will be placed along each row where they are intended to be assembled and will therefore not be close to the site boundaries.

- 3.11 Development will be set away from internal hedgerows with a minimum buffer of 5 metres. Internal hedgerows and drainage ditches will be further protected through the installation of temporary silt barrier fencing. Prior to any construction activity taking place the Project Ecologist/ECoW will undertake relevant surveys as outlined and will inspect the silt barrier to ensure that it has been effectively installed. The surveys will be interrogated to update the Reasonable Avoidance Measures document prepared for the project to ensure compliance with the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulation 2010 (as amended). All contractor working on the site will be provided with a toolbox talk and will be required to comply with the RAM's document.
- 3.12 Trees adjoining the site are to be protected in line with British Standards 5837:2012 Trees in Relation to Construction. No construction activities, including storing plant, spoil or equipment will occur in Root Protection Zones or within 5 metres of any hedgerow. On completion of the permitter deer fencing the Project Arboriculturalist will undertake an inspection to ensure that the trees will be protected in accordance with BS 5837:2012 and the Arboricultural Method Statement approved under Condition 15.

Construction Protection Measures

- 3.13 Perimeter security fencing (comprising deer fencing and wooden posts) will be the first stage of work. The perimeter security fencing will be placed at least 5 metres away from boundary hedgerows and trees and will form a physical barrier to ensure construction staff do not encroach on land immediately adjacent to hedgerows and are not tempted to store material next to hedgerows or trees. Temporary silt fencing will then be placed along any drains an around the pond, with a 10 metre setback.



Perimeter fencing will be installed as the first stage of work.



Example of silt fence.

- 3.14 The tracks will be installed as the next stage following installation of the fencing. Tipper lorries carrying the stones will be fitted with dust protection sheets and will proceed first to the construction compound following the existing hard surface track. From the construction compound tracks will be formed outwards from the compound in the approved locations. This will minimise the impact of track construction and ensure that the tipper lorries do not move across bare earth. The tracks will then be used as the first stage of any route by telehandlers distributing material around the site so as to minimise ground impact.

Air Quality/Dust/Dirt/Mud Control

3.15 The construction of solar farms is predominantly an assembly operation does not result in materially significant dust disturbance. The perimeter security fencing and silt fencing will be installed at the outset, thus preventing subsequent construction activities from encroaching into the drains, pond or hedgerow zones. The next phase of work will involve the installation of the compound and approved tracks. The tipper lorries used for the formation of the construction compound and tracks will have the tipper box covered with dust protection sheets to reduce dust generation. Forming the tracks and compound first ensures that there is reduced risk of the wheels of delivery vehicles accumulating mud or dried dirt as they will not be moving on exposed ground. Pollution from dust arising from the temporary compound is not anticipated to be a significant issue as the activities likely to be undertaken in the compound (storage, deliveries, staff welfare, offices etc.) are unlikely to give rise to the rising of dust, particularly as the type of material to be stored are not dust producing (metal framework, solar panels, cable drums). However, should any activity take place which does create the potential for dust pollution this will be mitigated using water sprays to dampen down dusty materials/surfaces. The wheel wash facilities will also assist to prevent vehicles trailing dust/dirt/mud onto the public highway.

3.16 Hard bristle brooms and long handled scrapers will be retained on the site at the compound entrance to assist with wheel cleaning and sweeping any dirt or mud from delivery and other vehicles should it have accumulated on tyres. Wheel washing facilities in the form of a water bowser pressure washer will be provided at the compound entrance and which can also be used to dampen down the compound if required. All operatives exiting the site in HGVs or other large vehicles will be required to use the wheel cleaning facilities if/where dirt and mud have accumulated on the vehicle by cleaning the wheels and underside of the vehicle. Attendant personnel will ensure that, where necessary, vehicles are jet-washed to ensure that mud and debris are fully removed prior to the vehicle leaving the site. Signage will be maintained directing vehicle operatives to use the facilities and a cut off drain, silt traps, drip trays and absorbent mats or other appropriate methods will be maintained to ensure that any contaminants within wash water do not enter the environment or overflow onto neighbouring land.

Soil and Water Protection Measures

3.17 The existing site comprises of agricultural land and it is considered that there is low risk of existing ground contamination. Any ground contamination discovered during the construction phase will be reported to the Local Planning Authority, and specialist working methods will be agreed prior to the continuation of construction works. Tracks and the compound will be underlaid with geotextile membrane to prevent mixing of the sub-base with the soil.

3.18 The proposed development would have a relatively minimal impact on the existing ground conditions and would not require significant foundations or ground works. The proposal involves, predominantly, the assembly of Photovoltaic panels laid out in arrays running from east to west across the site. Each array will be mounted on simple metal frameworks. The framework will be driven into the soil and minor trench excavations will be required for the below ground cable infrastructure. Inverters/Transformers and DNO housing have small footprints and excavations for these will also be of a minor nature.

3.19 Where land is damaged or disturbed during construction, all exposed earth will be restored and re-seeded using the approved seed mix of the approved landscaping plan. Where excavations take place, topsoil will be separated from subsoil and re-laid within any trench immediately after cable lay down and re-seeded with the approved grass/wildflower mix.

3.20 Solar farm developments do not require use of chemicals or concrete (apart from a small amount of concrete that will be required for the base of the substations) that require washing down of hardstandings, equipment or tools. As a precaution silt fencing will be placed along the south side of the construction compound track. A 240 litre colour coded spill protection kit bin will be located next to the site office in the construction compound as a precaution to deal with any emergency.

CONSTRUCTION COMPOUND

3.21 A construction compound will be constructed and retained throughout the construction period and retained as the approved substation compound. The approved temporary construction compound area is larger than the area to be retained as the substation compound and the sub-base of the unretained area will be removed at the cessation of construction and re-used for the same purpose or as track stone at another construction site. The area of the approved compound is sufficient to maintain a large area for an HGV to be unloaded and undertake a 180 degree turn to exit the site in the same direction. The area used for the compound will be set out and topsoil and subsoil stripped and stockpiled adjacent to the compound. A geomembrane will then be laid followed by a working surface of crushed stone. The construction compound will drain to silt traps to remove sediments before any water run-off is released into the environment. The silt traps will be emptied daily into a sealed container and disposed of at an authorised site. Components and solar panels will be delivered by HGV's with truck curtains and telehandlers will unload the HGV immediately on its arrival.

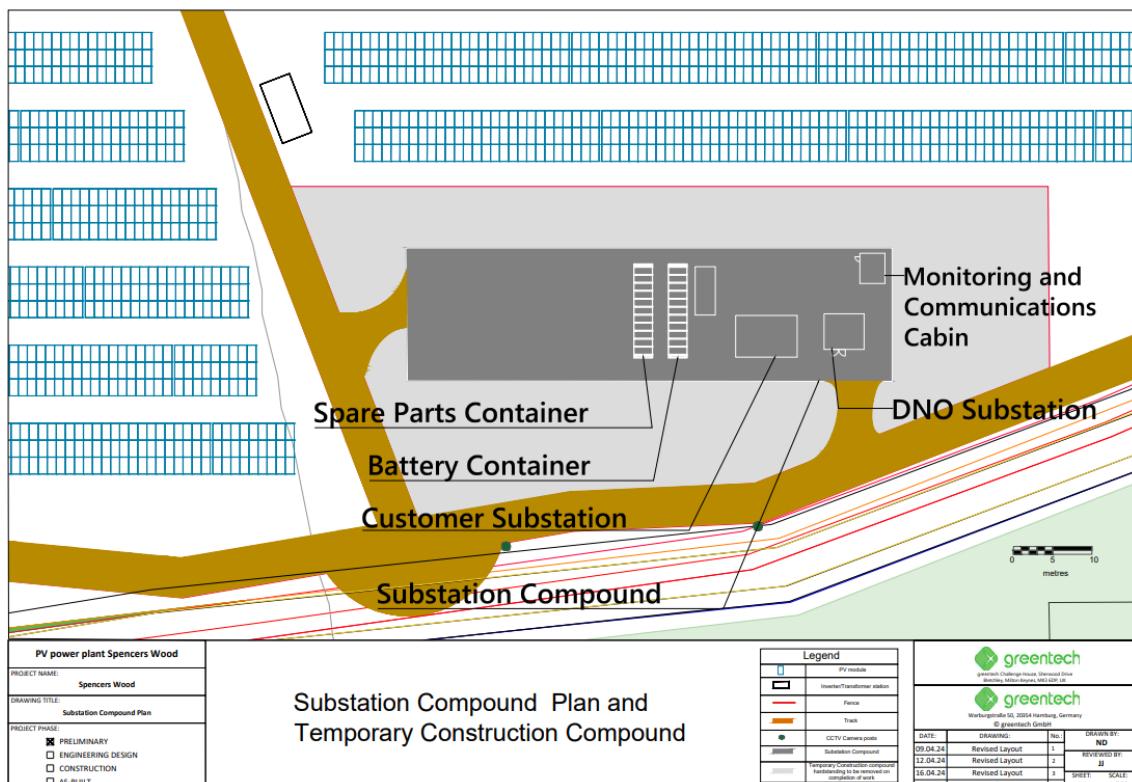


Figure 2: The approved compound area.

Waste

3.22 The amount of construction waste to be generated by the development proposal is significantly lower when compared to other types of development due to all delivered material being required in the assembly process.

3.23 Construction waste to be generated by the installation is divided into three main waste generating activities. These are as follows:

- ❖ Packaging – Any packaging will be collected in a designated skip once every working day for appropriate recycling and disposal at an authorised site.
- ❖ Framework Cuttings – the excess cuttings from the framework will be collected in a designated skip once every working day for appropriate recycling and disposal at an authorised site.
- ❖ Cable cuttings

3.24 Three skips will be maintained in the construction compound to ensure that all waste is sorted and to maximise recycling. When full the skips will be collected by licensed recycling company for either reuse or recycling.

3.25 Staff amenity rooms will be fitted out with appropriate recycling bins for the separate sorting and collection of paper, cardboard and aluminium waste. Three 240 litre colour coded wheelie bins will be located outside the site office for waste separation and recycling.

3.26 During the construction phase of the development, a mobile self-contained toilet block will be made available at an appropriate location within the compound, with all discharge of wastewater to sealed tanks which will be regularly emptied off-site. The toilet block will be sourced, supplied and managed by a licensed contractor. The principal contractor will ensure that the waste is collected and disposed of by the contractor.

Site Manager and Local Community Responsibility

3.27 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 Construction Contractor and local residents will seek to ensure that any concerns are resolved quickly and efficiently.

3.28 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.

4. CONSTRUCTION TRAFFIC MANAGEMENT & PUBLIC RIGHTS OF WAY

4.1 Construction traffic will be managed in accordance with the approved Construction Traffic Management Plan and Public Rights of Way Safety Plan to minimise the impact of construction traffic on the surrounding highway network and its impact on the amenity of nearby residents and PRoW users. Three types of construction traffic will be associated with the site: HGVs delivering materials to and from the site, workforce vehicles and waste collection vehicles.

- 4.2 The overall construction period is expected to be approximately 6 months, with approximately 3 months of more intensive deliveries as material is delivered to the site, however, the delivery timetable will be flattened to ensure no more than 10 HGV deliveries occur on any one day.
- 4.3 HGVs will therefore be standard articulated vehicles approximately 15.4 metres in length.
- 4.4 Access will be in accordance with the approved Construction Traffic Management Plan and Public Rights of Way safety Plan.
- 4.5 All suppliers undertaking deliveries to the site will be informed of the delivery arrangements and restrictions set out in the CTMP, PRoW Safety Plan and CEMP.
- 4.6 The number of construction staff on site will vary over the construction period depending on the activity that is taking place. Most staff are expected to share vehicles when travelling to and from the site, or travel in crew buses.
- 4.7 Construction Traffic on site is expected to be able to be managed without detriment to the use of the public rights of way by pedestrians. The Public Rights of Way Safety Plan produced in accordance with Condition 10 details how this will be achieved.
- 4.8 The construction route will follow FP18 for approximately 450 metres from the site entrance of Sheepbridge Court Farm on the B3349 to the corner of the track where it turns east, and effective construction management will be required to ensure that there is no conflict with footpath users. The route is sufficiently wide for the passing of an HGV and a pedestrian, however, if it is identified there are areas where the track is too narrow then temporary hardstanding will be laid. It should be noted that this was manageable for the construction of the existing solar farm on the site.
- 4.9 Deliveries will only be undertaken between 9am and 5pm on weekdays. The delivery schedule will be flattened out to minimise potential conflict with users of the PRoW to ensure that during peak delivery times (approximately 3 months) there will be no more than 10 HGV or tipper truck deliveries per day (approximately one delivery every 48 minutes) and there will be only one delivery vehicle travelling along the track/PRoW route at any one time in any direction. This is achieved by constructing the solar farm in a sequential manner that also ensures that only one type of delivery is taking place by the same delivery company over a period of time.
- 4.10 There will be two site operatives conducting traffic marshalling activities. One site operative will be charged with walking in front of the HGV between the highway access and the site entrance when the delivery arrives, and again when it departs. Waiting at the site entrance for the next delivery vehicle to repeat the process. Where an escorted vehicle encounters a pedestrian walking in the opposite direction the delivery vehicle will be halted to allow the pedestrian to pass.
- 4.11 The first work to be undertaken will be installation of the perimeter deer fencing and entrance gates to the site. This requires relatively low levels of traffic delivering fence posts and tornado wire netting. The subsequent task will be the creation of the substation/construction compound surface and tracks within the site. Following this delivery of components will take place, comprising firstly of the framework, followed by panels and then electrical equipment.

- 4.12 Only one HGV will be allowed to travel along the farm track at any one time in any direction and deliveries will be timed to ensure this. There will be no more than 10 deliveries per day, or one delivery every 48 minutes. A speed limit of 5mph will be enforced along the route and a traffic marshall will proceed in front of each HGV as it enters the access to Sheepbridge Court Farm from the B3349 to the point where it enters the solar farm site, and then repeat the process in reverse when the HGV leaves the site.
- 4.13 All delivery drivers will be issued with an acetated paper delivery plan with a map showing the footpath route and explaining the delivery protocol. Additionally, warning signs for both delivery drivers and PROW of way users will be established along the route as set out in the PRoW Safety Plan.