Ling Hall Solar Project

Design and Access Statement
June 2014
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This document has been prepared and checked in accordance with ISO 9001:2008.
1.0 Introduction

1.1. General

This Design and Access Statement (DAS) has been prepared by LDA Design on behalf of Veolia ES Landfill Limited (Veolia) and REG Solarpower (REGSP) and is submitted in support of a full planning application to Warwickshire County Council for the development of solar photovoltaics (PVs) at Veolia’s waste management facility at Ling Hall, Rugby, CV23 9HH.

The project constitutes ‘development’ under the terms of the Town and Country Planning Act 1990. Accordingly, the application seeks full planning permission for the installation of frame-mounted solar PV arrays and related infrastructure on an area of land extending to 35.4ha.

Planning permission is sought for a temporary period of 26 years. This includes approximately 25 weeks for construction, a 25 year operational period and approximately 25 weeks for decommissioning.

1.2. Design and Access Statement

The DAS explains the thought process behind the design and indicates how, through good design and effective consultation with the community and local authorities, the scheme can be delivered in a sustainable manner ensuring social, economic and environmental considerations and objectives are met.

This DAS has been prepared in accordance with Article 4 of the The Town and Country Planning (Development Management Procedure) (England) (Amendment) Order 2013, Planning Practice Guidance (DCLG) and guidance set out in Design and Access Statements: How to write, read and use them (CABE, 2006).

The DAS makes reference to a number of plans and technical design drawings that have been prepared. These are not contained within the DAS but are submitted separately as part of the planning application.

Reference is made in the DAS to Ling Hall, the site, and the operational area. For clarity Ling Hall refers to entire landfill; the site refers to the red line application boundary, with includes the solar PV arrays and related infrastructure; and the operational area refers only to the four separate parcels of land on which the solar PV arrays are located.

1.3. The Applicants

Veolia, operates a number of landfill sites across the UK as well as non-active sites which it continues to monitor and maintain.
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Once a landfill site has reached the approved final levels, Veolia is responsible for capping it and undertaking restoration. The gradual restoration of landfill sites is generally phased in line with a restoration plan. Restored land requires a lengthy period of environmental control and aftercare which lasts for several decades. This includes gas extraction and leachate management, which severely limits the capacity of these sites to support the sorts of activities normally associated with greenfield sites. They are, in effect, ‘rural brownfield’ sites.

As such, Veolia has been investigating opportunities to make the restored areas as productive as possible as part of its overall waste management business operation. The proposed use of the restored areas for solar energy generation is considered appropriate because solar PV can make best use of the restored areas while they remain in aftercare, but without compromising ongoing environmental control.

Ling Hall is an operational landfill site including gas extraction, leachate management and agricultural grazing (on restored areas) along with general ongoing waste management including recycling and aftercare activities. There is also a concrete batching plant and an asphalt plant operated by Veolia’s tenants Breedon Aggregates.

Temporary Solar PV is considered to be wholly compatible with the other industrial activities located at Ling Hall, while waste operations and aftercare activities are ongoing.

Veolia is working in partnership with REGSP, an experienced renewable energy developer having recently completed construction on its 4.5MW Goonhilly Solar Project in Cornwall.

REGSP is wholly owned by Renewable Energy Generation Ltd (REG) which also owns subsidiary company REG Windpower who have 15 operational wind projects throughout the UK with a total installed capacity of 67MW. The development, construction, operation and maintenance of solar power projects is complimentary to REG’s established interest in wind energy generation and other forms of renewable energy technology.

REGSP is exploring opportunities to deploy solar generation technology on a number of Veolia’s restored landfill sites around the country.

Together, Veolia and REGSP are joint applicants for this project.

### 1.4. Site Description

Ling Hall is owned and operated by Veolia as a waste management facility.

The site has a history of sand and gravel quarrying, which ceased in 2009, and household/commercial/industrial waste landfill operations which remain on-going. Additional uses are also located on site including a concrete batching plant, road stone coating plant, and plant for processing road sweepings and gully arisings. Planning
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consent also exists for the erection of plant and equipment to recycle incinerator bottom ash.

The location and extent of Ling Hall is shown on Drawing LH001: Location Plan. The waste management site is bounded to the north by Ling Lane and to the south by the junction of Lawford Heath Lane and Coalpit Lane. Its eastern boundary comprises agricultural land and the Lawford Heath Industrial Estate, whilst it is bounded to the west by agricultural land and Coalpit Lane.

Parts of Ling Hall have been restored to agricultural use and other areas are currently undergoing a programme of restoration. All restored areas are subject to a binding agreement with the Environment Agency (EA) for environmental control and aftercare, including several decades of gas extraction and leachate management. As such, the restored sites contain the infrastructure required for both of those processes and have only limited agricultural value as sheep grazing land. There is no public access to these restored areas.

The settlements of Lawford Heath, Cawston and Rugby are located in the surrounding area. Draycote Water Country Park and Whitefields Golf Course are located approximately 2.5km south of the site.

There are small pockets of trees located within Ling Hall, predominantly within the western part of the site, in the vicinity of the areas of open water and the plant nursery. Trees are also present along the site boundary.

A private access road runs through the centre of Ling Hall, in a north to south direction, for the purposes of the waste management operations.

There are no public footpaths within Ling Hall, although a public footpath and bridleway run within the vicinity of Ling Hall.

1.5. Nature of the Proposals

An area of 35.4ha of restored/nearly restored land (the ‘site’) is proposed for solar PV. The red line application site is shown on Drawing LH002: Site Boundary Plan.

The site comprises four separate parcels of land and interconnecting road infrastructure. The parcels of land are located to the north of the site; to the south-east of the site; and to the south-west of the site.

The parcels of land selected are either restored or nearly restored areas of the landfill, that while no longer active, are subject to ongoing environmental control and aftercare.

It is anticipated that the proposed solar PV arrays will generate up to 12MWp. The electricity generated is fed into the local electricity distribution network. Income is earned for the landowner through sales of electricity to energy supply companies. The
income generated from the proposed development will allow Veolia to sustain the business locally and helps them to continue to invest in a safe, secure, well-managed site.

Further detail of the proposed solar PV is provided in Section 2.0: Use, Scale, Appearance and Layout.

1.6. Policy Context

A summary of the most relevant planning policy is provided. Further detail on planning policy is set in the Planning Statement which accompanies the planning application.

1.6.1. Energy Supply

International, European and national policy commit the UK to reducing its climate change impact and increasing the supply of energy from renewable and low carbon sources. These commitments are reflected in national policy and regulation and need to be translated into local policy and action.

The Government’s National Planning Policy Framework (NPPF) says that “Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions... and supporting the delivery of renewable and low carbon energy and associated infrastructure.” (paragraph 93). Paragraph 97 goes on to say that “to help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources.”

The UK has a legally binding target to supply 15% of all of the energy it uses from renewable sources by 2020, including electricity, heat and transport energy. The Government’s Renewable Energy Roadmap (updated November 2013) and recent UK Solar PV Strategy Parts 1 and 2 expect solar PV developments to play a major role in achieving this target. More detail on national and local renewable energy and planning policy and guidance is provided in the Planning and Sustainability Statement.

At the local level, Policy CS16: Sustainable Development of the Rugby Borough Council Core Strategy (June 2011) seeks to reduce the use of non-renewable energy resources, while Policy GP5: Renewable Energy of the Rugby Borough Council Saved Local Plan Policies states that “The provision of renewable energy schemes will be encouraged where careful consideration has been given to design, layout and siting in the landscape. Planning permission will be granted where no material harm would result in relation to residential amenity and the environment.”
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It is considered that proposed development will make an important contribution to renewable energy targets.

1.6.2. Waste Management

Waste policies at the international and national level encourage driving waste management up the waste hierarchy, addressing waste as a resource and looking to disposal as the last option, but one which must be adequately catered for. Planning Policy Statement 10: Planning for Sustainable Waste Management (DCLG, 2011) sets out current national planning policy on non-waste development:

“In determining planning applications, all planning authorities should, where relevant, consider the likely impact of proposed, non-waste related, development on existing waste management facilities, and on sites and areas allocated for waste management. Where proposals would prejudice the implementation of the waste strategy in the development plan, consideration should be given to how they could be amended to make them acceptable or, where this is not practicable, to refusing planning permission.”

At the local level, the Warwickshire Waste Core Strategy (adopted 2013) provides planning guidance for the county’s waste management facilities over the next 15 years. Policy CS8 – Safeguarding of Waste Management Sites seeks to safeguard existing waste facilities and sites. It states that “the County Council will object to proposals for non-waste development within or adjacent to these sites where they may prevent or unreasonably restrict the use of that site for waste management purposes”.

It is considered that proposed development can be successfully delivered alongside existing waste management activities and is wholly compatible with Veolia’s ongoing environmental control and aftercare responsibilities.

1.6.3. Green Belt

The Ling Hall Site is located in the Green Belt, and the NPPF (paragraph 79) confirms that the fundamental aim of Green Belt policy is to “prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence.”

Para 80 of the NPPF states that “Green Belt serves five purposes:

• to check the unrestricted sprawl of large built-up areas;
• to prevent neighbouring towns merging into one another;
• to assist in safeguarding the countryside from encroachment;
• to preserve the setting and special character of historic towns and
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• to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.”

Paragraph 81 states that “once Green Belts have been defined, local planning authorities should plan positively to enhance the beneficial use of the Green Belt, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land.”

Paragraphs 87 and 88 state that “inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. ‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations.”

Paragraphs 89 and 90 identify forms of development that are not inappropriate in the Green Belt, mineral extraction and engineering operations are cited as examples “provided they preserve the openness of the Green Belt and do not conflict with the purposes of including land in Green Belt.”

Paragraph 91 states that “elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.”

At the local level, Policy CS1: Development Strategy of the Rugby Borough Council Core Strategy (June 2011) establishes the settlement hierarchy for the Borough and seeks to ensure new development is located in the most sustainable locations. Although this relates principally to new housing and services, it states that new development will be resisted in the Green Belt and will only be permitted where national policy allows.

It is considered that the proposed development meets the test of ‘very special circumstances’ and is acceptable within the Green Belt, as it will provide an increase in renewable energy capacity and will make a contribution to addressing the risks posed by climate change, declining fossil fuel reserves and growing global demand for energy.

The proposed solar project would cover parts of the existing landforms, following the surface profile and have limited additional effect on the openness of the Green Belt. It would also not affect the five purposes of Green Belt.

The proposed development forms part of Veolia’s ongoing waste management strategy for the site, and will make best use of the restored areas while they remain in aftercare. The environmental assessment work has demonstrated
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define the project can be delivered with no significant environmental effects and that measures can be provided that mitigate both the solar PV development and the ongoing effects of an operational site to some extent.

The full planning justification for the development is set out in the Planning Statement.

1.7. Design Principles

Given the requirement for ongoing environmental control and aftercare of the restored landfill, and the prevailing planning policy context, the design of the development has been carefully considered.

The guiding design principles are set out below, whilst the full description of the proposed solar PV is provided in Section 2.0: Use, Scale, Appearance and Layout.

- To provide a source of renewable energy.
- To optimise the use of former minerals extraction site whilst it continues to have a waste management function and ongoing environmental controls.
- To protect the openness and the purposes of the Green Belt.
- To be compatible with existing waste management facilities and to accord with the waste strategy in the development plan.
- To protect the integrity of the landfill cap and gas extraction facilities in order to ensure that the site continues to be managed safely.
- To ensure compatibility with the principles of the restoration plan.
- To provide a temporary ‘meanwhile use’ that allows Veolia to generate funds for ongoing maintenance and site aftercare.
- To use the opportunities created by solar PV development to provide landscape and biodiversity enhancements, which would help to mitigate both the solar PV development and the ongoing effects of an operational site to some extent.

Veolia and REGSP have taken a consultative approach to design, modifying and adapting the scheme in response to the outcome of baseline studies; environmental appraisals, pre-application advice from Warwickshire County Council; and consultation with other statutory consultees and the local community.
2.0 Use, Scale, Appearance and Layout

In this section, each element of the scheme is described in detail to give an accurate impression of the use, scale, amount, appearance and layout of each of the key features that make up this development.

2.1. Use

The application is for the installation of solar PV arrays comprising rows of fixed PV panels, mounted on galvanized metal frames set on to the ground by concrete blocks/gabions, and associated ancillary infrastructure. The main purpose is to generate renewable electricity, which can be fed into the local distribution network.

2.2. Amount

The proposed development will generate around 12MWp of renewable electricity. The PV module array and ancillary infrastructure will have an operational area of approximately 27ha (excluding interconnecting road infrastructure). Only approximately 30% of the operational area will be ‘developed’ with the remaining 70% comprising grassed spaces between rows, field margins, shaded areas and/or areas for landscape enhancement.

The density and amount of solar panels has been influenced by:

- The available area of suitable restored land.
- The constraints and opportunities identified in the baseline and appraisal process (see Section 3: Environmental Context).
- Operational waste management imperatives for the site as a whole.
- Environmental controls in place for the long term.
- Restoration plans.
- Planning policy requirements including the need to safeguard waste management land and protect the green belt.
- The cost of the construction, distribution network connection, and mitigation measures and the need to deliver a commercial return.
- The need to achieve optimum solar gain, ensuring panels can be laid out in east-west rows and avoiding any areas of shade.
- The available capacity on the local distribution network.
- The space required for maintenance and access of both the restored landfill and the solar panels themselves.
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- Pre-application advice provided by Warwickshire County Council and other consultees.

2.3. Layout, Appearance and Scale

The total site area of 35.4ha is made of four separate parcels of land, one to the north of the site, one to the south-east of the site; and one to the south-west of the site. The final site layout is shown on Drawing LH004: Site Layout Plan.

The parcels of land selected are either restored or nearly resorted areas of the landfill, that while no longer active, are subject to ongoing environmental control and aftercare.

A number of other areas were considered for solar PV but excluded following a review of land use, site conditions and environmental constraints, as illustrated on Drawing LH003: Opportunities and Constraints. These include:

- The operational areas of the site due to ongoing landfill activities.
- The areas near the concrete batching plant and asphalt plant due to potential shading.
- The very northern extents of the site because of topography and potential visual impacts.
- The areas surrounding the ponds to the west of the site due to potential ecological impacts.

All selected parcels have been resorted to grassland, with no sensitive landscape or ecological features, such as trees or hedgerows, making them very compatible with solar PV arrays. As described above, the majority of the grassland will be retained under and between the panels.

The proposed development will be removed after 25 years of operation, and the parcels returned to their existing use i.e. grassland. However, any proposed planting delivered as part of the proposed development will be retained, offering long-term landscape and biodiversity enhancements.

As part of the design process the preliminary layout of solar panels and supporting infrastructure has been incrementally refined to improve efficiency and mitigate potential environmental effects. Design iterations include:

- Increasing the off-set between the northern parcel and northern site boundary, avoiding the exposed flanks of the restored landfill and reducing visual impact.
- Incorporating tree and scrub planting between the northern parcel and northern site boundary, helping to integrate the development into the landscape and providing new habitat.
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- Relocating access points to the various solar parcels to ensure easy and more direct access to the existing road infrastructure within the site.

The proposed development will have a number of components, as described below. A number of drawings are submitted with the planning application which provide technical details for certain components, and these drawing are referenced where appropriate.

2.3.1. **Solar Panels**

The solar PV panels are organised into arrays alongside the ancillary infrastructure.

The fixed solar panels will be mounted on galvanised metal racking system, set on to the ground by either gabions or concrete blocks. These are non-penetrative, sitting on top of the restored ground, in order to protect the integrity of the landfill cap and underground gas extraction pipes.

In order to achieve optimum solar gain the panels will be laid out in east-west rows. Each individual panel will be tilted southwards at approximately 20 degrees from the horizontal. The proposal is a static design with no moving parts.

The height of the solar panels will be around 2.6 metres from ground level to the top of the panel frame. The lowest edge of the panels will be around 1 metre above the ground to allow grazing of smaller livestock underneath and around the frames, if desired.

The majority of the operational areas will remain as grassed spaces between rows, field margins, shaded areas and/or areas for landscape enhancement.

Please refer to Drawing PLoo8 Racking System.

2.3.2. **Inverter-transformer Stations**

Installation of inverter-transformer stations are required to convert the direct current (DC) electricity output of the associated solar array into usable alternating current (AC) power for compatibility with the electricity distribution network. These inverter-transformer stations also increase the voltage of the electricity to allow for more efficient transmission to the sites switching station and distribution network connection point.

The inverter-transformer stations will be housed in containers which are approximately 3 metres high, 2.5 metres wide and 6 metres long.

They are generally located within the centre of the various of parcels of land, which allows them to be ‘concealed’ by the surrounding arrays. There are seven inverter-transformer stations proposed in total, three located in the northern parcel; three in the south-eastern parcel; and one within the south-western parcel.
Inverter-transformer stations tend to be grey or green but colours will be agreed with Warwickshire County Council post-application.

Please refer to Drawing PL 005 Inverter Transformer Station.

2.3.3. **Distribution Network Connection and Switching Stations**

The distribution network connection will be the responsibility of the Distribution Network Operator (DNO) and does not form part of this planning application.

The proposal contains a switching station to be adopted by the DNO and a switching station to be adopted by the client (applicant). These comprise cabinets mounted on a concrete plinth.

Both switching stations measure approximately 3.5 metres high, 3.5 metres wide and 10 metres long, and are located close the south-west parcel of land, near the site entrance.

Access will be made available to the two switching stations for occasional operation, maintenance and security.

As with the inverter-transformer stations the colours will be agreed with Warwickshire County Council post-application.

Please refer to Drawing PL 006 DNO Switching Station and PL 006.1 Client Side Switching Station.

2.3.4. **Security and Fencing**

A 2 meter high fence will be constructed around each land parcel. This will be deer proof stock fencing, which is more in keeping with the rural environment than the weld-mesh fencing often used in solar projects. A mammal gap will be provided at the base of the fence, at 50 metre intervals to ensure the safe movement of animals.

Vehicle gates will be incorporated into the fencing system to allow vehicle and pedestrian access to the inverter-transformer stations for operation and maintenance activities. The gates will be approximately 3 meters wide. Appropriate safety signage will be displayed on the fencing and gates.

Infra-red and/or thermal imaging CCTV cameras will be located along the fence line, attached to 3 metre tall posts, avoiding the need for permanent lighting and the consequent impacts on the rural character of the area.

Please refer to Drawing PL 007 Gate, Fence and Construction Road Details.
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2.3.5. Lighting  
No external lighting will be required generally, other than temporarily during construction, but the substation will be provided with PIR activated external lights to ensure safety of staff if visits are required outside of daylight hours. Emergency lighting will be brought to site only as and when required.

2.3.6. Cabling  
Prior to construction, the presence of any existing gas extraction and leachate management infrastructure, utilities or underground cables will be assessed and precautions taken to protect them. Such measures may include ‘goal posts’, physical barriers and markings on ground.

On-site cabling above the landfill areas will be either be on cable trays attached to the galvanised metal racking systems or installed within semi-buried concrete cable troughs to avoid any potential conflict with existing pipework and prevent penetrating the capping layer. On-site cabling in areas where there is no landfill will be buried underground at a typical depth of between 600mm and 800mm.

2.3.7. Hard Standing  
Construction and access roads will be required for each land parcel, and will generally extend from the vehicle gate to the centre of the site.

The roads will be a maximum of 5.5 metres wide, and will consist of compacted stone 300mm road base and sub base, and geotextile layer.

Please refer to Drawing PL 007 Gate, Fence and Construction Road Details.

2.3.8. Temporary Construction Compound  
A temporary construction compound will be installed at the centre of Ling Hall, along the main access road, and in between the northern and southern parcels. It would be around 0.25ha in size.

The compound will accommodate temporary portacabin-type buildings in addition to an area for material storage and for construction delivery vehicles to turn around. Portacabins are required for offices, toilets, canteen and storage. The compound will contain temporary parking spaces for staff.

At the end of the construction period, the compound and all equipment will be removed.
2.3.9. Construction

The total construction period will be approximately 25 weeks including any pre-preparation of the site, fencing, assembly and erection of the photovoltaic arrays, installation of the inverters/transfomers and grid connection.

2.3.10. Decommissioning

It is anticipated that a solar project will be in operation for 25 years. After 25 years the site will be decommissioned and will be restored back to the current restored condition. However, any proposed planting delivered as part of the proposed development will be retained. The total decommissioning period will be approximately 25 weeks.
3.0 Environmental Context

3.1 Supporting Documents

A range of baseline studies and appraisals have been undertaken to establish the suitability of the site for proposed development and to identify environmental constraints or sensitivities. Key findings and constraints are described in Section 3.1.2 below.

To ensure the likely environmental effects are understood and appropriate measures taken to mitigate any adverse effects, a series of supporting Environmental Reports have been submitted with the planning application. These comprise:

- Landscape and Visual Impact Assessment (LVIA).
- Ecological Impact Assessment (EcIA).
- Cultural Heritage and Archaeology Desk Based Assessment (DBA).
- Flood Risk Assessment (FRA).
- Transport and Access Appraisal.

3.2 EIA Screening Opinion

An EIA Screening Request was submitted to Warwickshire County Council, setting out the proposed development; likely environmental considerations in the context of the EIA Regulations 2011. Having reviewed the nature of the proposals and potential environmental impact, Warwickshire County Council concluded that any effects resulting from the proposed development would be localised and could be mitigated through the normal planning process, and as such, an EIA would not be required.

The Screening Response from Warwickshire County Council did contain pre-application advice, which has informed the development proposals and the information contained within the planning application.

A copy of the Screening Response is included in Appendix 1.

3.3 Response to Key Environmental Considerations

Below is a review of the key environmental considerations relevant to the proposed development.

For each topic area, a summary is provided of the baseline conditions; how the development proposals have been influenced by the receiving environment; any impacts that are likely to arise from the development proposals; and how these impacts will be mitigated.
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For completeness, reference is also made to topics such as noise and lighting, which have been considered as part of the planning and design process, but where it has been concluded that there will be no environmental impacts.

Key environmental considerations are illustrated on Drawing LH003: Opportunities and Constraints.

3.3.1. Ground Conditions

The historic area of Ling Hall (Cell 1 – which is assumed covers the two areas to the south of the site) were capped with a clay layer. The more recent areas to the north of the site are capped with a geomembrane layer. A minimum 1m layer of restorations soils then covers both types of cap. All activities and management are covered by a Permit administered by the Environment Agency.

Due to the variable nature of the waste being placed at the landfill site, settlement will occur and this may include differential settlement across adjacent areas. The older areas of the site should be less susceptible to this having already had longer to settle.

The amount of settlement that will occur, and the rate at which any settlement would occur is variable due to the differing waste types that would have been deposited and the potential differing amounts of compaction received when deposited. It is proposed to implement a yearly monitoring scheme on the areas to be developed to allow adjustments to be made as required to the alignment of the PV panels.

The proposed racking system itself is non penetrative, with only the proposed concrete pads resting at the ground level. Any other intrusions such as cabling, would be kept to a minimum distance and would not interfere with either the integrity of the capping system, or the landfill gas extraction system.

With the exception of the solar arrays, maintenance track and invertors, infrastructure including the switching stations, fencing, CCTV posts will generally be located of the edge of the landfill, where this is not possible a non penetrative foundation will be used to secure the infrastructure.

3.3.2. Landscape and Visual

The site is not covered by statutory landscape designations.

In terms of landscape character the site falls within the Dunsmore Plateau Farmland landscape character area (LCA). This is described as “an ‘empty’ landscape of former waste with few roads and little settlement; a regular, geometric field pattern defined by closely cropped hawthorn hedges; many mature hedgerow oaks; large blocks of ancient woodland; remnants of heathy vegetation in woodlands and roadside verges, such as birch and bracken”.

The site itself is characterised by on-going waste management and industrial activities.
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The greatest effects would be on the character of the site itself due to the addition of solar arrays on areas that are currently restored landfill landforms. These restored landforms occur in an area previously or currently worked for minerals extraction, waste management and landfill operations described as being of ‘weak’ condition in the Landscape Assessment of the Borough of Rugby. Beyond the site and the worked area effects on landscape character would be limited.

In terms of visual amenity, the southern solar arrays are relatively well enclosed and this part of the proposed development would affect few visual receptors. The northern solar arrays lie in a more open part of the site and would be visible from some local roads, Public Rights of Way and a small number of other visual receptors, although no effects greater than Moderate significance are identified in the LVIA. Tree and scrub planting is proposed on the western, northern and eastern slopes of the existing northern landform which would reduce effects in the long term.

The design and layout of the proposed development has been heavily influenced by the landscape and visual context in order to minimise any adverse effects. Key design responses include:

- Avoiding solar panels on the visually exposed slopes along the northern site boundary.
- Minimising the overall height of structures. The solar panels themselves will be around 2.5 metres from ground level, while the switching stations, which are the largest proposed structures, will not exceed 3.5 meters.
- Tree and scrub planting grading out to open grassland is proposed on the west, north and east facing slopes of the restored landfill to the north. This would help to integrate the restored landform and the proposed solar project into the landscape, and most of the solar project would become screened as the planting matures. The photomontage from Viewpoint 4, contained within the LVIA, shows the effects of proposed planting on views from the north.

The proposed landscape and biodiversity enhancements are shown Drawing LH005: Landscape and Ecology Strategy.

Further details on landscape and visual effects can be found in the LVIA which accompanies the planning application.

3.3.3. Ecology

There are no statutory ecological or nature conservation designations either within or near to the site. There are three nationally designated sites within 5km of the site boundary. These include the Brandon Marsh Site of Special Scientific Interest (SSSI) (approximately 4km to the west of the site), Wolston Gravel Pit SSSI (approximately
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2.5km to the west of the site) and Draycote Meadows SSSI (approximately 1.5km to the south of the site).

Desk study, consultation with the WCC ecology team (Chris Hill) and a Phase 1 Habitat Survey have been carried out as part of the EcIA process. In addition, Phase 2 Ecological Surveys have been completed for breeding birds, reptiles, and great crested newt.

Habitats within the development site are generally of low ecological value (species-poor grassland). A low population of grass snake were recorded within the broader site and one Schedule 1, seven red listed and twenty amber listed birds of conservation concern (BoCC) were also noted within the broader site boundary.

The BRE National Solar Centre Guidance\(^1\) states that “with appropriate land management, solar farms have the potential to support wildlife and contribute to national biodiversity targets. Indeed, solar projects may have several additional advantages in that they are secure sites with little disturbance from humans and machinery once construction is complete. Recent research suggests biodiversity gains on solar projects can be significant.”

The baseline surveys have provided design mitigation guidance, and the siting and layout of the proposed development ensures that all existing habitats within the site, including trees, belts of woodland and water bodies, remain unaffected. Some discrete areas of pooled (likely ephemeral) standing water have been avoided by project proposals though no great crested newt were recorded on site.

The nature of a PV development dictates that short term impacts may be afforded to terrestrial habitat (species-poor grassland). However, post-construction the delivery of ecological mitigation, compensation and enhancement dictates that biodiversity gain at the site level will result. Key mitigation measures include:

- Tree and scrub planting will be incorporated between the northern parcel and northern site boundary, helping to integrate the development into the landscape and providing new habitat.
- All of the parcels will be secure with limited disturbance during the operational period. All perimeter fencing will be deer proof stock netting that will facilitate the safe passage of smaller mammals throughout the site.
- The grassland areas within the parcels will be managed to enhance the biodiversity value and to provide suitable habitat for breeding birds.
- A reptile mitigation area will potentially be located within the south-east parcel, providing additional foraging habitat.

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- There is no requirement for lighting on the site and this will be beneficial for bats and nocturnal insects such as moths.

The proposed landscape and biodiversity enhancements are shown Drawing LH005: Landscape and Ecology Strategy.

The project would be constructed under the auspices of a Construction and Environment Management Plan and the habitat creation and management measures would be administered by a Habitat Management Plan. Both of these plans would be developed in close consultation with both statutory and non-statutory stakeholders.

Further details on ecology, including all survey methodologies and results, can be found in the EcIA which accompanies the planning application.

3.3.4. Heritage

Desk and field study has been carried out to identify potential heritage issues relating to the proposed development. Discussion and agreement on the appropriateness and scope of an archaeological desk study was undertaken with John Robinson, Assistant Historic Environment Officer, at Warwickshire County Council.

A review of the available historic environment records, held by Warwickshire County Council and the National Heritage List maintained by English Heritage, have indicated 71 sites of cultural heritage interest within 1 km of the site ownership boundary (i.e. the Study Area). 14 of these features are partly within the current site boundary, with 12 of these related to Prehistoric-dated activity (identified through aerial photography) extending across the Study Area. An enclosure of potential Romano-British date and the site of former RAF Church Lawford are also noted with the site’s extent.

As the proposed solar panels are currently sited on previously disturbed ground no archaeological mitigation is anticipated.

No designated sites are within the site boundary. The site of a Scheduled Monument is adjacent to the southern edge. The Scheduled Monument site is presently ploughed, arable farmland (under crop), adjacent to areas of industrial activity (historic quarrying and active landfill) and bounded by minor roads to the north, south and west, frequented by plant and project traffic. It is therefore unlikely that the proposed solar PV development will adversely affect its setting.

Three Grade II Listed Buildings are also within the Study Area. There is a potential, albeit limited, for slight adverse effects on the visual setting of two of these Listed buildings, to the north and to the west of the site. Tree and scrub planting proposed on the west, north and east facing slopes of the restored landfill to the north would help to integrate the existing restored landform and the proposed solar project into the landscape, and most of the solar project would become screened as the planting matures.
The proposed landscape and biodiversity enhancements are shown on Drawing LH005: Landscape and Ecology Strategy.

3.3.5. **Hydrology and Flood Risk**

The site lies entirely within Flood Zone 1 as defined by the Environment Agency, and as such is at low risk from flooding.

The Environment Agency produce standing advice for development proposals that are located in Flood Zone areas and states that for any development proposals over 1 ha within Flood Zone 1, a FRA assessment should be undertaken to assess the risk of surface water flooding. As such an FRA has been prepared and is submitted with the planning application.

The FRA concludes that Solar PV development will lead to a minor increase in the impermeable area of the site from solar panel foundations, new access tracks and associated infrastructure (inverter and transformer cabins). Surface water runoff will be closely monitored, and if necessary, attenuation measures will be installed. This may include perimeter swales located around the solar panel arrays and french drains/swales parallel to site contours to manage any change in surface water velocity and help mitigate any increase in runoff.

Rainfall will flow freely off the solar panels onto the ground and foundation blocks beneath. The ground between concrete foundation blocks will be maintained as grass with grass length maintained as long as is practicable to reduce the velocity of surface water runoff.

3.3.6. **Air Quality**

Emissions will potentially increase during the construction period due to construction traffic, however, the increase in traffic volumes is relatively minor, and is not considered to give rise to any significant air quality impacts. Furthermore, any emissions will be temporary in nature.

Further details of traffic movements are provided in Section 4.0: Access.

No hazardous, toxic or noxious substances will be emitted as a result of the operation of the proposed development.

3.3.7. **Noise and Vibration**

Noise levels will potentially increase during the construction period due to construction traffic and building activities on site, however, the increase in traffic volumes is relatively minor, and any noise generation on site will not be distinguishable from on-going landfill and industrial activity. Furthermore, any noise generation will be temporary in nature.
Further details of traffic movements are provided in Section 4.0: Access.

The installed solar panels will not generate any noise or vibrations. The only noise arising from the development will be associated with the fan units used to keep the inverter equipment cool in warm weather, during daylight hours. These will however be low level, housed within structures and unlikely to be apparent outside of the application site itself. The final choice of equipment to be used will determine the exact noise emissions, however by way of illustration a typical inverter will have maximum noise emissions of 61dB (A) at 10m. This is equivalent to a spoken conversation 1m away. This quickly reduces to 44dB (A) at 50m (which is similar to a quiet library or average home).

3.3.8. **Lighting**

No external lighting will be required generally, other than temporarily during construction, but the substation will be provided with PIR activated external lights to ensure safety of staff if visits are required outside of daylight hours. Emergency lighting will be brought to site only as and when required. The CCTV cameras will be fitted with infra-red lighting or thermal imaging which is not visible to the naked eye.

3.3.9. **Climate**

The generation of renewable energy from a solar PV development of this size will have a very positive effect on legally binding requirements to reduce emissions that cause climate change.

The development is estimated to generate an equivalent amount of renewable energy as is consumed by around 3,500² homes annually. This equates to a saving of approximately 151,808 tonnes of carbon dioxide over the 25 year lifetime of the project³.

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² Homes powered was calculated based on standard industry estimates of annual solar project output and Ofgem figures for average annual UK household electricity consumption, as of December 2013. The equation is that recommended in the Advertising Standard Agency’s Wind Energy Help Note for calculating homes powered by renewable schemes. A 1MW solar project produces 975MWh of electricity per year, accounting for load factor and efficiency. Average UK household consumption is approximately 3.3MWh per year. For a 12MW scheme, this equates to 3,545 homes supplied annually.

³ The figure for expected annual CO2 savings is calculated by multiplying the annual output of the solar farm (MWh) with the average emissions factor of the UK electricity grid (kgCO2/kWh), and assuming that emissions will be entirely displaced through the generation of renewable energy. The emissions factor is obtained from the SAP 2012 (BRE), which provides annual figures for the period 2012-2015 for a range of fuels and emissions displaced through the use of renewables – a value of 0.519kgCO2/kWh is used. The final value is divided by 1,000 to determine tonnes of CO2 avoided per MWh.
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3.3.10. Socio-Economics

Landfill business has diminished over recent years as the landfill tax has taken effect, resulting in reduced income from waste management operations, but with no commensurate reduction in the cost of maintaining environmental standards and asset management. Solar PV development would generate a regular income from otherwise largely unproductive areas of the site, helping to sustain a well-established business and local employer.
4.0 Access

Construction access will be via the existing main site access of Coalpit Lane, feeding into the south western side of the site.

A Transport and Access Appraisal has been prepared, setting out details of the access arrangements, access route(s) for deliveries, suitability of the routes, and approximate volume of vehicles. The appraisal also outlines the content of the Construction and Traffic Management Plan (CTMP) which will be implemented through a planning condition.

4.1 Existing Conditions

4.1.1 Site Use

The hours of operation at the site are primarily between the hours of 07:00-18:00 Monday to Friday and 07:00-13:00 on Saturdays.

In terms of traffic generation, the landfill operation at the site has historically generated between 90 and 130 loads (180 and 260 two-way movements) per day. However, the number of loads associated with the landfill operation has steadily reduced over recent years due to a number of factors to a level of around four per hour, or approximately 44 loads per day.

The plant for the processing of road sweepings and gully arisings to recover materials suitable for use in landfill restoration (consent reference RBC/11CM020) involves around nine deliveries per day.

The planning documents for the incinerator bottom ash recycling plant planning application (RBC/13CM003) granted in 2013 state that the facility (once developed) would generate up to 22 deliveries and collections per day.

The quarrying activities on site ceased in 2009. The supporting statement for the retention of the concrete plant (RBC/10CM017) granted in 2011 estimated that the operation of the quarry, concrete batching plant and road stone coating plant would result in 100 vehicle movements in and out of the site per day. Without the operation of the quarry, it is estimated that the remaining plant would generate 78 vehicle movements in and out of the site per day.

4.1.2 Access Points

There are two existing points of vehicular access to the site, one from Coalpit Lane provides the main point of access for the existing quarrying and waste related activities. The second access is from the entrance to the Lawford Heath Industrial Estate site, served from Lawford Heath Lane.
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The existing access from Coalpit Lane forms the minor arm of a priority junction with a ghost island right turn lane arrangement. Coalpit Lane is subject to the national speed limit. Approximately 70 metres to the north of the access, Coalpit Lane narrows to single vehicle width and continues north to the B4455 serving agricultural land and isolated properties to the north of the site. Coalpit Lane to the south of the site access junction, and the access road serving the Ling Hall site have carriageway widths of approximately 7.3 metres. Manual for Streets identifies carriageway widths of 5.5 metres as sufficient for two HGVs to pass one another.

The second point of access to the site is gained from a field gate into the eastern side of the site from the access serving Lawton Industrial Estate.

Within the site a network of internal roads and access tracks provides access across the site.

4.1.3. Traffic Routing Arrangements

Associated with the existing land uses on site, there are a number of vehicle routing agreements which have been the subject of previous planning conditions and legal agreements.

Under planning application number R16/05CM033 for the extension to hours of operation for the landfill site, the applicant agreed to enter into a Section 106 Agreement with Warwickshire County Council (WCC) to agree a set of measures concerning traffic routing, ensuring that waste vehicles routed to and from the A45/A4071 junction.

A Section 106 Agreement is also associated with the grant of planning permission for the quarrying and landfill activities which restricts the routes taken by vehicles associated with the mineral and landfill activities. Vehicles are prohibited from using Coalpit Lane to the north of the site access or Lawford Heath Lane to the east of the junction with Coalpit Lane.

The Warwickshire Advisory Lorry Route Map 2nd Edition produced by WCC does not identify any vehicle restrictions on Lawford Heath Lane to the south of the site to the junction with the A45 trunk road.

Policy SF2 of the Warwickshire Local Transport Plan 2011-26 relates to Road Freight Strategy and managing the potential environmental and social impacts of freight strategy. Adopting an agreed access route for construction and delivery vehicles to the site will accord with the aims of Policy SF2 in seeking to mitigate the impact of heavy goods vehicles associated with the construction period on communities in the vicinity of the site.
4.2. Proposed Access

4.2.1. Access Point

It is proposed that the site will be accessed via the existing main access serving the quarry and landfill operations on Coalpit Lane, to the southwest of the site.

The existing access junction is laid out and constructed to a high standard and is considered suitable to accommodate the proposed solar project construction traffic.

4.2.2. Routing of Construction Traffic

In travelling to the site, it is proposed that construction traffic will arrive at the site via the A45 to the south.

The proposed construction traffic access route provides a direct connection to the site from the strategic road network and accords with the routing strategies agreed in previous planning applications associated with the Ling Hall site.

4.2.3. Volume of Construction Traffic

The mountings, frames, PV modules, electric cables and other material required to construct the solar array will be transported to the site using a combination of rigid and articulated delivery vehicles.

An approximate breakdown of delivery vehicles is set out in the table below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Vehicle Loads &amp; Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Clearance/Fencing</td>
<td>25 (light/medium goods vehicles)</td>
</tr>
<tr>
<td>Maintenance/access tracks</td>
<td>175 (tipper trucks)</td>
</tr>
<tr>
<td>Cabling/ducting</td>
<td>60 (light/medium goods vehicles)</td>
</tr>
<tr>
<td>Foundation shoes</td>
<td>440 (HGVs)</td>
</tr>
<tr>
<td>Module and rack deliveries</td>
<td>25 (HGVs)</td>
</tr>
<tr>
<td>Plant and recycling</td>
<td>40 (HGVs)</td>
</tr>
</tbody>
</table>

The construction deliveries will take place over 25 weeks.
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Staff will travel to the site by light vehicles and minibuses.

In the context of the background traffic to and from the Ling Hall site associated with the existing land uses, it is considered that the volume of construction traffic associated with the proposed solar project would represent a small and short term increase. This impact of the temporary construction period is lessened when considered in the context of the much higher levels of traffic associated with the site when the quarry was still in operation in 2009, when the number of trips to the landfill site were substantially greater.

4.2.4. Operational Traffic

Solar projects generate a very low and infrequent number of trips throughout their operational life. No staff would be permanently based at the site.

Maintenance and servicing trips would be made to the site by 4x4 vehicles or light vans and would be undertaken typically on a quarterly basis. Outside of these regular maintenance visits, other vehicle trips would be associated with infrequent visits for the purpose of replacing equipment as necessary.

4.3. Construction Traffic Management Plan

It is proposed that the requirement for the preparation of a full CTMP prior to the commencement of construction could form a suitably worded condition to the grant of planning consent.

The CTMP would provide further detail on the management and mitigation measures proposed in connection with the construction phase of the solar project including confirmation of:

4.3.1. Management Measures

- The prescribed route for construction traffic, including the standard measures associated with construction traffic movements and control.
- Management of construction traffic e.g. hours of delivery and the implementation of a call-on system.
- Internal site compound arrangements.

4.3.2. Mitigation Measures

- Measures such as wheel washing and dust control.
- Erection of signage.
5.0 Phasing

5.1 Construction phase

A detailed construction programme will be established following final design of the site. Generally, the construction phase is expected to last about 25 weeks and will include the following activities being carried out approximately in this order:

- Site establishment, clearance, access upgrade and temporary construction compounds.
- Erection of site security fencing.
- Construction of site access tracks.
- Laying of connecting cabling.
- Installation of distribution connection.
- Installation of the switching stations.
- Delivery and installation of rack and PV module components.
- Delivery and installation of the inverter-transformer stations.
- Plant commissioning.
- Reinstatement of temporarily disturbed areas.
- Mitigations and enhancements

Deliveries of components will be by a combination of light/medium goods vehicles and HGVS over the 25 week construction period.

5.2 Operation and maintenance phase

Solar projects require little maintenance, with activity limited to occasional (approximately quarterly) visits to clean, check and test the installation, with personnel using small vehicles (4x4 or transit van type).

Occasional requirements for access by larger equipment for the replacement of any failed major components may be required. Whilst construction compound is temporary and will be removed once construction is complete, there will still be space within the existing network of on-site tracks to allow maintenance vehicles to enter, park and turn around before leaving the site.

The local distribution network operator may need to occasionally visit the site in order to operate and maintain their switching station which is located on-site.
5.3. Decommissioning

Upon expiration of the planning permission period, the site will be decommissioned which involves a reverse of the installation process. Therefore, the size and type of vehicle used for construction would be similarly used for the decommissioning over approximately the same period of time.
6.0 Community Engagement

Stakeholder consultation has been undertaken in the preparation of the planning application in order to allow people to take an active part in the planning process.

The full Statement of Community Involvement is included in the Planning Statement which accompanies the planning application.

Key stakeholder consultation includes:

- Pre-application meeting with Warwickshire County Council.
- Submission of an EIA Screening Letter to Warwickshire County Council.
- Contact with statutory consultees and technical officers at Warwickshire County Council.
- Discussion of proposals at the Ling Hall Community Liaison Panel.
- Public exhibition held on the 27th June at Church Lawford Village Hall.
7.0 Conclusion

This Design and Access Statement demonstrates that the proposals for the development of a solar project at Ling Hall have been informed by a detailed design and assessment process. Extensive assessment work has been carried out to confirm the suitability of the Site for solar development, identify constraints, minimise potential impacts and to provide enhancement where appropriate. The design and layout of the scheme has evolved significantly during the development process in response to the assessment findings.

The layout responds well to its landscape context, ensuring that all existing landscape features and habitats within the site, including trees, belts of woodland and water bodies, remain unaffected. Further, proposed planting and habit creation seeks to help screen the development proposal and achieve biodiversity gain.

The scheme is a temporary development that is completely compatible with the waste activities and aftercare operations of the site. The site will be restored to its current use in line with the current Restoration Plan at the end of its 25 year operation. The landscape enhancements will remain.

The development proposals comply with the relevant planning policy framework. In particular it will be well designed; will be acceptable in terms of Green Belt policy; and will not affect existing waste management activities. Critically, the proposal will contribute significantly to the local and national requirements to generate renewable electricity.

The National Planning Policy Framework as a material consideration states that where development accords with the statutory development plan and specific policies in the Framework planning permission should be granted without delay. It is considered that the proposed development accords with this and that the presumption in favour of granting permission for sustainable development applies in this case.

The conclusion is that a high quality development and well-designed scheme has been proposed and is fully acceptable on the site.