

HALSTEAD ROAD ECO HUB

DESIGN AND ACCESS STATEMENT

LAND ADJACENT TO HALSTEAD ROAD, KIRBY-LE-SOKEN, ESSEX

ON BEHALF OF NATURALIS ENERGY DEVELOPMENTS LTD

**TOWN & COUNTRY PLANNING ACT 1990 (AS AMENDED)
PLANNING AND COMPULSORY PURCHASE ACT 2004**



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DESIGN ENVIRONMENT PLANNING ECONOMICS HERITAGE

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1.0 INTRODUCTION

1.1 This Design and Access Statement has been prepared by Pegasus Group on behalf of Naturalis Energy Developments Ltd ("the Applicant") to support a full planning application for a hybrid project comprising solar modules, an electric vehicle charging station and battery storage together with associated equipment and infrastructure on land adjacent Halstead Road, Kirby-le-Soken, Essex, to be known as the Halstead Road Eco Hub proposal ("the application site").

1.2 This application seeks full planning permission to co-locate a ground-mounted solar photovoltaic (PV) development, an Electric Vehicle (EV) charging station and a battery storage system, with the following Description of Development:

"Construction of a solar project together with all associated works, equipment and necessary infrastructure to include batteries alongside an Electric Vehicle Charging Station parking, means of access, landscaping and associated development".

1.3 The proposed development would have an installed generating capacity of up to c. 29MW (up to c. 26MWp solar generation capacity and up to 3MW battery storage capacity). Planning permission is sought for a temporary period of 40 years from the date of first exportation of electricity from the site.

1.4 The purpose of this document is to demonstrate that the Applicant has fully considered the design and access issues as part of the comprehensive preparation of the scheme prior to submission of the planning application. This report therefore covers the following matters:

- Use;
- Amount;
- Layout;
- Scale;
- Landscaping;
- Appearance;
- Access.

2.0 APPLICATION SITE AND CONTEXT

- 2.1 The application site is located wholly within the Tendring District Council administrative area and the Parish area of Frinton and Walton.
- 2.2 The site extends to approximately 23 hectares in size which is comprised of two land parcels of agricultural land irregular in shape with multiple, interconnecting fields. The larger parcel of land (circa 22 hectares) lies to the eastern side of Halstead Road and will contain the proposed solar modules. The smaller parcel of land (circa 1 hectare) lies to the western side of Halstead Road and will contain the proposed Eco Hub which will include the electric vehicle charging station, battery storage, substation and grid connection point.
- 2.3 The northern boundary of the larger parcel of land for the proposed solar farm is adjacent to the urban edge of Kirby-le-Soken, abutting the rear gardens of the properties in Dugmore Avenue. The southern boundary is adjacent to the urban edge of Kirby Cross abutting the rear gardens of properties in Village Way and Village Close. Open agricultural land lies to the east and south-west of the larger parcel of land. The eastern boundary of the larger parcel of land is defined by an agricultural track connecting to Turpins Lane with the western boundary adjacent to Halstead Road.
- 2.4 The smaller parcel of land for the proposed Eco Hub has Halstead Road running along its eastern boundary, a recreation ground to the west, two residential properties to the north and a parcel of agricultural land to the south. Access to the recreation ground and residential properties is along an existing road immediately north of the northern boundary of the small parcel of land.
- 2.5 The application site is presently in agricultural use, has fairly flat topography across the area and benefits from mature and established boundary vegetation.
- 2.6 There are a number of Public Rights of Way (PRoW) which run through and/or alongside the application site:
- Footpath 26 runs along the northern boundary of the larger parcel of land which then bisects in a north-west to south-east direction across the site (Footpath 24) leading to a north-south footpath between Kirby-le-Soken and Kirby Cross (Footpaths 24 and 25);
 - Footpath 23 runs along the northern and western boundaries of the smaller parcel of land.

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- 2.7 There are no listed buildings within the application site and nor is it located within a Conservation Area. The nearest listed building to the site is Hill House Farm which is a Grade II listed property located on the corner of Halstead Road between the two parcels of land.
- 2.8 In terms of planning policy designations:
- The application site is located outside of the defined settlement boundaries of Kirby Cross and Kirby-le-Soken and is therefore classed as countryside for planning purposes;
 - At the current time both parcels of land are located within a Green Gap as designated in the adopted Local Plan from 2007;
 - It should however be noted that the Green Gap designation has been reviewed in the emerging Local Plan Section 2. Upon adoption, the Green Gap will be known as a Strategic Green Gap and will only cover the area of the larger parcel of land subject of the proposed solar farm. Adoption of the emerging Local Plan is anticipated in early 2022.
- 2.9 The application site is not subject of any statutory landscape or ecological designations.
- 2.10 Both parcels of land within the application site are located in Flood Zone 1 which has the lowest probability of flooding.
- 2.11 The ALC report submitted with the planning application confirms that the application site comprises 92% Grade 3b 'Moderate' and 8% Grade 3a 'Good' quality agricultural land. The vast majority of the application site is therefore not "best and most versatile" land (BMV). While solar projects should, where possible, avoid the use of BMV, the direction of travel set out in Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) which was recently published in September 2021 indicates that land type should not be a predominating factor in determining the suitability of the site location [Para 2.48.13].

3.0 DESIGN

3.1 A considerable number of factors have contributed towards the design and layout of the solar farm, battery storage and electric vehicle (EV) charging station proposed in this application. These are now discussed against the various aspects of Design highlighted within CABE's guidance document regarding the production of Design and Access Statements.

3.2 An important factor in finalising the proposals has been pre-application engagement with Planning Officers at Tendring District Council and public consultation with the local community, Ward Councillors and the Town Council at various stages along the process of preparing the application proposals. This process is set out in more detail in the Statement of Community Involvement that accompanies the planning application.

Use

3.3 The proposal is to co-locate an EV charging station with a ground mounted solar farm of up to c. 26MWp and a 3MW battery storage system and associated infrastructure.

3.4 The proposed solar farm will involve a temporary change of use of the land but, due to the time-limited nature of the development (of 40 years), the agricultural use will be retained in the long term.

3.5 In addition, the minimal physical intrusion of the development itself will mean that the panels can be removed after their 40-year lifetime and the land will revert swiftly to full agricultural use. In this respect, the proposed scheme will result in a temporary impact in contrast to most other forms of development, many of which are permanent and/or have a more significant, direct effect on the land on which they are located.

3.6 The EV charging station will comprise a covered forecourt and canopy with sufficient capacity to simultaneously charge up to 12 rapid and ultra-rapid charges (43-350kW capacity) under translucent, solar canopies. In addition, 13 additional fast (c. 22kW) EV charging points would be provided for users of the parking bays on the site. In total, this would provide the ability to charge up to 25 EVs at any one time. All charging points would be configured for use by any type of modern, light-duty EV and they would not be restricted to one EV make or model.

3.7 The EV Charging Station will also comprise a seating/rest area to the south-west

of the covered walkway and canopy to reflect that EV charging does not require the driver to remain with the car and that even ultra-rapid EV charging result in a "dwell time" of some 15 minutes. Approximately 180sqm floorspace would be provided of 'E' and 'Sui Generis' Use Classes for a shop/café. A small outdoor seating area and play area is located to the south of the hub/café building.

- 3.8 In addition to the 12 rapid/ultra-rapid charging bays, two parking areas are proposed within the Eco Hub. The eastern parking area comprises 22 car parking spaces, including 13 bays with fast EV charging points and 3 accessible spaces (e.g. for vehicles driven by disabled drivers). The western parking area will provide a further 25 car parking spaces. This significant degree of additional parking space would be made available to help reduce congestion on Halstead Road, particularly during peak school drop-off and pick-up times.
- 3.9 The inclusion of battery storage within the development will increase the resilience and efficiency of the proposed development, balancing the export of electricity produced from a renewable source (via the solar modules) on to the electricity grid and/or into the EV charging station. Similarly, the batteries will be able to import power at times, providing "grid services" such as voltage control.
- 3.10 Due to the land area typically required for solar projects (ie >50 acres), they are generally located outside of urban areas on edge-of-town or countryside locations, where there is sufficient land capacity to accommodate such developments.
- 3.11 This Design and Access Statement and the documents and plans accompanying the planning application set out why it is considered that this particular site is well suited to accommodate the proposed use.

Amount and Fabrication

- 3.12 The extent of the proposed development has been refined and finalised with due consideration given to potential environmental and landscape effects and local and other stakeholder feedback. For example, in response to local feedback and discussions with the Local Authority:
- A setback buffer to residential properties of a minimum of 15m meters has been included along the northern and southern boundaries of the site to address local feedback;
 - Permissive footpaths following routes informally used by local walkers have been included in the layout of the solar farm to connect to the PRowS and

the wider network; and

- A footpath link has been provided from the Eco Hub to the adjacent recreation ground to allow users of the sports facility easy access to the facilities at the Eco Hub (café/shop) and the associated car parking area, noting the congestion caused by parking when the sports fields are heavily used (eg at weekends during the football season).

3.13 As a result of the iterative process, the proposed development, although covering a large area of land, is confined to locations where effects have been limited and/or mitigated as far as possible; such effects are considered justifiable. This view is supported further in the context of the scheme benefits, including its contribution to the UK's renewable energy targets, legally-binding greenhouse gas reduction targets and facilitating the Government's commitments to end the sale of new petrol and diesel cars in the UK by 2030 and decarbonising the electricity system by 2035. Consideration of the planning balance which weighs up all material factors associated with the planning application is contained within the accompanying Planning Statement.

3.14 As detailed above the EV charging station will comprise a single storey building and connected, covered walkway with parking and charging areas. The building will measure 36m x 5m with height of 4m. Externally the Eco Hub will also include a permissive footpath for use by the public to the adjacent recreation ground, a play area for children and seating areas.

3.15 The proposed solar farm will consist primarily of a steel framework to support the panels and the panels themselves.

3.16 The solar farm element of the development will also include a number of ancillary elements, as shown on the plans accompanying the planning application, including:

- a number (5 no.) of inverter/transformers, of single storey height, would be located across the site with there likely being at least one in each field/parcel;
- a CCTV system, using cameras mounted on freestanding columns up to 3m in height, within the site boundary (facing inwards) would be installed around the site's perimeter;
- boundary fencing (e.g. deer proof or stock fencing) will be installed around the edge of the site, up to 2m in height. There will be a small gap in places

at ground level to allow the passage of wildlife across the site;

- associated access tracks, a minimum width of 3.5m across the site (connecting inverter/transformer units);
- relevant communications and weather monitoring equipment;
- new permissive footpaths provided to link up and connect to the PRow network both within and outside of the site;
- use of an existing field access on Halstead Road for construction purposes (modified as appropriate); and
- associated electricity and communication cables and earthing.

Layout

- 3.17 In proposing the general layout of the development, great consideration was given to the retention of the established field boundaries on site along with new planting of native hedgerows and trees. This will help ensure that the development is well contained both physically and visually.
- 3.18 The EV charging station is located on a parcel of land to the western side of Halstead Road. The submitted EV charging site layout drawing details the location of the EV charging bays with covered canopy connecting to the hub/café building with public rest facilities to the southern-western corner of the site. The battery storage system and grid connection infrastructure is situated in the north-eastern corner of the site and would be partially surrounded by a close-boarded, acoustic, wooden fence; reducing noise levels and visual effects at nearby properties. Additional parking bays are provided between the EV charging site and battery storage area. These spaces provide additional parking, including for EV drivers wishing to fast charge and those drivers requiring accessible spaces (e.g. disabled drivers).
- 3.19 Bicycle parking and E-Bike charging is provided within a covered shelter on one end of the Hub/café building.
- 3.20 Within the western part of the EV charging area, provision has been made for air and water facilities for vehicle maintenance.
- 3.21 Recycling and refuge facilities will be incorporated within the design of the Hub/café building.
- 3.22 Within the fields of the solar farm the panels will be arranged in long rows running from east to west, orientated to the south to maximise efficiency.

- 3.23 Relatively small ancillary control buildings are required around the site. The submitted site layout drawing outlines the position of these structures within the site and accompanying drawings set out their dimensions.
- 3.24 A network of internal tracks around the solar arrays will be laid to allow vehicle access to the supporting equipment (mainly inverters and transformers) for the purposes of maintenance. The layout and extent of the tracks is limited to that necessary to provide access and maximise efficiency.
- 3.25 The 2m high perimeter fencing and pole-mounted CCTV system serve an important purpose in helping to prevent unauthorised access to the equipment within the application site, including high-voltage equipment. The perimeter fencing includes badger/small mammal friendly access points to allow the continued passage of wildlife across the application site.
- 3.26 The associated equipment siting has also considered the impact on the appearance of the area and, where practicable, to accommodate the site's carefully designed electrical layout. The design has sought to set equipment away from the boundaries of the fields, ensuring that there is separation from the existing vegetation and any sensitive ecological features. The existing and proposed mitigation planting will contribute towards visual screening of the site while mitigating any ecological effects and/or enhancing existing habitat features.
- 3.27 The battery storage system is likely to use Lithium Ion (Li-Ion) batteries and the location and design of this part of the development meets the applicable safety recommendations relating to fire risk offset¹. Specifically, the battery storage system design is external and provides for safe distances between each battery container while the system is located at, or greater than, 20 metres from the café/shop and EV charging areas and at, or greater than, 3 metres from publicly accessible areas. In addition, it is proposed that the batteries would be compliant with the globally recognised UL9540A fire safety standard and the systems would be fitted with automatic fire suppression technology.

Scale

- 3.28 All of the buildings proposed including plant buildings on site will be at or below single storey level (i.e. approximately at or below c.3m in height except for the maximum elevation of the pitched roof of the EV charging building which is c. 4m).

¹ Allianz Risk Consulting, "Tech Talk", volume 26 "Battery Energy Storage Systems (BESS) using Li-Ion batteries", (2019)

When viewed from nearby public vantage points, the scale of development will not be overbearing due to its limited height, integrated appearance and the natural screening provided by existing and proposed vegetation.

- 3.29 In regard to the solar farm, the scale of development has been determined by the equipment necessary to efficiently and viably generate renewable energy and to optimise the grid connection. Each array of panels within the solar farm will be mounted on a simple metal framework and have a maximum height of no more than 2.5m above existing ground level (nearly 20% lower than most solar farm designs that have a 3m-plus maximum height). The main purpose of the mounting structure is to hold the modules in the required position without undue stress. It is capable of withstanding appropriate environmental stresses for the location, such as wind or snow loading. The solar farm will consist of fixed-supporting frameworks, inclined southwards at between 15 to 25 degrees. The framework will be driven into the soil removing the need for deep foundations. Such piled supporting systems are designed to avoid the use of concrete foundations and are reversible. Individual rows are separated by 2.5m to 10m to reduce the effects of shading. Electrical combiner boxes are located underneath the panels throughout the site.
- 3.30 The proposed ancillary buildings are designed to be as small as possible while still being capable of safely undertaking their required electrical function within the site. Such structures will not be prominent within the surroundings and will be smaller than many isolated stores and barns typically found in the countryside environment.

Landscape and Appearance

- 3.31 The impact upon the local landscape has been given careful consideration in putting forward the proposals. While a scheme of this nature will inevitably be visible from some locations and have some effect on landscape character, the development and its design seeks to minimise effects as far as possible.
- 3.32 It is considered that the landform and vegetation of the site and surrounding area make this an acceptable location for utilisation as a solar farm alongside a battery storage system and EV charging station.
- 3.33 The appearance of the EV charging station has been carefully considered in regard to its location and landscape impact. In terms of design, features have been sought to reflect the urban edge setting and integrate the development into the landscape through the use of biophilic design including wooden cladding and a green roof for

the building comprising a shop/cafe and public rest facilities.

- 3.34 The EV charging station area will incorporate modern LED lights which face into the site, directed downwards to minimise any light spillage outside of this area. Prior to construction and operation of the development commencing, a detailed lighting scheme will be agreed with the LPA.
- 3.35 The landscape planting and mitigation for the proposed solar farm is intended to enhance both the landscape character and visual amenity of the site and its surroundings. The proposed development will seek to retain and enhance existing landscape elements to further integrate the proposals into the surrounding landscape.
- 3.36 The layout of the development ensures there will be minimal works to or loss of the existing trees and hedgerows within the site. Additional landscape planting has been introduced within the site and along the boundary which will also strengthen the landscape character, improve biodiversity of the site and further filter views.
- 3.37 The mitigation measures incorporated into the design include:
- Enhancement of existing landscape features and environmental improvements in terms of additional shrub, hedge and native species planting;
 - Grass and wildflower mix will be introduced between the rows of panels to encourage further biodiversity enhancements;
 - Enhancement of local wildlife through the introduction of wide ecological corridors, bird boxes and insect hotels;
 - Existing field boundaries will be retained;
 - Potential natural maintenance of site by grazing sheep, retaining an agricultural use of the land; and
 - Construction exclusion zones identified through a detailed tree survey to protect exposed trees during the construction period.
- 3.38 As a result of the landscape mitigation planting, views of the proposed development would be limited.
- 3.39 Further consideration of the landscape and visual effects is contained in the corresponding chapter of the Environmental Statement that accompanies the planning application.

4.0 ACCESS

- 4.1 Access to the proposed solar farm will be via an existing field gate on the eastern side of Halstead Road improved where necessary to accommodate the largest vehicles associated with the proposed solar farm. The new access will be used by construction and maintenance vehicles associated with the solar farm. All vehicles will enter and exit the site in a forward gear and will turn in an internal site compound.
- 4.2 While a new priority T-Junction will be constructed on the western side of Halstead Road to serve the EV charging station. The new access will be used by construction vehicles associated with the EV Charging Station and periodic visits by maintenance vehicles as well as providing public access to the EV charging station. Again, all vehicles will enter and exit the site in a forward gear.
- 4.3 Many of the components which are required to construct the solar farm will arrive on heavy goods vehicles (HGVs):
- The PV panels and frames will be shipped in 12.2 metre containers which are typically carried to the site on a 16.5 metre-long articulated vehicles. This is the largest vehicle which will access the site;
 - Two prefabricated switching station buildings will be delivered individually to the site by 16.5m articulated vehicles due to their size;
 - The three battery units will be individually transported to the site by 18 metre low-loaders; and
 - The proposed EV charging station would have a total of three inverter stations which are anticipated to arrive at site on 10-metre-long rigid HGVs. These will be transported individually due to their weight.
- 4.4 It is expected that there will be around 874 movements by large vehicles for the construction of the solar farm (i.e. 437 arrivals and 437 departures) over a six month period. For the EV charging station there will be up to 30 HGV deliveries (60 two-way movements) per week. Assuming a three-month construction phase, this could equate up to approximately 360 deliveries in total and five deliveries per day on average. Depending on the type of work this is happening this may increase or decreased over certain periods. The level of traffic during the construction phase is not considered to be material and it is considered that this will not have a detrimental impact on the safety or operation of the local or strategic highway

network.

- 4.5 After commissioning, it is anticipated that there will be around one visit to the solar farm per month for equipment maintenance. These visits would typically be made by light van or 4x4 type vehicles. Whilst the contractor's compound will have been removed, space will remain within the site for such a vehicle to turn around to ensure that reversing will not occur onto the adjacent access track. The proposed operational life of the project is 40 years.
- 4.6 A construction compound will be established and remain on site throughout the construction phase. This will be where HGV deliveries would be made throughout the construction process and smaller vehicles will distribute materials and plant to the remaining sections of the site.
- 4.7 A detailed Construction Traffic Management Plan (CTMP) has been prepared to demonstrate how the site will be accessed during the construction period.
- 4.8 When in full operation, the solar farm and EV charging station will not generate any significant additional traffic movements.
- 4.9 There are number of PRowS within the site of the proposed solar farm and around its boundaries and similarly around the northern and western boundaries of the Eco Hub site. As noted previously, new permissive footpaths will be provided within the solar farm part of the site, connecting with existing routes and the wider footpath network.
- 4.10 Pedestrian access to the solar farm will be restricted for security purposes to prevent theft and vandalism, however the existing routes of the PRowS will remain and new permissive footpaths introduced. When construction plant and machinery are accessing the site, a banksman will be employed to control both pedestrian movements and traffic control throughout the duration of the construction phase.

5.0 SUMMARY AND CONCLUSIONS

- 5.1 The Design and Access arrangements of the proposed development have been assessed. It is considered that due to the appearance of the scheme and the natural screening afforded by existing vegetation and the landscape enhancements proposed, the development proposals will not have an unacceptable adverse effect on the visual or amenity value of the wider countryside.
- 5.2 The site and extent of development have been carefully selected. The site is naturally screened in places and supplemented by additional planting which will result in only limited views of the site. Landscape considerations are outlined within the LVIA.
- 5.3 The equipment forming the solar farm and materials for the EV charging station have been selected on the basis of maximising efficiency and productivity, while seeking to minimise visual effects where possible.
- 5.4 Safe access can be taken into the site from the public highway. Mitigation measures will be employed to ensure construction traffic is managed appropriately as outlined within the submitted CTMP.
- 5.5 Overall, the proposals are appropriate in terms of design and access and the development represents a necessary step towards meeting the UK's legally binding climate change and renewable energy obligations as well as meeting the existing and rapidly growing infrastructure demands of EV users, owners and operators. It is therefore considered that the application before Tendring District Council can be supported and that planning permission should be granted.