RE: Padbury Brook Solar Farm – Planning Reference – 22/03873/F

Requested Planning Conditions

- **Electromagnetic Compatibility (EMC):**

  Large utility-scale solar inverters are significant emitters of electromagnetic interference. This is particularly prevalent in the amateur radio, VHF aircraft and domestic broadcast bands. It is also problematic in the frequency ranges used by xDSL based broadband services using copper telephone wires for the 'last mile' to properties. Interference can be radiated in the air and induced in cables which can severely degrade vital services. If unmanaged, this can manifest as a significant material impact on the amenity of nearby properties.
  The Applicant (or future Developers / Owners of the scheme) have a statutory obligation under the UK's Electromagnetic Compatibility Regulations S.I. 2016/1091 (as amended), to manage EMC such that disruptive interference to neighbouring properties is avoided and that the electromagnetic spectrum (a finite, shared resource) is not unduly impacted. The submitted planning application does not outline how this will be achieved, or indicate any intention to address the requirements.
  Should permission be granted, in order that EMC is correctly managed from the outset (rather than addressed retrospectively due to spectrum complaints) we would like to see a Planning Condition imposed for the preparation of an EMC Control Plan and subsequent Compliance Management File.

  1. (1) No development shall take place until an Electromagnetic Compatibility Control Plan ("EMCCP") has been submitted and approved in writing by the local planning authority.

  (2) The EMCCP must prescribe measures for the management and mitigation of radio frequency interference from the proposed development throughout the Project lifecycle from detailed design phase to decommissioning and call for the preparation of an EMC Compliance Management File.

  (3) The EMCCP must define how the Essential Requirements for Fixed Installations [Schedule 1(2)] of the Electromagnetic Compatibility Regulations 2016/1091 (as amended) will be addressed and appoint a Responsible Person in respect of those Regulations for the purposes of enforcement by Competent Authorities.

  (4) The EMCCP must be implemented as approved.

  Reasons:
  To safeguard the continued and non-degraded access to essential and recreational uses of the electromagnetic spectrum (radio and telecommunication services) by nearby properties.

- **Rise of Earth Potential (creation of a so-called earthing "Hot Site"):**

Large solar farms such as this, under electrical fault conditions, have the ability to locally raise the voltage of the ground into which they are earthed. This is known as Earth Potential Rise (EPR).
In extreme cases, this can be an electrocution hazard to people or animals nearby via "Touch Voltage" (coming into contact with electrified earthed structures such as metal perimeter fencing or field gates) or "Step Voltage" (the voltage seen by the body from walking across electrified ground). Step Voltage is a particular hazard for horses and livestock due to their relatively large stride. The section of public footpath running along the northern edge of the site would be a particular risk area, as would the horse paddocks at Oldfields Farm (Stratton Audley) and Merrick Hill Farm (Godington). The effect can extend concentrically for hundreds of metres.

At greater distances, there can be impacts on the functional integrity of earthing systems of residential and other buildings, leading to electrical safety hazards. It is normal practice for a study of impacts to be performed, using information from site soil resistivity measurements.

It is requested that, should permission be granted, a condition is placed on The Applicant (or future Developers / Owners of the scheme) to perform an Earth Potential Rise (EPR) Study.

2.(1) No development shall take place until an Earth Potential Rise ("EPR") Study has been submitted and approved in writing by the local planning authority.

(2) The EPR Study must prescribe measures for the management and mitigation of the voltage rise of earth due to fault currents emanating from the proposed development throughout the Project lifecycle from detailed design phase to decommissioning.

(3) The EPR Study must show the methodology and modelling techniques used to ensure that the maximum voltage rise in surrounding land due to the development is below that prescribed by industry guidance (such as, but not limited to) Electricity Networks Association EREC S41 & S36, using actual soil resistivity values obtained from the site.

(4) Any mitigation found necessary by the EPR Study must be implemented as approved.

Reasons:
To ensure the electrical safety of the site for walkers, domestic pets and livestock near site boundaries and to maintain the integrity of electrical earthing systems of nearby properties, dwellings and businesses.

- **Fire Safety :**

The presence of a Battery Energy Storage System ("BESS") Technical Statement is noted in the Application, discussing the likelihood of thermal runaway and fire. In it, The Applicant offers to be bound by a Planning Condition requiring the preparation of a Battery Safety Management Plan ("BSMP") in consultation with the Health & Safety Executive and the local Fire & Rescue Service.
We endorse this approach but would request the scope of any Management Plan is extended to cover all high energy electrical plant and cabling installed on site, not just the Battery Energy Storage Systems.
Fires can start anywhere in high energy electrical systems due to, for example, poor, weathered, or degraded cable joints, DC & AC Arc Flash, lightning strikes, breakdown of electrical insulation and transformer & related equipment faults.
Given the prospect of hotter, drier summers to come and the likelihood of a large amount of dry grass and vegetation on site, adequate fire prevention, detection, suppression and associated ongoing maintenance of this large-scale distributed development are essential in order to safeguard life and property nearby.

Request: That any imposed Condition widens the scope of the proposed Battery Safety Management Plan to include all high energy electrical plant, switchgear, transformers, inverters, cabling and solar arrays installed on site, in addition to the Battery Energy Storage Systems.