

22nd April 2026

your reference

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our reference 22-167-TN02 v4

**Re: Land Adjacent to Bolney Substation, Bob Lane Twineham, West Sussex: Redesign
Technical Note**

Introduction

Following planning approval on the 18th October 2024 (planning reference DM/23/0769) for the construction and operation of a battery energy storage system (BESS) together with all associated equipment, ancillary infrastructure and landscaping on land adjacent to Bolney Substation, Bob Lane, Twineham West Sussex, a Noise Impact Assessment (22-167 v5 dated 16 February 2023) and Technical Note (22-167_TN01 24 May 2023) were submitted as part of the original application for the approved scheme layout PL-01 rev22 and confirmed noise was not a constraint to the approval of the planning application and noise matters are controlled by Condition 24.

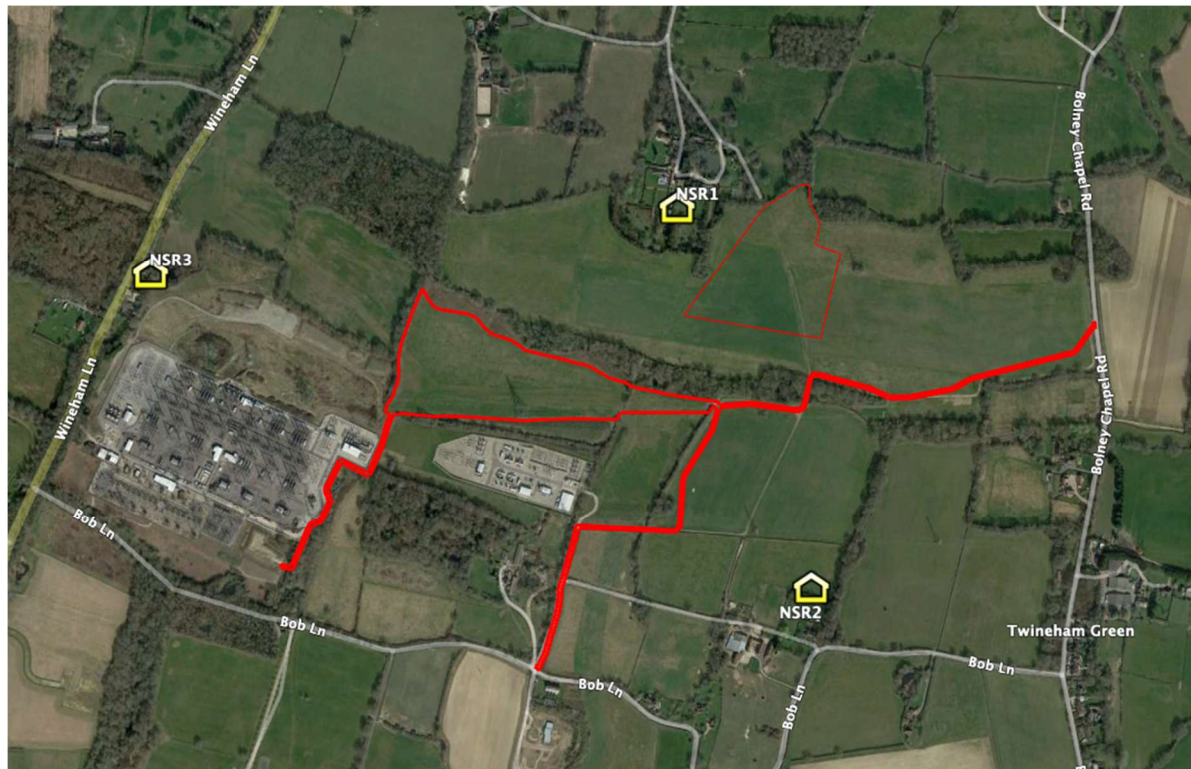
Overview

Following further design and engineering discussions including with the grid connection provider, One Planet Developments are looking to revise the substation and reduce the number of BESS units in the scheme within the existing red line. This is shown on layout plan reference PL-01 rev25. All other elements remain as consented. This change is considered non-material in planning but inacoustic has been commissioned to provide this technical note to assess the impact of potential noise arising from the amended scheme to ensure it remains compliant and within the findings of the original noise impact assessment.

The site is located on Land Adjacent to Bolney Substation, Bob Lane Twineham, West Sussex.

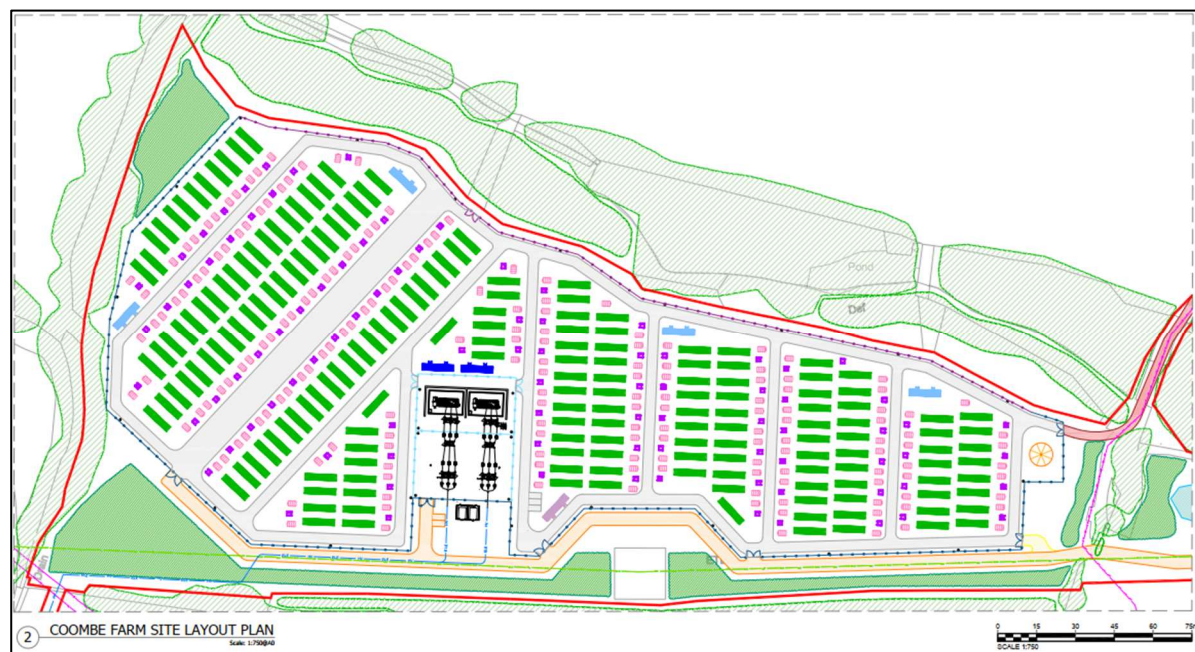
The Noise-Sensitive Receptors (NSRs) considered in the assessment can be seen overleaf.

FIGURE 1: PROPOSED DEVELOPMENT SITE AND NOISE-SENSITIVE RECEPTORS (NSRs)



An overview of the updated site layout can be seen below in Figure 2.

FIGURE 2: PROPOSED SITE LAYOUT



It is now proposed that there will be 180no. containerised battery units, 182no. Power Control Systems (PCS) stations and 92 MV Transformers on Site, along with 2No. 132kV Transformers in the substation area.

Source Data

The A-weighted sound power levels associated with the Proposed Development can be seen below in Table 1. It is common that technical infrastructure applications are determined well ahead of the procurement and purchase of the plant and equipment required. In these circumstances it is typical to specify maximum noise levels from a 'candidate plant' based on existing technology, to be achieved by scheme design.

TABLE 1: SOUND SOURCE DATA

Plant	Quantity	Sound Power Level per unit, L _{WA} (dB) - Daytime	Sound Power Level per unit, L _{WA} (dB) - Night-time
PCS/Inverter Unit (sound attenuated)	182	78	71
Battery Cooling System (Low noise - western end of container)	180	81	75
MV Transformer	92	71	71
132kV Transformer (Low Noise)	2	83	83

Confirmation from the selected plant manufacturers that the above sound levels can be achieved should always be sought prior to plant procurement.

It is noted that some cooling systems, equipped with variable fan speed, may operate at a lower duty during the night-time when ambient temperatures are lower. In such cases, the fan speed automatically adjusts based on ambient temperature to maintain optimal performance and manage noise levels. This assessment assumes nominal cooling demand during the day and reduced cooling demand at night for both inverters and battery cooling systems

Additional Mitigations

Table 1 shows the maximum sound power level required to achieve compliance at the worst affected receptors. To achieve this, it is recommended that low-noise inverters are deployed at this site. This is likely to require the inverters to be housed within an acoustic enclosure capable of reducing the total sound power level to those presented in Table 1. M&E engineers should make allowances for the necessary pressure loss introduced by the proposed mitigations. Similarly, low noise cooling systems should be employed in the battery containers.

The 132kV Transformers should also be designed for low noise emissions, including any necessary cooling system. For low noise HV Transformers, ONAN transformers (Oil Natural Air Natural) are normally preferable above ONAF transformers (Oil Natural Air Forced), unless the cooling fans are designed for low-speed operation with aerodynamically optimised blades.

It is the responsibility of the contractor/manufacturer to provide test documentation confirming that the plant does not exceed the sound specifications set out in this report.

It is also recommended to erect a 3.5m high noise fence at the northern site boundary, as shown in the planning noise assessment report. The noise barrier should be solid, continuous, sealed at all interfaces and have a surface density in the order of 10 kg/m², or provide a minimum sound reduction performance through the panel of 15-20 dB.

It is also noted that the design also includes a 5-metres high concrete wall around three sides of the HV transformers.

Assessment Results

The tables below show the results of the BS4142 assessment, with the proposed mitigation measures presented above.

TABLE 2: BS4142 ASSESSMENT – DAYTIME (07:00-23:00)

NSR	Rating Sound Level (dB) ¹	Daytime Background Sound Level (dB)	Excess of Rating over Background Sound Level (dB)
1	32	34	-2
2	28	33	-5
3	33	33	0

TABLE 3: BS4142 ASSESSMENT – NIGHT-TIME (23:00-07:00)

NSR	Rating Sound Level (dB)	Night-time Background Sound Level (dB)	Excess of Rating over Background Sound Level (dB)
1	27	27	0
2	23	26	-3
3	27	27	0

As can be seen, the noise emission from the heavily attenuated plant is predicted to not exceed the prevailing background sound levels at the nearest NSRs, both during the day and during the night, which in BS4142 terms and considering the context represents a **'Low Impact'**.

Conclusions

The above assessment shows that with the redesign of the layout the noise impact at the nearest NSRs can be suitably controlled. The design elements that have been considered are summarised below:

- Reduced number of plant with respect to layout at planning stage (189no. batteries and inverters before against 182no. now);
- Batteries with one integrated cooling system on the western end of the container instead of on both ends as assumed at planning stage;
- 3.5m high noise fence at the northern boundary of the site (same as advised at planning stage); and
- Concrete walls around the 132kV Transformers

It should be noted that the sound emission specifications given for the development in Table 1 are stringent. Based on technical information provided by various manufacturers we can confirm that they are feasible with existing technology.

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