

23rd December 2024

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South Oxfordshire District Council

Abbey House
Abbey Close
Abingdon
OX14 3JE

Dear Sirs,

RE: Land to the north of the Culham Science Centre, Thame Lane near Clifton Hampden OX14 3GY (Full Planning Permission Reference. No: P/24/S1498/FUL) – Supplementary Environmental Information

Introduction

This Environmental Impact Assessment ('EIA') Supplementary Environmental Information Report ('SEIR') has been prepared by Trium Environmental Consulting LLP ('Trium') on behalf of Culham Storage Limited (the 'Applicant') to support an appeal against local planning authority refusal for application P/24/S1498/FUL in relation to the proposed battery storage at land to the north of Culham Science Centre. The area of land is located within the administrative boundary of South Oxfordshire District Council ('SODC') (hereinafter referred to as the 'site'). SODC are also the relevant local planning authority.

A planning application seeking full (detailed) planning permission for the site (the 'Application Scheme';) was submitted to SODC in April 2024 (hereinafter referred to as the '2024 Planning Application') for a Battery Energy Storage System (BESS) (reference: P/24/S1498/FUL).

The 2024 Planning Application was accompanied by an Environmental Statement (ES) (hereinafter referred to as the '2024 ES'), which was prepared in accordance with The Town and Country Planning (EIA) Regulations 2017 (as amended)¹ and which considered the environmental effects associated with the Application Scheme.

The 2024 Planning Application was refused on the 8 August 2024, with eight reasons for refusal: (1) inappropriate development in the Green Belt; (2) the impact on landscape character; (3) the impact upon Nuneham Courtenay Grade I Registered Park and Garden; (4) the loss of best and most versatile agricultural land; (5) insufficient information relating to archaeological trench evaluations; (6) insufficient information relating to the drainage strategy and (7) insufficient information relating to the Biodiversity Net Gain (BNG) and (8) arboriculture.

The Appellant has continued to review the scheme following the refusal of the planning application alongside consultation comments. Several potential refinements have been identified. This SEIR therefore outlines the proposed design amendments following planning refusal (referred to collectively as the 'Appeal Scheme') and considers the amendments in the context of the EIA previously undertaken for the Application Scheme (as reported within the 2024 ES).

Each environmental topic assessed within the 2024 ES has been considered within this SEIR. In addition to the consideration of the Appeal Scheme, the surrounding baseline context has been reviewed and updated where required.

This SEIR concludes that the Appeal Scheme does not have a material effect on the assessments presented within the 2024 ES, and this SEIR provides up to date and sufficient information on the likely significant effects of the Application Scheme and the Appeal Scheme for decision making purposes.

This SEIR is accompanied by the following annexes:

- Annex A – Refused (Application Scheme, August 24) and Amended (Appeal Scheme, December 24) BESS Layout Plans
- Annex B – Landscape and Visual Impact Assessment Addendum.
- Annex C – Cultural Heritage and Archaeology Supplementary Environmental Information.
- Annex D – Ecology and BNG Supplementary Environmental Information.

¹ *His Majesty's Stationery Office (HMSO) 2017. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended in 2018 and 2020).*



Planning Background and Description of Development

As noted above, a full (detailed) planning application, which was accompanied by the 2024 ES was submitted for the site in April 2024 (reference: P24/S1498/FUL). The application sought detailed permission for the:

“The development of a Battery Energy Storage System (BESS), comprising a 500 megawatt (MW) battery storage facility with associated infrastructure, access and landscaping with a connection into the Culham Jet National Grid substation.”

EIA Scope

An EIA was undertaken, and the resulting ES was submitted in support of the 2024 Planning Application, which was refused on the 8 August 2024. The decision notice for the Planning Application is available for public viewing via the SODC planning portal².

The following environmental topics were included within the scope of the 2024 ES:

- Cultural Heritage
- Land Take and Soils
- Climate Change
- Landscape and Visual Impact

The following topics were scoped out of the 2024 ES:

- Water Resources, Drainage and Flood Risk
- Ecology and Biodiversity
- Geoenvironmental Conditions (Land Contamination, Ground Conditions and Groundwater)
- Traffic and Transport
- Noise and Vibration
- Air Quality
- Waste and Materials
- Project Vulnerability
- Socioeconomics and Health

Detailed justification for scoping out these topics out of the EIA, can be found in the 2024 ES Volume 3, Appendix: Introduction and EIA Methodology – Annex 4. The proposed amendments do not alter the approach to scoping these topics out of the EIA, and as such, it is appropriate that these topics remain ‘scoped out’.

Design Evolution and the Appeal Scheme

The Appeal Scheme comprises the following changes to the Application Scheme:

Scheme Element	August 2024 Application Scheme	December 2024 Appeal Scheme
Point of Connection	Point of connection located within Registered Park and Garden (RPG) .	Point of connection relocated to within the BESS compound.
BESS Equipment	296 battery containers and 37 inverter houses.	248 battery containers and 31 inverter houses. This represents a reduction of 48 battery containers and 6 inverter houses respectively.
Access Road	n/a	New access road to service the point of connection compound.
Underground Cable	n/a	Rerouted because of the change in location of point of connection.
Earth mounding	n/a	Earth mounding omitted and trees to be planted into existing ground.
Car Parking	14 spaces	4 spaces
Water Tanks	3 tanks	2 tanks although overall capacity retained

Point of Connection (PoC)

The main proposed BESS site and associated substation infrastructure lies immediately outside the southern boundary of the Registered Park and Garden, and the 2024 ES included a point of connection (PoC) compound and tower within the Registered Park and Garden.

Reason three for refusal related to the impact of the Proposed Development on the Registered Park and Garden. Accordingly, the point of connection has been re-located to within the BESS compound so that no other works, other than landscaping, are now proposed within the Registered Park and Garden.

² <https://data.southoxon.gov.uk/ccm/support/Main.jsp?MODULE=ApplicationDetails&REF=P24/S1498/FUL#exactline>



BESS Equipment

The BESS compound, equipment and access track have been reorganised because of the PoC being relocated (see above). Therefore, there is a reduction in battery containers from 296 to 248 and a reduction in inverter houses from 37 to 31.

Access Road

A new access road is proposed to service the PoC compound.

Underground Cable

The cable runs have been rerouted because of the change in location of the point of connection.

Earth Mounding

The proposed earth mounding has been omitted following comments from the SODC, and instead trees will be planted into the existing ground. The depth of woodland will increase, resulting in more woodland screening.

Description of Development Review

The Description of Development remains as previously stated:

“Development of a Battery Energy Storage System (BESS), comprising a 500-megawatt (MW) battery storage facility with associated infrastructure, access and landscaping with a connection into the Culham Jet National Grid substation.”

Construction

The 2024 ES summarised the required works as follows:

- Enabling works
- Ground civils works
- Main civil works
- Electrical connection works
- Commissioning
- Landscaping

The 2024 ES cited that it is expected that the construction works would take 18 months, with approximately 8 to 10 months for civil works and 8 months for commissioning with connection to the grid thereafter. This all remains valid.

Consideration of the Appeal Scheme

Following a review of the Appeal Scheme, it has been determined that the amendments to the Application Scheme have the *potential* to vary the assessments relating to Landscape and Visual Impact, and Ecology and BNG.

The assessments completed for the following technical topics do not change because of the amendments, and therefore have not been considered any further within this EIA SEIR:

- **Cultural Heritage (Below Ground Archaeology):** Following refusal of the Application Scheme, the Applicant has commissioned archaeological trenching in response to the OCC Archaeologists comments. These works have demonstrated that the south-western part of the site was occupied during the late Roman period, including a settlement of at least moderate status, with access to economic networks with local/regional and international links. These areas, and the remainder of the site, subsequently remained unoccupied until the late post-medieval period, during which time the site retained its rural character, as evidenced by plough-scars and furrows in the centre of the evaluation areas. The site remained rural up until the establishment of the Royal Naval Air Station in the mid-20th century. The areas of the site within the Military Station were not subject to excavation; however, instances of modern quarrying/dumping and related infrastructure in the western, and eastern-most extents of the site, as well as modern glass and metal assemblages from across the site, reflect the succeeding occupation of the site as a modern military base. This modern activity appears only to have affected preceding (predominantly Roman) deposits/remains in the areas immediately adjacent to modern development, and at the western-most extent of the site; across the remainder of the site, underlying deposits appear to also have been moderately affected by ploughing/furrow activity during the post-medieval period.



The Roman material in the south-western part of the site, while of regional archaeological interest, is not considered to be of sufficient significance to prohibit or constrain the Appeal Scheme; however, it is anticipated that further works may be requested by the OCC Archaeologist, as a condition, to record and mitigate the impact of the Appeal Scheme upon this material. It is likewise anticipated that for the remaining areas of the site, which have been found to contain only post-medieval agricultural activity of limited significance, these be subject to development without further condition – however, this will be agreed separately with the OCC Archaeologist prior to commencement.

The further work undertaken in response to the Reason for Refusal Point 5 does not alter the assessment of impacts on cultural heritage (archaeology) presented in the 2024 ES.

The Appeal Scheme (nor the Application Scheme) will have no impact on any nationally designated archaeological assets. The Site has been assessed as having a high potential to contain prehistoric and Roman deposits and low potential to contain post-Roman deposits.

The Schemes are considered to have the potential to result in Significant adverse effects on buried archaeological remains. Implementation of a strategy for archaeological mitigation will not remove likely significant effects associated with the enabling and construction works given that there is the potential for the resource to be lost, however the scale of the effect would be reduced. Mitigation of the archaeological remains through excavation or similar strategy would ensure that any archaeological remains within the site are appropriately preserved by record prior to any adverse construction effects.

No new or different Archaeology effects are expected to arise, and therefore the conclusions presented within the Archaeology assessment of the 2024 ES are considered to remain valid.

Annex C provides Cultural Heritage and Archaeology Supplementary Environmental Information.

- **Greenhouse Gas Emissions:** The December 2024 Amendments are not anticipated to give rise to any new or different greenhouse gas (GHG) effects than those presented in the 2024 ES. Whilst the Amended Development results in a reduction of battery containers from 296 to 248, which may subsequently result in minor non-material changes to the quantities of materials used in construction and the related embodied carbon, it will not alter the basis of the GHG assessment. There is also no material change expected to the operational assessment presented. On this basis, no new or different GHG effects are expected to arise, and therefore the conclusions presented within the GHG assessment of the 2024 ES is considered to remain valid.
- **Land Take and Soils:** The December 2024 Amendments do not alter the area of land required for the BESS development. The receptors (agricultural land of Grade 2, Subgrade 3a and Subgrade 3b quality and loamy sand, sandy loam and sandy clay loam soil resources) remain present on site. The Amended Development will result in the same overall conclusion on land take and soils as presented in the 2024 ES – moderate adverse (significant) effect regarding loss of agricultural land in Grades 2 and Subgrade 3a and moderate adverse (significant) in respect of impact on soil resources and the inability of the soil resources to fulfil all its primary functions due to loss of the agricultural land. The reason for refusal does not dispute the assessment presented in the 2024 ES but relates to the principle of the loss of best and most versatile agricultural land. Further information is provided by Statera Energy for the appeal on this matter and reference should be made to this for further information on this matter.

Ecology and BNG

The Appeal Scheme, whilst not demonstrating higher habitat value than the Application Scheme in BNG metric terms, will provide improved structural diversity and increased opportunities for fauna. The faunal enhancements previously proposed under the Application Scheme would also be adopted for the Appeal Scheme.

An update badger walkover has revealed that badger is no longer making use of annexe sett S5 in the east of the site, however, they are active within a single hole outlier (S13) which will need to be closed. This is not significant to the assessment of impacts for either Scheme given an outlier sett is of lower significance than an annexe sett.

In conclusion, both Schemes will secure significant net gains for biodiversity. **Annex D** to this SEIR provides supplementary environmental information on Ecology and BNG.

The assessments completed for the following technical topics have the *potential* to be impacted by the December 2024 Amendments, and this is discussed in more detail below.

Landscape and Visual Impact

Landscape Character: Registered Park and Garden

The original proposed point of connection (PoC) within the RPG was set amongst existing mature tree groups and would not have been a prominent feature within the landscape from publicly accessible locations. However, it would have had a significant, direct, permanent adverse effect on the landscape character of the RPG (previously assessed as moderate – major adverse). The Landscape and Visual Impact Assessment (**2024 ES Volume 2: Landscape and Visual Impact**



Assessment) concluded the Landscape Value of the Site outside the RPG is Low, while High within the RPG. The removal of the PoC from the RPG removes this direct significant adverse effect on the landscape character of the RPG.

The new proposed PoC will be more visible from publicly accessible areas since it moves closer to these viewpoints within a more open landscape. While it will lie immediately adjacent to the BESS compound the connection gantry will be taller than the electrical equipment within the BESS compound. The gantry will, however, be viewed in an area where there is already a cluster of towers and overhead wires and often with the Culham Science Centre as a backdrop. While the existing towers and wires are negative aspects of this local landscape character, they significantly contribute to how this landscape is perceived. It is not a pristine landscape but one significantly adversely affected by, and defined by, existing electrical infrastructure. The existing towers and wires are so dominant such that the relocation of the PoC to this area will not have a significant cumulative effect, particularly when considering the reduction in landscape and visual impact on the RPG

It is concluded that the relocation of the PoC out of the RPG and adjacent to the BESS compound area will result in a significant benefit to landscape character and the character of the RPG compared to the refused application. The comparative AVRs presented in **Annex B** confirm that, the relocation of the PoC to the BESS will result in a substantially less impact on the landscape character than the location previously proposed and assessed in the 2024 ES.

Visual Impact

Twenty representative viewpoints, the locations agreed with SODC, were assessed in the 2024 ES. The likely change to the visual effects contained within the December 2024 Amendments, principally the relocation of the PoC tower have been considered. An updated Landscape and Visual Impact Assessment with accompanying Accurate Visual Representations (AVRs) to compare the change in visual effects arising from the relocated PoC is presented in **Annex B**.

The following seven viewpoints are impacted by the December 2024 Amendments. The table has been coloured to allow an easier understanding of the predicted changes. If the PoC relocation results in a greater adverse effect, the table is coloured **orange**. If the relocation reduces and adverse effect, the table is coloured **green**.

View	2024 ES Assessment of Effect	Likely change to the view: Appeal Scheme	Revised Assessment of Effect
6. Oxford Green Belt Way (183 5/10) as it passes west of the Site	Minor adverse Year 1 [non-significant effect] Minor Beneficial once mitigation is effective. [non-significant effect]	The new PoC towers will be on the right side of the view and will introduce new electrical infrastructure into the skyline but seen in the context of the existing infrastructure which already dominates the view.	Moderate adverse Year 1 [new significant adverse effect identified]* Negligible once mitigation is effective [non-significant effect]. [previously identified non-significant beneficial effect eliminated]
7. Oxford Green Belt Way (183 4/40) as it passes south of the Site	Moderate – Major adverse Year 1 [significant effect] Minor Beneficial once mitigation is effective. [non-significant effect]	The new PoC will just be visible to the right of the image but will be seen in the context of the Culham Science Centre and existing overhead lines and towers. The upper part of the PoC gantry and connecting wires are likely to remain visible above the canopies of the mitigating tree planting.	Moderate adverse Year 1 [significant effect] Minor adverse once mitigation is effective [non-significant effect]. [new non-significant adverse effect identified]
8. Oxford Green Belt Way (183 4/40) as it skirts the Culham Science Centre.	Moderate – Major adverse Year 1 [significant effect] Moderate adverse once mitigation is effective. [significant effect]	The new PoC will just be visible to the right of the image. The upper part of the PoC gantry and connecting wires are likely to remain visible above the canopies of the mitigating tree and hedge planting.	Moderate – Major adverse Year 1 [significant effect] Moderate – Major adverse once mitigation is effective [significant effect].
10. Oxford Green Belt Way (183 4/40) as it skirts the Culham Science Centre	Moderate adverse Year 1 and once mitigation is effective. [significant effect]	The PoC will connect into the tower which dominates the foreground and will be partly seen through the steelwork of the tower and partly to the right.	Moderate – Major adverse Year 1 and once mitigation is effective. [significant effect]
14. From the northeast boundary of the Site within the	Moderate – Major adverse Year 1 [significant effect]	The PoC will be visible, rising out of the BESS compound but the upper gantry will be seen in the context of	Neutral Year 1 [non-significant effect]



View	2024 ES Assessment of Effect	Likely change to the view: Appeal Scheme	Revised Assessment of Effect
Registered Park and Garden looking southeast.	Minor beneficial summer, Neutral winter once the mitigation is effective. [non-significant effect]	14 existing transmission towers in the view.	[previously identified significant adverse effect eliminated] Neutral once mitigation is effective [non-significant effect]. [previously identified non-significant beneficial effect eliminated]
16. From deeper within the Registered Park and Garden (further northeast).	Moderate – Major adverse Year 1 [significant effect] Moderate adverse once mitigation established. [significant effect]	The PoC will no longer occupy the foreground but will lie within the BESS compound at the base of the slope which will be obscured by trees in summer and only just visible in winter.	Minor adverse effect Year 1, winter, Negligible in summer [non-significant effects] [previously identified significant adverse effect eliminated] Neutral once mitigation is effective [non-significant effect]. [previously identified significant adverse effect eliminated]
17. From within the Registered Park and Garden looking southwest	Moderate adverse effect Year 1 [significant effect] Moderate adverse once mitigation established. [significant effect]	The PoC will no longer occupy the foreground but will lie within the BESS compound at the base of the slope which will be obscured by trees in summer and only just visible in winter.	Negligible Year 1 [non-significant effect] [previously identified significant adverse effect eliminated] Minor beneficial once mitigation established [non-significant effect]. [previously identified significant adverse effect eliminated]

It is evident that the relocation of the PoC close to public viewpoints, mainly the Oxford Greenbelt Way, will result in it being more visible to the public and so potentially a greater adverse effect on visual amenity but this needs to be seen in context. The towers within the PoC are, however, much smaller than the existing cluster of transmission towers that lie in the immediate vicinity and will be set within existing electrical infrastructure.

*The LVIA methodology states that moderate adverse effects are where the development will “*cause noticeable degradation of the landscape character/elements/existing views. These adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.*”

Effect Interactions and Cumulative Effects

Effect Interactions

Consistent with the findings of the 2024 ES, no effect interactions are identified as being likely during the enabling and construction, operational or decommissioning stages of the Application Scheme or the Appeal Scheme.

Cumulative Effects with Other Development Schemes

The 2024 EIA process (of the Application Scheme) identified likely significant cumulative effects additional to the main assessment. This is due to the Application Scheme coming forward in conjunction with other surrounding cumulative schemes, during the enabling and construction phase, once complete and operational phase, and following the decommissioning.

Following a review of the SODC public access website (December 2024), there are no other relevant cumulative schemes for consideration and so the list of schemes considered for cumulative effects remains as per the 2024 ES.



The following cumulative schemes were considered in the cumulative impact assessment of the 2024 ES:

- Land in the Northeast Corner of Culham Science Centre near Clifton Hampden for the “Erection of a Fusion Demonstration Plant with ancillary office space, parking, landscaping and associated infrastructure, including plant and machinery” (P22/S1410/FUL).
- Various sites across South and Vale from Clifton Hampden to Milton Exchange Via Appleford in relation to proposed road works and associated road infrastructure (P21/S4797/CM).
- UK A E A Culham Science Centre, near Clifton Hampden with regards to the development of an Energy Storage Facility (P16/S2368/FUL).
- STRAT8 strategic allocation to deliver a net increase in employment of 7.3ha.
- STRAT9 strategic allocation is for 217ha to be developed to deliver approximately 3,500 new homes, a net increase of at least 7.3ha of employment land in combination with the adjacent Science Centre and supporting services and facilities.

In relation to the Application Scheme, significant adverse cumulative effects were identified during:

- the enabling and construction phase and following decommissioning relating to the loss of agricultural land; and
- during the operation of the BESS associated with built heritage impacts to Nuneham Courtenay RPG and Nuneham Courtenay Conservation Area.

It should be noted however that these cumulative effects are derived only from the development of the STRAT9 site and are based upon worst-case assumptions for the purposes of assessment given that detailed information is not yet available relating to the future STRAT9 development.

In relation to the Appeal Scheme, and as a consequence of the relocation of the PoC outside of the RPG, the significant adverse cumulative effects to Nuneham Courtenay RPG and Nuneham Courtenay Conservation Area fall away. Consequently, only significant adverse cumulative effects during the enabling and construction phase and following decommissioning associated with the loss of agricultural land are relevant.

Environmental Management, Mitigation and Monitoring

All the environmental management, mitigation and monitoring cited in the 2024 ES (ES Volume 1 Chapter 7: Environmental Management, Mitigation and Monitoring) remain valid for the Application and Appeal Schemes.

As noted above in the description of the December 2024 Amendments, the proposed earth mounding (in the Application Scheme) to the north and west of the Scheme has been omitted following comments from SODC, and under the Appeal Scheme, trees to be planted into the existing ground. Consequently, the depth of woodland is extended to increase screening of the BESS compound. This is embedded mitigation that is factored into the design of the Appeal Scheme.

In terms of drainage, both Schemes operate in the same way. Surface water runoff will be captured by a series of on-site filter drains. Gravel compound bases will be lined to prevent uncontrolled infiltration, and during normal operation, surface water will pass through the gravel bases and directed towards an infiltration basin at the site. Prior to surface water entering the infiltration basin, it will pass through a proprietary Vortex Grit Separator, to provide additional treatment of the surface water flows. Penstocks will be located at the outfall of each gravel compound base, which in the event of a battery fire, can be closed to prevent potentially contaminated firewater infiltrating in an uncontrolled manner. The gravel bases will form an attenuation blanket to provide sufficient storage, until the surface water can be tested and either released via the ‘normal operating’ system or tanked offsite for further treatment should contamination be present.

Addressing the Reasons for Refusal

As noted above, the 2024 Planning Application was refused on the 8 August 2024, with eight reasons for refusal. This SEIR supports responses to the following reasons for refusal:

- (2) the impact on landscape character – refer to **Annex B**
- (3) the impact upon Nuneham Courtenay Grade I Registered Park and Garden – refer to **Annex B**
- (5) insufficient information relating to archaeological trench evaluations – refer to **Annex C**
- (7) insufficient information relating to the Biodiversity Net Gain (BNG) – refer to **Annex D**



Conclusion

Based on the above, it is considered that the Appeal Scheme generates one significant adverse effect (moderate adverse relating to the Landscape and Visual Impact Assessment (Oxford Green Belt Way (183 5/10) as it passes west of the Site) compared to the Application Scheme. The Appeal Scheme also eliminates four previously identified significant adverse effects, again relating to the Landscape and Visual impact Assessment for the Application Scheme. All four significant adverse effects that have been eliminated relate to the impact on the RPG (as assessed through Views 14, 16 and 17).

The Appeal Scheme does not generate any other additional or different likely significant environmental effects to those presented in and reported upon within the April 2024 ES for the Application Scheme.

Therefore, the April 2024 ES, and this SEIR forms the Environmental Impact Assessment information to be considered in relation to the Appeal Scheme, and no additional EIA assessment work is required.

Yours sincerely,

Juliette Callaghan
PARTNER

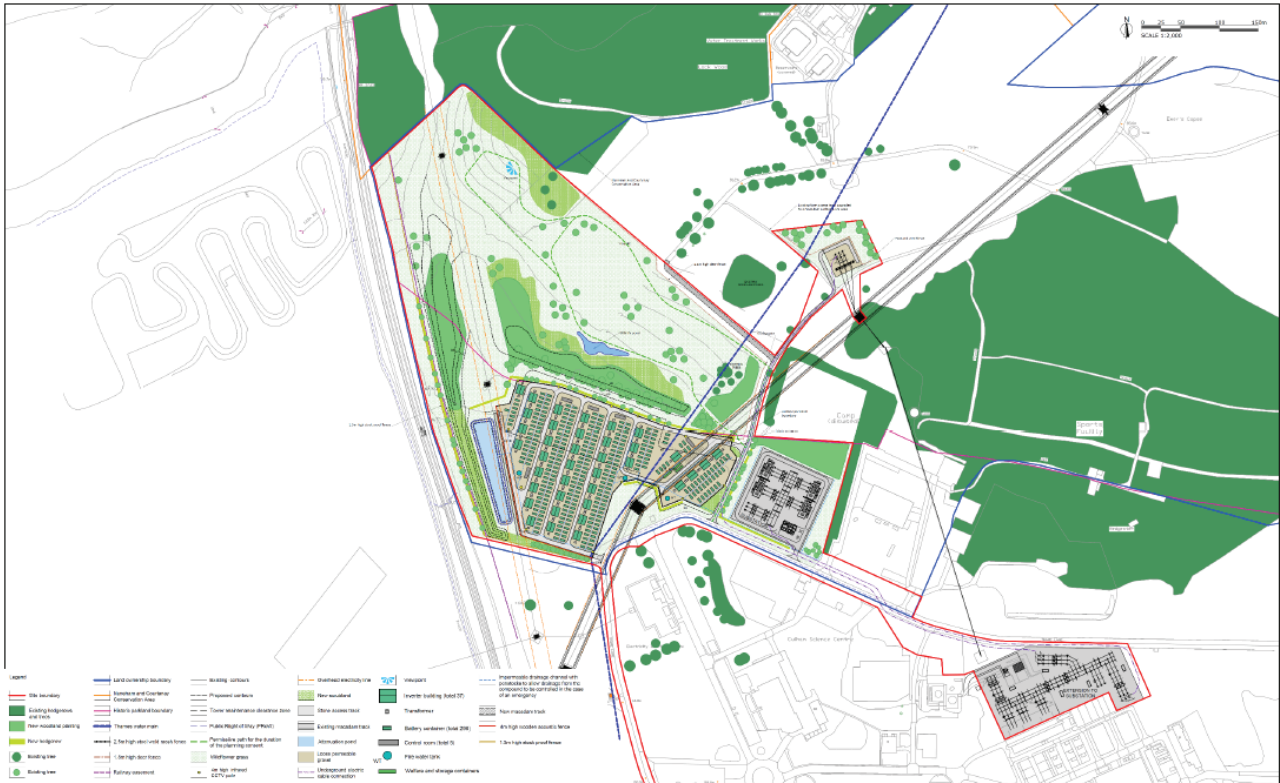
On behalf of Trium Environmental Consulting LLP



Annex A – Refused (Application Scheme, August 24) and Amended (Appeal Scheme December 24) BESS Layout Plans

Figure 2.5 from 2024 ES Volume 1, Chapter 2 (2024 ES) – Application Scheme

Figure 2.5 Proposed Development – Final Layout



December 2024 Amended Layout Plan – Appeal Scheme

