Quod

Green Belt Assessment

Proposed Battery Storage Site, Culham

April 2024

Q220995

Contents

1 Introduction

1.1 This Green Belt Assessment has been prepared by Quod on behalf of Statera (the "Applicant") in relation to the proposed 500MW battery energy storage system (BESS) on farmland immediately to the northwest of the Culham Science Centre, within the Green Belt in South Oxfordshire (the "Site").

1.2 The Site comprises an area of c.26.8 hectares (ha), currently mainly used for agriculture and is located to the northwest of the Culham Science Centre on the site of the former Royal Navy airfield RNAS Culham (HMS Hornbill) and to the east of the Cherwell Valley Railway Line, as shown in Figure 1-1 below.

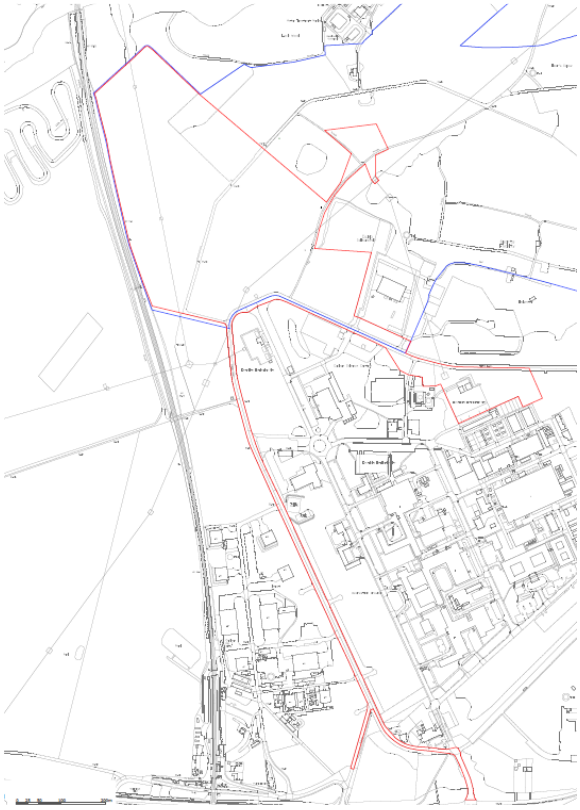


Figure 1-1 - Extract from Location Plan.

1.3 The 500MW BESS proposals comprise 296 battery units, 37 inverter buildings, underground cabling, substation buildings, security fencing, storm attenuation pond and extensive hedge and woodland planting (the "Proposed Development").

1.4 This Green Belt Assessment considers the Proposed Development against Green Belt policies in the development plan and the National Planning Policy Framework (NPPF). It explains the relevant planning policy context and assesses the harm to the Green Belt from the Proposed Development and whether very special circumstances exist to clearly outweigh the harm, as required by the NPPF.

1.5 This assessment is structured as follows:

- **Section 2:** Site Context – Describes the site and surrounding physical context;
- **Section 3:** Summary of Proposals – Summarises the Proposed Development;
- **Section 4:** Green Belt Policy Context – Summarises the relevant national and local Green Belt policies and guidance;
- **Section 5:** Need – Draws out the demand and need for the proposals;
- **Section 6:** Assessment of Openness – Provides and assessment of the visual and spatial harm to openness;
- **Section 7:** Assessment of Green Belt Purposes – Assesses the Proposed Development against the five Green Belt purposes in the NPPF;
- **Section 8:** Assessment of Other Harms – Identifies and assesses other harms;
- **Section 9:** Very Special Circumstances – Identifies and adds weight to benefits resulting from the proposals and whether very special circumstances exist;
- **Section 10:** Conclusions – Provides and summary and conclusions for the assessment.

2 Site Context

Site Description

2.1 The Site comprises land to the north of the Culham Science Centre on land currently mainly used for agricultural purposes on a short-term basis and intersected by Thame Lane linking up to the main Nuneham Estate. The land slopes up to the north and west with woodland to the north towards the River Thames, with the railway cutting bounding the Site to the east. A satellite image is provided in Figure 2-1.

Figure 2-1 - Satellite image of the Site and surrounding (Site outlined in red).

2.2 Electricity pylons traverse the Site from east to west, as well as northwards and are one of the dominant features in the landscape. This context is shown in Figures 2-2 to 2-4 below.

Figure 2-2 - Looking north from the southern boundary (left) and south from the northern boundary (right)

Figure 2-3 - Looking along the northern boundary (left) and to the eastern section of the site from the intersecting road (right)

Figure 2-4 - Pylons running across the Site and beyond to north (left) and east (right)

2.3 A Landscape Visual Impact Assessment (LVIA) is submitted with the application and provides a detailed description of the landscape characteristics and sensitivity to development.

2.4 There is a restricted byway around the southern boundary of the Site, which connects to a public footpath to the east of the railway, as shown in Figure 2-5 below.

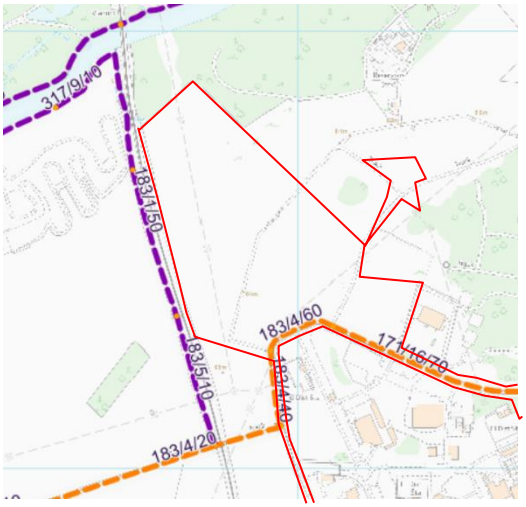


Figure 2-5 - Public footpath (purple) and restricted byway (orange) in the vicinity of the Site (outlined in red).

Culham Science Centre Masterplan

2.5 The Culham Science Centre development is the largest development in the area of the Site and is located along the southern Site boundary. The Science Centre houses a range of research and development facilities for the UK Atomic Energy Authority (UKAEA).

2.6 In July 2022 the UKAEA published a masterplan framework for Culham Science Centre setting out the vision for the site to 2050, with three objectives to:

- Help deliver its purpose in advancing the realisation of fusion energy through hosting a world leasing cluster of fusion technology;
- Create an attractive and interactive place that attracts and retains the people and talent needed to deliver the purpose; and
- Develop the campus as an effective sustainable environment through comprehensive place-making.

2.7 An extract of the indicative 2050 masterplan layout is provided as Figure 2-6 below, with the Site located in the top left.

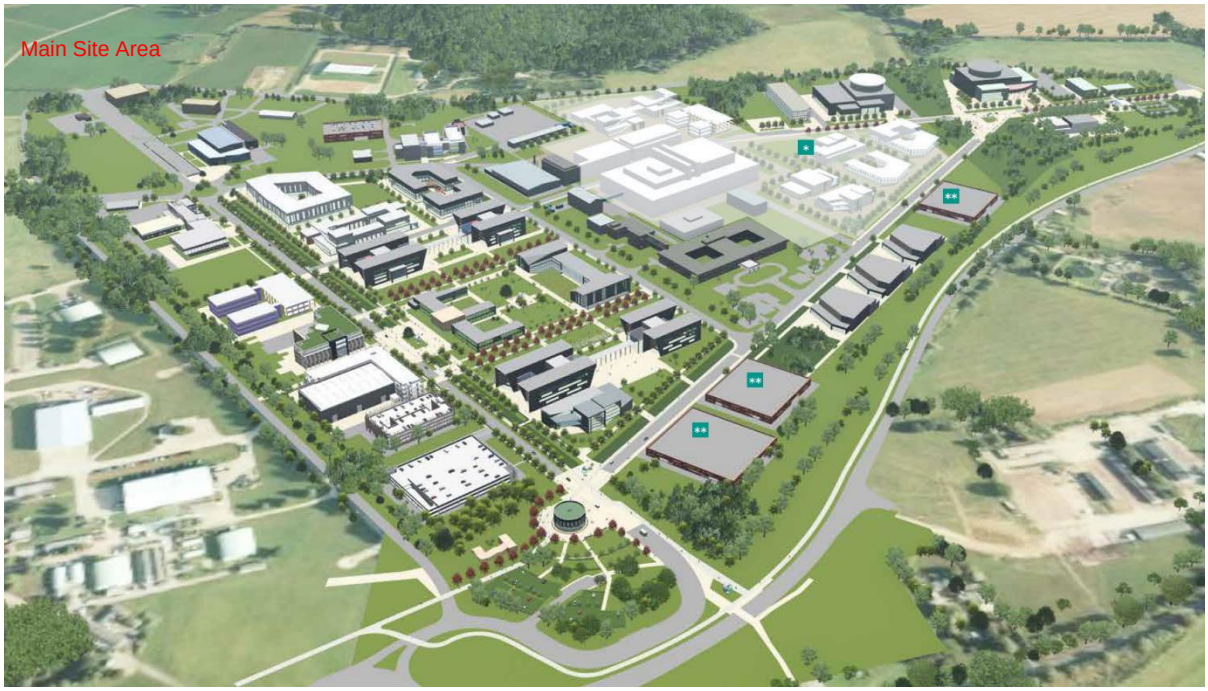


Figure 2-6 - Culham Science Centre Masterplan 2050 Extract, with Proposed BESS area to the top right.

Designations

South Oxfordshire Local Plan 2011-2035

2.8 The December 2020 South Oxfordshire Local Plan 2011-2035 (the "Local Plan") and Local Plan Policies Map indicate the following designations for the Site and surrounding area as shown in Figure 2-7 and Table 2-1 below.

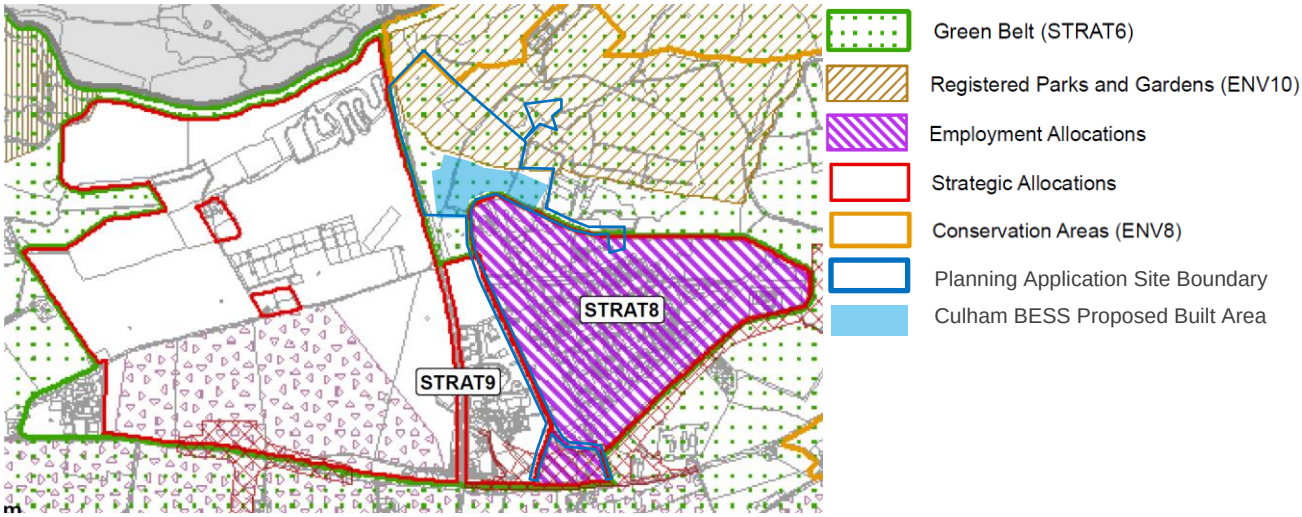


Figure 2-7 – South Oxfordshire Local Plan Policies Map Extract

Table 2-1 - Designations covering the Site and surrounding area.

Designations	
Covering the Site	**In the surrounding area**
▪ Green Belt; and ▪ Registered Park and Garden.	▪ Conservation Area; ▪ Strategic Allocations (STRAT9 for 3,500 new homes); and ▪ Employment Allocation (STRAT8) for Culham Science Centre.

2.9 Culham is also located within 'Science Vale', described in footnote 1 of the Local Plan as:

"...an area in Southern Oxfordshire, crossing the border of South Oxfordshire and the Vale of White Horse. It is one of the most successful science clusters in the UK. This activity is concentrated around the three centres for science and technology at Harwell Campus, Culham Science Centre, and Milton Park, but is supported by a number of important settlements including Didcot, Wantage and Grove."

2.10 Policy STRAT1: The Overall Strategy, focusses major new development in Science Vale, including sustainable growth in Culham, with necessary infrastructure.

Removal of Adjacent Land from the Green Belt

2.11 Strategic Allocation STRAT9: Land Adjacent to Culham Science Centre was removed from the Green Belt through the adoption of the Local Plan. Paragraph 145 of the NPPF states that once established, Green Belt boundaries should only be altered in exceptional circumstances. The exceptional circumstances for removing the land from the Green Belt at Culham was stated at paragraph 4.72 of the Submission Local Plan as follows:

- *"The additional land provides an opportunity to deliver housing adjacent to one of the major employers in southern Oxfordshire; and*
- *Development in this location is at the heart of Science Vale and supports the delivery of much needed significant strategic infrastructure".*

2.12 The Green Belt Topic Paper (April 2020) forming part of the evidence base for the adopted Local Plan explains that the proposed housing in STRAT9 would help balance the large employment site at the adjacent Culham Science Centre and build a sustainable community. This also referred to Oxfordshire's Industrial Strategy[1] (OIS), where lack of infrastructure investment was an impediment to growth. The OIS on page 23 also emphasises that future growth will be restricted unless energy infrastructure responds to the changing requirements and next generation needs of energy-intensive science and technology assets.

2.13 A number of Green Belt studies were undertaken to assess the potential release of land from the Green Belt, with the latest, the Green Belt Assessment of Strategic Sites in South Oxfordshire (December 2018)[2] assessing the STRAT9 site as Parcel 08. As shown in Figure 2-8 below, there is a range of harm across the Parcel, with lowest harm mainly to the east of the railway (adjacent to the Site) and highest harm in the northwest.

Harm to Green Belt Resulting from Partial Release of Site

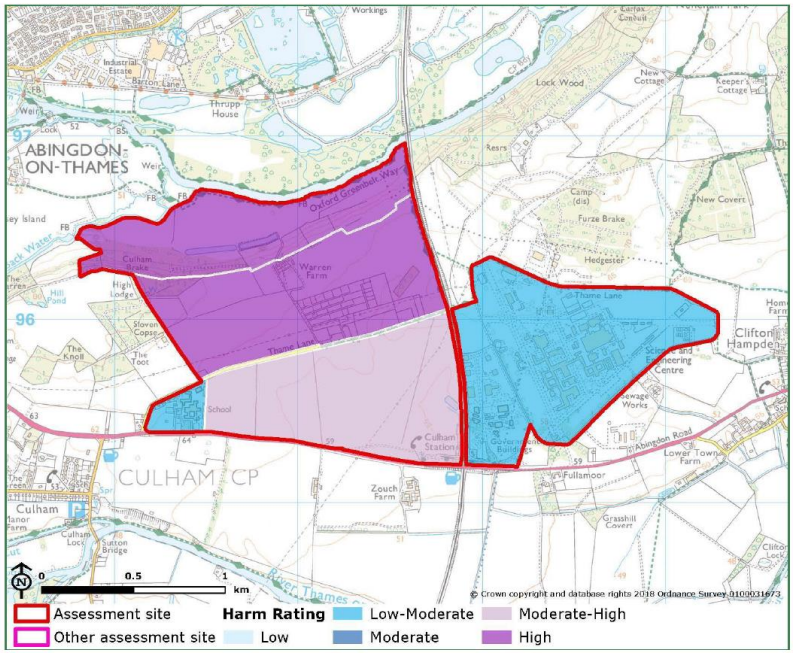


Figure 2-8 – 2018 Assessment of Potential Allocation Sites

2.14 An Indicative Concept Plan was prepared to support the STRAT9 Site Allocation and specific policies. This focuses development away from the river in the more sensitive western parcel and includes Green Belt Reinforcement on the western and southern boundaries.

2.15 Part 3 of Policy STRAT9 requires a masterplan to be prepared taking the Indicative Concept Plan (extracted as in Figure 2-9) into consideration.

[1] Oxfordshire Industrial Strategy (December 2018 working draft)
[2] Green Belt Assessment of Strategic Sites in South Oxfordshire (December 2018)

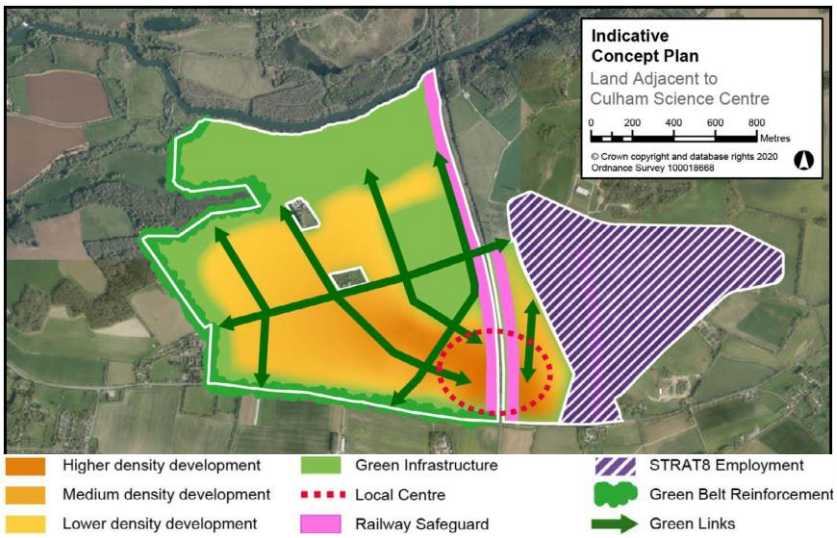


Figure 2-9 - Local Plan Indicative Concept Plan for STRAT9.

2.16 Part 1 of Policy STRAT9 explains that the land will be developed to delivery approximately 3,500 homes, a net increase in employment land, pitches for Gypsies and Travellers and supporting services and facilities. Part 2 of the Policy sets out the expectations for the proposals, such as affordable housing and social infrastructure but also includes low carbon development and renewable energy at criterion viii).

Heritage

2.17 There are three heritage assets identified in the local vicinity of the Site and comprise:

- Grade I Nuneham Courtenay Park and Garden – within the northern part of the Site and extending further northeast;
- Grade II listed Thame Lane Bridge – to the southeast of the Site; and
- Grade II listed Keepers Cottage – further to the east.

2.18 The boundary of the Grade I listed Nuneham Courtenay Park and Garden ("Listed P&G") and the locations of the other two assets are shown in Figure 2-10 below.

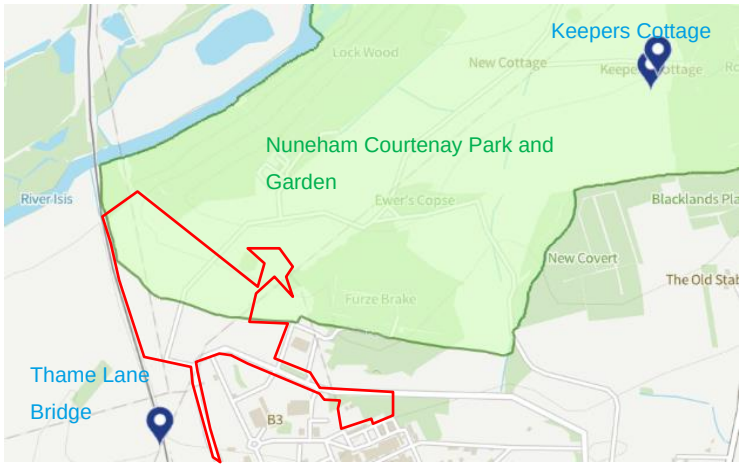


Figure 2-10 - Extract from Historic England's List Map (Site outlined in red).

Agricultural Land Classification

2.19 Natural England's Agricultural Land Classification (ALC) Map identifies the Site as "*land predominantly in urban use*", as shown in Figure 2-11.

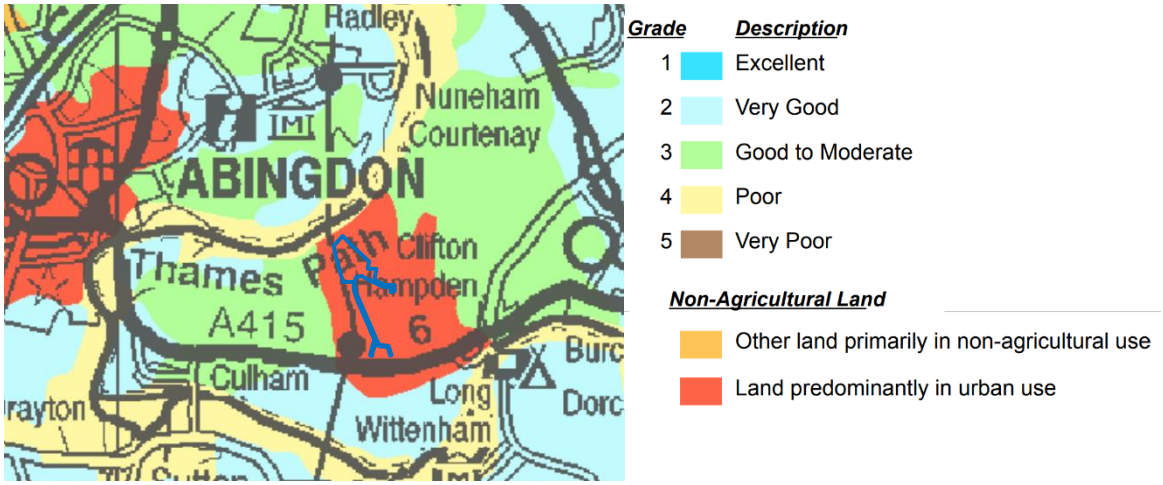


Figure 2-11 - Extract from the Natural England London and Southeast Region ALC Map (Site Outlined in Blue).

2.20 Annex 2 to the NPPF clarifies that land in grades 1, 2 and 3a of the agricultural land classification and considered the best and most versatile agricultural land ("BMV"), where NPPF paragraph 180 requires decisions to consider the benefits of BMV.

2.21 A site specific ALC study has been undertaken of the Culham BESS proposed built area and shows the majority of land (79%) is categorised as grade 2, with the grade 3a in the southwest (21%), as shown in Figure 2-12 below.

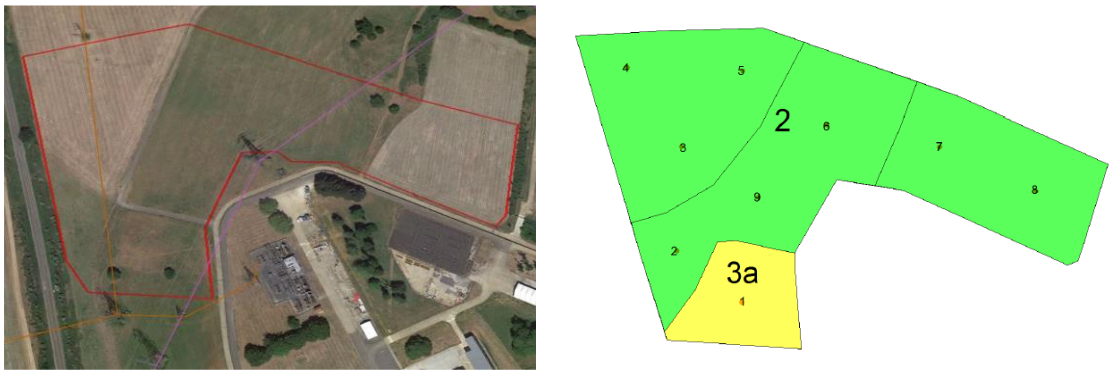


Figure 2-12: Extracts from the ALC assessment showing the area assessed (left) and assessed grades (right).

2.22 Overall, only a small area of the Site is to be built upon and whilst the ALC study shows that this falls within ALC grades 2 and 3a and is BMV, this part of the Site is adjacent to land already urbanised and to be further developed in future. This is consistent with Natural England's classification of the area as land predominantly in urban use.

3 Summary of Proposals

3.1 This section summarises the rationale for the proposals and provides a summary of the design and features.

Rationale

3.2 The Proposed Development is for a 500MW BESS and associated access, attenuation and landscape mitigation and enhancements.

3.3 BESS developments import electricity from the grid and store it in batteries at times of low demand / high generation, which can then be exported back into the grid at times of higher demand / system stress. Therefore, BESS is a critical part of the energy infrastructure to support the intermittent energy generated by renewable energy by stabilising the flow out energy to meet demand.

3.4 Balancing the demands on the system is becoming more challenging as intermittent generation from renewable sources increases, along with the increased demand for electricity from technology and in responding to Government targets the adoption of electric vehicles and moving away from fossil fuels.

3.5 As intermittent generation from renewables form a greater proportion of generation on the system both frequency and voltage levels become harder to manage and BESS also provides an essential service to help maintain stability on the grid.

3.6 Accordingly, there is a need to increase the deployment of BESS capacity in the UK as this provides critical support for the required increase of renewable energy generation to the grid. The need will continue to grow as the electricity system is decarbonised and the UK aspires to reach Net Zero.

Summary of Proposals

3.7 The proposals for the 500MW BESS development comprise the following details:

- 296 sound insulated battery units approximately 6m long, 2.4m wide and 2.9m;
- 37 (12m x 9.5m x 4.05m) noise insulated inverter houses to accommodate the inverters and transformers;
- Vehicle tracks 4.5m wide and vehicle hardstanding areas;
- Loose permeable gravel around the battery units and buildings;
- A weld mesh compound fence on the northern and western boundaries of the BESS compound and a 4m high solid panel timber acoustic fence along the west and south boundaries;
- CCTV security cameras mounted on 4m high posts;

- An electricity substation compound with a seven 33kV switch house/control room (13m x 5.5m x 3.5m), comprising transformers, busbars and other equipment of up to 9m in height;
- A connection tower;
- A storm water attenuation lagoon;
- Diversion of existing footpath on-site (Footpath 183/1/60) to the south;
- Removal of the non-public highway track (Thame Lane) within the site, and the upgrading of the existing farm track to a 4.5m wide macadam surface; and
- Extensive landscaping in the form of hedge and woodland planting in the north of the Site.

3.8 An extract of the masterplan layout in Figure 3-1 shows the built area of batteries and substation covering a 6.9ha area in the south of the Site outside of the Listed P&G and adjacent to the land recently removed from the Green Belt in the Local Plan at Culham Science Centre and Allocation STRAT9.

Figure 3-1 - Masterplan Layout.

3.9 Key landscaping features are proposed to screen the BESS infrastructure but also to enhance the setting of the Listed P&G. These include:

- New hedgerows around the battery compound;
- New woodland planting along the western boundary and to the north of the substation building; and
- Enhancements to the Listed P&G through new tree belts in the north and along the boundary with the battery compound set in new scrubland.

4 Green Belt Policy Context

4.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004, read together with section 70(2) of the Town and Country Planning Act 1990, requires that applications be determined in accordance with the Development Plan unless material considerations indicate otherwise.

4.2 This section provides a summary of all relevant Development Plan policies and other relevant material considerations relevant to renewable energy development in the Green Belt.

Development Plan

4.3 The Site is located within South Oxfordshire District Council (SODC) where the relevant adopted Development Plan comprises:

- December 2020 South Oxfordshire Local Plan 2011-2035 (the "Local Plan").

4.4 SODC and Vale of White Horse District Council are preparing a Joint Local Plan for the period up to 2041, with the Preferred Options Consultation taking place between 10 January to 26 February 2024. The Emerging Policies Map South (January 2024) extracted in Figure X below does not change the designations on or around the Site from the SODC Local Plan adopted in December 2020.

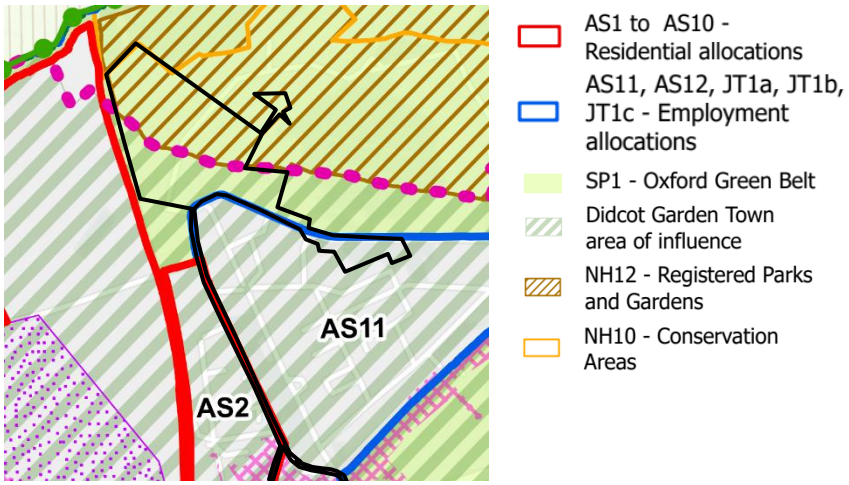


Figure 4-1: Emerging Policies Map Extract (Site outlined in black)

4.5 The supporting wording to the Joint Local Plan Preferred Options Policy SP1 – Spatial Strategy explains that there are currently no such exceptional circumstances in South Oxfordshire and Vale of White Horse to warrant removing land from the Green Belt again.

4.6 The emerging Joint Local Plan is in its early Regulation 18 stages and therefore, holds no weight in the determination on planning applications.

Relevant Local Plan Green Belt Policies

4.7 Policy STRAT6: Green Belt is the only Green Belt policy in the Local Plan and sets out the policy considerations in four parts, of which Part 3 only relates to the boundary around Wheatley.

4.8 In Part 1, the policy repeats the main considerations set out in the NPPF discussed further below and seeks to restrict development to those limited types which are deemed appropriate by the NPPF, unless very special circumstances can be demonstrated.

4.9 Part 2 requires strategic allocations removed from the Green Belt (including STRAT8 and STRAT9) to deliver compensatory improvements to the environmental quality and accessibility of the remaining Green Belt land, with measures supported by evidence of landscape, biodiversity or recreational needs and opportunities. This is supported by Part 4, which requires new development in land removed from the Green Belt to be carefully designed to minimise visual impact.

Relevant Material Considerations

National Policy and Guidance

NPPF (December 2023)

4.10 The main considerations for development in the Green Belt are set out in Section 13 of the NPPF, with "*substantial weight*" given to any harm to the Green Belt (Paragraph 153). New buildings are considered inappropriate in the Green Belt, subject to listed exceptions which do not include renewable energy generation or storage (Paragraph 154). However, while the NPPF acknowledges in Paragraph 156 that many elements of renewable energy projects will comprise inappropriate development where "*very special circumstances*" are required to justify development, it notes that:

"Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources."

4.11 Paragraph 153 clarifies that *"very special circumstances"* will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.

4.12 The NPPF states that the fundamental aim of the Green Belt is to prevent urban sprawl by keeping land permanently open (Paragraph 142) and sets out the five purposes of the Green Belt as follows (Paragraph 143):

- 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
- to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

National Planning Practice Guidance ("NPPG")

4.13 The NPPG provides Green Belt guidance on assessments of openness, stating that the circumstances which should be considered should include, but not be limited to spatial and visual aspects, duration and degree of activity to be generated (Reference ID: 64-001-20190722).

Local Plan Evidence Base

South Oxfordshire Local Green Belt Study (September 2015)

4.14 The purpose of the Local Green Belt Study was to assess the extent to which the land within the Green Belt still met the five purposes of the Green Belt as stated in NPPF paragraph 80 to identify additional land for housing in the District to meet local and Oxford based demand.

Oxford Green Belt Study (October 2015)

4.15 The overall aim of the study was to assess at a county level the extent to which the land within the Oxford Green Belt performs against the purposes of Green Belts, as set out in NPPF paragraph 80. The study was prepared to assist local authorities in considering the extent to which some existing Green Belt land could be used to accommodate sustainable forms, patterns and types of new development.

Green Belt Assessment of Strategic Sites in South Oxfordshire (December 2018)

4.16 The green belt assessment was prepared to appraise the eight potential development sites within South Oxfordshire against the five NPPF purposes and drew conclusions on the relative harm (or otherwise) to the Green Belt that may result from their potential release for development.

South Oxfordshire District Council's Green Belt Topic Paper (April 2020)

4.17 The Topic Paper set out the exceptional circumstances to justify removing land from the Green Belt for strategic allocations in the Local Plan.

5 Need

National Need

Government Net Zero Target

5.1 On 27 June 2019, the Government enacted **The Climate Change Act 2008 (2050 Target Amendment) Order 2019**[3] to enshrine in law a target for at least a 100% reduction in greenhouse gas emissions (compared to 1990 levels) in the UK by 2050, known as 'net zero'. This net zero target led to a series of Government renewable and low carbon energy targets and strategies and created a more positive policy environment for energy storage and management.

National Policy Statements (NPS)

5.2 Section 1.2.1 of **Overarching NPS for Energy (EN-1) (November 2023)**[4] makes it clear that NPS's are likely to be material considerations in decision making on applications that fall under the Town and Country Planning Act 1990.

5.3 It explains that the according to the Net Zero Strategy by 2035, all our electricity will need to come from low carbon sources, subject to security of supply, whilst meeting a 40-60 per cent increase in demand Paragraph 3.3.57).

5.4 **NPS EN-1** acknowledges the greater role and need for storage since the first NPS EN-1 was published in July 20122. Specially, it states that "*Storage has a key role to play in achieving net zero and providing flexibility to the energy system, so that high volumes of low carbon power, heat and transport can be integrated"* (Paragraph 3.3.25).

5.5 It goes on to add that "*Storage is needed to reduce the costs of the electricity system and increase reliability by storing surplus electricity in times of low demand to provide electricity when demand is higher"* (Paragraph 3.3.26).

National Strategies and Reports

5.6 In 2016, the Government adopted the recommendations of the **National Infrastructure Commission's Smart Power report**. The report identified the "*key role*" to be played by storage technology in providing grid stability services needed to keep the electricity system resilient to unexpected events, such as power station failures (paragraph 2.28). Under the same paragraph, the report noted that battery and other storage technologies were "*ideally placed"* to provide this type of service as they can dispatch power extremely quickly, precisely matching the needs of the system, and that demand for them was likely to grow as an increasing share of generation comes from intermittent renewables such as wind and solar. Adding that storage also offers a cheaper way of ensuring that electricity networks at national and local level are able to deal with peaks and troughs in the flow of electricity (paragraph 2.33

[3] The Climate Change Act 2008 (2050 Target Amendment) Order 2019
[4] NPS EN-1

- 37) and provide a source of electricity at times of peak demand, thereby reducing the need to build conventional power stations (paragraphs 2.39 – 2.41).

5.7 The **Government's Energy White Paper (EWP) (December 2020)**[5] identifies energy storage in batteries as an important element to help balance energy supply and demand and support efficient electricity markets as part of the net zero strategy. The EWP explains that gas-fired power stations have traditionally provided the flexibility needed to match supply to demand at peak hours or when renewable output is low but that increasingly, "*flexibility will come from new, cleaner sources, such as energy storage in batteries",* which would lower future costs for consumers by minimising expensive network reinforcement and reducing the need for additional generation (EWP, Page 72).

5.8 The Government has committed to decarbonise the power system by 2035 in its **Net Zero Strategy: Build Back Greener (October 2021)**[6]**.** The key policies state that by 2035, the UK will be powered entirely by clean electricity and that new flexibility measures, including storage, will be deployed to help smooth out future price spikes. Electrical energy storage and stabilisation is urgently needed to help support the growth in renewable energy generation to meet these targets.

5.9 The Department for Business Energy and Industrial Strategy (BEIS) in conjunction with Ofgem published the **Smart Systems and Flexibility Plan 2021**[7] setting out a vision for delivering flexible electricity systems underpinning energy security and the transition to a net zero 2050. The plan states that around 30 GW of total low carbon flexible capacity in 2030, and 60 GW in 2050, may be needed to maintain energy security and cost-effectively integrate high levels of renewable generation (page 5).

5.10 Page 38 goes on to explain that battery storage is essential to a net zero system, as it can store electricity when it is abundant (e.g., when it is windy or sunny) for periods when it is scarce (e.g., when demand is higher). Further explaining that the need for electricity storage will rise as we increase the volume of renewables on the system and increase peak demand through the electrification of heat and transport.

5.11 The plan sets out on page 40 that there is 1 GW of battery storage today, with a further 8 GW of battery storage in the pipeline, demonstrating the additional low carbon flexible storage capacity needed to achieve the minimum capacities of 30 GW by 2030 and 60 GW by 2050. This capacity is to be provided by BESS, as well as other technologies such as pumped hydro storage.

Energy Security

5.12 The **British Energy Security Strategy** (April 2022)[8] was prepared in response to rising energy costs from disruptions in fossil fuel supplies following the pandemic and the conflict in Ukraine. The strategy sets out the Government's approach to provide secure and affordable electricity. For networks, storage and flexibility, the strategy aims to make the network more efficient and

[5] Energy white paper: Powering our net zero future
[6] Net Zero Strategy: Build Back Greener
[7] BEIS Transitioning to a net zero energy system: smart systems and flexibility plan 2021
[8] British Energy Security Strategy

locally-response to bring down costs by up to £10 billion a year by 2050 (Page 24). To help achieve this, the Government encourages all forms of flexibility with sufficient large-scale, long-duration electricity storage (Page 25).

Energy Storage Planning Legislation Amendments

5.13 The Government identified that greater growth in BESS capacity was needed to enable increases in renewable energy generation to help achieve the net zero targets.

5.14 Changes were made to the Planning Act 2008 through the **Infrastructure Planning (Electricity Storage Facilities) Order 2020**[9] ("The Storage Order"). This redefined electricity storage facilities so that proposals for battery storage above 50MW in England is determined through the Town and Country Planning Act 1990 (as amended) (TCPA) process. This amendment sought to remove barriers to electricity storage and make it simpler for large storage facilities to obtain planning permission under the TCPA process rather than follow the longer Nationally Significant Infrastructure Project process.

Infrastructure Operator Strategies

5.15 National Grid ESO prepared the **July 2023 Future Energy Scenarios** [10](FES) report to show the required measures to meet the Government's 2050 net zero target and 2035 decarbonised power system target.

5.16 The report sees a minimum of 30 GW of electricity storage required by 2050 (page 180). The scenarios on page 13 show that this need could increase to between 41-72 GW to meet the 2050 net zero target.

5.17 On page 193 the report states that installed capacity and volume need to increase significantly to support the decarbonisation of our electricity system as we transition to net zero.

Regional Need

Oxfordshire Energy Strategy

5.18 The Oxfordshire Local Enterprise Partnership (OxLEP) published the **Oxfordshire Energy Strategy**[11] in November 2019. This set out recommendations and priorities to help deliver reduced emissions, cleaner air, lower energy bills, an enhanced natural environment, high-value jobs and commercial opportunities in the County.

5.19 Section 3.3.1 states that it is vital that the energy infrastructure can support the planned growth of 100,000 new homes in the County between 2016-2031 and the growth of energy hungry big science facilities such as the Culham Science Centre. As a result, the LEP's priority is to work with operators to ensure that the network is smart and flexible, balancing local demand and supply and able to connect local clean energy supplies for new and existing developments.

[9] The Infrastructure Planning (Electricity Storage Facilities) Order 2020
[10] National Grid ESO Future Energy Scenarios (July 2023)
[11] OxLEP Oxfordshire Energy Strategy

Section 3.3.5 adds that the strategy will need to support the development of energy storage at all levels.

Oxfordshire Industrial Strategy (OIS)

5.20 The OIS at page 23 sets out the importance of investing in energy infrastructure to support the changing requirements and next generation needs of energy-intensive science and technology assets in the area.

Local Need

Local Plan

5.21 The Local Plan places importance on delivering essential infrastructure and encouraging an increase in renewable energy use in Objectives 4 (Infrastructure) and 8 (Climate Change) to support our existing residents and services as well as growth.

5.22 In paragraph 8.33 the Council sets out its commitment to become a carbon neutral district by 2030 and states that planning policy should assess the opportunities for using renewable energy technologies to tackle the causes of climate change.

5.23 The relevant renewable energy policy, Policy DES9: Renewable and Low Carbon Energy, encourages schemes for renewable and low carbon energy generation and associated infrastructure at all scales. Further Supporting text to the policy in paragraph 8.31 explains that the Council will promote the use of energy from renewable and low carbon sources and will develop policies to maximise renewable and low carbon energy development.

5.24 The Local Plan also embeds requirements to deliver low carbon development and renewable energy with new development coming forward in both site allocations STRAT8 and STRAT9 adjacent to the Site to support any future housing and research and development facilities.

5.25 Consequently, the Local Plan encourages schemes for renewable and low carbon energy generation and associated infrastructure, such as BESS, to help achieve SODC's 2030 carbon neutral commitment and support the growth of housing and research and development in the district.

Need Summary

5.26 At national and local level there is support and need for the Proposed Development for BESS to support wider climate change strategies, including the Government's 2050 net zero target and to enable clean sustainable growth. The proposals will play an important role in achieving the following:

- The importance and urgency of increasing low carbon generation to replace the planned fossil fuel plant retirements in the 2020s;
- The overall national need for 30GW of electricity storage capacity by 2030, of which there is a 20GW need for BESS to balance supply and demand to help achieve the Government and National Grid's 2035 low carbon electricity generation target and Government's 2050 net zero legal target;

- The benefits of flexible large-scale, long-duration electricity storage in achieving energy security and bringing down energy costs for consumers;
- The need for greater electricity capacity in meeting additional demands for electricity from electric vehicles amongst other things;
- Need for renewable and low carbon energy infrastructure to help SODC achieve their 2030 carbon neutral commitment; and
- Local need to support the sustainable growth of Oxfordshire settlements and energy hungry science facilities, such as the UKAEA Nuclear Fusion research at Culham Science Centre adjacent to the Site.

6 Openness Assessment

6.1 This section undertakes an assessment of the harm of the proposals on the openness of the Green Belt.

6.2 The NPPG sets out the key considerations for assessments of openness, which should include:

- **Both spatial and visual aspects** – in other words, the visual impact of the proposal may be relevant, as could its volume and physical extent;
- **The duration of the development, and its remediability** – taking into account any provisions to return land to its original state or to an equivalent (or improved) state of openness; and
- **The degree of activity likely to be generated**, such as traffic generation.

6.3 These have been considered and assessed in turn in the remainder of this section.

Spatial Impact

6.4 The Oxford Green Belt surrounds Oxford City and comprises an area of 66,000ha across five District Councils, including the northwest of SODC. The Site is located in an area of Green Belt to the southeast of Abingdon as shown in Figure 6-1.

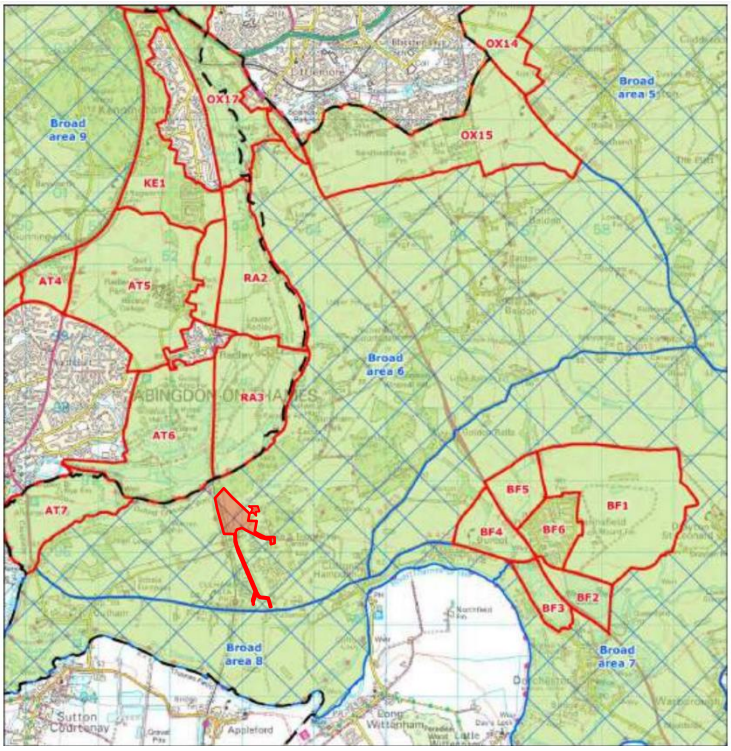


Figure 6-1 – Site shaded red and shown in wider Green Belt context.

6.5 The Site is immediately adjacent to two strategic allocations, the 77ha STRAT8 (Culham Science Centre) and 217ha STRAT9 (Land Adjacent to Culham Science Centre), both excluded from the Green Belt in the Local Plan.

6.6 In principle, the proposals will result in some spatial impact to the Green Belt, with the proposed developed area comprising the BESS, substation and all hardstanding within the Green Belt comprising 6.9ha. This forms part of a wider section of the Site within the Green Belt where landscape enhancements are proposed.

6.7 When comparing the proposed developed area where more urbanised structures would impact on the openness of the Green Belt, this 6.9ha area would equate to 9% of the STRAT8 area and 3.2% of the STRAT9 area. This also equates to 2.3% of the cumulative 294ha removed from the Green Belt for strategic allocation STRAT8 and STRAT9.

6.8 Therefore, whilst there will be a spatial impact resulting from the proposals, this is limited to the developed area of the Site and is a significantly smaller impact than the spatial impact associated with the release of the two adjacent allocations from the Green Belt. The proposed developed area would also cumulatively represent a comparatively small loss of openness when seen with the adjacent strategic allocations.

6.9 The proposals are also designed sensitively to respect the openness of the Green Belt, with the proposed developed area located in the south of the Site adjacent to Culham Science Centre and the eastern section of strategic allocation STRAT9. As a result, the proposals would spatially appear as part of a continuous development rather than an isolated development in the Green Belt.

Visual Impact

6.10 The Site sits in a bowl in the landscape, with rolling landscape to the north and east and flat areas in the south along the border with Culham Science Centre, with open views of the Site from the west across the railway line.

6.11 Visually the south of the Site is flat and borders the Culham Science Centre and where the cluster of electricity pylons meet seen in Figure 6-2.

Figure 6-2 - View from the centre of the Site looking towards the southwest where the proposed battery storage is located.

6.12 This area will also be subject to significant change during the lifetime of the Proposed Development with the building out of the Culham Science Centre masterplan and the Local

Plan allocation STRAT9 for approximately 3,500 homes to the south and west of the Site. The relationship with these developments is shown in Figure 6-3.

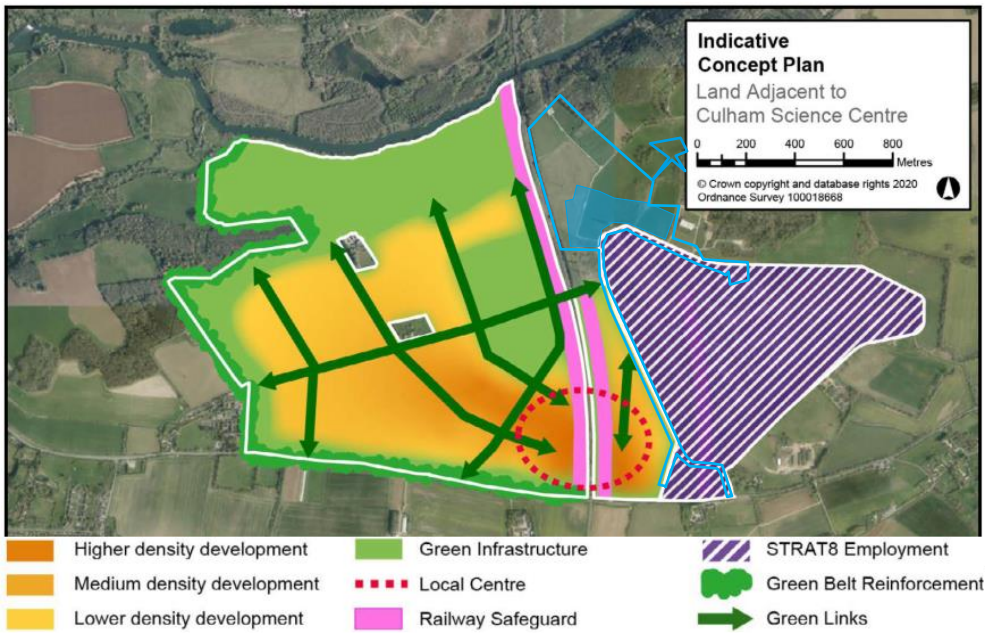


Figure 6-3 - Local Plan Culham allocations extract with Site outlined in blue and the proposed area of buildings shaded.

6.13 Figure 6-3 shows how the proposed buildings are located in the south of the Site outside of the Listed P&G and surrounded by non-Green Belt land to the south and west. Views from the Green Belt will be limited to those from the north and east, which will see the Proposed Development in conjunction with the emerging proposals for the Culham Science Centre masterplan and STRAT9 housing allocation. Notwithstanding, views from the north of the proposed buildings and structures would only be visible from within the Site due to the topography rising to the north and dropping beyond the Site to the River Thames and the existing woodland along the northern boundary.

6.14 The north of the Site lays within the Listed P&G, which extends further to the northeast along the River Thames. Views from the east currently look out over the natural bowl of the Site and towards the open countryside to the west beyond the railway line, now removed from the Green Belt and forms part of the housing allocation STRAT9. This westward's view is shown in Figure 6-4.

Figure 6-4 - View westwards across the Site.

6.15 A key part of the proposals are the screening and landscape enhancements. The screening is formed by two elements. The first being new hedgerows around the battery storage compound, with a second level of screening provided by new woodland planting along the western boundary, to the north of the battery storage compound and to the north of the proposed substation in the east.

6.16 As a result of the screening, views to the proposed buildings and structures will be limited particularly from within the Green Belt from the north and east and consequently, visual impacts to the openness of the Green Belt will be limited. Especially as views of the proposed buildings and structures from the Green Belt will always be seen in conjunction with the Science Centre and emerging STRAT9 housing allocation.

6.17 In addition, landscape enhancements are proposed in the northeast of the Site within the Listed P&G, through tree and scrub planting to reinstate the type of landscape features lost from this section of the Listed P&G over the years.

6.18 Not only does this provide a heritage and landscape benefit but the enhanced landscaping also provides further screening of not only the proposed buildings and structures on the Site but of the larger buildings in Culham Science Centre.

6.19 Cumulatively, the proposed landscaping and screening will improve the clarity of the new Green Belt boundary to the south and west, reduce views of the proposed buildings and structures on Site and existing large buildings in the Science Centre. This will result in some benefits to the visual openness of the Green Belt.

6.20 The supporting Landscaping and Visual Impact Assessment (LVIA) provides an assessment of the visual impacts of the operational impacts of the proposals in Table 5 of Section 8. This summarises that there will be four viewpoints that will experience moderate adverse effects after 10 years and 20 years with the proposed mitigation. Three effected viewpoints taken from the current perimeter road around Culham Science Centre on the current Green Belt boundary, where there is proposed screening by new hedgerows around the BESS compound. The fourth relates to views of the connection tower in northeast of the Site within the Listed P & G, with the moderate adverse effect a result of this area becoming publicly accessible.

6.21 The LVIA explains that the current setting for the Listed P&G is already substantially adversely affected by Culham Science Centre, the overhead transmission lines and potentially any development within the allocated urban expansion area (Paragraph 8.105). Adding that the landscape proposals help restore the setting to the parkland, by recreating a woodland belt along the Parish boundary and will reduce the visual impact of the existing intrusive elements, resulting in a net benefit. Although, the exception being the proposed connection tower and compound within the Listed P&G, but this will be seen in the context of the existing transmission line to which it connects.

6.22 Along with the benefits from the landscaping proposals, the new permissive access to the landscape will provide further benefits, allowing views over the Thames Valley towards Abingdon.

6.23 Overall, the LVIA concludes in paragraph 8.107 that the operation of the Proposed Development will have **at worst a neutral effect on visual amenity** as adverse effects is

offset by beneficial effects and ultimately it will **have a net beneficial effect as the landscaping matures**. This is based on the proposed mitigation minimising intrusion to users of the Oxford Green Belt Way becoming effective within less than 10 years, while the landscaping to enhance the setting of the parkland will take 15 - 25 years. The latter is deemed acceptable because the creation of parkland landscapes has required patience throughout the centuries, with the proposed connection tower is likely to have a negligible effect on views in from the surrounding landscape.

6.24 Furthermore, the LVIA considers that there would be **beneficial cumulative effects** of the Proposed Development with the adjacent Strategic Allocation STRAT9 through reduced views of the proposed Fusion Demonstration Reactor along with the new permissive access. This synergy between the two developments will be beneficial.

Duration

6.25 The Proposed Development will have an estimated construction period of 12-18 months and will primarily utilise modular facilities assembled off-site and brought to the Site for installation. This reduces amount and duration of construction activity on site.

6.26 The operational life of the development is intended to be up to 40 years, with decommissioning estimated to take 12 months.

6.27 During the operational life of the development there will be a significant increase in urbanisation of the land around the Site during this period as the Culham Science Centre and the adjacent STRAT9 housing allocation are built out.

Degree of Activity

6.28 Transport movements will be the main activity related to the proposals both during construction and access for maintenance and security during operation. These are considered further below.

Construction Traffic

6.29 The Transport Assessment demonstrates that at its peak there will be approximately up to 94 loads per week (188 two-way heavy goods vehicle (HGV) movements) or approximately 15 loads per day (30 two-way HGVs) for a four week period. However, the average HGV movements during construction will equate to 57 loads per week (115 two-way HGVs) or approximately 10 loads per day (20 two-way HGVs) during the 6-month period where materials are brought to site.

6.30 Overall, this uplift in HGV movements would be of a moderate scale, with a worst case of 30 HGV movements per day however, this would only occur for four weeks and would be a temporary impact.

6.31 For these reasons, there will be a **negligible and temporary impact** on the openness of the Green Belt, which will not alter its perceived openness.

Operational Maintenance

6.32 The Proposed Development will mostly be unmanned, with occasional vehicle access and activity on site for maintenance and security checks during its operational life. These occasional inspection and maintenance visits will, therefore, have a **negligible impact** on the openness of the Green Belt.

Summary

6.33 Whilst the Proposed Development would result in a loss of openness of the Green Belt, spatially this would be mainly limited to the southern section of the Site adjacent to existing urban development, which is due to be intensified during the lifetime of the development. Of the total Site only 6.9ha will contain new buildings and structures within the Green Belt, with the battery containers laid out between clusters of electricity pylons in the most developed part of the Site in the southeast of the Site and the substation located adjacent to an existing 2-storey structure. The exception being the connection tower in the northeast, which sits in a small compound and has to be located in this area to provide the connection to the Culham Science Centre.

6.34 Visually, the proposals have been carefully considered with layers of planting to screen the proposed buildings and structures. This is achieved through a new hedgerow around the battery compound providing low level screening and supported by new woodland planting along the western boundary of the battery compound and northern boundary of both the battery compound and new substation. Screening is carefully located to reduce views of the buildings and structures from the Green Belt to the northwest and northeast of the Site and therefore, also the visual impact on the openness of the Green Belt.

6.35 Proposed landscape enhancements in the northwestern part of the Site within the Listed P&G filter views of the Proposed Development further as well as helping to reinstate some of the lost historic landscape features.

6.36 The accompanying LVIA concluded that the visual impacts would have at worst a neutral effect on visual amenity as adverse effects is offset by beneficial effects and ultimately it will have a net beneficial effect as the landscaping matures.

6.37 There will be an impact from the 30-40 year operational life of the development. However, this is set against a significant urbanisation of the surrounding area and reduces the degree of harm as the adjacent sites are built out.

6.38 Activity on the Site will be limited and greatest temporarily during construction, with vehicle movements and staff occasionally on the Site for maintenance and security only.

6.39 Therefore, whilst there will be harm to the openness of the Green Belt, for the reasons set out above, harm would be limited to a localised area adjacent to existing and future urban development resulting in **minor harm to the openness** of the Green Belt overall.

7 Assessment Against Green Belt Purposes

7.1 The NPPF states that the fundamental aim of the Green Belt is to prevent urban sprawl by keeping land permanently open (Paragraph 142) and sets out the five purposes of the Green Belt as follows (Paragraph 143):

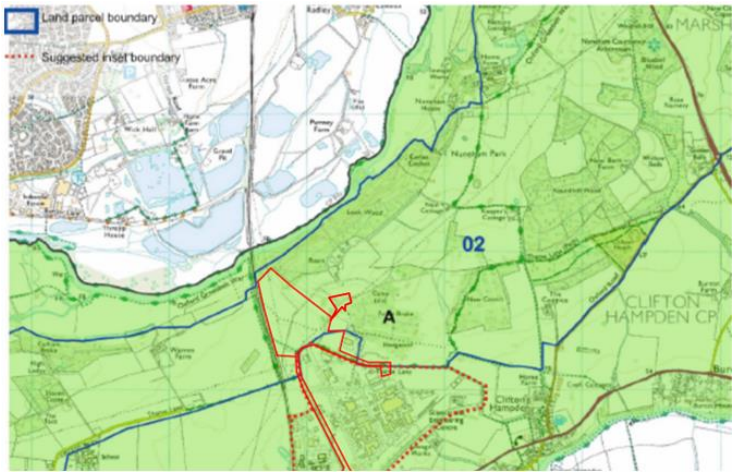
1. to check the unrestricted sprawl of large built-up areas;
2. to prevent neighbouring towns merging into one another;
3. to assist in safeguarding the countryside from encroachment;
4. to preserve the setting and special character of historic towns; and
5. to assist in urban regeneration, by encouraging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

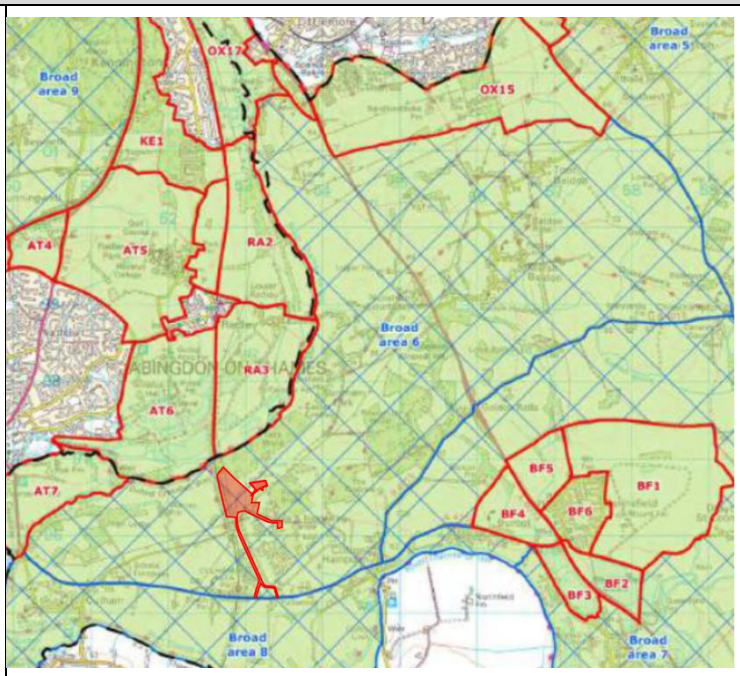
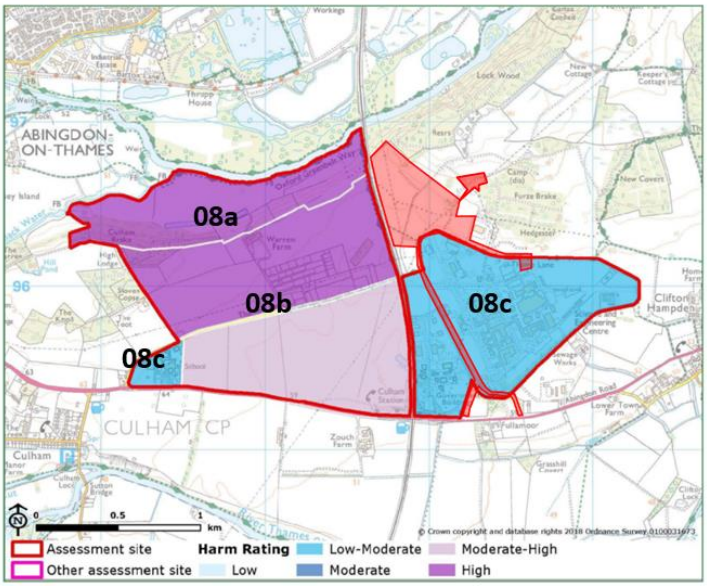
7.2 Three Green Belt Studies have been prepared covering the Site, two by SODC and one on behalf the local planning authorities within the Oxford Green Belt and listed in section 4. Ultimately, these studies were used to support the release of strategic sites from the Green Belt through the Local Plan process, including the adjacent STRAT8 and STRAT9 allocations adjacent to the Site.

7.3 These studies are drawn upon in the assessments of the Proposed Development against the NPPF Green Belt purposes in this section and also why similar reasoning for the release of the adjacent strategic sites could be concluded.

7.4 For the purposes of the assessments below, the Green Belt parcel details covering the Site in the different studies are identified in Table 7-1 below and used throughout this section.

Table 7-1 - Green Belt Study Parcels Covering the Site.

Parcel	Map (Site Outlined/Shaded in Red)	Description
SODC Local Green Belt Study (September 2015) (the "Local GB Study")		
02 Area A		An area of rising ground at the south end of Nuneham Park, containing woodland and arable / parkland and with the railway line running north / south to the west.

Oxford Green Belt Study (October 2015) ("Oxford GB Study")		
Broad Area 6		The area incorporates a large area of mainly countryside to the south of Oxford and the River Thames
Green Belt Assessment of Strategic Sites in South Oxfordshire (December 2018) ("Strategic Sites Assessment")		
Parcel 08 (adjacent to the Site)	Harm to Green Belt Resulting from Partial Release of Site 	**Parcel 08a** – includes the flatter, floodplain area between the river and the ridge that runs along the northern edge of the site. **Parcel 08b** – all of the land to the south of the ridge and west of the railway line. **Parcel 08c** – the area to the east of the railway line, including Culham Science Centre and Culham Number One Site.

7.6 The above studies were used to inform the SODC Local Plan strategic allocations but also to release the majority of Parcel 08 in the Strategic Sites Assessment from the Green Belt, even though parts to the north would result in a high degree of harm. This is supported by the Indicative Concept Plan and associated principles in Policy STRAT9 Part 3 vi) requiring a layout that has land which remains undeveloped to the northern border of the site.

Purpose 1 – Checking the unrestricted sprawl of large built-up areas

7.7 A summary of the assessments for this purpose from the Green Belt Studies is provided in Table 7-2.

Table 7-2 - Purpose 1 Green Belt Studies Assessment Summary

Study	Parcel	Summary of Relevant Assessment/Considerations
Local GB Study	02: Area A	Separated from Oxford City by Land Parcel 1
Oxford GB Study	Broad Area 6	The broad area does not lie adjacent to a large built-up area.
Strategic Sites Assessment	Site 08 (adjacent to the Site)	The focus of the Oxford Green Belt is containment of the growth of Oxford and the only settlement considered to constitute a 'large built-up area'. The site is located to the south of Abingdon and so does not contribute to preventing the sprawl of Oxford.

7.11 As set out in the Green Belt assessments, Oxford is the nearest large built-up area and around 4km to the north of the Site from the nearest part of the urban area and also 1.5km from the smaller town of Abingdon.

7.12 Consequently, due to the distance from large built-up area of Oxford the Site does not contribute to checking its sprawl and therefore **no harm** will occur to this purpose from Proposed Development.

Purpose 2 – Preventing Neighbouring Towns Merging

7.13 The Green Belt assessments provide the following assessments in Table 7-3 for the relevant parcels against this purpose.

Table 7-3 - Purpose 2 Green Belt Studies Assessment Summary

Study	Parcel	Summary of Relevant Assessment/Considerations
Local GB Study	02: Area A	N/A
Oxford GB Study	Broad Area 6	**Low Rating:** The Broad Area is not in close proximity to any other settlements considered against this purpose but includes smaller settlements between Abingdon and Berinsfield. The land between these settlements is relatively open with views between one another but can be considered to perform a minor role in separation between Abingdon and Berinsfield.
Strategic Sites Assessment	Parcel 08	**Parcel 08b** This parcel occupies a large proportion of the gap between Abingdon and Culham Science Centre and part of the gap between Abingdon and both Berinsfield and Didcot.

		However, the meandering course of the Thames, with its associated terrace slopes and vegetation, helps to preserve a distinction between the settlements.
		Parcel 08c The extent of development within the parcel limits its contribution to maintaining settlement separation.

7.22 In respect of the prevention of merging between towns, the Strategic Oxford GB Study considered that the area covering the Site performed a minor role in the separation of the two nearest towns and Abingdon and Berinsfield and provided a low rating for this purpose.

7.23 SODC's Local GB Study for the Parcel 02 Area A (covering the Site) did not assess this purpose due to the distance from Area A to both Abingdon and Berinsfield.

7.24 The Strategic Sites Assessment considered that Parcel 08b to the west of the Site provides a contribution to maintain the gap between Abingdon and the Science Centre and further to Berinsfield and Didcot. However, this contribution was outweighed by the exceptional circumstances to deliver housing adjacent to one of the major employers within Science Vale and to support the delivery of much needed significant strategic infrastructure to release the land from the Green Belt in the Local Plan.

7.25 The Green Belt Topic Paper (April 2020) forming part of the evidence base for the adopted Local Plan added further justification that the proposed housing in STRAT9 would help balance the large employment site at the Science Centre and build a sustainable community.

7.26 Parcel 08c of the Strategic Sites Assessment comprising the Science Centre and previous airport hangars was considered to provide limited contribution due to the extent of the existing built development.

7.27 In assessing the harm from the Proposed Development, the Site is located in a wider area considered to perform a minor role in the merging of towns, with Abingdon being the nearest town at 1.5km away.

7.28 Whilst the Proposed Development would form an extension to the strategic sites STRAT8 and STRAT9, both now removed from the Green Belt and forming inset settlements, this extension would be to the north away from other nearby settlements.

7.29 Therefore, there would be **negligible harm** to the merging of towns resulting from the Proposed Development.

Purpose 3 – Safeguarding the Countryside from Encroachment

7.30 The Green Belt Assessments identify the relevant parcels covering the Site as more sensitive to encroachment to the countryside, with considerations summarised in Table 7-4 below.

Table 7-4 - Purpose 3 Green Belt Studies Assessment Summary

Study	Parcel	Summary of Relevant Assessment/Considerations
Local GB Study	02: Area A	The area is strongly linked to the Nuneham Park parkland to the north and links to the Thames corridor to the northwest. The area is not adjacent to any settlement and only has a small, shared boundary with the loosely developed northern edge of the Culham Science Centre.
Oxford GB Study	Broad Area 6	**High Rating:** The broad area contains three rural villages, including Culham. The river Thames and its floodplain following the border of the broad area, with the rest of the broad area is made-up of open, relatively flat agricultural fields with open views of the surrounding countryside.
Strategic Sites Assessment	Parcel 08	**Parcel 08b** The majority of the parcel is visually open, undeveloped farmland, and the isolated buildings within and alongside it does not constitute any significant urbanising influence.
		Parcel 08c The land between railway and the Science Centre does not have a significant urbanising influence on the wider countryside, but it has a stronger association with the adjacent Science Centre than with the open land to the west of the railway line. The Science Centre is considered to be more densely developed, but still retains sufficient openness to make some contribution to this Green Belt purpose.

7.41 The Green Belt assessments identify the area as more sensitive to encroachment due to the countryside character, with the Science Centre and former hangars to the east of the railway providing the strongest urbanising influence. Whilst not mentioned in the assessments, there is also a significant cluster of electricity pylons traversing the countryside that materially affect the visual openness of the Green Belt.

7.42 The strongest countryside features in the area of the Site are the Listed P&G in the north of the Site extending north-eastwards and the River Thames corridor beyond.

7.43 These features are considered in the proposed layout, with the buildings and infrastructure located in the south of the Site outside of the Listed P&G and along the boundary of the Science Park and former hangars to the southwest, now forming the Green Belt boundary.

7.44 Of the wider Site only 6.9ha will contain building and structures, which results in a small encroachment in proportion to the size of the wider Oxford Green Belt. This is also much smaller proportionately that the recently released land in the Green Belt for strategic allocations STRAT8 at 77ha and STRAT9 at 217ha and equates to 9% of STRAT8, 3.2% of STRAT9 and 2.3% cumulatively. Due to the neighbouring encroachment, the Site is located in a less open and sensitive area of the Green Belt.

7.45 Paragraph 9.4 of the Local GB Study identifies the localised influence of major infrastructure, including pylons, as well as loss of tree cover and hedgerows as elements that are contributing to the vulnerability of the Green Belt to erosion.

7.46 As shown in the visual impact assessment in Section 6, there is a significant presence of pylons across the Site, with a cluster in the southwest, all of which detract from the countryside character. This has influenced the proposals, which locate the battery compound in between these pylons in the southwest and west of the Site to ensure no buildings or structure are located within the more sensitive Listed P&G in the north. Similarly, the new substation building is sited in the southeast adjacent to the Science Park and another existing warehouse structure.

7.47 The proposed suite of landscape enhancements will provide benefits to the landscape character within the Green Belt by reinstating the character of wooded hills that paragraph 9.3 of the Local GB Study considers to be a special quality of the Green Belt in SODC.

7.48 As a result, the proposals as a whole would improve the countryside character of this part of the Green Belt, through planting screening not only the proposed buildings and structures within the Site but also reinforcing the new Green Belt boundaries to the south and west.

7.49 The LVIA in paragraph 10.11 supports this view and considers that harm will be localised against the Green Belt boundary where existing building clusters in the strategic allocations will be substantially urbanised, and harm balanced against the significant landscape enhancements proposed.

7.50 Therefore, the Proposed Development will cause some harm to the Green Belt. However, this is limited to the southern boundary and balanced with the significant landscape enhancements and result in **minor harm**.

Purpose 4 – To preserve the setting and special character of historic towns

7.51 Oxford is considered a historic city with special character, with the Green Belt assessments providing the following commentary for the relevant parcels in Table 7-5.

Table 7-5 – Purpose 4 Green Belt Studies Assessment Summary

Study	Parcel	Summary of Relevant Assessment/Considerations
Local GB Study	02: Area A	The area forms part of the rural approach to Oxford along the railway and Thames Path and contains wooded hills which are key characteristics of the landscape setting to historic Oxford.
Oxford GB Study	Broad Area 6	**Low Rating:** The link between historic Oxford and its surroundings is stronger along the river valleys that penetrate into the heart of the city, than in the rural area in general. Historic riverside settlements like Culham and Clifton Hampden contribute to this, but distance does reduce the importance below that of the areas in which the

		valley can be viewed in a more direct context with Oxford, north of Abingdon.
Strategic Sites Assessment	Parcel 08	**Parcel 08b and 08c** The parcel has no significant relationship with Oxford.

7.57 The Site is located to the south of the Thames River valley on the southern side if wooded hills and cannot be viewed as part of the historic setting of Oxford. This view is shared by the Strategic Sites Assessment for the adjacent parcels.

7.58 Consequently, there will be **no harm** to the setting of the special character of Oxford resulting from the Proposed Development.

Purpose 5 – Assisting in urban regeneration, by encouraging the recycling of derelict and other urban land.

7.59 The proposals for BESS will provide an essential role in helping the UK meet its carbon reduction targets and ultimately achieve Net Zero. The Site is located within Science Vale where the network resilience this scheme provides will support a number of energy hungry research and science facilities, including Culham Science Centre where the UKAEA is based adjacent to the Site.

7.60 In this context, the BESS will provide electricity storage to the national grid in an area where there is extremely high demand due to the nature of the industries.

7.61 Furthermore, Local Plan STRAT4 requires all strategic sites to provide low carbon development and renewable energy. The proposed BESS would increase storage capacity in this area, which would then enable more renewable generation to connect to the grid in the same area.

7.62 Therefore, the Proposed Development result in **minor beneficial effects** in assisting urban regeneration but supporting the growth of sustainable settlements in the area.

Green Belt Purposes Conclusion

7.63 Overall, due to the location of the Site 4km away from the large built-up area of Oxford and its historic setting the harms the Proposed Development will result in **no harm to purposes 1 and 4,** checking urban sprawl and preserving the setting of historic towns.

7.64 Similarly, **negligible harm** is considered to arise from the Proposed Development in respect of **purpose 2**, preventing towns from merging as a result of the 4km distance from Oxford and 1.5km from the next nearest town, Abingdon.

7.65 There will be **minor harm** resulting from the Proposed Development in respect of **purpose 3**, safeguarding the countryside from encroachment due to the replacement of agricultural land with renewable energy infrastructure. However, this harm will be localised against the Green

Belt boundary where existing building clusters in the strategic allocations will be substantially urbanised, and harm balanced against the significant landscape enhancements proposed.

7.66 Finally, the proposed BESS would enable increases in electricity storage in the national grid, which in turn would increase capacity for greater renewable energy generation in this area, as required by Local Plan Policy STRAT4 for strategic sites. Therefore, resulting in **minor beneficial effects to purpose 5**, assisting urban regeneration.

7.67 Cumulatively, there will be a **negligible to minor harm** to the relevant Green Belt purposes resulting from the encroachment from the development of land currently used for agriculture and taking into account the benefits of the proposed landscaping enhancements enabling renewable energy generation.

8 Other Harms

8.1 The NPPF requires that for 'very special circumstances' to exist, the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations. The other potential harms relevant to the Proposed Development are considered to be the following:

- Loss of agricultural land;
- Harm to landscape character; and
- Impacts to heritage assets.

8.2 Harms to these matters are assessed in the subsections below.

Loss of Agricultural Land

8.3 NPPF paragraph 180 requires decisions to consider the benefits of BMV, which is defined as agricultural land classification grades 1, 2 and 3a. As explained in section 2, Natural England' ALC map identifies the Site as being in an area of non-agricultural land predominantly in urban use and not graded as shown in Figure 8-1.

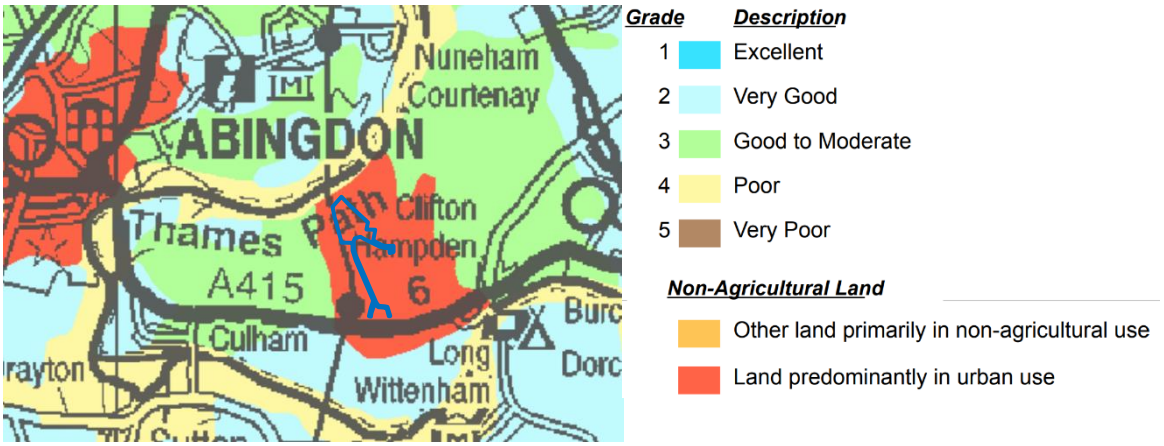


Figure 8-1 - Extract from the Natural England London and Southeast Region ALC Map (Site Outlined in Blue).

8.4 The Site contains agricultural land and a site specific ALC study of the area proposed built area of the Site assessed 79% of the area to be grade 2 and 21% to be grade 3 and therefore, BMV. This assessment is shown in Figure 8-2.

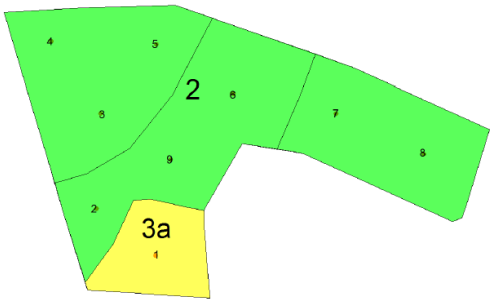


Figure 8-2: Site specific ALC Study.

8.5 The Site has historically been used for farming but does not form part of a farm and is located within an area that has been urbanised through the original military airport and subsequent development into a science park, which has informed the non-agricultural land designation.

8.6 Only a small area of the Site will involve loss of agricultural land, with this area also adjacent to existing development and Strategic Allocations, making the land more isolated and less desirable for agricultural use. Consequently, the development of the Site will have limited impact on farming in the area, with more desirable BMV agricultural land in grade 3 to the east and west of the Site and grade 2 further south beyond the A415.

8.7 Overall, there would be a loss of BMV arising from the Proposed Development. However, this would be isolated, set adjacent to an urbanising context and less desirable for agricultural use than other BMV land in the area resulting in **minor harm**.

Harm to Landscape Character

8.8 The LVIA provides an assessment of the impacts on the landscape character.

8.9 It assessed that with the proposed landscape enhancements, including restoring a historical tree belt along the Parish boundary there would be a beneficial effect on the character, setting and visual amenity of the parkland, although this will take many years to be fully effective.

8.10 Whilst there will be initial harm to the landscape character of the wider countryside beyond the parkland, harm will not be significant within ten years once planting has matured.

8.11 In addition, the LVIA considers the benefit of the permissive access to the parkland, which includes a fine viewpoint over the Thames Valley and along a new permissive path.

8.12 Overall, the LVIA concludes that beneficial aspects of the Proposed Development, in terms of parkland restoration, public access and Biodiversity Net Gain are considered to be greater than the **limited harm** to landscape and visual effects.

Harm to Designated Heritage Assets

8.13 Chapter 3 of the Environmental Statement assesses the impacts of the Proposed Development on Cultural Heritage, namely to archaeology and built heritage.

Archaeology

8.14 The Residual Effect subsection in para 3.135 explains that there is the potential for **significant effects during the enabling and construction phase** on archaeological remains of a possible Regional Importance as a result of the Proposed Development.

8.15 However, archaeological remains within the site will be preserved by record, with appropriate fieldwork followed by data dissemination considered a residual beneficial effect, albeit a negligible to minor beneficial effect but **not significant for the operational phase**.

8.16 The Likely Significant Effects subsection concludes there is **potential for significant adverse** effects on buried archaeological remains, the scale of effects would be reduced once the mitigation was undertaken.

8.17 Subsequently, the degree of harm would be reduced following mitigation, but **moderate harm** would remain to archaeology due to the permanent effect to any below ground assets from the Proposed Development.

Built Heritage

Visual Impacts

8.18 Section 8 of the LVIA considers visual impacts on heritage assets, with only the Listed P&G, Nuneham Courtenhay Conservation Area (CA) and Grade II listed Thame Lane Railway Bridge affected by the Proposed Development.

8.19 The LVIA considered that once the proposed screening around the compounds and landscape enhancements, including the restoration of the woodland on the parish boundary, there would be a **negligible effect** to the CA and Grade II listed bridge (para 8.114). The LVIA considered that the proposed screening and landscape enhancements would have a moderate beneficial effect on the setting of the Listed P&G. However, this becomes a **minor adverse effect** with the proposed connection tower within the Listed P&G, with the degree lessened due to is due to being seen in the context of the existing overhead lines it connects to.

Harm to Heritage Assets

8.20 The Cultural Heritage assessment in the ES considers the significance of the potential impacts to built heritage.

8.21 The assessment explained in para. 3.100 that the Proposed Development will result in the expansion of the industrial area, introducing new units into views looking south from the designated heritage assets and reducing the arable landscape visible from these assets. This includes Culham Science Centre, which is already visible in views looking south from the designated assets.

8.22 Para 3.137 concludes that the residual impact of the completed Proposed Development on built heritage assets is significantly reduced by the proposed landscaping and considered to be a **minor adverse operational effect** given the context of the existing adjoining Culham Science Centre.

8.23 Therefore, the Proposed Development would be experienced against the backdrop of an existing industrial complex and thus would not significantly alter the character of the views looking south from the designated heritage assets resulting in **minor harm**.

9 Very Special Circumstances

9.1 Section 13 of the NPPF sets out the policies relating to the Green Belt, with the "*substantial weight*" given to any harm to the Green Belt (paragraph 153). In general, new buildings are considered inappropriate in the Green Belt (paragraph 154), with inappropriate development by definition, harmful to the Green Belt and should not be approved except in "*very special circumstances*" (paragraph 152).

9.2 Renewable energy generation or storage proposals are not listed as exceptions to inappropriate development (paragraph 154).

9.3 Paragraph 153 clarifies that '*very special circumstances'* will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.

9.4 The NPPF acknowledges in Paragraph 156 that many elements of renewable energy projects will comprise inappropriate development where "*very special circumstances*" are required to justify development but notes that:

"Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources."

9.5 These wider environmental benefits and other benefits are considered further in this section.

Inappropriate Development

9.6 The Proposed Development does not fall within the exceptions listed in paragraphs 154 and 155 of the NPPF and is by definition inappropriate development in the Green Belt. In these circumstances, Paragraph 153 of the NPPF sets out that very special circumstances will not exist unless "*the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations"*.

9.7 This section sets out why very special circumstances exist and that the benefits of the proposals clearly outweigh the harm to the Green Belt, notwithstanding the substantial weight that such harm attracts, and any other identified harm.

9.8 In general, these benefits largely arise from the wider environmental benefits of the Proposed Development associated with its facilitation of renewable energy supply in accordance with NPPF paragraph 156 but also benefits to energy security and landscape character amongst others. These are explained in the following subsections.

Wider Environmental Benefits

Context

9.9 There are a range of wider environmental benefits resulting from the Proposed Development that support the very special circumstances for the location of the proposed in the Green Belt and set out in this section.

9.10 Overall, the Proposed Development will provide a significant contribution to enabling increases in renewable energy generation both in the region and nationally. The resilience it provides to the regional network will support the energy hungry research and science facilities in Science Vale.

9.11 BESS is essential if the Government is to achieve the legally binding target of achieving net zero by 2050 and a 78% reduction by 2035, with BESS a crucial part of the infrastructure to support the increased reliance on renewable energy and associated problems of intermittency.

9.12 Significant weight must be given to the wider environmental benefits that it will help to deliver by facilitating the increased production of energy from renewable sources and helping to accelerate the transition to renewable sources of energy and to replace existing fossil fuel plants coming off the grid.

9.13 The wider environmental benefits related to the Proposed Development, include how the proposals will play an important role in meeting the following needs:

- The importance and urgency of increasing low carbon generation to help achieve the Government's 2050 Net Zero target;
- The overall national need for 30GW of electricity storage capacity by 2030, of which there is a 20GW need for BESS to balance supply and demand to help achieve the Government and National Grid's 2035 low carbon electricity generation target;
- The need for greater energy security to help secure energy supplies and manage demand to reduce costs to consumers;
- The need for greater electricity capacity in meeting additional demands for electricity from electric vehicles amongst other things; and
- Local need to support the sustainable growth of Oxfordshire settlements and energy hungry science facilities, such as the UKAEA Nuclear Fusion research at Culham Science Centre adjacent to the Site.

9.14 The proposed 500MW capacity is one of the largest schemes coming forward since the Storage Order was enacted in 2020. This means the proposed capacity would be 10 times larger than the previous maximum 49.9MW capacity limit to follow the Town and Country Planning Act 1990 process, which was the most common route.

9.15 Greater weight has been given to similar battery storage proposals recently due to the increasing focus on the impact of high energy bills on the cost of living, energy security following the conflict in Ukraine and the pressing need to meet climate change goals. This is seen in the following recent decisions in SODC and nationally this year summarised below.

SODC Low Carbon Energy Precedents

Culham Science Centre Energy Storage Facility (ref: P16/S2368/FUL)

9.16 On 15th November 2016 SODC approved a 250MW battery storage facility within Culham Science Centre, south of Thame Lane and southeast of the Site on land within the Green Belt at the time.

9.17 The planning permission was granted under delegated authority on the basis that the following very special circumstances exist:

- National importance;
- More efficient use of renewable energy sources;
- Optimum site for the delivery of the 250MW energy storage facility; and
- Compatibility with existing uses.

9.18 In comparison the Proposed Development would provide twice the storage capacity, making a greater contribution to meeting national need and supporting the use of renewable energy sources and on adjacent land to Culham Science Centre to support its profile and growth.

Nineveh Farm (ref: P20/S4360/FUL)

9.19 A 123ha site solar farm generating 45MW and battery storage scheme was granted planning permission by SODC on 11th January 2022 (ref: P20/S4360/FUL) at Nineveh Farm, Land to Southwest of Cowley Substation Nuneham Courtenay.

9.20 Whilst it is acknowledged that the scheme provides both renewable energy generation and battery storage, the same Green Belt policy tests applied.

9.21 In the 15 December 2021 Planning Committee Report explained in paragraph 6.73 that the following very special circumstances existed to outweigh the harm to the Green Belt:

- the proximity to a substation that has capacity;
- its temporary nature;
- that the site is well screened from wider views;
- proposed planting will further screen the site;
- the contribution to low carbon energy generation; and
- the net gain in biodiversity.

9.22 In relation to the Proposed Development, not only do all the same reasons above apply but the Site is significantly smaller, with only 1.23ha proposed to be developed and would therefore, result in less harm to the Green Belt openness and purposes for 10 times the MW capacity.

Recent Appeals

Land West of Battlesbridge, Rettendon, Chelmsford City Council – Planning Inspectorate (PINS) ref: APP/W1525/W/22/3306710

9.23 The appeal was allowed, and planning permission is granted for the construction of a battery energy storage system and ancillary development.

9.24 The Inspector sets out in paragraph 34. that the overall weight of the environmental benefits of the development whilst not confined to the site, would not be diminished particularly given the demonstrable need for battery storage and were afforded very substantial weight.

9.25 When undertaking the Green Belt balance, the inspector considered that very special circumstances existed based on the very substantial weight given to the environmental benefits, stating in paragraph 46. that:

"Although they might arise elsewhere and are not wholly unique, I have not seen or read anything in the evidence that limits very special circumstances in this instance to those that are wholly unique."

9.26 In making this decision, the Inspector acknowledged that there might be other BESS schemes providing environmental benefits elsewhere. However, due to their need to support wider environmental benefits from renewable energy generation, the number of other proposals elsewhere should not dimmish the weight given to the environmental benefits from BESS schemes or for the benefits to be unique to the relevant proposals.

Mill Hill, London Borough of Barnet –PINS ref: APP/N5090/W/22/3298962

9.27 An appeal was allowed on 13 March 2023 for a 50MW battery storage facility and associated welfare, storage and control room on Green Belt land in Mill Hill.

9.28 In paragraph 38 the Inspector acknowledged that whilst the proposals were not a renewable energy project, they would provide enhanced energy resilience to the National Grid and over time support renewable energy production.

9.29 Overall, the Inspector agreed that very special circumstances existed and in weighing the planning balance reaffirmed in paragraph 54 that:

"The delivery of suitable renewable energy projects, and those that would support them, is fundamental to facilitate the country's transition to a low carbon future in a changing climate."

9.30 The same principles of providing enhanced energy resilience and support the transition to low carbon energy generation resulting in very special circumstances also apply to the Proposed Development.

Monk Fryston, Selby District Council – PINS refs: APP/N2739/W/22/3290256 and APP/N2739/W/22/3300623

9.31 Two recent Green Belt appeals for BESS schemes on nearby sites at Monk Fryston in Selby District Council were allowed on the basis that both the Inspector's agreed that very special circumstances existed.

9.32 The first was allowed on 1 August 2022 (PINS ref: APP/N2739/W/22/3290256) for a 50MW BESS scheme where the Inspector considered the weight of the proposed need for the energy storage to be significant and stated in Paragraph 26 that:

"Energy storage is seen as a significant part of this strategy, and battery units such as this are seen as positive in terms of being renewable and produce negligible emissions in line with commitments with regard to Net-Zero emissions. As a result, significant weight can be attached to this matter."

9.33 In the planning balance, the Inspector concluded that collectively, the need for the BESS proposals to address the energy strategy issues facing the country, along with the technical data and justification for its Green Belt location amounted to very special circumstances (Paragraph 31 and 32) on the basis that:

"….that there is a clear and pressing need to address the energy strategy issues facing the country, hence the need for the proposal. In addition to this the proposal has been supported by a considerable level of technical data and justification for the proposal as to why it needs to be located in the Green Belt"

9.34 The second appeal was allowed on 1 December 2022 for a larger 320MW BESS development, with a synchronous condenser (PINS ref: APP/N2739/W/22/3300623). In paragraph 29. the Inspector gave significant weight to the need for the BESS development on the basis of that:

"...National Grid estimates that electricity storage will need to increase significantly to support the decarbonisation of the system with as much as twelve fold and seven fold increases in capacity and volume respectively from 2021 to 2050 to meet the challenging Net Zero targets4. The Future Energy Scenarios Report 2022 updates the requirement for battery storage capacity from 13 GW in the 2021 Future Energy Scenarios Report to 20GW by 2030."

9.35 In comparison, the Proposed Development has ten times the capacity of the first appeal and around a third greater capacity than the larger 320MW BESS scheme. Consequently, the contribution to wider environmental benefits would be even greater from the Proposed Development than these appeal schemes and should therefore, be given significant weight.

Wider Environmental Benefits: Meeting the National and Regional Need for Energy Storage Demand

9.36 The Proposed Development has a storage capacity of up to 500 MW and of a greater capacity than most schemes in the country, which are mostly up to 50MW. The Government set out its support for delivering larger battery storage schemes with a capacity above 50MW by amending the legislative framework in the 2020 Storage Order.

9.37 The Government identified a need for a minimum of 30 GW of low carbon storage by 2030 to help balance periods of high and low renewable output. National Grid has set targets for capacity for up to 31 GW of electricity storage by 2030 to meet the Government's intention for the electricity system to be fully decarbonised by 2035 and up to 71 GW by 2050 to help achieve the 2050 net zero target. The Proposed Development will connect into the national transmission network, where the energy storage will be able to support national and local capacity.

9.38 At a local level the OIS emphasises that future growth in Oxfordshire will be restricted unless energy infrastructure responds to the changing requirements and next generation needs of energy-intensive science and technology assets. The Proposed Development is located within Science Vale where these energy-intensive science and technology developments are located, including the Culham Science Centre adjacent to the Site. The proposed BESS would be able to provide help balance the grid and enable increased capacity of renewable energy in the area to help meet the energy-intensive demands of the facilities in Science Vale.

9.39 As the Inspectors noted in the recent appeal examples, there is a clear and pressing need to address the energy strategy issues facing the country, hence the need for BESS proposals. These appeals were allowed for smaller capacity schemes at 50MW and 320MW and both were considered to amount to very special circumstances. Consequently, the Proposed Development will provide an even greater contribution to meeting the energy strategy needs and should be given even greater weight.

9.40 Therefore, the contribution towards meeting the national and local battery energy storage demands are significant benefits of the Proposed Development, which **should be given significant weight**.

Wider Environmental Benefits: Delivery and Timing

9.41 The Proposed Development benefits from a connection agreement with National Grid which has been secured for 2027. Subject to the grant of planning permission, the Proposed Development could be constructed and operational by 2027 and thereby providing urgently needed capacity and stability to the national transmission network.

9.42 This connection would provide a significant contribution towards achieving the 30GW low carbon storage and 20GW battery storage need identified by the Government and National Grid by 2030 and **should be given significant weight**.

Wider Environmental Benefits: Supporting Culham Science Centre

9.43 The Site is located next to Culham Science Centre, a world leading fusion facility and therefore, a power hungry development. The Proposed Development would provide an enhanced connection to the National Grid, giving the Science Centre greater power security, resilience and stability.

9.44 The UKAEA provided a letter of support to the Applicant on 22 June 2022 (see **Appendix 1**). in their letter the UKAEA explain that the Proposed Development would provide the following range of direct and indirect benefits to the Science Centre:

- **Resilience** – A secondary cable route and electricity supply would reduce outages, increase resilience and allow for UKAEA to secure addition supplies for the growth of facilities in future;
- **Stability** – Substantially stabilised grid connection helping gain approval for facilities which have fast changes and large power requirements;

- **Financial benefits** – UKAEA electricity costs will be reduced as the costs for the reconfigured substation where the BESS connects will be shared nationwide by National Grid as part of its transmission network costs;
- **Attractiveness** – Increasing the resilience of the high-powered connection will help attract tenants, future fusion facilities and attract new businesses, such as high-power advanced computing, to the area; and
- **Opportunity** – The Proposed Development would increase the UKAEA's ability to deploy assets such as the jet flywheel generators or consider new large-scale generator research and development opportunities.

9.45 Accordingly, the benefits to supporting the growth of the high-skilled workforce, research and investment at Culham Science Centre **should be given moderate weight**.

Cost of Living Benefits

9.46 A key benefit of BESS is the help they provide to reduce the costs of energy for consumers by storing excess energy when costs are low and providing back into the grid at times of peak demand when costs would otherwise be higher.

9.47 Energy costs are a huge concern currently and contribute significantly to the cost of living crisis and are predicted to rise further this year. This has prompted the Government to prioritise renewable energy generation and infrastructure even further to secure energy supply and reduce costs. The National Grid in their A Day in the Life 2035 document, explain that energy storage is considered critical to be able to increase energy supply during times of peak demand to help reduce energy costs to consumers.

9.48 Improvements from energy storage and flexibility would make the network more efficient, secure and bring down costs by up to £10 billion a year by 2050, which will be passed down to the consumer according to the British Energy Security Strategy.

9.49 Therefore, these benefits should be given **at least moderate weight** considering the current and forecast rising costs of energy due to the uncertain energy supply from fossil fuels and the impacts they are having on the cost of living in the UK.

Energy Security Benefits

9.50 Further energy security benefits arise from the increased capacity of renewable energy generation enabled by the proposed BESS. Increased renewable energy generation will enable the phasing out of fossil fuels, which are often imported and volatile in price and supply, as shown by the impact on prices resulting from current global events, such as the recent pandemic and conflict in Ukraine.

9.51 In response, the Government published the British Energy Security Strategy in April 2022. This strategy encourages the development of large-scale, long-duration electricity storage as part of a flexible energy network based on low carbon energy generation, which is generated within the country and less volatile to supply and cost issues from global events.

9.52 As a result, **moderate weight should be given** to these benefits due to the forecast constraints in fossil fuel supplies over the coming years and to support the Government's strategy to generate secure renewable energy within the country.

Landscape and Biodiversity benefits

9.53 The proposals include substantial landscape mitigation and enhancements across 16ha of the Site, involving new hedgerows, woodland and scrubland. This includes reinstating woodland and scrubland in the Listed P&G.

9.54 Not only does the proposed landscaping providing screening to the proposed battery compound and substation building, but it also helps screen land removed from the Green Belt to the south and west. This would provide the compensatory improvements to the environmental quality and accessibility of the remaining Green Belt land sought by Local Plan Policy STRAT6 as part of the development of the adjacent strategic sites SRTAT8 and STRAT9.

9.55 The Biodiversity Impact Assessment concludes that the proposed biodiversity enhancements will result in an 88.29% biodiversity increase from the baseline, with proposed new hedgerows also delivering 9.58 hedgerow units.

9.56 The proposals also include new public access into the enhanced Listed P&G and encouraging use of the PRoW networks in the Green Belt, which is also sought to be delivered in the adjacent strategic sites by Local Plan Policy STRAT6 and provides further benefits.

9.57 Based on the considerations relating to landscape enhancements, biodiversity and increase public access to the Green Belt above, **significant weight should be given** to the landscape and ecological benefits of the Proposed Development.

Heritage Benefits

9.58 The proposed landscaping enhancements include the restoration of a historical tree belt along the parish boundary as recorded on early maps of the estate. The LVIA in section 8 assesses the impact of the proposals on the Listed P&G and concludes that once the planting has become established it will not only screen the proposed electrical infrastructure but also the Science Centre, resulting in a Moderate Beneficial effect.

9.59 Therefore, **moderate weight** should be given to on-site heritage benefits from the proposed landscape enhancements.

Public Access Benefits

9.60 As part of the landscape enhancements, a new permissive path is proposed from Thame Lane providing a loop around the open part of the Site within the Listed P&G as shown in Figure 9-1.

Figure 9-1 – Proposed Masterplan Layout showing new permissive path through the Site.

9.61 These proposals will increase public access to the Green Belt and the Listed P&G, which affords exceptional views over the Thames Valley towards Abingdon.

9.62 Increasing recreational access to the Green Belt is consistent with the aims of Local Plan Policy STRAT6 where development in the Green Belt should delivery compensatory improvements to, amongst others, accessibility of the remaining Green Belt land.

9.63 These public accessibility improvements would provide some benefits that should be afforded **minor weight**.

10 Conclusions

10.1 This section summarises the assessment of harm and why these are clearly outweighed by the very special circumstances in accordance with the relevant policies in relation to Green Belt in the Development Plan and other material considerations set out in the NPPF.

10.2 The Proposed Development does not fall within the exceptions listed in paragraphs 154 and 155 of the NPPF and is by definition inappropriate development in the Green Belt. In these circumstances, Paragraph 153 of the NPPF sets out that very special circumstances will not exist unless "*the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations*".

10.3 The summary of the assessed harms and very special circumstances that clearly outweigh them are set out below.

Green Belt Harm

10.4 In accordance with the NPPG, the assessment of openness considered the spatial and visual impact, impacts from the duration of the development and the degree of activity and concluded that:

- Spatial impacts would be limited to the southern section of the Site adjacent to existing urban development, which is due to be intensified during the lifetime of the development;
- Visually the proposals have been carefully considered with layers of planting to screen the proposed buildings and structures and supported by wider landscape enhancements;
- Durational impacts will occur through the 30-40 year operational life of the development but set against a significant urbanisation of the surrounding area and reduces the degree of harm as the adjacent sites are built out; and
- Activity on the Site, once operational will be very limited, with vehicle movements and staff occasionally on the Site for maintenance and security only.

10.5 The assessment concluded that whilst there will be harm to the openness of the Green Belt, the harm would be limited to a localised area adjacent to existing and future urban development resulting in **minor harm** to the openness of the Green Belt overall.

Green Belt Purposes

10.6 The assessment against the five Green Belt purposes in paragraph 143 of the NPPF considered that:

- **Purpose 1 (checking urban sprawl) and 4 (preserving the setting of historic towns)** - Overall, due to the location of the Site 4km away from the large built up area of Oxford and its historic setting the harms the Proposed Development will result in **no harm;**
- **Purpose 2 (preventing towns from merging)** - Similarly, the Site is 4km from Oxford and 1.5km from the next nearest town, Abingdon and therefore **negligible harm** is considered to arise from the Proposed Development;

- **Purpose 3 (safeguarding the countryside from encroachment)** - The harm from the replacement of agricultural land with renewable energy infrastructure is localised against the Green Belt boundary where existing building clusters in the strategic allocations will be substantially urbanised and harm balanced against the significant landscape enhancements proposed resulting in **minor harm;** and
- **Purpose 5 (assisting urban regeneration)** - The proposed BESS would enable increases in electricity storage in the national grid, which in turn would increase capacity for greater renewable energy generation in this area, as required by Local Plan Policy STRAT4 for strategic sites and resulting in **minor beneficial effects**.

10.7 Cumulatively, there will be a negligible to minor harm to the relevant Green Belt purposes resulting from the encroachment from the development of land currently used for agriculture and taking into account the benefits of the proposed landscaping enhancements enabling renewable energy generation.

Other Harm

10.8 The other potential harms relevant to the Proposed Development were assessed as follows:

- **Loss of agricultural land** – The proposals will involve the loss of some BMV land in grade 2 and grade 3a ALC. However, this land would be isolated, set adjacent to an urbanising context and less desirable for agricultural use than other BMV land in the area and therefore, resulting in **minor harm**;
- **Harm to landscape character** – The beneficial aspects of the Proposed Development, in terms of parkland restoration, public access and Biodiversity Net Gain are considered to be greater than the **limited harm** to landscape character and visual effects; and
- **Impacts to heritage assets** – The landscape enhancements to the Listed P&G and proposed screening would mitigate some of the harm from the introduction of the BESS to the setting of the Listed P&G and result in residual **minor/moderate harm** but not significant harm to archaeology and built heritage assets.

Very Special Circumstances

10.9 The Proposed Development will result in a range of wider environmental and other benefits, these have been demonstrated to clearly outweigh the harm to the Green Belt and other harms identified above. These benefits and their respective weight in the balancing process are summarised below:

- **Wider Environmental Benefits: Meeting the National and Regional Need for Energy Storage Demand** - The substantial contribution towards meeting the national and local battery energy storage demands and support the urgent need to increase renewable energy generation are significant benefits of the Proposed Development, which should be given **significant weight**;
- **Wider Environmental Benefits: Delivery and Timing -** The Proposed Development benefits from a connection agreement with National Grid which has been secured for 2027 and would provide a significant contribution towards achieving the Government's 2030 30GW low carbon storage target and National Grid's 2030 31 GW and 2050 72 GW targets and **should be given significant weight**;

- **Cost of living benefits** - Enabling more renewable energy generation and using energy storage to help balance peaks in demand and stabilise prices to consumers resulting in **at least moderate weight**;
- **Energy security benefits** - Enabling secure renewable energy generation within the country and reducing reliance on volatile fossil fuel supplies and prices and given **moderate weight**;
- **Landscape and biodiversity benefits –** Proposed screening and landscape enhancements, biodiversity and increase public access to the Green Belt should be **given significant weight**;
- **Heritage benefits** – Landscape enhancements, once established, will reinstate historical tree belts and screen the proposed BESS and Science Centre from the Listed P&G and should be given moderate weight; and
- **Public access benefits** – The introduction of new permissive paths through the Site and the Green Belt will increase public access to the Green Belt in line with the aims of Local Plan Policy STRAT6 and should be afforded **minor weight**.

10.10 **Overall, this assessment considers that identified harms to the Green Belt and other harms, are clearly outweighed by significant benefits of meeting national energy needs and associated environmental benefits which constitute very special circumstances justifying this development in the Green Belt.**

Appendix 1

Letter of Support from the UKAEA

UK Atomic Energy Authority

Support Division
Culham Science Centre
Abingdon OX14 3DB

Tel: +44 (0) 1235 464626

www.uk-atomic-energy.org.uk

Mr Andrew Troup
Stratera Energy Ltd
145 Kensington Church Street
London
W8 7LP

22 June 2022

SUBJECT - LETTER OF SUPPORT FROM UKAEA

UKAEA has remained in touch with Statera Energy since its engagement with the earlier battery storage project consented by SODC in 2016. The proposed development by Statera Energy would provide the UKAEA Culham Science Centre with an enhanced connection to the UK National Grid that will give it greater power security, resilience and stability. This will contribute significantly to one of the UK's goals for the campus to continue to be a world leading fusion facility, driving growth and employment in the region.

UKAEA would be pleased therefore to support the Statera proposal which gives specific benefits to UKAEA. These are listed below:-

Benefits to Culham Science Centre

The proposed development by Statera Energy provides the Culham Campus with several direct and indirect benefits:

1) **Resilience.** An alternative cable route to supply electricity will reduce 400kV outages so these would only be very short term if at all. It is also possible that the campus could be simultaneously fed from both points of supply and therefore would have a very high degree of resilience. Design proposals for the future reconfiguration of the UKAEA substation will allow UKAEA to secure additional supplies for facilities in the future.
2) **Stability.** The response of the National Grid at UKAEA's connection point will be substantially stabilised by the Statera Energy proposal so indirectly helping gain approval for facilities which have fast changes and large power requirements.
3) **Financial benefits.** Annual electrical connection costs that are currently met by UKAEA will be reduced as these costs for the reconfigured substation will be shared nationwide by National Grid as part of its transmission network costs.

4) **Attractiveness.** The Culham Science Centre is a unique science and technology park with high-power National Grid connectivity. Increasing the resilience of this high-power connection will help CSC attract tenants, future fusion facilities and create the opportunity to locate facilities such as high-power advanced computing, thus attracting new businesses to Culham.
5) **Opportunity**. This proposal would increase UKAEA's ability to deploy assets such as the JET flywheel generators or consider new large scale generator R&D opportunities.

Thank you.

[redacted]

Antonia Jenkinson
CFO & Director of Property and Commercial Services
[redacted]

Quod

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