



BALANCEPOWER

Alternative Site Assessment

Radwell Bury, Baldock

September 2024

Document Control

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1. Introduction

This Alternative Site Assessment (ASA) has been prepared to support the planning application for the construction and operation of a Battery Energy Storage System (BESS) and associated development on the Land at Radwell Bury Farm, Radwell, SG7 5DP (Application Site).

The proposed BESS will be able to import, store, and export energy, and provide energy security to the local distribution network during times of peak demand. The BESS will connect directly to the Letchworth Bulk Supply Point (BSP) located off the B656 at postcode SG6 2HX, circa 4km from the Application Site.

1.1 Purpose of Report

There are no national or local validation requirements to prepare an ASA and therefore this report has been submitted without prejudice. The site is located circa 4km. Therefore, this ASA seeks to demonstrate that the proposed location is suitable for the proposed development and that all alternative sites have been explored and discounted.

1.2 Application Site

The Application Site is situated off Newham Road, SG7 5ES. It lies in the eastern corner of the wider land parcel, within the administrative boundary of North Hertfordshire Council. It is situated 1.6km to the east of the settlement of Stotfold, and 2.4 north of Baldock. The Application Site consists of agricultural land with hedgerow and trees lining the eastern and southern boundaries. It has an existing access junction on the southern boundary. An overhead line transects the site in a north-south direction. The land slopes down to the north.

The Application Site was selected as it is located at a viable distance from the Point of Connection (POC) and is not affected by restrictive planning policy i.e., not within Green Belt. Figure 3.1 provides an aerial view of the Application Site.

Figure 3.1 – Aerial Plan of Application Site



2. Planning Policy

The relevant planning policy and guidance comprise the following documents:

- North Hertfordshire Local Plan 2011–2031
- National Planning Policy Framework (NPPF) (2023)
- National Planning Practice Guidance (NPPG)
- Overarching National Policy Statement (NPS) for Energy Planning (EN-1) (2023).

For an in-depth consideration of the planning policy, refer to the Planning, Design and Access Statement included in the planning application.

Local Planning Policy

Policy SP5 (Countryside and Green Belt) of the North Hertfordshire Local Plan sets out that:

The Rural Area beyond the Green Belt contains some of the highest quality countryside in the District. However, the settlements are generally more dispersed meaning a Green Belt designation cannot be justified. This sparser pattern of development additionally means that, outside of the defined settlements, many sites are not well located in relation to key services. On these grounds it remains appropriate to restrain the types of development allowed in the Rural Area beyond the Green Belt. Our detailed Development Management policies set out the approach that will apply in this area.

Relevant Development Management policies under Policy CGB1 (Rural Areas beyond the Green Belt) include:

In the Rural Areas beyond the Green Belt, as shown on the Policies Map, planning permission will be granted provided that the development:

- a) Is infilling development which does not extend the built core of a Category B village;*
 - b) Meets a proven local need for community facilities, services or affordable housing in an appropriate location;*
 - c) Is strictly necessary for the needs of agriculture or forestry;*
 - d) Relates to an existing rural building;*
 - e) Is a modest proposal for rural economic development or diversification;*
- or*

f) Would provide land or facilities for outdoor sport, outdoor recreation and cemeteries that respect the generally open nature of the rural area.

Further, Policy NE12 (Renewable and low carbon energy development) sets out that:

Proposals for other renewable and low carbon energy development which would contribute towards reducing greenhouse gas emissions will be permitted subject to an assessment of the impacts upon:

- i. Landscape quality, landscape character and visual amenity, including consideration of cumulative impacts of development;*
- ii. Environmental assets;*
- iii. The historic environment, including the impact on the setting of historic assets;*
- iv. iv. The transport network;*
- v. Air quality;*
- vi. Aviation interests; and*
- vii. The amenity of residents.*

In assessing renewable and low carbon energy proposals against the above criteria the Council will give significant weight to their local and wider benefits, particularly the potential to reduce greenhouse gas and other harmful emissions, and the social benefits of community owned schemes where this is relevant.

National Planning Policy Framework (NPPF)

The NPPF outlines the following relevant Government planning policies for England, addressing development of renewable energy projects:

- Paragraph 119: Strategic policies should prioritise the use of previously developed land.
- Paragraph 152: The planning system should support the transition to a low carbon future, promoting renewable and low carbon energy and associated infrastructure.
- Paragraph 158: When assessing planning applications for renewable and low carbon development, authorities should:
 - Not require applicants to demonstrate the overall need for such development.
 - Approve applications if their impacts are acceptable or can be made acceptable.

- Expect applications for commercial-scale projects outside designated suitable areas to demonstrate that the proposed location meets the criteria for suitability.
- Paragraph 174: New development should avoid contributing to, or being at risk from, unacceptable levels of soil, air, water, or noise pollution, or land instability. Decisions should aim to provide net gains for biodiversity, establishing resilient ecological networks.

National Planning Practice Guidance (NPPG)

The policies outlined in the NPPF are extended and supported by the NPPG, first published in March 2014. Regarding the identification of suitable areas for renewable and low carbon energy projects, paragraph 005 (Ref: 5-005-20150618) states:

'There are no strict guidelines for identifying suitable areas for renewable energy. However, local planning authorities must consider the technology requirements and, importantly, the potential impacts on the local environment, including cumulative impacts. The opinions of local communities likely to be affected should also be considered.'

Overarching National Policy Statement for Energy Planning

NPS EN-1 is a material consideration for planning applications under the Town and Country Planning Act 1990 and has been included because it is the only policy document that provides any practical guidance in terms of alternative site assessments for energy projects. The principles outlined in paragraph 4.4.3 of EN-1 offer valuable guidance:

- Alternatives should be considered in a proportionate manner.
- There should be a realistic chance that the alternative can deliver the same infrastructure capacity within the same timeframe as the proposed development.
- Alternative proposals that would prevent the necessary development from proceeding, such as those that are not commercially viable or available on the market, should be excluded as they are not important or relevant.
- Alternative proposals that are vague or undeveloped should also be excluded on the grounds that they are not important or relevant.

The above principles are expanded on within the Draft NPS EN-1 (2023), which sets out at paragraph 4.2.21 that given the level and urgency of need for new energy

infrastructure, the weight given to potential alternatives should be guided by the following principles:

- the consideration of alternatives to comply with policy requirements should be carried out in a proportionate manner.
- only alternatives that can meet the objectives of the proposed development need to be considered.

3. Methodology

The ASA employs a 'sieving methodology', whereby at each stage, sites are assessed and discounted based on site criteria until the most suitable site is identified. These stages are as follows:

- **Stage 1 – Define the search area.** This involves firstly defining the POC and Application Site location, then secondly drawing a radius from the POC to the Proposed Site. All land within the radius forms the search area.
- **Stage 2 – Identify and assess brownfield or previously developed land.** This involves reviewing the relevant brownfield register and vacant commercial and industrial land within the search area.
- **Stage 3 – Identify and assess the most suitable greenfield site.** This involves a systematic review of all sites within the search area against the site criteria.

The site criteria are summarised in Table 4.1 and considers relevant national and local planning policy and operational and practical requirements.

Table 4.1 – Site Criteria

Item	Site Criteria	Explanation
1.	Located within suitable distance from a viable grid connection	A viable grid connection is essential for a BESS to operate effectively. It is the centre point for the defining the 'search area' for alternative sites. Considerations for a viable grid connection includes capacity (MW) in the local network, securing both an import and export connection, proximity to the PoC or grid infrastructure. Proximity to a PoC is required for commercial viability. Too far from the POC, the operation of a BESS would be inefficient due to transmission loss. Conversely, being too close to a PoC can result in high fault levels, also causing inefficiencies. This is the case at the Letchworth BSP whereby a 4.3km search area has been defined.
2.	Brownfield / previously developed land	NPPF encourages the development of brownfield/previously developed land.

Item	Site Criteria	Explanation
		If brownfield or previously developed land is unavailable (due to the following criteria), then an alternative suitable greenfield site must be identified.
3.	Land available for development	Land must be available to accommodate the development for the full period of operational use, 40 years. Any land which is under option for other development would be unsuitable.
4.	Prioritise avoidance of green belt land	Although the benefits of well-designed BESS developments can meet the threshold for Very Special Circumstances (VSC), viable non-green belt sites should be prioritised.
5.	Must avoid sensitive designations	Land should be clear of all designations relating to Sites of Specific Scientific Interest, Special Areas of Conservation, Special Protection Areas, National Parks, Ramsar Sites, Local Landscape Areas, National Parks, National Scenic Areas and Wild Land. Land should be clear of conservation designation and provide adequate separation from heritage assets, listed buildings or scheduled monuments.
6.	Must not be allocated within the local plan	If land is allocated for housing, commercial or employment purposes, this would conflict with local planning policy.
7.	Must not be adjacent to residential development	A buffer of 300 metres is typically required around every residential property, for noise and general amenity.
8.	Must not be in an area of high risk of flooding	Areas of high risk of flooding are avoided.
9.	Land of suitable topography, geometry, and size to accommodate development	Site area must be circa 6 acres to accommodate a BESS of the scale proposed, and of a geometry to allow for sufficient space for the development platform, landscaping for both screening

Item	Site Criteria	Explanation
		and demonstrable biodiversity benefits, tracking for HGV tracking/turning and drainage requirements. Site must be flat to minimise ground works and allow for suitable foundation design.
10.	Must have suitable access for HGVs, including visibility	Access to the public highway required for the construction period and operational purposes. Access must have good visibility.
11.	Landscape and visual considerations	Land should be carefully selected, by considering its location and landscape setting. Ideally avoiding land in proximity to public rights of way or highly visible locations from national parks or scenic areas. Key consideration for selecting sites is land with existing screening and infrastructure, to minimise impact on openness.
12.	Services and physical barriers	Land must be clear of services including overhead/underground cables, high pressure gas mains etc. Avoid land which requires cabling over large rivers, bridges, or railway lines.
13.	Cumulative effects with other developments	Land should be separated from known developments to minimise clustering.

4. Grid Connection

4.1 Grid Connection Process Overview

To connect to the electricity grid, an energy developer must go through several stages:

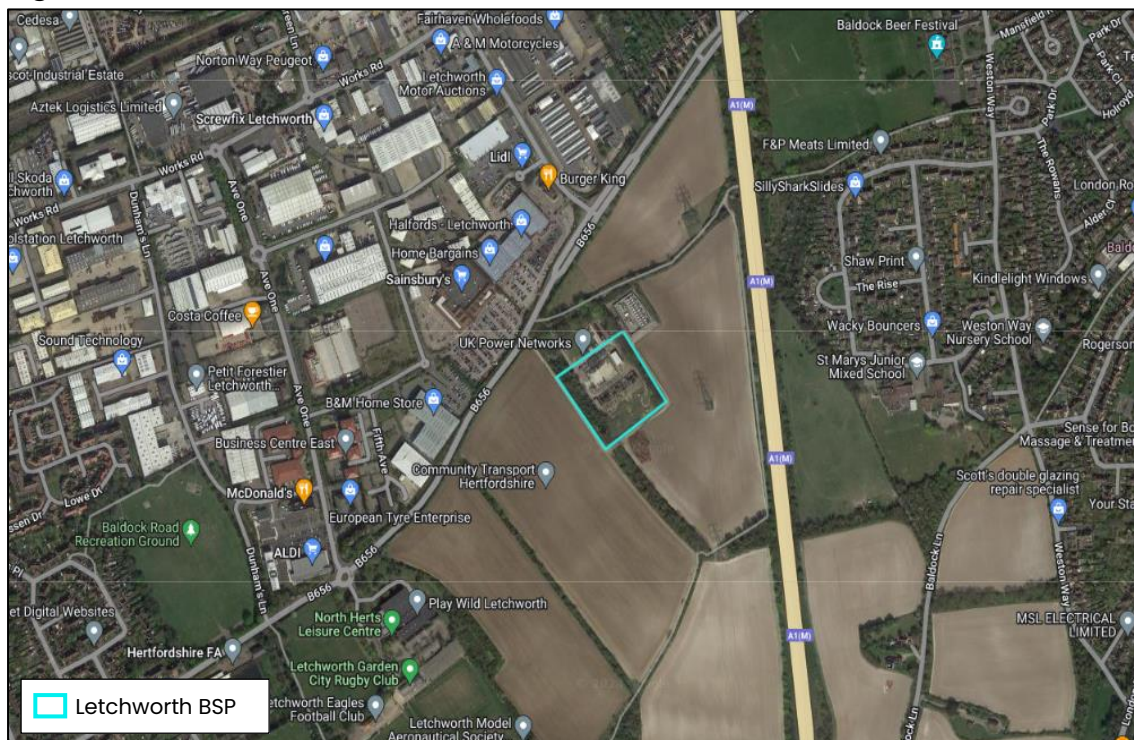
- **Stage 1** – Identify a POC within the network that has sufficient import and export capacity to/from the electricity grid. This limits the number of viable connection points in an area.
- **Stage 2** – Enquire to the District Network Operator (DNO) to establish the capacity of the POC. This provides estimated costs of the connection and the available capacity (MW).
- **Stage 3** – If the connection is viable based on the budget costs, a formal application is made to the DNO (including information on the Proposed Site), which takes approximately three months. The DNO provides a formal offer involving detailed information on connection cost, reinforcement works, equipment installation, cable routes and energisation dates.
- **Stage 4** – If the developer chooses to accept the formal offer, the DNO will allocate a POC plan which ties the connection to the Proposed Site. This cannot be moved to a different location without a new formal application being made.

The implication of this process is that site selection is inevitably led by the grid. Therefore, it is only possible to consider alternative sites within the vicinity of the available grid connection.

4.2 Point of Connection

The BESS will connect via 132kV underground cable directly to the Letchworth BSP located off the B656 at postcode SG6 2HX, circa 4 km to the south of the Application Site.

Figure 5.1 – Aerial Plan of Point of Connection



Why Letchworth BSP?

The Letchworth BSP was selected as it has 132/33 voltage levels and two large transformers. To facilitate a new connection into Letchworth, there is a requirement to extend the busbar within the existing compound. No further infrastructure upgrades are required.

At the Letchworth BSP, fault levels are more pronounced at closer distances. Therefore, locating a development in immediate localities to the substation would breach the fault level headroom. However, at greater distances the system fault diminishes and therefore the development can operate efficiently without breaching the headroom. Having a lower impact on the fault level means less system reinforcements are required from the DNO to operate a stable network.

The location of the proposed BESS is also close to an area of high energy demand which relates well with the intention of a decentralised energy network where power is produced and stored close to where it will be used. A substation with suitable capacity, which in this instance is the Letchworth BSP, was a key material consideration over a site selection process which is foremost grid-led.

The following provides an overview of the viability of other POCs within a 10km radius of the Application Site:

- **Wymondley GSP** – 400/132/33 voltage levels and multiple large transformers. There is a requirement to extend the busbar and build a new super grid transformer to facilitate any new connection. The cost of this would render a BESS commercially unviable.
- **Five Primary Substations (West Letchworth, East Letchworth, South Hitchin, North Hitchin, Reed Primary)** – 33/11 voltage levels which does not allow for the proposed BESS to connect. These POCs have small scale transformers that would need replacing and significant reinforcement to facilitate 50MW BESS rendering development commercially unviable.

5.2 Stage 2 – Identify and assess brownfield land

Stage 2 involves identifying and assessing the potential for brownfield sites to accommodate BESS.

There are 17 sites on the North Hertfordshire Brownfield Register and one on the Central Bedfordshire Brownfield Register within the search area, all of which are identified in Figure 6.3 and Table 6.1 below.

All 18 sites are either allocated in the local plan, have been granted planning permission, or are not suitable to accommodate BESS development due to spatial constraints. Therefore, none are available for energy development.

Figure 6.2 – Brownfield Register sites within search area

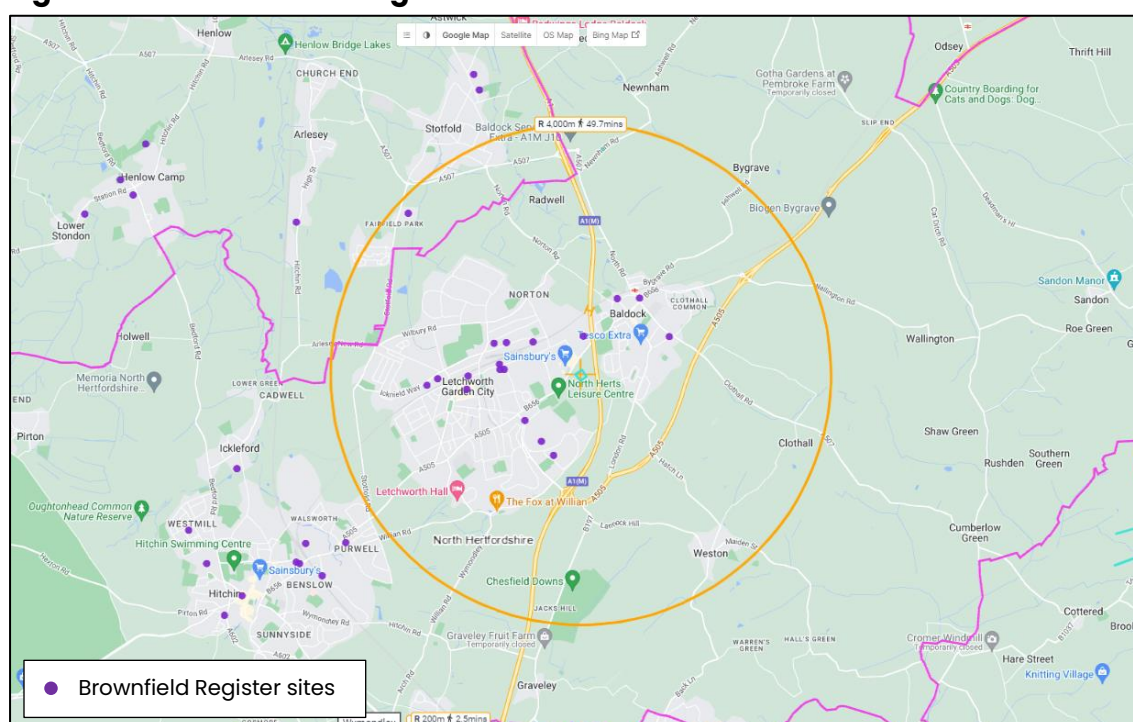


Table 6.1 – Brownfield Register sites within the search area

Site Ref	Address	Area (ha)	Assessment
BR1	Deans Yard, South Road, Baldock	0.32	Local Plan allocation – BA11
BR2	Land at Icknield Way, Baldock	0.52	Permissioned
BR3	Station Road/Royston Road, Baldock	0.44	Permissioned
BR4	Hadrian Way, Baldock	0.66	Permissioned
BR9	Pixmore Centre, Pixmore Avenue, Letchworth	0.39	Local Plan allocation – LG8
BR10	Freeman House, Radburn Way, Letchworth	0.31	Permissioned

Site Ref	Address	Area (ha)	Assessment
BR11	Foundation House, Ickniel Way, Letchworth	0.78	Permissioned
BR12	Glebe Road industrial estate, Letchworth	0.26	Local Plan allocation - LG13
BR13	Hamonte, Letchworth	1.16	Permissioned
BR14	Nursery, Ickniel Way, Letchworth	0.43	Site area no adequate to accommodate BESS development; in proximity to residential land use
BR15	Site at Birds Hill, Letchworth	0.60	Local Plan allocation - LG8
BR16	Garages, Ickniel Way, Letchworth	0.69	Local Plan allocation - LG15
BR17	Former Depot, Ickniel Way, Letchworth	0.92	Local Plan allocation - LG18
BR18	Land at Birds Hill, Letchworth	1.07	Site area no adequate to accommodate BESS development; in proximity to residential land use
BR27	20-22 Station Road, Letchworth Garden City	0.26	Permissioned
BR28	Garden Square Shopping Centre, Leys Avenue, Letchworth	0.16	Permissioned
BR35	Former Lannock School, Whiteway, Letchworth	0.21	Permissioned
CB/19/00010	Land at former Pig Development Unit, Hitchin Road, Fairfield	5.36	Permissioned

5.3 Stage 3 – Identify and assess the most suitable greenfield site

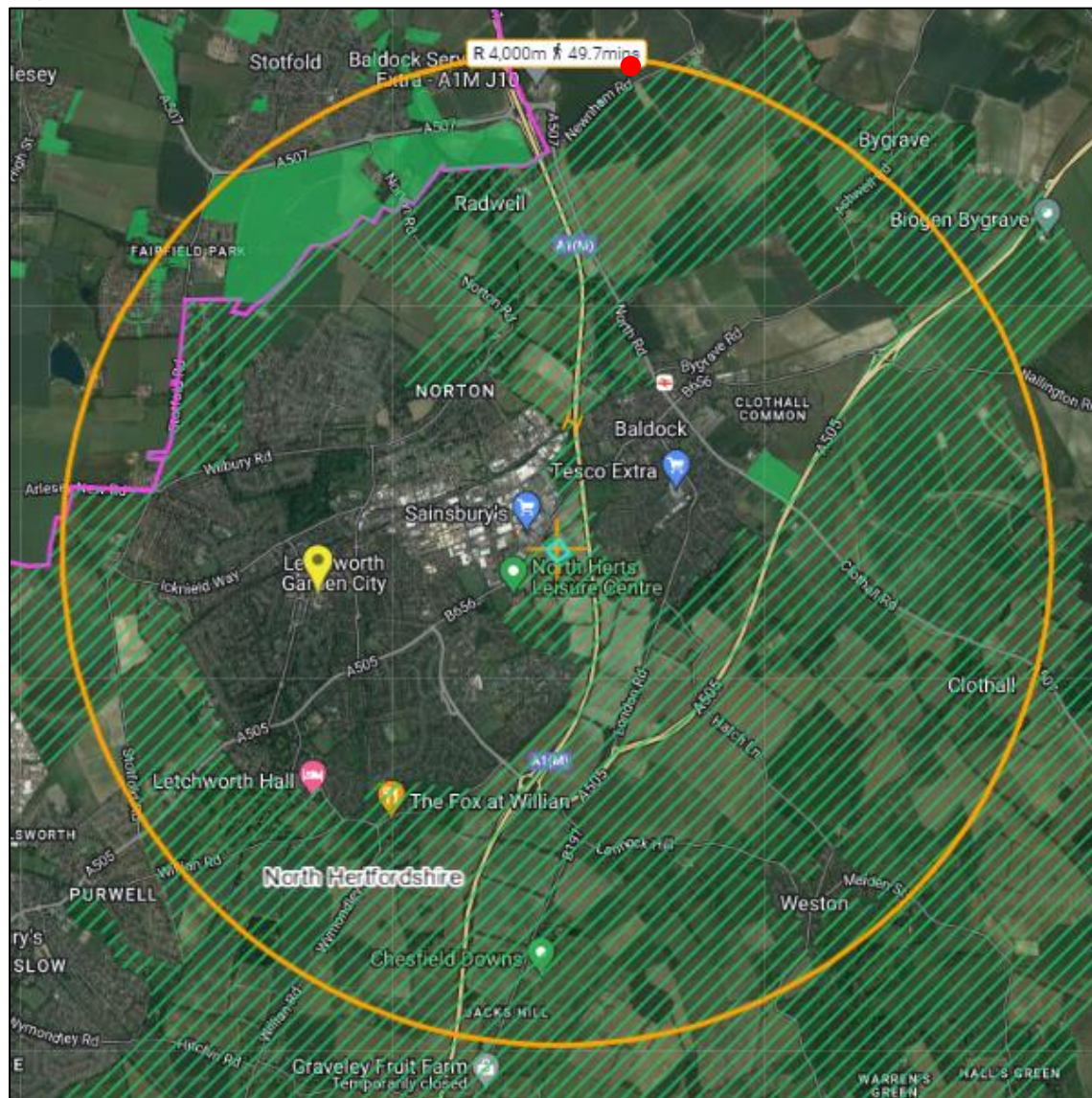
Stage 3 sieves land within the search area based on BESS site criteria to discount unviable sites and establish the availability of suitable sites.

Prioritise avoidance of Green Belt land

Figure 6.3 shows all land within the search area affected by:

- Green Belt (green stripe) and Important Countryside Gaps (green).

Figure 6.3 – Green Belt land within search area

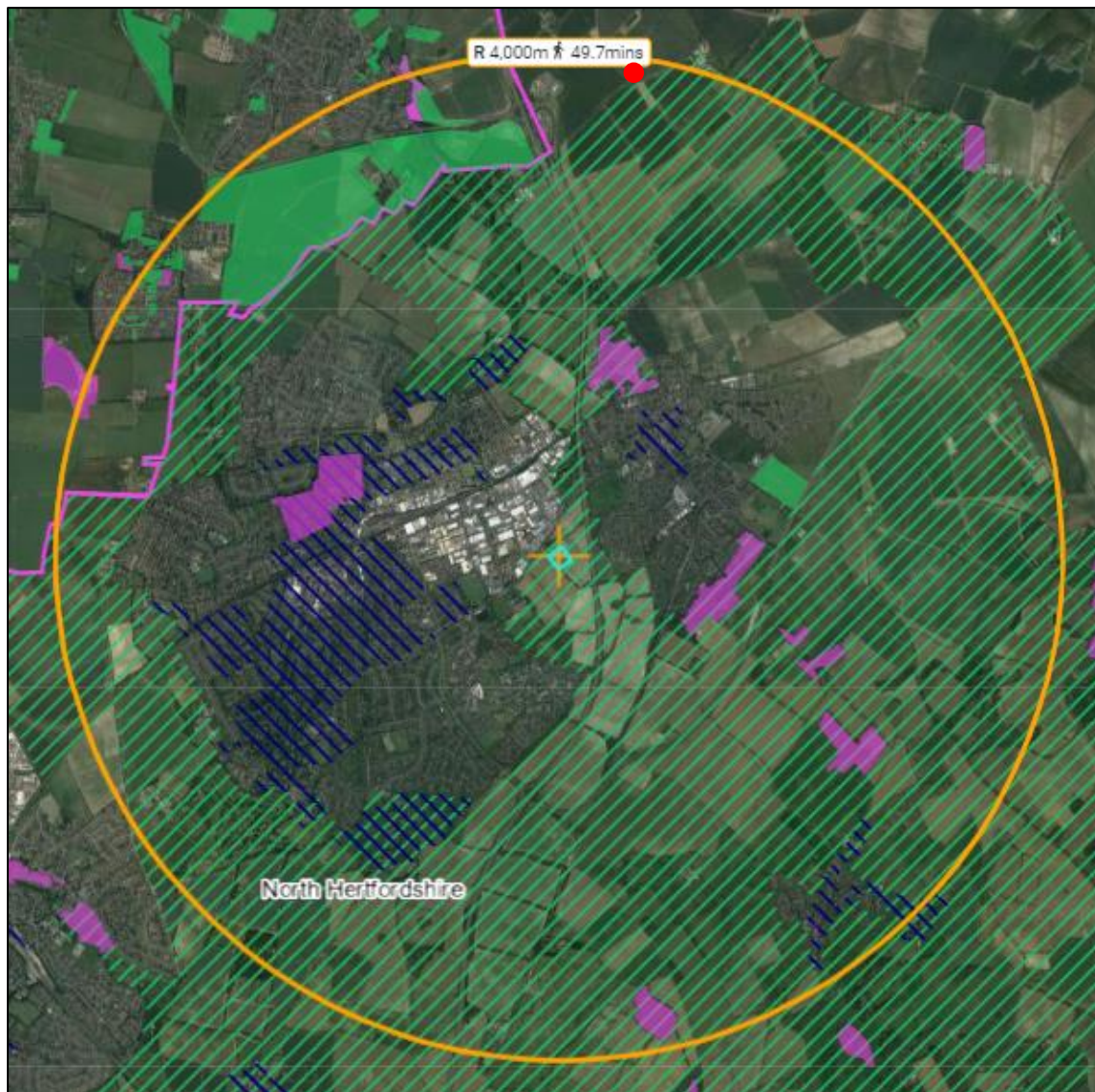


Avoid sensitive environmental designations

Figure 6.4 shows all land within the search area affected by:

- Green Belt (green stripe) and Important Countryside Gaps (green)
- Local Nature Reserves (dark pink) and
- Conservation Areas (blue stripe).

Figure 6.4 – Nature Reserves and Conservation Areas within search area

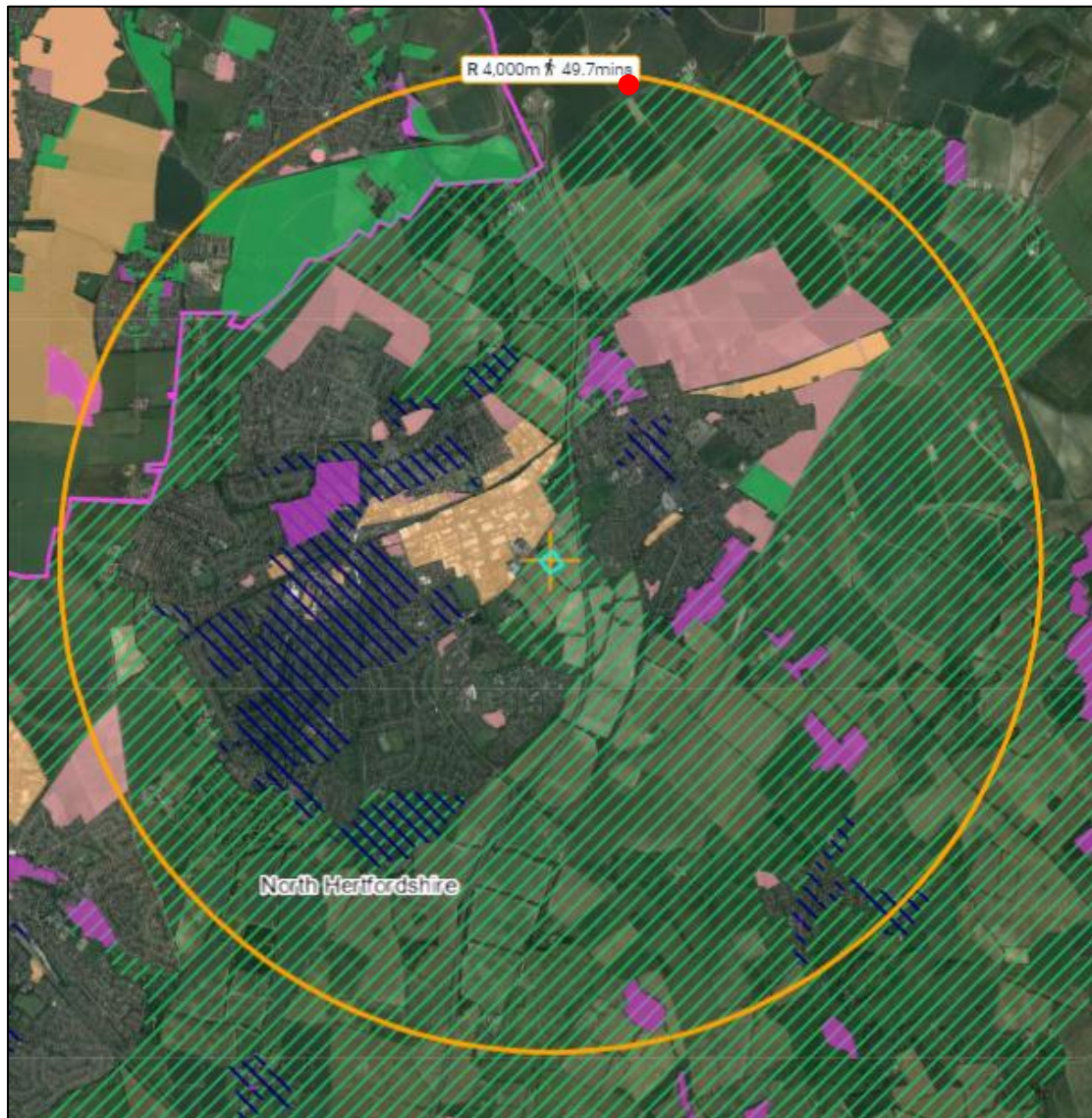


Must not be allocated within the local plan

Figure 6.5 shows all land within the search area affected by:

- Green Belt (green stripe) and Important Countryside Gaps (green)
- Local Nature Reserves (dark pink)
- Conservation Areas (blue stripe) and
- Allocated for residential (light pink) and employment (beige).

Figure 6.5 – Allocated Sites within search area

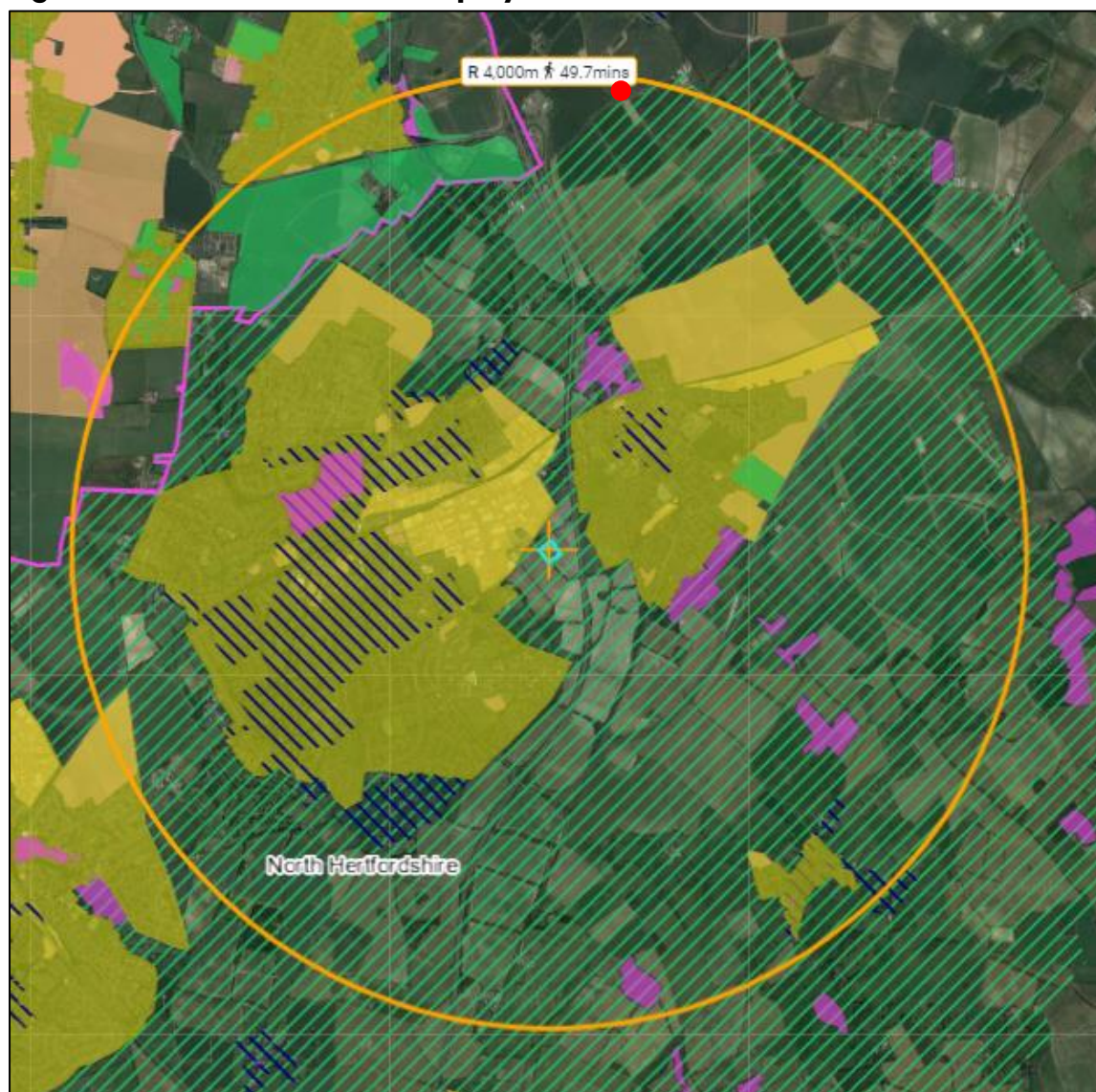


Must not be adjacent to residential development

Figure 6.5 shows all land within the search area affected by:

- Green Belt (green stripe) and Important Countryside Gaps (green)
- Local Nature Reserves (dark pink)
- Conservation Areas (blue stripe)
- Allocated for residential (light pink) and employment (beige) and
- Settlement boundary (yellow) which indicates existing residential and employment land use.

Figure 6.6 – Residential and employment land use within search area



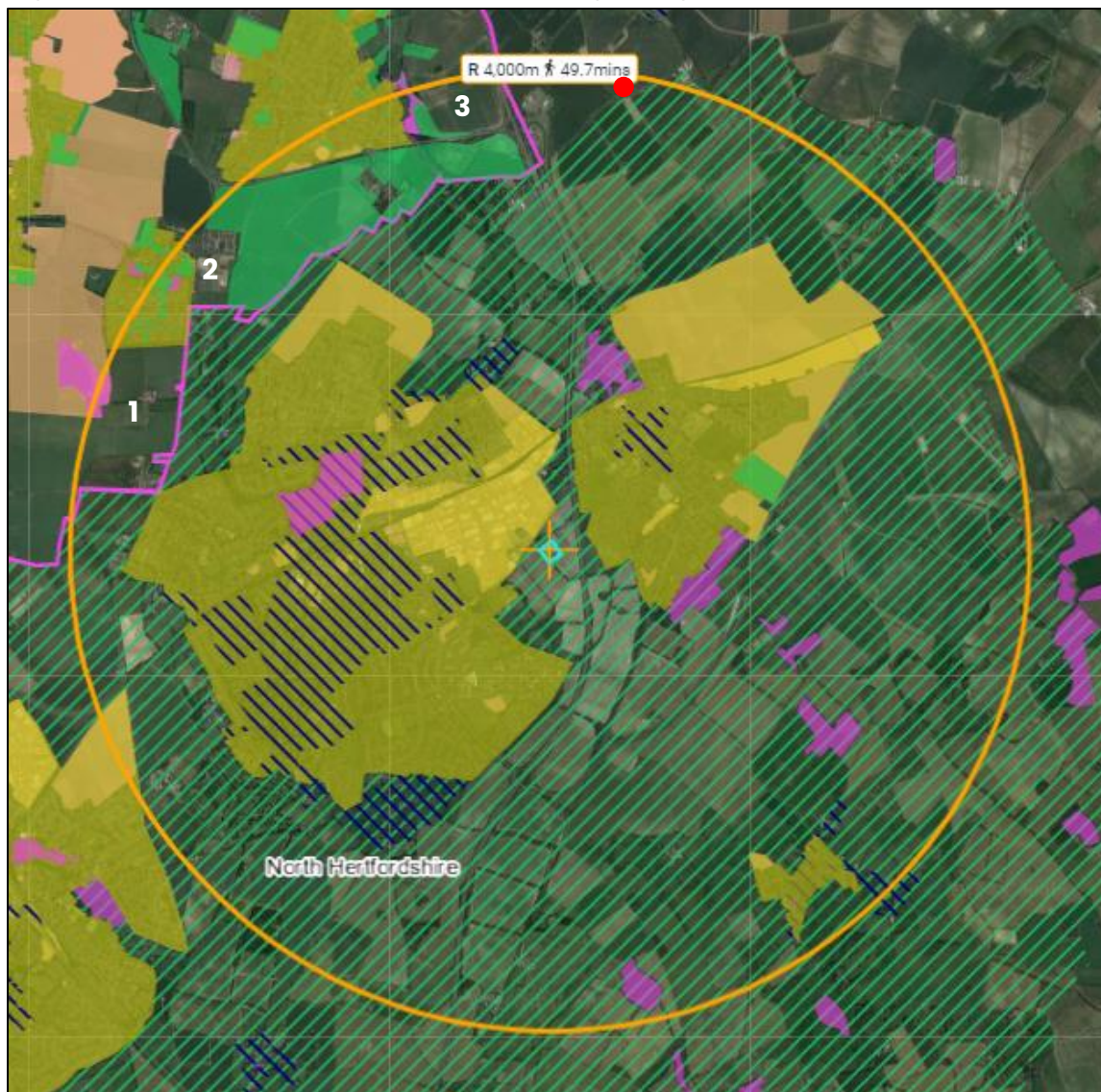
Stage 3 Assessment Findings

The Stage 3 assessment finds there is limited land available for BESS development within the search area due to lack of available brownfield sites, planning policy designations, and environmental amenity considerations.

Figure 6.7 indicates three (3) potential development sites within the search area that could accommodate BESS development:

1. Stotfold, SG6 4JS – The site comprises residential properties which renders it unviable for BESS due to amenity considerations.
2. Hitchin, SG5 4SB – The site has residential properties in proximity which renders it unviable for BESS due to amenity considerations.
3. Stotfold, SG5 4NU – Land is unavailable for development based on landowner engagement.

Figure 6.7 – Sites not affected by planning designations and policy



6. Conclusion

The Application Site is suitable and the most appropriate within the search area to accommodate the Proposed Development.

The Letchworth Bulk Supply Point requires only a busbar extension for a new connection meaning it is a viable connection point to accommodate BESS. Fault levels are higher near the substation but decrease with distance, allowing efficient operation further away without breaching headroom, reducing the need for reinforcements and allowing for the 4km connection to/from the proposed BESS from/to the Point of Connection.

Other nearby Point of Connections were evaluated and found to be unable to accommodate the proposed BESS, for example Wymondley Grid Supply Point requires costly upgrades, and five primary substations with 33/11kV voltage levels need significant reinforcements, making BESS development commercially unviable at these sites.

Based on the sieve evaluation of all land within the 4km catchment area surrounding the Letchworth Bulk Supply Point, the Application Site is the only site suitable and available for BESS development for the following reasons:

- A review of the North Hertfordshire Brownfield Register found that no available brownfield sites were identified as being large enough to support the proposed BESS development.
- The Letchworth settlement boundary and its residential land uses within restrict BESS development due to amenity considerations for BESS development in proximity to such land uses.
- Nature Reserves and Conservation Areas sites were sieved out due to the restrictions to BESS development.
- Residential and employment allocation sites were sieved out due to their unavailability for BESS development.
- The greenbelt designation applies to a large amount of land within the search area, as shown on the figures within this report. Because the proposed BESS can be accommodated at 4km away from the POC, the first non-greenbelt site that could effectively mitigate impacts was selected to avoid impact on the greenbelt. It must be noted that the environmental benefits of BESS development outweigh the risks to the greenbelt when considering very special circumstances, as per the Applicant's allowed appeal which found "the

environmental benefits of the proposal and the fact that the impacts can be made acceptable, are sufficient to outweigh the harm to the Green Belt¹.

Albeit possible for BESS to demonstrate VSC, the Application Site was selected to be on land within the Rural Land Outside of the Greenbelt designation as it is of lesser strategic importance and there is no other land within North Herts District that is not affected by restrictive designations. Furthermore, Policy NE12 supports other renewable and low carbon energy development, however such development is typically better suited to non-urban areas for amenity impacts to be adequately mitigated. Because all 'non-urban'² land within North Herts is designated as either Greenbelt or Rural Land Outside of the Greenbelt, there is very limited opportunity for the renewable energy projects, supported by Policy NE12, to be delivered.

Reflecting on the planning balance and turning to sustainable development, it is widely understood in planning that there are three dimensions to sustainable development, these are economic, social and environmental gains. National Policy advises that to achieve sustainable development, economic, social and environmental gains should be pursued in mutually supportive ways through the planning system. The Proposed Development has been shown to achieve the main objectives of sustainable development without causing undue detriment to any of these matters.

The environmental and technical reports that form part of the planning application demonstrate that there would be no unacceptable environmental impacts, and there are several added benefits, including above the standard threshold habitat creation and biodiversity net-gains. Overall, the proposals are entirely suitable to the Site and its surrounds; broadly consistent with Planning Policy and all relevant material planning considerations; and will achieve a high-quality design as envisaged by the Applicant and as required by the Local Planning Authority.

These factors, when combined with the significant need for flexible energy storage, mean that the planning balance is weighted significantly in favour of the Proposed Development. It is therefore submitted that the application proposal constitutes a scheme which should gain the weight of national energy and planning policy support.

¹ Ref: APP/C3430/W/22/3292837

² Defined as settlement boundaries; allocated sites; conservation areas; developed land

