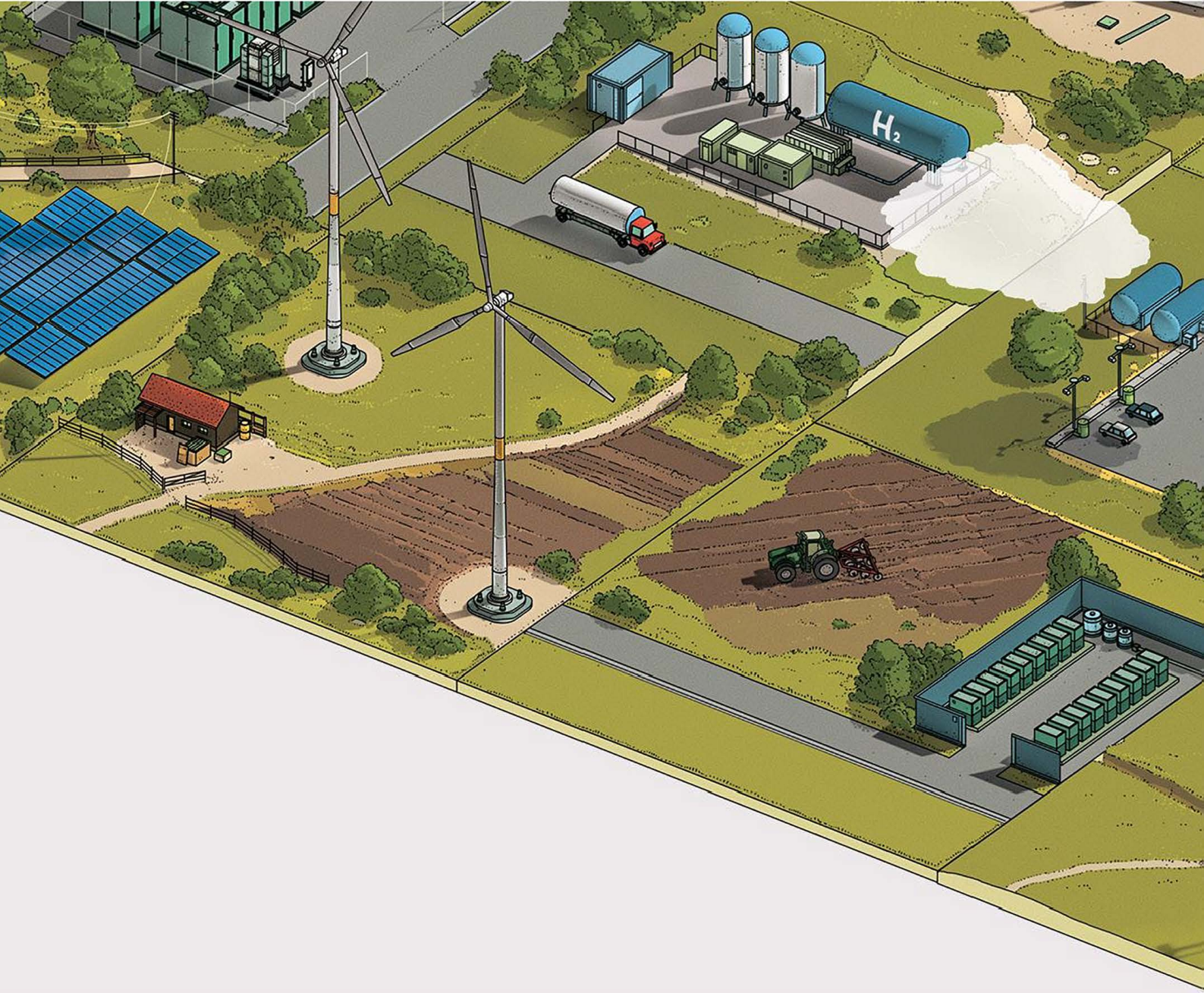


# greenfield.

## Power For Tomorrow.

Energy Development. Sustainable Investing.

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# Greenfield Keswick BESS Fact Sheet

At Greenfield, we believe that our renewable energy projects should be judged on their planning merits, the economic benefits they will bring to the local area, and the contribution they make to the UK's energy security and climate goals. The purpose of this document is to address the legitimate concerns that residents have raised and provide further clarity on aspects of the scheme.

## Who we are and what are we proposing?

Greenfield is a UK-founded development company, headquartered in London. We bring together over 70 years of cumulative experience in the design, development and construction of key energy-led technology.

We have recently submitted a planning application for a Battery Energy Storage System (BESS) located on land to the east of the B1113, and North of the A47 ("Keswick BESS"). The BESS will store surplus electricity produced when wind turbines and solar farms generate more than the demand, and then release this energy back into the grid when demand exceeds generation. With BESS, we can use renewable energy to power our homes and businesses when the wind stops blowing and the sun isn't shining. Whilst the facility does not generate energy, the deployment of BESS projects across the country are pivotal in facilitating a national renewable energy transition. In fact, the **Government's Clean Power 2030 Action Plan has estimated that the UK will need up to 27 GW of battery storage to achieve a clean electricity supply by 2030**. Keswick BESS would contribute towards this target, as well as helping to achieve local targets, such as South Norfolk Council's aim for the Borough to reach net zero emissions by 2050.
Moreover, projects like **Keswick BESS will allow the UK to reduce our reliance on costly gas imports from overseas**, increasing our energy security and helping to reduce the costs of energy bills. The project is connecting directly into Norwich Main substation, and will only import and export energy from this local substation.

## Why have you chosen this site specifically?

Identifying sites capable of accommodating the proposed 400-megawatt storage facility that can make a meaningful contribution toward the challenging 2050 climate targets is extremely difficult within settlements or on previously developed land. This challenge is clearly illustrated in the Alternative Site Assessment (ASA) submitted as part of the planning application.

The overall aim of the assessment was to demonstrate due consideration to the benefits and constraints associated with the Site when selecting it for development. The assessment

concludes that there are no alternative sites that are more suitable and available than the proposed Site.

The scale of the Proposed Development is considered appropriate following the National Grid Norwich Main substation extension and new connections into the substation from other developers including the Hornsea Project Three offshore wind farm and the Equinor Sheringham Shoal and Dudgeon wind farm extensions. The scheme would be able to store excess energy from these projects, and provide them back to Norwich Main substation in times of high demand.

The project is situated within an area of agricultural land, which is less likely to attract other forms of development. This reduces the risk of infill or urban sprawl in the surrounding area. It is important to note that in planning terms the land remains agricultural in use and will not constitute 'previous developed land'.

## Why has consultation occurred during the planning submission?

Due to the National Energy System Operator's grid connections reform, they have released strict deadlines and submission windows for projects connecting to the grid. This has unfortunately resulted in a reduced timeline to arrange public consultations. We have therefore requested and attended a meeting with Keswick Parish Council and the local community during the public consultation period for the planning application on 27/08/25. This has given an opportunity for the Parish Council and the local community to provide feedback to be considered by Greenfield prior to the determination of the planning application.

The Proposed Development was submitted to the Local Planning Authority (LPA) (South Norfolk and Broadland Council). As part of the planning process, statutory consultation is undertaken by the LPA in line with the requirements of The Town and Country Planning (Development Management Procedure) (England) Order 2015. This includes undertaking formal public notification, including the distribution of site notices and neighbour notifications to the properties identified within the defined consultation area. We undertook pre-application discussions with relevant members of the Council and other stakeholders.

Prior to submission, following an in person meeting with Claire Curtis, the Area Planning Manager and Nationally Significant Projects Lead Officer, and Phil Courtier The Director of Place, we reached out directly to members of South Norfolk and Broadland Council, including Local Members for Keswick, Cllr Deborah Sacks and Cllr Daniel Elmer and Local Members for Swardeston, Cllr Ian Spratt, Cllr Jim Webber, Cllr Bob McClenning, the Swardeston Parish Council and Keswick Parish Council.

All required documentation, including planning drawings, assessments, and technical reports, have been made publicly available via the Council's planning portal to ensure transparency and allow for public review and comment.

## What will Keswick BESS look like in the local area?

A Landscape and Visual Appraisal (LVA) has been produced (by a qualified landscape and visual consultant) and formed part of the planning application submission. It considers the effects of the Proposed Development on both the Site's landscape character and the landscape character of the wider area, and on representative viewpoints. The BESS facility was laid out and supplemented by a carefully considered and detailed landscaping strategy to minimise the potential for visual impacts.

We've designed Keswick BESS so it fits sensitively into the landscape and avoids unnecessary visual impact. The site sits in a naturally screened location, with hedgerows surrounding the land title. The landscaping plan also includes planting a new hedgerow on the north boundary of the site and strengthening the existing hedgerows.

The design has retained existing landscape components and utilised their screening properties, along with providing a comprehensive planting scheme that has been incorporated as mitigation where appropriate. Key elements of landscape mitigation and improvements are as follows:

- Tree and hedge removal to be kept to a minimum using existing access points and gaps wherever possible.
- Existing trees and hedgerows on the site boundaries to be retained as key features of the landscape with the implementation of physical protection measures to safeguard the retained trees and hedgerows, including robust protection in the form of a barrier in accordance with BS 5837:2023.
- Establish proposed trees within existing hedgerow boundaries to be native and of local provenance where possible. Proposed trees would enhance the local landscape character and filter views of the Proposed Development;
- Existing hedgerows to be allowed to grow to 3m and infilled with new hedgerow planting (appropriate species) where there are gaps to strengthen the existing landscape framework. Retained and proposed hedgerows and trees filter and screen views to the Proposed Development.
- A colour study will be undertaken if the project is approved, which will be agreed with the council. This colour study will then decide the colours of the infrastructure within the project.

Independent experts who reviewed our plans concluded that these steps will reduce any visual impact and help the project blend into its surroundings over the long term.

We also want to clear up a few common misconceptions:

- **Equipment height:** Most equipment will be less than 4 metres tall, the highest structure associated with the project would be the transformers, being approximately 6.77m high.
- **Lighting:** There will be no permanent lighting proposed on the site, except for emergency lighting which will only be used when maintenance is needed and will be contained locally to the BESS units. The Council would be able to secure this via planning condition which would limit the use of emergency lighting and ensure there is no light spill from the compound. The facility is unmanned and doesn't require lighting for other circumstances.

## Will Keswick BESS create noise for the community?

It is acknowledged in the Noise Impact Assessment that the construction of the Proposed Development will generate noise on a temporary basis. This would be because of the following activities: vehicle movements along access tracks and haulage routes associated with the delivery and removal of construction materials; equipment delivery; site and ground preparation activities; and the erection of pre-fabricated buildings and infrastructure using construction machinery.

The construction activities may increase noise levels within the vicinity of the Site, however any related noise during construction would be intermittent, localised and temporary in nature. In order to reduce the impact on the local community, construction hours have been limited to 7am until 7pm Monday – Friday and 7am to 1pm on Saturday, with no work on Sundays or Bank Holidays. The need for construction works outside these hours is considered unlikely therefore it is assumed there would be no work outside of these hours.

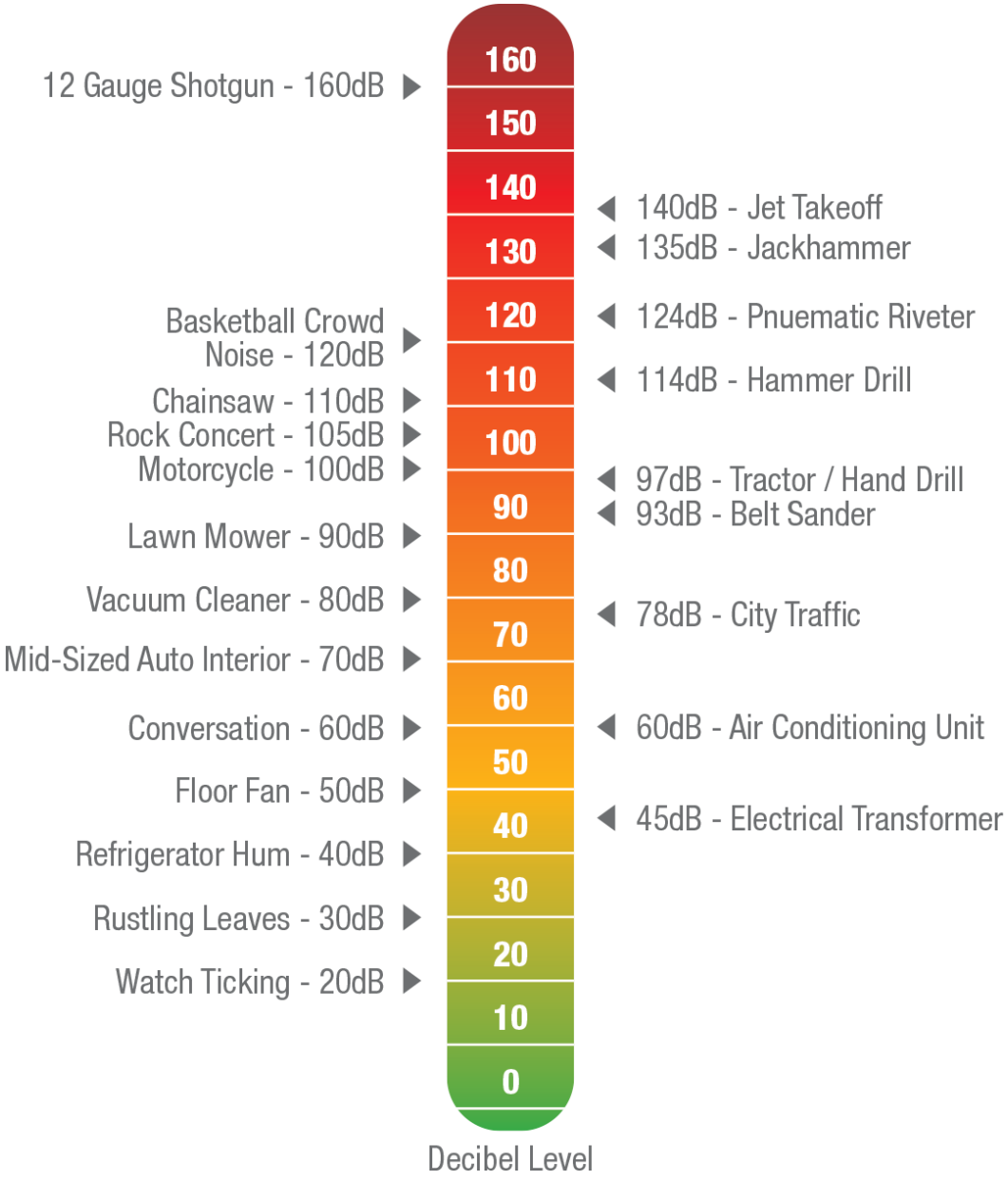
Independent noise assessments show that the site will have a negligible impact on the surrounding area. The only place where a minor nighttime effect was identified is at NRS2 College Lane, where the predicted levels are expected to increase only by 1 decibel.

By the time sound reaches the nearest homes, it reduces to around 34dB – 42dB, which is similar to leaves rustling or the hum of a fridge (as shown below).

It is important to note that the predicted noise levels represent a conservative, worst-case scenario as the predictions do not factor in surrounding vegetation and assume continuous operation of all equipment at full load, including during night-time hours. It is anticipated that equipment operating loads, particularly during the night, will be considerably lower.

With the inclusion of a 4m noise barrier around the compound the mitigated scenario shows the majority of the expected decibel (dB) levels and noise risk to be “Low” as seen in the table below.

| Receptor | Period | Specific Sound Level dB $L_S$ = $L_{Aeq,1h}$ | Rating Level dB $L_{Ar,Tr}$ | Background Sound Level dB $L_{A90,T}$ | Difference (Rating Level – BSL) | Noise Risk |
|---|---|---|---|---|---|---|
| NSR1 (Brooks Green Traveller Site) | Day | 38 | 40 | 66 | -26 | Low |
| | Evening | 38 | 40 | 55 | -15 | Low |
| | Night | 38 | 40 | 41 | -1 | Low |
| NSR2 (College Lane) | Day | 40 | 42 | 58 | -16 | Low |
| | Evening | 40 | 42 | 50 | -8 | Low |
| | Night | 39 | 41 | 40 | 1 | Medium STC |
| NSR3 (Pipers Moon, 1 Keswick Hall) | Day | 38 | 40 | 58 | -18 | Low |
| | Evening | 38 | 40 | 50 | -10 | Low |
| | Night | 38 | 40 | 40 | 0 | Low |
| NSR4 (Keswick Lodge) | Day | 32 | 34 | 58 | -24 | Low |
| | Evening | 32 | 34 | 50 | -16 | Low |
| | Night | 33 | 35 | 40 | -5 | Low |


12 Gauge Shotgun - 160dB
Basketball Crowd Noise - 120dB
Chainsaw - 110dB
Rock Concert - 105dB
Motorcycle - 100dB
Lawn Mower - 90dB
Vacuum Cleaner - 80dB
Mid-Sized Auto Interior - 70dB
Conversation - 60dB
Floor Fan - 50dB
Refrigerator Hum - 40dB
Rustling Leaves - 30dB
Watch Ticking - 20dB
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
140dB - Jet Takeoff
135dB - Jackhammer
124dB - Pnuematic Riveter
114dB - Hammer Drill
97dB - Tractor / Hand Drill
93dB - Belt Sander
78dB - City Traffic
60dB - Air Conditioning Unit
45dB - Electrical Transformer
Decibel Level

## Is there a fire risk with Keswick BESS?

The risk of fire is very low. Keswick BESS is being designed to the highest safety standards and will be monitored around the clock. In the unlikely event of a fire, the site will have automatic fire detection and suppression systems in place.

Importantly, the project will use Lithium Iron Phosphate (LFP) batteries, which are not the same as Lithium-Ion batteries. LFP batteries are:

- Much safer, with a far lower risk of fire.
- More sustainable, lasting longer and avoiding scarce or ethically problematic materials like cobalt and nickel.
- More reliable, making them the preferred choice for modern energy storage projects.

The final battery technology used for this project will be subject to a detailed procurement process to establish the best possible and safest technology. Each individual battery unit will have its own fire detection and suppression devices. The batteries are remotely monitored 24/7 to detect the slightest of irregularities with specific units able to be switched off remotely if necessary.

BESS are designed to industry-specific guidelines and subject to UK legislation. All facilities undergo fault testing before energisation and are maintained in line with best practices.

An Outline Battery Safety Management Plan (OBSMP) has been produced for this planning application which defines the proposed safety strategy, requirements and processes necessary to meet derived safety objectives and to set a level of safety performance that the installation can be measured against. These standards are derived from the following sources.

- Planning Practice Guidance (PPG) for Renewable and Low Carbon Energies.
- Fire and Rescue requirements detailed in the National Fire Chiefs Council (NFCC) Report Grid Scale BESS Planning – Guidance for Fire and Rescue Service (FRS).
- Factory Mutual (FM) Global Loss and Prevention Datasheet 5-33 (as cited in the NFCC Report).
- The Project Emergency Response Planning.

It also provides the basis for the safety management processes and procedures required to satisfy the identified safely requirements for a BESS system capability. A detailed Battery Safety Management Plan will be provided prior to construction, a planning condition requiring this would be accepted. This would set out more detail of how the development will meet the standards and guidance listed above.

Following discussions with the Norfolk Fire and Rescue service we have received their input on the design of the site and are now undertaking additional surveys to explore their amendment suggestions to the design. The design and layout is in accordance with Building Regulations Approved Document B Volume 2 Requirement B5, in that reasonable provision has been made for the Fire vehicles to access all parts of the site.

A 240,000l water tank is provided on the Site which would contain the firefighting water supply. It is suitably positioned to allow for access to all BESS containers, maximum distance from the water tank to the furthest BESS units and associated infrastructure is less than 50m, in accordance with the Building Regulations Approved Document B Volume 2 Section 16.

As set out in the OBSMP, in the unlikely event of a BESS fire several chemicals in gaseous form can be released and the composition and concentration of the plume (also refer to as the vapour cloud) is dependent on the chemistry in use, the design and components of the BESS and the magnitude of the fire. Amongst the general gases released are CO, HF, Oxygen (O) and H2. The only UK BESS fire (Carnegie Road, Liverpool – Sept 2020) used old BESS technology (lithium-ion) and was monitored and the resultant composition of the plume determined as being negligible in toxic gas concentration.

## Traffic and Transport Concerns

A Construction Traffic Management Plan (CTMP) and a Transport Assessment has been prepared and submitted with this planning application which sets out the access proposed for the development, and how construction traffic would be managed. The CTMP sets out the various measures which would be put in place to mitigate adverse effects of the traffic during construction. This would include:

- Temporary Highway Route Signage if Required by South Norfolk Council/National Highways.
- On-site site wheel wash.
- Full Time on-site Banksman.

It is estimated that the Proposed Development would require up to 10 daily HGV arrivals as a worst-case (20 two-way movements) during the construction period, which is 14-20 months.

During normal operation, the development will generate negligible traffic movements for maintenance, taking place on an ad-hoc basis, estimated to be up to 5 vehicles (typically cars or vans) a week.

Based on the Site's proximity to strategic roads such as the A140, A47, A11 and A146 and M1, it is anticipated both the construction and operational phase trip generational will have a negligible impact on the capacity and safety of the surrounding highway network and not lead to any significant adverse highways impacts.

## Is there a flood risk with Keswick BESS?

The Site is entirely located within Flood Zone 1, which has the lowest annual probability of flooding (less than 0.1%). The Environment Agency (EA) Surface Water Flood Map indicates that most of the Site is at very low risk of surface water flooding. The risk of flooding from sewers, groundwater and artificial sources has also been assessed in the Flood Risk Assessment (FRA) and is considered low.

From our conversations with the local community, we understand that there has been increased issues with the drainage on the B1113, following the Hornsea/Orsted Development. The Proposed Development is considered to be at low risk of flooding from all sources and would not increase flood risk at the Site or in the surrounding area. It is therefore deemed to be with Policy DM 4.2 of the South Norfolk Local Plan Development Management Policies Document October 2025 (DMPD), and paragraphs 170 and 182 of the National Planning Policy Framework (NPPF).

The surface water drainage strategy for the Site comprises discharge of surface water runoff directly to the pond to the northwest of the Site, in line with the drainage hierarchy. All surface

water runoff from the proposed development up to and including the 1 in 100 year plus climate change storm will be attenuated on Site and discharged at greenfield rates to mimic the natural drainage regime.

The attenuation basin would be in the north-western corner of the Site, at the natural low point. The basin will provide sufficient storage to attenuate the 1 in 10 year plus climate change rainfall event plus 228m3 of firewater, with no positive discharge until this potentially contaminated runoff has been removed. Should a fire occur at the Site and the fire suppression system is activated, containment of firewater will be required on Site to isolate potentially contaminated discharges.