



RSK ADAS Ltd

Eden Meadows Solar Farm

Flood Risk Assessment and Drainage Strategy

681161-R1(5)-FRA
October 2025

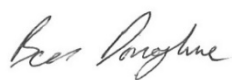


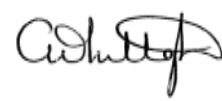
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RSK GENERAL NOTES

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Title: Flood Risk Assessment and Indicative Drainage Strategy
Client: RSK ADAS Ltd
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK LDE Ltd.

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1 INTRODUCTION

This Flood Risk Assessment and Drainage strategy has been prepared by RSK for RSK ADAS Ltd on behalf of JBM Solar Projects 28, JBM Solar Ltd, now part of RWE ('the Applicant') in support of a planning application for the installation of a Solar Farm, Battery Energy Storage System (BESS) and supporting infrastructure ('the Proposed Development') at Land to North of Stretton Road, Morton, Alfreton, DE55 6HA ('the Site').

The development proposals are for energy end use, including the erection of a Solar PV array comprising ground mounted solar PV panels, vehicular access with internal access tracks, landscaping and associated infrastructure including battery stations located throughout the Site and a sub-station connection in the north-east parcel.

The purpose of this FRA is to establish the flood risk associated with the proposed development and to propose suitable mitigation, if required, to reduce the flood risk to a more acceptable level. The FRA must demonstrate that the development will be safe for its lifetime (in this case assumed to be 40 years as advised by the client) taking account of the vulnerability of its users, without increasing flood risk elsewhere. In this case the Solar photovoltaic array is being sought as a temporary permission, while the substation is a permanent consent.

This document has been produced to assess the flood risk from tidal, fluvial, surface water, groundwater, sewer, reservoir, and artificial sources in line with the National Planning Policy Framework (NPPF)¹, its corresponding Planning Practice Guidance (PPG)² and the updated National Standards for Sustainable Drainage Systems³. It includes a summary of the proposed surface water drainage strategy, showing how Sustainable Drainage Systems (SuDS) have been used to demonstrate surface water is appropriately managed on-site, with the aim that there is no increased risk of flooding on-site or elsewhere as a result of the development.

Following the decision of North East Derbyshire District Council ("NEDDC") to refuse a Planning Application for Full Planning Permission (ref: 23/01089/FL) an Appeal has now been lodged. At the time of lodging the Appeal, the Appellant submitted a number of proposed minor amendments to the Site Layout. This Report reflects the Amended Scheme.

The amendments include:

- Updates to reflect the alignment of historic lost hedgerows to encapsulate alignment with the Tithe mapping.

¹ Communities and Local Government, 'National Planning Policy Framework', published March 2012 and last updated February 2025.

² Communities and Local Government, 'Planning Practice Guidance - Flood Risk and Coastal Change, ID 7', published March 2014 and last updated September 2025.
<http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>.

³ National Standards for Sustainable Drainage Systems (SuDS) – 19th June 2025 -
<https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds>.

- Extending the previously proposed permissive footpath route looping around the land parcels to the east of Evershill Lane / PRow to create a looped walk.
- Addition of information boards incorporated along the permissive footpath route.
- All of the hybrid inverter containers have been moved outside of the Risk of Surface Water Flooding ("RoSWF") extents.
- Additional orchard tree planting in the southern extent of Field 10.

This assessment has been undertaken in consultation with the relevant authorities, and with reference to data, documents and guidance published by the Environment Agency (EA), the Lead Local Flood Authority (LLFA) (North East Derbyshire County Council), the Local Planning Authority (LPA) (Derbyshire County Council) and the Water Authority (Severn Trent Water (STW)).

The comments given in this report and opinions expressed are subject to RSK Group Service Constraints provided in **Appendix A**.

2 PROPOSED DEVELOPMENT

2.1 The Site and Surroundings

2.1.1 Site description

The Site is located in the grounds between the north side of the village of Morton and south of the town of Clay Cross and is located within the administrative boundary of North East Derbyshire District Council. The closest postcode is DE55 6HA while coordinates for the centre of the site are Easting 440599, Northing 361032.

The Site comprises approximately 66 hectares (ha) of land currently used for arable farming and rough grazing, see **Appendix B** for site photos and site notes. The Site is defined by the Site Boundary edged red on the Site Location Plan (**Figure 2.1**).

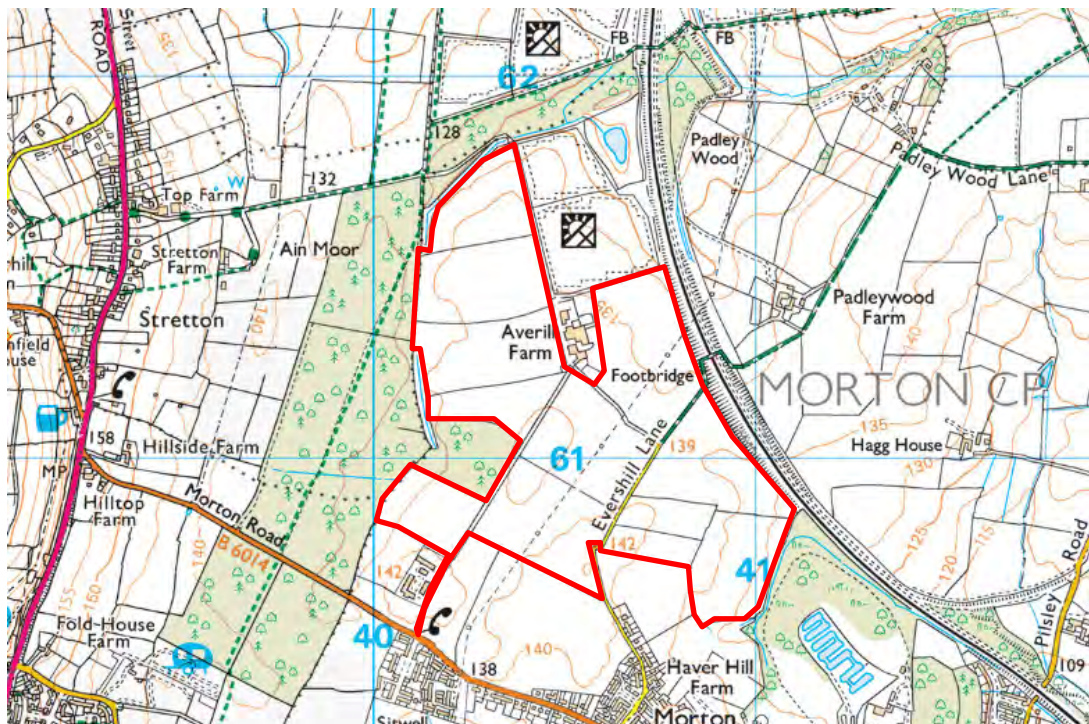


Figure 2.1: Site location plan

The Site itself comprises of a number of regular shaped arable fields bound by mature hedgerows in many places. It is bound by woodlands to the west and the railway line to the north-east which lies within a deep cutting. The Site is centred around Averill Farm and its buildings, with an already constructed solar farm in a northern parcel of land between the farm and the railway (although none of these features are within the redline boundary). An overhead line runs south-west to north-east across the Site providing a means for connection onto the National Grid.

The Site is accessed to the south via a private track off Stretton Road (also called Morton Road) and past the Morton Grange residential home. The proposed development is separated into 8 distinct parcels of solar units with a new access track off Stretton Road

to the south-west. Other internal access roads will be installed in the western panel areas and follow the various existing field boundaries.

2.1.2 Topography

A topographical survey has been undertaken by Tir 3D in July 2021, and is included in **Appendix C**. The topography in this area is complex due to the undulating landscape which rises and falls in multiple directions.

The highest ground within the site's boundaries is along the southern boundary and a small hill to the south-east close to Evershill Lane. This highest ground is approximately 143.6m AOD. Another local area of high ground is in the north-most parcel at a level of 138.0m AOD. The Site slopes to the north, east and west on each of the site's edges. The lowest ground is in the eastern corner at a level of 124.5m AOD and the north-most corner close to the ordinary watercourse also falls to a similar level. The western edge of the site falls to 131.6m AOD.

In the centre of the Site close to the main access road is a local topographical low point which falls to 131.9m AOD. This area has been known to flood in the past as a result of overland surface runoff gathering in the depression.

2.1.3 Existing Drainage

The existing Site drains via the existing field drains and topographic fall towards the two land drainage watercourses outside the boundaries to the west/north, and east. Sewer and water mains plans have been obtained from Severn Trent Water for the site and are included in **Appendix D**. These plans indicate that: -

- The entirety of the Site has no existing public sewer networks present within its boundaries.
- There is a single 300mm surface water sewer running east through the fields to the south-east of the Site to outfall into the land drainage system to the east of the site, but it does not enter the Site's boundaries.
- Various other public drains are present within the lands around Evershill Lane in the Morton village area and new sewers are being installed in the new construction in the same area.
- It is assumed that Averill Farm and Morton Grange Residential Home each have their own private sewer systems that do not appear on public records.

2.2 Development proposals

The proposed development will consist of a solar photovoltaic (PV) farm and associated infrastructure including the following:

- Solar PV panels set out in rows;
- Associated cabling, inverters/transformers, and BESS DC-DC converters;

- Sub-station compound;
- Temporary construction compound;
- Perimeter security fencing;
- Access and maintenance tracks; and
- Landscape and ecological enhancement measures.

The proposed development will export up to 49.9 megawatts (MW) of electricity, and is assumed to be operable for 40 years. Existing greenery will provide screening, and additional planting will enrich biodiversity. The proposed site layout is provided in **Appendix E**.

2.2.1 PV Panels

The panels would be comprised of PV cells and would be designed to maximise the absorbency to the sun's rays and minimise solar glare. As a consequence, they are dark in hue and would appear visually recessive in the landscape. Each row of panels would be mounted on a rack comprising metal poles anchored to the ground using pile driven foundations. The use of these footings would ensure that there is no impact on subsurface features.

2.2.2 Hybrid Inverters / BESS Units

Hybrid Inverter Container / BESS units would be located within the Site which would appear as containerised units similar to shipping containers enclosed in acoustic fencing. The inverters would convert the direct current (DC) generated by the solar panels into alternating current (AC) for export onto the national grid.

Transformers, contained within the inverter cabins convert the low voltage output from the inverters to medium voltage suitable for step-up by the grid transformer and feeding into the local electricity distribution network. It is anticipated there would be approximately 13 inverters / BESS Units throughout the Site.

2.2.3 Sub-station

A sub-station would be required as part of the Proposed Development to act as a single connection point for the Site. The connection into the grid network would require one transformer sub-station compound to allow for the voltage step-up required for grid connection.

The new sub-station is proposed to be located in the north-eastern extent of the site as shown in **Appendix E**. The sub-station compound would become partly adopted by the Distribution Network Operator (DNO) for their assets and would consist of overhead electrical busbars and other electrical infrastructure along with a DNO control building and a customer switch room housing the metering equipment. From the sub-station compound, a cable would be installed to a customer switch room on-site.

2.2.4 Site Access

One main access point is proposed for the proposed development off Stretton Road to the south. This would be the main access used by all traffic during the construction and operational phases of the Proposed Development. Internal tracks would provide access to the entire Site. Where possible, existing farm access tracks would be used.

Where new internal tracks are needed, these would mainly run adjacent to existing field boundaries with minimum buffers applied to minimise encroachment into hedgerows and other landscape features. The tracks would be constructed from stone (or equivalent) or a gravel aggregate depending on the construction vehicles to be accommodated and would be used during construction and operation of the Proposed Development.

2.2.5 Construction and Decommissioning

The construction period would comprise the following stages:

- Access, onsite tracks, and infrastructure – construction of a new access, internal onsite tracks, and construction compound;
- Mobilisation – delivery of plant, equipment, and construction materials; and
- Assembling of components – delivery of solar panels and other components and installation onsite.

Aspects of the design and construction of the solar panel units will aid in simplifying the decommissioning activities undertaken when the facility has reached the end of its operational life, envisioned to be 40 years. The solar farm and its ancillary equipment will be decommissioned, dismantled, and removed from the Site in accordance with best practise established at that time and relevant to solar photovoltaic.

2.3 Consultation Responses

A summary of the consultation responses from the LLFA/EA are included below: -

2.3.1 Environment Agency

- The EA have stated that they have no objections to the planning application but advise that the site is located adjacent to a historic landfill area, although they are unable to provide site-specific advice in this case.
- Applicants should consider the impact to groundwater from the escape of firewater/foam and any metal leachate that it may contain (see **Section 7.4**). Where possible the applicant should ensure that there are multiple 'layers of protection' to prevent the source-pathway-receptor pollution route occurring.
- Industrial battery producers are obliged to take back waste industrial batteries from end users or waste disposal authorities; ensure all batteries are delivered and accepted by an approved treatment and recycling operator; and keep a record of the number of tonnes of batteries placed on the market and taken back.

2.3.2 Lead Local Flood Authority

- Derbyshire County Council have also stated that they have no objections to the proposed development subject to a set of standard conditions.

3 ENVIRONMENTAL SETTING

3.1 Hydrology

Reference to Ordnance Survey (OS) mapping and the EA's web-based mapping indicates that the nearest EA Main River is the River Rother, which is located to the north-east on the far side of the railway, which passes through a deep cutting and so is completely hydrologically separated from the site.

The Site has a series of on-site land drainage features but no central common drainage network and many of the features comprise several shallow ditches located under hedgerows. There are a number of other larger land drainage ditches and watercourses on land to the west and east of the site.

A summary of these hydrological features is shown in **Figure 3.1**. The dark blue line represents an EA Main River, the lighter blue line represents an ordinary watercourse, while yellow lines represent unconnected ditches and blue arrows show overall flow directions.

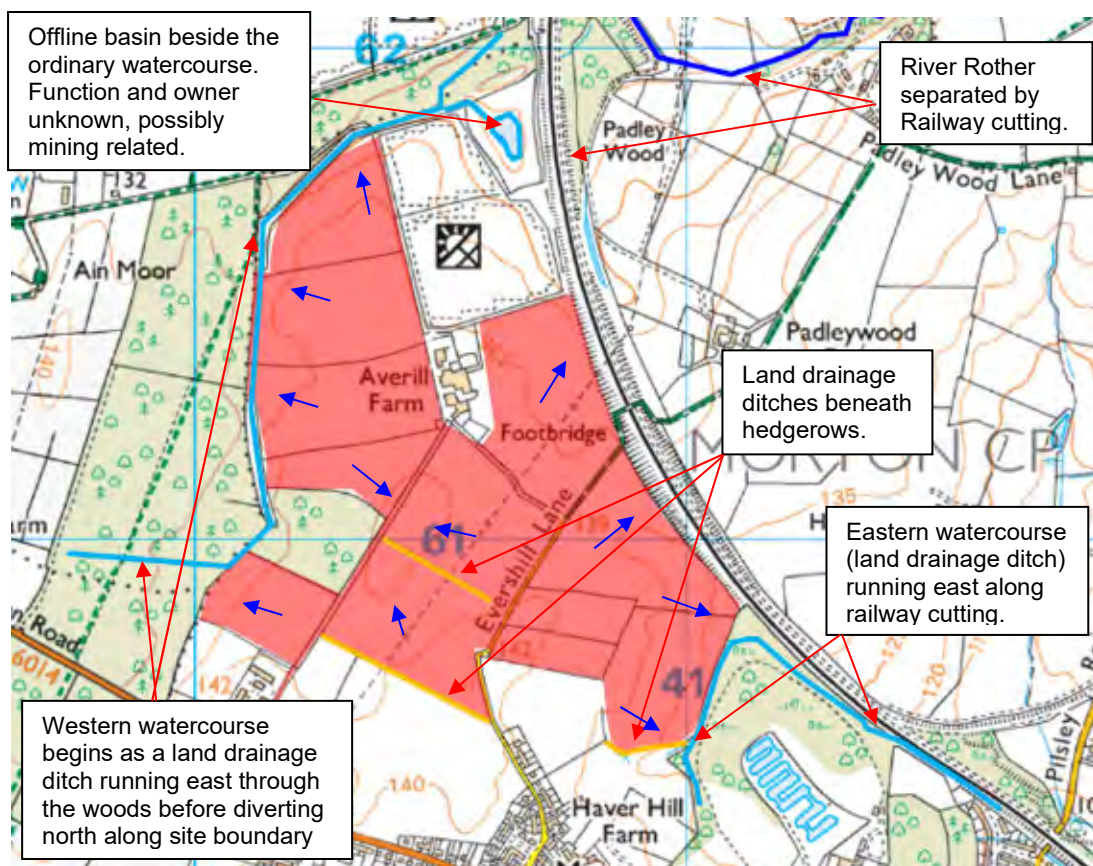


Figure 3.1: Hydrological features

The larger western watercourse begins as land drainage within the woods to the west and runs north and east along the Site's northern boundary with several culverted sections under roads and field boundaries. This is joined by a large land basin beside the northern corner, but its ownership and precise function are unclear. According to the EA's Catchment Data Explorer⁴ this watercourse is assumed to be part of the Water Framework Directive (WFD) "Rother from Source to Redleadmill Brook" Water Body.

The second nearby watercourse is to the east and consists of a partially overgrown ditch course which circles a hill outcrop beyond the eastern boundary. Land drainage in this area feeds into this watercourse which runs south-east along the length of the railway cutting. This watercourse is part of the "Westwood Brook Catchment" Water Body⁵.

There is also an offline waterbody attached to the western watercourse located in a parcel of land to the north of the proposed site development area. The precise function and connectivity of this basin is unclear but is suspected to be a leftover from former mining of the underlying coal measures.

The Site was visited in November 2023 and found some standing water and watercourses to be reasonably full as a result of recent rains (see **Appendix B**). There were some signs of surface water ponding in field corners and close to ditch courses.

3.2 Geology

Based on published geological records for the area (British Geological Survey (BGS) online mapping), the Site exhibits the following geology:

- Superficial Geology: No superficial deposits are present within the Site's boundaries
- Bedrock Geology: The entire Site is underlain by the Pennine Middle Coal Measures (MCM) Formation however there is a progressive variation across the site.
 - The majority of the Site is underlain by MCM Mudstone, Siltstone, and Sandstone of differing ages progressing from west to east and becoming younger to the east.
 - A small section of Sandstone separates the different bands of Coal measures and follows the course of Evershill Lane. Another band of Sandstone is present in the lowlands to the south-eastern corner of the Site.

The BGS borehole records show that a series of boreholes are present within the Site's northern fields surrounding Averill Farm. These borehole references range from SK46SW50-SW64. All boreholes show a similar geological column consisting of 0.2-0.5m of Topsoil, overlying alternating made ground consisting of Grey Stained clays, and layered mudstone. Many boreholes also struck groundwater between 3.60 and 4.50m below ground level (mbgl) while shallower groundwater (2.80mbgl) was struck in one borehole in the woodland section between the western parcels.

⁴ DEFRA – Catchment Data Explorer – "Rother from Source to Redleadmill Brook" Water Body - <https://environment.data.gov.uk/catchment-planning/WaterBody/GB104027052280>

⁵ DEFRA – Catchment Data Explorer – "Westwood Brook Catchment (trib of Alfreton Brook)" - <https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB104028052360>

At the time of writing, no site-specific intrusive ground investigations have been undertaken for the Site to confirm the underlying geology, potential contamination, permeability, or groundwater levels on Site.

3.3 Hydrogeology

Hydrogeological information was obtained from the online Magic Maps service. The maps indicate that the underlying Coal Measures bedrock is classified as a medium vulnerability 'Secondary A' aquifer.

The Site is not located within a Groundwater Source Protection Zone (SPZ); the closest SPZ is located approximately 12km to the west near Wirksworth.

4 SOURCES OF FLOOD RISK

4.1 Criteria

In accordance with the NPPF and advice from the EA, an assessment of the risk associated with various flooding sources is required along with consideration of the effects of climate change over the design life of the development (in this case assumed to be 40 years).

The EA's most recent climate change guidance, published in May 2022⁶, should be referenced in order to identify the appropriate peak river flow and rainfall intensity allowances for the scheme. The appropriate allowance for peak river flow is based on the site's location in the country, the lifetime of development, the relevant flood zone, and the vulnerability of the proposed end use.

The flood risk elements that need to be considered for any site are defined in BS 8533 'Assessing and managing flood risk in development Code of practice'⁷ as the "Forms of Flooding" and are listed as:

- Flooding from rivers (fluvial flood risk);
- Flooding from the sea (tidal flood risk);
- Flooding from the land;
- Flooding from groundwater;
- Flooding from sewers (sewer and drain exceedance, pumping station failure etc); and
- Flooding from reservoirs, canals, and other artificial structures.

The following section reviews each of these in respect of the subject Site.

4.2 Flooding from rivers (fluvial flood risk)

The EA Flood Zone mapping study for England is available on their website at: <https://flood-map-for-planning.service.gov.uk>.

The latest EA published flood zone map (**Figure 4.1**) shows that the entirety of the Site lies within Flood Zone 1, representing a low probability of flooding. This means in any year land has a less than 0.1% chance of flooding from rivers or the sea.

⁶ Environment Agency, 'Guidance: Flood Risk Assessments: Climate Change Allowances'. <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>, May 2022.

⁷ BSI, 'BS 8533-2017 Assessing and managing flood risk in development Code of practice', December 2017.



Figure 4.1: Environment Agency 'Flood map for planning' (Updated August 2025)

The EA's flood mapping doesn't take account of local drainage ditches or ordinary watercourses. There is a limited localised risk of flooding along these features should capacity be exceeded following prolonged heavy rainfall, as was evidenced during the site inspection in November 2023. This is primarily affecting localised areas around the Site boundaries, and to a lesser extent along the field boundaries where drainage features are present.

Fluvial flooding is likely to increase as a result of climate change. A greater intensity and frequency of precipitation is likely to raise river levels and increase the likelihood of a river overtopping its banks. Climate change guidance for river modelling was updated by the EA in May 2022. No model re-runs have been undertaken as part of this site-specific FRA, and the supplied EA figures therefore represent the best available data when considering the flood risk to the site. The impact upon the site should be negligible given its location within Flood Zone 1.

The overall risk of fluvial flooding is considered to be **low**.

4.3 Flooding from the sea (tidal flood risk)

The Site is not considered to be at risk from tidal flooding due to its inland and elevated location. The overall tidal flood risk is considered to be **very low**.

4.4 Flooding from the land (surface water flood risk)

If intense rain is unable to soak into the ground or be carried through manmade drainage systems, for a variety of reasons, it can run off over the surface causing localised floods before reaching a river or other watercourse. Generally, where there is impermeable surfacing or where the ground infiltration capacity is exceeded, surface water runoff can occur.

The EA's surface water flood map (**Figure 4.2**) shows that although the majority of the Site is at very low risk from surface water flooding, there are three localised areas of low to high surface water flood risk. This is mostly focused on two local topographical low areas, one along the western boundary and another in the centre just off the wooded area and with the central access road running through the centre of it.

The western ponding area originates as part of the land drainage systems within the woodlands and those that run along the western boundary and affects the western edge of a single solar panel parcel area. The central ponding area occurs as a result of a local topographical low area with several of the hedgerow field drains funnelling into the area, this area affects the corners of two other panel parcels.

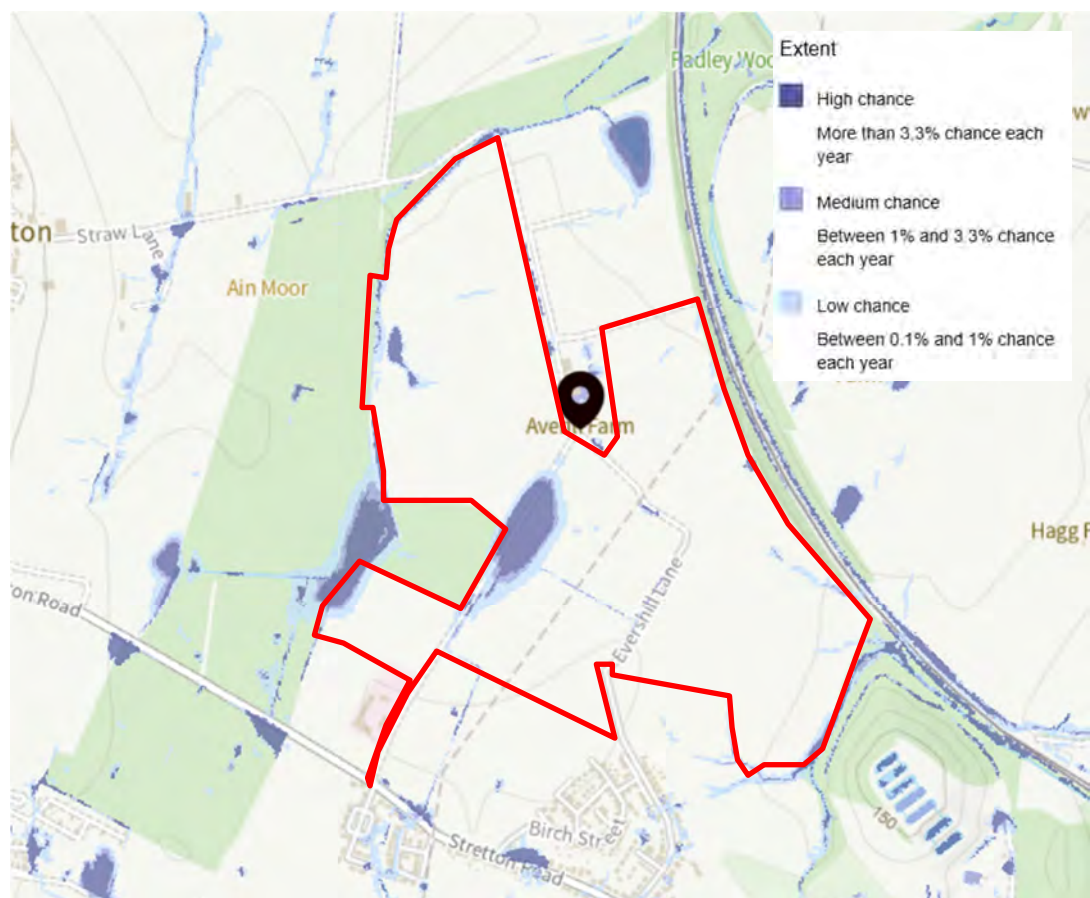


Figure 4.2: Environment Agency 'Flood risk from surface water - Extents' map (Updated August 2025)

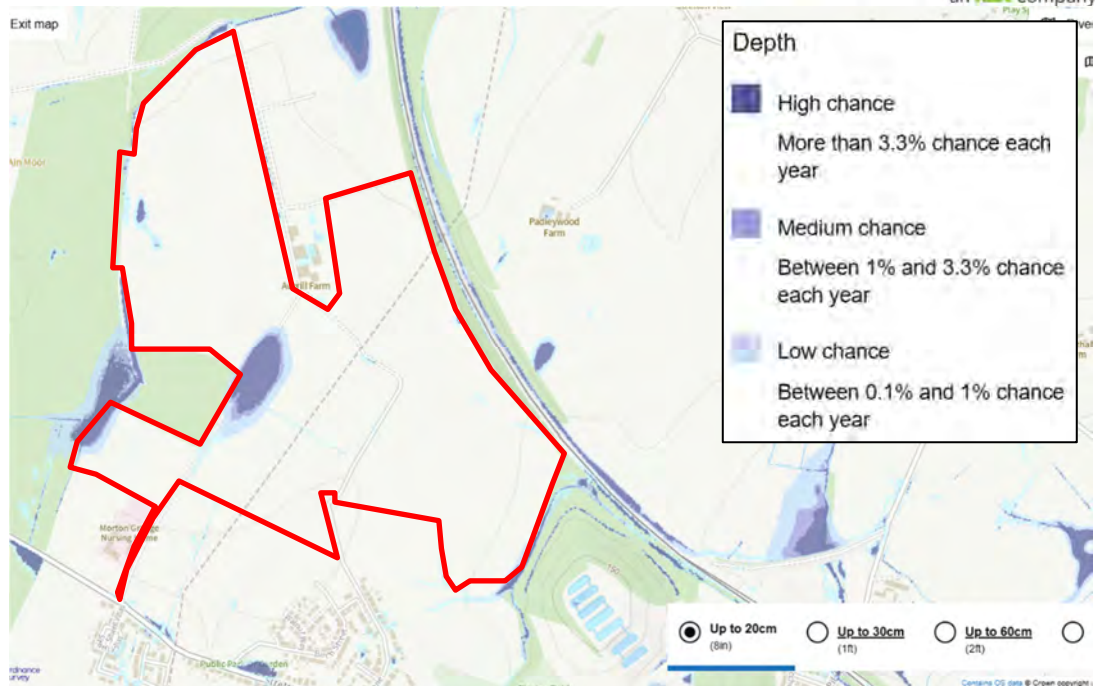


Figure 4.3: Environment Agency Surface Water 'Depth' (up to 20cm scenario) map (Updated August 2025)

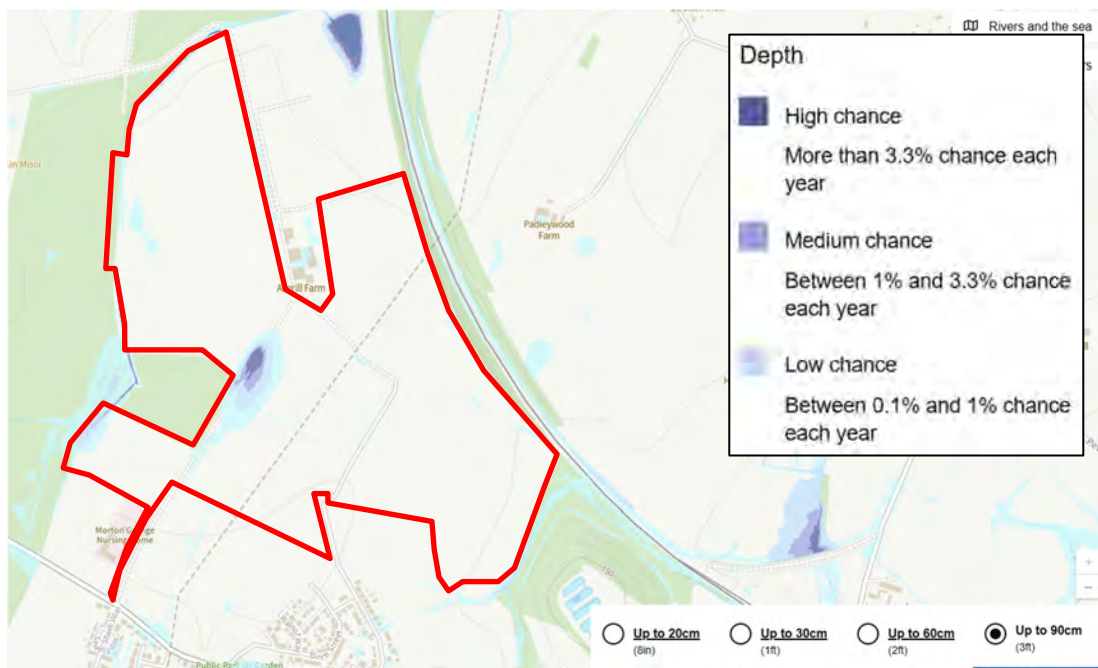


Figure 4.4: Environment Agency Surface Water 'Depth' (up to 90cm scenario) map (Updated August 2025)

The EA Surface water flood depth' maps represent the 1 in 100 year surface water flood risk depth, as seen in **Figures 4.3 - 4.4**. This shows that flood depths on Site are anticipated to generally be between 300-900mm within the low lying areas during a 1 in 100yr event.

There are also higher risk/depth/flow paths associated with the ordinary watercourses bordering the site to the west/north and east. However, these are mostly confined to the watercourses themselves and so do not enter the Site's boundaries.

Surface water flooding is likely to increase as a result of climate change in a similar ratio to fluvial flooding. Increased intensity and frequency of precipitation is likely to lead to reduced infiltration and increased overland flow. Climate change guidance for rainfall intensity was updated by the EA in May 2022. Climate change may affect the frequency and / or extent of surface water ponding experienced onsite. This will be taken into account within the design of the drainage strategy for the development.

The overall surface water flood risk is considered to be **low – high**, since most of the Site is unaffected by surface flooding with the areas of higher risk confined to the two significant topographic low points and peripheral watercourses.

4.5 Flooding from groundwater

Groundwater flooding tends to occur after long periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas, the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

There is no site-specific ground investigation data available for the site to confirm the geology and groundwater levels on the site. However, BGS borehole records have found the underlying Coal Measure bedrock struck groundwater mostly between 3.90 and 4.50mbgl.

Climate change could increase the risk of groundwater flooding as a result of increased precipitation filtering into the groundwater body. If winter rainfall becomes more frequent and heavier, groundwater levels may increase. Higher winter recharge may however be balanced by lower recharge during the predicted hotter and drier summers. This is less likely to cause a significant change to flood risk than from other sources since groundwater flow is not as confined. It is probable that any locally perched aquifers may be more affected, but these are likely to be isolated. The change in flood risk is likely to be low.

Considering the Site's geology and hydrogeology, the overall groundwater flood risk is considered to be **low**.

4.6 Flooding from sewers

Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its conveyance capacity, the system becomes blocked, or it cannot discharge due to a high water level in the receiving watercourse. A sewer flood is often caused by surface water drains discharging into the combined sewer systems; sewer capacity is exceeded in large rainfall events causing the backing up of floodwaters within properties or discharging through manholes.

Sewer details have been referenced from sewer record plans obtained from STW (**Appendix D**) which confirm that there are no public surface water sewers within the site's boundaries. The closest sewer is a 300mm surface water sewer which runs across the land beyond the south-east corner and joins the eastern ditch course beyond the site boundary.

Most adopted surface water drainage networks are designed to the criteria set out in Design and Construction Guidance for foul and surface water sewers⁸. One of the design parameters is that sewer systems be designed such that no flooding of any part of the Site occurs in a 1 in 30 year rainfall event. By definition a 1 in 100 year event would exceed the capacity of the surrounding sewer network as well as any proposed drainage. Any surcharging water from this sewer would most likely be confined to the areas outside the Site's boundary similar to the surface water extents for the eastern watercourse shown in **Figures 4.2 - 4.4**.

Development has the potential to cause an increase in impermeable area, an associated increase in surface water runoff rates and volumes, and a consequent potential increase in downstream flood risk due to overloading of sewers, watercourses, culverts, and other drainage infrastructure. To demonstrate that sewer and surface water flooding is not exacerbated, surface water must be considered within the design of the Site. This demonstrates that any additional surface water and overland flows are managed correctly, to minimise flood risk to the Site and the surrounding area.

Climate change is likely to result in an increase in flooding from sewers. Increased rainfall and more frequent flooding put existing sewer and drainage systems under additional pressure resulting in the potential for more frequent surcharging and potential flooding. This would increase the frequency of local sewer flooding but would not be significant in terms of the proposed development.

The resultant sewer flood risk is considered to be **very low**.

4.7 Flooding from reservoirs

Flood events can occur from a sudden release of large volumes of water from reservoirs. The EA reservoir flood map (reproduced as **Figure 4.5**) shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst-case scenario, it is unlikely that any actual flood would be this large.

⁸ Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code") Approved Version 2.1 25. May 2021

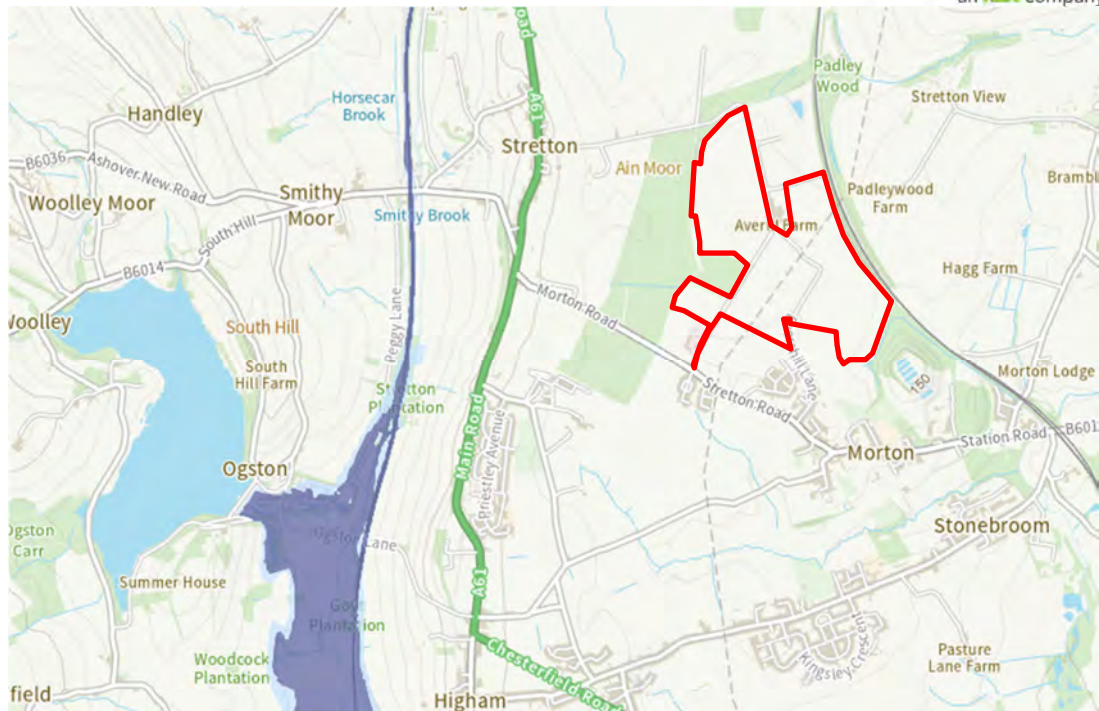


Figure 4.5: Environment Agency 'Flood risk from reservoirs' map (Updated August 2025)

The EA mapping was updated in 2021 to demonstrate the potential maximum extent of flooding for two scenarios - a "dry day scenario" in which river levels are "normal", and a "wet day scenario" where the flooding from the reservoir coincides with flooding from rivers. The map shows that the Site is not at risk of reservoir flooding.

Reservoir flooding is also extremely unlikely, although the consequence of a breach or overtopping failure in terms of the rate, depth and extent of inundation could be significant. There has been no loss of life in the UK from reservoir flooding since 1925. Since then, reservoir safety legislation has been introduced to ensure reservoirs are maintained. Reservoirs in England and Wales are regulated under the Reservoirs Act 1975, as amended by FWMA 2010, and this is enforced by the EA in England with inundation mapping and robust emergency plans.

Reservoirs can be managed over time, controlling inflow/outflow of water and therefore there is the capacity to control the effects of climate change. Increased rainfall has the potential to increase base flow, but this should be minimal. It is unlikely that there will be a substantial change to the risk of flooding for this Site as a result of climate change.

The resultant flood risk is considered to be **very low**.

4.8 Other sources of flooding

4.8.1 Culvert/ bridge

There are several culverts or bridges located on the course of the western boundary. If the structure becomes blocked then fluvial flows of the watercourse could over top the structure and flood the surrounding land. Flooding would likely be localised and would be temporary.

4.8.2 Canals

There are no canal structures within the vicinity of the Site.

5 MITIGATION MEASURES AND RESIDUAL RISK

5.1 Sequential approach within application boundary

A Site Selection Report has been undertaken by Enzygo Ltd in May 2025 (see **Appendix H**) to identify any other potential development Sites that follow the sequential approach. The Eden Meadow's Site is considered by the document to be the most suitable and sequentially favourable Site.

A further Sequential Test Addendum was produced in September 2025 (Pegasus Ref. P25-1599) which in addition to the Eden Meadow's Site, considered four broad locations with titles of more than 20ha (50 acres) within the 3km Search Corridor. These included:

- Land at Hagg Farm and Padleywood Farm
- Land at Sitwell Grange Farm
- Land to the west of Hardstoft and west of the B6039 Chesterfield Road
- Land to the south of Newmarket Lane at Stretton Hall Farm

Each location was considered in terms flood risk and their own constraints. Whilst taken into account alongside the environmental constraints, the Addendum also concluded that none of the four were considered sequentially preferable to the Eden Meadows Site.

The sequential approach has been applied to various design features within the proposed development layout: -

- Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere (extract from NPPF para 100).
- Solar panels are categorised as water compatible. However, the ancillary components (such as Inverters and Substations) are not water compatible. Accordingly, it is acceptable for part of the Site to be located within a higher flood risk zone.
- Only the Solar Panel components have been located within Surface Water flood zone areas, all other assets (i.e. Sub-station and Inverter units) are located well outside these units.

5.2 Overland Flow Routes

Several overland flow routes have been identified on Site associated with a central depression near the access track and another along the western boundary, along with several smaller patches around the Site's periphery.

The majority of the proposed solar panels are located outside of the 1 in 100 year surface water flood risk areas identified by the EA (which generally correspond to the areas reported to have experienced ponding) although some localised areas of at least three solar farm parcels have areas located within the higher surface flooding area.

The solar panels will be elevated on poles, positioning the base of each solar panel approximately 800mm above ground level. The inverter/combiner box is also set at a similar height behind the panel. This elevation will provide protection to the solar panels in the event of a flooding incident although they might be affected during an event of sufficient magnitude. As a result, there is no further need to raise the solar panels' components above the assigned height.

The inverters are all centralised and no sensitive electrical equipment (or key infrastructure) are located within areas prone to surface water flooding.

Other low risk areas around the Site are predicted to have maximum flood depths of no greater than 300mm and considering the solar panels will be raised 800mm from the ground, this will give significant freeboard.

5.3 Easements and consents

Under the Water Resources Act 1991 and associated byelaws, works in, over, under or adjacent to main rivers require the consent of the EA and works in, over, under or adjacent to ordinary watercourses will require IDB, Local Authority or LLFA consent. This is to ensure that they neither interfere with the EA/LLFA's work nor adversely affect the environment, fisheries, wildlife, and flood defence in the locality.

Due to the presence of ordinary watercourses east and west of the Site, North Derbyshire LLFA easements have been applied to the site design. A minimum 8m easement from development to the top of the watercourse bank has been included.

5.4 Safe access/egress

The Site will generally be unmanned during its lifetime with people only using the Site during its construction and routine maintenance. All field parcels within the Site will be enclosed by security fencing and will have safe, dry access and egress during the 1 in 100 year and 1 in 1000 year flood events.

The main sub-station compound and welfare facilities are all located within areas of Flood Zone 1 and with no major surface water flow paths.

5.5 Flood resistance and resilience measures

The majority of the proposed development and all critical electrical infrastructure has been located outside of areas most at risk to flooding, including fluvial and surface water flooding, therefore further flood resistance and resilience measures are not considered necessary.

5.6 Flood management plan

The Site is located within Flood Zone 1 including the main grid compound and welfare facilities, and the site will be unmanned, hence it is not considered necessary to implement a flood management plan.

6 PLANNING CONTEXT

6.1 National planning policy

Section 14 of the NPPF details the overarching requirements relating to flood risk for any development. The key message is that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

In areas at risk of flooding, the NPPF requires that the following criteria are met:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
- d) any residual risk can be safely managed; and
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

The PPG supports the NPPF and provides further advice regarding the assessment of flood risk and the application of the Sequential and Exception Tests.

6.1.1 Land use vulnerability

Table 2 of the PPG indicates the compatibility of various land uses in each flood zone, dependent on their vulnerability to flooding. **Table 6.1** below is reproduced from Table 2 of PPG.

Table 6.1: Flood risk vulnerability and flood zone ‘compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
	Zone 2	Appropriate	Appropriate	Exception Test Required	Appropriate	Appropriate
	Zone 3a	Exception Test Required	Appropriate	Should not be permitted	Exception Test Required	Appropriate
	Zone 3b functional floodplain	Exception Test Required	Appropriate	Should not be permitted	Should not be permitted	Should not be permitted

With reference to the PPG, the proposed development, based on its end use as a solar farm, is classed as 'essential infrastructure'. This land use is considered appropriate within Flood Zone 1.

6.1.2 Site Selection Report

A Site Selection Report has been undertaken by Enzygo Ltd in May 2025 (see **Appendix H**) to identify any other potential development Sites that follow the sequential approach. The search area was refined to take account of the available grid connection into the one 132kV overhead line. The process also factored in brownfield constraints, including agricultural land classification and proximity to grid connection, which is essential for the scheme to be viable.

The report concludes that the proposed development has strong support in the NPPF and is in line with Paragraph 161:

"The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure".

The Planning Practice Guidance as well as the Climate Change Act 2008, clearly confirm the need to be positive and proactive in supporting renewable energy through the planning process. The Eden Meadow's Site is therefore considered by the document to be the most suitable and sequentially favourable Site.

6.1.3 Sequential Test

The Sequential Test aims to direct new development to areas with the lowest probability of flooding. Paragraph 27 of the PPG (Updated September 2025)⁹ states that *"where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied"*.

The Site is wholly located within Flood Zone 1, and the majority of the Site area is classified as being at very low risk of flooding from surface water, with most of the proposed development also located in the very low surface water flood risk areas. This FRA has demonstrated that the proposed development will be safe from a surface water flood risk perspective as a result of the raising of the panels above the flood levels. Additionally, there will be no increase in flood risk elsewhere as there will be no disruption to existing flow paths or displacement of floodwater as there are no proposals for land raising in the areas shown to be at potential risk of flooding,

Specific overland flow routes and two local topographical depressions have been identified; however, the elevated profile of the proposed solar panels mean they are

⁹ Communities and Local Government, 'Planning Practice Guidance - Flood Risk and Coastal Change, ID 7', published March 2014 and last updated September 2025.
<http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>.

located above all but deepest flooding and so are acceptable to operate under these conditions. In addition, all of the Sites most 'potentially vulnerable' elements, such as the hybrid invertors, BESS units, and electrical switchgear are to be located outside of all surface water flood extents. A comparison between the proposed layout and latest EA surface water mapping is included on the strategy drawing (see **Appendix G**) illustrates that a sequential approach has been applied.

A Sequential Test Addendum document was produced by JBM Solar Projects 28 Ltd in September 2025 (Pegasus Ref. P25-1599). However, in light of the current PPG policy RSK do not consider the sequential test detail to be necessary. The addendum document has been provided to the planning inspectorate as a fall-back in the case of any further changes to policy during the course of the appeal.

The addendum document concluded that whilst several 'comparable' potential development locations are available as alternatives they are not considered sequentially preferable to the Site. In addition, even if there were sequentially preferable options (from a flood risk perspective) and could be brought forward in a reasonable timeframe using the secured grid connection (not viable), given the overwhelming need for renewable energy generation, these Sites would be "additional" Sites not "alternatives", in the sense that many solar schemes are required to meet the Government's net zero ambitions.

6.1.4 Exception Test

In accordance with Table 6.1, there is no requirement to apply the Exception Test for a 'essential infrastructure' development within Flood Zone 1.

6.2 Local planning policy

According to the Derbyshire County Council Sustainable Drainage Systems (SuDS) Guidance¹⁰, for greenfield developments, the peak runoff rate from the development to any sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event. Impermeable areas should also include allowances for future added paving, extensions, or verge hardening. will accept a figure of 10% for urban creep.

¹⁰ Derbyshire County Council - <https://www.derbyshire.gov.uk/environment/flooding/suds/sustainable-drainage-systems-suds.aspx>

7 SURFACE WATER DRAINAGE ASSESSMENT

7.1 Scope

This section discusses the potential quantitative effects of the development on both the risk of surface water flooding on-site and elsewhere within the catchment, as well as the type of potential SuDS features that could be incorporated as part of the masterplan.

The NPPF states that SuDS should be considered wherever practical. The use of SuDS is also encouraged by regional and local policy.

In accordance with the Defra Non-Statutory Technical Standards¹¹, the surface water drainage strategy should seek to implement a SuDS hierarchy that aspires to achieve reductions in surface water runoff rates to greenfield rates. Where a reduction to the greenfield rate is not practicable, the proposed surface water drainage strategy should not exceed the existing runoff rate.

In addition, Building Regulations Part H¹² requires that the first choice of surface water disposal should be to discharge to an adequate soakaway or infiltration system, where practicable. If this is not reasonably practicable then discharge should be to a watercourse, the least favourable option being to a sewer (surface water before combined). Infiltration techniques should therefore be applied wherever they are appropriate.

7.2 Off-site discharge options and limits

7.2.1 Infiltration

Infiltration should be considered as the primary option to discharge surface water from the developed Site. The effectiveness of infiltration is completely dependent on the physical conditions at the Site. Potential obstacles include:

- Local variations in permeability preventing infiltration – The underlying Coal measure geology is considered unsuitable for the use of formal infiltration based drainage solutions;
- Shallow groundwater table - For infiltration drainage devices, Building Regulation approved document H states that these “should not be built in ground where the water table reaches the bottom of the device at any time of the year”; and
- Source Protection Zones - The Site is not located within a Groundwater Source Protection Zone.

¹¹ DEFRA, ‘Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems’, March 2015.

¹² HM Government (2010 with 2013 amendments), ‘The Building Regulations 2010: Approved Document H - Drainage and Waste Disposal (2002 Edition incorporating 2010 amendments)’.

The underlying geology of the Site would likely prohibit the use of large scale site-wide infiltration approaches such as basins or soakaways. Localised infiltration into the topsoil or surface may be viable for smaller features (this is discussed further in **Section 7.3.5**).

7.2.2 Discharge to watercourse

Discharging surface water directly to the neighbouring ordinary watercourses to the west and east of the site via gravity is considered feasible given the fall of the site. This would mimic the existing drainage regime.

7.2.3 Discharge to surface water sewer

There are no surface water sewers within the vicinity of the site so connections to them are not practical.

7.3 Post-development situation

According to the principles of the BRE planning guidance for the development of large-scale ground mounted solar PV systems, in general solar panels do not increase the impermeable area or cause an increase in surface water run off produced by the Site.

Research has been undertaken with respect to the impact of solar farm development on runoff rates (Wallingford Hydrosolutions, 2017¹³; Cook, L., McCuen, R, 2011¹⁴). Initial assumptions were that solar farms would have next to no impact on surface water runoff rates and volumes, compared to the greenfield runoff rate. The results of these studies suggest that this is true so long as there is no significant change to rainfall/flow pathways and the underlying vegetation cover.

This assessment is based on the assumption that solar panels will not increase the impermeable area across the Site as the natural grass cover will be retained post development. While the intensively farmed nature of the existing soil does make it more susceptible to generating runoff, these are not considered to be fully impermeable surfaces that require additional attenuation components.

Consequently, no formal drainage for the solar farm panel areas is required. As such the only impermeable areas accounted for are the surfaces created by the new ancillary equipment such as the inverter stations and switchgears. Therefore, these areas will have their own drainage features in accordance with the LLFA guidance (this is discussed further in **Section 7.3.5**).

7.3.1 Solar arrays

It is anticipated that any precipitation falling on each solar panel will runoff the panels and flow towards / infiltrate in the rain shadow of the down-slope modules. The rows of panels on the Site are generally aligned from parallel to a 25° angle to the contours of the site. As such rainwater falling of the trailing edge of the panels will generally flow away from the base of the panels between a 90° and 25° angle towards the rain shadow of the down-

¹³ Wallingford HydroSolutions; Here comes the sun, 2017. <https://www.hydrosolutions.co.uk/2017/12/11/here-comes-the-sun/> [Accessed: 18/08/2023]

¹⁴ Cook, L.M. and McCuen, R.H., 2013. Hydrologic response of solar farms. *Journal of Hydrologic Engineering*, 18(5), pp.536-541.

slope panels. This feature will enable the use of the rain shadow area of the panels to maintain the infiltration potential of the Site.

In some instances, runoff from solar panels could result in the kinetic compaction of soils at the base of the panels and the intensification of runoff into rivulets running along the trailing edge of the rows of panels. This could conceivably lead to a slight intensification of localised runoff when compared to the pre-development situation resulting from a decrease in infiltration potential. However, given the shallow gradients on the Site, underlying geology, and spacing of the arrays, this is considered unlikely.

The specifications of the solar array supports are to be designed to be widely spaced and are driven vertically into the ground with no additional foundations. The arrays are in rows with spaces of several metres in between the leading edge of one row and the trailing edge of the row behind.

The panels are typically mounted in double horizontal rows and are separated by a horizontal 'rainwater' gap. This gap allows rainwater to drain freely to the ground between the panels helping to replicate the Greenfield runoff conditions.

There are various manufacturers for the framework of the posts, with the ground impact of the panel posts ranging between 0.0012m² – 0.0014m². The solar panels themselves do not contribute to any ground impact as any rainfall which directly falls upon the panels will run off the panels to reach the ground. The runoff will then flow underneath the next array of panels, its direction based upon the Site's topography, where it will then infiltrate to the ground, as per the existing scenario. The panel posts are the only components of the solar arrays which contribute to any impermeable areas.

7.3.2 Vegetation and soil structure

Sustainable management of the post development situation in terms of vegetation planting and soil type can be used as a means of managing surface water runoff from the solar panels. As such, to ensure that there is no increase in surface water runoff, managed sustainable vegetation (with a good soil structure e.g., chisel ploughed soils) will be allowed to grow beneath the solar panels, which will avoid kinetic compaction and ensure that any potential instances of rivulet formation are minimised, and surface water runoff flows over the ground in a natural way. Vegetation planting and soil management should be site wide to encompass all solar panel rows.

7.3.3 Access track surface water drainage

The Site access track will run north from Stretton Road with new construction branches to the west and east, providing access to the various parcels of development. Typically, the track will comprise a geogrid ground stabilisation mesh below a compacted soil base, overlain by 0.25m of Type 1 crushed concrete. As such, the access tracks will maintain a permeable nature and not increase the surface water runoff from the development.

Any flows in excess of the infiltration rates will discharge to the surrounding area and would likely follow the topography of the Site and flow towards the surrounding land drainage or watercourses as is the case currently.

7.3.4 Battery Stations (BESS Units), Inverters, and other Containers

It is intended that the surface water runoff from any hardstanding equipment built on the Site (i.e. battery stations (BESS units), inverters, and containers) will be discharged into an adjacent drainage trench in order to provide some storage from the impermeable structures. The design rainfall event for this assessment has been taken as the 1 hour, 1 in 100-year event with the intention of retaining any additional surface water runoff generated as a result of these structures.

Table 7.1 details the specifications of the drainage trenches that could be used to serve each structure. There are 13 inverters on the current layout along with a sub-station and several other storage / spares units. It is intended that test ditches are backfilled with a granular material for health and safety reasons and to allow access.

The rainfall data used in the calculations has been gathered from the Centre of Ecology and Hydrology's Flood Estimation Handbook rainfall database (**Appendix F**). In accordance with National Planning Policy Framework, climate change has been taken into consideration for the 40 year lifetime of the development; as such an increase in rainfall of 35% has been included in the storage requirements.

Due to their limited size and the limited amount of attenuation required, these features will not be designed to have a positive outfall.

7.3.5 Typical Construction Details and Assumptions

Table 7.1 overleaf provides information regarding the impermeable parts of the development (battery stations and switchgear) together with details regarding the access track and the potential for sub-base storage within the main sub-station area. Please note these figures are indicative and designed to provide a worst case scenario.

The attenuation volumes (m^3) calculated per metre for the hardstanding, has been calculated using a void ratio of 0.3 of the total volume of aggregate in the trench. The trenches will be a back filled with suitably sized and sourced aggregate, to allow appropriate localised attenuation.

If natural infiltration on-site is not adequate to effectively discharge surface water runoff from the hardstanding units, the trenches would still provide additional on-site attenuation that would store excess runoff before naturally discharging across the Site as per the existing status quo.

For each of the ancillary equipment distributed around the site (13 hybrid inverters stations / BESS units, 11 spares containers, and 1 Switchgear storage container) the attenuation requirement has been calculated and each will have its own drainage trench based on the dimensions given in **Table 7.1**. The sub-station located in the north-east corner can also utilise the gravel sub-base that isolates the station from the surrounding landscape.

The construction compounds have not been included within the calculations as these areas are temporary and will be dismantled after construction.

The indicative drainage strategy is included as **Appendix G**.

Table 7.1: Approximate Drainage Trench Sizing and Volumes for site assets

Description	1 in 100-year Rainfall (m)	Impermeable Development Area (m²) Per Unit (Site Total)	1 in 100yr Surface Water Volume Required (m³)	1 in 100yr Volume Required with 40% Climate Change (m³)	Trench Sizing Per Unit				Volume Created (m³)
					Side Slope	Base Width (m)	Depth (m)	Length (m)	
Trench Storage									
Invertors / BESS Units (x13)	0.04379	235.3 (3058.9)	10.3	14.4 (187.2)	Vertical	1.5	1.5	22	14.85* (193)
Switchgear (x1)	0.04379	29.3	1.3	1.82	Vertical	0.6	0.8	14	2.01*
Spares (x11)	0.04379	29.3 (322.3)	1.3	1.82 (20)	Vertical	0.6	0.8	14	2.01* (22.1)
Other Storage Areas – Permeable Sub-base									
Sub-station	0.04379	381.6	16.7	23.38	Gravel Sub-base	35.2	0.6	40.8	237*
*Assuming a void ratio of 0.3									

*Assuming a void ratio of 0.3

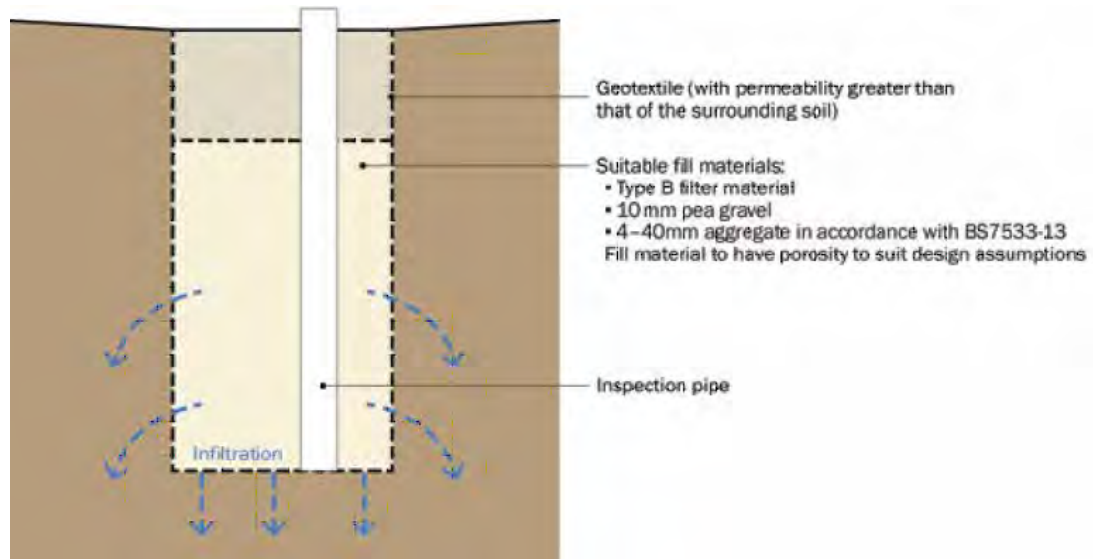


Figure 7.1: Typical cross-sectional diagram of an infiltration trench (taken from CIRIA document C753)

7.3.6 Maintenance

Maintenance of any drainage network is essential to ensure optimal performance of the drainage elements. As such maintenance requirements of the drainage system will include but not be limited to the inspection and cleaning of backfilled trenches to ensure that the capacity and performance are maintained.

The drainage systems are likely to remain in private ownership and therefore the Site operator will be responsible for the maintenance of the drainage features on-site in perpetuity. An example of a typical maintenance regime can be found in **Appendix I**. Similar regimes would be applicable for all other SuDS features on site. Full maintenance schedules should be confirmed at the detailed design stage in consultation with appropriate product suppliers.

7.4 National Fire Chiefs Council Water Storage Requirements

Consideration has been given to the required onsite water storage requirements set out in the NFCC's Grid Scale Battery Energy Storage System planning guidance 2022¹⁵.

There is currently no emergency water supplied in the scheme as per the layout, and as a result there will not be large volumes of firefighting water runoff. The standard firefighting rate of 1900 litres per minute for 2 hours (standard rate for ordinary hazard occupations) does not apply here.

During a fire scenario, since each inverter unit (and its associated battery) is a single separate unit there will be only a single point of concern per event. Either the battery unit will be "left to burn" or alternative means of firefighting may be applied rather than large scale water use to suppress it. If water is employed the respective water gathering system and trench fill material will fill with any spent water. The 'spent' firewater be needed to be tankered offsite to be tested or treated accordingly.

It is important to note that this is not intended to represent a final design solution, rather a suggestion of how the issue could be mitigated in the context of the existing site layout and design. The final volume and firewater storage specifications will need to be confirmed once a fire suppression system is fully designed by the appropriate specialists. The volume of firewater that may be required should be determined thoroughly in the detailed design phase.

7.5 National Standards Response

This drainage strategy has been designed based on the requirements of the recently published National Standards for SuDS. Whilst many of the points required to meet each standard will be detailed at detailed design phase, this report has been produced to ensure consideration has been given to each standard.

¹⁵ "Draft Guidance for Battery Energy Storage Systems" - <https://nfcc.org.uk/consultation/draft-grid-scale-energy-storage-system-planning-guidance/> - 2022 adopted guidance.

Table 7.2: National Standards Comparison

SuDS Standard	How will standard be met
Standard 1 Runoff Destinations	The National Standards runoff destinations hierarchy is described in Section 7.2.1 . The extensive use of infiltration trenches and runoff from the solar panels will allow the use of surface percolation (Priority 2).
Standard 2 Management of everyday rainfall	The first 5mm of rain is proposed to be intercepted and retained through the use of surface interception (permeable sub-base) unlined trenches to allow surface percolation of this first rainfall in addition to any extra from the conveyance swale network. The surface geology consists of Topsoil directly on top of the Pennine Middle Coal Measures bedrock, so a degree of surface percolation is possible. The detailed design of any drainage feature is to be secured through an appropriately worded planning condition.
Standard 3 Management of extreme rainfall	All surface runoff within the solar farm will be collected via local features (i.e. sub-base, surface trenches etc) and percolate into the underlaying soils. Any exceedance flow will percolate on the spot or be gathered by the proposed surface trenches.
Standard 4 Water quality	Both watercourses WFD water bodies are noted to be of 'Poor' ecological status. The use of sustainable techniques provides an effective water quality treatment prior to outfall and so may help contribute to improved quality and status or prevent it from deteriorating further. The detailed design of any drainage feature is to be secured through an appropriately worded planning condition.
Standard 5 Amenity	The proposed development use as a Solar Farm means that amenity areas of the proposed development will be limited. All principal drainage or water conveyance features have been located within open areas. Various features will have multifunctional uses and should be designed in line with the latest best practice in terms of H&S requirements. The detailed design of any drainage feature is to be secured through an appropriately worded planning condition.
Standard 6 Biodiversity	The layout will also incorporate planting, green space around the site boundaries. The proposed development layout (see Appendix B) incorporates both retained existing hedgerows and restored historic features, while structural vegetation will soften views of the build form. The detailed design of any drainage feature is to be secured through an appropriately worded planning condition.
Standard 7 Design of drainage for	A proposed strategies 'SuDS approach' ensures that surface water drainage systems are designed to be easily and safely constructed,

SuDS Standard	How will standard be met
construction, operation, maintenance, decommissioning and structural integrity	operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment. The details and features of the strategies components are to be designed based on the appropriate CIRIA guidance (i.e. side slope profile, fall gradient, materials etc.) The detailed design of any drainage feature, construction details and maintenance schedule (see example in Appendix I) is to be secured through an appropriately worded condition.

8 CONCLUSIONS AND RECOMMENDATIONS

This FRA complies with the NPPF and Planning Practice Guidance and demonstrates that flood risk from all sources has been considered in the proposed development. It is also consistent with the Local Planning Authority requirements with regard to flood risk.

The entirety of the Site lies within an area designated by the EA as Flood Zone 1 and the development area has been directed in the majority to areas of low surface water risk although isolated areas at risk of surface water ponding fall within the areas allocated for the solar arrays (sensitive equipment has been directed to the low surface water risk areas). All other forms of flood risk are assessed as low risk.

This FRA has considered multiple sources of flooding and concluded the following:

Table 8.1: Flood risk summary

Source	Level of risk	Mitigation
Fluvial	Low Flood Zone 1	None required due to distance from fluvial watercourses.
Tidal	Very Low	None required due to distance to tidally influenced watercourses.
Surface Water	Low to High (High risk is localised to two topographical low points)	Most Solar Farm development has been located outside of the surface water flood event in areas classified as being at either very low or low risk of flooding from surface water. Some solar panel areas are located within the 1 in 100 year surface flood extents in the two local topographical depressions. However, the elevated profile of solar panels mean they are above all but deepest flooding and so are acceptable to operate under these conditions. All other critical electrical equipment is located in non-flooding areas.
Groundwater	Low	No mitigation required
Sewers	Very Low	No mitigation required since no public sewers lie within the site's boundaries.
Reservoir	Very Low	No mitigation required
Canal	Very Low	No mitigation required
Other sources	Low	No mitigation required

Overall, taking into account the above points, the development of the Site should not be precluded on flood risk grounds.

APPENDIX A

RSK GROUP SERVICE CONSTRAINTS

1. This report and the drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for ADAS Planning. (the "client") in accordance with the terms of a contract between RSK and the "client" dated November 2023. The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable civil engineer at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.
2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent, or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.
7. The Services are based upon RSK's observations of existing physical conditions at the site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.
8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (boreholes, trial pits etc) annotated on site plans are not drawn to scale but are centred over the appropriate location. Such features should not be used for setting out and should be considered indicative only.

APPENDIX B

SITE PHOTOS AND SITE WALKOVER NOTES

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 1	Date: 22/11/23		
Description: Site Entrance off Stretton Road south of the site. Note: Highways Gullies on Road			

Photo No. 2	Date: 22/11/23	
Description: Highways gullies beside Stretton Road outside the site's boundaries		

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 3	Date: 22/11/23		
Description: Central Access Road to Barratt JC site and Averill Farm			

Photo No. 4	Date: 22/11/23	
Description: Central Access Road to Barratt JC site and Averill Farm. Cattle grid across entrance to Private Land.		

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 5	Date: 22/11/23		
Description: Other field drainage ditches along hedgerows in fields to the south-east			

Photo No. 6	Date: 22/11/23	
Description: Other field drainage ditches along hedgerows in fields to the south-east		

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 7	Date: 22/11/23		
Description: Drainage ditch within woodlands to the west of the site.			

Photo No. 8	Date: 22/11/23		
Description: Drainage ditch within woodlands to the west of the site. Passes under fence and joins another land drainage system along the western edge of the site.			

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 9	Date: 22/11/23		
Description: Deeper drainage system just outside western boundary. Gathers water from other watercourses within woodland and beside the site boundary.			

Photo No. 10	Date: 22/11/23		
Description: Deeper drainage system just outside western boundary.			

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 11	Date: 22/11/23		
Description: Other land drainage systems within woodlands. Some eventually connect to large systems closer to site boundaries.			

Photo No. 12	Date: 22/11/23	
Description: Existing Solar Farm Area. Water Basin lies to north-east of Solar Farm area.		

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 13	Date: 22/11/23		
Description: Standing water on lower lying field edges in sites east-most corner.			

Photo No. 14	Date: 22/11/23	
Description: Ditch outside the eastern boundary		

		Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows	
Photo No. 15	Date: 22/11/23		
Description: Ditch outside the eastern boundary			

Photo No. 16	Date: 22/11/23	
Description: Standing water on lower lying field edges in south-eastern corner.		

	Report No: 681161 – R2	PHOTOGRAPHIC LOG
Client name: ADAS		Site Location: Eden Meadows
Photo No. 17	Date: 22/11/23	
Description: Overloaded drainage systems within land to the south-east of the site		

APPENDIX C

TOPOGRAPHIC SURVEY

Legend - Water / Drainage

- W1 Water body
- W2 Water body
- W3 Water body
- W4 Water body
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Legend - Roads / Rail

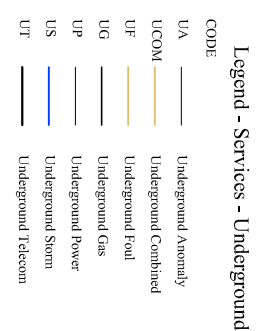
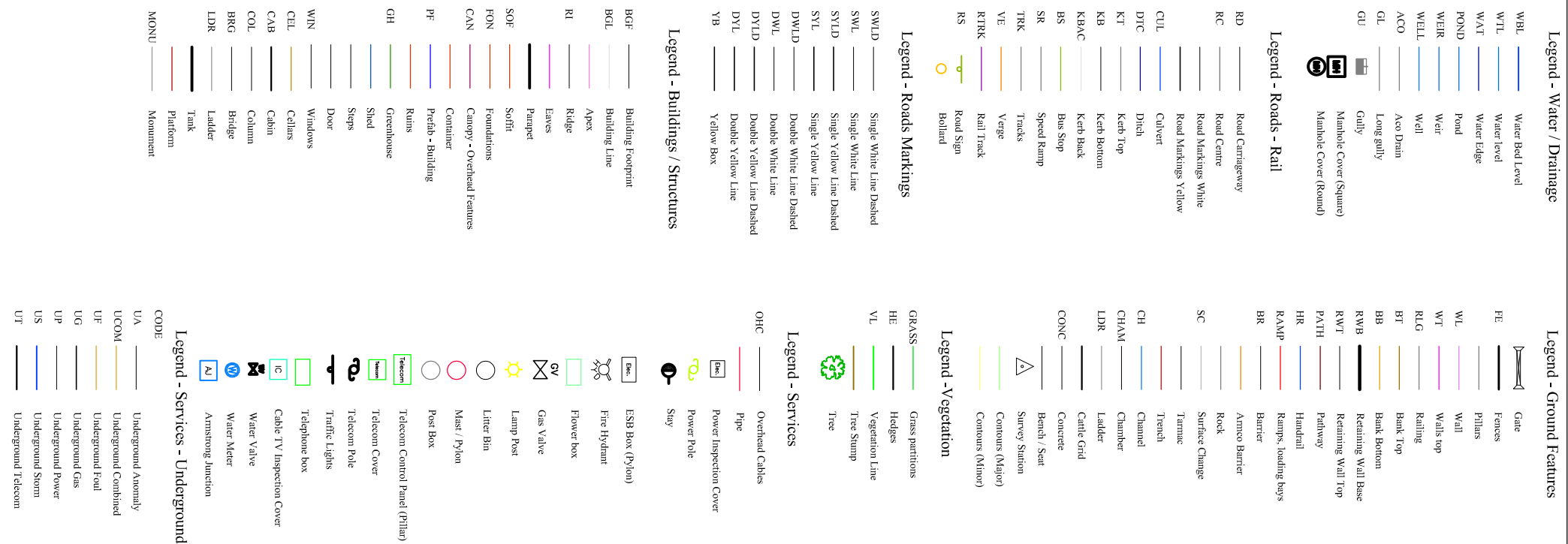
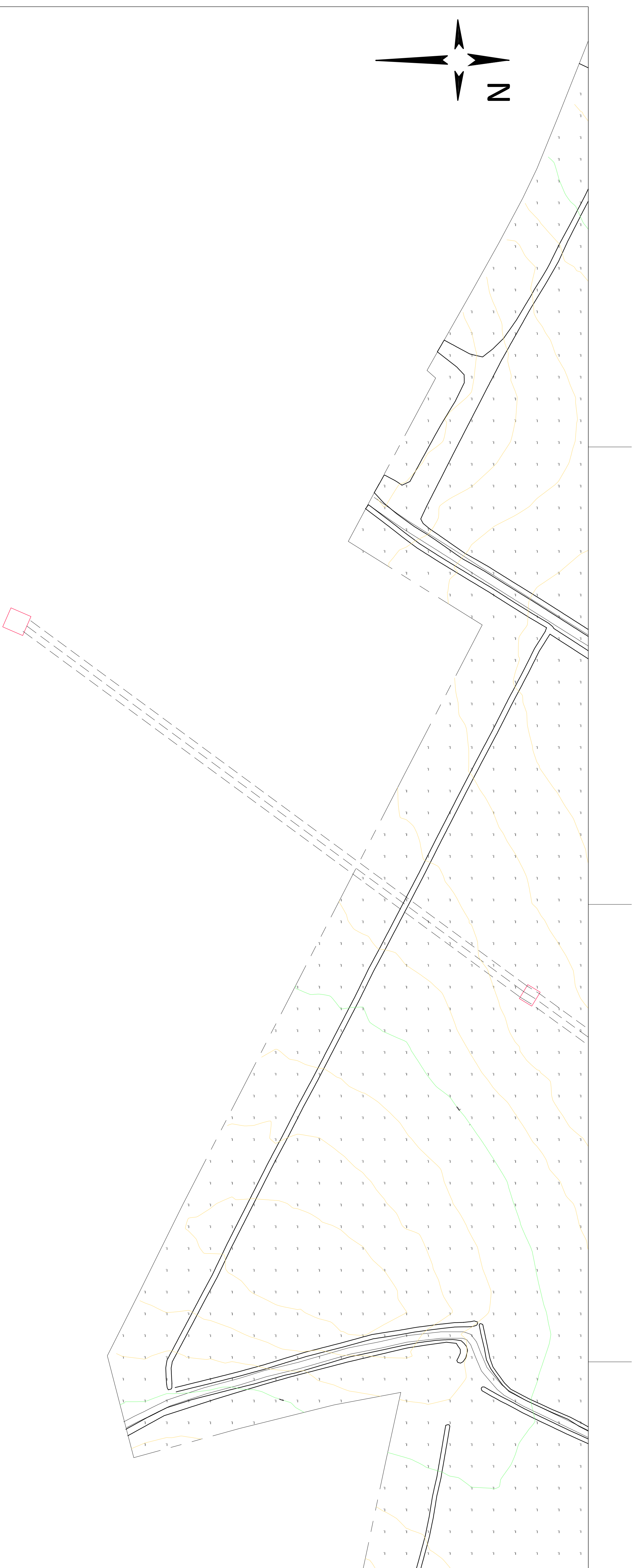
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Legend - Buildings / Structures

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Legend - Vegetation

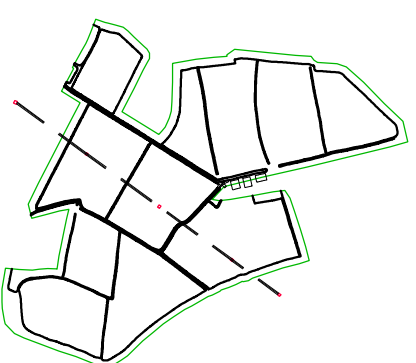
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Co-ordinate system is OSGB36

KEY PLAN

SCALE: NTS



Tir3D
the Survey people

www.tir3d.ie
Head Office: Kilree Street, Bagnelstown, Co. Carlow, R21 YP76.
Tel: +353 (0)59 97 23337 **Email:** info@tir3d.ie

REVISION	DESCRIPTION	DATE
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Location:	Eden Meadows
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Drawing Number: 21081-001 D	Scale: 1:1,000 / A1
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LIDAR	OH
Date: 11-07-2001	Checked By: IH

APPENDIX D

SEVERN TRENT WATER SEWER RECORDS



GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on: **0800 783 4444 (24 hours)**

- a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as "STW Apparatus" in these general conditions and precautions.
- b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.
- c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.
- d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.
- e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).
- f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.
2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).
3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.
4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.
5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.
6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.
7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.
8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.
9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.
10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.
11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.
12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.
13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants.
14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.
16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.
17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014
18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW Apparatus.
19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.



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Feature	Value	Aspect
Watercourse		
Water Main		
Minor		
Atmospheric Pipe		
Drain		
Service Pipe		
Private Pipe		

Edin Meadows 2





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APPENDIX E

DEVELOPMENT LAYOUT



NOTES

1. All details are indicative only.
2. Dimensions are in metres unless stated otherwise.
3. Refer to HSE document "Avoiding danger from overhead power lines – Guidance Note GS6" to ensure safe operation of machinery in proximity to overhead power lines.

LEGEND

- Planning Red Line
- Landowners Line
- Road
- Solar panels
- Fence
- Existing Hedges
- New Hedges
- Trees
- Wildflower
- Wetland
- Hybrid Inverter Container with acoustic fencing
- Spares Container
- Customer Switch Gear Container
- CCTV (located every 80–120m)
- Access Gate
- Construction compound
- Public Rights Of Way
- New Permissive Path
- Reroute UG LV Cable
- NGED operational land
- SW Depth 0.15–0.3m
- SW Depth 0.3–0.6m
- SW Depth 0.6–0.9m
- SW Depth 0.9–0.1.2m
- SW Depth 1.2m+
- RoSWF Extent 1 in 1000 years



DETAILS

TITLE	A032 Eden Meadows Solar Farm
LOCATION	Near DE55 6HD
DATE	29 July 2025
CONFIGURATION	Typical fixed design
REVISION	L

APPENDIX F

FLOOD ESTIMATION HANDBOOK DATABASE

Rainfall modelling FEH22

FEH13

FEH22

☒ Design Rainfall

Duration*

1

Hours

Sliding

☐ Event Rarity

Return period**

100

Years

☒ Annual Max. ☐ Peaks over threshold

Calculate



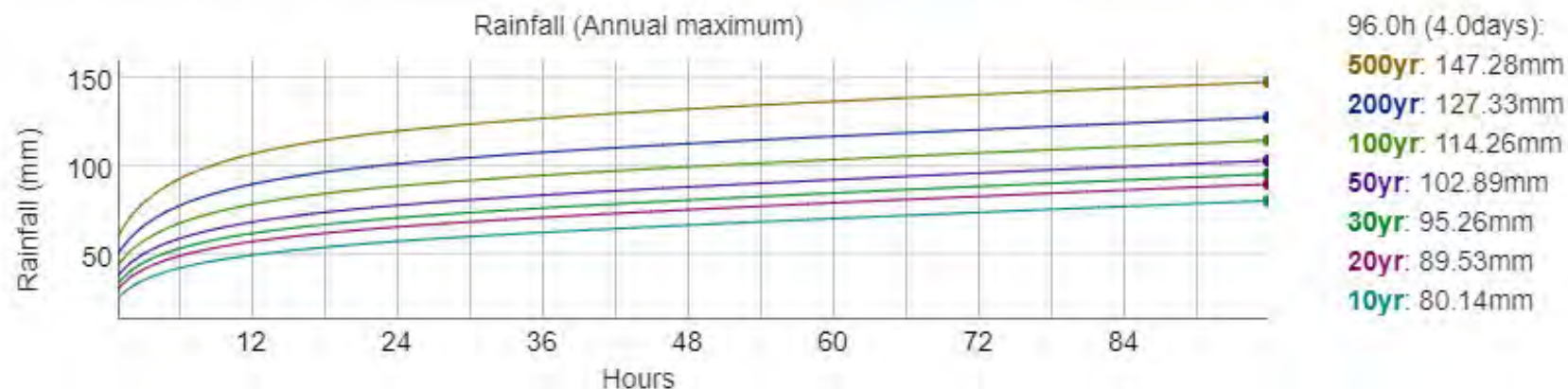
Export

Depth

43.79 mm

A design rainfall of 43.79 mm was calculated.

This design rainfall has been calculated for a return period on the annual maximum scale.

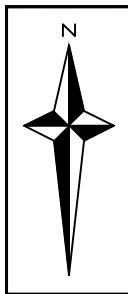


Save graph as image

Close

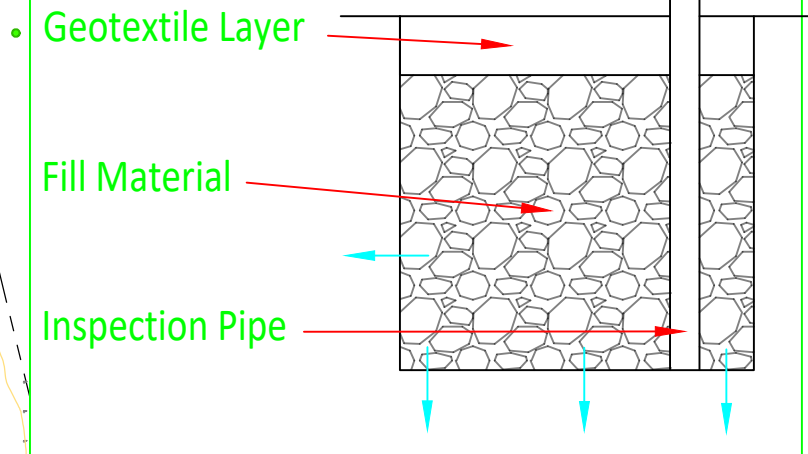
APPENDIX G

INDICATIVE DRAINAGE STRATEGY



Existing Ordinary Watercourse
Western watercourse runs
north-east along the site boundary
to eventually join River Rother to
the east.

Attenuation System - DRAINAGE TRENCHES
Drainage trenches located beside critical
impermeable site assets including Switch
Gear, Inverters and Storage Units.
Sizing differs depending on size of asset.



Attenuation System - PERMEABLE SUB-BASE
Based on a measured impermeable area of approx. 381.6m².
This excludes the site roadways which will be composed of
crushed gravel.
Final sizing and dimensions of all attenuation systems to be
determined at detailed design phase.

Sub-Base Cover
300mm deep granular sub-base (specified as MOT Type 3) with
a void ratio of at least 30%.
Porosity: 0.3 or 30%
Depth of Permeable Material: 0.3m
Available Area for Permeable Material: 1,318m²
Potential Storage Volume: 118.6m³

Calculations show that 26.7m³ of surface water runoff is
generated by the sub-station area so the available void storage is
much greater than the required storage volume.

Proposed Access Roadway
Track will comprise a geogrid ground
stabilisation mesh below a compacted soil
base, overlain by 0.25m of Type 1 crushed
concrete. As such, the access tracks will
maintain a permeable nature and not
increase the surface water runoff from the
development.

Existing Land Drainage
Western watercourse runs east
through the woodland area to join
another watercourse running along
sites boundary.

Depressed Area
Eastern watercourse runs through
woodlands and then diverts east
along railway cutting.
STW sewer outfalls into watercourse
upstream of the site.

Existing Land Drainage
Ditches beneath hedgerows
in a few site fields

Existing Land Drainage
Eastern watercourse runs through
woodlands and then diverts east
along railway cutting.
STW sewer outfalls into watercourse
upstream of the site.

CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-

RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing.
Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

KEY

- Site Red Line Boundary
- Existing Ordinary Watercourse
- Watercourse Easements
- Land Drainage Ditches
- Proposed Attenuation Trenches
- Sub-base Area
- Surface Water Flooding Extents (Updated February 2025)
 - High Risk Flood Extents
 - Medium Risk Flood Extents
 - Low Risk Flood Extent

Notes:

- This drawing has been produced to planning/viability purposes only.
- This drawing is to be read in conjunction with all other relevant drawings.
- All dimensions are in metres U.N.O
- All levels in metres.

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
P03	20.08.25	Updated Flood Risk Layout A032_1000_L	BD	CW	CW
P02	04.03.25	Updated Surface Water Extents Layout A032_1000_K2	BD	CW	CW
P01	28.11.23	Preliminary Issue	BD	CW	CW

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Client
ADAS PLANNING

Project Title
**EDEN MEADOWS
LAND NORTH OF STRETTON ROAD
ALFRETON**

Status
FOR INFORMATION

Drawing Title
PROPOSED DRAINAGE STRATEGY

Drawn	Date	Checked	Date	Approved	Date
BD	28.11.23	CW	28.11.23		

Scale	Orig Size	Dimensions	Revision
1:1000	A1	M	P03

Drawing File
681161-RSK-A-ALL-20-08-25 - DRAINAGE STRATEGY.DWG

Project No.	Originator	Unit	Site Area	Series	Number	Sheet
681161	RSK		ALL	05	01	01

Scale 1:2500
0 50 100 150 200m

APPENDIX H

SITE SELECTION REPORT



Site Selection Report

Eden Meadows, Land North of Stretton Road, Morton, Alfreton,
DE55 6HA

JBM Solar Project 28 Ltd

SHF.3091.001



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Site Selection Report

Project:	SHF.3091.001
For:	JBM Solar
Status:	Final
Date:	May 2025
Author:	Kenny Dhillon - Director of Planning
Reviewer:	Kenny Dhillon – Director of Planning

Disclaimer:

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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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1.0 Introduction

1.1.1 This Site Selection Report has been prepared by Enzygo on behalf of JBM Solar Projects 28, (the 'Applicant'). It supports a full planning application for a solar farm and battery energy storage system (BESS) together with associated equipment and infrastructure on Land to North of Stretton Road, Morton, Alfreton (Application Site; Reference 23/01089/FL).

1.1.2 The Proposed Development would have an export capacity of up to 49.99MW and will provide a reliable source of renewable energy which will be supplied to domestic and commercial consumers via the Distribution Network Operator (DNO) grid network.

1.1.3 The site benefits from a secured point of connection (POC) into an existing overhead 132kV electricity pylon (OHL). Underground cabling will be placed around the site connecting the development to the proposed 132kV substation which will be located within the site area as shown on the layout plans.

1.1.4 This report provides an assessment of potentially sequentially preferable sites to accommodate a solar development of the type and size proposed. This report considers the relevant planning policy and guidance, and assesses sites against the following site selection criteria to demonstrate that the Applicant has given due consideration to the benefits and constraints associated with the site, these are:

- Grid Connection;
- Suitable Size and Orientation of Land;
- Agricultural Land Classification;
- Brownfield Land;
- Statutory Designations;
- Compatible Neighbouring Uses; and
- Flood Risk.

1.2 Structure of Report

1.2.1 This report is structured as outlined below:

- Section 2 - Application Site and Context;
- Section 3 – Proposed Development;
- Section 4 – Development Plan and Material Considerations;
- Section 5 - Site Selection Criteria and Assessment;
- Section 6 – Conclusion.

2.0 Application Site and Context

- 2.1.1 The site is located to the north of Morton and south-east of Clay Cross. The site measures approximately 66 (163 acres) hectares in size and is located approximately 560m to the north of the centre of Morton and 1.97km south-east of the centre of Clay Cross.
- 2.1.2 The site presently is being used for arable farming, and there is an existing farmstead located towards the northern aspect of the site.
- 2.1.3 The site is relatively flat, it is bounded by mature woodland to the west and partially to the north. An existing Solar PV development is located to the northern aspect of the site, and a farmstead is located within the central area of the site. The site is bounded by a railway cutting to the eastern aspect of the site area and an area of woodland to the northern aspect forms a precise northern most boundary to the site. There are three existing high-voltage electricity pylons within the site.
- 2.1.4 The entire site is located within Flood Zone 1, and the only source of potential flooding is from surface water flooding. The submitted FRA confirms that the site drains via the existing field drains and topographic fall towards the two land drainage watercourses outside the boundaries to the west/north, and east.
- 2.1.5 The FRA also details a proposed Drainage Strategy in Appendix G which demonstrates that the proposed development will not cause flooding off site and that the proposed development has been designed to ensure that no potentially vulnerable elements are located in areas which may suffer from surface water flooding.
- 2.1.6 The site is not located within the Green Belt of North East Derbyshire, and there are no national or local landscape designations coincident with the site or the surrounding area. The site has ample opportunity for further landscape enhancement as has been detailed in the submitted reports and in the updated site layout.
- 2.1.7 The site has an existing road access which will also be used for the construction of the development and the on-going maintenance of the completed development.
- 2.1.8 Best and Most Versatile (BMV) Agricultural Land is defined as Grades 1, 2, and 3a and is defined in the National Planning Policy Framework (NPPF) as the land, which is most flexible, productive, and efficient in response to inputs, and which can best deliver future crops. Following a full survey of the Site, it has been confirmed that it comprises of 37% of Grade 3b and 63% Grade 4 land, therefore the proposed development would not result in the significant loss of 'BMV' land as a result if the proposed development was approved.
- 2.1.9 The Application Site is not located within a Conservation Area. Furthermore, there are no listed buildings located within or directly adjacent to the red line boundary.

3.0 Proposed Development

3.1.1 This application seeks full planning permission for the construction of a solar farm and BESS with an export capacity of up to 49.99 MW.

3.2 Solar Arrays

3.2.1 The solar farm would consist of solar photovoltaic (PV) panels placed on metal arrays arranged in rows, allowing for boundary landscaping, perimeter fencing and access. The PV panels would be laid out in rows across the site to face the south at 15-25 degrees from the horizontal to maximise efficiency, with a maximum height of 3m. The arrays would be spaced to avoid any shadowing effect from one panel to another with topography dictating exact row spacing (ranging between approximately 4m to 10m).

3.2.2 Plant and other equipment to support the generation of electricity is located around the site, adjacent to internal tracks to ensure access can be achieved to these for maintenance purposes. The tracks would have a width of 4m and be constructed with crushed aggregate. The supporting equipment includes inverter stations positioned around the site, as detailed on the submitted drawings.

3.2.3 The mounting system is comprised of two separate elements; upright galvanised steel posts which are screwed or pushed into the ground and an aluminium support frame which is bolted together. The system requires no concrete foundations and is designed to be reversible, leaving no trace when removed.

3.3 Battery Storage

3.3.1 The battery stations will be located throughout the site. BESS facilities utilise flexible technology, absorbing surplus electricity at times of excess generation, releasing this when needed, offering the potential for a near-immediate response to demands, whilst also providing the ability to import and export energy for seconds, minutes or hours, dependent on demand.

3.3.2 Each battery station comprises containerised battery units, inverters and DC-DC converter boxes as well as ancillary equipment. Acoustic fencing is proposed to perimeter some of the battery stations and will comprise of a 3m wooden slatted fence.

3.4 Perimeter Fencing and CCTV

3.4.1 A 2m high security deer fence will be installed around the edge of the site. Small mammal access points will be provided at various points within the fencing to allow the passage of wildlife across the site. CCTV security cameras will be installed on 3m high poles and be inwards fencing, monitored remotely.

3.5 Substation

3.5.1 The substation will be located within the development boundary of the site, in the north-eastern site parcel. The substation comprises the Distribution Network Operator (DNO) switchroom and customer switchroom and a 15m communications mast. It also includes transformers, disconnectors, and a circuit breaker which will be made secure by a 2.4m palisade fence.

3.5.2 This application seeks to retain the substation on a permanent basis.

3.6 Access

3.6.1 The site will be accessed from the current farm private access road off Stretton Road to the south of the site. It is considered that this existing access is suitable for construction and maintenance vehicles as it is a twin track paved road at the junction. There is also a bridleway which runs through the site which enables access around the site.

3.6.2 Additionally, the construction period would be short in duration, and once the solar (PV) array and battery storage facility are operational there would be very little additional traffic created by the proposed development.

3.7 Landscaping

3.7.1 The proposed landscaping scheme details new hedgerow planting of approximately 2.73km, this in addition to planting at minimum of 169 native trees, 580,383m³ of grazing meadow mix grass, 66,805m³ of species rich grassland, 7279m³ of grass areas with wildflower mix, and 2743m³ of proposed wetland planting.

3.7.2 The landscaping scheme has been devised to ensure that the proposed development provides a meaningful Biodiversity Net Gain benefit and also to provide soft landscaping to enhance the existing provision of green infrastructure.

3.8 Construction and Operation

3.8.1 It is anticipated that the construction of the solar farm will take approximately 6-9 months to complete, from site preparation to grid connection. Construction and operational phase vehicles will access and egress the site via an existing paved access off Stretton Road.

3.8.2 Any surface water issues regarding the construction phase can be dealt with a construction surface water management plan which will be within a Construction Environmental Management Plan (CEMP) which is to be secured by planning condition.

3.9 Decommissioning

3.9.1 At the end of the 40-year operational lifespan of the solar farm, the site would be restored back to full agricultural use with all equipment and below ground connections removed (with the exception of the 132kV substation).

3.9.2 However, the landscape enhancement measures would remain, and these would provide long term benefits to the local landscape character of the area. It is envisaged that the decommissioning of the solar farm would take approximately six months.

4.0 Development Plan and Material Considerations

4.1 The Development Plan

4.1.1 The site is located within the district of North East Derbyshire, therefore the relevant development plan is comprised of the following:

- North East Derbyshire Local Plan 2014 – 2035;
- Proposals Maps and Insets.

4.1.2 The North East Derbyshire Local Plan (NEDLP) 2014-2034 was formally adopted by the Council on 29th November 2021 and will be used to guide decisions on planning applications and areas where investment should be prioritised. It covers the area of North East Derbyshire outside the Peak District National Park.

4.1.3 The pertinent planning policies from the NEDLP are summarised as follows:

- Policy SS1: Sustainable Development sets out how development proposals should contribute to sustainable development in North East Derbyshire. The proposed development we consider is an excellent example of sustainable development as it will produce carbon free electricity from a renewable energy source.
- Policy SS9: Development in the Countryside states that development proposals in countryside locations outside the Settlement Development Limits will be approved where it can be demonstrated to fall within one or more of a number of categories. One of the criteria states that development would be accepted outside the Settlement Development limits if the development has a demonstrable community and/or social benefit. It is considered that the proposed development has significant and meaningful community and social benefits which come with the production of renewable energy and also the proposed creation of a permissive footpath and a community wild flower meadow.
- Planning Policy SDC11: Flood Risk and Drainage ensures that any development does not increase flood risk elsewhere and where possible reduces the overall flood risk.
- Policy SDC10: Decentralised, Renewable and Low Carbon Energy Generation also provides in principle support for the proposed development.

4.2 National Planning Policy Changes (December 2024)

4.2.1 The NPPF is an important material consideration when determining planning applications. The NPPF confirms the statutory presumption in favour of sustainable development and sets out the Government's national planning policies for the achievement of sustainable development.

4.2.2 Whilst there are many policies contained within the NPPF which are relevant to the development and site in question, the most pertinent to the overall principle of development in this case are briefly summarised below:

- Paragraph 8: The overarching objectives of sustainable development;
- Paragraph 11: The presumption in favour of sustainable development;
- Paragraph 161: Climate change and the transition to a low carbon future;

- Paragraph 162: Mitigating and adapting to climate change;
- Paragraph 163: Climate change and the consideration of planning applications; and
- Paragraph 168: Determining applications for renewable and low carbon energy.
- Paragraph 170- 175: Sequential risk-based approach to flooding

4.2.3 With regards to the purpose of this report, it is imperative to note that Paragraph 168 states the following with regards to determining planning applications for renewable energy:

“When determining planning applications for all forms of renewable and low carbon energy developments and their associated infrastructure, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal’s contribution to a net zero future;”*

4.2.4 Paragraph 174 of the NPPF states that ‘*the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source*’. Paragraph 175 confirms that the sequential test should be ‘*used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk)*’.

4.2.5 To confirm, the proposed development is a Solar PV with BESS scheme, and is located within a site which is entirely within Flood Zone 1, the site only suffers from surface water flood risk which is limited to three localised areas of low to high surface water flood risk. Furthermore it is confirmed that there are no vulnerable elements which are located within an area of risk of flooding from any source, this is because the development is a Solar PV scheme with BESS and the electrical switchgear such as the DNO substation is located well away from any areas of the site which could potentially suffer from surface water flooding, furthermore, the whole development can be remotely switched off in the event of a flood situation, therefore even considering the limited extent of the surface water flood risk, the whole development is not vulnerable to a flood risk event.

4.2.6 With regards to the above, and noting that the development is not within Flood Zones 2, 3a or 3b, full consideration has been given to Paragraph 023 of Planning Practice Guidance (PPG) to demonstrate that there are no other sequentially favourable development sites which can be developed instead of this site due to the surface water flood risk.

4.3 Planning Practice Guidance – Climate Change

4.3.1 This Planning Practice Guidance (PPG) document addresses the role that the planning system can play in addressing climate change. Specifically, it refers to the importance of supporting the delivery of appropriately Sited green energy. Furthermore, it states that LPAs should ensure that protecting the local environment is properly considered when factoring in the broader issue of protecting the global environment.

4.3.2 It is noted that the PPG also reiterates that responding to climate change is central to the economic, social, and environmental aspects of sustainable development.

4.4 Planning Practice Guidance – Renewable and Low Carbon Energy

4.4.1 This PPG states that planning has an important role in the delivery of new renewable and low carbon energy infrastructure, specifically stating that increasing the amount of energy from renewable sources is a key aspect in ensuring that the UK has a secure energy supply, as well as also slowing down the negative impacts of climate change and stimulating investment in new jobs and businesses.

4.5 National Policy Statements for Energy Infrastructure

4.5.1 National Policy Statements (“NPS”) are produced by government. They give reasons for the policy set out in the statement and must include an explanation of how the policy takes account of government policy relating to the mitigation of, and adaptation to, climate change.

4.5.2 NPSs are important material planning considerations given that they demonstrate beyond reasonable doubt that there is a national priority to deliver renewable and low-carbon energy schemes. The two pertinent NPSs for consideration are explored below.

EN-1: Overarching National Policy Statement for Energy (2023)

4.5.3 The overarching National Policy Statement for Energy (EN-1) is part of a suite of NPSs issued by the Secretary of State of Department for Energy Security and Net Zero. It sets out the Government's policy for delivery of major energy infrastructure. The primary purpose of the policy is to be applied to Nationally Significant Infrastructure Projects. It is confirmed, however that this document can be a material consideration in the determination of applications under the Town and Country Planning Act too.

4.5.4 In respect of solar, paragraph 3.3.20 states *“Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar”*.

4.5.5 Section 4.2 of EN-1 states that **nationally significant low carbon infrastructure, now including all onshore and offshore electricity generation that does not involve fossil fuels, and grid infrastructure, are identified as a “critical national priority” (CNP). CNP infrastructure benefits from a policy presumption that its urgent need should generally outweigh any identified residual adverse impacts.**

4.5.6 Paragraph 4.1.7 states that for projects which qualify as CNP Infrastructure, it is likely that the need will outweigh the residual effects in all but the most exceptional cases.

4.5.7 The National Policy Statement depicts how the energy sector can help deliver the Government's climate change objectives by clearly emphasising the need for new low carbon energy infrastructure to contribute to climate change mitigation.

EN-3: National Policy Statement for Renewable Energy Infrastructure (2023)

4.5.8 EN-3 sets out government policy used to guide decision-makers when determining nationally significant energy infrastructure. EN-3 should be read in conjunction with EN-1.

4.5.9 NPS (EN-3) states that there is an urgent need for new electricity-generating capacity to meet our energy objectives. Electricity generation from renewable sources is an essential element

of the transition to net zero and meeting our statutory targets for the sixth carbon budget. Analysis dictates that demand for electricity is likely to increase significantly over the coming years and could more than double by 2050. This could require a fourfold increase in low-carbon electricity generation, with most of this likely to come from renewables.

4.5.10 This NPS confirms that solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector and has an important role in delivering the government's goals for greater energy independence, particularly when considering the government's expectation of a five-fold increase in combined ground and rooftop solar deployment by 2035 (up to 70GW).

4.5.11 The critical role solar plays in reaching net zero by 2050 is set out in paragraph 2.10.9 which states that *"The government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions by 2050. As such, solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector."*

4.5.12 Paragraph 2.10.11 sets out that *"The Powering up Britain: Energy Security Plan states that government seeks large scale ground-mount solar deployment across the UK, looking for development mainly on brownfield, industrial and low and medium grade agricultural land. It sets out that solar and farming can be complementary supporting each other financially, environmentally and through shared use of land, and encourages deployment of solar technology that delivers environmental benefits, with consideration for ongoing food production or environmental improvement"*.

4.5.13 It is important to note with respect to the above paragraph, that the proposed development site is entirely comprised of agricultural land which is NOT considered to be within the definition of Best and Most Versatile (BMV).

4.5.14 It is evident that NPS (EN-3) puts significant emphasis on combatting the impact of climate change with regard to the speed at which new infrastructure will need to be built to meet the government's net-zero targets. It clearly articulates how the decision-making process should weigh the urgent need for developments which contribute to climate change mitigation against other relevant considerations.

4.6 Other Material Considerations

Derbyshire Spatial Energy Study

4.6.1 Derbyshire County Council published the Derbyshire Spatial Energy Study in September 2022. The main aim of this study is to provide a spatial assessment of opportunities for energy development and to be used as an evidence base to support the preparation planning policy and local development plans.

4.6.2 This study also covers the area of North East Derbyshire and provides an objective assessment of the spatial distribution and potential of renewable energy deployment across the region of Derbyshire.

4.6.3 The study reviewed potential constraints and landscape sensitivity with regards to commercial ground mounted Solar PV development projects such as this. The study's methodology with regards to landscape character assessed the region on three levels as follows:

- High Sensitivity Areas – these were considered to be highly constrained for Solar PV – areas such as potential sites in the Green Belt, Peak District National Park, near to Listed Buildings, etc;
- Moderate Sensitivity Areas – these were considered to be moderately constrained for Solar PV – these for example sites or areas which are in Flood Zones 3, adjacent to the Peak District National Park; etc; and
- Low Sensitivity Areas – there were considered to be areas which are less constrained for Solar PV.

4.6.4 Paragraph 6.2.1 of study document, confirms the following with regards to the constraint terminology:

“Specific terminology has been used within this study in reference to levels of constraints on each energy technology and, in turn the resulting areas of opportunity for energy development. This terminology has been developed using DECC (2010) methodology and revised in line with the aims of this spatial energy study.

- *More Constrained: This location is severely constrained for this type of energy development. Whilst it is highly unlikely that this technology would be permissible within the chosen area, it is not impossible.*
- *Constrained: This location is constrained to a notable degree for this type of energy development. Development in this area would require in-depth engagement with the planning authority and regulators.*
- *Less Constrained: This location has minimal constraints for this type of energy development. Site-specific analysis is required and engagement with the planning authorities and regulators should be conducted to confirm the suitability of the site.”*

4.6.5 It is important to note that the site area for this project comes under the designation of being a ‘Low Sensitivity Area’, therefore a ‘Less Constrained’ location. Figure 6.7 in the Study confirms as does the plan in Appendix 3.

4.7 Summary

4.7.1 It is considered that there is significant Planning Policy support for the proposed development, and with regard to Paragraph 168 of the NPPF, there is no requirement for applicants to demonstrate the overall need for renewable energy. Many of the above-mentioned considerations have been addressed proportionately in the PDAS.

4.7.2 Overall, it is confirmed that the above-referenced considerations collectively confirm without doubt that there is a fundamental requirement at both a local and national level for solar farm developments and the principle of development is therefore supported

5.0 Site Selection Criteria and Assessment

5.1 Introduction

5.1.1 This section of the report provides an assessment of sequentially preferable sites against a site selection criterion, informed by the planning policy and guidance discussed above in Section 4. It is important to note that there is no adopted or recommended methodology to prepare a Site Selection Report, we have therefore worked with the client to provide an objective and evidence-based report which is based on the availability of a suitable and viable grid connection point within 3km to the point of connection.

5.1.2 It has been recognised in appeal decisions (APP/D3503/A/13/2204846) that there is no policy guidance that advocates restricting searches to within a Local Authority's administrative area. The decision found that each case should be considered on its own merits taking account of operational constraints, which in this case is the proximity to the point of connection to the grid and the amount of land required for a 49.9MW Solar scheme with co-located BESS. With regards to a sequential assessment, this is recognised in Paragraph 027 of the PPG where the area to apply the '*test will be defined by local circumstances relating to the catchment area for the type of development proposed*'.

5.1.3 Therefore, given that a renewable energy scheme of this type must achieve a viable connection to the existing grid network, it is essential that there is a connection point with sufficient capacity such as the one which will be utilised for this exciting Solar PV project.

5.2 Suitable Site requirements

5.2.1 Table 1 below provides a site criteria, and justification for each of the criteria, this has been informed by national and local planning policy as set out within Section 4 along with the operational needs and requirements of the proposed development as set out in the table below.

Site Criteria	Justification for Criteria and Comment
A site with suitable grid connectivity	Connectivity to the grid is the absolute essential requirement of a development of this nature. The cost of HV Cable and cable trenching costs limit the distance of a site of this size from a suitable grid connection point up to 3km. There also needs to be the means of installing the cable either along the highway or via landowner agreements which can be a limiting factor resulting in the viable distance from site to grid connection point being less than 1km. The point of connection to the Grid is within the site area.
Previously developed land (PDL)	We can confirm that in our search of the Council's Brownfield Land Register (2024), there is no PDL which meets the essential requirement of being within 3kms of the Grid Connection point and being of a size similar

	in scale of 68ha for the site area. The largest land area in the Council's Brownfield Lane Register is at 36.46ha which already has outline planning permission for a mixed use development (17/00666/OL).
Agricultural land classification – avoiding 'Best and Most Versatile' (BMV) agricultural land	Footnote 35 of the NPPF states that <i>"Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality"</i> . An Agricultural Land Classification Study has been completed and submitted with this application which confirms that the site is 37% Subgrade 3b land and 63% being Grade 4. Therefore, the site does NOT consist of any 'best and most versatile land'.
Flood Risk	To ensure the development does not increase flood risk and the flooding will not impact on the development. The site of the proposed development is entirely within Flood Zone 1, and the proposed drainage strategy would ensure that there would be no on-site or off site surface water flood risks as detailed in the submitted FRA.
A site of suitable size and orientation that can accommodate the proposed development.	In order to be viable in the current climate of subsidy free solar any potential solar site must reach a critical mass in terms of energy yield vs deployment cost. There has been a shift to larger scales sites, typically 40 – 50 MW. EN-3 identifies that for a typical 49.9MW solar farm an average size will be between 125 to 200 acres in size. Therefore, initial site screening included for land parcels or land holdings (of the same landowner) greater than 50 acres in size. This size requirement only applies when the site is characteristically clear of obstructions (or can be made clear of obstructions) and benefits from a level or gentle southward sloping topography. Importantly where potential sites contain physical obstructions that cannot be removed (such as public footpaths, historical field boundaries, woodland, rivers, streams, highways etc.) the site area requirements can be significantly increased. Additionally, a site positioned on a north-facing slope would require a greater development footprint or would not be viable.

Road access	Any proposed Solar PV development site needs to have a safe and secure road access provision to ensure that deliveries for the equipment which is needed for a Solar PV development can be undertaken easily and without any harm to the users of the public highway network, therefore a site of a suitable size area also needs to be well served by the road network to facilitate easy and safe construction. This is in addition to ensuring that there is easy access to the site during the operation of the Solar PV development site. The site has good road access for construction and maintenance.
Solar irradiation	It is important to identify a site which is not overshadowed by buildings, trees or any other landforms which would have an impact on the actual power generation of a Solar PV development.
Statutory designations	Ability to accommodate the proposed development in this location without causing unacceptable harm to statutory designated sites. The site itself is not subject to any national or international designations for landscape, heritage or ecology.
The site must not be allocated within local planning policy for development that would conflict with the proposal (i.e. allocated for housing).	This would conflict with local planning policy. The site is not located within an allocated site for other forms of development.

A suitable site that is available for the duration of the solar development's operational life	The site must be available for the duration of the proposed lifespan of the proposed energy generation project (40 years) and have a willing landowner. A site is considered available for development when, on the best information available at the time, we are confident that there are no issues, such as legal or ownership problems that would stop development happening. This requires commitment from the landowners in the form of a legal agreement and ensuring the correct rights over any other land required (e.g. for access). A project can only be brought forward with the agreement of the landowner. In some cases, whilst a site may be deemed to meet the majority of the feasibility requirements, a landowner may then not wish to proceed. For example, the land may become wholly unsuitable to allow existing farming practices to continue, as the land would be suitable to continue grazing sheep but not cows. Brownfield sites are generally not suitable for solar development on this scale, as they are not available on this scale and such land can usually attract significantly higher sale/lease income levels and it's often been identified for alternative/ more appropriate uses, such as housing or industrial development land. The selected site has an active landowner which has agreed to the commercial terms as provided by the applicant.
--	--

Table 1: Site Selection Criteria

5.3 Sources of Alternative Sites

- 5.3.1 In assessing alternatives to the proposed location, consideration must be given to the preferred nature of the site as would be sought by the local planning authority.
- 5.3.2 Allocated available employment sites would provide the most obvious sources of alternatives. Other unallocated land within settlement boundaries might be considered, provided the locational characteristics did not give rise to concerns about impacts on sensitive receptors.

5.4 Assessment

Grid Connection

- 5.4.1 The first and foremost priority for any generation scheme is to have a suitable point of connection onto the electrical network that can support the required export. Without this the scheme cannot go ahead. Further details have been provided on the Grid Connection for the project within the submitted Grid Connection Statement. In short, grid connection scarcity is a recognised and known constraint in developing renewable energy projects. The applicant has identified and secured grid capacity with the potential to energise the project from 2026.

5.4.2As a result, identifying a suitable area in which a grid connection can be achieved is the principal technical consideration for solar PV array development.

5.4.3The further the distance from suitable grid connection point a site is located, the greater the challenge of transferring generated electricity to the grid. Increased cable and cable trenching costs as well as potential third party land easements increase project costs dramatically and can render a project uneconomical.

5.4.4The ability to connect to the grid represents the most significant benefit of the proposed site and is not achievable for an energy generation project of this scale in most other locations within the plan area. Given that the site benefits from an on-site grid connection, the proposed development is therefore not reliant on securing access through third party land.

5.4.5The applicant approached several landowners which had potential development sites within a 3km search area from the identified grid point of connection, these other landowners did not proceed with the applicant's initial offer of developing a Solar PV development on their land. Plan A overleaf shows these sites.

Road Access

5.4.6As stated in Table 1, having suitable and safe road access for construction purposes is essential in selecting a site. This is very important as roads have to be of a sufficient width to allow the development to be built out given that deliveries of the equipment will be undertaken by HGV vehicles as outlined in the Transport Statement.

5.4.7A review was undertaken within the 3km search corridor of the secured Grid Point of connection which demonstrates that no other potential sites had any better access than the site which is the subject of this planning application.

5.4.8The Transport Statement confirms that the public highways have sufficient capacity and are of a sufficient size to be utilised during the construction phase for the delivery of the equipment to build the proposed Solar PV development.

5.4.9Plan A (Appendix 1) also confirms that the applicant will not have to enter into third party legal access agreements concerning any easements during the construction of the proposed Solar PV development.

Previously Developed Land

5.4.10A site search was undertaken to review potential PDL/Brownfield sites within 3km of the search corridor from the available Grid Point of connection, no suitable sites were identified given the fact that they were not a sufficient size (approx. 60ha) to accommodate the proposed Solar PV development.

5.4.11It should be noted that PDL/Brownfield sites are generally located within or adjacent to urban areas where other types of development (residential, employment, essential social infrastructure) as named above are required, and this causes an inflationary pressure on land price and land use, especially where such sites are well connected by existing road infrastructure access points. Also such Brownfield sites may not have access to the required Grid Point of connection or capacity which is required for the proposed Solar PV development.

Statutory Designations

5.4.12 The site itself is not subject to any national or international designations for landscape, heritage or ecology.

Heritage

5.4.13 Plan B (Appendix 2) shows how the proposed development site has been selected to ensure that the proposed development will not cause any harm to their heritage significance through a potential change to their setting given the fact that these Listed Buildings/structures are located at least 1km from the proposed development site, and that the intervening landscape and vegetation precludes any direct views of these Listed Buildings and views of the proposed development site from public vantage points from within the curtilage of the Listed Buildings.

Agricultural Land Classification

5.4.14Best and Most Versatile (BMV) Agricultural Land is defined as Grades 1, 2, and 3a and is defined in the National Planning Policy Framework (NPPF) as the land, which is most flexible, productive, and efficient in response to inputs, and which can best deliver future crops.

5.4.15 It is important to note that the provisional ALC mapping does not differentiate between sub-grades 3a and 3b. Therefore, with regards to the site, an ALC Survey was undertaken which demonstrates that the site area is 37% Subgrade 3b land and 63% being Grade 4. Therefore, the site does not consist of any 'best and most versatile land' and the proposed development is therefore in full accordance with Local Plan Policy SDC10 and Paragraph 187(b) of the NPPF (December 2024).

5.4.16The applicants undertook a search within a 3km search radius from the secured Grid Point of connection which shows how the site area avoids using BMV land within the local area. Plan B (Appendix 2) also shows the ALC grading of the land surrounding the site within a 3km search radius of the secured Grid Point of connection.

Flood Risk

5.4.17 The proposed development site has been selected as to avoid areas which are at high risk of Flooding – i.e. Flood Zones 2 and 3. Plan B shows that the site is not located within Flood Zones 2 or 3.

5.4.18 The planning application is accompanied by a Flood Risk Assessment (FRA) and it confirms that the site is wholly within Flood Zone 1, therefore confirming that the site is at a very low risk of flooding.

5.4.19 The Environment Agency Flood Zones and acceptable development types are explained in Table 7.1.

5.4.20 Paragraph 079 and Table 2 of the PPG shows the Flood risk vulnerability and flood zone ‘incompatibility’, given that the site is located entirely within Flood Zone 1 and is classed as Essential Infrastructure with regards to Annex 3 of the NPPF (December 2024), and its development will not lead to further on or off site flooding, we consider that the development is Sequentially appropriate in this location.

Table 2: Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).	All development types generally acceptable.
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) in any year.	Most development type are generally acceptable.
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) in any year.	Some development types not acceptable.
Zone 3b	‘Functional Floodplain’	Land where water must flow or be stored in times of flood. SFRAs should identify this zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1% flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes).	Some development types not acceptable.

Note: The Flood Zones are the current best information on the extent of the extreme flood from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development.

Table 3: Flood Risk Vulnerability and Flood Zone ‘Incompatibility’, Table 2 of Paragraph 079 of PPG

Flood Risk Vulnerability classification (see Table 3 of PPG Para 079)	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	Yes	Yes	Yes	Yes	Yes
Zone 2	Yes	Yes	Exception test required	Yes	Yes
Zone 3a	Exception test required	Yes	No	Exception test required	Yes
Zone 3b ‘Functional Floodplain’	Exception test required	Yes	No	No	No

Note: Yes: Development is appropriate, No: Development should not be permitted. Exception test required means this must be applied.

5.4.21 As the site is within Flood Zone 1 and is regarded as being classified as Essential Infrastructure in Annex 3 of the NPPF, an Exception Test is not required, however, it is important to highlight the substantial and wider sustainability benefits to the community and to green infrastructure of the locality in which the development will be located within.

5.4.22 The public benefits of the proposed development would be significant and wide-ranging; namely through the generation of clean renewable energy, which will help to alleviate the impacts of climate change and contribute towards a secure source of energy in the UK.

5.4.23 The FRA conclusions state the following:

“The entirety of the Site lies within an area designated by the EA as Flood Zone 1 and the development area has been directed in the majority to areas of low surface water risk although isolated areas at risk of surface water ponding fall within the areas allocated for the solar arrays (sensitive equipment has been directed to the low surface water risk areas). All other forms of flood risk are assessed as low risk”.

5.4.24 The FRA also details a proposed Drainage Strategy in Appendix G which demonstrates that the proposed development will not cause flooding off site and that the proposed development has been designed to ensure that no potentially vulnerable elements of are located in areas which may suffer from surface water flooding.

5.4.25 This report also confirms that during the operation of the proposed development, that it will not cause either flood events on site or off site as a bespoke drainage strategy and scheme will be proposed and agreed in writing with the Lead Local Flood Authority through a suitably worded planning condition such as:

‘No development shall commence until details of the implementation, maintenance, and management of the strategy for the disposal of surface water on the site have been submitted to and approved in writing by the Local Planning Authority. The strategy shall be implemented and thereafter managed and maintained in accordance with the approved details’.

5.4.26 Such a drainage scheme will also be maintained for the entire life of the development and therefore such maintenance will also ensure that the drainage strategy is kept up to date to reflect any future weather trends which may have an impact on an installed scheme.

5.4.27 Therefore with regards to the above, the proposed development will not give rise to any post development flood risk either on site or off site.

Ecology

5.4.28 The site has been selected as to avoid being in close proximity to Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), and Local Nature Reserves (LNRs). Plan B (Appendix 2) shows that the proposed development site does not encroach upon any of these areas which are designated for Ecology.

5.4.29 It is therefore considered that the site selected for the Solar PV development will cause no harm at all to any of the nearby Ecological designations.

5.5 Other Alternative Sites

5.5.1 Plan A (Appendix 1) shows other alternative sites which are of at least 50 acres and have been outlined in yellow on the plan. As mentioned above in this report, the respective landowners did not want to proceed with the applicants, however these potentially alternative sites are constrained by the following:

- Close proximity to Listed Buildings and to Conservation Areas;
- Located outside of the 3km Search Corridor from the DNO point of connection;
- Sites being located within Flood Zone 3;
- Sites being located adjacent to Ancient Woodland; and
- Sites potentially having BMV land.

5.6 Derbyshire Spatial Energy Study

5.6.1 As mentioned above in this report, the site is confirmed to be within a part of the region of Derbyshire which the landscape character is considered to be of low sensitivity and therefore less constrained.

5.6.2 Appendix 3 clearly shows the red line boundary of the site and demonstrates that the site is located within an area which is less constrained, therefore, it is important to note that the Derbyshire Spatial Energy Study further endorses the site which has been selected for this development.

5.7 Summary

5.7.1 Plan A (Appendix 1) shows that a 3km search corridor has been established around the DNO point of connection which is located on the site. The 3km search corridor has been established as the project would be unviable as grid connection costs beyond 3km are commercially prohibitive.

5.7.2 The search corridor of 3km clearly demonstrates that there are no other suitable sites which have the same amount of land (a typical 49.9MW solar farm is recognised as being between 125-200 acres by EN-3) and are available within 3km from the selected 132kV grid connection point which has the required capacity to be connected to.

5.7.3 The sites which have been discounted from the search corridor have not been taken into consideration for the proposed development due to the following reasons:

- Land areas not large enough to accommodate a 49.99MW Solar with BESS scheme, and still have adequate space for BNG improvements and implementation;
- Avoid sites which are bisected by PRoWs;
- Sites which are within or located near to Flood Zones 2 and 3;
- Proximity to Ancient Woodlands;
- Lack of a suitable and safe road access for construction and maintenance purposes as well as future decommissioning;
- Constrained by planning policy designations, heritage assets, landscape sensitivities, ecological considerations; and
- Avoiding BMV land.

5.7.4 It is important to highlight that the selected development site is free of the aforementioned constraints and that the application site is not subject to any statutory or national environmental and landscape designations, i.e. the site is not located within a protected landscape area, the site is not within the Green Belt of North East Derbyshire, there are no designated heritage assets on the site which may otherwise be impacted through a change to their setting, and the proposed development itself is another part of the local area's historical land use as a site which was once worked for coal which was also used to generate electricity – albeit from a source which emitted carbon at generation.

6.0 Conclusion

6.1.1 This Site Selection Report has taken a robust approach to identify sites that follow the sequential approach. The search area covers a wide search area and has been refined to take account of the available grid connection into the one 132kV overhead line identified which has the capacity to facilitate the proposed Solar PV development.

6.1.2 The process also factored in brownfield land and constraints, including agricultural land classification and proximity to grid connection, which is essential for the scheme to be viable.

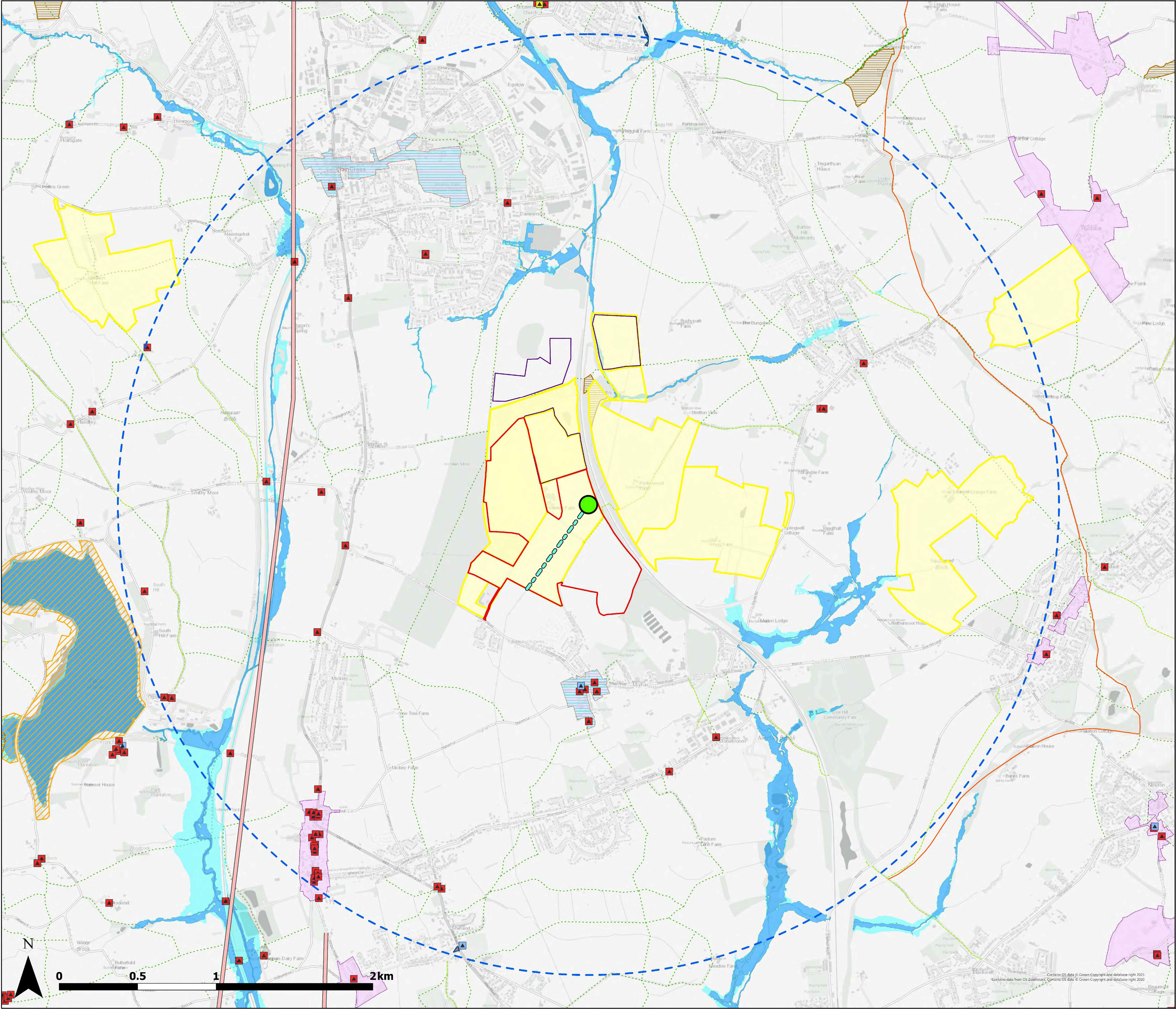
6.1.3 The proposed development has strong support in the NPPF and this support is echoed by Paragraph 161 which states:

“The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”.

6.1.4 Furthermore, the Planning Practice Guidance as well as the Climate Change Act 2008, clearly confirm the need to be positive and proactive in supporting renewable energy through the planning process.

6.1.5 This report has demonstrated that the site which has been selected for the proposed development is the most suitable and sequentially favourable site for a 49.9MW with co-located BESS and a landscape and BNG improvement scheme within a 3km search corridor from the point of connection to the DNO.

Appendix 1 SEQUENTIAL ANALYSIS ASSESSMENT PLAN (TITLES AND CONSTRAINTS) PLAN A



Legend

- Site Boundary
- Search Corridor 3km
- Grid Connection Lines
- Point of Connection
- Titles (50+ Acres)

Listed Buildings

- I
- II
- II*

Rights of Way

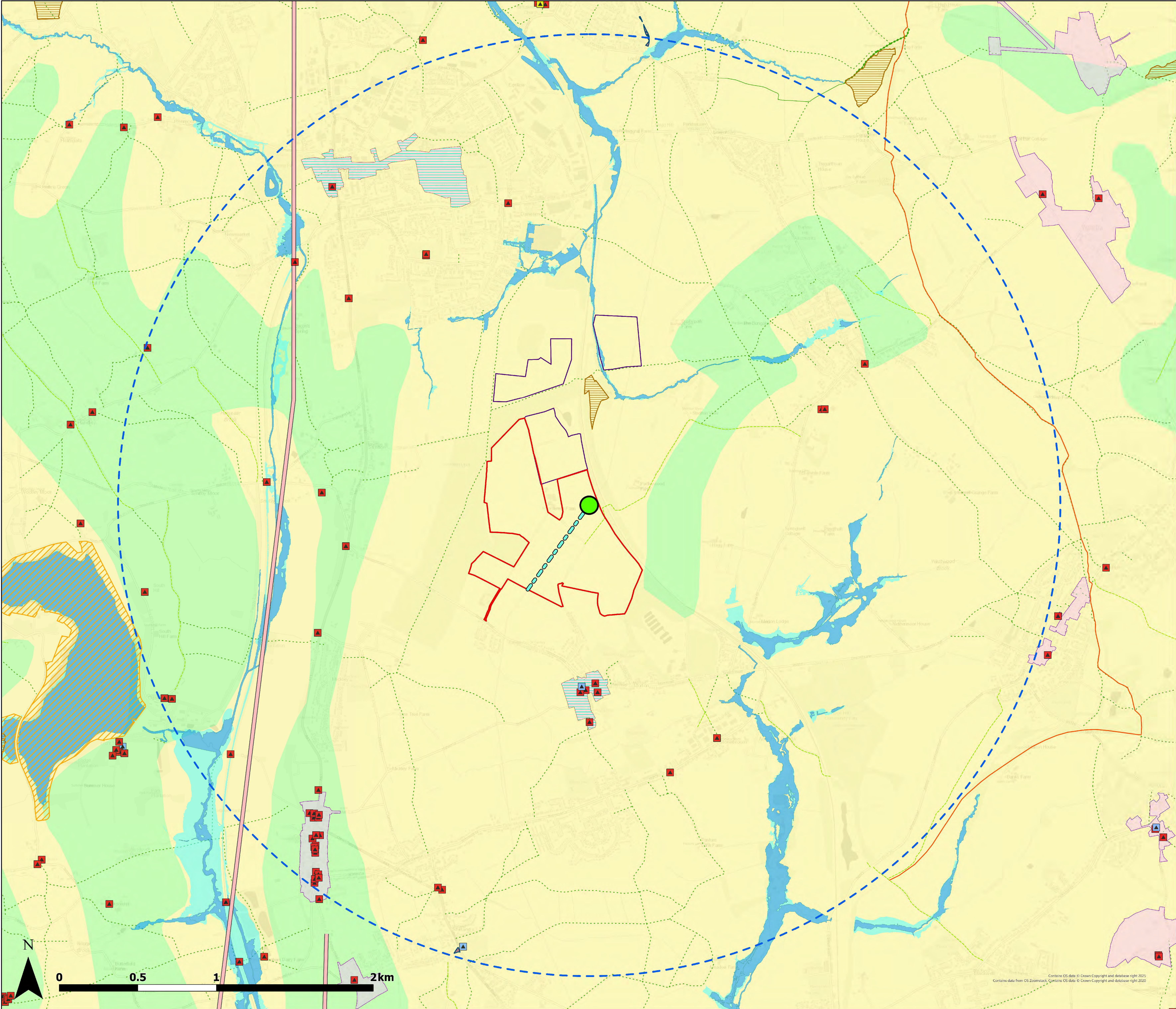
- Boat
- Bridleway
- Ancient Woodland
- Operational Solar Farms
- Roman Road
- SSSI
- HAR Register
- Conservation Area
- National Cycle Network
- Registered Common Land
- Flood Zone 3
- Flood Zone 2
- Countryside Right of Way - Access
- Byway
- Footpath

Sequential Analysis Assessment Plan (Titles + Constraints)

Project: A032 Eden Meadows
Drawing No: SAAP-A032-6
Drawn By: ML
Date: 30/04/2025
Scale: 1:8,000 @ A0

RWE

Appendix 2 SEQUENTIAL ANALYSIS ASSESSMENT PLAN (ALC+CONSTRAINTS) PLAN B



Legend

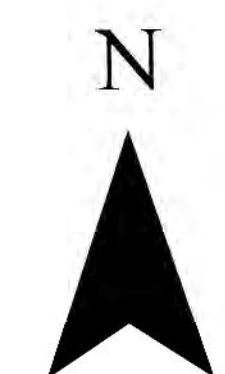
- Site Boundary
- Search Corridor 3km
- Grid Connection Lines
- Point of Connection
- ALC Grades (Provisional)
 - Grade 3
 - Grade 4
- Listed Buildings
 - I
 - II
 - II*
- Rights of Way
 - Boat
 - Bridleway
 - Ancient Woodland
 - Operational Solar Farms
 - Roman Road
 - SSSI
 - HAR Register
 - Conservation Area
 - National Cycle Network
 - Registered Common Land
 - Flood Zone 3
 - Flood Zone 2
 - Countryside Right of Way - Access
 - Byway
 - Footpath

Sequential Analysis Assessment Plan (ALC + Constraints)

Project: A032 Eden Meadows
Drawing No: SAAP-A032-2
Drawn By: ML
Date: 30/04/2025
Scale: 1:8,000 @ A0

RWE

Appendix 3 DERBYSHIRE SPATIAL ENERGY STUDY: SITE LOCATION PLAN (Figure 6.7)

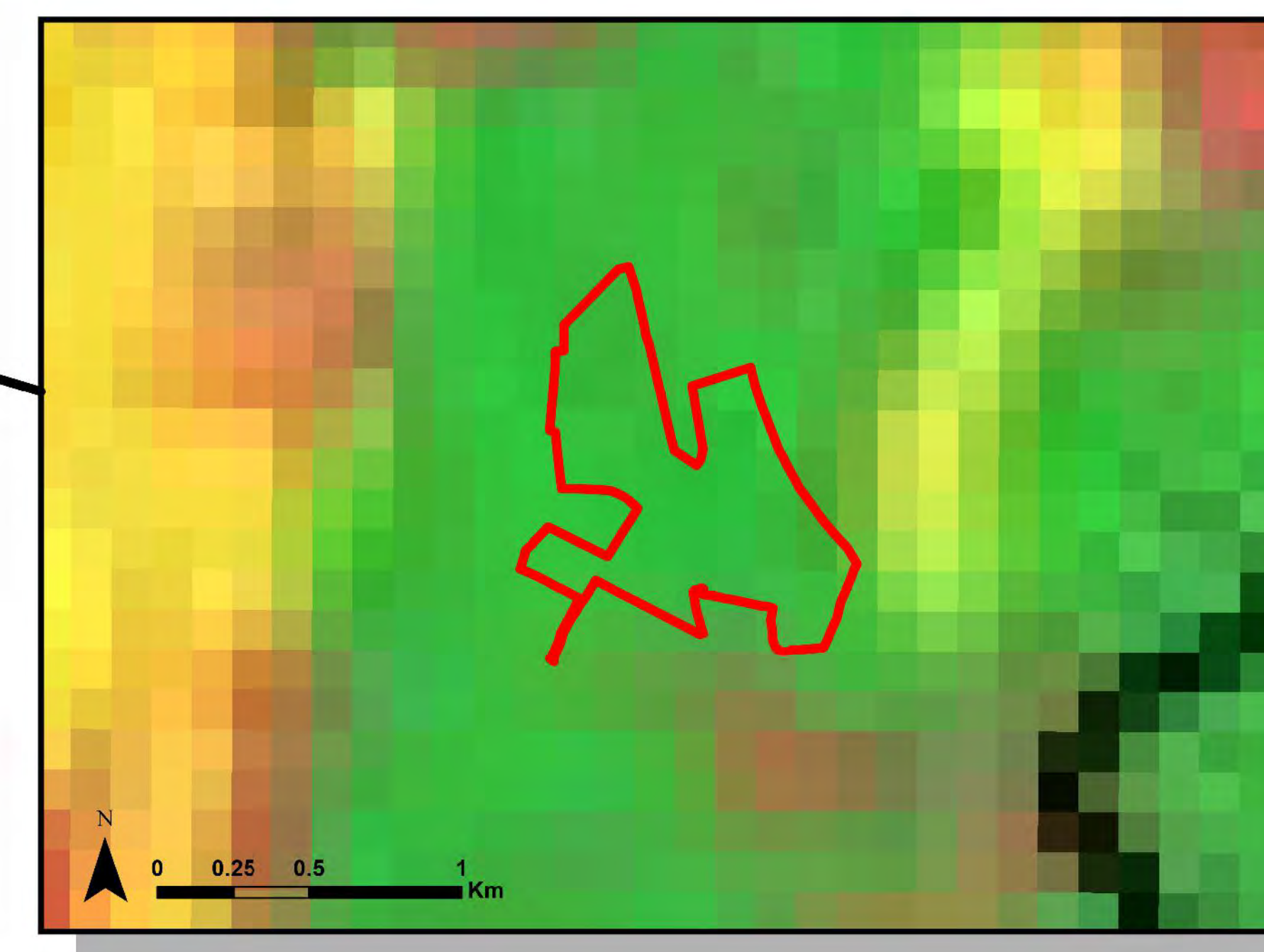


0 5 10 20km

Buxton

Chesterfield

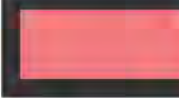
Derby



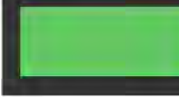
Legend

 Site Boundary

Ground Mounted Solar PV
Opportunity Areas > 1MW

 More Constrained

 Constrained

 Less Constrained



Site Location Plan

Project:	A032 Eden Meadows
Drawing No:	SLP-A032-1
Drawn By:	ML
Date:	22/04/2025
Scale:	1:130,000 @ A0

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APPENDIX I

SUDS MAINTENANCE REGIME



RSK ADAS Ltd

Eden Meadows Solar Farm

Sustainable Drainage System (SuDS) Management Strategy

681161-R3(0)



INVESTORS
IN PEOPLE

AUGUST 2025



RSK GENERAL NOTES

Project No: 681161-R2(0)

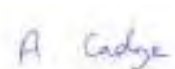
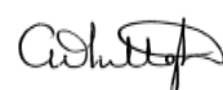
Title: Eden Meadows Solar Farm

Client: RSK ADAS Ltd

Date: August 2025

Office: Coventry

Status: Final

Author	<u>B Donoghue</u>	Technical reviewer	<u>A Cadge</u>
			
Signature	<u></u>	Signature	<u></u>
Date:	<u>28.08.25</u>	Date:	<u>28.08.25</u>
Technical Approver	<u>M Cheeseman</u>	Quality Approver	<u>C Whittingham</u>
			
Signature	<u></u>	Signature	<u></u>
Date:	<u>26.08.25</u>	Date:	<u>26.08.25</u>

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK LDE Ltd.

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1 INTRODUCTION

This management strategy has been prepared by RSK Land and Development Engineering Ltd on behalf of RSK ADAS Ltd, to satisfy planning conditions related to Eden Meadows Solar Farm (The Development).

The SUDS considered for the purposes of this statement, include drainage features that will be employed to reduce and manage surface water runoff from the development to a design return period of One hundred years plus climate change. This is required so that The Development will not increase the risk of flooding to the site and its environs.

This document outlines the long-term maintenance of the proposed surface water system and will refer to the following documents, some of which provide further detail on the maintenance operations required:

- CIRIA Report C753, *'The SUDS Manual'*, 2015
- CIRIA Report C625, *'Model Agreements for Sustainable Water Management Systems'*, 2004; and
- Interpave, *'Permeable pavements: Guide to the Design, Construction and Maintenance of Concrete Block Permeable Pavements'*, ed. 4, 2006.

2 MAINTENANCE RESPONSIBILITIES

Responsibility for drainage within England and Wales rests with various bodies. For the Development, the drainage responsibilities will be divided between the following:

- **Private Landowner** – the landowner will be responsible for the maintenance of drainage features within individual property curtilages.
- **During Construction** – Until the drainage is approved and adopted by the adopting authorities, it is the responsibility of the groundworks contractor to protect the drainage system from construction run-off and effluent during the construction process. It will also be their responsibility to ensure that the drainage network is maintained, and functions as intended.

3 MAINTENANCE REGIME

As the maintenance of the communal SuDS features will be carried out via a Management Company, the form of agreement should include the required maintenance listed below. Should the maintenance be transferred at a later date to a public body, then the model agreement SuDS MA1 should be used, details of which can be found in the CIRIA guidance C625.

The following section describes the required maintenance for each feature in turn. The SuDS maintenance requirements listed below should be reviewed after the first 5 years, with a view to agreeing a new regime for the ongoing maintenance.

Notwithstanding the routine inspections and maintenance requirements, after severe storm events all features shall be inspected to clear debris and repair damaged structures or features. Records of the maintenance carried out shall be prepared by the Management Company.

3.1 Permeable Sub-Base

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three monthly 48h after large storms in first six months

Maintenance schedule	Required action	Typical frequency
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

3.2 Land Drainage Trenches

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass- to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours	Monthly or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design level	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of soil surface	As required
	Remove build up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

3.3 Soakaways

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside concrete manhole rings	Annually

Maintenance schedule	Required action	Typical frequency
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial actions	Reconstruct soakaway and/or replace or clean void fill if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year then annually
	Check soakaway to ensure emptying is occurring	Annually

3.4 Operation and Maintenance Requirements for Trees

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly or as required
	Manage other vegetation and remove nuisance plants	Monthly
	Inspect inlets and outlets	Monthly
Occasional maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace mulch as necessary	Annually
	Water	As required
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly

3.5 Operation and Maintenance Requirements for RWH Systems

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps, filters	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris	Annually (and following poor performance)
Occasional maintenance	Cleaning and/or replacement of any filters	Three monthly (or as required)
Remedial actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

3.6 Operation and Maintenance Requirements for Watercourses

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season, autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May-October)
	Inspect silt accumulation rates in any forebay and in main body of the watercourse and establish appropriate removal frequencies; undertake contamination testing once build-up has occurred to inform management and disposal options	Half yearly
	Clear and maintain GRIPS to watercourse to maintain overland flow routes	Annually
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to minimum of 1m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay	Every 1-5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, e.g. every 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant where necessary	As required
	Aerate watercourse when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate inlets, outlets and overflows	As required

3.7 Gullies & Linear Drainage Channels

Maintenance schedule	Required action	Typical frequency
Regular inspections	Remove litter, debris, and detritus that enters the gullies or linear drainage channels	Six monthly, or as required
	Inspect inlets and outlets for blockages, and clear if required	Six monthly, or as required
	Inspection of sump for silt accumulation, establish appropriate silt removal frequencies	Six monthly, or as required
Remedial actions	Remove and dispose of silt	Six monthly or as required
	Remove and dispose of oils or petrol residues using safe standard practices	Six monthly or as required

3.8 Headwall

Maintenance schedule	Required action	Typical frequency
Occasional Monitoring & Maintenance	Check for cracking or other damage to headwall structure	Annually or as required
	Check for erosion of the spillway	Annually or as required
Remedial actions	Repair cracking or other damage to headwall structure	As required
	Repair excessive erosion of spillway if it detrimentally affects	As required

3.9 Hydrobrake Manhole

Maintenance schedule	Required action	Typical frequency
Occasional maintenance	Remove litter, debris, and detritus that enters the drainage system	Six monthly, or as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Six monthly, or as required
	Inspection Hydrobrake bypass door, open and close door, greasing of door to prevent mechanism from seizing	Six monthly, or as required
Remedial actions	Replace components of Hydrobrake if faulty in line with manufacturers guidance.	As required
	Replace entire Hydrobrake if components cannot be replaced in accordance with manufacturers guidance.	As required

3.10 Root Barrier

Maintenance schedule	Required action	Typical frequency
Monitoring & Occasional maintenance	Inspect root barrier for defects.	Annually or as required
	Replace root barrier.	As required

APPENDIX A

INSPECTION CHECKLIST

General information			
Site ID			
Site location and co-ordinates (GIS if appropriate)			
Elements forming the SuDS scheme		Approved drawing reference	
Inspection frequency		Approved specification reference	
Type of development		Specific purpose of any parts of the scheme (e.g. biodiversity, wildlife and visual aspects)	

Inspection Date	Details	Y/ N	Action required	Date completed	Details	Y/ N	Action required	Date completed
General inspection items								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Silt/Sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								
Is surface clogging visible potentially problematic where water has to soak into the underlying construction or ground (e.g. underdrained swale or infiltration basin)?								

Inspection Date	Details	Y/ N	Action required	Date completed	Details	Y/ N	Action required	Date completed
	Does permeable or porous surfacing require sweeping to remove silt?							
	Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?							
	Is there any evidence of any other clogging or blockage of outlets or drainage paths?							
	Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (check against approved planting regime)							
	Does any part of the system require weeding, pruning or mowing? (check against maintenance frequency state in approved design).							
	Is there any evidence of invasive species becoming established? If yes, state action required							
	Are any check dams or weirs in good condition?							
	Is there any evidence of any accidental damage to the system (e.g. wheel ruts?)							
	Is there any evidence of cross connections or other unauthorised inflows?							
	Is there any evidence of tampering with the flow control?							
	Are there any other matters that could affect the performance of the							

Inspection Date	Details	Y/ N	Action required	Date completed	Details	Y/ N	Action required	Date completed
system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects?								
Other observations								
Information appended (e.g. photos)								
Continue as current Increase maintenance Decrease maintenance								
Proposed date for next inspection								