APPENDIX III: DRAFT FLOOD RISK ASSESSMENT

FLOOD RISK ASSESSMENT

Sedgby Solar Farm

On behalf of Sedgeby Solar Ltd

Date: 16 January 2026| Pegasus Ref: P25-0590 Author: Maisie Goodin

Document Management.

Version	Date	Author	Checked/ Approved by:	Reason for revision
R001 V1	10.09.2025	Maisie Goodin	Natalie Morgan/Catherine Thorpe	First Issue
R001 V2	26.09.2025	Maisie Goodin	Catherine Thorpe	Updated following client comments
R001 V3	24.10.2025	Catherine Thorpe	Catherine Thorpe	Updated with Yorkshire Water response
R001 V4	16.01.2025	Catherine Thorpe	Catherine Thorpe	Updated following legal review and EA meeting

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1. Introduction

1.1. Pegasus Group has been appointed by Sedgeby Solar Ltd to undertake a Flood Risk Assessment (FRA), including a surface water strategy, to be submitted in association with a planning application for a solar farm and Battery Energy Storage System (BESS) ('the Proposed Development'), located to the west of Thormanby, North Yorkshire ('the Site') [E: 446103, N: 474235].

1.2. The location of the Site is shown in Figure 1.

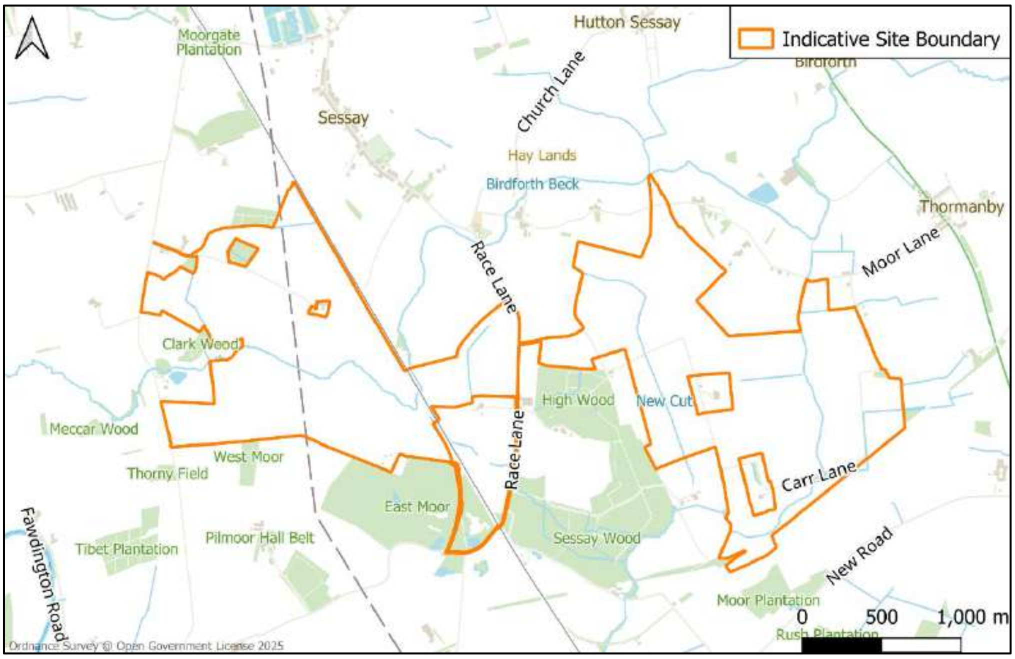

Figure 1: Site Location

1.3. The Proposed Development includes for solar PV modules, BESS, and other associated infrastructure. The development proposals are included within Appendix A**.**

1.4. The FRA will consider the risk of flooding from all sources including fluvial, pluvial, tidal, groundwater, sewers and other artificial sources.

1.5. The Site is located within the North Yorkshire County Council (NYCC) Lead Local Flood Authority (LLFA) and the North Yorkshire Council Local Planning Authority (LPA), in the Hambleton District.

2. Baseline Conditions

Site Location

2.1. The Site is located approximately 0.8 kilometres (km) west of Thormanby, approximately halfway between Easingwold and Thirsk, in North Yorkshire. The Site is divided into two development parcels, known as Sessay Park (west) and Briar Hill (east).

2.2. The land is currently utilised for agriculture, primarily supplying anaerobic digestion plants and the production of cattle feed. The land parcels and boundaries are shown within Figure 2. The Site is generally bound by agricultural land. The Sessay Park development parcel is bound to the south by the Pilmoor Site of Special Scientific Interest (SSSI), a Lowland Fen Priority Habitat, and by the East Coast Mainline to the east.

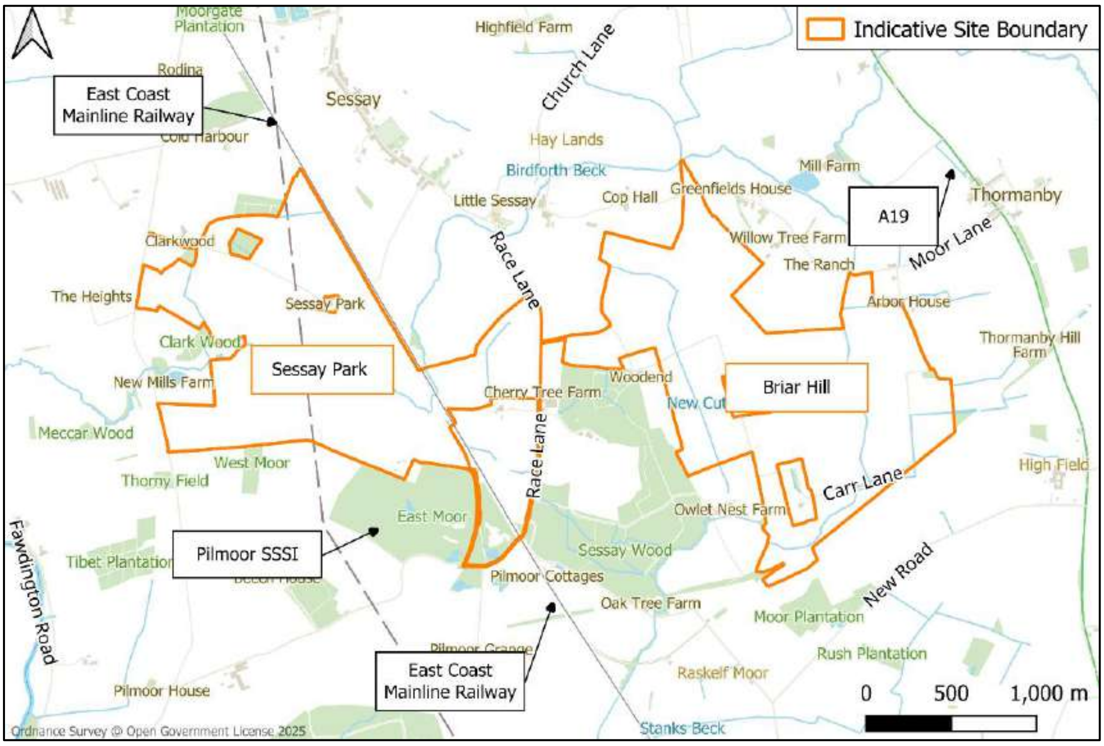

Figure 2: Land Parcels and Boundaries

Topographical Features

2.3. A topographical survey of the Site is included within Appendix B. Figure 3 and 4 show the topography of the surrounding area based upon Light Detection and Ranging (LiDAR) data.

2.4. Within the Sessay Park development parcel, the Birdforth Beck (a Swale and Ure Internal Drainage Board (IDB) watercourse) flows east to west through the centre, with two tributaries reaching their confluence within the Site. Ground levels typically fall towards the watercourses.

2.5. Within the Briar Hill development parcel, the Sun Beck (a Kyle and Upper Ouse IDB watercourse) flows from north to south-west through the centre of the Site. There are several tributaries of the Sun Beck within the Site including New Cut and other unnamed Ordinary Watercourses. Ground levels typically fall towards the watercourses.

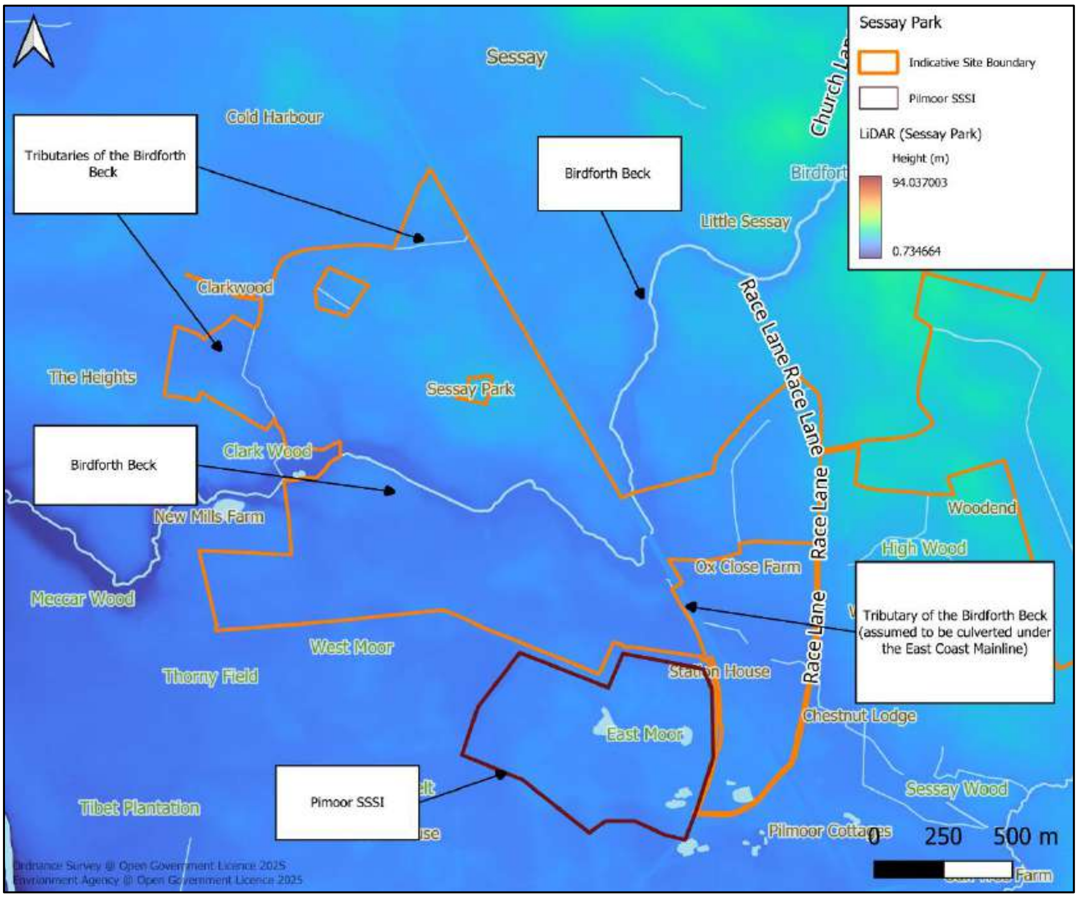

Figure 3: Topography of Sessay Park

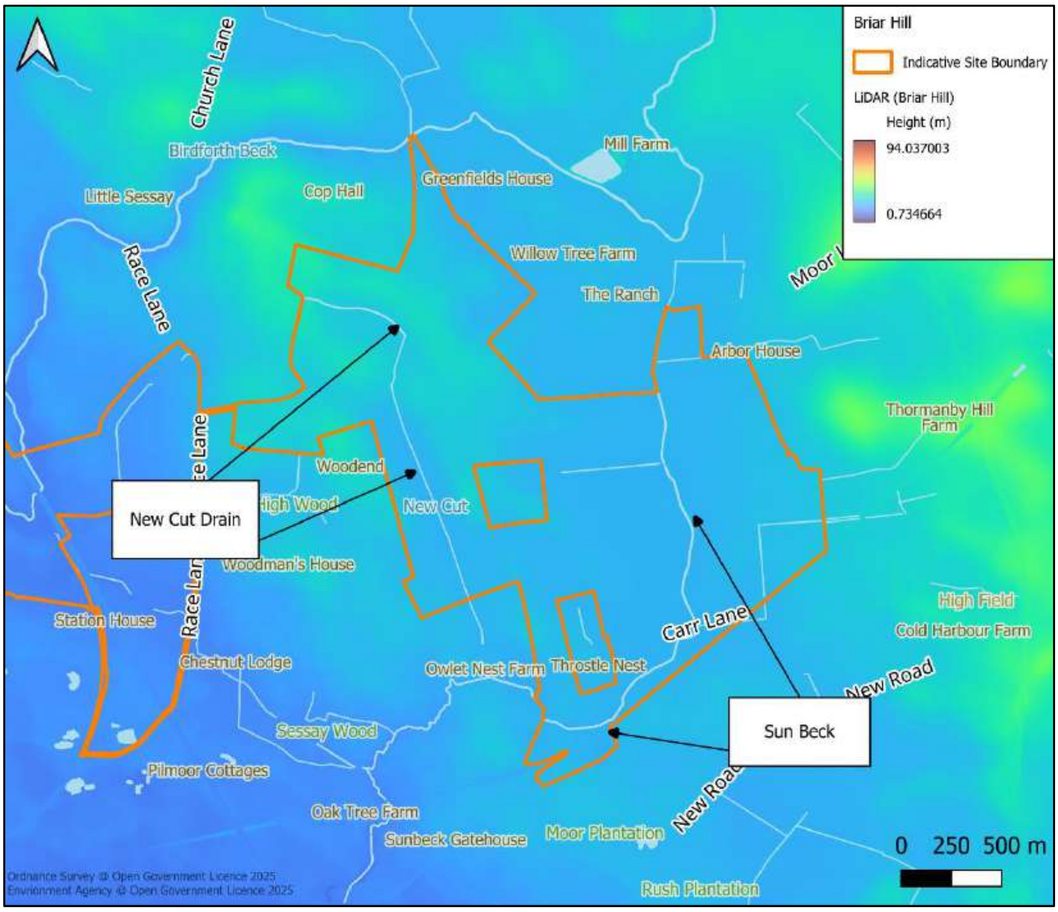

Figure 4: Topography of Briar Hill

2.6. Environment Agency (EA) mapping shows the nearest Main River to be the River Swale, approximately 1km west of the Site. The Ordinary Watercourses and their direction of flow is shown in Figure 5.

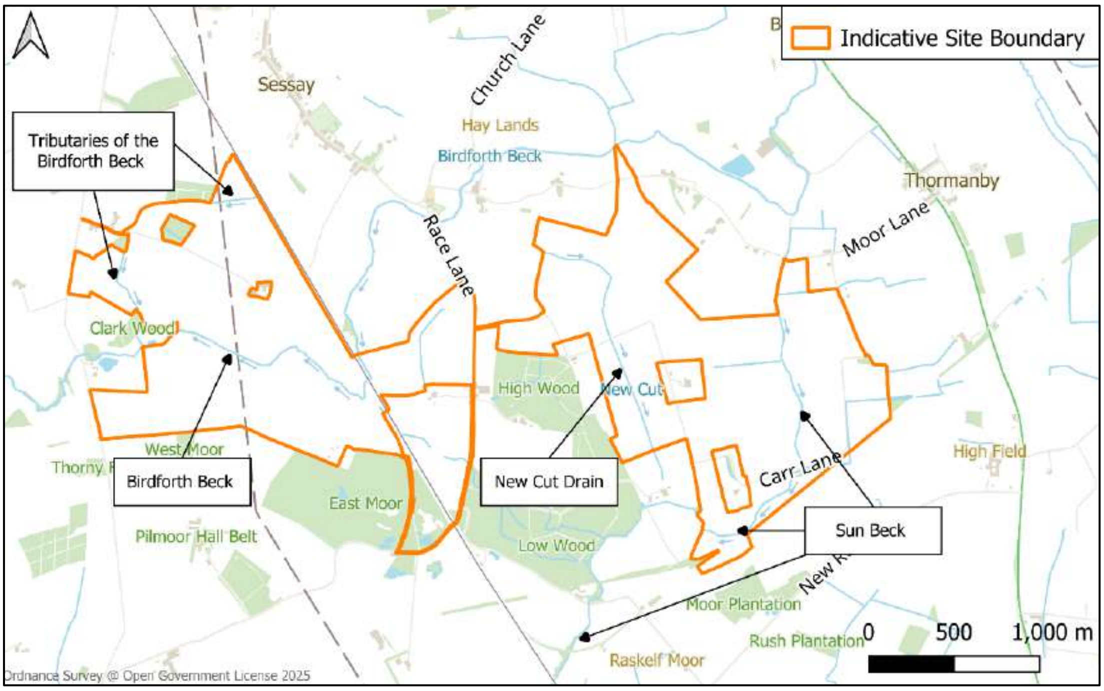

Figure 5: Watercourses and Connectivity

2.7. A site visit was undertaken by Baywa r.e. It was observed that the tributary of the Birdforth Beck at the proposed point of access to Sessay Park to the north, has been filled to create a crossing point (Figure 6, Point A). The watercourse appeared to have no flow, with a diversion pipe expected to have been installed, becoming the preferential flow route. A manhole was identified approximately halfway along the assumed pipe route (Figure 6, Point B).

Figure 6: Figure demonstrating features identified on site

2.8. Based on site visit findings, the northern section of the New Cut Drain (north of the existing access track) is also expected to have been diverted underground. The southern section of the New Cut Drain was above ground as expected.

Geology

2.9. British Geological Survey (BGS) mapping shows Sessay Park to be entirely underlain by Mercia Mudstone Formation. Whilst Briar Hill is underlain partially with Mercia Mudstone Formation and Penarth Group Mudstone, with the remainder underlain by Redcar Mudstone Formation, as shown in Figure 7. The BGS mapping also indicates the presence of superficial deposits on site, comprising of Vale of York Formation (Clay, Sand and Gravel), Alne Glaciolacustrine Formation, Breighton Sand Formation and Alluvium (Clay, Silt, Sand and Gravel), all of which are distributed across the Site as shown in Figure 8.

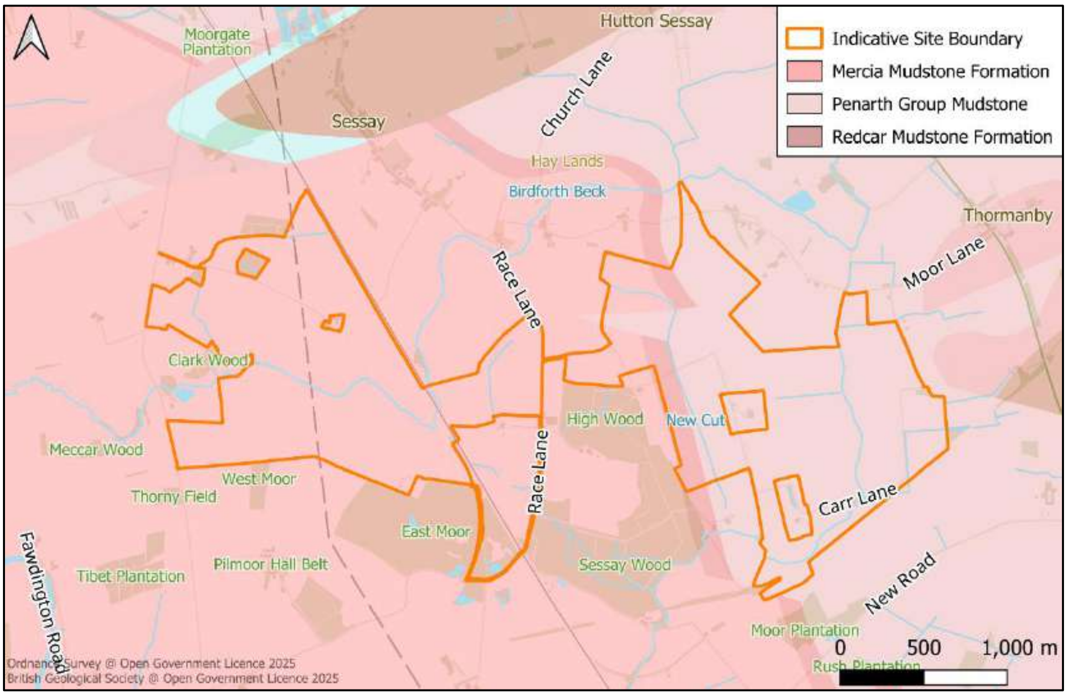

Figure 7: BGS Bedrock Mapping

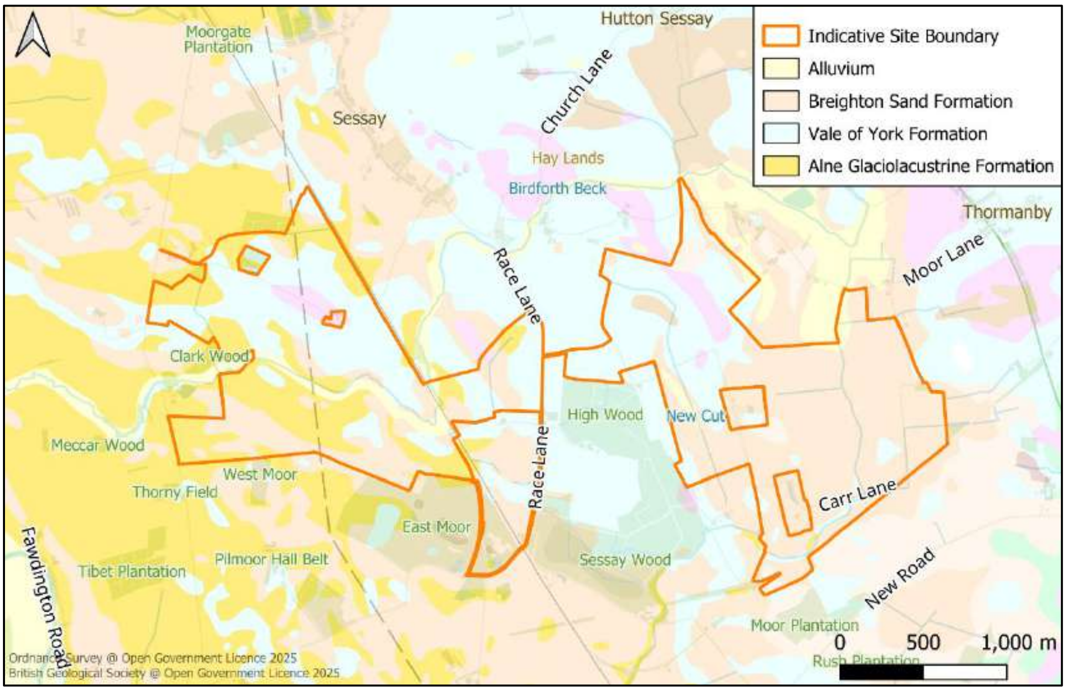

Figure 8: BGS Superficial Deposits

2.10. Soilscapes mapping shows the Site to consist of Soilscape 15 (naturally wet, acidic, loamy soils generally draining to shallow groundwater), Soilscape 18 (slowly permeable, slightly acidic, base-rich loamy/clayey soils, generally draining to stream networks) and Soilscape 22 (loamy soils with naturally high groundwater, generally draining to local shallow groundwater).

2.11. BGS Hydrogeology mapping classification defines Sessay Park, where mudstone is the underlying bedrock, to be an aquifer with low productivity where water generally flows through fractures and other discontinuities. Briar Hill, where mudstone is the underlying bedrock, is shown to comprise rocks with essentially no groundwater and therefore little to no flow.

2.12. The Site is not located within a Source Protection Zone (SPZ) but is located 0.45km north of the Pilmoor Grange SPZ (Inner Protection Zone). The Site is located within Drinking Water Safeguard Zone for surface water but not within a Drinking Water Safeguard Zone for groundwater.

Sewers

2.13. Asset records from Yorkshire Water show there are no adopted foul or surface water sewers within the Site.

Existing Drainage Regime

2.14. As the Site is greenfield in nature, the existing drainage regime is expected to consist of limited infiltration (due to the presence of mudstone), with surface water runoff following the existing topography and flowing toward the Birdforth Beck and tributaries in the Sessay Park development parcel, and the Sun Beck and tributaries in the Briar Hill development parcel.

3. Flood Risk Planning Policy and Guidance

National Policy Statements (NPS)

3.1. Any new planning application (including proposed Nationally Significant Infrastructure Projects (NSIPs)) that requires an FRA will also require a Surface Water Drainage Strategy (SWDS) to be submitted. The SWDS must demonstrate the use of SuDS where necessary within the design and should be in line with the requirements as set out within with the relevant NPS, notably NPS EN-1[1] and EN-3[2] .

3.2. The NPS EN-1 considers the flood risk impacts associated with energy infrastructure developments, ensuring flood risk from all sources are assessed and emphasising that proposed developments located in areas of flood risk should be designed and constructed to remain operational in times of flood. The NPS EN-1 also provides guidance in relation to the Sequential Test and Exception Test and sets out the minimum requirements for an FRA.

3.3. The policy requirement to undertake the FRA is set out in Paragraph 5.8 of NPS EN-1:

- Paragraph 5.8.13 of EN-1 states that *"A site-specific flood risk assessment should be provided for all energy projects in Flood Zones 2 and 3 in England"*.

- Paragraph 5.8.21 of the EN-1 states that, *"following application of the Sequential Test, it is not possible, (taking into account wider sustainable development objectives), for the project to be located in areas of lower flood risk, the Exception Test can be applied, as defined by Table 2 of the Planning Practice Guidance. The test provides a method of allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available"*.

- Paragraph 2.10.84 of the NPS EN-3 states "*where a Flood Risk Assessment has been carried out this must be submitted alongside the applicant's ES. This will need to consider the impact of drainage. As solar PV panels will drain to the existing ground, the impact will not, in general, be significant.*"

National Planning Policy Framework (NPPF)

3.4. The NPPF (2025) states that a site-specific FRA is required for:

a) all developments located within Flood Zone 2 and 3;

b) sites greater than one hectare (ha);

c) sites located within Flood Zone 1 which have been identified by the Environment Agency (EA) as having critical infrastructure;

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[1] Overarching National Policy Statement for Energy (EN-1), Department for Energy Security and Net Zero (January 2024)

[2] National Policy Statement for Renewable Energy Infrastructure (EN-3), Department for Energy Security and Net Zero (January 2024)

d) land located within Flood Zone 1 identified in a Strategic Flood Risk Assessment (SFRA) as being at increased flood risk in the future;

e) land located within Flood Zone 1 that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

3.5. The NPPF requires that, as part of the planning process:

- A 'site-specific' FRA will be undertaken for any site that has a flood risk potential.
- Flood risk potential is minimised by applying a 'sequential approach' to locating 'vulnerable' development.
- SuDS are used for surface water management where practical.
- Flood risk is managed through the use of flood resilient and resistant techniques.
- Residual risk is identified and safely managed.
- Safe access and escape routes are included where appropriate.

Planning Practice Guidance (PPG)

3.6. The PPG (2024) sets out a matrix indicating the types of development that are acceptable in different Flood Zones. The Proposed Development is a solar farm, which is classified as 'Essential Infrastructure'.

3.7. The Site is primarily located within Flood Zone 1, however there are areas within Flood Zones 2 and 3 associated with the on site watercourses. In accordance with the PPG, essential infrastructure is appropriate within Flood Zones 2 and 3 subject to completion of the Exception Test, as shown in Table 1.

Table 1 PPG Flood Risk Vulnerability Classification

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test Required	✓	✓	✓
Zone 3a	Exception Test Required	X	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	X	X	X	✓

Climate Change

3.8. The EA provides predicted future changes in peak river flows based upon the regional River Basin District. The Site is located within the Swale, Ure Nidd and Upper Ouse management catchment. The relevant peak river flow climate change allowances are included in Table 2.

Table 2 EA Peak River Flow Allowances

Allowance	2020s epoch	2050s epoch	2080s epoch
Upper End	25%	33%	53%
Higher Central	15%	20%	34%
Central	11%	14%	25%

3.9. The Proposed Development is classified as Essential Infrastructure. For non-residential development, a lifespan of 75 years is adopted.

3.10. Based upon this, and as agreed within the Environment Agency meeting, a climate change allowance of 25% shall be considered within this FRA, with a sensitivity test against the 55% credible maximum

NYCC Strategic Flood Risk Assessment (2016)

3.11. The NYCC Strategic Flood Risk Assessment (SFRA)[3] was completed in 2016, combining and reviewing other SFRAs created within each district of the LPA.

3.12. The SFRA assesses flood risk from all sources within the local area, and is used to inform spatial planning decisions, support local plans and provide guidance for new developments within the area.

3.13. Following a review of the online SFRA report, the Site is not mentioned within the NYCC SFRA. The SFRA also gives guidance on the use of SuDS within the area, which will be used to inform the SWDS.

3.14. The associated SFRA flood mapping has been requested from NYCC but is yet to be received at the time of writing. In the absence of this mapping, it is not possible to delineate between Flood Zone 3a and Flood Zone 3b.

NYCC Local Flood Risk Strategy 2022-2027

3.15. The NYCC Local Flood Risk Strategy (LFRS) 2022-2027[4] outlines the LPA's statutory framework (as the LLFA) for identifying, understanding, preventing and managing flood risk across North Yorkshire. The following six objectives were identified to help secure effective flood risk management across the LPA area:

1. A greater role for communities in managing flood risk, an opportunity that can also be developed further through Local Government Reorganisation (LGR).
2. Improved knowledge and understanding of flood risk and management responsibilities within NYCC and amongst partners, stakeholders, communities and the media.
3. Sustainable development utilising sustainable drainage where possible.
4. Improved knowledge of watercourse network and drainage infrastructure.
5. Flood risk management measures that deliver social, economic and environmental benefits.
6. Best use of all potential funding opportunities to deliver flood risk management measures.

Environment Agency Consultation

3.16. Consultation was undertaken with the Environment Agency on 19th November 2025, with the meeting minutes included in Appendix F. The Environment Agency reviewed the draft FRA and confirmed that there is not significant concern in this case regarding flooding and that

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[3] Sustainable Flood Risk Assessment (Level 1), North Yorkshire County Council (2016)

[4] Local Flood Risk Strategy 2022 – 2027, North Yorkshire County Council (unknown)

the approach taken in the FRA is as expected. However, they requested bespoke hydraulic modelling for the site which will be undertaken at the appropriate juncture.

4. Flood Risk Assessment

4.1. In accordance with the NPPF, this FRA considers all sources of flooding, including:

a) fluvial flooding – from rivers and streams;

b) tidal flooding – from the sea;

c) surface water flooding – from overland surface water flow and exceedance;

d) groundwater flooding – from elevated groundwater levels of springs;

e) flooding from sewers – exceedance flows from existing sewer systems; and

f) flooding from artificial sources – such as reservoirs and canals.

4.2. The FRA will also consider any records of historical flooding within the Site.

Historical Flooding

4.3. The EA Recorded Flood Outlines map shows two records of historic flooding. Both records of historic flooding are located to the south of the Briar Hill development parcel, as shown in Figure 9.

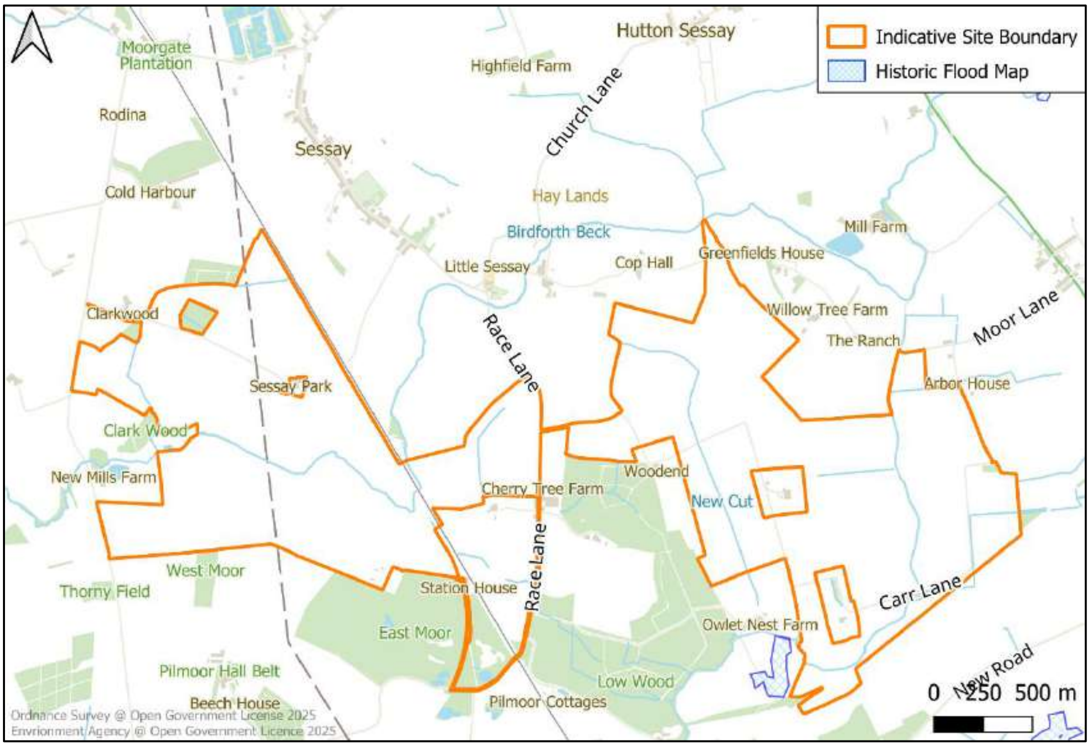

Figure 9: Historic Flood Map

Fluvial Flooding

4.4. The PPG for Flood Risk and Coastal Change defines each Flood Zone based on the probability of river and sea flooding in that area:

- Zone 1 – Low Probability (less than a 1 in 1000 annual probability of river and sea flooding).
- Zone 2 – Medium Probability (between a 1 in 100 and a 1 in 1000 annual probability of river flooding: or between a 1 in 200 and 1 in 1000 annual probability of sea flooding).
- Zone 3a – High Probability (a 1 in 100 or greater annual probability of river flooding; or a 1 in 200 or greater annual probability of sea flooding).
- Zone 3b – the functional floodplain (typically a 1 in 30 or greater annual probability of flooding, with any flood risk management infrastructure operating effectively); land where water from rivers or the sea has to flow or be stored in times of flood).

4.5. The EA Flood Map for Planning indicates that the majority of the Site is within Flood Zone 1, with areas of both Sessay Park and Briar Hill situated within Flood Zones 2 and 3, as shown in Figure 10. Fluvial flooding within Sessay Park is associated with the Birdforth Beck and tributaries, whereas fluvial flooding in Briar Hill is associated with the Sun Beck and tributaries. There are increases in fluvial flood risk extent when the implications of climate change are considered.

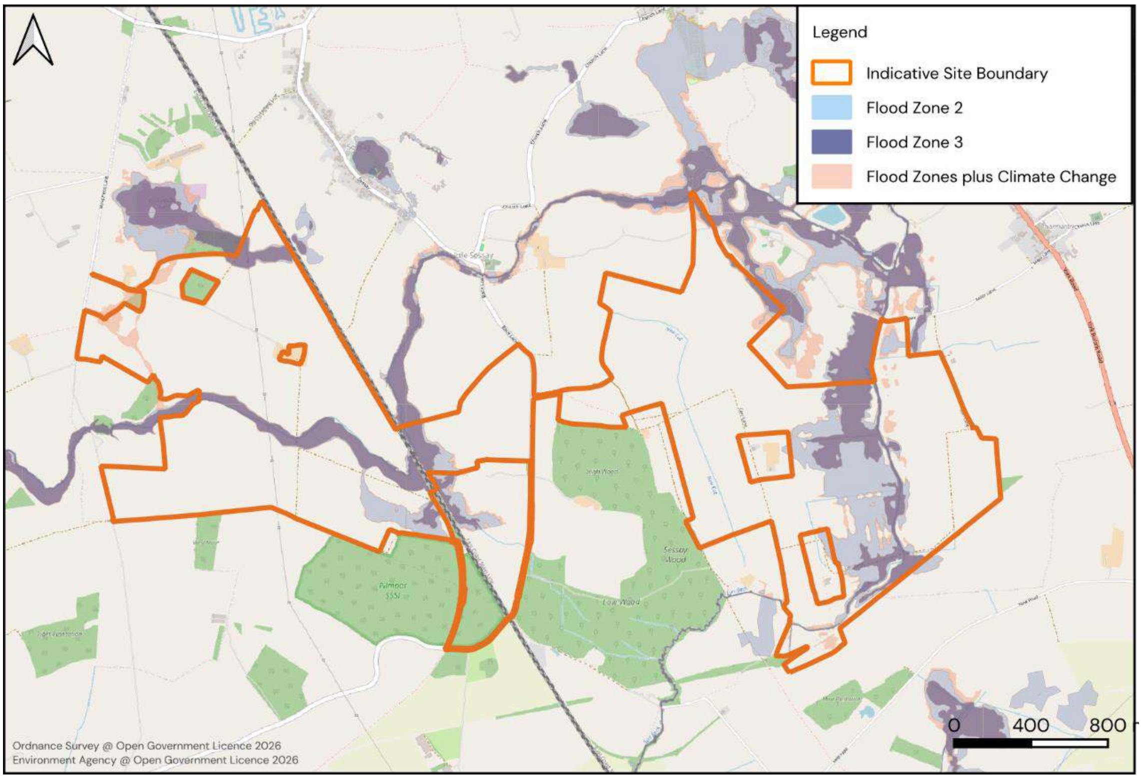

Figure 10: EA Flood Map for Planning

4.6. The EA were consulted in the form of a Product 5 and 6 request. There are no available hydraulic models for the watercourses within the Site. The closest model is located to the west of Sessay Park is the 2010 River Ure and Tribs Model, with the closest downstream extents approximately 1km southwest of the Site.

4.7. As the closest EA model does not include the Site, it is considered reasonable that the flood levels across the Site can be interpolated from the Flood Zone 2 extents of the EA Flood Map for Planning and the topographical survey undertaken across the Site.

4.8. The Swale, Ure, Nidd and Upper Ouse Management Catchment requires a 25% climate change allowance (central allowance for the 2080s). In the absence of detailed modelled flood extents, Flood Zone 2 is considered an appropriate representation of what the 1 in 100-year flood event with a 25% climate change allowance could be.

4.9. Given the presence of several watercourses within the Site, the risk of fluvial flooding is considered to be medium with necessary mitigation, as detailed in Section 5.

4.10. As agreed with the Environment Agency, bespoke hydraulic modelling will be undertaken at the appropriate juncture.

Tidal Flooding

4.11. The Site is located approximately 57km west of the closest coastline, with the Flood Map for Planning showing the source of flooding on site to be 'river'.

4.12. Due to this, risk of flooding from tidal sources is considered negligible, and therefore not assessed further within this FRA.

Surface Water Flooding

4.13. The EA Risk of Flooding from Surface Water (RoFSW) dataset sets out the present day and future flood risk from pluvial sources, inclusive of an allowance for climate change. Within the RoFSW dataset, risk is displayed as one of three likelihood categories:

- Low Chance – between a 1 in 100 and 1 in 1000 (1% and 0.1%) chance of flooding each year.
- Medium Chance – between a 1 in 30 and a 1 in 100 (3.3% and 1%) chance of flooding each year.
- High Chance – more than a 1 in 30 (3.3%) chance of flooding each year.

4.14. The RoFSW dataset is an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies or flows over the ground instead.

4.15. The RoFSW dataset shows Sessay Park to have areas of surface water pooling, which are associated with topographical depressions. There are three identified overland flow routes within Sessay Park, all of which are associated with the Birdforth Beck and its tributaries (ranging from low to high risk), as shown in *Figure 11*. The dataset shows surface water flood depths to not exceed 0.6m throughout Sessay Park, with the majority of depths shallow and not exceeding 0.3m (Figure 12). The RoFSW dataset with the allowance for climate change does not show the maximum depth of surface water flooding to exceed 0.6m (Figure 13).

4.16. Briar Hill is shown to have a number of areas of surface water pooling (ranging from low to high risk), also associated with topographical depressions. Several overland flow routes are shown within Brair Hill, associated with the New Cut Drain, Sun Beck and their tributaries (*Figure 11*). The dataset shows surface water flood depths ranging from 0.2m to 0.3m (Figure 12). The RoFSW dataset with the allowance for climate change does not show the maximum depth of surface water flooding to exceed 0.6m (Figure 13).

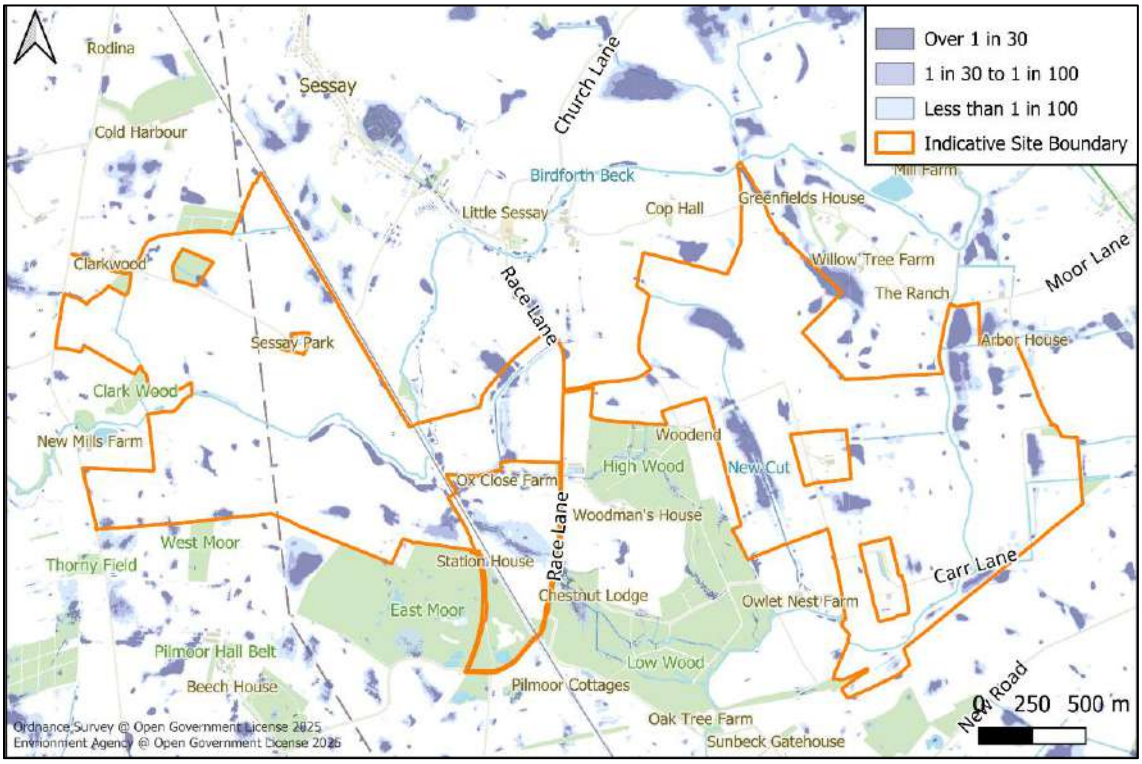

Figure 11: EA Risk of Flooding from Surface Water

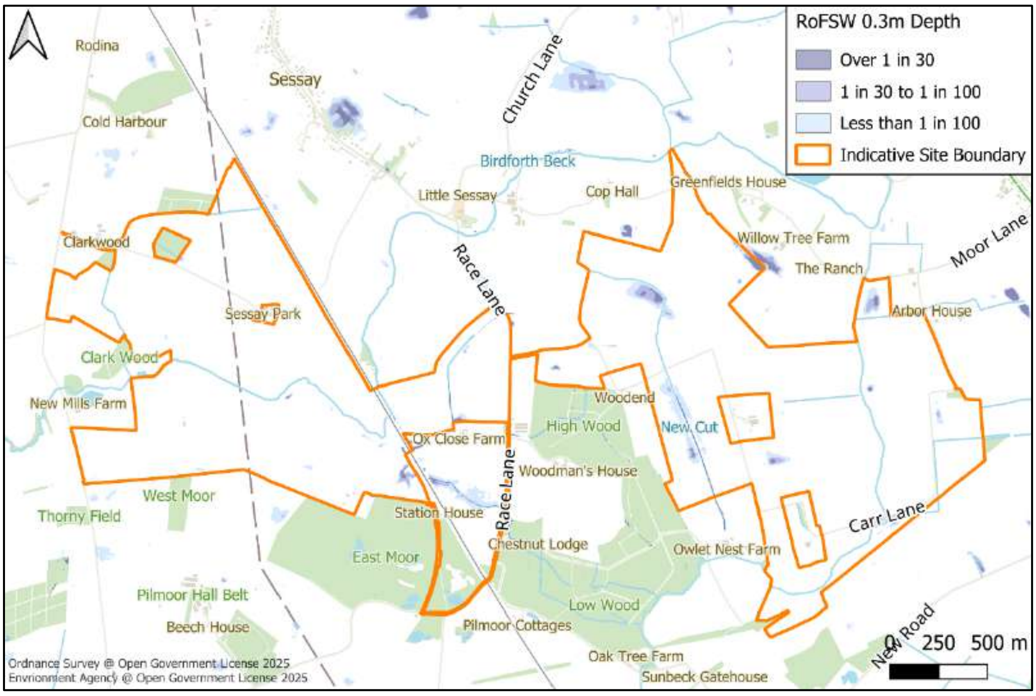

Figure 12: EA RoFSW 0.3m depth

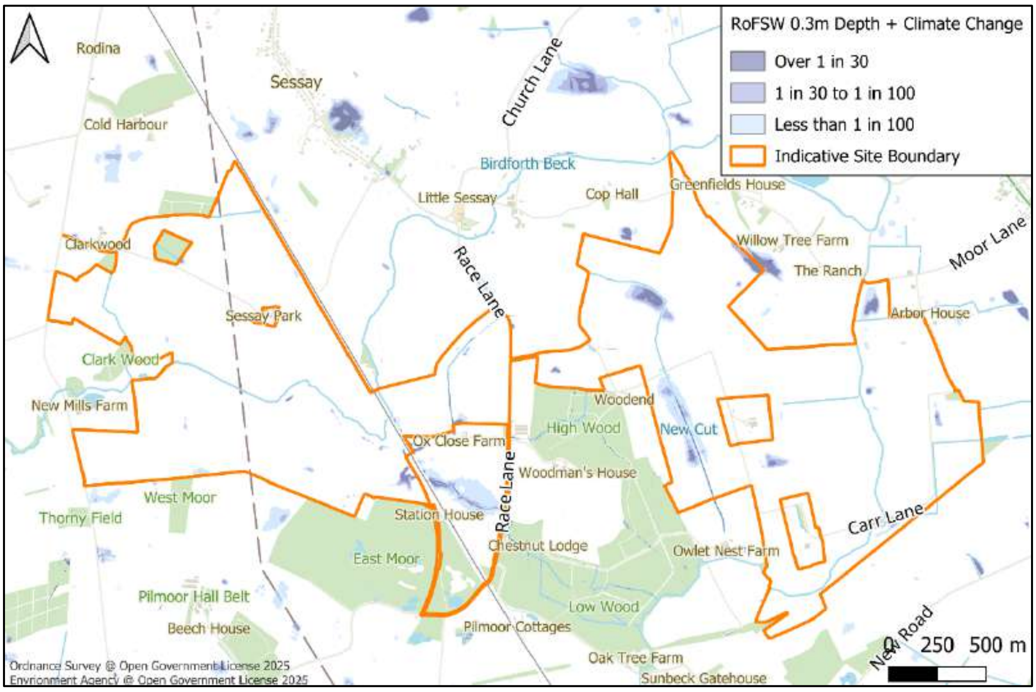

Figure 13: EA RoFSW 0.3m depth + Climate Change

4.17. The surface water extents are largely confined to the watercourse corridors and topographical depressions but does not exceed 0.6m depth for all assessed return periods. Overall, risk of flooding from surface water is considered to be medium within both land parcels, with associated mitigation discussed in Section 5. There is potential for the development to alter surface water flow pathways through possibly damaging land drains during construction. However, damaged land drains have the potential to slow surface water flows, by promoting infiltration and confining flows within the site, maintaining existing flow paths. Localised damage to land drains is not considered significantly increase flood risk off-site, however damage to land drains will be rectified. Information on reinstatement works will be included within the OCEMP and DEMP/Outline Decommissioning Plan.

Groundwater Flooding

4.18. Groundwater flooding can occur when the water table rises above ground, generally occurring when after prolonged or heavy rainfall when the ground becomes saturated, primarily occurring in areas underlain by high permeability aquifers.

4.19. The Site is not directly mentioned within the NYCC SFRA, nor is groundwater flooding noted as likely using the Government's Long Term Flood Risk Checker[5].

4.20. The Site is entirely underlain by various mudstone bedrocks, which are generally impermeable and therefore restrict groundwater emergence. Similarly, a range of clayey superficial deposits across the site and the presence of clayey soils will also reduce the risk of groundwater emergence.

4.21. The BGS Hydrogeology Aquifer Classification classifies Sessay Park as a 'low productivity aquifer', whilst Briar Hill noted to have 'rocks with essentially no groundwater'.

4.22. Overall, risk of flooding from groundwater emergence is considered to be low and therefore no site specific mitigation is considered necessary.

Sewer Flooding

4.23. Sewer flooding can occur across any part of a sewerage system at times when heavy or prolonged rainfall overwhelms the system.

4.24. The NYCC SFRA does not detail any specific incidents of sewer flooding within the county, or within the Site. No other records of sewer flooding were found through an online search.

4.25. Sewer records were obtained from Yorkshire Water, which confirmed no sewers within the Site. These records are included within Appendix C.

4.26. Overall, the risk of flooding from sewers is considered negligible and therefore no site specific mitigation is considered necessary.

Flooding from Artificial Sources

4.27. The EA Reservoir Flood Extents Data represents all reservoirs which fall under the requirements set out in the Reservoirs Act 1975[6]. This Act makes it a legal requirement for the designated reservoir management company to appoint a Supervising Engineer to produce an annual report and for the operator to address any issues raised therein. Since the introduction of the Reservoir Act, there have been no catastrophic failures of reservoirs.

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[5] https://check-long-term-flood-risk.service.gov.uk/postcode

[6] https://www.legislation.gov.uk/ukpga/1975/23

Consequently, it is considered that the probability of reservoir failure is very low, therefore the risk of flooding from reservoirs is also very low.

4.28. The EA data shows the Site is not predicted to be at risk of reservoir flooding, should a catastrophic breach occur during a storm when local rivers have already overtopped their banks, and on a dry day when local rivers are flowing under normal conditions. The closest extents of reservoir flooding under both a 'dry day' and a 'wet day' scenario are approximately 0.8km west of the Site, associated with the Cod Beck, Scar House, Roundhill and Leighton reservoirs, as shown in Figure 14.

4.29. There are no other sources of artificial flooding identified which may affect the Site, including flood risk from canals.

4.30. The risk of flooding from artificial sources like reservoirs, is considered to be low and therefore no site specific mitigation is considered necessary.

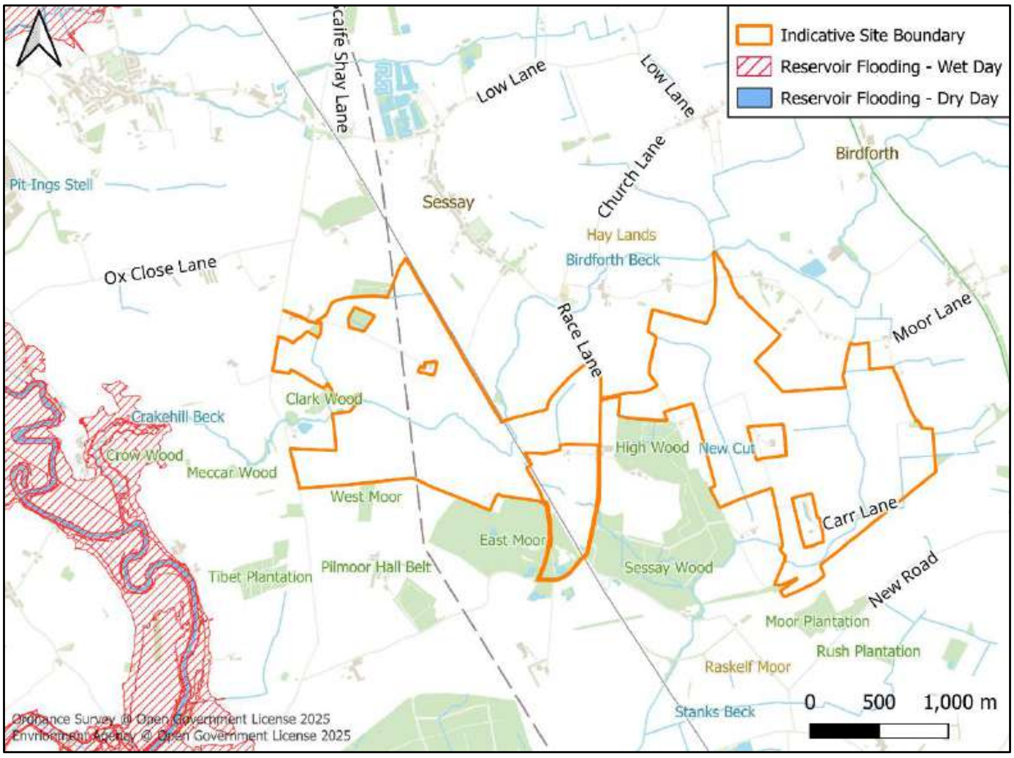


Figure 14: Reservoir Flood Extents

Effect of Development on Wider Catchment

4.31. In accordance with the NPPF, any proposed development must not exasperate flooding within the wider catchment.

4.32. As the Site is partially within Flood Zone 2 and 3, the Proposed Development has the potential to displace floodplain and alter overland flow routes.

4.33. The change from greenfield agricultural land will also have the potential to increase the portion of impermeable surfaces within the Site which, unless appropriately managed, have the potential to exasperate flooding downstream.

4.34. Proposed mitigation is discussed in Section 5.

Safe Access/Egress

4.35. Safe access and egress are available within both Sessay Park and Briar Hill, with flood-free routes identified to the south and north in Sessay Park, and to the northwest in Briar Hill.

4.36. Further mapping on the safe access/egress routes will be provided following the bespoke hydraulic modelling exercise in accordance with the Environment Agency request.

5. Mitigation

5.1. The Site is considered to be at medium risk of fluvial flooding, medium risk of pluvial flooding, low risk of groundwater and artificial sources, and at negligible risk of tidal, and sewer flooding. To ensure the Proposed Development is safe for its operational lifetime and to prevent increases in flood risk downstream, the following mitigation is proposed:

- The Site is to be sequentially arranged to locate vulnerable infrastructure (including the BESS, substation and free standing inverters/transformers) outside of Flood Zones 2 and 3 where possible.

- Surface water flow paths through the Site will remain as exiting, with no major alterations in ground levels resulting in loss of flood storage, truncation of flow routes or cross catchment transfer.

- The height of the solar panels (minimum 0.8m elevation at the lowest point) will be elevated adequately above the ground so as to not impede surface water flow routes.

- Transformers will be elevated approximately 0.6m above ground level, whereby they will be removed from pluvial flood risk (identified to have depths of 0.2m-0.6m across the Site).

- Solar PV modules located within the Flood Zone 2 extents will be elevated a minimum of 0.3m above the corresponding design event flood level for that catchment area of the Site. In the absence of hydraulic modelling at this stage, it is currently proposed to elevate the pannels 0.6m above the interpolated flood level so as to provide a conservative approach, as detailed within Table 3 and the Flood Risk Constraints Plan included in Appendix D. The proposed panel level will be updated following the hydraulic modelling exercise.

- Proposed impermeable surfaces will be minimised wherever possible. Existing access tracks will be reused, with any new tracks being formed of semi-pervious material.

- A SWDS will be implemented to ensure the runoff rate from the Site does not increase as a result of the Proposed Development. The SWDS will be developed in line with the latest guidance and provide water quality management measures.

- The temporary watercourse crossing created by the diversion of the tributary of the Birdford Beck is required to be utilised for the construction phase of the Proposed Development. It is proposed to utilise this watercourse crossing in its current condition.

- A 10m buffer is proposed to all watercourses. This is greater than the minimum easement requested in the standard guidance of the IDBs and LLFA.

Table 3 Interpolated Flood Levels and Recommended Minimum Panel Elevations

Catchment ID	Interpolated Flood Level	Minimum Panel Elevation
Catchment 1	27.50mAOD	28.10mAOD
Catchment 2	27.22mAOD	27.82mAOD
Catchment 3	27.18mAOD	27.78mAOD
Catchment 4	N/A	N/A
Catchment 5	27.30mAOD	27.90mAOD
Catchment 6	N/A	N/A
Catchment 7	22.19mAOD	22.79mAOD
Catchment 8	N/A	N/A
Catchment 9	N/A	N/A
Catchment 10	23.14mAOD	23.74mAOD
Catchment 11	N/A	N/A
Catchment 12 (west)	23.20mAOD	23.80mAOD
Catchment 12 (east)	24.42mAOD	25.05mAOD
Catchment 13	N/A	N/A
Catchment 14	N/A	N/A
Catchment 15	N/A	N/A
Catchment 16	31.20mAOD	31.80mAOD
Catchment 17	N/A	N/A

Catchment 18	N/A	N/A
Catchment 19	N/A	N/A
Catchment 20	N/A	N/A
Catchment 21	N/A	N/A
Catchment 22	30.84mAOD	31.44mAOD
Catchment 23	30.51mAOD	31.11mAOD
Catchment 24	N/A	N/A
Catchment 25	N/A	N/A
Catchment 26	N/A	N/A
Catchment 27	30.90mAOD	31.50mAOD
Catchment 28	N/A	N/A
Catchment 29	N/A	N/A
Catchment 30	N/A	N/A
Catchment 31	30.62mAOD	31.22mAOD
Catchment 32	N/A	N/A

6. Surface Water Drainage Strategy

Sustainable Drainage Policy and Guidance

National Standards for Sustainable Drainage Systems

6.1. The National Standards for Sustainable Drainage Systems[7] released in July 2025 provides guidance on how SuDS should be implemented on proposed developments in England.

6.2. The guidance promotes taking a natural approach to managing water and integration with development planning. It is based upon the following standards:

- Standard 1 – runoff destination
- Standard 2 – management of everyday rainfall (interception)
- Standard 3 – management of extreme rainfall and flooding
- Standard 4 – water quality
- Standard 5 – amenity
- Standard 6 – biodiversity
- Standard 7 – design of drainage for construction, operation, maintenance, decommissioning and structural integrity.

6.3. The relevant standards are addressed in turn in the following sections of this FRA.

NYCC SuDS Design Guidance

6.4. In accordance with the NYCC SuDS Design Guidance[8] (2022 Update), the Proposed Development qualifies as a Major Development due to its size exceeding 1ha. As such, the Proposed Development is required to incorporate SuDS in line with the SuDS hierarchy and following the drainage management train:

- Prevention – Reduce the volume of runoff through good site design and minimising impermeable surfaces.
- Source Control – Manage water where it falls, using infiltration and other decentralised methods.
- Site Control – Manage surface water across the site using features such as swales and detention basins.

---

[7] National Standards for Sustainable Drainage Systems, DEFRA (July 2025)

[8] Sustainable Drainage Systems Guidance 2022 Update, North Yorkshire Council (2022)

- Regional Control – Manage runoff from larger areas using features such as balancing ponds or wetlands.

6.5. The design of the SWDS will adhere to the following principles, as set out in NYCC and national guidance:

- Ensure flood risk is not increased on-site or elsewhere as a result of the development.
- Protect people, property, and critical infrastructure from flood risk.
- Ensure that SuDS infrastructure is maintainable and viable for the lifetime of the development.

6.6. The NYCC SuDS Design Guidance requires that runoff from new developments is limited to a maximum of the greenfield QBAR (Mean Annual Flow) rate.

IDB Requirements

6.7. The Swale and Ure IDB requires that surface water discharge leaving the Site is restricted to 1.4 l/s/ha, unless otherwise agreed via a formal Consent for Discharge application.

6.8. The Kyle and Upper Ouse IDB currently does not publish specific runoff rate restrictions.

Climate Change

6.9. The EA provides future changes in peak rainfall intensity based upon the regional River Basin District. The relevant peak rainfall climate change allowances for the Swale, Ure, Nidd and Upper Ouse Management Catchment are shown in Table 4.

Table 4 Peak Rainfall Climate Change Allowance

Allowance	2050s epoch		2070s epoch	
	1 in 30 year	1 in 100 year	1 in 30 year	1 in 100 year
Upper End	35%	40%	40%	45%
Central	20%	25%	25%	30%

6.10. Based upon an operational lifetime of 40 years, a climate change allowance of 30% shall be considered within the drainage strategy.

Existing Runoff Rate and Volume

6.11. The existing runoff rate per hectare has been estimated using the EA's Flood Estimation Guidelines, as shown in Table 5.

Table 5 Existing Greenfield Runoff Rate

Return Period	Runoff Rate (l/s/ha)
1	1.7
QBAR	2.0
30	3.5
100	4.2

6.12. An assessment of the existing runoff volume per hectare has been calculated for the 1 in 100-year, 6 hour storm to be 517m^3.

Proposed SWDS

6.13. Given the nature of the Proposed Development, it is not anticipated that there will be a significant requirement for a formal drainage strategy in line with Paragraph 2.10.84 of the NPS EN-3 states "*… As solar PV panels will drain to the existing ground, the impact will not, in general, be significant.*"

6.14. As different components of the Proposed Development will have different potential impacts on surface water runoff, and therefore varying levels of mitigation, the SWDS has been sub divided based upon the proposed infrastructure.

6.15. An indicative overview of the proposed SWDS is included within the Flood Risk and Drainage Constraints Plan included in Appendix D.

Solar Arrays

6.16. A study by Cook and McCuen (2013) found that solar photovoltaic panels themselves have minimal impact on surface water runoff rates, volumes, or time to peak. However, the research highlighted that the type of groundcover beneath the panels plays a significant role in influencing runoff characteristics. Specifically, using bare earth under the panels can lead to a substantial increase in peak discharges.

6.17. It is therefore proposed that, as part of the surface water drainage strategy, vegetation cover beneath the panels is established and maintained in order to manage the potential changes in runoff regime as a result of the development.

6.18. To mitigate any residual exceedance flows, the surface water drainage strategy includes for strategically located interception swales. The swales are positioned within the development where there is the potential for exceedance flows resulting from the solar arrays to flow offsite or towards more vulnerable land features such as footpaths.

6.19. The interception swales will be a minimum of 0.3m deep, with a minimum bank gradient of 1:1. Where the longitudinal fall of the swales exceeds 1:20, check dams will be installed at regular intervals constructed from loose stone with a permeable membrane.

6.20. The interception swales will be planted with native grass species to encourage evapotranspiration, infiltration, filtration and improve biodiversity.

6.21. The interception swales will be designed to naturally infiltrate and eventually overtop as per the existing condition, with erosion protection (stone or geotextile membrane) installed where concentrated point flows may occur.

6.22. Compared to the existing condition, the interception swales will provide an increase in flood storage volume, provide water quality management and slow the flow of runoff leaving the site, therefore providing betterment.

Ancillary Infrastructure

6.23. All proposed ancillary infrastructure, such as switch gears, will have a negligible impact upon the surface water runoff regime, with the impermeable area from each building not exceeding 50m^2 in isolation.

6.24. Given the negligible impermeable area associated with the ancillary infrastructure, it is not considered necessary to provide a formal drainage strategy for these features.

6.25. However, to manage any exceedance flows and encourage infiltration, filter strips will be located around the periphery of the ancillary infrastructure.

6.26. The filter strips will be formed from clean stone with a planted grass pre-treatment strip. The filter strips will be unlined to allow for natural infiltration as per the existing condition. When the infiltration potential is exceeded, the filter strips will overtop as per the existing condition.

Access Tracks

6.27. Wherever possible, existing access tracks will be reused. Any newly installed access tracks will be constructed entirely from semi pervious material and therefore require no formal drainage.

6.28. Water quality management for potential silty runoff will be required during the construction phase, which should be determined as part of the construction phase management plans.

BESS

6.29. Because of the significant impermeable area and pollution risk associated with the BESS portion of the development, a formal drainage strategy is proposed in this area.

6.30. In summary, increases in surface water runoff from the BESS infrastructure will be managed through pervious surfaces with under drains directing surface water towards a detention basin, which will be designed to accommodate the 100 year plus 30% climate change event. The detention basin will be planted with native species to encourage evapotranspiration, provide water quality filtration and improve biodiversity, with a low flow channel through the centre. The discharge rate from the detention basin will be limited to 1.4l/s/ha via a vortex flow control prior to outfall to the Birdforth Beck via a new headwall.

6.31. The following sections of this report provide more detail on how this will be achieved in accordance with the National Standards for Sustainable Drainage Systems.

Runoff Destination

6.32. In order to manage runoff at source, national guidance dictates that surface water runoff from the proposed development should be disposed of as high up the following hierarchy as reasonably practicable:

1. Collected for non-potable use
2. Infiltration
3. Surface water body
4. Surface water sewer or drain
5. Combined Sewer

6.33. Infiltration of large volumes of formally managed surface water runoff is not considered to be viable given the mudstone geologies reported by the BGS and the high groundwater pollution potential associated with BESS developments.

6.34. The topography of the portion of the site proposed for the BESS falls towards the Birdforth Beck which, in the greenfield condition, is the natural point of discharge for overland flow.

6.35. To mimic the existing condition it is proposed to discharge surface water runoff from the BESS development to the Birdforth Beck via a newly installed headwall.

6.36. The headwall should be keyed into the bank and designed appropriately to not obstruct flows within the watercourse. IDB consent may be required.

Interception Volume

6.37. In order to ensure that the first 5mm of rainfall from the majority of events does not result in runoff from the BESS to surface waters, the surface water drainage strategy will include an appropriately designed detention basin which promotes evapotranspiration through it's planting and elongated low flow channel.

Extreme Rainfall and Flooding

6.38. In order to manage extreme rainfall and flooding, the discharge rate and volume from the site will be managed through a restricted discharge rate at a maximum of 1.4l/s/ha for all events up to and included the 100 year plus 30% climate change return period in accordance with the Swale and Ure IDB requirements. This provides betterment over the 2.0l/s/ha requirement associated with the LLFA guidance.

6.39. Due to the requirement for a restricted discharge rate, it is necessary to provide attenuated storage within the site for the 1 in 100 year plus 30% climate change event. A minimum freeboard of 300mm should be included within the attenuated storage feature to mitigate against extreme rainfall events.

6.40. Given the nature of the proposed development, it is not considered necessary to include an allowance for urban creep.

6.41. The attenuated storage should be located outside of the fluvial flood extents and modelled with a surcharged outfall in order to account for potential flood locking.

6.42. An indicative detention basin is shown on the Flood Risk and Drainage Constraints Plan included in Appendix D, however, the exact extent and design of the basin should be confirmed once the layout and extent of the BESS is known and in accordance with the requirements set out in this report.

Water Quality

6.43. The proposed SuDS will be used to manage the runoff quality prior to discharge to the Birdforth Beck.

6.44. The Pollution Hazard Index for the BESS development has been determined based upon the proposed land use of low traffic roads (to account for vehicular accesses) and residential roofing (in lieu of an appropriate land use classification for the battery units), as shown in Table 6.

Table 6 Pollution Hazard Index

Land Use	Pollution Hazard	Total Suspended Solids	Metals	Hydrocarbons
Low Traffic Roads	Low	0.5	0.4	0.4
Residential Roofing	Very Low	0.2	0.2	0.05

6.45. The proposed detention basin Pollution Mitigation Indices, as shown in Table 7, are therefore considered sufficient to mitigate the pollution potential.

Table 7 Pollution Mitigation Index

SuDS Feature	Sufficiency	Total Suspended Solids	Metals	Hydrocarbons
Detention Basin	Sufficient	0.5	0.5	0.5

Fire Risk

6.46. Due to the risk of fire associated with BESS developments and associated resulting pollution risk, the proposed BESS surface water drainage system will be entirely lined with an impermeable membrane.

6.47. An automatic shut off valve will be located upstream of the flow control to contain potentially polluted runoff in the event of a fire.

6.48. The detention basin storage volume will be calculated to allow for a fire situation, where no water can be released from the storage areas. A 24hour storm duration should be adopted in the design calculations, to account for the assumption that this is the longest time period required for a tanker to arrive at the site to remove contaminated water. The joint probability of a 1 in 100 year rainfall event occurring simultaneously with a fire is very low and therefore the 10% Annual Exceedance Probability will be adopted to determine the storage requirements.

6.49. The detention basin, shut off valve and flow control will be designed to have adequate access from the public highway for maintenance vehicles to allow the surface water drainage system to be cleaned following a fire event and prior to release of the shut off valve.

6.50. Yorkshire Water have been contacted via a Pre-Development Enquiry in order to understand the location of a water supply, including for use in firefighting. Their response is included in Appendix E and indicates that a supply is available from the 9-inch cast iron at Main Street, grid reference 446022.31 , 474981.58, approximately 1km from the site. However, the connection to the supply point may be unfeasible due to the length of infrastructure required. In which case, Yorkshire Water have advised it may be preferrable to have a fire fighting system fed by on site storage.

6.51. Where on site fire fighting storage is required, adequate storage should be provided for 1,900 litres per minute for 120 minutes (228,000 litres), in accordance with the National Fire Chiefs Council (NFCC) guidance.

Amenity and Biodiversity

6.52. The BESS area and associated drainage will not have public access and therefore opportunities for amenity design are limited. However, the above ground detention basin should be appropriately planted with native species to provide climate resilience and a habitat for native wildlife.

6.53. The landscaped area of the BESS, including the surface water drainage features, should be designed in collaboration with the appointed Ecological Consultant and Landscape Consultant.

Construction, Operation, Maintenance and Decommissioning

6.54. Appropriate surface water management plans for the construction and decommissioning phases of the development will be required to be developed at the appropriate juncture, paying specific regard to the potential for silty runoff to enter watercourses.

6.55. During the operational phase of the development, the surface water drainage strategy will require regular maintenance to ensure the system operates to its full potential. The site and the associated drainage system will remain private, and therefore an appropriate management company should be appointed by the development occupiers to maintain the surface water drainage system throughout the development lifetime.

6.56. Maintenance schedules for the proposed SuDS components are provided in the following tables. These schedules are not exhaustive and should be reassessed at regular intervals to determine if any additional maintenance requirements are necessary.

6.57. Maintenance of the drainage system and SuDS features should be carried out in accordance with the manufacturer guidance and through an approved maintenance plan to minimise the residual flood risk of drainage system blockage or failure.

Table 8 Granular Sub-base/Pervious Surfaces

Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Inspect/ check all inlets, outlets, inspection/access chamber, vents to ensure that they are in good condition and operating as designed. Inspect silt traps and note rate of sediment accumulation. Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually.
Occasional Maintenance	Remove sediment from pre-treatment structures	Annually, or as required.
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows, inspection/access chamber and vents.	As required

Table 9 Flow Controls

Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Inspect/check pipework to ensure that the flow control is in good condition and operating as designed. Inspect for evidence of poor operations.	Monthly, or as required.
Occasional Maintenance	High pressure water jet removal of silt build-up	Every 6 months, or as required.
Remedial Actions	Replace the flow control if it becomes damaged. Clear pipework of blockages.	As required

Table 10 Detention Basin and Swales

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove litter and debris. Cut grass – to retain grass height within specified design range. Inspect inlets, outlets and overflows for blockages, and clear if required. Inspect infiltration surface for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours. Inspect vegetation coverage. Inspect inlets and facility surface for silt accumulation, establish silt removal frequencies.	Monthly, or as required
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 basin treatment area
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding. Relevel uneven surfaces and reinstate design levels. Scarify and spike topsoil layer to improve infiltration performance, break up soil deposits and prevent compaction of the soil surface. Remove build-up of Sediment on upstream gravel trench, flow spreader or at top of filter strip. Remove and dispose of oils or petrol residues using safe standard practices.	As required

7. Conclusion

7.1. This FRA has been produced on behalf Baywa r.e. respect of a planning application Sedgeby Solar Farm, near Thormanby, North Yorkshire and has been prepared in accordance with the requirements set out in the National Planning Policy Framework and the associated Planning Practice Guidance.

7.2. The site is assessed to be at risk of flooding from the following sources:

- Fluvial - High
- Pluvial – Medium

7.3. The proposed development is identified as having the potential to alter flood risk downstream, should an appropriate drainage strategy not be implemented.

7.4. The Environment Agency have requested a bespoke hydraulic model for the site is undertaken at the appropriate juncture.

7.5. In order to mitigate the potential risks, the following mitigation is proposed:

- The site is to be sequentially arranged to locate vulnerable infrastructure (including the BESS, substation and inverters/transformers) outside of Flood Zones 2 and 3 where possible.
- Surface water flow paths through the Site will remain as exiting, with no major alterations in ground levels resulting in loss of flood storage, truncation of flow routes or cross catchment transfer.
- The height of the solar panels (minimum 0.8m elevation at the lowest point) will be elevated adequately above the ground so as to not impede surface water flow routes.
- Transformers will be elevated approximately 0.6m above ground level, whereby they will be removed from pluvial flood risk (identified to have depths of 0.2m-0.6m across the site).
- Based upon the currently available flood data, the solar PV modules located within the Flood Zone 2 extents will be elevated a minimum of 600mm above the corresponding design event flood level for that catchment area of the site, as detailed within and the Flood Risk Constraints Plan included in Appendix D. This will be updated to 300mm above the design event flood level following the bespoke hydraulic modelling exercise.
- Proposed impermeable surfaces will be minimised wherever possible. Existing access tracks will be reused, with any new access being formed of semi-pervious material.
- A surface water drainage strategy will be implemented to ensure the runoff rate from the site does not increase as a result of the Proposed Development. The surface water drainage strategy will be developed in line with the latest guidance and provide water quality management.

- One proposed temporary watercourse crossing is required for the construction phase. The watercourse crossing will be designed to maintain the current flow and capacity of the watercourse, minimising crossing length and in accordance with Water Framework Directive Assessment criteria.

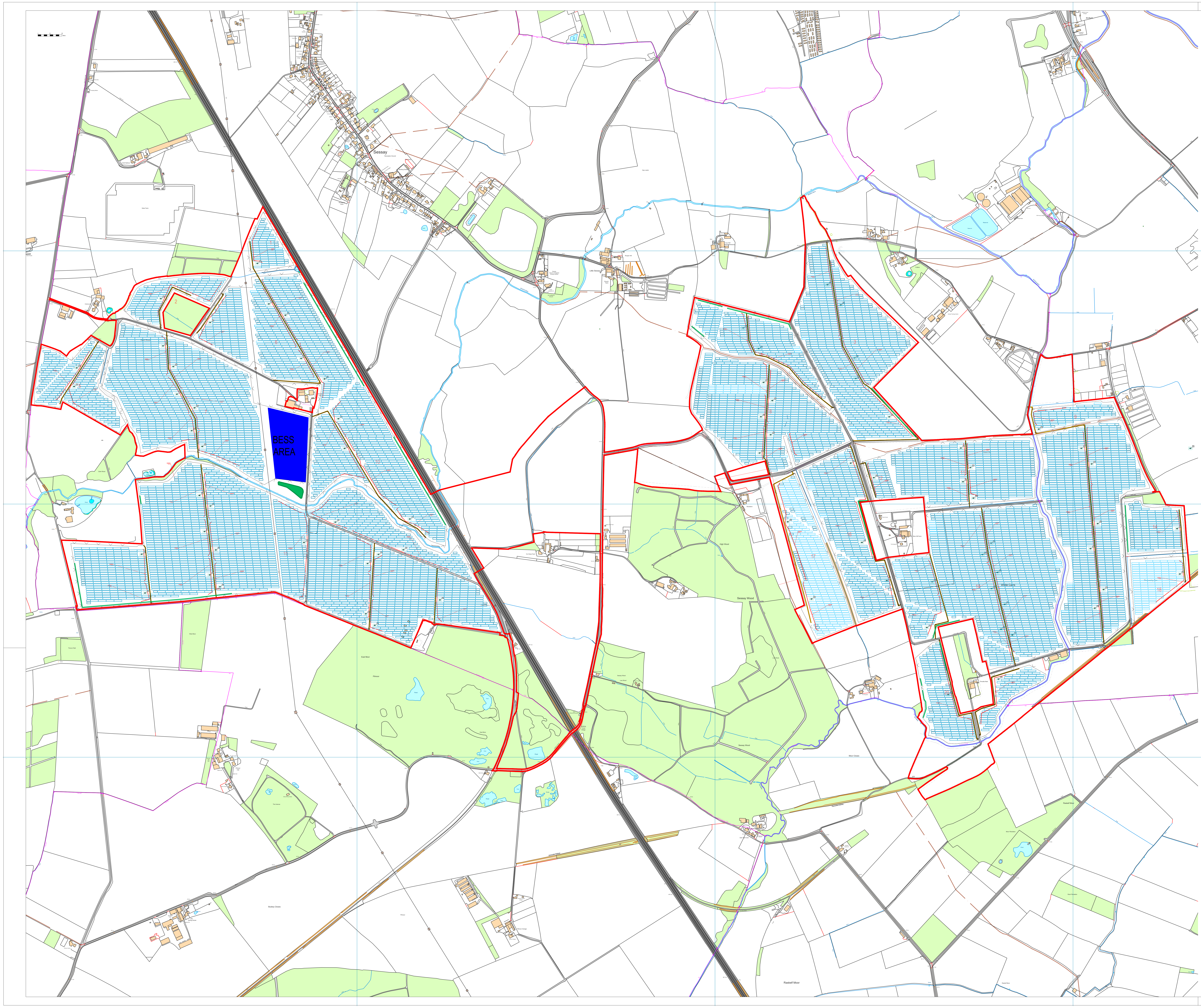
- A 10m buffer is proposed to all watercourses. This is greater than the minimum easement requested in the standard guidance of the Internal Drainage Boards and LLFA.

7.6. The drainage strategy should be further developed in accordance with the principals set out in this report once the layout (specifically for the BESS area) is known.

7.7. Subject to the recommended mitigation being implemented, the proposed development is at an acceptable level of flood risk and therefore the development can proceed without being subject to significant flood risk or increasing flood risk to the wider catchment area.

Appendices

Appendix A – Development Proposal



Technical Data

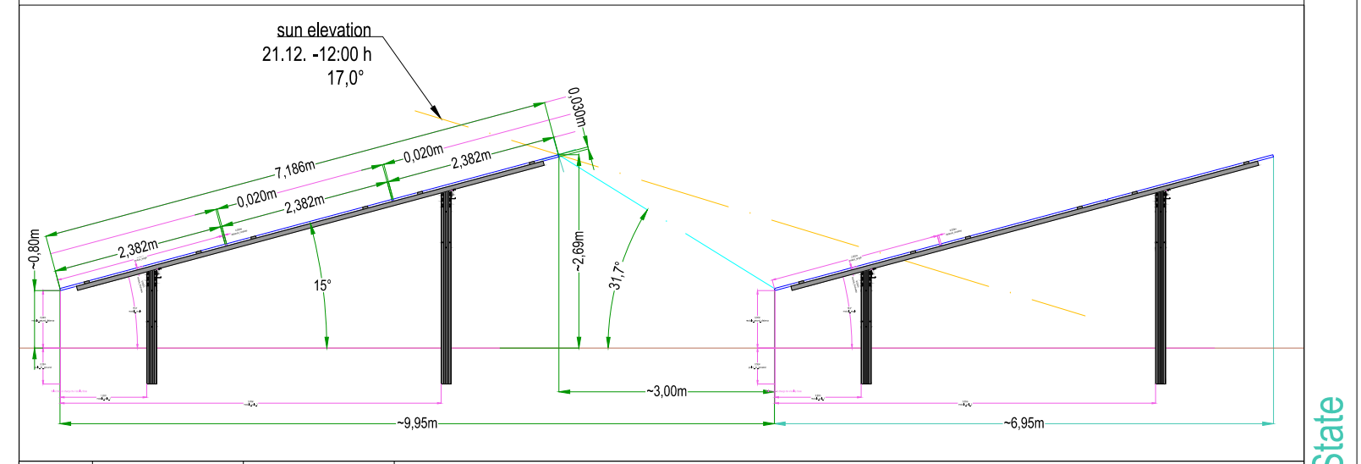
System type:	Fixed Tilt
Nominal DC-Power:	462 MWp
Nominal AC-Power:	349.44 MW
Maximum AC-Power:	390 MVA
Area (inside fence):	321 ha
Length of fence:	37010 m
Clearance between rows	
min.:	2.5 m
max.:	5 m
Field:	all fields
Module tilt angle:	15°
Module orientation (azimuth):	x° (south)
Module / Type:	Tongwei 630Wp
Size:	2.382 x 1.134 x 30 mm
Quantity:	733941
Inverter:	Sungrow SG350HX
Quantity:	24 strings with 28 modules
String connection:	x strings with x modules
Mounting system	
Manufacturer:	Zimmermann
Type:	3V - 3 pile

N
+90° -90°
0°

Legend:

▭	Module Unit
⌄ ⌄ ⌄ ⌄	fence
◠◠	gate (6m wide)
🟥	Inverter Installation Areas, At the end of the rows. Maximum 18 x 350HX per tranformer station
▬	gravel road 3,50 m width
Tx	transformer station

Note:
Layout has to be checked and eventually adapted to local requirements prior construction!



Index	Date	Name Editor	Modification / Adaptation of the drawing
j			
i			
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f			
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d			
c			
b			
a			

BayWa r.e.

BayWa r.e. Ireland Limited
Glandore | City Quarter | Lapp's Quay |
T12 Y3ET Cork
Tel: +35 321 2378 200 | www.baywa-re.com

Project:
Sedgeby
UK
PV Power Plant

Client:
BayWa r.e. Solar Project

	Date	Name
Drawn	18.08.2025	aar
Changed		
Checked	18.08.2025	sur

Planning Period: Permit
Scale: 1:5000
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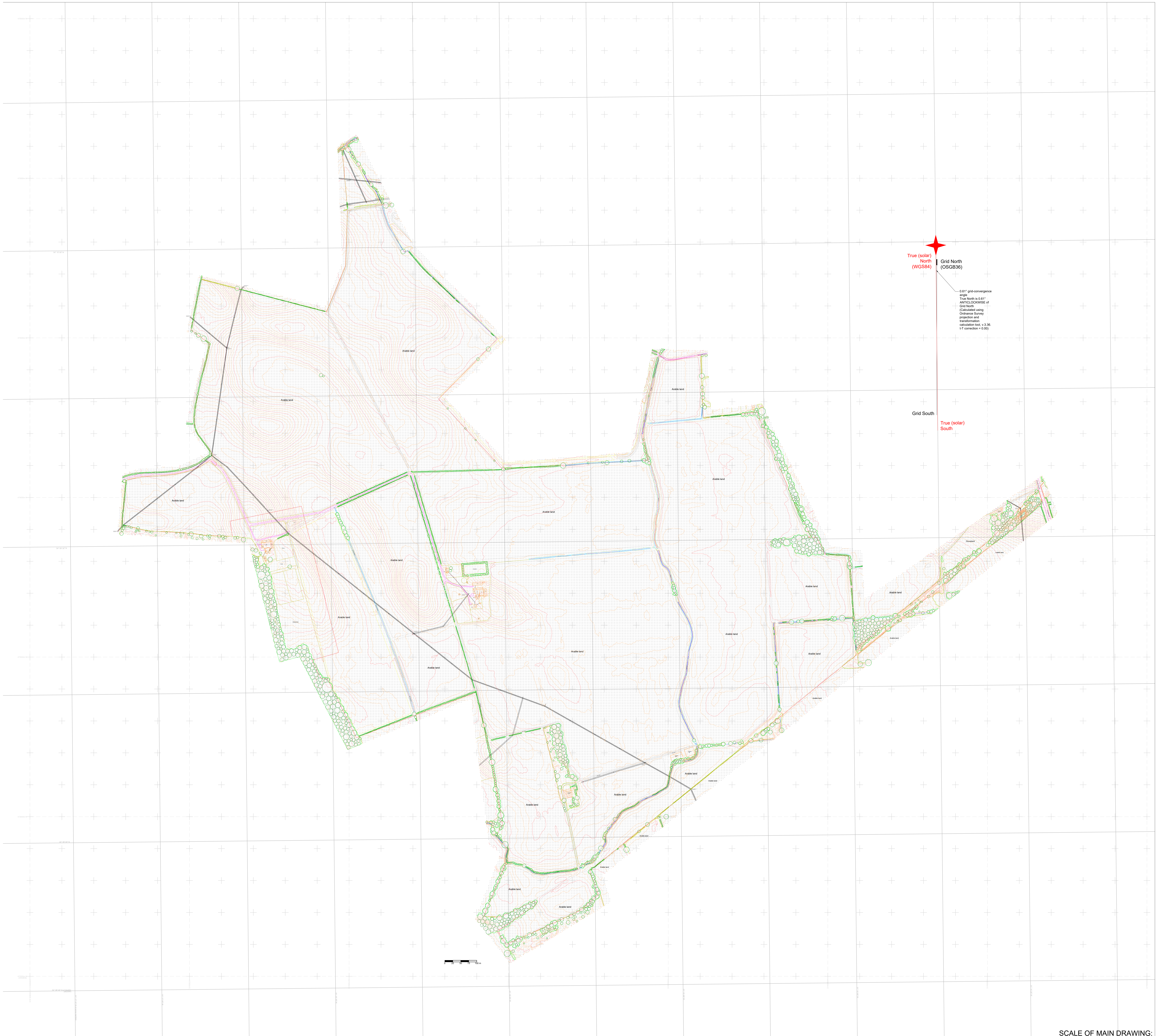
File Name: BWre24-THBY_PD.dwg
Format: A0

Select here to change the Visibility State

Appendix B – Topographical Survey



SCALE OF MAIN DRAWING:
1:4000 when printed 100% on A0
Do not scale from this plot. All dimensions to be checked on-site.

LEGEND

Tree canopy/hedgerow/foliage. Heights where given are to nearest meter.[1]

Tree shapes for use in *PVcase*. **These do not represent exact tree locations**, but rather, entities which will be automatically recognised and converted to appropriate shading elements by *PVcase*. Areas of forest are therefore filled with trees of appropriate height. Height to nearest meter.[1]

Water (dashed for apparent drainage feature or approx. path)

Sealed road

Unsealed track

Power-line (or other overhead line) with utility post

Fence, gate

Railway track

Public footpath/bridleway

Apparent field boundary (As seen from aerial survey. NOT official boundary.)

UAV mapping boundary (approx.)

Building or other permanent structure

Stone wall

ELEVATIONS

Elevation of point above vertical datum (see 'COORDINATE REFERENCE SYSTEM AND DATUM' at bottom).[2]

Contours (0.25 m) of digital surface model (dashed when over areas of obvious crop or vegetation).[3,4]

G.I.S. DATA

100m grid in OSGB36 map projection

LAT. LONG.	The specific lines of latitude and longitude which pass through the site are marked in degrees, minutes, seconds (WGS84).
NORTH	Grid North follows the direction of the North-South lines of the OSGB36 grid. True North follows lines of longitude, which converge on the axis of rotation of the Earth. True South points to the equator. The convergence angle (precision 2 d.p.) between Grid North and True North for this specific location is given. Magnetic North is not shown (but will be different again).

Third-party data

Site boundaries from client. Approx. public footpath routes from OS map.

NOTES

1. Heights of hedgerows and dense trees are marked alongside the foliage. All tree/hedge heights given are approximate heights above nearby ground, based on the Digital Surface Model.
2. It is important to note that this grid is from a Surface Model, not a Terrain Model, and therefore point-heights can only be interpreted as terrain when on areas of earth or hardstanding.
3. Likewise, the Contours are surface contours, not terrain contours, so should be interpreted carefully. Where contours are obviously not on earth or hardstanding, they are dashed.
4. Contours are generated from a subsampled (2.5m) terrain model to provide smooth but representative contour lines. Where contours cross trees, the path of the contour below the tree(s) is approximated.
5. Lat./long. lines are precisely calculated, but should be considered approximate because they represent a spherical coordinate system on a map projection. Locations and dimensions are accurate in the underlying map projection. But conversion of coordinates from the map projection to lat./long. (if required) should be performed using the appropriate transformation, not by inference from this plot.
6. Features hidden under dense vegetation (e.g. walls, fences) are only marked if visible from drone footage (or location otherwise provided or noted).

REVISIONS

1.0	13 Nov. 2023	Published to client [TAJC]

PROJECT

THORMANBY SOLAR LIMITED - UAV SURFACE TOPOGRAPHY
Project Thormanby Briar Hill in Yorkshire, U.K.

TITLE

THORMANBY BRIAR HILL
LINEWORK ("CAD") -

DETAILS

22 Chancery Lane, London, WC2A 1LS

above

Above Surveying Ltd.
Unit G Knowledge Gateway
Nesfield Road,
Colchester, CO4 3ZL, U.K.

T: +44 1206 483043
E: support@abovesurveying.com

LOCATION

Sessay (54.1573, -1.2659)

COORDINATE SYSTEM AND DATUM

OSGB36, British National Grid Map Projection (EPSG: 27700). Units: meters
Elevations relative to sea level as height in meters above Ordnance Datum Newlyn (ODN) (EPSG: 5101). Geoid model, OSGM15.

LEGEND

Height: 13m	Tree canopy/hedgerow/foliage. Heights where given are to nearest meter.[1]
HT 13m	Tree shapes for use in *PVcase*. **These do not represent exact tree locations**, but rather, entities which will be automatically recognised and converted to appropriate shading elements by *PVcase*. Areas of forest are therefore filled with trees of appropriate height. Height to nearest meter.[1]
	Water (dashed for apparent drainage feature or approx. path)
	Sealed road
	Unsealed track
	Power-line (or other overhead line) with utility post
	Fence, gate
	Railway track
	Public footpath/bridleway
	Apparent field boundary (As seen from aerial survey. NOT official boundary.)
	UAV mapping boundary (approx.)
	Building or other permanent structure
	Stone wall
	Pano Location Indicator
	GCP Location Indicator

ELEVATIONS

17.93m	Elevation of point above vertical datum (see 'COORDINATE REFERENCE SYSTEM AND DATUM' at bottom).[2]
155 m 154.75 m	Contours (0.25 m) of digital surface model (dashed when over areas of obvious crop or vegetation).[3,4]

G.I.S. DATA

	100m grid in OSGB36 map projection
LAT. LONG.	The specific lines of latitude and longitude which pass through the site are marked in degrees, minutes, seconds (WGS84).
NORTH	Grid North follows the direction of the North-South lines of the OSGB36 grid. True North follows lines of longitude, which converge on the axis of rotation of the Earth. True South points to the equator. The convergence angle (precision 2 d.p.) between Grid North and True North for this specific location is given. Magnetic North is not shown (but will be different again).

Third-party data

Site boundaries from client. Approx.

NOTES

1. Heights of buildings and other permanent structures are marked adjacent or within the structure. All structure heights given are approximate heights above nearby ground, based on the Digital Surface Model.
2. It is important to note that this grid is from a Ground Surface Model, not a Terrain Model, and therefore point-heights can only be interpreted as terrain when on areas of bare earth or hardstanding.
3. Likewise, the Contours are Ground Surface Contours, not terrain contours, so should be interpreted carefully.
4. Contours are generated from a subsampled (1m) Ground Surface Model to provide smooth but representative contour lines. Where contours cross trees, the path of the contour below the tree(s) is approximated.
5. Lat./long. lines are precisely calculated, but should be considered approximate because they represent a spherical coordinate system on a map projection. Locations and dimensions are accurate in the underlying map projection. But conversion of coordinates from the map projection to lat./long. (if required) should be performed using the appropriate transformation, not by inference from this plot.
6. Features hidden under dense vegetation (e.g. walls, fences) are only marked if visible from drone footage (or location otherwise provided or noted).
7. Drone photogrammetry only allows the delivery of a surface model. Terrain which is obscured by trees, crops or other vegetation cannot be visualised, therefore the elevation given in this context will be the top of said vegetation. Wherever the ground can be seen (e.g. through sparse vegetation), the surface will be the true terrain.

REVISIONS

1.0	10th March 2025	Published to client [JCW]
2.0	7th May 2025	Published to client [JCW]

PROJECT

BayWa r.e. UK Limited - UAV SURFACE TOPOGRAPHY
Thormanby additional area Project in York, UK.

TITLE

THORMANBY LINEWORK ("CAD")

DETAILS

BayWa r.e. UK Limited, Suite 3/1, 58 Waterloo Street,
Glasgow, G2 7DA (Ailsa Gray)

Above Surveying Ltd.
Unit G Knowledge Gateway
Nesfield Road,
Colchester, CO4 3ZL, U.K.

T: +44 1206 483043
E: support@abovesurveying.com

LOCATION

Blind Piece Ln, Thirsk YO7 3NP (54.162986, -1.320610)

COORDINATE SYSTEM AND DATUM

OSGB36, British National Grid Map Projection (EPSG: 27700).
Elevations relative to sea level as height in meters above Ordnance Datum Newlyn (ODN) (EPSG: 5701). Geoid model, OSGM15.

SCALE OF MAIN DRAWING:
1:4000 when printed 100% on A0
Do not scale from this plot. All dimensions to be checked on-site.

Appendix C – Yorkshire Water Sewer Records

YORKSHIRE WATER
PROTECTION OF MAINS AND SERVICES

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the ***general*** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline on 0345 124 24 24 for both water and sewerage.

2. The public sewer and water network is lawfully retained in its existing position and the sewerage and water undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful. The provisions contained in Section 185 of the Water Industry Act 1991 state that where it is reasonable to do so, a person may require the water supply undertaker to alter or remove a pipe where it is necessary to enable that person to carry out a proposed change of use of the land. The provisions contained in Section 185 also require the person making the request to pay the full cost of carrying out the necessary works.

3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will ***generally*** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense. Water mains and services will ***generally*** be laid with a minimum of 750mm depth of cover however some mains and services usually those installed over 50 years ago may have less ground cover.

4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.

5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45o and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter *(see illustration below).* Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.

6. All excavation works near to YW apparatus should be by hand digging only.

7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.

8. Adequate support must be provided where any works pass under YW apparatus.

9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.

10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0345 124 24 24.

11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.

12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.

13. ***Under no circumstances*** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.

14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works).

15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.

16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.

17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available*" should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.

18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011.

Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).

19. Please note that the information supplied on the enclosed plans is reproduced from Ordnance Survey material with the permission of the Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence Number AC0000857457.

20. This information is for guidance only and the position and depth of any YW apparatus is approximate only. Likewise, the nature and condition of any YW apparatus cannot be guaranteed. YW has no responsibility for recording the locations of privately owned apparatus. As of 1 October 2011, there may be some lateral drains and/or public sewers which are not documented on YW records but may still be present. For the avoidance of doubt, this information is not a substitute for appropriate professional and/or legal advice. YW accepts no responsibility for any inaccuracy or omissions in this information. The actual position of YW apparatus must be determined on site by excavating trail holes by hand. YW requires a minimum of two working days’ written notice of the intention to excavate any trial holes before any excavation can be undertaken. If there are any queries in this respect please contact Yorkshire Water on 0345 124 24 24.

Property Identfier

▭ or ✚

Sewer Legend

- → Combined Sewer
- ⇢ Surface Water Sewer
- ⇢ Foul Sewer
- ⇢ Section 104 Sewer
- ⇾ Overflow Sewer
- ● Manhole
- ▲ Pumping Station
- ⇾ S24 Combined Sewer
- ⇾ S24 Surface Water Sewer
- ⇾ S24 Foul Sewer
- → Rising Main
- ⇢ Abandoned Sewer
- → Syphone Sewer & Vacuum Sewer
- STW Public Sewer Tretment Works

Please note that the direction of flow arrows may not always appear depending on the scale of the map.

Water Legend

- — Water Main 4" and below
- — Water Main 4" and above
- — Raw Water Main
- — Private Water Main
- Ⓗ Fire Hydrant
- ▲ Pumping Station
- NAV The assets in this area are the responsibility of another Water Undertaker

445935 : 472818	Map Name : SE4371SE	Title

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
Sarah Chamberlain
Contact Tel :

Notes

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Partial Key

Water mains up to 4" in diameter	🟥
Water mains over 4" in diameter	🟦
Raw water mains	▬
Private water mains	🟩

The position and depths of apparatus shown on this plan are approximate only. The exact positions and depths should be obtained by excavation trial holes.

Scale :	1:5000
Drg No :	Maris No :
Date Req : 28/08/2025, 11:53:07	Date Gen : 28/08/2025, 11:53:14
Source : Water Network Enquiry	

UPN: Undefined Originator: Sarah Chamberlain, SafeMove,

5

445939 : 472818

Map Name : SE4371SE

Title

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
Sarah Chamberlain
Contact Tel :

Notes

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Partial Key

Foul Sewer = F
Combined Sewer = C
Surface Water Sewer = SW
Trade Sewer = TD
Partially Separate = PS

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.

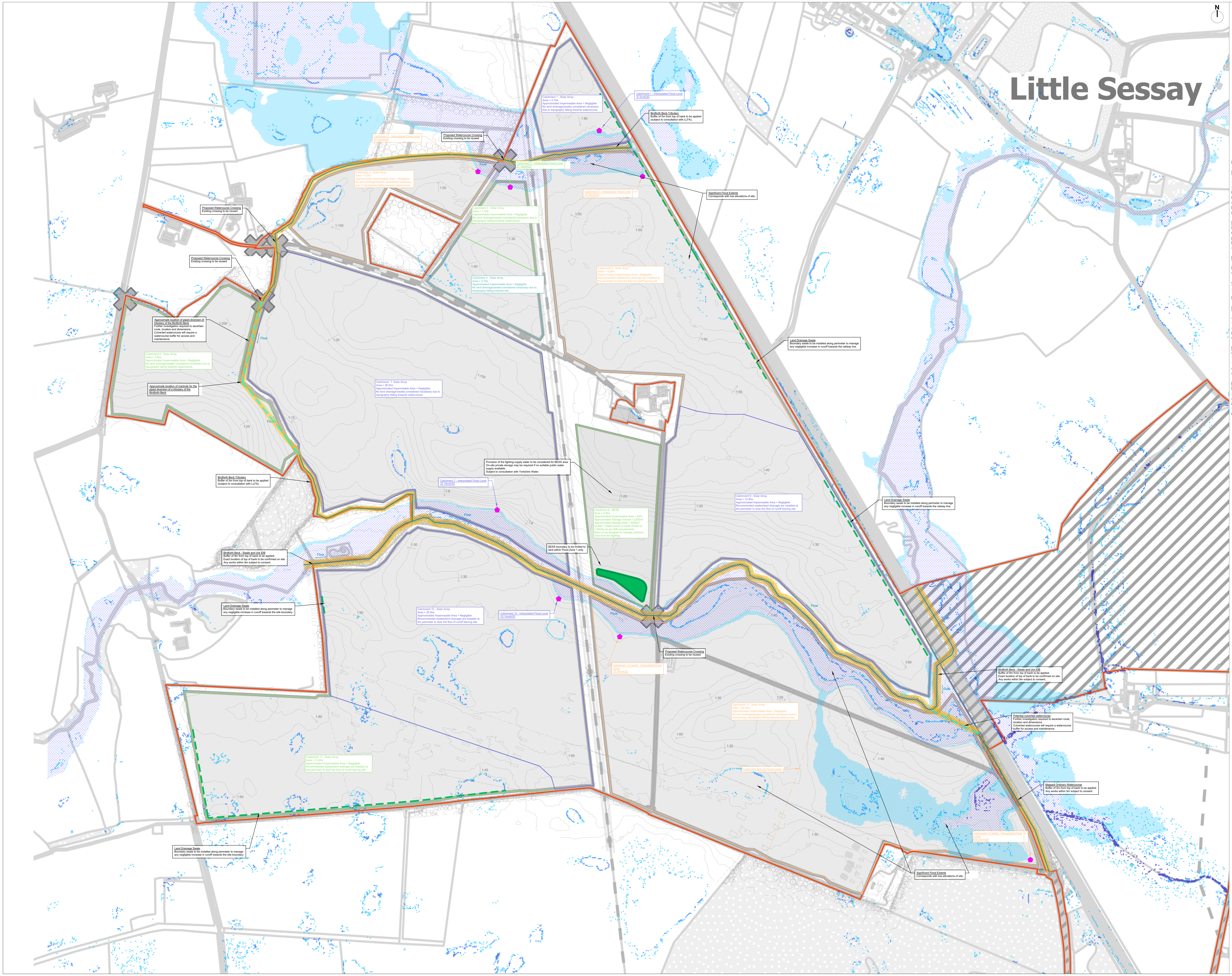
Date Req : 28/08/2025, 11:50:09

Date Gen : 28/08/2025, 11:50:34

Source : Sewer Network Enquiry

UPN: Undefined Originator: Sarah Chamberlain, SafeMove,

Appendix D – Flood Risk and Drainage Constraints Plan



Catchment 1 - Solar Array
Area = 2.7ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards watercourse.

Catchment 1 - Interpolated Flood Level
27.5mAOD

Catchment 2 - Solar Array
Area = 4.3ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards watercourse.

Catchment 2 - Interpolated Flood Level
27.22mAOD

Catchment 3 - Solar Array
Area = 1.7ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards watercourse.

Catchment 3 - Interpolated Flood Level
27.18mAOD

Catchment 4 - Solar Array
Area = 2.7ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards site.

Catchment 5 - Solar Array
Area = 15.8ha
Approximated Impermeable Area = Negligible
Recommended swales/land drainage are installed at the perimeter to slow the flow of runoff leaving site.

Catchment 5 - Interpolated Flood Level
27.30mAOD

Catchment 6 - Solar Array
Area = 7.6ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards watercourse.

Catchment 7- Solar Array
Area = 26.5ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to topography falling towards watercourse.

Catchment 7 - Interpolated Flood Level
22.19mAOD

Catchment 8 - BESS
Area = 4.9ha
Approximated Impermeable Area = 60%
Approximated Storage Volume = 2200m³
Approximated Storage Area = 3000m²
Outfall = Watercourse to south limited to 1.4l/s/ha as per IDB requirements.
Basin to be designed to manage pollution risks from fire fighting.

Catchment 9 - Solar Array
Area = 15.8ha
Approximated Impermeable Area = Negligible
Recommended swales/land drainage are installed at the perimeter to slow the flow of runoff leaving site.

Catchment 10 - Solar Array
Area = 30.4ha
Approximated Impermeable Area = Negligible
Recommended swales/land drainage are installed at the perimeter to slow the flow of runoff leaving site.

Catchment 10 - Interpolated Flood Level
23.14mAOD

Catchment 11 - Solar Array
Area = 13.4ha
Approximated Impermeable Area = Negligible
Recommended swales/land drainage are installed at the perimeter to slow the flow of runoff leaving site.

Catchment 12 - Solar Array
Area = 35.5ha
Approximated Impermeable Area = Negligible
No land drainage/swales considered necessary due to overarching topography falling towards watercourse.

Catchment 12 (west) - Interpolated Flood Level
23.20mAOD

Catchment 12 (east) - Interpolated Flood Level
24.42mAOD

Catchment Split for Flood Levels

Proposed Watercourse Crossing
Existing crossing to be reused

Birdforth Beck Tributary
Buffer of 5m from top of bank to be applied (subject to consultation with LLFA).

Significant Flood Extents
Corresponds with low elevations of site.

Approximate location of piped diversion of tributary of the Birdforth Beck
Further investigation required to ascertain route, location and dimensions.
Culverted watercourse will require a watercourse buffer for access and maintenance.

Approximate location of manhole for the piped diversion of a tributary of the Birdforth Beck

Provision of fire fighting supply water to be considered for BESS area.
On-site private storage may be required if no suitable public water supply available.
Subject to consultation with Yorkshire Water.

BESS boundary to be limited to land within Flood Zone 1 only.

Land Drainage Swale
Boundary swale to be installed along perimeter to manage any negligible increase in runoff towards the railway line.

Land Drainage Swale
Boundary swale to be installed along perimeter to manage any negligible increase in runoff towards the site boundary.

Birdforth Beck - Swale and Ure IDB
Buffer of 9m from top of bank to be applied.
Exact location of top of bank to be confirmed on site.
Any works within 9m subject to consent.

Potential culverted watercourse
Further investigation required to ascertain route, location and dimensions.
Culverted watercourse will require a watercourse buffer for access and maintenance.

Mapped Ordinary Watercourse
Buffer of 5m from top of bank to be applied.
Any works within 5m subject to consent.

1:2500 0 100m 250m

Legend:

▬	Site Boundary
▨	Flood Zone 2
▨	Flood Zone 3
▭	Risk of Flooding from Surface Water - Low
■	Risk of Flooding from Surface Water - Medium
■	Risk of Flooding from Surface Water - High
▬	Ordinary Watercourses
- - -	Potentially Culverted Watercourses
■	Watercourse Buffer
- - -	Proposed Indicative Swales
▬	Proposed Indicative Detention Basin
⬟	Interpolated Flood Level

Notes:

Flood Zone 2 and 3:
All proposed infrastructure to be located outside of Flood Zone 2 and 3 wherever possible.
Solar panels will be elevated a minimum of 0.8m (at their lowest point) and will be designed so that they are elevated adequately above the ground as to not impede on surface flow routes. Panels located within Flood Zones 2 will be elevated at least 600mm above the interpolated flood level. Transformers are to be elevated approximately 0.6m above ground level, whereby they will be removed from pluvial flood risk.

Isolated Surface Water Pooling:
Isolated areas of surface water pooling are present across the site as a result of minor topographical depressions, to be managed as per existing scenario by planting with appropriate native vegetation and allowing to infiltrate/evaporate. Layout to be sequentially arranged to locate more vulnerable infrastructure outside of topographical depressions.

Existing Access Tracks:
All access tracks to drain as per existing condition.
Pollution and silt management to be installed along existing access tracks during construction phase.

Gradients and Buffers:
All gradients shown are approximate.
The top of bank location of each identified watercourse from which the 10m buffer will be set is to be determined on site.

Infiltration:
The proposed drainage strategy should be determined in accordance with the drainage heirarchy. However, the bedrock geology of the site is mudstone and therefore infiltration is unlikely to prove viable. Therefore a watercourse outfall should be sought, in line with the drainage hierarchy. The requirement for infiltration testing should be confirmed with the LLFA (North Yorkshire County Council).

Proximity to Other Sensitive Receptors:
Catchment 12 is located adjacent to the Pilmoor SSSI (a lowland fen). Topography within Catchment 12 falls toward the Birdforth Beck and is topographically lower than the fen, therefore runoff from the development is not expected to have any adverse hydrological impacts on the fen. This should be confirmed via site specific groundwater monitoring.

BESS:
Runoff from impermeable surfaces within the BESS area to be managed via an above ground detention basin, designed to accommodate the 100 year plus 30% climate change flood event, with appropriate freeboard to allow for firefighting runoff. Discharge rate to be limited to 1.4l/s/ha prior to discharge to the watercourse, in accordance with IDB requirements. Detention basin to incorporate automatic valve for cutoff of polluted water following fire events.

REV	DATE	DESCRIPTION	REVISED	CHECKED	APPROVED
R03	10/10/2025	Updated Watercourse Features	MG	CT	CT
R02	10/09/2025	Updated Layout	MG	CT	CT
R01	04/08/2025	First issue	MG	CT	CT

Flood Risk and Drainage Constraints Plan

Thormanby Solar
North Yorkshire

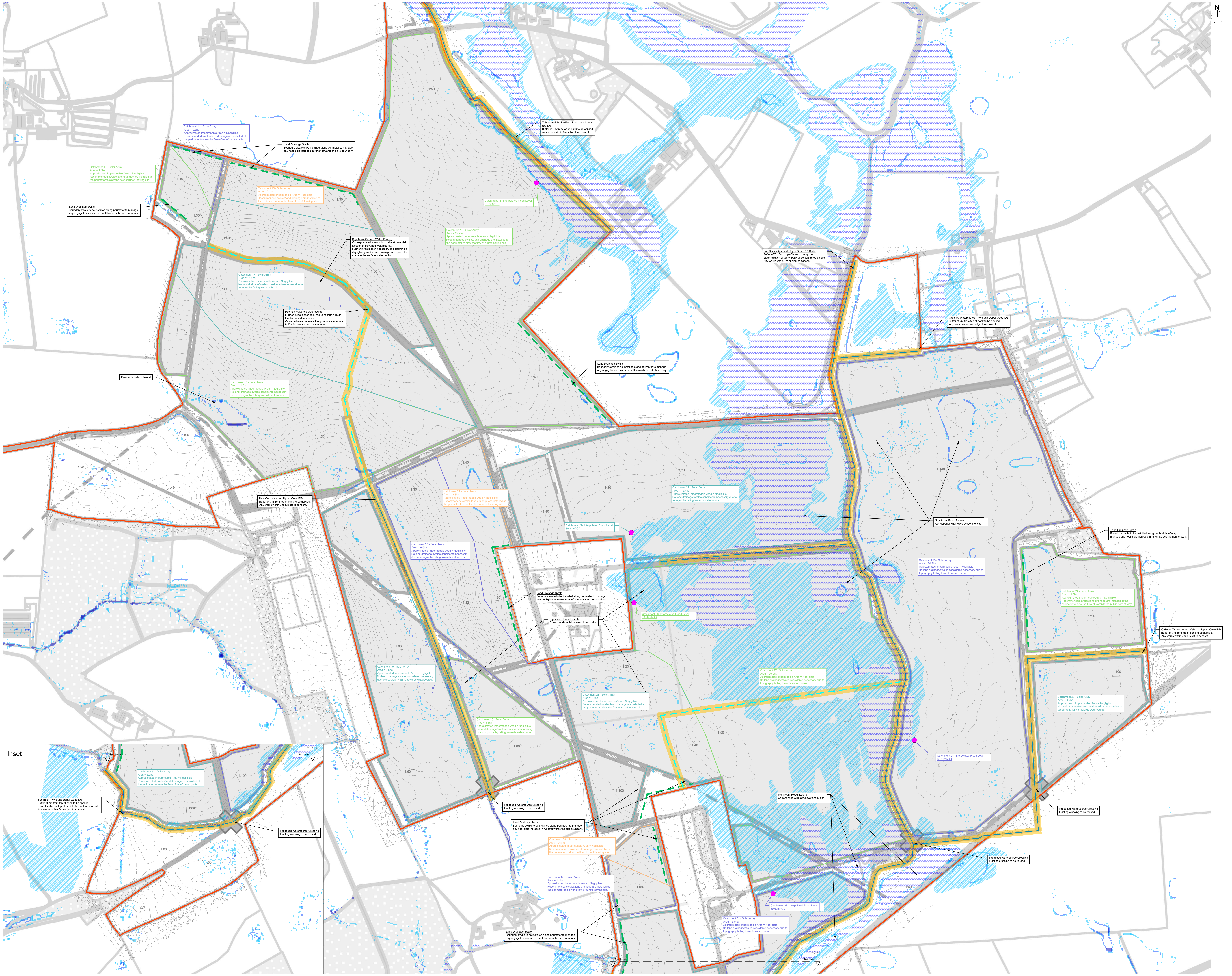
CLIENT:
BayWa R.E

DATE: 10/10/2025
SCALE: 1:2500 @ A0
DRAWN BY: MG
CHECKED BY: CT
APPROVED BY: CT

DRAWING NUMBER: P250590 - PEG - XX - XX - DR - C - 0001 -R03
PG OFFICE / TEAM: CIR/IN

PEGASUS REF No: P25-0590
DRAWING STATUS: S2

PEGASUS GROUP



1:2500 0 100m 250m

Legend:

━	Site Boundary
▨	Flood Zone 2
▨	Flood Zone 3
■	Risk of Flooding from Surface Water - Low
■	Risk of Flooding from Surface Water - Medium
■	Risk of Flooding from Surface Water - High
━	Ordinary Watercourses
- - -	Potentially Culverted Watercourses
■	Watercourse Buffer
- - -	Proposed Indicative Swales
⬟	Interpolated Flood Level

Notes:

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REV	DATE	DESCRIPTION	REVISED	CHECKED	APPROVED
R03	10/10/2025	Updated Watercourse Features	MG	CT	CT
R02	10/09/2025	Updated Layout	MG	CT	CT
R01	04/08/2025	First issue	MG	CT	CT

Flood Risk and Drainage Constraints Plan

Thormanby Solar
North Yorkshire

CLIENT:
BayWa R.E

DATE:
10/10/2025

SCALE:
1:2500 @ A0

DRAWN BY: MG
CHECKED BY: CT
APPROVED BY: CT

DRAWING NUMBER:
P250590 - PEG - XX - XX - DR - C - 0002 - R03

PG OFFICE / TEAM:
CIR/IN

PEGASUS REF No:
P25-0590

DRAWING STATUS
S2

PEGASUS GROUP

Appendix E – Yorkshire Water Pre-Development Enquiry

Sdf

Pegasus Group
33 Sheep Street
Cirencester
GL7 1RQ

16 October 2025

Developer Services
Yorkshire Water
PO Box 52
Bradford
BD3 7YD

T 0345 1 20 84 82 (Option 2)
Opening hours: 8am-5pm Monday to Friday
Closed weekends and bank holidays
E newmains@yorkshirewater.co.uk
W www.yorkshirewater.com/developers/

Ref: X067334

Dear Maisie,

Pre-planning report for: BESS Site, Thornmanby, Sessay, North Yorkshire, YO7 3NW

Thank you for your recent pre-planning enquiry about the above site. We've assessed our ability to supply water to your site based on your expected development parameters and the information you provided. You can find our report on the back of this letter.

Our assessment is based on current information but, just so you know, any need for mains reinforcement or asset protection is subject to demand on the local water network, which could change between now and when you apply for your water supply.

Please find attached a copy of our local public mains records. Keep in mind that these records show our water mains but not any private pipework that might be nearby. Please be careful when digging near any apparatus, whether it's publicly or privately owned.

When you're ready to get your new water supply, you can apply online or download a printable form at **yorkshirewater.com/developers/water/water-connections/**.

To check the water hardness in your area, please visit **yorkshirewater.com/your-water/water-hardness/**.

If you have any questions, don't hesitate to give us a call on **0345 1 20 84 82 (Option 2)**, quoting reference number **X067334**. We'll be happy to help.

Yours sincerely,

Chelsey Nodder

Sdf

This report is valid for 1 year from the date of this letter

Please note: if your pre-planning report expires, you can email or call us using the contact details listed on this letter to request a renewal. You'll be charged an application fee, which is a 20% reduction off the initial enquiry fee. If there are any changes to your requirements, you'll need to submit a new pre-planning enquiry and pay the full application fee.

Feedback has been issued from our Network Engineer Oliver Beal.

1. Supplying water to the development site

We can provide water to your development site from the 9-inch cast iron at Main Street, grid ref 446022.31 , 474981.58.

At present the developer would be required to bring a large diameter main to the 9 inch cast iron at grid ref 446022.31 474981.58 this is aproximatly 1km from the proposed site, this main laid by and funded by the developer must be fitted with an isolating valve and meter ; in addition, the supply pipe must be fitted with an 'approved' backflow prevention device (Non-return valve - NRV) at the highway boundary of sessay to little sessay road

Special engineering difficulties or technical restraints

If the customer's fire-fighting system is connected directly to Yorkshire Water's mains water supply or relies upon the rate of inflow to a water storage facility for the purpose of its operation, then the following shall apply:

i. Yorkshire Water is unable to always supply water:
* at a particular or constant pressure or flow.
* constantly and without interruption.
*Yorkshire water do not guarantee any particular flows or pressures for the purposes of firefighting.

ii. The system owner therefore:
* accepts responsibility for ensuring that the system can operate effectively by accommodating changes in pressure and flow, and interruptions to supply.
* shall discharge all claims made by any person in respect of any liability which arises from or is in any way connected with the operation or failure of the system or which results from any of the contingencies mentioned in paragraph i. above.
* shall indemnify Yorkshire Water in full on demand for all losses and expenses incurred by it arising or in any way connected with such liability.

An alternative consideration is for the customer to have a fire-fighting system fed from a stored

water facility with sufficient capacity to operate the system at design flows and periods required by relevant British or European standards.
In addition to the above information on YW not being able to guarantee any specific flow for firefighting, numerous issues with a supply of this size, a POC for the private fire fighting supply can be granted from the 9 inch cast iron at grid ref 446022.31 474981.58.

modelling indicates that the requested flows should be available under normal network operations, please note one issue with this is that a rezone is often carried out between this DMA being supplied from the current SRE (normal operation) to a SRE in an adjacent area, this is done primarily in response to unplanned outages at a nearby WTW and is a business critical operation to maintain supplies across the region. If this rezone was in place when the fire fighting flows were required the flows would be much less, and nowhere near the requested amounts. if this risk is not satisfactory to the applicant the only solution would be to bring the private supply all the way to the area boundary, an additional 3km away.

The current POC from the 9 inch CI main in Sessay is 1km from the development site, and the route required for the supply has additional engineering difficulties and legal ones, as this is a private supply YW do not have authority to lay supply pipes on private, so this would be for the developer to liaise with the landowners of the supply route. Also, this route would involve going under the train tracks (looks to be 4 railway lines aprox 32m wide) which would add significant expense to the scheme.

The only route to avoid private supply crossing the railway would involve YW reinforcement of 1km of 6 inch CI main to bring it upto 225mm, (also crossing the railway line) the private supply being 2.5km to the development site.

I can only conclude that the location proposed is not viable for a connection for the requested flows due to the reasons detailed above.

2. Mains reinforcement and/or diversion work needed

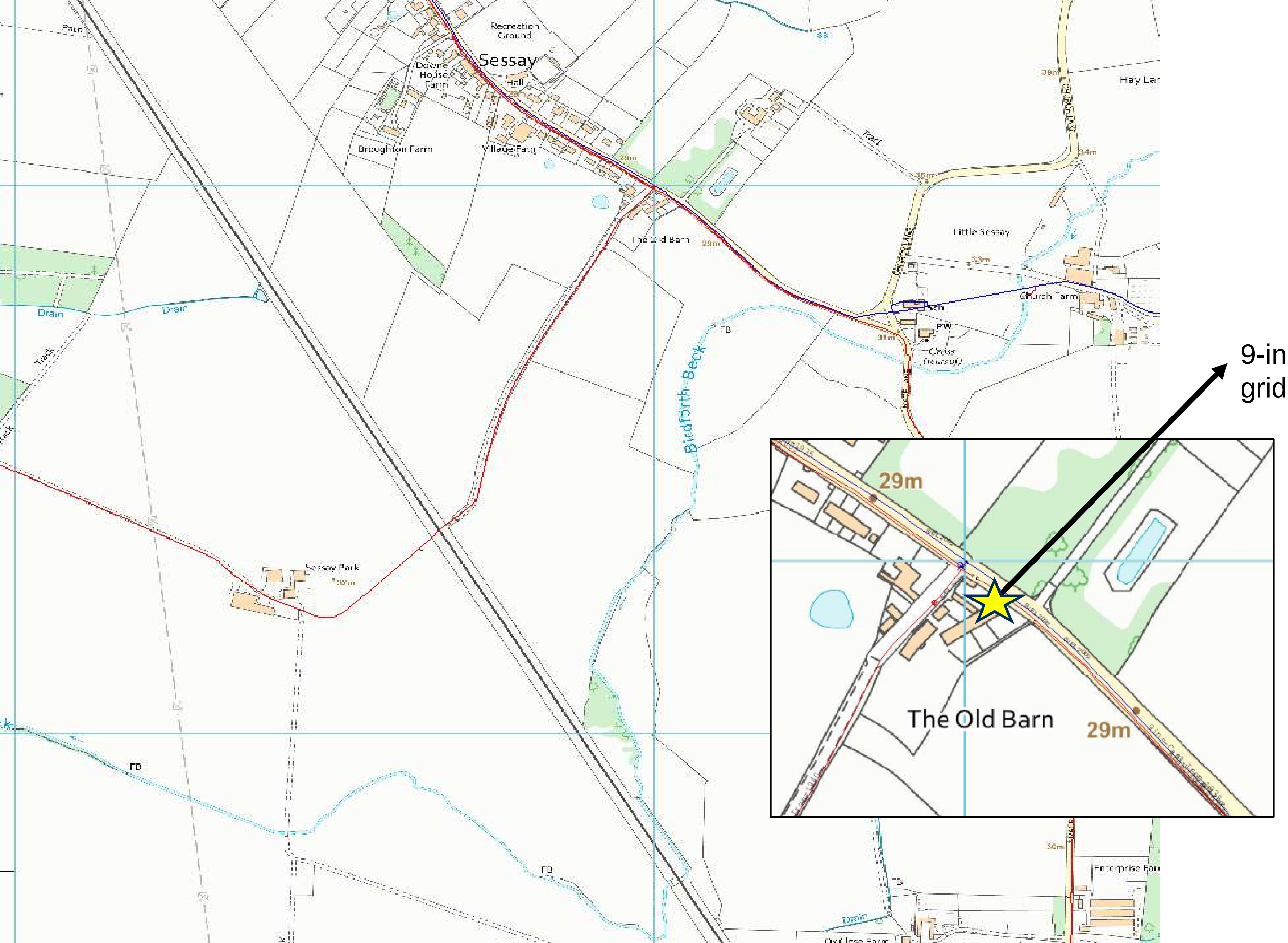
There are no mains reinforcements or diversion works needed to support your development.

3. How the development can be fed (i.e. by gravity or pumps/storage)

This development can be supplied by gravity.

Pre Planning Enquiry

X067334 - BESS Site, Thornmanby, Sessay, North Yorkshire, YO7 3NW



9-inch cast iron at
grid ref 446022.31 , 474981.58

The position and depth of apparatus shown on the plan are approximate only.

Exact positions and depths should be obtained by performing trial holes.

Appendix F – Environment Agency Consultation Meeting Note

MEETING NOTE

PROJECT
35125

SITE
Sedgeby Solar Farm

PURPOSE OF MEETING
Discussion with the Environment Agency

LOCATION
Microsoft Teams

DATE
19th November 25

TIME
10am

ATTENDEES

LL	Liz Locke	Environment Agency
SL	Sacha Lavers	Environment Agency
RF	Rachel Forbes	BayWa
CM	Connie McKay	BayWa
CT	Catherine Thorpe	Pegasus
TS	Tim Spicer	DHA
DH	David Harvey	DHA

MINUTES

1 Key Actions

1.1 EA to send guidance on hydraulic modelling to the Applicant.

1.2 The Applicant to scope and agree the approach to hydraulic modelling with the EA in due course.

1.3 Follow up meetings to be arranged (Applicant).

2 Context

2.1 Having had regard to PINS guidance, it is proposed to scope out flood risk from the ES. A draft FRA and Scoping Text has been sent to the EA.

2.2 The EA have reviewed that information and SL confirmed that there is not significant concern in this case regarding flooding and that the approach taken in the FRA is as expected.

2.3 The EA confirmed that data and the necessary detailed hydraulic modelling would still be required to assess flood risk from the watercourses present across the site. They do not in this case allow for interpolation from the FZ2 position due to the scale of the project and its NSIP status. That is EA internal policy but not published anywhere.

2.4 The EA will send guidance on hydraulic modelling to the Applicant team **[EA]**. It was suggested that the scope of the modelling be agreed between the Applicant and EA before that is undertaken.

2.5 The EA noted that there are updated flood maps for planning which take account of climate change – those need to be included in the FRA.

2.6 A climate change scenario of 40 year life expectancy, 25% climate change, using the 2080 epoch should be used. However a 55% credible maximum should also be assessed – not in respect of the design but in order to assess interaction with other scenarios.

2.7 Safe access and egress – the EA would expect that to be mapped.

2.8 The EA expect a sequential approach to be taken to the layout of the site, and a clear justification provided for works in Flood Zones 2 and 3. For development in Flood Zones, a 300mm above 100 year + climate change design should be used.

2.9 The Applicant team noted that some onsite watercourses had been culverted. The EA confirmed that this was a matter for the LLFA. One temporary crossing is proposed but at present no additional permanent crossings – albeit that is subject to further assessment and design work.

2.10 WFD – the EA confirmed that they would be looking for consideration of this and a Screening Assessment could be used. Water quality impacts also need to be considered. The EA confirmed they would provide a response on this point at Scoping.

2.11 SSSI – the Applicant explained that there were no water interactions expected between from the proposed development to the SSSI. The EA confirmed that would need specialist internal EA input.

2.12 The Applicant and the EA agreed that regular catch up meetings would be useful.

PEGASUS GROUP

Cirencester
33 Sheep Street, Cirencester,
Gloucestershire, GL7 1RQ
T 01285 641717
E Cirencester@pegasusgroup.co.uk
Offices throughout the UK

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