THE DROVES
SOLAR FARM

The Droves Solar Farm

Appendix 12.3: Water Framework Directive Assessment (Clean)

Prepared by: Raincloud Consulting
Date: June 2026
PINS reference: EN0110013
Document reference: APP/6.4.1 (Revision 1)
APFP Regulation Reg 5(2)(a)
Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

List of Contents

List of Tables

List of Plates

List of Appendices

12 Water Framework Directive

12.1 Introduction

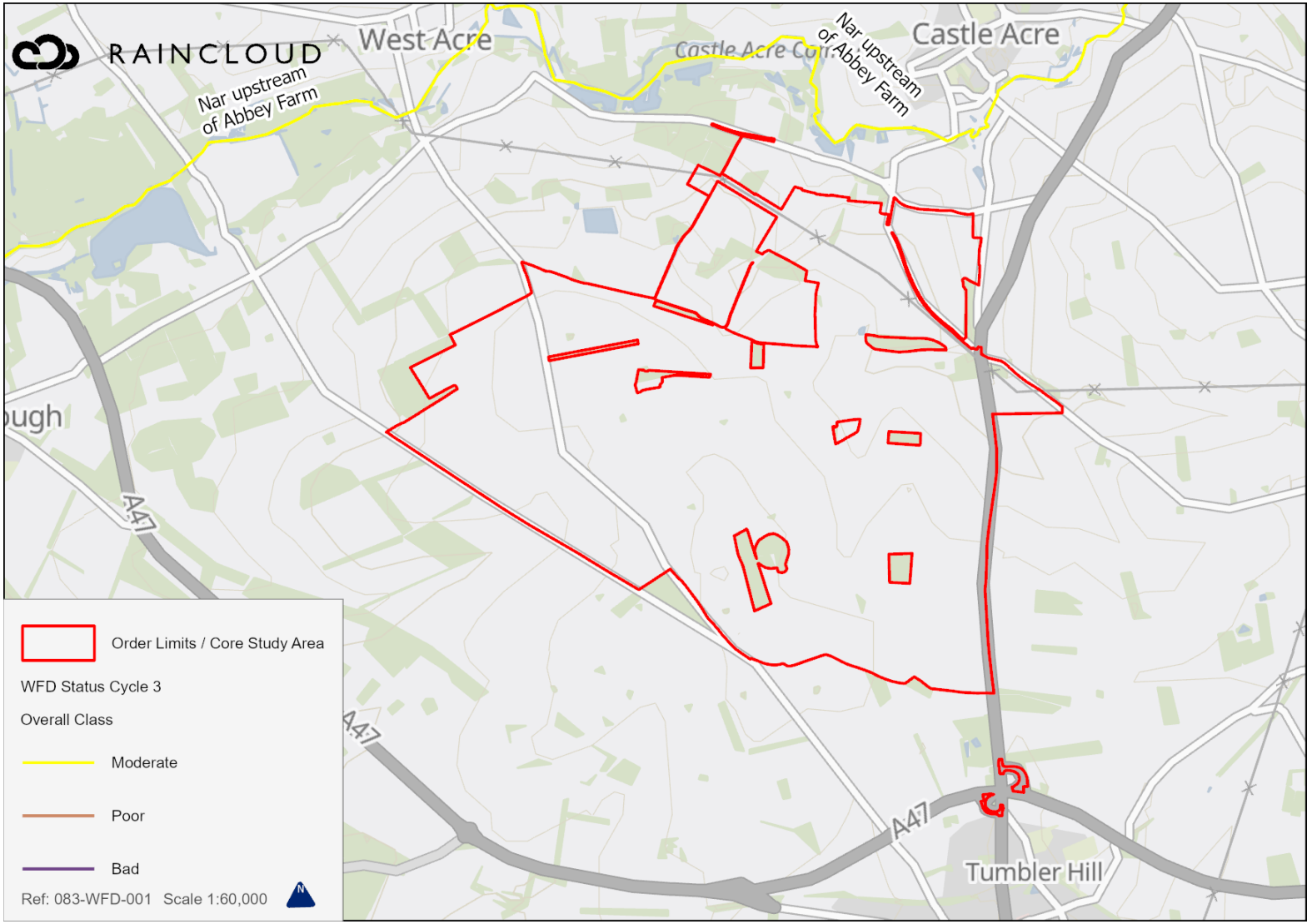
12.1.1 Raincloud Consulting Ltd (Raincloud) has been commissioned by The Droves Solar Farm Limited (the Applicant) to produce a Water Framework Directive (WFD) Assessment for The Drover Solar Farm (the Scheme).

12.1.2 The purpose of this assessment is to identify the WFD water bodies with either direct or indirect connectivity to the Order limits which could be affected by the Scheme and to assess if the Scheme will be compliant with the objectives of the WFD. The Core Study Area (CSA) for the assessment is defined as the Order limits.

12.1.3 The WFD surface waterbodies in relation to the Scheme are shown in Plate 12-1 and in Annex A of this report.

12.1.4 This document has been updated at Deadline 2 to update references to Plates 3 and 4 and to improve clarity. The document references have not been updated from the original submission. Please refer to the **Guide to the Application [APP/1.3.3]** for the list of current versions of documents.

Plate 12-1: WFD Waterbodies in proximity to the Scheme – Cycle 3



12.2 WFD Assessment

12.2.1 The Scheme is mostly located within the primary catchment of the River Nar.

12.2.2 The southern section of the CSA is located within the Old Carr Stream catchment, while the southern section of the CSA is located in the Gadder catchment. No waterbodies are located within these catchments meaning there is no obvious hydrological connection to the Scheme.

12.2.3 This assessment is based on the source-pathway-receptor model and identifies the potential pollutant linkages between the sources identified in the screening process on the receptors identified in the scoping process.

12.2.4 This assessment considers the potential for the Scheme to have a negative adverse effect on the water quality of the identified WFD water bodies only.

12.2.5 The assessment is desk-based and the sources of information used to inform each stage of the assessment are outlined in the following Sections.

Screening

12.2.6 The screening procedure identifies the potential sources of pollution which could cause deterioration in water quality of the WFD water body. Activities and components related to the Scheme which could be a source of pollution are identified and those which are not considered to cause effect to water quality are 'screened out'. All other activities which are considered to have potential to cause effect are 'screened-in' and considered in the scoping stage.

Scoping

12.2.7 The scoping process identifies the risks of the 'screened-in' activities to potential receptors.

12.2.8 The WFD water bodies which are hydrologically connected to the Scheme, either directly or in-directly, are then identified. WFD water bodies identified as indirectly connected are defined as watercourses or water bodies which are hydrologically linked to the Scheme via other water bodies, e.g., water bodies downstream of the Scheme and upstream of the WFD water body.

12.2.9 This assessment will consider the risks to water quality and hydromorphology of receptors only.

12.2.10 This scoping assessment has been conducted in accordance with the EA scoping template form (Ref 12-1)[1].

[1] Environment Agency (2017) Scoping Template [Online] Available at: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (Accessed: 11/03/2025)

12.2.11 The following information sources were consulted to obtain information on WFD water body receptors:

- The EA Catchment Data Explorer (Ref 12-2); and
- EA Water Quality Archive (Ref 12-3)

WFD Waterbodies

12.2.12 The Scheme is located within the Anglian River Basin Management Plan (RBMP). The CSA is mostly located within the operational catchment of the Nar upstream of Abbey Farm Water Body.

12.2.13 Minor areas of in the south of the CSA are located in the Old Carr Stream and Gadder catchments and there are no agricultural drains linking the CSA with these offsite watercourses. As such, these have been screened out of further assessment.

12.2.14 The WFD status, water quality classification and future objectives of the screened-in RBMP water bodies are detailed in Table 12-1.

Table 12-1: Screening of WFD RBMP water bodies

WFD Indicator	Nar upstream of Abbey Farm
Water body ID	GB105033047791
Cycle	3
Hydro-morphological designation	Not designated, artificial or heavily modified
Ecological Status	Moderate
Chemical Status (2022)	Does not require assessment (2019 Fail)
Ecological Objective	Good by 2015
Chemical Objective	Good by 2063
Screening	Screened-in: WFD water body may be indirectly impacted by the Scheme as construction activities which could interact with the dry channels and groundwater which supplies the River Nar during the construction, operation and decommissioning phases.

Groundwater

12.2.15 The Order limits lie entirely within the North West Norfolk Chalk Water Body [Ref. 12-4][2] which has an approximate area of 36,631.7 ha. The Cam and Ely Ouse Chalk Water Body [Ref. 12-5][3] is located 300 m south of the CSA and has an approximate area of 299,577 ha. Table 12-2 outlines the WFD status and objectives of these units.

Table 12-2: Screening of WFD RBMP groundwater bodies

WFD Indicator	North West Norfolk Chalk Water Body	Cam and Ely Ouse Chalk Water Body
Water body ID	GB40501G400200	GB40501G400500
Cycle	3	3
Chemical Status	Poor	Poor
Quantitative Status	Poor	Poor
Chemical Objective	Poor by 2015 – Disproportionately expensive	Poor by 2015 – Disproportionately expensive
Quantitative Objective	Good by 2027 – Low confidence	Good by 2027 – Low confidence
Screening	Screened-in: WFD water body may be indirectly impacted by the Scheme as the construction, operation and decommissioning phases include activities which could interact with the local groundwater network.	Screened out: The order limits are outside of the WFD water body.

[2] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB40501G400200

[3] https://environment.data.gov.uk/catchment-planning/WaterBody/GB40501G400500

Scoping and Assessment

12.2.16 This section of the assessment presents the scoping and impact assessment of the Scheme upon the WFD surface water bodies and groundwater unit.

12.2.17 The assessment takes into consideration the activities of the Scheme and the watercourses along with the wider draining catchment. Additionally, embedded design (mitigation) measures, which are described in **ES Chapter 12: Water Resources [APP/6.2]** have been taken into consideration in this assessment, will be provided within an **oCEMP [APP/7.6]** and is secured by requirement in **draft Development Consent Order (draft DCO) [APP/3.1]**.

River Nar

12.2.18 The Scheme does not directly interact with the River Nar.

12.2.19 The WFD assessment for each WFD component is presented in Table 12-3.

Table 12-3: WFD Assessment – The Nar upstream of Abbey Farm

The Nar Catchment			
WFD Aspect and Status	Reason for not achieving Good status [Ref. 12-6][4]	Objective	WFD Assessment
Ecological Status Moderate	Barriers – ecological discontinuity	Good by 2027	***PV Arrays and Racking system*** PV Arrays will not be located within 10m of the edge of watercourses/ditches. Wire and post fencing, cabling and access track may be within 10m of the watercourse. As a result of the embedded design of the Scheme, such as the decision to seed the Order limits with a suitable grass or wildflower mix, the overland distance between construction areas and drainage ditches and the flat topography within the fields which comprise Solar PV, surface water runoff generation is likely to be minimal and any silt generated during construction will be entrained within cut off ditches before reaching the River Nar via groundwater throughflow and dry valleys. It is proposed to utilise the existing agricultural access routes that traverse the Order limits, where possible. Construct additional aggregate access tracks, where required.

[4] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB104028053440

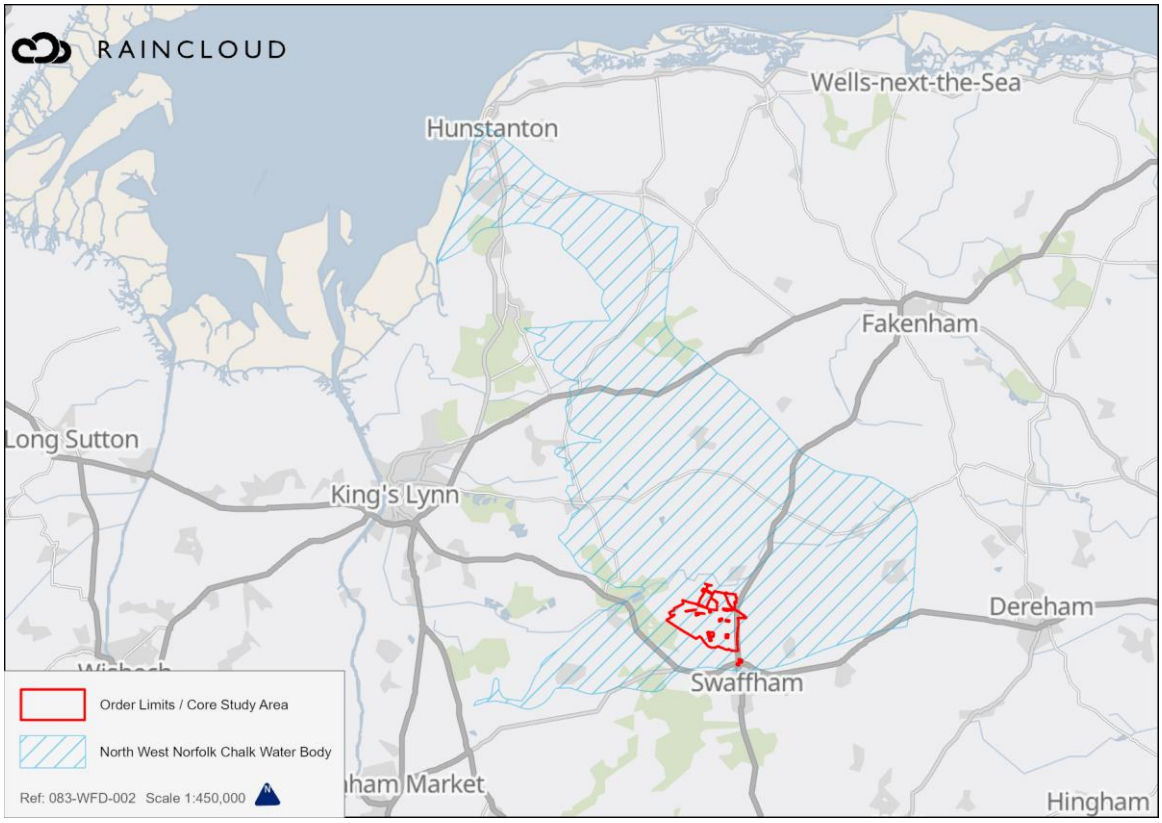
			Cable Corridor The cable corridor is expected to require a trench and working area up to 50m wide to connect cables in a circuit in the Order limits. The cable trench is likely to be of shallow depth (maximum depth of 2m) and is likely to be lined. ***Substations and BESS*** The closest substation as part of the Scheme is located approximately 550m from the River Nar meaning there is substantial distance between the works area and the receptor for dissipation and entrainment of sediment and chemicals to occur. Measures such as absorbent spill pads/kits, bunding of fuels/oils will effectively limit the uncontrolled release of chemicals to minor fugitive releases (or no releases at all). These would be minimised through best practice construction methods such as vehicle speed limits and regular vehicle and machine maintenance. These measures are outlined within the **oCEMP [APP/7.6]**. As outlined in **ES Appendix 12.2: Flood Risk Assessment (FRA) [APP/6.4]**, a Sustainable Drainage System (SuDS) will serve dual function to capture fire suppressant at the BESS in the rare event of a fire, via a penstock on the outfall of the system, effectively meaning there will be negligible potential for contaminants to interact with surface water receptors.
Chemical Status	No sector responsible	Good by 2063	The residual effects assessed within **ES Chapter 12: Water Resources [APP/6.2]** regarding reduced water quality are not significant as a result of the embedded mitigation measures

Fail			implemented within the **oCEMP [APP/7.6], oOEMP [APP/7.8]** and **oBSMP [APP/7.14]**. As vegetation becomes established under the PV arrays there is likely to be a decrease in surface water runoff rates and a reduction in the potential for agricultural chemicals (e.g., phosphates and nitrates) to transfer into the wider hydrological catchment compared to the baseline scenario.

Groundwater: North West Norfolk Chalk Water Body

12.2.20 The Scheme lies entirely within the North West Norfolk Chalk Water Body as shown in Plate 12-2.

Plate 12-2 Scheme interaction with North West Norfolk Chalk Water Body



12.2.21 The WFD assessment for each WFD component is presented in Table 12-4.

Table 12-4: WFD Assessment North West Norfolk Chalk Water Body

WFD Aspect and Status	Objective	WFD Assessment
Quantitative Status Good	Good by 2027	Quantitative status is defined by the quantity of groundwater available as baseflow to watercourses and groundwater dependant terrestrial ecosystems (GWDTE), and as a drinking water resource. ***Work No. 1: Solar PV Area*** The mounting structure poles for the solar PV modules (Work No. 1) are proposed to be piled to a maximum 4m penetration depth. The groundwater elevation calculated from the EA's NEAC Groundwater Model does not reach 4m at any of the fields proposed for Solar PV, shown in Plate 12-3. ***Work No. 2: BESS compound, Work No. 3: Customer Substation, and Work No. 4: National Grid Substation*** The available data does not contain a detailed design at this stage. Instead, this assessment focuses on identifying high-risk areas within work areas. It is not known at this stage in the design process whether piling activities or the use of concrete pads will occur during construction of the BESS and substations. Work Nos. 2 to 4 will be potentially pilled to a depths of 12m and 15m. The groundwater elevation calculated from the EA's NEAC Groundwater Model, represented in Plate 12-4 below, shows that groundwater elevation under the CSA is generally not within 15m of surface level, with the exception of a small section of Work No. 4: National Grid Substation. The northern section of Work No. 4 is located in an area where the maximum piled foundation depth (15m) could directly interact with the maximum recorded groundwater level by approximately 0.1 to 1m. .

		Therefore, there is a risk of potential interaction with the groundwater table and may impact flows to public supply boreholes. A detailed assessment supported by an in-depth ground investigation data is required later in the design process to identify mitigation measures. The monitoring of groundwater level prior to the construction phase is required to ensure groundwater level is below the maximum depth of piling when piling occurs. In accordance with the EA's Piling in layered ground: risks to groundwater and archaeology Science Report SC020074/SR, should a piling option be required following detailed GI then piles should be installed using a Continuous Flight Auger (CFA) technique for Work Nos. 2 to 4. The impermeable area covered by the Scheme is likely to be minimal compared to the groundwater catchment (36,600ha), therefore the effect of the Scheme on groundwater supply is assessed as negligible. There are no abstractions planned as part of the Scheme.
Chemical Status Good	Good by 2027	The residual effects assessed within **ES Chapter 12: Water Resources [APP/6.2]** regarding reduced water quality from increased sediment loads and acidification with runoff from disturbed ground, soil heaps and excavations and as a result of accidental spillage/loss of chemicals and other construction materials are **Not Significant** with the implementation of the embedded measures which will be secured within the **oCEMP [APP/7.6], oOEMP [APP/7.8]** and **oBSMP [APP/7.14]**. As outlined in **ES Appendix 12.2: Flood Risk Assessment (FRA) [APP/6.4]**, a SuDS system will serve dual function to capture fire suppressant at the BESS in the rare event of a fire, effectively meaning there will be negligible potential for contaminants to interact with groundwater.

		Work No. 1: Solar PV Should concrete feet be required for isolated areas within Work No. 1: Solar PV, these will be pre-cast and no concrete will be poured in-situ on Site. As shown in **Plate 12-3** of the assessment, only a very small section of Work No. 1 is located within an area where groundwater levels may interact with the Mounting. ***Work No. 2: BESS compound, Work No. 3: Customer Substation, and Work No. 4: National Grid Substation*** Should a concrete pad foundation be deemed suitable for Work Nos. 2 to 4 then the maximum groundwater levels will not interact with the depths of these structures. and there would be approximately 14m headroom between the base of the foundations and the groundwater unit. Once the detailed design is complete, and if the required piling depth for Work Nos. 2 to 4 exceeds the highest recorded groundwater level, in accordance with the EA's Piling in layered ground: risks to groundwater and archaeology Science Report SC020074/SR, should a piling option be required following detailed GI then piles should be installed using a Continuous Flight Auger (CFA) technique for Works Nos. 2 to 4. The final design levels and loading requirements are not finalised at this stage of design and the use of different piling techniques should be confirmed following further design clarification at the detailed design phase, once the ground investigations have been undertaken. The EA classifies both CFA and rotary bored (cast in situ) piling as replacement/non-displacement techniques. The CFA piles are formed by the excavation of soil using a hollow stemmed CFA to form a void which on is then filled with concrete or cementitious grout introduced under pressure via the hollow stem into the base of the borehole. The auger is then withdrawn at a controlled rate, whilst maintaining the concrete or grout at a positive pressure. Spoil is withdrawn from the hole on the auger flights and the concrete fills the hole under the auger head, the positive pressure forcing it into contact with the surrounding superficial geology. Rotary bored (cast in situ) piling uses an auger or other tools to create the

		pile bore which is supported by temporary casing to ensure stability. Concrete is then poured into the tremie as the temporary casings are withdrawn to form the pile. CFA techniques improve pile–soil interaction by generating a low-permeability interface through the high-pressure placement of concrete, which ensures effective contact with the surrounding soil. The short interval between auger extraction and concrete placement limits the potential for soil relaxation and prevents significant reductions in effective stress. Although a transient preferential pathway for pore water migration may be created during auger withdrawal, this is rapidly sealed as the concrete displaces soil particles and reinstates confinement. This mechanism is critical in maintaining lateral support, particularly in soils of low cohesion where instability or excessive deformation may otherwise occur. To achieve these conditions, it is essential that the concrete pumping rate is precisely synchronized with auger withdrawal to avoid the formation of voids or inclusions, thereby ensuring continuous confinement along the pile shaft. Such procedures are consistent with best-practice guidance outlined in CIRIA C653 (2007) and Eurocode 7 (BS EN 1997-1), which emphasize the importance of controlled construction processes to preserve pile integrity and soil stability. Blinding concrete will be poured at the base of the piles prevent the structural concrete from seeping into the surrounding geology and will provide a level of protection to the piles from moisture and chemical damage. Should piled foundations be used, a Foundation Works Risk Assessment will likely be required to ensure piled foundations do not create additional contaminant pathways and any potential impacts on the underlying aquifers, such as turbidity, are managed. This should be completed once construction methods are confirmed and ground investigation data are available. Measures for concrete pouring are outlined in the **oCEMP [APP/7.6]**. ***HDD Cable Installation*** Cable installation by horizontal directional drilling (HDD) methods has the potential to extend to 15m. There is a risk of chemical pollution including the release/breakout of drilling fluid escaping the borehole during operations due to drilling pressures and ground conditions. In

		the event of surface seepage, contamination will be contained and cleaned up using sandbags and a vacuum tanker. Any surplus drilling fluid will be recovered from entry/exit pits post-installation by a specialist waste management company. This fluid will be collected and disposed of at a licensed facility. An Emergency Response Plan will include details for pollution prevention and will be prepared and included alongside the detailed CEMP(s). Should HDD techniques be required for the above fields, these works would be undertaken when groundwater elevation is not within 15m below ground level. This would be informed by monitoring boreholes to be installed within these fields prior to the construction phase.

Plate 12-3: Groundwater interaction with infrastructure

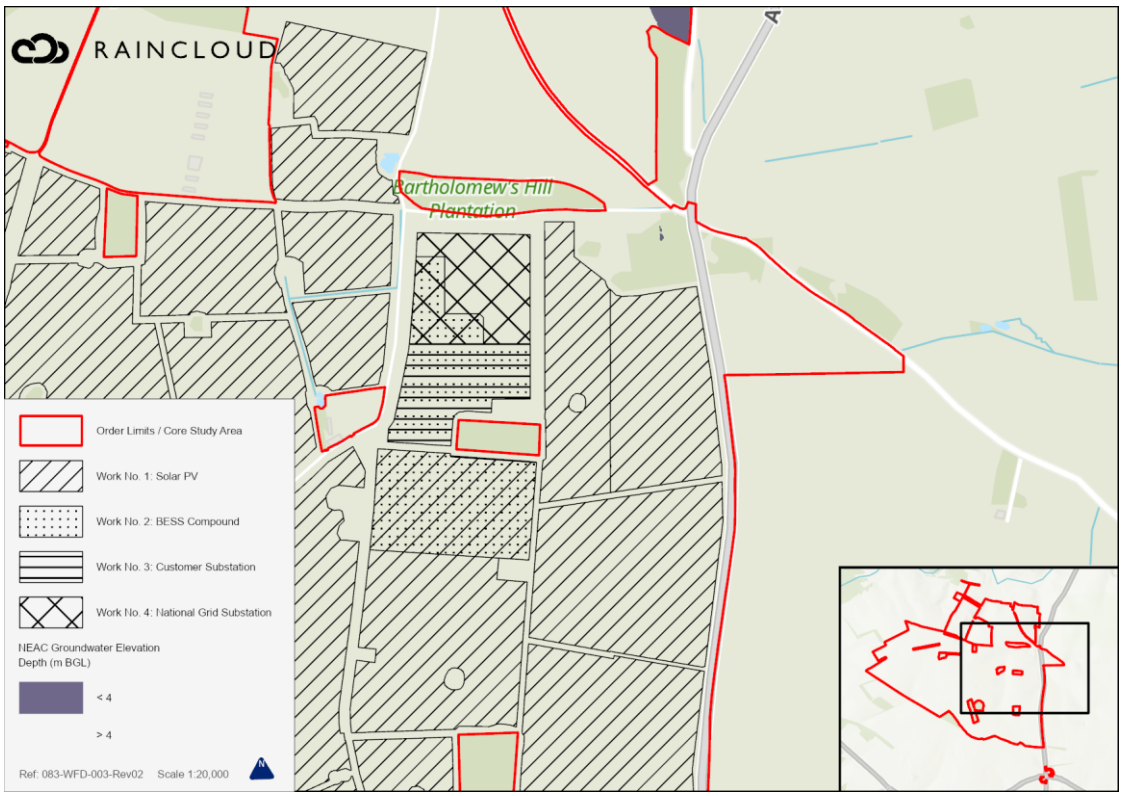
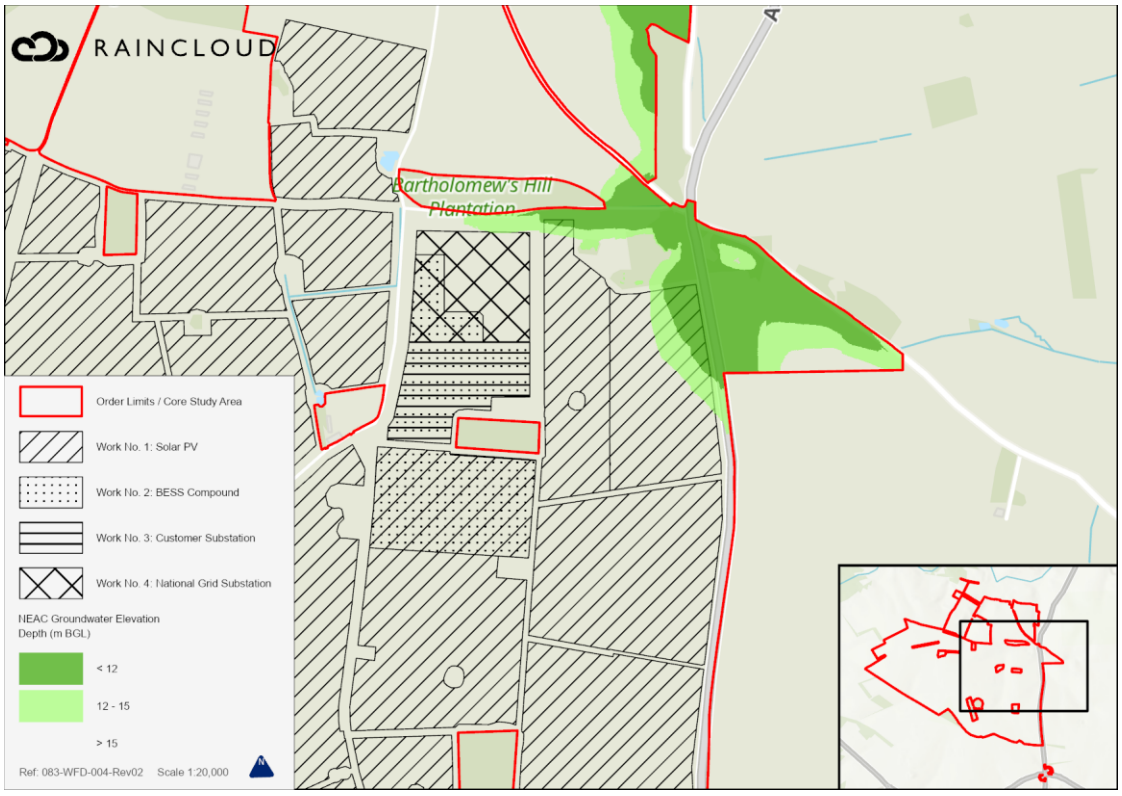


Plate 12-4: Work No. Interaction with Groundwater



12.3 Summary

12.3.1 This WFD assessment concludes that the Scheme will not be detrimental to the objectives of the WFD water bodies and complies with the WFD objectives. The Scheme is assessed as not increasing pollution to the water bodies draining the Order limits.

12.3.2 Embedded design and mitigation measures are detailed in the **oCEMP [APP/7.6], oOEMP [APP/7.8]** and **oBSMP [APP/7.14]** and these assessments provide a comprehensive assessment of all potential effects and the measures for the reduction of potential effects upon the WFD water bodies.

12.3.3 The measures have been employed on several large scale Nationally Significant Infrastructure Projects (NSIP), including solar construction projects, and are effective in ensuring that the WFD status of the water bodies are not affected. Piling of Work Nos. 3 and 4 have the potential to interact and affect groundwater

12.3.4 Mitigation measures and good practice construction/pollution prevention guidelines in the **oCEMP [APP/7.6]** establish how the potential effects of the Scheme can be managed to a level that will not cause deterioration to the wider catchment.

12.3.5 It should be noted that in the absence of the Scheme, the wider catchment would continue to be intensively managed for agricultural purposes and there would likely be a continued deterioration in surface water and groundwater quality and quantity, through diffuse agricultural pollution and abstraction, contrary to the aims of the WFD.

12.3.6 As the design includes measures to minimise the potential for chemical release and enhanced erosion protection measures (grass / wildflower mix), **ES Chapter 12: Water Resources [APP/6.2]** outlines that the Scheme will have positive effects, not just the potential for adverse effects, which result in improvement of the adjacent waterbodies and contribute towards achieving WFD objectives.

References

Ref 12-1 Environment Agency (2017) Scoping Template. https://www.gov.uk/guidance/water-framework-directive-assessment-estuarin

Ref 12-2 Environment Agency, Catchment Data Explorer https://environment.data.gov.uk/catchment-planning/

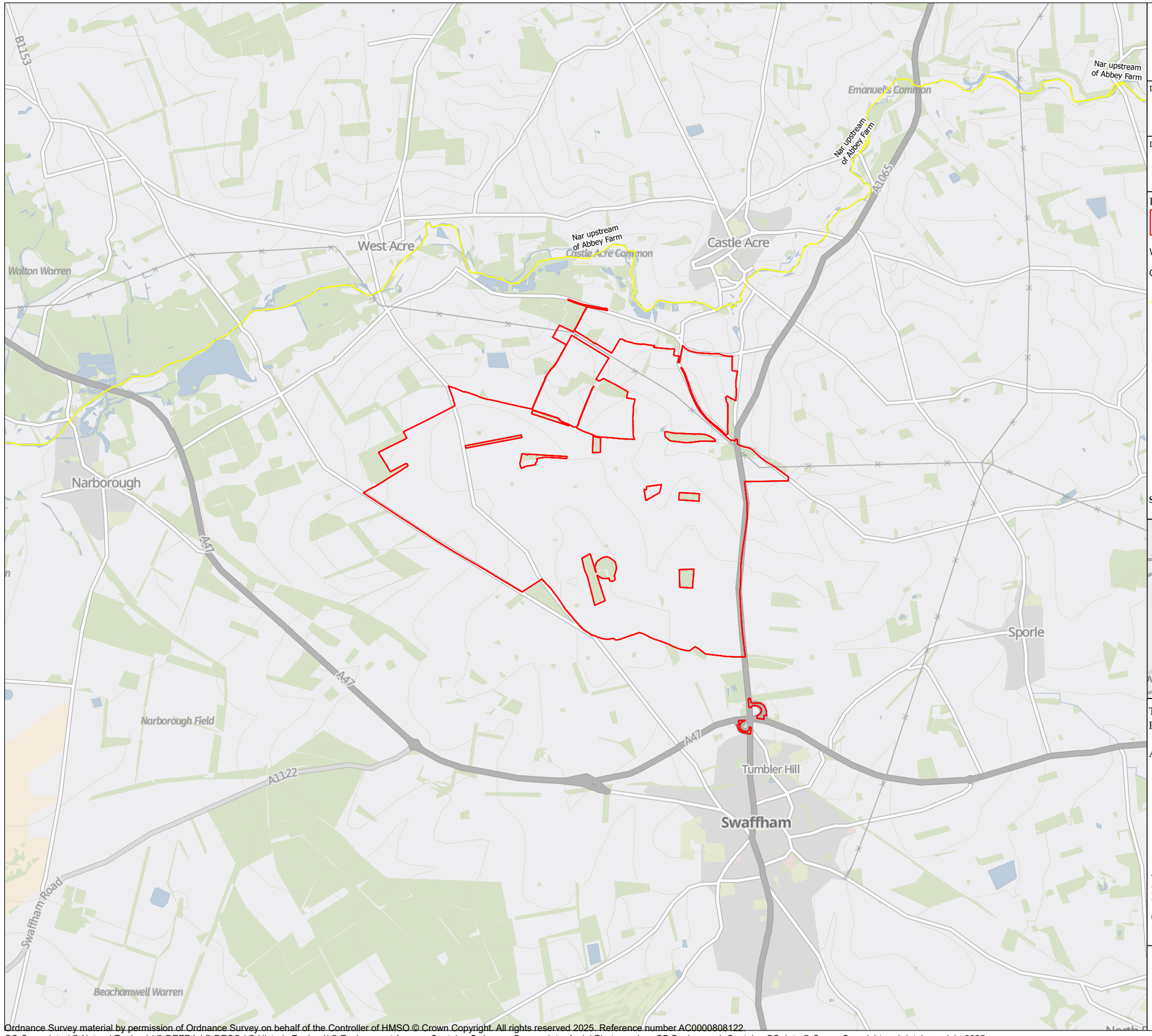
Ref 12-3 Environment Agency, Water Quality Archive, Search sampling points. https://environment.data.gov.uk/water-quality/view/explore?search=&area=&samplingPointType.group=&samplingP

Ref 12-4 Environment Agency, Catchment Data Explorer, North West Norfolk Chalk Water Body. https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/G

Ref 12-5 Environment Agency, Catchment Data Explorer, The Beck Catchment Water Body. Cam and Ely Ouse Chalk Water Body. https://environment.data.gov.uk/catchment-planning/WaterBody/GB40501G400500

Ref 12-6 Environment Agency, Catchment Data Explorer, The Beck Catchment Water Body. https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/G

Annex A: A3 Scale Figures



WFD Status Cycle 3:

THE DROVES
SOLAR FARM

DRAWING TITLE:

Figure 1: WFD Waterbodies in proximity to the Scheme - Cycle 3

DOCUMENT:

Water Framework Directive Assessment

LEGEND:

Order Limits / Core Study Area

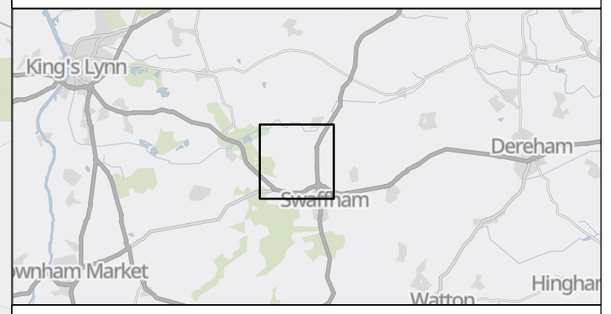
WFD Status Cycle 3

Overall Class

Moderate

*Note - No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Sources: Environment Agency, LDA Design, IGP 2025



The Infrastructure (Applications: Prescribed Forms and Procedure) (APFP) Regulations 2009 – Reg 5(2)(a)

Application Doc no. EN0110013/APP/XX Drawing no.: 083-WFD-001A

DATE	Sep 2025	DRAWN	EL
SCALE @A3	1:40,000	CHECKED	LN
STATUS	Final	APPROVED	PD

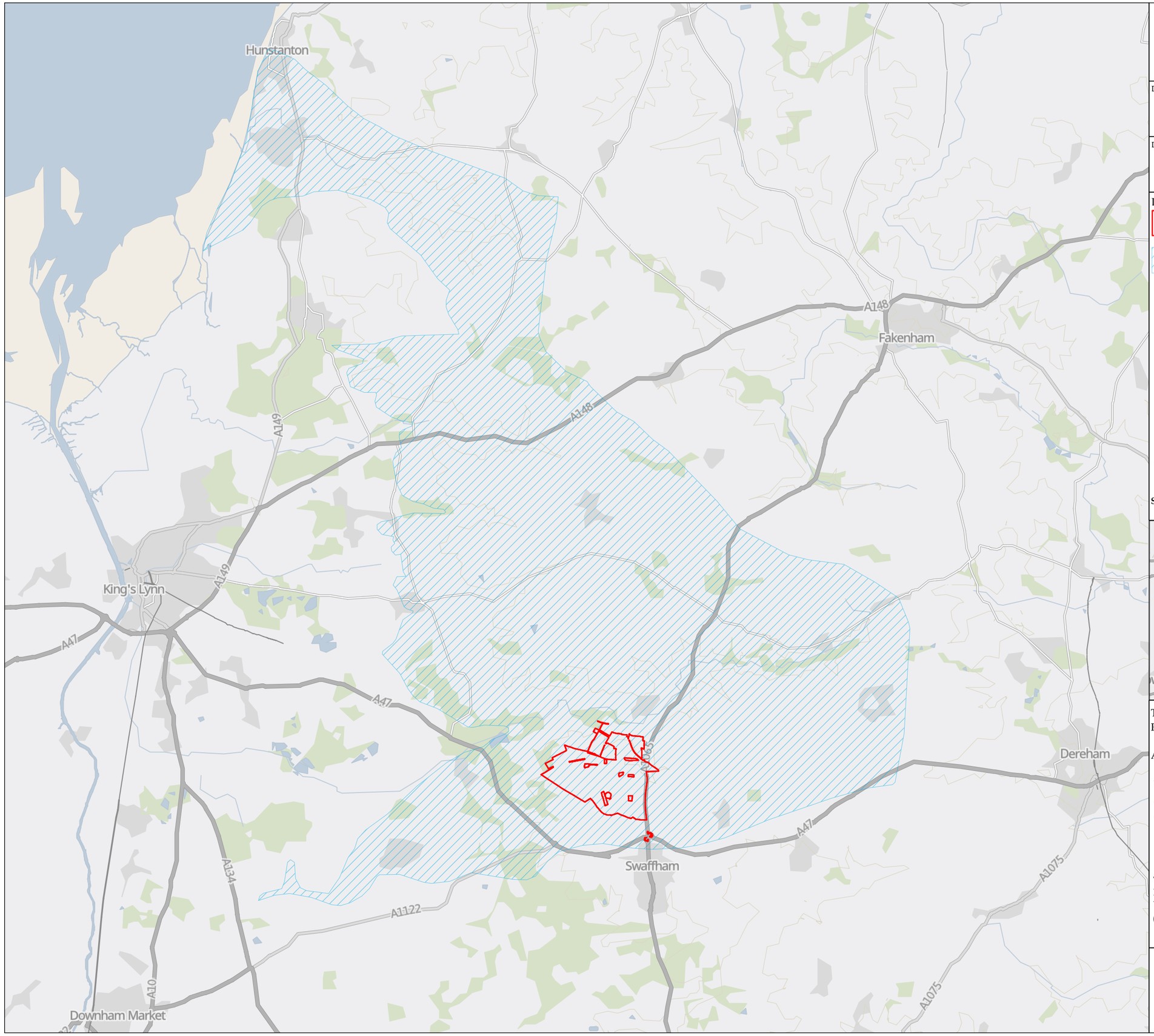
REV.	DESCRIPTION	APP. DATE
A	Order Limits amended	November 2025

0 2 km

North

Island GREEN POWER

RAINCLOUD



THE DROVES
SOLAR FARM

DRAWING TITLE:

Figure 2: Scheme interaction with North West Norfolk Chalk Water Body

DOCUMENT:

Water Framework Directive Assessment

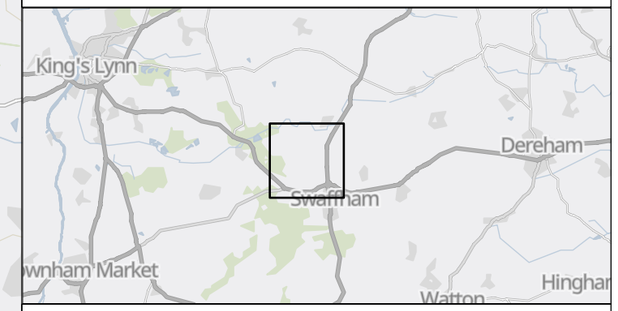
LEGEND:

Order Limits / Core Study Area

North West Norfolk Chalk Water Body

*Note - No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Sources: Environment Agency, LDA Design, IGP 2025



The Infrastructure (Applications: Prescribed Forms and Procedure) (APFP) Regulations 2009 – Reg 5(2)(a)

Application Doc no. EN0110013/APP/XX Drawing no.: 083-WFD-002A

DATE	Sep 2025	DRAWN	EL
SCALE @A3	1:145,000	CHECKED	LN
STATUS	Final	APPROVED	PD

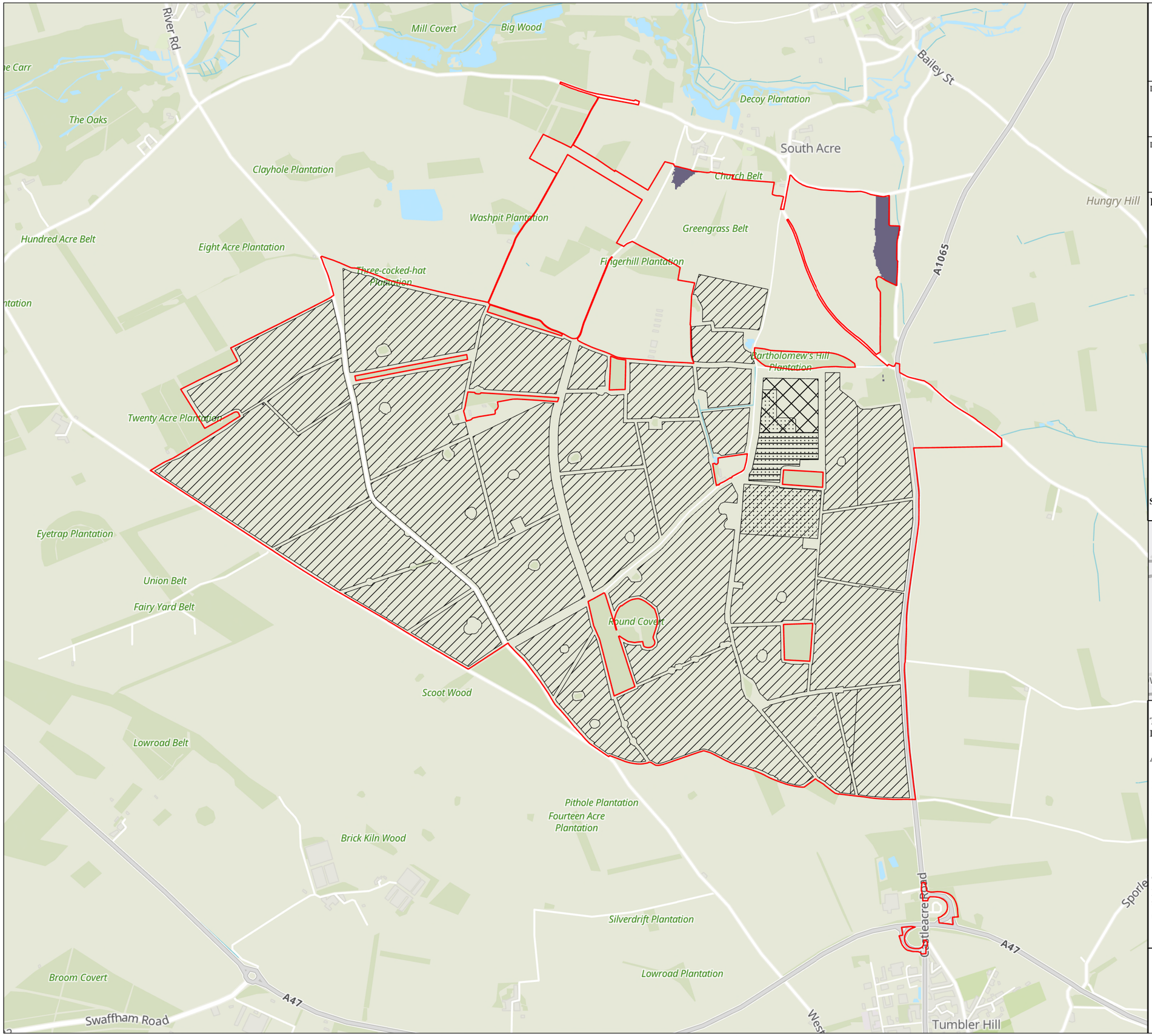
REV.	DESCRIPTION	APP.	DATE
A	Order Limits amended		November 2025

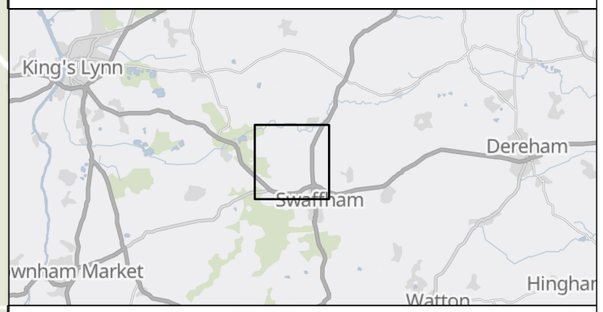
0 2 km

North

Island GREEN POWER

RAINCLOUD





THE DROVES
SOLAR FARM

DRAWING TITLE:

Figure 3: Groundwater Interaction with Piling

DOCUMENT:

Water Framework Directive Assessment

LEGEND:

- Order Limits / Core Study Area
- Work No. 1: Solar PV
- Work No. 2: BESS Compound
- Work No. 3: Customer Substation
- Work No. 4: National Grid Substation

NEAC Groundwater Elevation

Depth (m BGL)

- < 4
- > 4

*Note - No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Sources: EA, LDA Design, IGP 2025

The Infrastructure (Applications: Prescribed Forms and Procedure) (APFP) Regulations 2009 – Reg 5(2)(a)

Application Doc no. EN0110013/APP/6.2 Drawing no.: 083-WFD-003A-Rev02

DATE	June 2026	DRAWN	EL
SCALE @A3	1:20,000	CHECKED	LN
STATUS	Final	APPROVED	RP

REV.	DESCRIPTION	APP.	DATE
002	RR Response		June 2026

0 1 km

Island GREEN POWER

RAINCLOUD

THE DROVES
SOLAR FARM

DRAWING TITLE:

Figure 4: Groundwater Interaction with Piling

DOCUMENT:

Water Framework Directive Assessment

LEGEND:

- Order Limits / Core Study Area
- Work No. 1: Solar PV
- Work No. 2: BESS Compound
- Work No. 3: Customer Substation
- Work No. 4: National Grid Substation

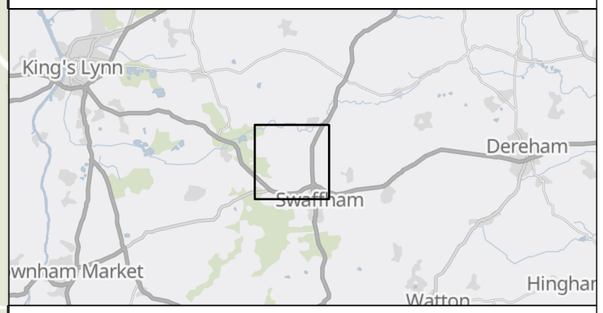
NEAC Groundwater Elevation

Depth (m BGL)

- < 12
- 12 - 15
- > 15

*Note - No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Sources: EA, LDA Design, IGP 2025



The Infrastructure (Applications: Prescribed Forms and Procedure) (APFP) Regulations 2009 – Reg 5(2)(a)

Application Doc no. EN0110013/APP/6.2 Drawing no.: 083-WFD-004A-Rev02

DATE	June 2026	DRAWN	EL
SCALE @A3	1:20,000	CHECKED	LN
STATUS	Final	APPROVED	RP

REV.	DESCRIPTION	APP. DATE
002	RR Response	June 2026

0 1 km

Island GREEN POWER

RAINCLOUD

THE DROVES

SOLAR FARM