



**THE DROVES**  
SOLAR FARM

# **The Droves Solar Farm**

## **Preliminary Environmental Information Report**

### **Volume III, Chapter 12: Water Resources**

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# **Appendix 12.3**

## **Water Framework Directive (WFD)**



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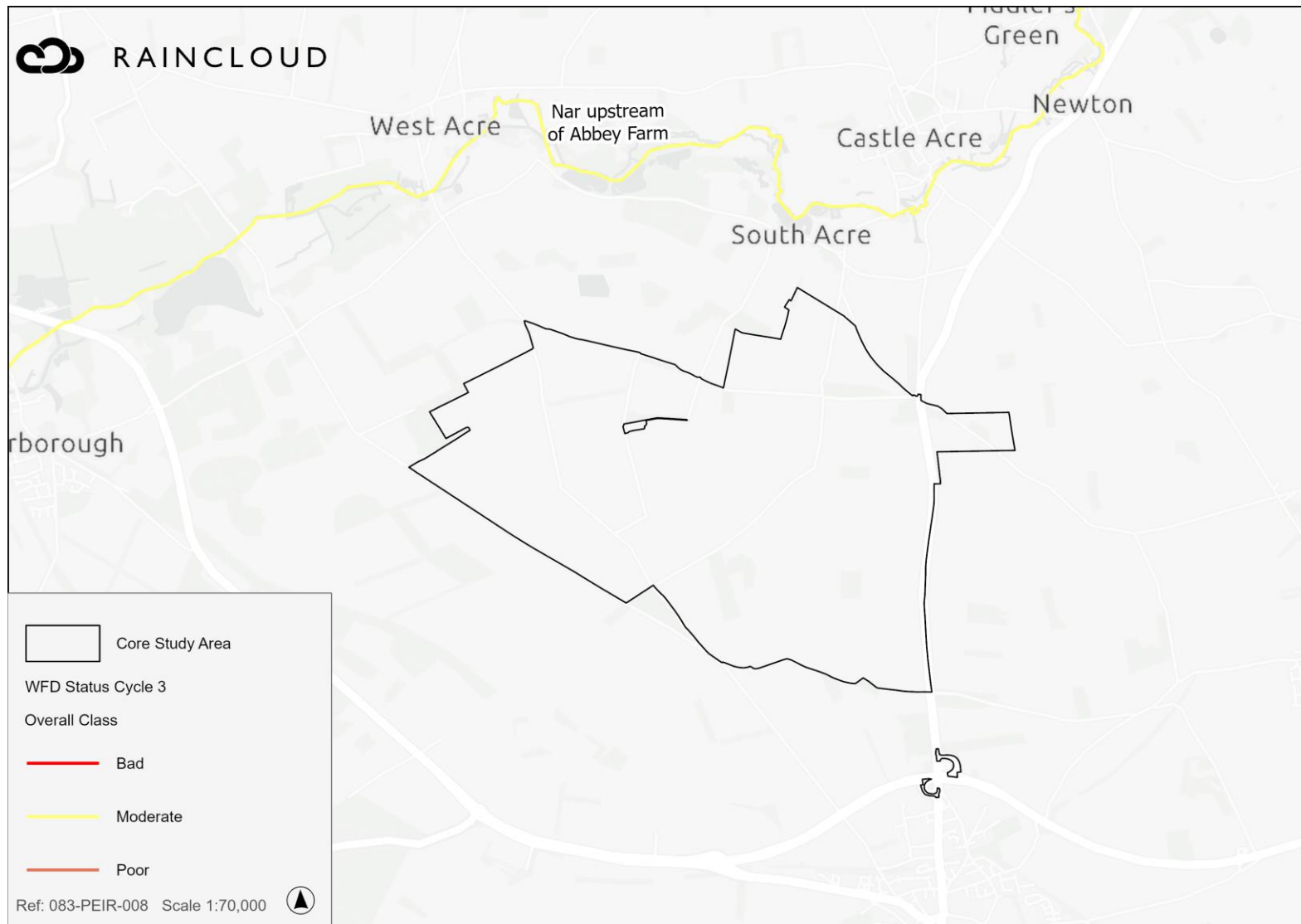


## **1 INTRODUCTION**

1. Raincloud Consulting Ltd (Raincloud) has been commissioned by The Drovers Solar Farm Limited (the Applicant) to produce a Water Framework Directive (WFD) assessment for The Drover Solar Farm (the Scheme).
2. The purpose of this assessment is to identify the WFD water bodies with either direct or indirect connectivity to the Site boundary 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 Site boundary.
3. The WFD surface waterbodies in relation to the Scheme are shown in Plate 1.



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



## 2 WFD ASSESSMENT

4. The Scheme is located within the primary catchment of the River Nar.
5. 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.
6. 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.
7. The assessment is desk-based and the sources of information used to inform each stage of the assessment are outlined in the following Sections.

### 2.1 Screening

8. 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.

### 2.2 Scoping

9. The scoping process identifies the risks of the 'screened-in' activities to potential receptors.
10. 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.
11. This assessment will consider the risks to water quality and hydromorphology of receptors only.
12. This scoping assessment has been conducted in accordance with the EA scoping template form<sup>1</sup>.

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<sup>1</sup> 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)

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

- The EA Catchment Data Explorer;<sup>2</sup> and
- EA Water Quality Archive<sup>3</sup>.

### 3.1.1 WFD Waterbodies

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

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

**Table 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.

<sup>2</sup> <https://environment.data.gov.uk/catchment-planning/>

<sup>3</sup> [https://environment.data.gov.uk/water-quality/view/explore?search=&area=&samplingPointType.group=&samplingPointStatus%5B%5D=open&loc=545545%2C181242&\\_limit=500](https://environment.data.gov.uk/water-quality/view/explore?search=&area=&samplingPointType.group=&samplingPointStatus%5B%5D=open&loc=545545%2C181242&_limit=500)

### 3.1.2 Groundwater

16. The Site boundary lie entirely within the North West Norfolk Chalk Water Body<sup>4</sup> which has an approximate area of 36,631.7 ha. Table 2, outlines the WFD status and objectives of the unit.

**Table 2: Screening of WFD RBMP groundwater bodies**

WFD Indicator	North West Norfolk Chalk Water Body
Water body ID	GB40501G400200
Cycle	2 (2019)
Chemical Status	Poor
Quantitative Status	Poor
Chemical Objective	Good by 2027
Quantitative Objective	Good by 2027
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.

## 2.3 Scoping and Assessment

17. This section of the assessment presents the scoping and impact assessment of the Scheme upon the WFD surface water bodies and groundwater unit.
18. 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 **Volume I, Chapter 12: Water Resources** have been taken into consideration in this assessment, will be provided within an Outline

<sup>4</sup> <https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB40501G400200>

Construction Environmental Management Plan (oCEMP) to be provided at the ES stage and secured in the DCO.

### 3.1.3 River Nar

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

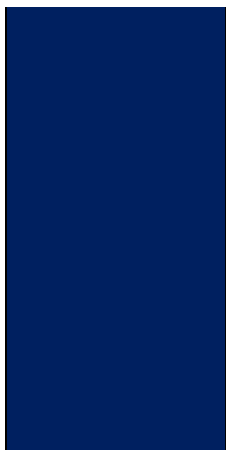
20. The WFD assessment for each WFD component is presented in Table 3.

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

The Nar Catchment			
WFD Aspect and Status	Reason for not achieving Good status <sup>5</sup>	Objective	WFD Assessment
Ecological Status Moderate	<ul style="list-style-type: none"> <li>Barriers - ecological discontinuity</li> </ul>	Good by 2027	<p><b><i>Solar PV Arrays and Racking system</i></b></p> <p>Solar PV Arrays will not be located within 10 m of the edge of watercourses and 6 m for ditches.</p> <p>Wire and post fencing, cabling and access track may be within 10 m of the watercourse.</p> <p>As a result of the embedded design of the Scheme, such as the decision to seed the OL 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.</p> <p>It is proposed to utilise the existing agricultural access routes that traverse the Order Limits, where possible.</p>

<sup>5</sup> <https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB104028053440>

<p><b>Chemical Status</b></p> <p><b>Fail</b></p>	<p>No sector responsible</p>	<p>Good by 2063</p>	<p>Construct additional aggregate access tracks, where required.</p> <p><i>Cable Corridor</i></p> <p>The cable corridor is expected to require a trench and working area up to 50 m wide to connect cables in a circuit in the Order Limits.</p> <p>The cable trench is likely to be of shallow depth (maximum depth of 2 m) and is likely to be lined.</p> <p><i>Substations and BESS</i></p> <p>The closest substation as part of the Scheme is located approximately 550 m 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.</p> <p>Measures such as absorbent spill pads / kits, bunding of fuels / oils will effectively limit the uncontrolled release of chemicals to minor fugitive releases (if at all). These would be minimised through best practice construction methods such as vehicle speed limits and regular vehicle and machine maintenance. These measures will be outlined within the oCEMP.</p> <p>As outlined in PEIR Technical Appendix A9.1 FRA, a SuDS system 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.</p>
<p><b>Chemical Status</b></p> <p><b>Fail</b></p>	<p>No sector responsible</p>	<p>Good by 2063</p>	<p>The residual effects assessed within PEIR Chapter 12: Water Resources regarding reduced water quality are not</p>



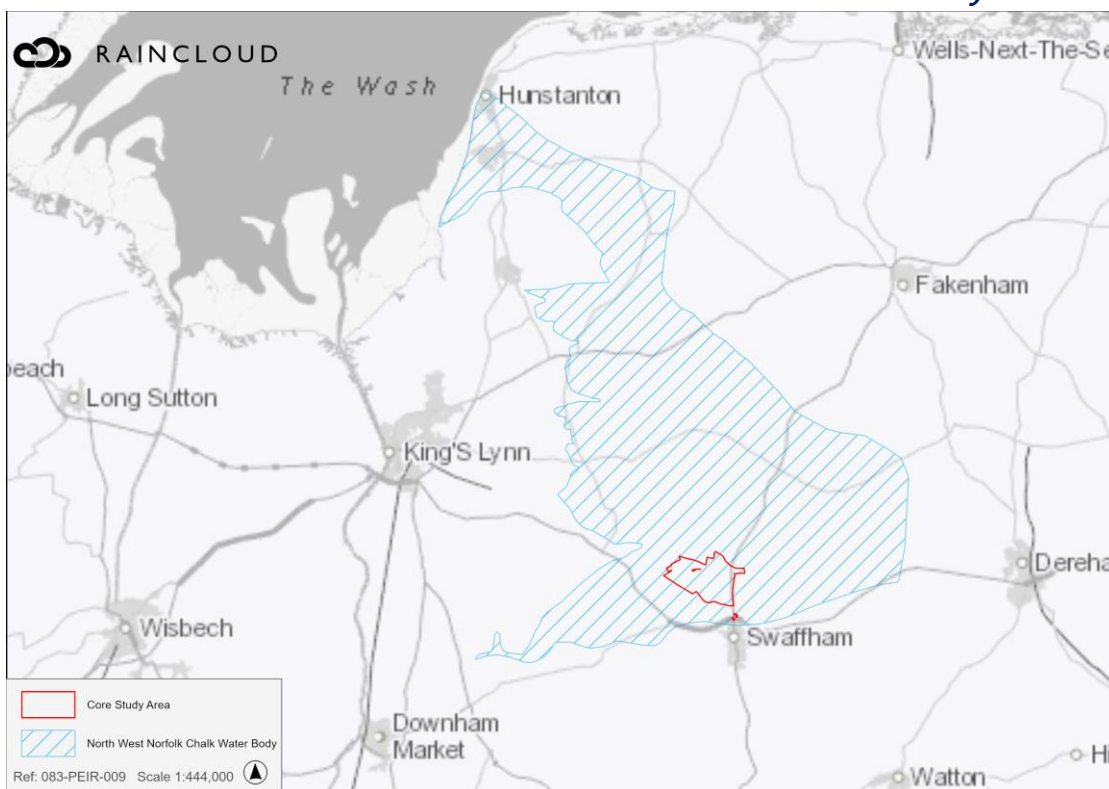
significant as a result of the embedded mitigation measures implemented within an oCEMP.

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.

### 3.1.1 Groundwater: North West Norfolk Chalk Water Body

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

**Plate 2: Scheme interaction with North West Norfolk Chalk Water Body**



22. The WFD assessment for each WFD component is presented in Table 4.

**Table 4: WFD Assessment North West Norfolk Chalk Water Body**

WFD Aspect and Status	Objective	WFD Assessment
<p><b>Quantitative Status Good</b></p>	<p>Good by 2027</p>	<p>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.</p> <p>The Water Resources PEIR chapter concludes that the subsurface infrastructure depth i.e. PV racking depth and foundations for aboveground structures will be too shallow to interact with the groundwater table and will therefore not impact flows to public supply boreholes, such as Marham.</p> <p>The impermeable area covered by the Scheme is likely to be minimal compared to the groundwater catchment (36,600 ha), therefore the effect of the Scheme on groundwater supply is assessed as negligible.</p> <p>There are no abstractions as part of the Scheme.</p>
<p><b>Chemical Status Good</b></p>	<p>Good by 2027</p>	<p>The residual effects assessed within Chapter 12: Water Resources of PEIR 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 an oCEMP.</p> <p>As outlined in PEIR Technical Appendix A12.1 FRA, 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.</p>

### 3 SUMMARY

23. 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.
24. Embedded design and mitigation measures will be detailed in an oCEMP, 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.
25. The measures have been employed on several large scale NSIP solar construction projects and are effective in ensuring that the WFD status of the water bodies are not affected. No significant effects have been identified in PEIR Chapter.
26. The Water Resources PEIR Chapter concludes that through the implementation of embedded design and mitigation and good practice construction / pollution prevention guidelines the potential effects of the Scheme can be managed to a level that will not cause deterioration to the wider catchment.
27. 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.
28. As the design includes measures to minimise the potential for chemical release and enhanced erosion protection measures (grass / wildflower mix), Chapter 12: Water Resources of the PEIR the Scheme will have positive effects which result in improvement of the adjacent waterbodies and contribute towards achieving WFD objectives.



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