

Flaxlands Solar Farm

WFD Screening and Scoping Assessment

Ampyr Solar Europe

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1. Introduction

1.1 Background

- 1.1.1 Flaxlands Solar Farm will comprise the construction, operation and decommissioning of a solar photovoltaic (PV) array with an installed capacity of up to 49.9MW and 49.9MW of battery energy storage systems (BESS) (hereafter referred to as the 'Proposed Development'). This Water Framework Directive (WFD) Assessment has been commissioned by Ampyr Solar Europe ('the Applicant') in support of their upcoming planning application.

1.2 Study Area

- 1.2.1 The Proposed Development Site ('the Site') is located in Wiltshire, 1.7 km north of the town of Royal Wootton Bassett and 3.2 km west of Swindon (National Grid Reference (NGR) of Site centre: SU 06910 85466). The Site is spread across fields either side of Flaxlands Lane, which runs broadly northeast to southwest through the Site, and so are described as the 'eastern' and 'western' land parcels. The Site covers an area of approximately 87.09 hectares (ha) and overlies portions of both the Thames and the Severn river basins (Ref 1 and Ref 2).
- 1.2.2 The Site does not include the cable route to a point of connection, and as such this has not been assessed at this stage. A separate assessment would be required to ensure such an activity is WFD compliant.
- 1.2.3 For the purposes of this assessment, a general Study Area of 1 km from the Site boundary has been considered to identify water bodies that are potentially hydrologically connected to the Proposed Development and have the potential to be impacted by the activities associated with it. Professional judgement has been applied to identify the extent to which such features are considered.
- 1.2.4 The Site and Study Area, as well as surrounding surface water bodies and groundwater bodies are shown on Figure 1-1. No water-sensitive receptors such as Sites of Special Scientific Interest (SSSIs), Local Nature Reserves (LNRs), Local Wildlife Sites (LWS), Special Areas of Conservation (SACs), or priority habitats are located within the Site boundary. Flaxlands Manor Local Wildlife Site is within the Site boundary, but it is not a water-sensitive receptor. In addition to the WFD reportable reaches and the OS Open Rivers displayed on Figure 1-1, there are a number of small watercourses within the Study Area. Woodbridge Brook is a small watercourse that flows south to north outside of the western edge of the Site. An Unnamed Watercourse, likely ephemeral, flows east to west outside of the northern boundary of the western land parcel. There are also multiple artificial and straightened ditches that form field boundaries within the Site, though these are not judged to be permanently wet features.

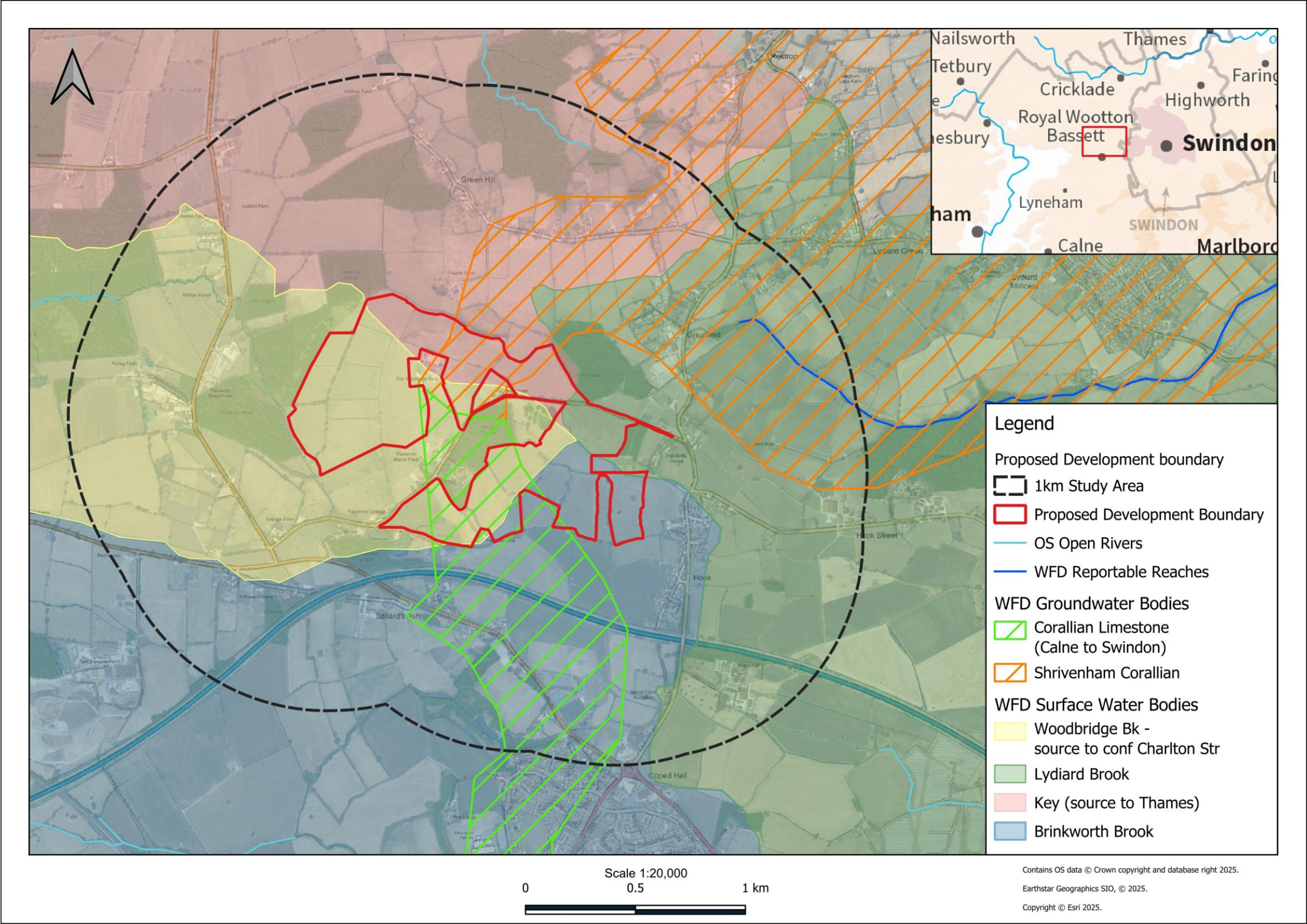


Figure 1-1 A plan of WFD water bodies in relation to the Proposed Development

1.3 Introduction to the Water Framework Directive

- 1.3.1 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 3), commonly referred to as the Water Framework Directive (WFD), aims to protect and enhance the water environment.
- 1.3.2 The WFD takes a holistic approach to sustainable management of the water environment by considering interactions between surface water, groundwater and water-dependent ecosystems. Ecosystem conditions are evaluated according to interactions between classes of biological, chemical, physico-chemical and hydromorphological elements known as 'Quality Elements'.
- 1.3.3 Under the WFD, 'water bodies' are the basic management units, defined as all or part of a river system or aquifer. Waterbodies form part of a larger 'river basin district' (RBD), for which 'River Basin Management Plans' (RBMPs) are used to summarise baseline conditions and set broad improvement objectives. RBMPs are produced every six years, in accordance with the river basin management planning cycle. The current RBMPs are in Cycle 3 that were published in 2022. The Proposed Development interacts with the Severn and Thames RBMPs (Ref 1 and Ref 2).
- 1.3.4 In England, the Environment Agency (the EA) is the competent authority for implementing the WFD, although objectives are delivered in partnership with other public bodies and private organisations, for example local planning authorities, water companies, rivers trusts, and private landowners and developers.
- 1.3.5 The EA is also responsible for managing flood risk and other activities on Main Rivers. Local planning authorities or drainage boards are typically responsible for consenting activities on Ordinary Watercourses. Local planning authorities are typically responsible for highways drains, and landowners are typically responsible for ditches and watercourses within their property including piped watercourses and culverts. While the EA is ultimately responsible for enforcing the WFD on any water body, local authorities are required to plan and consent WFD related activities on Ordinary Watercourses.
- 1.3.6 As part of its regulatory and statutory consultee role on planning applications and environmental permitting (under the Environmental Permitting Regulations (England and Wales) 2016), the EA and WFD-partnering organisations, must consider whether proposals for new developments have the potential to:
- Cause a deterioration of any quality element of a water body from its current status or potential; and / or
 - Prevent future attainment of good status or potential where not already achieved.
- 1.3.7 Regulation 33 of the Water Environment Regulations 2017 (i.e. the WFD) states that public bodies "*must, in exercising their functions so far as affecting a river basin district, have regard to - (a) the river basin management plan for that district as approved under regulation 31, and (b) any supplementary plan prepared under regulation 32.*" The Proposed Development must therefore reflect water body improvement priorities as outlined in the Severn and Thames RBMPs (Ref 1 and Ref 2).
- 1.3.8 In determining whether a development is compliant or non-compliant with the WFD objectives for a water body, the EA and partnering organisations must also consider the conservation objectives of any Protected Areas (e.g. Natura 2000 sites or water dependent SSSIs) and adjacent WFD water bodies, where relevant.

2. Methodology

2.1 WFD Methodology

- 2.1.1 There are no fixed methods for WFD assessment. The nature of the water environment and the breadth of the legislation mean that assessments are tailored to proposals on a case-by-case basis.
- 2.1.2 The following general guidance is available which has been applied to this assessment:
- Environment Agency (2016a). Water Framework Directive risk assessment. How to assess the risk of your activity (Ref 4);
 - Environment Agency (2016b). Protecting and improving the water environment. Water Framework Directive compliance of physical works in rivers (Ref 5); and
 - The Planning Inspectorate (2024), Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Ref 6).
- 2.1.3 A stepwise approach consisting of screening, scoping and impact assessment phases is generally followed in order to: (a) rationalise the levels of WFD assessment and impact mitigation that are required; and (b) verify that proposals meet the requirements of the WFD. The general approach is described by the Planning Inspectorate (2024): Advice on the Water Framework Directive (Ref 6) and briefly summarised below. The stepwise approach means that not all WFD assessment stages are necessarily required.

Stage 1: Screening

- 2.1.4 Screening identifies the extent to which a proposed development is likely to affect water bodies. Where impacts are 'screened out' from further assessment, this is clearly justified.
- 2.1.5 The screening stage:
- Shows all relevant WFD water bodies on a map or plan;
 - Identifies the zone or zones of influence based on specific activities and/or characteristics of a proposed development that could affect the identified water bodies; and
 - Identifies any specific activities and/or characteristics of the proposed development that have been screened out and why.
- 2.1.6 Screening may find that no further consideration of WFD matters is needed. For example, where water bodies are not located within the development's zone of influence or where no impact pathways exists.

Stage 2: Scoping

- 2.1.7 After screening, the scope of further assessment is determined if required.
- 2.1.8 The scoping stage involves:
- An initial assessment to identify the risks from a proposed development to receptors within the zone of influence, based on the relevant water bodies and their water quality elements; and
 - Identification of those water bodies where a more detailed impact assessment is needed.

Stage 3: Impact Assessment

- 2.1.9 The impact assessment is a detailed assessment of the water bodies and activities carried forward from the WFD screening. It is set within the context of the appropriate RBMPs and includes:
- Identification of water bodies that are potentially affected, directly or indirectly, or at risk from a proposed development;
 - The baseline characteristics of the water bodies affected;
 - A description of the proposed development and the aspects of the development considered within the scope of the WFD assessment;
 - The methods used to determine and quantify the scale of WFD impacts;
 - An assessment of the risk of deterioration, where Article 4.7 may apply if the proposed development may risk deterioration in status or prevent achievement of good status;
 - An explanation of any mitigation required and how it is secured;
 - An explanation of any enhancements and/or positive contributions to the RBMP objectives proposed and how they would be secured;
 - Where a derogation is required, information to justify the case for derogation; and
 - Identification of any areas of non-compliance.

2.2 Mitigation Commitments

- 2.2.1 Proposed mitigation activities relied upon to demonstrate compliance at any of the stages referred to above must be appropriately defined and sufficiently secured.

2.3 WFD Compliance Checks

- 2.3.1 All of the staged assessments summarised above consider potential risk sources, pathways and receptors with regards to the following checks for compliance with WFD objectives:
- works will not lead to deterioration in the quality of a water body;
 - works will not prevent the future improvement of a water body;
 - works will not impact a protected nature conservation area or priority habitat;
 - works will not impact a protected or priority species;
 - potential cumulative impacts have been considered; and
 - opportunities have been sought to improve the water environment.

2.4 WFD Derogation

- 2.4.1 Where WFD impact assessment identifies potential risks to WFD objectives that cannot reasonably be avoided or mitigated, the legislation includes mechanisms for derogation. WFD Regulation 17 and Regulation 19 set out stringent and 'last resort' planning and legal processes for WFD derogation that are case specific and would be beyond the scope of this assessment. Case review of any proposed justification by an applicant would be a matter for the Secretary of State, and is likely to require a substantial body of multi-disciplinary evidence.

3. WFD Screening

3.1 Screening of WFD Water Bodies

3.1.1 The Study Area falls across four WFD surface water body catchments:

- Brinkworth Brook Water Body (GB109053027740);
- Key (Source to Thames) Water Body (GB106039023650);
- Lydiard Brook Water Body (GB106039023310); and
- Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760).

3.1.2 Though the Study Area overlies these water bodies, none of the reportable reaches within them cross into the Site. There are, however, several watercourses present within the Study Area which are predominantly unnamed agricultural ditches, drains, and springs. It should be noted that WFD requirements apply equally to all watercourses regardless of whether they are EA reportable reaches. The Study Area is also underlain by two WFD groundwater bodies:

- Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100); and
- Shrivenham Corallian Water Body (GB40602G600600).

3.1.3 All four surface water bodies and both groundwater bodies listed above have been screened into this assessment as they may be indirectly impacted by the Proposed Development. This is because they are located within the Study Area and due to a range of activities that may have the potential to interact with the local watercourse network during, construction, operation, and decommissioning phases of the Proposed Development.

3.1.4 A map of the Proposed Development in relation to these water bodies can be seen in Figure 1-1 (above), and the WFD classification data for the surface water bodies and the groundwater bodies can be seen in Table 3-1 and Table 3-2, respectively (Ref 7).

Table 3-1. WFD Classification (Cycle 3 2022 data) for WFD Surface Water Bodies Underlying the Study Area

Classification Item	Lydiard Brook Water Body	Woodbridge Bk - source to conf Charlton Str Water Body	Key (Source to Thames) Water Body	Brinkworth Brook Water Body
Water Body ID	GB106039023310	GB109053027760	GB106039023650	GB109053027740
Hydromorphological designation	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified
Ecological	Moderate	Moderate	Moderate	Moderate
Biological quality elements	Moderate	Moderate	Moderate	Moderate
Physico-chemical quality elements	Moderate	Moderate	Moderate	Moderate
Hydromorphological Supporting Elements	Supports good	Supports good	Supports good	Supports good
<i>Hydrological Regime</i>	High	High	Supports good	Supports good
Chemical	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
<i>Priority hazardous substances</i>	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
Priority substances	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
<i>Other pollutants</i>	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment

Table 3-2. WFD Classification (Cycle 3 2022 data) for WFD Groundwater Bodies Underlying the Study Area

Classification Item	Corallian Limestone (Calne to Swindon) Water Body	Shrivenham Corallian Water Body
Water Body ID	GB40902G806100	GB40602G600600
Overall Water Body	Good	Good
Quantitative	Good	Good
Quantitative Status element	Good	Good
<i>Quantitative Dependent Surface Water Body Status</i>	<i>Good</i>	<i>Good</i>
<i>Quantitative GWDTEs test</i>	<i>Good</i>	<i>Good</i>
<i>Quantitative Saline Intrusion</i>	<i>Good</i>	<i>Good</i>
<i>Quantitative Water Balance</i>	<i>Good</i>	<i>Good</i>
Chemical (GW)	Good	Good
Chemical Status element	Good	Good
<i>Chemical Dependent Surface Water Body Status</i>	<i>Good</i>	<i>Good</i>
<i>Chemical Drinking Water Protected Area</i>	<i>Good</i>	<i>Good</i>
<i>Chemical GWDTEs test</i>	<i>Good</i>	<i>Good</i>
<i>Chemical Saline Intrusion</i>	<i>Good</i>	<i>Good</i>
<i>General Chemical Test</i>	<i>Good</i>	<i>Good</i>
Supporting elements (Groundwater)		
<i>Prevent and Limit Objective</i>	<i>Active</i>	<i>Active</i>
<i>Trend Assessment</i>	<i>No trend</i>	<i>Upward trend</i>

3.2 Screening of Activities

3.2.1 Screening of proposed activities is shown in Table 3-3.

Table 3-3. Screening of the Proposed Development's activities against WFD Water Bodies

Activity	Description	Screening Outcome	Justification
Solar PV modules and mounting structures	Solar PV modules will be: 4.78 m long and 1.13 m wide. - Held above ground on narrow (<100 mm) diameter piled legs driven 1-2 m deep into the ground to prevent sealing the ground with an impermeable surface. - Have a ground clearance of least 0.6 m Above Ground Level (AGL). - Have a maximum panel height of approximately 3 m AGL.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This activity is screened out on the basis that solar PV modules will not be installed within 10 m of any watercourses, which removes any direct impact to hydromorphological, biological, physico-chemical, and groundwater quality elements.
Battery Energy Storage Systems (BESS) and onsite substation	The Proposed Development will include a BESS of up to 49.9 MW, consisting of: 14 battery units in three banks; - Each battery unit will measure 15.3 m long, 3.1 m wide, and 3.25 m high; and - There will be an associated onsite substation that is 7.65 m long, 6.02 m wide, and 5.28 m high.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This activity is screened out on the basis that BESS and substation will not be installed within 10 m of any watercourses, which removes any direct impact to hydromorphological, biological, physico-chemical, and groundwater quality elements.

Activity	Description	Screening Outcome	Justification
Onsite Cabling	Underground cabling will be required to connect PV modules to the BESS. Indicative design information suggests that the trench will be 1.5 m deep and 1.25 m wide. The location and routing of the onsite cabling is currently unknown.	In: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	A 'worst-case scenario' has been considered, that watercourses would be modified with hard engineering and/or culverts to protect cables at the crossing points. If this is not the proposed crossing method, then it is likely that this activity can also be screened out from being a WFD risk. The designer will need to develop and justify a suitable watercourse crossing design that avoids WFD impacts to the satisfaction of the consenting authority. For example, a non-intrusive method that is often employed is to lay cables by horizontal direct drilling a suitable depth under the bed of watercourses. Potentially, given that these are small watercourses, another method that could be considered by the designer is trenching inclusive of clear justifications of how existing water, bed, and bank habitats will be fully reinstated. These methods would avoid any operational impacts, with minor risks at construction controlled by implementing a Construction Environmental Management Plan (CEMP).
Fencing and Security	The Site would be enclosed with stock proof mesh fencing. This fencing will: • Be to a maximum height of 2.5 m; • Be sited inside the outermost hedges/trees/vegetation along existing field boundaries, ensuring that the fence is visually obscured; and • Include gates at the highway access points for maintenance access that will be of the same design, material, and colour as the security fencing.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This activity is screened out on the basis that fencing will not be installed within 10 m of any watercourses, which removes any direct impact to hydromorphological, biological, physico-chemical, and groundwater quality elements.

Activity	Description	Screening Outcome	Justification
Access Tracks	Access tracks: - Will not run within 10 m of any watercourses; - Will not require any new watercourse crossings; - Will be constructed from a permeable build-up and will drain overland into the solar fields.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This activity is screened out on the basis that access tracks will not be installed within 10 m of any watercourses, and there will be no new watercourse crossings, which removes any direct impact to hydromorphological, biological, physico-chemical, and groundwater quality elements. Should this change then this activity will require re-assessment at a future stage.
Surface Water Drainage and Outfalls	The proposed surface water drainage strategy: - Closely replicates the existing drainage regime. Any runoff from the panels will fall onto the field, where it will either infiltrate into the ground or run off according to the existing drainage regime, therefore maintaining existing greenfield runoff rates. - Includes no formal outfalls, instead boundary swales will be placed at the downslope ends of the solar PV fields and will not connect directly to the existing watercourses found across the Site. This allows captured runoff to pond and gradually infiltrate into the ground, thus maintaining present greenfield runoff rates. For further details, consult the Outline Drainage Strategy [60727989-ACM-P1-XX-RP-C-0001].	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	Given the proposed drainage strategy has no formal outfalls and will maintain greenfield runoff rates, it is considered that the water bodies can be screened out of further assessment as there is no anticipated impact to any hydromorphological, biological, physico-chemical, or groundwater quality elements.

Activity	Description	Screening Outcome	Justification
Biodiversity and Landscaping	Hedgerows around the Site will: - Be maintained where practicable to screen the development from external views, and also provide biodiversity benefit. - Benefit from additional infill planting with native hedgerow species where there are existing gaps in the hedgerow. Areas of Biodiversity Net Gain (BNG) will be included within the Site and a minimum BNG of 10% will be implemented with the aim to achieve a higher BNG value.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	Landscape and biodiversity enhancements would not impart direct impacts to WFD quality element receptors. Replacing existing impactful land use practices such as arable and cattle farming with native grasses would have indirect benefits to WFD receptors; therefore, this element is screened out of further assessment.
Change of land use	There will be a change in land use from the existing arable/agricultural to unimproved grassland throughout the Site.	Out: Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Key (Source to Thames) Water Body (GB106039023650) Brinkworth Brook Water Body (GB109053027740) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	There may be residual benefits as a result of a reduction in arable agriculture, which could lead to reduced runoff of sediment and pollutants to watercourses.

3.3 Summary of WFD Screening Assessment

- 3.3.1 Four surface water bodies and two groundwater bodies are within the 1 km potential zone of influence of the Proposed Development and were therefore screened in for assessment. These water bodies are:
- Brinkworth Brook Water Body (GB109053027740);
 - Key (Source to Thames) Water Body (GB106039023650);
 - Lydiard Brook Water Body (GB106039023310);
 - Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760);
 - Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100); and
 - Shrivenham Corallian Water Body (GB40602G600600).
- 3.3.2 An appropriate Construction Environmental Management Plan (CEMP) will be implemented to ensure that there are no adverse impacts during the construction phase of the Proposed Development. Therefore, construction impacts have not been considered within this assessment.
- 3.3.3 The Proposed Development operational activities have been screened for potential WFD risks, considering design mitigation. The outcome of activity screening was that the onsite cabling activity may pose a risk to local water bodies, sensitive water habitats, or WFD objectives.
- 3.3.4 This activity is therefore passed forward to WFD Scoping, the next stage of assessment.

4. WFD Scoping

4.1 Scoping of WFD Quality Elements

4.1.1 The scoping of WFD quality elements is shown in Table 4-1.

Table 4-1 WFD Scoping Assessment

WFD Element	Scoping Outcome	Justification
Biological Quality Elements		
Fish	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it could have a negative impact to fish populations and habitat across the Site.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Invertebrates	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it could have a negative impact to invertebrate populations and habitat across the Site.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Macrophytes and Phytobenthos Combined	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it could have a negative impact to macrophyte populations and habitat across the Site.

WFD Element	Scoping Outcome	Justification
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Physico-chemical Quality Elements		
Thermal Conditions	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it would increase shading to the culverted watercourses so there is a potential impact to thermal conditions.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Oxygenation Conditions	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it may impact upon oxygenation conditions due to changes in flow conditions.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Salinity	Out: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	No materials that may alter the salinity of water bodies are proposed for use in the Proposed Development.

WFD Element	Scoping Outcome	Justification
Acidification Status	Out: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	No materials that may alter the pH of water bodies are proposed for use in the Proposed Development.
Nutrient Conditions	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, it may impact upon nutrient conditions due to effects to plant and macrophyte growth, which influence nutrient conditions.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Hydromorphological Supporting Elements		
Quality and Dynamics of Water Flow	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, there could be a negative impact to the quality and dynamics of water flow.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Connection to Groundwater Bodies	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650)	If channel engineering is required for the installation of onsite cabling, there could be a negative impact to connection to groundwater bodies.

WFD Element	Scoping Outcome	Justification
	Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	
River Continuity	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, there could be a negative impact to river continuity.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
River Depth and Width Variation	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, there could be a negative impact to river depth and width variation.
	Out: Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	This quality element is not associated with groundwater bodies.
Structure and Substrate of the Riverbed	In: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760)	If channel engineering is required for the installation of onsite cabling, there could be a negative impact to the structure and substrate of the riverbed.
	Out:	This quality element is not associated with groundwater bodies.

WFD Element	Scoping Outcome	Justification
	Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	
Groundwater Quality Elements		
Quantitative Elements	Out: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	Onsite cabling will have no operational impact to groundwater connectivity based on the shallow proposed depth of the cable trench (1.5m). Whilst there may be some impact to groundwater connectivity during the construction phase, this would only be for the relatively short duration of the works and would be mitigated by measures detailed in a CEMP.
Chemical Elements	Out: Brinkworth Brook Water Body (GB109053027740) Key (Source to Thames) Water Body (GB106039023650) Lydiard Brook Water Body (GB106039023310) Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760) Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100) Shrivenham Corallian Water Body (GB40602G600600)	Onsite cabling will have no operational impact to groundwater connectivity based on the shallow proposed depth of the cable trench (1.5m). Whilst there may be some impact to groundwater connectivity during the construction phase, this would only be for the relatively short duration of the works and would be mitigated by measures detailed in a CEMP.

4.2

Summary of WFD Scoping Assessment

- 4.2.1 One activity associated with the Proposed Development was identified through WFD Screening as having a potential impact. This was:
- Onsite cabling.
- 4.2.2 This activity has been identified as a potential WFD risk because there is no information available yet on cabling routes or installation methods, or how watercourses would be crossed or watercourse impacts avoided. The risk of WFD impacts is probably low, but a risk remains on a precautionary basis until design information is made available and can be assessed to confirm otherwise.
- 4.2.3 An appropriate CEMP will be implemented to ensure that there are no adverse impacts during the construction phase of the Proposed Development. Therefore, construction impacts have not been considered within this assessment.

- 4.2.4 The CEMP will detail the procedures and methods that must be followed to minimise the potential environmental effects of construction activities. This would include procedures to prevent pollutants entering the drainage system or discharging directly to surface water features or to ground. It would also describe the procedures in the event of an environmental emergency, for example a fuel or chemical spillage.
- 4.2.5 Measures for the management of fine sediment in surface water runoff as a result of construction activities to be detailed in the CEMP should include, but may not necessarily be limited to, the following:
- All reasonably practicable measures will be taken to prevent the deposition of fine sediment or other material in, and the pollution by sediment of watercourses, arising from construction activities. The measures will accord with the principles set out in industry guidelines.
 - Where possible, works adjacent to watercourses will be undertaken during the drier months of the year. When undertaking works, periods of wet weather will be avoided, to minimise the risk of generating runoff contaminated with fine particulates. If working during wet weather periods is unavoidable, mitigation measures will need to be implemented to control fine sediment laden runoff.
 - To protect watercourses from fine sediment runoff, any removed topsoil/subsoil will be stored a minimum of 20 m from watercourses, on flat lying land (and further if the ground is sloping, subject to onsite risk assessment and observational monitoring). Where this is not possible, and it is to be stockpiled for longer than a two-week period, the material will either be covered with geotextile mats, seeded to promote vegetation growth or other measures to limit fine sediment laden runoff.
 - Where semi-mobile large plants (e.g., cranes) need to work on the channel banks, the banks should be stabilised to minimise bank collapse and erosion of fine sediment in watercourses.
 - Mud deposits will be controlled using wheel washing facilities at entry and exit points to the construction works area (at least 10 m from watercourses) and/or other times as considered necessary.
 - Equipment and plant will be washed out and cleaned in designated areas within the construction works area (at least 10 m from watercourses), where runoff can be isolated for treatment. If not suitable to dispose of on site, contaminated wastewater should be disposed of off-site at appropriate facilities.
 - Debris and other material will be prevented from entering watercourses, through maintenance of a clean and tidy site, provision of clearly labelled waste receptacles, grid covers and the presence of site security fencing.
- 4.2.6 Measures for the management of spillages and leaks as a result of construction activities to be detailed in the CEMP should include, but may not necessarily be limited to, the following:
- An Emergency Response Plan or similar entitled plan would be prepared and included in the CEMP and implemented by the Contractor(s) on site.
 - Spill kits and oil absorbent material (e.g., plant nappies) will be carried on all mobile plants and located at high-risk locations across the construction works area and regularly topped up. All construction workers will receive spill response training and toolbox talks.
 - All spills to be cleaned up immediately, with resultant wastes (soils, rags, and absorbent material) appropriately stored and disposed of by an appropriately licensed waste contractor as controlled waste. All spills reported and investigated as required.
 - Re-fuelling will take place in designated areas within the compound with drip trays/plant nappies and on flat land, at least 20 m from the water body. Certain semi-mobile large

plants (e.g., cranes) may need to be re-fuelled in-situ, within 20 m of the water body and would require site-specific risk assessments by the Contractor(s).

- Biodegradable lubricant and hydraulic oils should be used for all vehicles and plant within the Scheme, where possible.
- Storage of fuel would be in accordance with The Control of Pollution (Oil Storage) (England) Regulations (2001). Safety Data Sheets (SDSs) for all chemicals stored on-site will be kept on file and made available on-site.
- Any potentially contaminating substances (e.g., cement/adhesives) stored on site, will be in leak-proof containers and stored at least 20 m away from watercourses (except for in fixed/large plants associated with the construction). The containers would be protected by temporary impermeable bunds (or drip trays for small containers) with a capacity of 110% of the maximum stored volume.
- Any permanent oil storage tanks and temporary storage of 200 L or more of oil in drums and mobile bowsters (and their ancillary pipe work, valve, filters, sight gauges etc.) must be stored in a secondary containment system e.g., bunding or drip trays.
- Cement mixing and washing areas should be situated on an impermeable designated area, at least 20 m away from the water body and should have settlement and re-circulation systems for water reuse, to minimise pollution risk. Contaminated wastewater from cement works cannot be discharged into water bodies and should be disposed of off-site at appropriate facilities.
- All plant and equipment will be regularly serviced to reduce emissions and the chance of leaks/spillage, ideally off-site. If servicing is required to be completed on-site, then control measures must be implemented to contain potential hydrocarbon leaks during servicing (e.g., drip trays when changing oil).
- Temporary environmental screens will be erected, sufficient to prevent construction debris oils, chemicals, or other construction materials from entering any watercourse/ drain for the duration of the works.
- The Scheme site is to be secure to prevent any vandalism that could lead to a pollution incident.
- The Contractor's method statement should make specific reference to measures for the protection of river quality.

4.2.7 Eleven WFD quality elements have been scoped in for potential impact as a result of this activity:

- Fish;
- Invertebrates;
- Macrophytes and Phytobenthos Combined;
- Thermal Conditions;
- Oxygenation Conditions;
- Nutrient Conditions;
- Quality and Dynamics of Water Flow;
- Connection to Groundwater Bodies;
- River Continuity;
- River Depth and Width Variation; and
- Structure and Substrate of the Riverbed.

5. Conclusions

- 5.1.1 AECOM Ltd was commissioned by Ampyr Solar Europe ('the Applicant') to undertake a Water Framework Directive (WFD) Screening and Scoping Assessment of Flaxlands Solar Farm ('the Proposed Development'). This assessment is based on the Proposed Development information provided to AECOM by The Applicant and relevant open source data available within the timeframe of AECOM's commission.
- 5.1.2 This assessment has considered the potential impacts of the Proposed Development to the following surface water and groundwater bodies:
- Brinkworth Brook Water Body (GB109053027740);
 - Key (Source to Thames) Water Body (GB106039023650);
 - Lydiard Brook Water Body (GB106039023310);
 - Woodbridge Bk - source to conf Charlton Str Water Body (GB109053027760);
 - Corallian Limestone (Calne to Swindon) Water Body (GB40902G806100); and
 - Shrivenham Corallian Water Body (GB40602G600600).
- 5.1.3 Generally, risks to WFD objectives can be screened out for the majority of proposed activities.
- 5.1.4 However, one activity associated with the Proposed Development, namely onsite cabling, has been Screened In as a potential risk to watercourses and WFD objectives. This activity is Screened In on a precautionary basis, owing to the lack of design information presently available to exclude WFD risks with certainty.
- 5.1.5 A 'worst-case scenario' has been considered, that watercourses would be modified with hard engineering and/or culverts to protect cables at the crossing points. If this is not the proposed crossing method, then it is likely that this activity can also be screened out from being a WFD risk. The designer will need to develop and justify a suitable watercourse crossing design that avoids WFD impacts to the satisfaction of the consenting authority. For example, a non-intrusive method that is often employed is to lay cables by horizontal direct drilling a suitable depth under the bed of watercourses. Potentially, given that these are small watercourses, another method that could be considered by the designer is trenching inclusive of clear justifications of how existing water, bed, and bank habitats will be fully reinstated. These methods would avoid any operational impacts, with minor risks at construction controlled by implementing a Construction Environmental Management Plan (CEMP).
- 5.1.6 At this point, further WFD assessment is recommended when cabling design information can be made available. Further WFD assessment should either screen out this last remaining WFD risk, or be used to provide appropriate mitigation guidance to input to designs.

6. References

Ref 1 Environment Agency (2022) Thames river basin management plan: updated 2022. Available at: <https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022>.

Ref 2 Environment Agency (2022) Severn river basin management plan: updated 2022. Available at: <https://www.gov.uk/guidance/severn-river-basin-district-river-basin-management-plan-updated-2022>.

Ref 3 HMSO (2017). Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/407/contents>

Ref 4 Environment Agency (2016a). Water Framework Directive risk assessment: How to assess the risk of your activity. Available at: <https://www.gov.uk/government/publications/water-framework-directive-how-to-assess-the-risk-of-your-activity>.

Ref 5 Environment Agency (2016b). Protecting and improving the water environment. Water Framework Directive compliance of physical works in rivers.

Ref 6 Planning Inspectorate (2024): Advice on the Water Framework Directive. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive>.

Ref 7 Environment Agency Catchment Data Explorer website. Available at: <https://environment.data.gov.uk/catchment-planning/>.