The Great Grid Upgrade

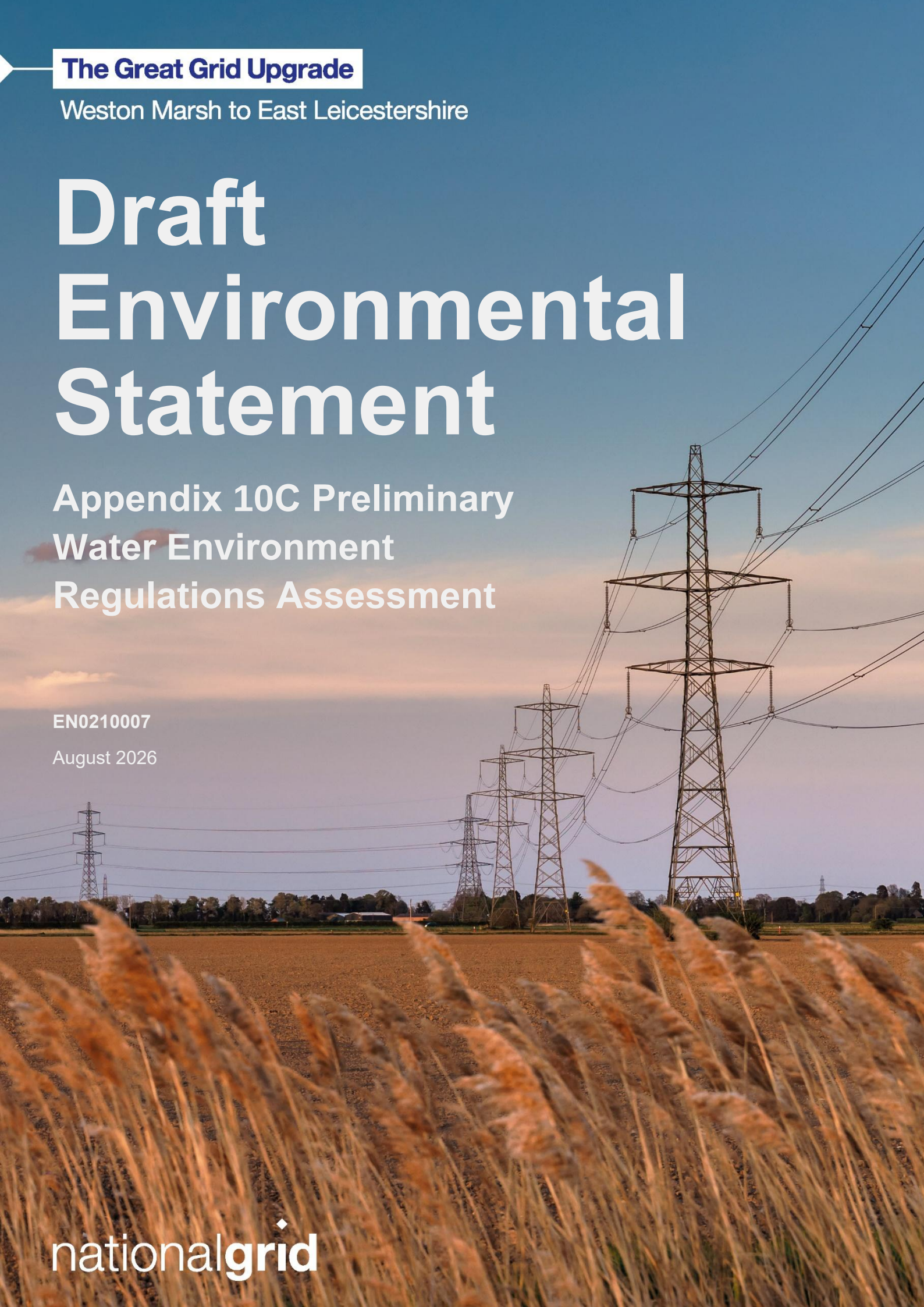
Weston Marsh to East Leicestershire

Draft Environmental Statement

Appendix 10C Preliminary Water Environment Regulations Assessment

EN0210007

August 2026



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10C.1 Introduction

10C.1.1 This Water Environment Regulations (WER) Assessment has been prepared as part of the Draft Environmental Statement (DES) for The Weston Marsh to East Leicestershire Project (hereafter referred to as the 'Project'). It is a revision and extension of the WFD Screening and Scoping Report prepared and submitted alongside the EIA Scoping Report in 2025 (**Appendix 10A Water Environment Baseline Report**) when seeking a Scoping Opinion from the Planning Inspectorate (PINS).

10C.1.2 The Project forms part of a major programme of reinforcement of the electricity transmission system to accommodate major increases in north-south power flows, helping take power generated from renewable sources (especially from offshore wind) to areas of consumer demand across the UK. This would be achieved by constructing new overhead line over a distance of approximately 60 km starting from the new 400 kV Weston Marsh substation infrastructure and ending at a new 400 kV substation in East Leicestershire.

10C.1.3 The Project is expected to include the following elements:

- approximately 60 km of new 400 kV overhead transmission line to the west of the proposed substation at Weston Marsh (to be delivered by the Grimsby to Walpole Project);
- a new 400 kV substation to be built in the vicinity of the existing 4VK (Cottam – Wymondley) 400 kV overhead line to the west of Corby Glen, South Kesteven (referred to as 'WMEL-A');
- a new 400 kV substation to be built in the vicinity of the existing ZA (Cottam – Sundon) 400 kV overhead line to the west of the village of Ab Kettleby and north west of Melton Mowbray, Melton (referred to as 'WMEL-B');
- reconductoring of approximately 66 km of the existing ZA 400 kV overhead line from WMEL-B to the existing Grendon Substation, east of Northampton; and
- realignment of short sections of existing 400kV overhead line and local changes to the distribution networks to facilitate the construction of the new overhead line and substations.

10C.1.4 A full description of the Project can be found in **Chapter 4 Description of the Project** of the DES.

Study Area

10C.1.5 For the purposes of this assessment, and consistent with the **Chapter 10 Water Environment** of the DES, a general Study Area of all land within the draft Order Limits plus approximately 500 m from the draft Order Limits has been considered to

identify water bodies that are hydrologically connected to the Project and therefore have the potential to be impacted by the Project. It is considered appropriate based on technical knowledge of similar projects and has been set following consideration of the distance over which likely significant effects can reasonably be expected to occur. However, given that impacts may propagate downstream, where relevant the assessment also considers a wider Study Area to as far downstream as a potential impact may influence downstream connecting water bodies. This is based on professional judgement and is the distance within which it is considered there is the potential for adverse impacts to occur. Generally, a distance of a few kilometres is used for this purpose, and this will be defined within the Environmental Statement (ES) and within the final WER Assessment to be submitted with the Development Consent Order (DCO) application.

10C.1.6 The Study Area interacts with multiple WER water body catchments as illustrated on **Figure 10.4 WER surface water body catchments** and **Figure 10.5 WER groundwater bodies**.

Introduction to the Water Environment (Water Framework Directive) Regulations

10C.1.7 The Water Framework Directive (WFD) (2000) was transposed into UK law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 10C.1), (the Water Environment Regulations 'WER Regulations') aims to protect and enhance the water environment.

10C.1.8 The WER 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'.

10C.1.9 Under the WER, 'water bodies' are the basic management units, defined as all or part of a river system or aquifer. Water bodies 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 Cycle 3 that were published in 2022.

10C.1.10 In England, the Environment Agency is the appropriate agency for implementing the WER, 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.

10C.1.11 The Environment Agency is also responsible for managing flood risk and other activities on Main Rivers. Lead Local Flood Authority (LLFA) or Internal Drainage Boards (IDBs) are typically responsible for consenting activities that may affect the flow of Ordinary Watercourses. Local planning and highway authorities are typically responsible for highways drains, and landowners are typically responsible for ditches and watercourses within their property including piped watercourses and culverts (i.e. they have riparian ownership). While the Environment Agency is ultimately responsible for ensuring compliance with the WER for water bodies, local planning authorities and other regulating bodies are required to consider RBMPs when exercising their statutory functions.

10C.1.12 As part of its regulatory and statutory consultee role on planning applications and environmental permitting (under the Environmental Permitting Regulations (England and Wales) 2016) (Ref 10C.2), the Environment Agency and WER-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.

10C.1.13 Regulation 33 of the Water Environment Regulations 2017 (Ref 10C.1) 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 Project must therefore reflect water body improvement priorities as outlined in the Humber RBMP (Ref 10C.3) and Anglian RBMP (Ref 10C.4).

10C.1.14 In determining whether a development is compliant or non-compliant with the WER objectives for a water body, the Environment Agency and partnering organisations must also consider the conservation objectives of any Protected Areas (i.e. European sites or water dependent Sites of Special Scientific Interest) and adjacent WER water bodies, where relevant.

Methodology

WER Assessment Methodology

10C.1.15 There are no fixed methods for WER 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.

10C.1.16 The following general guidance is available which has been applied for this assessment:

- Environment Agency (2016). Water Framework Directive risk assessment. How to assess the risk of your activity. (Ref 10C.5).
- The Planning Inspectorate (2024), Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. (Ref 10C.6).

10C.1.17 A stepwise approach consisting of screening, scoping and impact assessment phases is generally followed in order to:

a) rationalise the levels of WER assessment and impact mitigation that are required; and

b) verify that proposals meet the requirements of the WER.

10C.1.18 The general approach is described by the Planning Inspectorate (2024): Advice on the Water Framework Directive and briefly summarised below. The stepwise approach means that not all WER assessment stages are necessarily required.

Stage 1: Screening

10C.1.19 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. The screening stage:

- Shows all relevant WER 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.
- Identifies any specific activities and/or characteristics of the proposed development that have been screened out and why.

10C.1.20 Screening may find that no further consideration of WER matters is needed. For example, where water bodies are not located within the development's zone of influence or where no impact pathways exist.

Stage 2: Scoping

10C.1.21 After screening, the scope of further assessment is determined if required. 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.
- Identification of those water bodies where a more detailed impact assessment is needed.

Stage 3: Impact Assessment

10C.1.22 The impact assessment is a detailed assessment of the water bodies and activities carried forward from the WER 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 WER assessment.
- The methods used to determine and quantify the scale of WER 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.
- Identification of any areas of non-compliance.

Mitigation Commitments

10C.1.23 Proposed mitigation measures relied upon to demonstrate compliance at any of the stages referred to above must be appropriately defined and sufficiently secured.

WER Compliance Checks

10C.1.24 All of the staged assessments summarised above consider potential risk sources, pathways and receptors with regards to the following checks for compliance with WER objectives, as set out in the WER regulations (Ref 10C.1Ref 10C.1), and assessed in Section 10C.4 of this report:

- 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.
- Opportunities have been sought to improve the water environment.

WER Derogation

10C.1.25 Where WER impact assessment identifies potential risks to WER objectives that cannot reasonably be avoided or mitigated, the legislation includes mechanisms for derogation. WER Regulation 17 and Regulation 19 (Ref 10C.1) set out stringent and 'last resort' planning and legal processes for WER 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 as the appropriate authority and is likely to require a substantial body of multi-disciplinary evidence. The Secretary of State would consider whether derogation is justified for a project.

Desk Study

10C.1.26 A desk-based study was carried out to capture information pertaining to the Project and support the understanding of water environment baseline conditions. Review of relevant information relating to the Study Area was undertaken to develop a baseline overview for WER catchments, water bodies and surrounding areas. This focuses on WER classification of relevant water bodies. A summary of the water environment baseline conditions for the Study Area is provided in **Chapter 10 Water Environment** of the DES; a full, detailed description of the baseline is provided in **Appendix 10A Water Environment Baseline Report**, of the DES.

Field Survey

10C.1.27 Initial walkover surveys have been undertaken of accessible water/drainage features to inform the surface water environment impact and WER assessments. The initial walkover surveys have been undertaken in April 2026 during a transitional seasonal period when vegetation growth is lower compared to late Spring and Summer. This period allows for best visibility of water features, and is when groundwater and flows tend to be higher to aid identification of smaller, perhaps ephemeral or only

intermittently flowing watercourses. However, it may not have been possible to identify all of the smallest or ephemeral water features. In addition, given the scale of the Project, it is not practical to visit all watercourse crossing locations or structures. Access to WMEL-B was not possible, therefore visual assessment of the water/drainage features has not been undertaken in that location. Regardless, sufficient survey coverage has been undertaken to ensure that a robust preliminary impact assessment can be made. Assessment validity checks can be made prior to any direct physical works that may be undertaken.

10C.1.28 The walkover surveys focussed on surface watercourses within the Study Area, making visual observations of their current character and condition, the presence of existing risks, and seeking to identify any potential pathways for construction and operation impacts from the Project. These observations have been considered within the context of the WER to establish a baseline for each of the Hydromorphological Quality Elements. A summary of the observations made during the walkover survey is presented in **Appendix 10D Surface Water Environment Walkover Summary**.

10C.1.29 Taking into consideration the nature of the Project and degree of risk to the water environment, no water quality monitoring or aquatic ecological surveys are proposed. Background data from routine Environment Agency monitoring that underpins the current WER classifications for each watercourse has been used to inform the baseline. This is considered an appropriate and standard approach, based on professional judgement. Water quality monitoring is only effective when there is a clear purpose for it, which is not considered the case here. Therefore, no water quality sampling is proposed to support the water environment and WER assessment.

Consultation and Engagement

10C.1.30 The design has developed as a result of ongoing engineering design, landowner discussions, environmental assessment and consultation and engagement responses received during Stage 1 Consultation and meetings with relevant stakeholders. The design also reflects responses to the statutory scoping consultation undertaken by the Planning Inspectorate, as provided in **Appendix 5B Scoping Opinion**.

10C.1.31 This WER Impact Assessment has been informed by consultation and engagement with the relevant stakeholders, which include primarily the Environment Agency, but also Lead Local Flood Authorities (LLFAs) (Leicestershire County Council, Lincolnshire County Council, West Northamptonshire Council and North Northamptonshire Council)) and the Water Management Alliance Internal Drainage Boards (IDBs), as well as Anglian Water.

10C.1.32 A full summary of issues raised in the Scoping Opinion and responses are provided in **Appendix 5C Preliminary Scoping Opinion Response**. A key point raised in the Scoping Opinion was regarding the proposed watercourse crossing methodology. Watercourses will be crossed via clear span bridges or culverts. For example, large or important watercourses, and those with WFD status require clear span bridges; whereas smaller watercourses would likely use culverts. At this stage, the type of crossing for each individual watercourse is unknown, however crossings will be appropriately sized and the approach will be agreed with the Environment Agency, LLFAs and IDBs.

10C.1.33 A Technical Working Group (TWG) meeting took place on 31 March 2026 including representatives from the Environment Agency, Leicestershire County Council, Lincolnshire County Council, Canal and Rivers Trust, Anglian Water, Severn Trent Water, Natural England, and Witham and Humber IDB. As part of this meeting, the Environment Agency raised a comment on operational pollution risks and the need to list all potential impacts, including herbicide and welfare facilities, even if managed through mobile welfare units. This has been considered within this WER and will be considered further in the ES assessment once more information is received. These TWG meetings will occur quarterly to enable regular engagement with relevant stakeholders.

Assumptions and Limitations

10C.1.34 The location and layout of infrastructure (including access track routes and the need to cross any watercourses, size of site compounds, construction methodologies and mitigation), have not yet been determined. This is of particular importance when considering impacts associated with temporary watercourse crossings for access, the quality of surface water runoff, impacts to hydromorphology and channel hydraulics. At this stage it is assumed that the protection of water environment receptors would be taken into account within the iterative design process, including the choice of crossing methodology and use of good practice methodologies for construction. A draft Outline Code of Construction Practice (CoCP) is provided as **Appendix 4A Draft Outline Code of Construction Practice**. It has been produced to set out control and management measures that will be undertaken during construction of the Project. The implementation of measures will be secured through the DCO.

10C.1.35 Culvert installations may be required for temporary access tracks to cross ditches and watercourses. Detail on the type of temporary or permanent access crossing to be used over watercourses is not confirmed at this stage. Therefore, applying the precautionary principle and reflecting a reasonable worst-case scenario, it has been assumed that crossings will be box or pipe culverts. The size and depth of a culvert is dependent upon the dimensions of the crossing, sensitivity, and importance of the watercourse. As the Project develops, assessment of the impact at each crossing point will be undertaken and a suitable crossing type agreed with statutory consultees. This may include clear span structures for larger or more sensitive watercourses, with the culvert hierarchy applied elsewhere, where the least impacting design that is reasonably practicable is proposed. Where box or pipe culverts are unavoidable, the culvert should be set below the existing natural bed level for a semi-natural bed to establish within the culvert.

10C.1.36 It is proposed that the new power line will be entirely overhead. However, if any undergrounding of the line is required, the scope of the assessment will include identification of any watercourse crossings and then the assessment of proposed crossing methods. For example, this may include a combination of non-intrusive (e.g. Horizontal Directional Drilling (HDD)) or intrusive techniques (e.g. open-cut) and determination of the minimum depth the cables will be placed below the bed (e.g. 1.5 m in line with Flood risk activity permit (FRAP) exemption criteria[1]). There may also need to be some consideration of the heat that may be given off by cables, although

[1] https://www.gov.uk/government/publications/environmental-permitting-regulations-exempt-flood-risk-activities/exempt-flood-risk-activities-environmental-permits

at this stage it is considered that this would not result in any significant change to water temperature in water features.

10C.1.37 It is assumed that the iterative design process will allow water receptors to be avoided and a suitable drainage strategy developed that includes attenuation and treatment of runoff, as required. New surface water outfalls are expected from the proposed new substations. Applying a precautionary approach, it is assumed that these would be to watercourses via new engineered outfalls. The Drainage Strategy for the Project will consider the opportunity for infiltration or, if this is not possible, the inclusion of ditches to avoid new engineered structures along receiving watercourses.

10C.1.38 At the time of writing, it is not known whether there would be a need for a permanent foul drainage solution from the proposed new substations. If required, options may include connecting to the nearest available public sewer or a self-contained independent non-mains domestic storage and/or treatment system. Iterative design and assessment will consider the options and adopt a precautionary worst-case approach. However, it is assumed that there will be no local discharge to a watercourse. Similarly, it is assumed that if a potable water supply is required at the proposed new substation sites, that this would not involve an abstraction from a local source but would be connected to the mains supply.

10C.2 WER Screening

WER Screening Overview

10C.2.1 The purpose of the WER screening stage is to identify a zone of influence of the Project and to determine whether that influence has the potential to adversely impact upon WER water body receptors. The screening stage also identifies specific components of the Project that could affect receptor water bodies' WER status and carries them forward to subsequent stages of the assessment process. Water body receptors or activities that are screened out are not carried forward, and justification is provided.

Screening of WER Water Bodies

10C.2.2 The Project interacts with a number of WER surface water and groundwater bodies (Ref 10C.7), as illustrated on **Figure 10.4 WER surface water body catchments** and **Figure 10.5 WER groundwater bodies**. WER Screening of these water bodies is provided in **Table 10C.1**. Smaller tributaries within each of the WER water body catchments that may be impacted by the Project are considered in this assessment. Any other remaining downstream water bodies not mentioned below are considered sufficiently far downstream to avoid impacts of the Project or would not interact with the Project and are therefore screened out of further assessment.

Table 10C.1 Screening of WER water bodies

Water Body	WER IDs	Screening Outcome	Justification
Section 1 – South Holland			
Moulton River	GB205031050755	In	Section 1 interacts with these water bodies. Thus, there is a risk to WER quality elements and the ecological and chemical status of each receptor water body from activities that would interact with the local watercourse network during the construction and operation phases of the Project. Potential impacts would include intrusive access track crossings, receiving surface water runoff, spillages, fine sediment and organic material from the construction of towers. Therefore, these water bodies are screened in for further assessment. However, this is based on a precautionary assessment due to limitations on available Project information at this early stage. It is possible that once further Project information is known this initial screening decision could be altered.
Vernatt's Drain	GB205031050705		
Welland (estuary)	GB530503100400		
Glen	GB105031050720		
Section 2 - South Kesteven			
Black Sluice IDB draining to the South Forty Foot Drain	GB205030051515	In	Section 2 interacts with these water bodies. Thus, there is a risk to WER quality elements and the ecological and chemical status of each receptor water body from activities that would interact with the local watercourse network during the construction and operation phases of the Project. Potential impacts would include intrusive access track crossings, receiving surface water runoff, spillages, fine
Car Dyke	N/A		
East Glen River	GB105031055480		
Grimsthorpe Park Brook	GB105031050450		
West Glen - Upper	GB105031055510		
The Tham	GB105031050650		
Witham - headwaters to conf Cringle Bk	GB105030051570		

Water Body	WER IDs	Screening Outcome	Justification
			sediment and organic material from the construction of towers. Therefore, these water bodies are screened in for further assessment. However, this is based on a precautionary assessment due to limitations on available Project information at this early stage. It is possible that once further Project information is known this initial screening decision could be altered.
Section 3 - Melton			
Wymondham Brook Catchment (trib of Langham Brook)	GB104028047540	In	Section 3 interacts with these water bodies. Thus, there is a risk to WER quality elements and the ecological and chemical status of each receptor water body from activities that would interact with the local watercourse network during the construction and operation phases of the Project. Potential impacts would include intrusive access track crossings, receiving surface water runoff, spillages, fine sediment and organic material. Therefore, these water bodies are screened in for further assessment. However, this is based on a precautionary assessment due to limitations on available Project information at this early stage. It is possible that once further Project information is known this initial screening decision could be altered.
Eye from Source to Langham Brook	GB104028047610		
Freeby Brook Catchment (trib of Eye)	GB104028047580		
Eye/Wreake from Langham Brook to Soar	GB104028047550		
Thorpe Brook Catchment (trib of Eye)	GB104028047590		
Scalford Brook Catchment (trib of Wreake)	GB104028047600		
Welby Brook Catchment (trib of Wreake)	GB104028047570		
Austen Dyke Catchment (trib of Wreake)	GB104028047560		
Queniborough Brook Catchment (trib of Wreake)	GB104028047450		

Water Body	WER IDs	Screening Outcome	Justification
Section 4 - Harborough			
Eye Brook	GB105031050550	In	Section 4 interacts with these water bodies. Thus, there is a risk to WER quality elements and the ecological and chemical status of each receptor water body from activities that would interact with the local watercourse network during the construction and operation phases of the Project. Potential impacts would include intrusive access track crossings, receiving surface water runoff, spillages, fine sediment and organic material. Therefore, these water bodies are screened in for further assessment. However, this is based on a precautionary assessment due to limitations on available Project information at this early stage. It is possible that once further Project information is known this initial screening decision could be altered.
Stonton Brook	GB105031050460		
Welland - conf Langton Bk to conf Gwash	GB105031050580		
Langton Brook	GB105031045620		
Welland - conf Jordan to conf Langton Bk	GB105031045610		
Jordan (Welland)	GB105031045600		
Section 5 – Northamptonshire		In	Section 5 interacts with these water bodies. Thus, there is a risk to WER quality elements and the ecological and chemical status of each receptor water body from activities that would interact with the local watercourse network during the construction and operation phases of the Project. Potential impacts would include intrusive access track crossings, receiving surface water runoff, spillages, fine sediment and organic material. Therefore, these water bodies are screened in for further assessment. However, this is
Ise - Upper	GB105032045200		
Slade Brook	GB105032045170		
Loddington Arms (Ise)	GB105032045150		
Pitsford Arm of the Brampton Branch	GB105032045470		
Pytchley Brook	GB105032045110		
Hardwick Brook	GB105032045100		
Ise - Lower	GB105032045140		
Harrowden Brook (Nene)	GB105032045080		
Swanspool Brook	GB105032045070		

Water Body	WER IDs	Screening Outcome	Justification
Sywell Brook	GB105032045430		based on a precautionary assessment due to limitations on available Project information at this early stage. It is possible that once further Project information is known this initial screening decision could be altered.
Nene - conf Brampton Branch to conf Ise	GB105032045050		
Grendon Brook	GB105032045330		
Castle Ashby Arm (Grendon Brook)	GB105032045030		
Groundwater Bodies			
Section 1			
No WER groundwater bodies.			
Section 2			
Welland Limestone Unit B	GB40502G446000	In	There are potential impacts to groundwater bodies from excavations for the construction of substation and potential for dewatering from construction. Therefore, groundwater bodies are screened in for further assessment.
Welland Mid Jurassic Unit	GB40501G445300		
Welland Limestone Unit A	GB40501G445900		
Witham Limestone Unit A	GB40501G444800		
Witham Lias	GB40502G401400		
Section 3			
Soar – Secondary Combined	GB40402G990600		
Lower Trent Erewash – Secondary Combined			
Section 4			
Soar – Secondary Combined	GB40402G990600		
Welland Lower Jurassic Unit	GB40502G304000		
Section 5			
Warwickshire Avon – Secondary Mudrocks	GB40902G990900		
Nene Mid Lower Jurassic Unit	GB40502G402400		
Northampton Sands	GB40501G445500		

Screening of Activities

10C.2.3 The Project comprises a number of activities, some of which present a potential risk to the WER status of water bodies. These components and activities are listed in **Table 10C.2** together with a screening assessment.

10C.2.4 The standard mitigation measures are documented within **Appendix 4A Draft Outline Code of Construction Practice** (CoCP) and have been summarised within **Table 10C.3.**

Design Assumptions

New overhead line

10C.2.5 Principal routeing and siting for the Project has sought to avoid designated sites and sensitive receptors as far as possible. The new overhead transmission line is essential infrastructure that is appropriate in Flood Zone 2, and Flood Zone 3 subject to the Exemptions Test being satisfied. As the Project progresses, further work will be done to identify and evaluate water environment receptors to avoid and minimise adverse impacts through design.

10C.2.6 In addition to the above, the following general design assumptions are being applied with regards to the overhead line. It may not be possible keep to all of these assumptions in all tower locations and where there are exemptions these will be identified.

- As far as practicable lakes, reservoirs and large ponds have been avoided and disruption to watercourses and ditches minimised.
- Where possible, rivers and their floodplains will be crossed at a narrow location.
- The horizontal clearance of any pylons from watercourses and other water features is at least 15 m measured from the top of the bank, batter, edge of a culvert or landward toe of any existing flood defence to avoid hydromorphological impacts, where practicable.
- Overflight of watercourses by the overhead line will be as perpendicular as possible to the flow direction.
- Vertical clearance of the overhead line above the bank or flood bank crest level will be at a minimum height above the watercourse in line with National Grid standards and guidance.

Substations

10C.2.7 As a result of the Corridor Preliminary Routeing and Siting Study, the WMEL-A and WMEL-B substations are to be positioned in the lowest flood risk area as possible. As the Project progresses further design measures will be developed in collaboration with the engineering design team, other environmental disciplines and in consultation with relevant stakeholders, this will include:

- Where possible, a minimum set back distance between new substation infrastructure and watercourse (e.g. minimum 10 m from the top of the bank, batter or landward toe of any existing defence). Appropriate drainage design for substations to ensure no increase in flood or pollution risk arising from site runoff.

- Where possible, a SuDS approach will be implemented, although where necessary this may be augmented with proprietary measures (e.g. electrical equipment such as supercharged transformers contain oil and although self-bunded, surface water runoff from certain areas will be captured and passed through an oil separator). A reinforced concrete bund forming the perimeter to the substations will also act as a secondary spillage containment. Details will be set out in a Drainage Strategy during ES stage, including how it will be maintained in perpetuity for the lifetime of the development. The Drainage Strategy will be available in advance of the DCO application.
- In keeping with the current National Standards for SuDS Guidance (Ref 10C.8), if possible, engineered outfalls to watercourses will be avoided in favour of more natural ditch connections. The design of the final connection of these ditches to the receiving watercourse will be done after development consent is granted, subject to agreement of a suitable securing mechanism.
- The proposed substations will generally be unmanned and operated remotely. At the time of writing, it is not known whether there would be a need for a permanent foul drainage solution from either of the two proposed new substations. If required, options may include connecting to the nearest available public sewer or a self-contained independent non-mains domestic storage and/or treatment system.

Construction Assumptions

10C.2.8 Subject to gaining development consent, assumed to be granted in 2029 following an application in 2028, it is anticipated that construction of the Project would commence in mid-2030. This would start with enabling works including site clearance activities, the installation of construction compounds and temporary access tracks/haul roads. It is expected the main construction works (construction of the new 400 kV overhead line, the new substations, and the reconductoring) would continue through to 2035 m including reinstatement required following construction.

Table 10C.2 Screening of Activities

Activity/Component	Description	Screening Outcome	Justification
60 km of new 400 kV overhead transmission line	New overhead line supported on towers c. 50 m in height and placed approximately every 350 m.	In WER waterbodies within Section 1, 2 and 3.	The new overhead line would need to be supported on towers, the construction of which, and permanent placement of foundations, could have temporary and permanent adverse impacts on any nearby water receptors or groundwater. To mitigate these risks, towers should avoid water features and be positioned away from the top of the bank by a sufficient distance (e.g. 15 m). Overflight of watercourses by the overhead line should also be as perpendicular as possible, and the overhead line should ideally cross the channel perpendicular to the flow, at a narrow point in both the channel and any floodplain, and at sufficient height above the channel and banks. Construction works can be effectively managed using standard protection measures and details of what these are expected to be are set out in **Appendix 4A Draft Outline Code of Construction Practice**. Finally, there would be no permanent impacts on water quality elements from the new overhead line during operation.
A new 400 kV substation to be built in the vicinity of the existing 4VK 400 kV overhead line near Corby Glen, South Kesteven (WMEL-A)	The precise location and layout of the substation will be confirmed through further design, assessment, and consideration of stakeholder feedback. During construction, activities will include: soil stripping, earthworks	In WER waterbodies within Section 2	During construction of the substation, there is potential for works to cause temporary and local impacts to water quality from sediment laden runoff or from the accidental spillage of polluting substance. To ensure compliance with WER objectives, infrastructure should not be located within close proximity of a watercourse and the CoCP (**Appendix 4A Draft Outline Code of**

Activity/Component	Description	Screening Outcome	Justification
	and excavations; use and refuelling of plant and vehicles; temporary works (e.g. spoil storage). The permanent foul, oily water, including below ground oil separator, and surface water drainage systems would be installed once the preparatory works are complete. Reinforced concrete bunds would be installed for each supergrid transformer (SGT) and would comprise a perimeter concrete wall, a base slab continuous with the wall and a central plinth for supporting the SGT. The bunds act as a secondary oil containment measure. Substations will typically be unmanned during operation. However, some sites are to be manned permanently or temporarily. Thus, there may be a need for a potable water supply or foul drainage provision.		**Construction Practice)** includes measures to mitigate the risk of water quality impacts to watercourses. The proposed substations will have large areas of impermeable surfaces which have the potential during operation to increase the volume and rate of surface water runoff to any receiving watercourses, which also has implications for downstream flood risk. **Appendix 10B Preliminary Flood Risk Assessment** (FRA) and preliminary drainage design (see **Chapter 10 Water Environment,** Section 10.7) have been prepared to provide for the attenuation of surface water runoff from areas of hardstanding associated with substations. In accordance with planning policy guidance, runoff from the Project would be attenuated to ensure no increase in surface water discharge rates to watercourses and to provide water quality treatment of runoff water. New engineered outfalls may be required, where infiltration is not proposed or ditches cannot be used for the final connection to a watercourse. However, until the above mitigation is confirmed within the design this activity will remain screened in for assessment for potentially impacted water bodies. As the substations will generally be unmanned and operated remotely, it is assumed permanent welfare provision is not considered necessary. However, if it is, this will either have a connection to the nearest public sewer or otherwise a sealed cesspit will be provided that would be maintained

Activity/Component	Description	Screening Outcome	Justification
			by a specialist and licenced wastewater contractor, who would pump out the tank for offsite disposal as required. On site septic tanks or other package treatment plans discharges to a surface watercourse is not proposed. It is unlikely that this will result in a deterioration in WER quality elements, therefore this can be screened out of further assessment.
A new 400 kV substation to be built in the vicinity of the existing ZA 400 kV overhead line near Ab Kettleby, Melton (WMEL-B)		In WER water bodies within Section 3	During construction of the substation, there is potential for works to cause temporary and local impacts to water quality from sediment laden runoff or from the accidental spillage of polluting substance. To ensure compliance with WER objectives, infrastructure should not be located within close proximity of a watercourse and the CoCP (**Appendix 4A Draft Initial Outline Code of Construction Practice**) includes measures to mitigate the risk of water quality impacts to watercourses. The proposed substations will have large areas of impermeable surfaces which have the potential during operation to increase the volume and rate of surface water runoff to any receiving watercourses, which also has implications for downstream flood risk. **Appendix 10B Preliminary Flood Risk Assessment (FRA)** and preliminary drainage design have been prepared to provide for the attenuation of surface water runoff from areas of hardstanding associated with substations, and further details can be found in **Chapter 10 Water Environment,** Section 10.7 of the DES. In

Activity/Component	Description	Screening Outcome	Justification
			accordance with planning policy guidance, runoff from the Project would be attenuated to ensure no increase in surface water discharge rates to watercourses and to provide water quality treatment of runoff water. New engineered outfalls may be required, where infiltration is not proposed or ditches cannot be used for the final connection to a watercourse. However, until the above mitigation is confirmed within the design this activity will remain screened in for assessment for potentially impacted water bodies. Until the above mitigation is confirmed within the design, this activity will remain screened in for assessment for potentially impacted WER water bodies. There is a small watercourse running through the centre of the substation site. It is not possible to avoid this feature, therefore the design will either need to divert this watercourse around the margins of the substation or it will need to be culverted. This would have unavoidable negative impacts on hydromorphological quality elements so is screened in for further assessment. As the substations will generally be unmanned and operated remotely, it is assumed permanent welfare provision is not considered necessary. However, if it is, this will either have a connection to the nearest public sewer or otherwise a sealed cesspit will be provided that would be maintained by a specialist and licenced wastewater contractor, who would pump out the tank for offsite disposal as required. On site septic tanks

Activity/Component	Description	Screening Outcome	Justification
			or other package treatment plans discharges to a surface watercourse is not proposed. It is unlikely that this will result in a deterioration in WER quality elements, therefore this can be screened out of further assessment.
Reconductoring of approximately 66 km of the existing ZA 400 kV overhead line from WMEL-B to the existing Grendon substation		Out All WER water bodies within Section 1-5	It is unlikely that there would be any impact to WER water bodies from this activity, providing standard mitigation measures as set out in **Appendix 4A Draft Outline Code of Construction Practice** are implemented, and assuming that if any towers need to be replaced, the new structure avoids water features. Therefore, on this basis it is proposed to screen out this component of the Project, although it will be kept under review and the design progresses.
Realignment of short sections of existing 400kV overhead line and local changes to the distribution networks to facilitate the construction of the new overhead line and substations.		Out All WER water bodies within Section 1-5	It is unlikely that there would be any impact to WER water bodies from this activity, providing standard mitigation measures as set out in **Appendix 4A Draft Outline Code of Construction Practice** are implemented, and so it is proposed to be screened out of further assessment.
Temporary construction compounds	This would contain construction worker welfare facilities, a site office, limited parking, wheel wash area, plant and machinery storage, Heavy Goods Vehicle (HGV)/delivery turning area and waste storage areas. The number of compounds is not yet known.	In All WER water bodies within Section 1-5	During construction, there would be a temporary increase in areas of hardstanding which could increase surface water runoff to watercourses. Temporary drainage would be required during construction and should include measures to address silt runoff. Compounds are also likely to include fuel stores and parking for plant and vehicles. Additionally, new structures should not

Activity/Component	Description	Screening Outcome	Justification
			be located within close proximity of surface water bodies so that there are no mechanisms for hydromorphological impact to surface water bodies. Potable water supply will be needed for welfare facilities as well as foul drainage. At this stage it is assumed that potable water will be from a mains supply and there would be no local abstraction. Similarly, foul water would either be directed to the public sewer or would be captured within a sealed cess pit and/or temporary facilities (e.g. portable welfare units) and treated off-site (i.e. no discharge to any watercourse).
Access tracks	Existing accesses to be used where possible. New two-way access track/haul roads would typically be 20 m and would include temporary access, soils storage, drainage and fencing. The haul roads/access tracks would likely consist of stone laid on geotextile membrane or interlocking panels. Culvert installations would be required for temporary access tracks to cross ditches and watercourses. The size and depth of a culvert is dependent upon the dimensions of the crossing, sensitivity, and importance of the watercourse. The Project would	In All WER water bodies within Section 1-5	The construction of access tracks over watercourses would likely cause physical disturbance and impacts on flow regimes. The creation of new temporary culverts should be avoided. Where the crossing of watercourses is required, a clear span bridge should instead be used with the abutments set back from the top of the bank surrounding the watercourse that way any foundations that are required can be built without physically impacting the channel. However, in some circumstances it may be disproportionally expensive to provide clear span structures. Assessment of the impact at each crossing point will be undertaken and a suitable crossing type agreed with statutory consultees. Best efforts will be made to reduce culverting where possible, and all reasonable alternatives

Activity/Component	Description	Screening Outcome	Justification
	require 180 temporary watercourse crossings (including drains and ditches), 168 of these would be by culvert and 12 would be by single span bridge.		should be explored and assessed before culverts are proposed. If culverts are proposed then it should be done so with a view to maintain connectivity along the watercourse for aquatic species and riparian mammals, where these are shown to be present. Adverse impacts can be minimised by applying the culvert hierarchy. For example, arch culverts maintain the existing bed and natural substrate can be provided through temporary watercourse crossings using box culverts with the invert set below the natural bed level for a semi-natural bed to establish within the culvert. Temporary culverts would be sized to reflect the span, width and estimated flow characteristics of the watercourse under peak flow conditions and be kept free from debris with the aim to reduce likelihood of increasing flood risk on or off site. Access structures would need to be built online and so a dry working area would need to be provided and the watercourse flow over-pumped or flumed during culvert installation. Additionally, access tracks may provide a source of fine and other contaminants which may have impacts on WER quality element receptors. Once the works are complete the temporary structures would be removed and the bed and banks of the watercourse reinstated, potentially with some enhancement over baseline. Further details are provided in **Chapter 10 Water Environment** of the DES.

Activity/Component	Description	Screening Outcome	Justification
			The route of the access tracks, the watercourses they may interact with, and the mode of watercourse crossing are unknown at the time of writing. Thus, until there is a confirmed detailed design that demonstrates that the recommendations outlined above will be followed, this activity must be screened in for this stage of assessment.
Abnormal Indivisible Loads (AILs)	Abnormal Indivisible Loads (AILs) would be required to enable construction of the substations, the ES would confirm the number and suggested routing of these movements, which are unknown at this stage.	In All WER water bodies within Section 1-5	If the AILs cross watercourses and there is a need for any works to the existing structure, that could have impacts but would be included with the point described above. In terms of traffic related water quality pollution risks, the number of temporary construction traffic movements would not be material to the traffic flows expected on local roads and thus there would not be any material increase in the pollution risk to any receiving watercourse from local road runoff.
Tower working areas	Tower working areas would typically be 60 m x 60 m for suspension towers and 70 m x 70 m for tension towers. They would either be stone laid on a geotextile or formed of interlocking panels. There will typically be three towers for every kilometre of overhead line.	In WER water bodies within Section 1-3	The tower working areas may cause temporary and local impacts to water quality from sediment laden runoff or from the accidental spillage of polluting substance. During construction, there would be a temporary increase in areas of hardstanding which could increase surface water runoff to watercourses. To ensure compliance with WER objectives, infrastructure should not be located within close proximity of a watercourse and the CoCP (see **Appendix 4A Draft Outline Code of Construction Practice)** should include

Activity/Component	Description	Screening Outcome	Justification
			measures to mitigate the risk of water quality impacts to watercourses. However, until the above mitigation is confirmed within the design, this activity will remain screened in for assessment for potentially impacted water bodies.

Table 10C.3 Standard mitigation measures relevant to the WER taken from the draft Outline CoCP (**Appendix 4A Draft Outline Code of Construction Practice**)

Ref	Summary of Measure	Relevance to WER
W01	On works near to, within, over or under Main Rivers or likely to affect the flow in Ordinary Watercourses, requiring appropriate environmental permits.	Working in accordance with the conditions of relevant consents and permits would safeguard the integrity of watercourses, reducing risk to WER quality elements
W02	On measures to be employed for any open cut watercourse crossings.	The Project crosses numerous land drains, ordinary watercourses and main rivers, so these measures would reduce the risk of deterioration of WER quality elements
W03	On retention of riverbank and in-channel vegetation and use of natural substrate for temporary watercourse crossing culverts.	This would help to minimise impacts on the WER quality elements
W04	On measures to be employed where watercourses are to be crossed by construction traffic.	This would help to minimise impacts to watercourses and WER quality elements.
W05	On requirements for works affecting watercourses, de-watering and other discharge activities.	This would help to minimise impacts on groundwater WER quality elements.
W08	On engagement and alternative supply where Private Water Supplies are impacted.	This would help to minimise impacts on WER quality elements.

Ref	Summary of Measure	Relevance to WER
W10	On potential severance of existing land drainage routes, including agricultural field drainage systems.	This would help to minimise impacts on WER quality elements.
W11	On control of runoff from working areas through implementation of a Drainage Management Plan (DrMP).	This would reduce the risk of deterioration of WER quality elements
GH01	On intrusive ground investigations and assessment to be undertaken	This would help to minimise impacts on groundwater WER quality elements.
GH02	On the requirement to adopt appropriate construction methods to minimise creation of new pathways	This would help to minimise impacts on groundwater WER quality elements.
GH05	On the use and storage of chemicals	This would help to minimise impacts on groundwater WER quality elements.
GH07	On temporary dewatering activities	This would help to minimise impacts on groundwater WER quality elements.
GH12	On treatment of water discharges	This would help to minimise impacts on groundwater WER quality elements.
GH13	On areas of hardstanding required	This would help to minimise impacts on groundwater WER quality elements.
GG16	On the storage of fuels, oils and chemicals	This would help to minimise impacts to WER quality elements.
GG17	On control of water runoff	This would reduce the risk of impacts to WER quality elements during construction.
GG18	On the wash down of vehicles and equipment, and use of sediment traps.	This would help minimise impacts to WER quality elements
AS01	On soil management measures	Appropriate soil management would help to minimise impacts on WER quality elements.

Screening of Sensitive Sites

10C.2.9 A review of sensitive habitats on Defra's MAGIC Map website (Ref 10C.9) indicates that there are multiple Local Nature Reserves (LNR), Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within the Study Area. **Table 10C.4** details the sensitive habitats and sites within the Study Area and screens them based on their connection to the water environment.

Table 10C.4 Screening of sensitive sites.

Site Name	Description of Site	Screening Outcome	Justification
Tailby Meadow LNR	Traditional flower rich hay meadow on the banks of the River Ise, supporting butterflies and damselflies.	In	This site is outside of the 500 m Study Area but is within 2 km downstream of the Study Area, adjacent to the River Ise. Therefore, there is the potential for impacts to propagate downstream and it is screened in for further assessment.
Glamis Meadow and Wood LNR	A mix of woodland and grassland, providing a diverse habitat for various wildlife species.	In	This site is outside of the 500 m Study Area but is within 1 km downstream of the Study Area, and is hydrologically connected to the Project. Therefore, there is the potential for impacts to propagate downstream and it is screened in for further assessment.
Summer Leys LNR	A biodiverse wetland area, rich in wildlife, particularly bird species.	In	This site is within the 500 m Study Area and is hydrologically connected to the Project and therefore there are potential impact pathways and this site is screened in for further assessment.

Site Name	Description of Site	Screening Outcome	Justification
The Wash SSSI, SAC, SPA and Ramsar site	An important estuary and wetland site, including extensive areas of mudflats and saltmarshes. It is important for UK migratory birds, with large populations of invertebrates, and is an important breeding ground for common seals and grey seals.	Out	These sites are 8 km downstream of the Study Area. It is unlikely that water quality impacts would propagate this far downstream due to dilution. Therefore, these sites can be screened out of further assessment
Upper Nene Valley Gravel Pits SSSI, SAC, SPA and Ramsar site	Mosaic of wetlands, lakes and reed beds in a network of former gravel extraction sites, supporting populations of waterbirds, migratory birds, invertebrates and amphibians.	In	These sites are within the 500 m Study Area and are hydrologically connected to the Project. Therefore, there are potential impact pathways.
Frisby Marsh SSSI	Designated for its wetland habits, including marshes, grasses and ditches which provide breeding and feeding ground for waterfowl and wading birds, as well as supporting a variety of invertebrates, amphibians and mammals.	Out	This site is within the 500 m Study Area but is upstream from any potential works so is not hydrologically connected to the Project, therefore there are no impact pathways.
Great Bowden Borrowpit SSSI	A former gravel extraction site which has developed into a wetland habitat, characterised by a mix of open water, reed beds and marshy grasslands. It supports invertebrates such as dragonflies and damselflies and also provides habitat for amphibians, birds and small mammals.	Out	This site is within the 500 m Study Area but is not hydrologically connected to the Project, therefore there are no impact pathways.

Summary of WER Screening Assessment

10C.2.10 Thirty-eight WER surface water bodies and eleven groundwater bodies are within the draft Order Limits plus 500 m, which makes up the potential zone of influence of the Project and have therefore been 'screened in' for WER assessment.

10C.2.11 The Project's activities have also been screened for potential WER risks, considering likely design and standard mitigation. The outcome of activity screening was that six of the broad activities associated with the Project pose significant risks to local water bodies, sensitive water habitats or WER objectives. These activities are:

- A new 400 kV substation to be built in the vicinity of the existing 4VK 400 kV overhead line near Corby Glen, South Kesteven (WMEL-A).
- A new 400 kV substation to be built in the vicinity of the existing ZA 400 kV overhead line near Ab Kettleby, Melton (WMEL-B).
- Temporary construction compounds.
- Access tracks where they cross watercourses.
- Tower working areas where these are in close proximity to water features or works above watercourses.

10C.2.12 Sensitive sites within the draft Order Limits plus 500 m Study Area of the Project have been screened for their potential to be impacted by the Project. Sites outside of the 500 m Study Area and downstream of the Project have also been considered. The following sites have been 'screened in':

- Tailby Meadow LNR
- Glamis Meadow and Wood LNR
- Summer Leys LNR
- Upper Nene Valley Gravel Pits SSSI, SAC, SPA and Ramsar site,

10C.3 WER Scoping

WER Scoping Appraisal

10C.3.1 The WER scoping stage defines the level of detail required for further WER assessment. This includes identifying risks to the WER receptors from the Project components that were screened in, in **Table 10C.2**. The scoping stage assessment is presented in **Table 10C.5**.

Table 10C.5 WER Scoping of the Project's Components Activities Against WER Quality Elements

WER Quality Element	Scoping Outcome	Justification
Biological Quality Elements		
Fish	In	Potential new temporary culverts for access track crossings could have an impact on longitudinal connectivity of watercourses and therefore impact fish migration. Until the use of culverts and their design is confirmed, this element should be scoped in for further assessment. It is noted that although culverts during construction will be temporary, the impacts may last longer than six months and have the potential to have a detrimental effect on the WER status of the water body. There is a potential that if the watercourse within the WMEL-B substation site is diverted, there is a risk that fish may become stranded. This would therefore have a potential to have a detrimental effect on this WER quality element. Possible increase in fine sediment and organic material to water bodies and potential chemical spillages during construction could affect water quality and therefore impact fish. However, standard mitigation secured through the CoCP (**Appendix 4A Draft Outline Code of Construction Practice)** will reduce the risk of pollution during construction, and therefore will not result in a deterioration in water quality.
Invertebrates	In	Possible increase in fine sediment and organic material to water bodies and potential chemical spillages during construction could affect water quality and therefore impact invertebrates. However, standard mitigation secured through the CoCP (**Appendix 4A Draft Outline Code of Construction Practice)** will reduce the risk of pollution during construction, and therefore will not result in a deterioration in water quality. In-channel works for construction of new temporary culverts and the potential diversion of the watercourse within the WMEL-B site, may cause direct mortality of

WER Quality Element	Scoping Outcome	Justification
		invertebrates and therefore this element should be scoped in for further assessment.
Macrophytes and phytobentos	In	In-channel works for construction of new temporary culverts and the potential diversion of the watercourse within the WMEL-B site, may cause the removal of macrophytes and therefore this element should be scoped in for further assessment. Fine sediment from construction runoff can smoother macrophytes and temporarily increase turbidity that can affect potential for photosynthesis. However, that standard mitigation secured through the CoCP (**Appendix 4A Draft Outline Code of Construction Practice)** will reduce the risk of pollution during construction, and therefore will not result in a deterioration in water quality. Chemical herbicides maybe used during construction and operation to control weed growth on earth stockpiles and may impact this element through uncontrolled runoff to watercourses.
Physico-chemical Quality Elements		
Thermal Conditions	Out	Potential for new culverts could increase shading of watercourses and therefore impact thermal conditions. However, this would only occur at a local scale directly beneath culverts and would be unlikely to impact this element at water body scale. Therefore, this element is scoped out of further assessment.
Oxygenation Conditions	Out	Possible increase in fine sediment and organic material delivered to water body from construction activities, chemical spills or changes in flow due to temporary impoundments or blockages could result in a localised impact on dissolved oxygen conditions. However, standard mitigation secured through the CoCP **(Appendix 4A Draft Outline Code of Construction Practice)** will reduce the risk of pollution during construction, and therefore will not result in a deterioration in this WER quality element and it is scoped out of further assessment
Salinity	Out	Although the use of de-icing salts on impermeable surfaces during construction and operation and cold weather cannot be ruled out, it is unlikely to be applied frequently and would only have a temporary and localised impact on salinity in receiving watercourses. Therefore this element is scoped out of further assessment.

WER Quality Element	Scoping Outcome	Justification
Acidification	Out	Should a significant chemical spillage occur during construction there is the potential for the pH of the receiving watercourse to be temporarily altered. However, standard mitigation secured through the CoCP (**Appendix 4A Draft Outline Code of Construction Practice)** will reduce the risk of pollution during construction, and therefore will not result in a deterioration in this WER quality element and it is scoped out of further assessment.
Nutrient Conditions	Out	Runoff from construction activities and access tracks may increase sediment loads and organic material to watercourses. There is also the potential for spillages of foul wastewater from welfare facilities. However, standard mitigation secured through the CoCP (**Appendix 4A Draft Outline Code of Construction Practice**) will reduce the risk of pollution during construction, and that foul waste will be dealt with appropriately, therefore there will not be a deterioration in this WER quality element and it is scoped out of further assessment.
Hydromorphological Quality Elements		
Quantity and Dynamics of Flow	In	Potential new temporary culverts for access tracks could have an impact on flow dynamics within watercourses. Until the use and design of culverts have been confirmed, this element is scoped in for further assessment. It is noted that although culverts during construction will be temporary, the impacts may last longer than six months and have the potential to have a detrimental effect on the WER status of the water body. Diverting or culverting a watercourse for the construction of WMEL-B would causes unavoidable impacts to the river depth and width variation. Therefore, this element is scoped in for further assessment.
Connection to Groundwater Bodies	Out	It is unlikely that any activities would present a barrier to connection with groundwater bodies. Pipe and box culverts will create a barrier and the loss of the hyporheic zone of the watercourse, but this will be over a relatively short reach that would not be significant at the water body level. Therefore, this element is scoped out of further assessment.
River Continuity	In	Potential new temporary culverts for access track crossings could present a disruption to watercourse continuity. Until the use and design of culverts have been confirmed, this element is scoped in for further

WER Quality Element	Scoping Outcome	Justification
		assessment. It is noted that although culverts during construction will be temporary, the impacts may last longer than six months and have the potential to have a detrimental effect on the WER status of the water body. Diverting or culverting a watercourse for the construction of WMEL-B would causes unavoidable impacts to the river depth and width variation. Therefore, this element is scoped in for further assessment.
River Depth and Width Variation	In	Potential new temporary culverts for access track crossings could cause local changes in channel profile, affecting river depth and width variation. Until the use and design of culverts have been confirmed, this element is scoped in for further assessment. It is noted that although culverts during construction will be temporary, the impacts may last longer than six months and have the potential to have a detrimental effect on the WER status of the water body. Diverting or culverting a watercourse for the construction of WMEL-B would causes unavoidable impacts to the river depth and width variation. Therefore, this element is scoped in for further assessment.
Structure and Substrate of the River Bed	In	Potential new temporary culverts could negatively impact on the structure and substrate of the river bed. Until the use and design of culverts have been confirmed, this element is scoped in for further assessment. It is noted that although culverts during construction will be temporary, the impacts may last longer than six months and have the potential to have a detrimental effect on the WER status of the water body. Diverting or culverting a watercourse for the construction of WMEL-B would causes unavoidable impacts to the river depth and width variation. Therefore, this element is scoped in for further assessment.
Groundwater Quality Elements		
Quantitative Elements	In	There are potential temporary impacts from groundwater ingress to excavations that may locally lower groundwater levels. Therefore, this element is scoped in for further assessment.

WER Quality Element	Scoping Outcome	Justification
Chemical Elements	In	There is the potential for adverse impacts to groundwater from temporary construction works, especially where there are excavations or piled foundations. If surface water runoff from the proposed substations is drained to ground or watercourse via unlined SuDS or ditches there could be new pathways along which chemical pollutants could travel. Therefore, this element is scoped in for further assessment.

10C.4 WER Impact Assessment

Site Specific Assessment of the Project against WER Quality Elements

10C.4.1 Components of the Project and their potential impacts along with mitigation measures are in **Table 10C.6**. The purpose of this table is to introduce any key sources of potential impacts which have not been mitigated within the design mitigation and CoCP (**Appendix 4A Draft Outline Code of Construction Practice)**.

10C.4.2 Site specific impacts of the Project on the biological, physico-chemical and hydromorphological quality elements of the screened in water bodies are provided in **Table 10C.6**.

Table 10C.6 Project Components, Potential Impacts, and Proposed Mitigation Measures for Proposed Works to Water Bodies Scoped into This Assessment

Project Component	Potential Impacts	Proposed Mitigation
Culverts for access track crossings	Localised loss of riparian habitat Potential removal of macrophytes and mortality of invertebrates Impediment to fish passage and ecological connectivity from impact to river continuity Loss of morphological diversity; change in	A Pre-works Riparian and Morphology Survey of the channel of each watercourse to be crossed will be undertaken prior to construction. The pre-works survey is to ensure that there is a formal record of the condition of each watercourse prior to commencement of works to install cables beneath the channel. Once the watercourses are reinstated, silt fences, geotextile matting or straw bales should be used initially to capture mobilised sediments until the watercourse has returned to a settled state. Watercourses should be reinstated as found, or to an improved condition, and water quality monitoring will be undertaken prior to, during, and following on from the construction activity Regular observations of the watercourses should be undertaken post-works during vegetation re-establishment of the banks, especially following wet weather, to ensure that no adverse impacts have occurred. Macrophytes should be retained on site for reinstatement to the watercourse. Where macrophytes cannot be retained, they will be replaced like for like. Culverts should be designed to maintain connectivity along watercourses for aquatic species and riparian mammals, where these are shown to be present.

Project Component	Potential Impacts	Proposed Mitigation
	structure of riverbed Impediment to downstream sediment transport Impact on flow dynamics due to impounding and/or constricting influence of crossing structures	
Surface water drainage and outfalls	Loss of morphological diversity Change in structure of riverbed Increase in scour of bed and banks	The final location, position and orientation of any new outfall will be carefully determined and informed by a hydromorphological survey to minimise any adverse local impacts on river processes. If headwalls are required, appropriate micro-siting of the outfalls will minimise loss of bank habitat, the need for bed scour or hard bank protection, and localised flow disturbance or disruption to sediment transport processes.
Diverted watercourse – WMEL-B	Loss of morphological diversity Change in structure of riverbed Loss of habitat Impact on flow dynamics	If culverted, the equivalent length of impacted watercourse should be enhanced. If diverted, the channel should be realigned to adopt a natural, sinuous pathway, and should be enhanced to a better state than before construction. Macrophytes should be retained on site for reinstatement to the watercourse. Where macrophytes cannot be retained, they will be replaced like for like. Potential diversion works should be scheduled during low-flow periods to reduce stress on aquatic life, including invertebrates and fish. Work should not undertake during sensitive periods, such as fish spawning and migration seasons.

Project Component	Potential Impacts	Proposed Mitigation
	Direct loss of macrophytes and invertebrates Risk of stranded fish	
Construction activities involving shallow excavations, tower foundations, dewatering and localised ground compaction	Deterioration in groundwater quality Deterioration in groundwater quantity	To avoid impacts to groundwater bodies, foundations should be located above groundwater level. This should be informed by ground investigation to be undertaken at ES stage.

Cumulative Impacts on WER Water Bodies

10C.4.3 There is the potential for cumulative impacts on WER water bodies, where impacts associated with the Project may act in conjunction with those impacts associated with other developments. A preliminary assessment of cumulative effects with other developments is reported in **Chapter 19 Cumulative Effects**. This will be further considered and reported on in the ES.

10C.4.4 Based on the information currently available on other relevant developments, there is no evidence to suggest that construction or operation of the Project, in combination with that for other schemes, would be likely to result in any significant cumulative effects on surface water quality or hydromorphology, nor lead to the additional likelihood of deterioration in WER water bodies. This preliminary conclusion assumes that standard good-practice construction management measures and operational management plans are applied across the other schemes, albeit it is acknowledged that detailed information on other schemes' mitigation is limited at this stage. A more detailed cumulative assessment, including confirmation of other developments' mitigation commitments and any need for additional project specific measures, will be provided in the ES.

Assessment of the Project against WER Objectives

10C.4.5 Compliance with WER is evidenced by assessment against the following objectives (Ref 10C.1) relating to WER quality elements, including biological, physico-chemical and hydromorphological quality elements, including:

- Whether the Project would cause deterioration in the Ecological Potential or Status of a water body.
- Whether the Project would compromise the ability of a water body to achieve Good Ecological Status or Potential.
- Whether the Project would cause a permanent exclusion or compromise achievement of the WER objectives (e.g. mitigation measures) in other water bodies within the same RBD.
- Whether the Project would contribute to the delivery of the WER objectives (e.g. mitigation measures).

10C.4.6 The WER compliance assessment for the Project is summarised in **Table 10C.7**, which concludes that the Project is expected to be compliant with WER objectives.

Table 10C.7 Compliance assessment of the Project

Compliance Elements	Surface Water Body Assessment	Groundwater Body Assessment
Deterioration in the status/potential of the water body	The Project is not anticipated to cause a deterioration in status or potential when the mitigation is taken into account.	The Project is not anticipated to cause a deterioration in status when the mitigation is taken into account.
Ability of the water body to achieve Good	The Project and associated mitigation would not cause	The Project and associated mitigation would not prevent the

Compliance Elements	Surface Water Body Assessment	Groundwater Body Assessment
Ecological Potential/Status	deterioration in status of the water bodies and would not prevent the water bodies achieving Good Ecological Potential when the mitigation is taken into account.	water body reaching Good Status when the design mitigation is taken into account.
Impact on the WER of other water bodies within the same RBD	No downstream or upstream impacts are anticipated associated with the Project when the proposed mitigation is taken into account.	No wider impacts are anticipated associated with the Project when the proposed mitigation is taken into account.
Ability to contribute to the delivery of the WER objectives	The Project contributes to the delivery of WER objectives through enhancements at the re-establishment stage.	The Project contributes to the delivery of WER objectives.

10C.5 Conclusion

10C.5.1 This WER Impact Assessment has been prepared to identify potentials risks of the Project to the status and objectives of WER water bodies. At this stage it has been determined that all WER water bodies within the Study Area should be screened in.

10C.5.2 This WER Impact assessment has concluded that there are potential risks from the Project to the WER objectives of those water bodies screened in. A scoping review has been undertaken to identify which WER elements may be at risk from Project activities.

10C.5.3 A high level qualitative impact assessment has been undertaken to assess potential impacts on WER quality elements from the Project and any associated mitigation that will be required to ensure no deterioration in status of WER quality elements.

10C.5.4 Overall, the risks of impacts to WER water bodies, and risks to achieving WER objectives are considered to be low, and it is likely that all WER risks can be designed out or mitigated. However, at this stage of the Project's design, risks to WER objectives still cannot be ruled out. This assessment will be updated based on the latest design and submitted with the ES to ensure compliance with WER objectives. The Environment Agency will be consulted to determine the scope for any further assessment.

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