



The Sizewell C Project

8.14 Water Framework Directive Compliance Assessment Report Part 1 Appendix 1A

Revision: 1.0
Applicable Regulation: Regulation 5(2)(q)
PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009



REPORT

Sizewell C Water Framework Directive Compliance Assessment

Strategy

Client: EDF Energy

Reference: IEMPB1452R001F110

Status: 110/Final

Date: 12 April 2016



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1 Background

1.1 Introduction

NNB GenCo intends to submit an application to the Planning Inspectorate for a Development Consent Order (DCO) to develop a new nuclear power station at Sizewell, Suffolk (Sizewell C). The DCO will include proposals for associated development away from the power station site that is deemed necessary for the construction and operation of the plant (together forming the Sizewell C Project). The application will comprise full details of all development proposals and will be accompanied by an Environmental Statement (ES) and other relevant documents.

1.2 Policy background

In the White Paper on Nuclear Power (BERR, 2008) the Government sets out its policy on the role of new nuclear power stations in the UK's future energy mix alongside other low-carbon sources. The Nuclear National Policy Statement (NPS) (DECC, 2011) sets out a list of sites that, following the Strategic Siting Assessment (SSA) (BERR, 2009), have been found to be potentially suitable for the siting of new nuclear power stations by 2025, and the framework by which development consent decisions on sites should be made.

The Sizewell C development site was nominated for new nuclear build by EDF Energy in 2009 and is identified in the Nuclear NPS which was ratified by the Government on the 19 July 2011. Sizewell C is one of eight sites in England and Wales that are potentially suitable for the deployment of nuclear reactors by 2025 (DECC, 2011). The NPS makes it clear that all eight sites are needed, and that it is in the public interest to give priority to sites where new nuclear power stations can be developed significantly earlier than 2025.

In relation to the Water Framework Directive (WFD) (2000/60/EC), the Nuclear NPS specifically refers to the requirement to consider any discharge against regulatory standards for the protection of the quality of estuarine or coastal waters, in line with future requirements of the WFD. The more general overarching NPS (EN-1) also recognises that infrastructure development can have adverse effects on the water environment, including groundwater and surface waters, and that (during all phases) development can lead to increased demand for water, involve discharges to water (including spills and leaks of pollutants) and can cause adverse ecological effects resulting from physical modifications to the water environment. These effects could all lead to adverse impacts on ecosystem health, or on protected species and habitats, and could result in surface waters, groundwaters or protected areas failing to meet environmental objectives established under the WFD.

Additionally, the NPS documents state that where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and the physical characteristics of the water environment as part of the ES, or equivalent, and that the Planning Inspectorate should satisfy itself that a proposal has regard to the relevant River Basin Management Plans.

It is also important to note that any mitigation measures that may be required to manage coastal erosion or flood risk at a nuclear development site could have potentially adverse effects on coastal processes and hydrodynamics. These measures could then have secondary impacts on biodiversity and water quality, thus potentially hindering the objectives and requirements of the WFD.

In order to ensure all elements of the proposals are in line with the requirements of the WFD, a project-level Sizewell C WFD Compliance Assessment will, therefore, need to be provided by NNB GenCo as part of the overall submission for the DCO.

1.3 Purpose of this document

This document sets out the proposed approach to developing and providing the information that will be required for the project-level Sizewell C WFD Compliance Assessment. It has been revised following informal consultation with the Environment Agency in September 2012 (see **Section 1.4**).

At this stage in the project development process, sufficient environmental and project information is not yet available to enable a preliminary assessment of the project to determine whether there is likely to be a deterioration/non-temporary effect on any WFD water body. However, as a first step in the development of the project-level WFD compliance assessment, the information contained in this strategy document is provided to facilitate engagement, specifically with the Environment Agency, and is intended to help define the assessment process.

1.4 Consultation

The important role of consultation in developing the Sizewell C WFD Compliance Assessment is recognised by NNB GenCo. Staged project consultation will be undertaken at several key points in the development of the project documentation. These consultation stages will provide much of the key feedback on the progression of NNB GenCo's project proposals. However, it is clear from work on other projects, notably the Hinkley C nuclear new build project, that there is a need to undertake WFD specific consultation in order to facilitate the production of project information that meets the needs of the Environment Agency and any consenting authorities for any affected ordinary watercourses (i.e. Lead Local Flood Authorities and Internal Drainage Boards).

The first stage of informal consultation occurred in September 2012, when the draft version of this document was provided to the Environment Agency for comment. A summary of the responses provided and an indication of where they have been dealt within this revised strategy is provided in **Table 1.1**.

Table 1.1: Summary of consultation responses on the draft Sizewell C WFD Compliance Assessment Strategy

Environment Agency Team	Response	Action
Fisheries and Biodiversity	Two further years of status assessments now available	RBMP round 2 consultation documents have now been received and this strategy has been revised to include the new information and new water body boundaries.
	GIS shapefiles – presence of Sizewell Marshes water body in WFD shapefiles.	RBMP round 2 consultation documents have now been received and this strategy has been revised to include the new information and new water body boundaries.
	Leiston Beck and Minsmere Old River have been split into two water bodies for the second round of the Anglian River Basin Management Plan (RBMP), but data not in public domain yet.	RBMP round 2 consultation documents have now been received and this strategy has been revised to include the new information and new water body boundaries.
Marine Water Quality	Clearing the Waters documentation is about to be updated.	Noted. This strategy has considered the proposed revisions, but little change is required at present. Reference date altered to reflect update.
	There is a risk that elements (such as temperature) have not been assessed in the RBMP but the data is available from the Environment Agency.	Noted. Consultation is ongoing with the technical teams to determine the data requirements for assessment.
	It is improbable that there would be a change in groundwater quality due to sediment re-suspension during infrastructure works	Potential issue removed.
	Suggest consideration of screening out a lot of elements from the outset to enable focus.	Noted. A preliminary assessment will be completed prior to further assessment and, therefore, there will be an opportunity to consider all activities against all compliance elements to ensure that only those at risk will be carried forward to the Stage 3 assessment.
Marine Monitoring Services	Clearing the waters documentation has been updated.	Noted. This strategy has considered the proposed revisions, but little change is required at present. Considered that the detail of the assessment is more likely to be affected. Reference date altered to reflect update.
	Confusion in text between two references and request reference to both documents.	Two references included within the text where suggested.
	UK location reference/request for inclusion of WB ID	Addressed.
	The requirement is more than just status objectives being achieved – it is also no deterioration.	Strategy revised to reflect this more clearly.
	Highlights error in look up tables of reference documentation.	Noted.
National Permitting	Include requirement to prevent achievement of RBMP measures and therefore	Noted. Strategy revised to reflect this.

Environment Agency Team	Response	Action
Service	water body objectives.	
	Recommended to use the Environment Agency's Website 'What's in my backyard'.	The more recent Catchment Data Explorer that accompanied the release of the draft RBMP2 has been used alongside this website.
	Where do non-habitats/species/protected areas feature?	Strategy revised to ensure this is clearer. All Protected Areas will be considered.
Water Resources	Request consideration of changes in groundwater conditions outside of source protection zones. Highlight Environment Agency concerns regarding potential to increase saline intrusion and possibility of derogating (by quantity or quality) any local boreholes particularly those used for private water supply.	Strategy revised to reflect this.
	Licence requirements/potential restrictions.	Noted and passed to specialist topic teams for consideration.
	Reference made to East Suffolk Catchment Abstraction Management Strategy which was updated in 2013.	Noted and passed to specialist topic teams for consideration.
WFD Catchment Work	Requirement to enhance the ecological status of both water bodies on the development site up and down stream of the development.	Noted. To be considered throughout the development of the project.
Groundwater	Comment regarding disagreement with groundwaters being assessed in a different way to surface waters as they do not support ecological communities. Requirement to make an assessment to consider integrated compliance.	The relevant sentence has been altered. As part of the overall assessment of water flow for the Sizewell C Project, all elements of flow will be built into the hydraulic modelling that will inform both groundwater and surface water assessments and, in turn, the ecological assessments that will be used to assess WFD Compliance, and any mitigation/improvement measures required, as well as the Flood Risk Assessment.
	Highlighted relevant assessment guidance.	Noted. Strategy updated to include this reference.
	Timescales provided for the development of various consultations: Significant Water Management Issues (June 2013), the draft Anglian RBMP in June 2015).	Noted.
Environment Management – Water Quality	Requirement to improve whole water environment as part of WFD considerations.	Noted. To be considered throughout scheme design.
WFD Assessment and Environmental Impact Assessment	Agree that aligning with the Environmental Impact Assessment (EIA)/Habitats Regulations Assessment is good practice.	Noted.

Further consultation is proposed as follows:

- Production of, and consultation on, a draft Sizewell C WFD Compliance Assessment Stages 1 and 2 report;
- Production of, and consultation on, a draft Sizewell C Compliance Assessment Stages 3 and 4 report;
- Meetings to address specific stages of the WFD process, reporting and/or technical issues as and when required; and,
- Final issue of the Sizewell C WFD Compliance Assessment alongside the Sizewell C Project DCO submission.

It is proposed that the draft Scoping Report is provided for comment in the middle of Q3 of 2016. Beyond this, timescales are to be confirmed.

2 Brief description of the Sizewell C project

2.1 Introduction

An area of land directly north of the Sizewell A and B Nuclear Power Stations has been identified by NNB GenCo as having the potential to accommodate nuclear new build. The site proposed for Sizewell C comprises the footprint of the proposed nuclear power station and ancillary on-site associated development and a potential northern access road (**Figures 2.1a** and **2.1b**). The UK Ordnance Survey grid reference for the approximate centre of the proposed site power station is TM 4730, 6410. The nominated Sizewell C site represents the Government's SSA area and covers approximately 117 hectares (ha). In addition to the above, land associated with the project construction would be required and this area is shown on **Figures 2.1a** and **2.1b**, resulting in a total 'development area' of approximately 150 hectares.

The Sizewell C site is located on the Suffolk coast, northeast of Ipswich and south of Lowestoft. The nearest towns are Leiston, Aldeburgh and Saxmundham. Adjacent to the site are the two nuclear power stations; Sizewell A, which operated between 1966 and 2006, and Sizewell B, which has operated since 1995.

A number of off-site associated developments could be required for the construction and operation of the scheme. These developments include park and ride facilities, a visitor centre and potential road/rail improvements.

2.2 Main Development Site

2.2.1 Sizewell C site

The permanent development within the Sizewell C Main Development Site would include the following key operational elements:

- Two UK EPRs comprising reactor buildings and associated buildings (the 'Nuclear Island').
- Turbine halls and electrical buildings (the 'Conventional Island').
- Cooling water pump houses and associated buildings.
- Operational Service Centre.
- Fuel and waste storage facilities, including interim storage for radioactive waste and spent fuel.

The development would also include:

- External plant, including storage tanks.
- Internal roads.
- Ancillary, office and storage facilities.
- Drainage and sewerage infrastructure.
- National Grid 400kV Substation plus the addition of one National Grid pylon, removal of an existing pylon and associated realignment of overhead lines.

In addition, the permanent development would include the following elements, which would be sited away from the main station platform:

- Cooling water infrastructure (including cooling water tunnels extending out to sea, intake and outfall headworks on the sea bed, and the outfall associated with a fish recovery and return system).
- Access road to join the B1122 and related junction arrangements.
- A bridge connecting the power station to the new access road to the north.

- Car parking, some ancillary buildings and a helipad.
- Flood defence and coastal protection measures.
- A beach landing facility to receive deliveries of Abnormal Indivisible Loads (AILs) by sea throughout the power station's operational life.
- Simulator Building/Training Centre.
- Options for a Visitor Centre.
- Landscaping of the areas to be restored following their use during construction.

The proposed operational layout has been developed to make the most efficient use of land within the constraints presented by the site itself and by those associated with the design of the UK EPR. The nominal platform height for the permanent development would be approximately 6.4 metres above Ordnance Datum (mAOD).

2.2.2 Temporary development

During the construction of Sizewell C, areas of land are required temporarily in order to facilitate the construction process. The temporary land uses would include:

- Construction working areas: laydown areas, workshops, storage and offices;
- Temporary structures, including concrete batching plant;
- Management of spoil/stockpile arrangements, including potential sourcing on-site of construction fill materials;
- Temporary bridge between the power station and adjacent construction areas;
- A temporary jetty for the transport of bulk construction materials, equipment and AILs by sea;
- Options for a temporary rail route extending into the construction site;
- Works areas on the foreshore for the installation of flood defence and coastal protection measures;
- Construction roads, fencing, lighting and security features;
- Site access arrangements and coach, lorry and car parking; and
- A development site accommodation campus.

Land used temporarily would be restored once construction has been completed and the Sizewell C power station is operational, in line with the landscape strategy. This strategy would also cover the wider EDF Energy Estate. The landscape strategy is likely to include the creation of a mosaic of grassland, heathland, scrub and woodland involving the reinstatement, where appropriate, of existing fields.

Figure 2.1a: Sizewell C Main Development Site

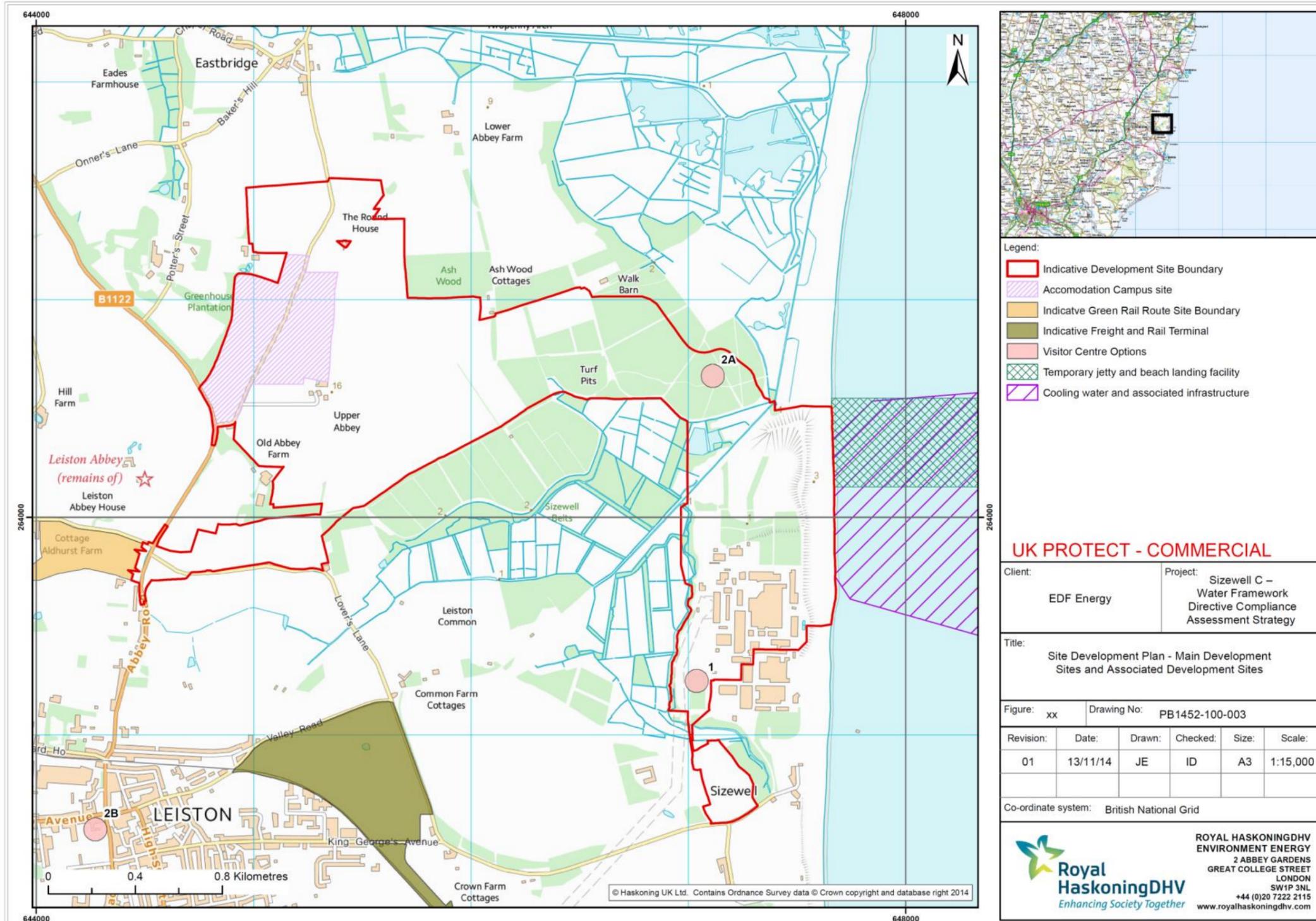
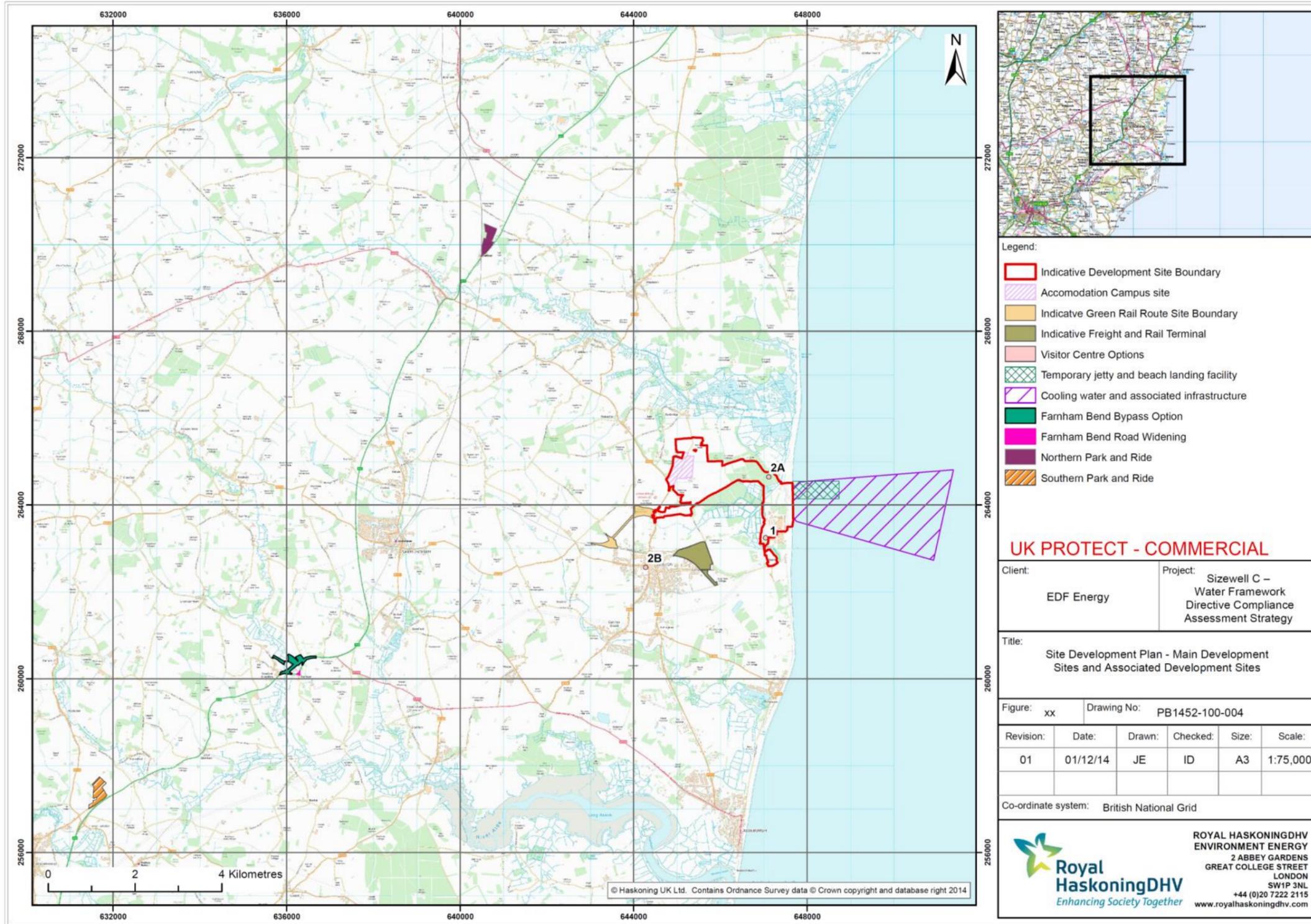


Figure 2.1b: Sizewell C Development Area (including Associated Development Sites)



2.2.3 Construction phase

In order to prepare the Sizewell C site for development, some works would need to take place before construction of the power station commences. These works would include relocation of some buildings and activities north of the Sizewell B power station to make space for the new power station.

Construction work would commence with site clearance and preparation. The works would include:

- Construction of a new access road into the site from the B1122.
- Establishment of temporary construction areas.
- Construction of permanent and temporary bridges linking the construction areas to the main platform on which the power station would be built.
- Construction of a jetty.
- Commencement of earthworks, including platform development, construction of a cut-off wall, deep excavations, stockpiling and grading of materials prior to re-use and backfilling.

Prior to the jetty becoming operational and the construction of any temporary rail provisions, construction materials could be delivered and exported either by rail via the existing railhead in Leiston or by road.

The construction of the power station would involve the excavation of large amounts of spoil comprising soil, made ground, peat, alluvium and Crag sand to reach the foundation depths for the buildings and structures within the Main Development Site. An additional source of engineering fill would be required to raise the level of the Main Development Site platform. This extra material would either be won from within the temporary construction area, or sourced from off-site.

The main construction phase would include the erection of the key buildings and ancillary facilities and the installation of the mechanical and electrical plant.

Following site preparation, it is anticipated that main construction of the proposed development would take seven to nine years.

2.2.4 Operational phase

The Sizewell C power station would have a minimum design life of 60 years. The expected electrical capacity of the nuclear power station would be approximately 1,630 megawatts (MW) per unit, giving a total site capacity of 3,260MW. During operation, it is expected that approximately 900 staff would be employed. Approximately 1,000 additional staff would be employed during planned refuelling and maintenance outages which take place approximately every 18 months for each UK EPR reactor unit and last typically between one to three months.

2.3 Off-site associated development

To support the construction and/or operation of Sizewell C, NNB GenCo would need to make use of some additional land for associated development. These are shown in **Figure 2.1b**. The proposals for associated development include:

- Two temporary park and ride sites; one to the north of Sizewell C and one to the south. EDF Energy's lead options are a site at Darsham for the northern park and ride and a site at Wickham Market for the southern park and ride.
- A temporary extension of the existing Saxmundham to Leiston railway line into the construction site (green or blue route) or new railhead north of King George's Avenue in Leiston.
- Permanent improvements to the A12 as a result of the Sizewell C-generated traffic. Options under consideration include a new Farnham bypass, road widening at Farnham Bend and HGV traffic controls at Farnham Bend.

3 The WFD compliance assessment process

3.1 Introduction

This section of the strategy sets out the proposed approach for each of the key stages in the WFD compliance assessment process and the proposed structure and content of the reporting that will be undertaken as part of the overall development of the Sizewell C WFD Compliance Assessment.

For each of the stages a description of the procedure that will be adopted is provided, together with initial, relevant information that may facilitate decision-making at this early stage of the process.

3.2 The Water Framework Directive

In December 2003, the WFD was transposed into national law by means of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. These Regulations provide for the implementation of the WFD through the designation of all surface waters (rivers, lakes, transitional (estuarine) and coastal waters) and groundwaters as water bodies to achieving good ecological status by 2015.

Unlike the EU Birds and Habitats Directives (EC Directive on the Conservation of Wild Birds (2009/147/EC) and EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC), respectively), which apply only to designated sites, the WFD applies to all bodies of water, including those that are man-made. The consideration of the proposals under the WFD will, therefore, apply to all surface and groundwater bodies that have the potential to be impacted by the Sizewell C Project proposals.

Several classification schemes for surface waters and groundwaters have been developed in response to the WFD.

For surface waters, there are two separate classifications for water bodies; ecological and chemical. For a water body to be in overall 'good' status, both ecological and chemical status must be at least 'good'. The ecological status of surface waters is classified using information on the biological, physico-chemical and hydromorphological quality of the body of water.

The ecological status of a surface water body is assessed according to:

- The condition of biological elements, for example fish, benthic invertebrates and other aquatic flora.
- The condition of supporting physico-chemical elements, for example thermal conditions, salinity, and concentrations of oxygen, ammonia and nutrients.
- Concentrations of specific pollutants, for example copper and other priority substances.
- The condition of the hydromorphological quality elements, including morphological condition, hydrological regime and (for coastal waters only) tidal regime.

Ecological status is recorded on the scale of high, good, moderate, poor or bad. 'High' denotes largely undisturbed conditions and the other classes represent increasing deviation from this natural condition, otherwise described as a 'reference condition'. The ecological status classification for the water body, and the confidence in this, is determined from the worst scoring quality element. This means that the condition of a single quality element can cause a water body to fail to reach its WFD classification objectives.

Chemical status is assessed by compliance with environmental standards for chemicals that are listed in the EC Environmental Quality Standards Directive (2008/105/EC). These chemicals include priority substances, priority hazardous substances, and eight other pollutants carried over from the Dangerous Substance Daughter Directives. Chemical status is recorded as 'good' or 'fail'. The chemical status classification for the water body is determined by the worst scoring chemical.

Where the hydromorphology of a surface water body has been significantly altered for anthropogenic purposes, it can be designated as an Artificial or Heavily Modified Water Body (A/HMWB). An alternative environmental objective, Good Ecological Potential (GEP) applies in these cases.

UKTAG have adopted the 'mitigation measures approach' for classifying HMWBs (UKTAG, 2008b). This approach first assesses whether actions to mitigate the impact of physical modification are in place to the extent that could reasonably be expected. If this mitigation is in place, then the water body may be classified as achieving 'good' or better ecological potential. If this level of mitigation is not in place, then the water body will be classed as 'moderate' or worse ecological potential. Before an overall ecological potential classification is applied, the second step is for the results of the mitigation measures assessment to be cross-checked with data from biological and physico-chemical assessments. This approach is known as the Alternative Approach and is defined in more detail in the Water Framework Directive Common Implementation Strategy (2006). Checklists of mitigation measures have been developed based on the steps identified in the Alternative Approach to enable large numbers of heavily modified and artificial water bodies to be assessed consistently and across sectors (UKTAG, 2008a).

The process of classifying ecological potential is based on an assessment of:

- Whether all appropriate measures have been taken to mitigate the modified or artificial hydromorphological characteristics of the water body.
- Whether these measures are functioning.
- Whether all non-sensitive quality elements are at good status or better.

Where the Environment Agency has data for biological quality elements that show signs of damage from pressures other than hydromorphological alterations (for example, if the benthic invertebrate status is poor because of nutrient pressures) the ecological potential will be changed. To reflect this other pressure the water body will be labelled as having 'Poor Ecological Potential'. This is also true where data are available for physico-chemical quality elements.

In addition, some surface waters require special protection under other European legislation. The WFD therefore brings together the planning processes of a range of other European Directives, such as the revised Bathing Waters Directive (2006/44/EC) and the Habitats Directive. These Directives establish protected areas to manage water, nutrients, chemicals, economically significant species and wildlife, and have been brought in line with the planning timescales of the WFD.

Groundwaters are assessed in a different way to surface waters. Instead of GES and GEP, groundwaters are classified as either Poor or Good in terms of quantity (groundwater levels, flow directions) and quality (pollutant concentrations and conductivity). Again, UKTAG have provided guidance on how groundwater quantity and quality is assessed (UKTAG, 2012).

3.3 Roles and responsibilities

The Environment Agency is the competent authority for WFD implementation and, therefore, must assess schemes to ensure WFD compliance in relation to consenting mechanisms for which they are responsible. The Environment Agency also acts as a consultee to other regulators and bodies in relation to WFD compliance and therefore, for the Sizewell C Project proposals, will advise the organisations involved in consenting the Sizewell C Project on the requirements of the WFD. Additionally, whilst it is acknowledged that assessing schemes for WFD compliance is best aligned with the steps of an Environmental Impact Assessment (EIA), the Environment Agency recommend that a separate WFD compliance assessment is undertaken in order to ensure all aspects of WFD are appropriately considered.

3.4 The approach to assessing WFD compliance

There is no detailed methodology for the assessment of plans or projects in relation to undertaking WFD compliance assessments. There are, however, several sets of guidance that have developed in relation to undertaking such assessments, predominantly written by the Environment Agency. Considered to be the most relevant to the Sizewell C Project proposals are:

- "Water Framework Directive risk assessment: How to assess the risk of your activity" (Environment Agency, 2016), which provides guidance for bodies planning to undertake activities that would require a flood risk activity permit.
- "Clearing the Waters" (Environment Agency, 2012) which has been produced to assist in the assessment of the potential impact of dredging and disposal on the requirements of the WFD.
- "Assessing new modifications for compliance with WFD" (NEAS Operational Instruction 488_10 and 488_10_SD10 Assessing new modifications for compliance with WFD: detailed supplementary guidance) (both Environment Agency, 2010), Environment Agency internal operational instructions which have been produced to guide WFD assessment of new modifications to surface waters.

For the purposes of undertaking the Sizewell C WFD Compliance Assessment, it is proposed that the broad methodologies outlined in the guidance documents outlined above are modified in order to undertake the assessment. The proposed assessment process will follow the following four stages:

- Stage 1: Collation of baseline information to inform the assessment.
- Stage 2: Scoping.
- Stage 3: Detailed compliance assessment.
- Stage 4: Summary of mitigation, improvements and monitoring.

These stages are described in more detail in the subsequent sections.

Separate assessments will be undertaken for the Main Development Site and each of the Associated Development Sites for which potential impacts on WFD receptors have been identified (although, depending upon the nature and scale of impacts, it may be possible to streamline these into a single report).

An assessment of cumulative impacts relating from different components of the scheme will also be undertaken. The methodology used for this will be developed alongside the Cumulative Impact Assessment methodology that is currently being developed for the Environmental Impact Assessment, to ensure consistency of approach for all aspects of the development consenting process. However, it is envisaged at this stage that all activities from the main development site and the associated development sites will be considered in a single cumulative impact assessment so that project-scale impacts and, where appropriate, mitigation, can be identified.

3.5 Stage 1: Collation of baseline information

3.5.1 Aim of this stage

The aim of this stage is to collate all available baseline data that will be necessary to complete the Sizewell C WFD Compliance Assessment, i.e. to collate all information on the scheme, the baseline environment, the water bodies which could potentially be impacted by the scheme, and details of any additional schemes which could also impact on the water bodies.

3.5.2 Proposed method for the baseline collation stage

Stage 1 will include the following main tasks:

- Initial screening to Identify relevant water bodies in the study area. Water bodies will be selected for inclusion in the initial stages of the compliance assessment using the following criteria (it should be noted that the very high level assessment undertaken for the purposes of this strategy has been done with the information available and will be reviewed appropriately as the scheme and associated development site proposals move forward):
 - All surface water bodies that could potentially be directly impacted by the scheme;
 - Any surface water bodies that have direct connectivity (e.g. upstream and downstream) that could potentially be affected by the proposed works; and
 - Any groundwater bodies that underlie the proposed scheme.
- Identification of water bodies that could potentially be affected by the proposed works was assessed by a review of the revised 2015 Anglian River Basin Management Plan (RBMP) (as presented in the online Catchment Data Explorer), and in consultation with the Environment Agency.
- Collection of water body baseline data, including on the type and status of each quality element and, if appropriate, reasons for failure and mitigation measures identified. These data will be collated from the 'Cycle 2 Extended Water Body Summary Report' for each respective water body, obtained from the Environment Agency.
- Collection of proposed scheme baseline data, broken down in sufficient detail so that the compliance of each main scheme component can be considered in the assessment.
- Identification of new or planned activities in the area that could also affect water body status.

3.6 Stage 2: Scoping

3.6.1 Aim of this stage

The aim of this stage is to identify whether there is potential for deterioration in water body status or failure to comply with WFD objectives for any of the water bodies identified in Stage 1. This stage considers potential non-temporary impacts, cumulative impacts and impacts on critical or sensitive habitats. This scoping assessment would be undertaken separately for each water body and each activity.

Water bodies and activities can be screened out of further assessment if it can be satisfactorily demonstrated that there will be no impacts. If impacts are predicted, it will be necessary to undertake a detailed compliance assessment.

3.6.2 Proposed scoping method

The scoping exercise will consider:

- The potential for deterioration in surface water body status (within and between status classes) by adversely affecting biological, hydromorphological and/or physico-chemical quality elements.
- The potential for deterioration in groundwater body status (within and between status classes) by adversely affecting quantitative and chemical quality elements.
- The potential for activities to prevent delivery of WFD status objectives by impacting upon proposed improvement measures or, in the case of A/HMWBs, mitigation measures already identified by the Environment Agency.
- The potential to incorporate the measures required to deliver status objectives included in the River Basin Management Plan(s).
- The potential for cumulative impacts arising from multiple scheme activities on a single water body.
- The potential for cumulative impacts as a result of existing pressures, new or recent schemes in the area, and any planned schemes.
- The potential for deterioration in critical and sensitive habitats, including designated sites and habitats with particular ecological importance. Reference will be made to the Shadow Habitats Regulations Assessment (HRA) to be produced as part of the DCO application where appropriate.
- The potential for deterioration in protected areas such as Bathing Waters and Shellfish Waters located within the water bodies. These will be considered within the WFD compliance assessment.
- The potential for the 'prevent or limit' objective of the Groundwater Daughter Directive not being achieved.
- The potential risk of deterioration arising as a result of scheme activities, in addition to changes in status.

3.6.3 Scoping questions

This Stage 2 assessment would be based on a series of trigger questions for the quality elements that are applicable in each type of water body. These are presented separately for rivers (**Table 3.1**), transitional and coastal water bodies (**Table 3.2**) and groundwater (**Table 3.3**). Each quality element is assessed against each identified activity planned during the development. Each stage of the development will be considered. Note that any dredging and disposal activity within transitional and coastal water bodies will be compared to the triggers within the Clearing the Waters guidance (Environment Agency, 2012).

The Stage 2 scoping questions are designed such that the size of risk associated with the activity (e.g. the likelihood and severity of any potential impact) is not central to the decision. If any risk is present, that is if there is any mechanism for a potential impact to occur; no matter how small, then the quality element will be taken through to Stage 3 for further assessment.

In all cases, the water body and activity under assessment would be progressed to the detailed compliance assessment (Stage 3) if the answer to one or more of the scoping questions is "Yes," but only for those quality elements that could potentially be impacted. Conversely, if the answer to a scoping question is "No", the quality element will be screened out of further assessment at this stage.

The decisions recorded in the scoping tables will be based on expert judgement, informed by available data and, in the case of hydromorphological impacts, using the guidance included in the Flood and Coastal Erosion Risk Management R&D Programme expert assessment framework (DEFRA/EA, 2009).

The end result of Stage 2 would be a list of water bodies, scheme activities and quality elements to be carried forward for further consideration in the detailed assessment stage (Stage 3). This list would be agreed with the Environment Agency prior to undertaking the detailed compliance assessment.

Table 3.1: Scoping questions for river water bodies

Parameter	Scoping question	Answer	Notes
Biology			
Aquatic flora	Could the activity change the hydromorphology and/or physico-chemistry of the water body, or lead to the direct loss or modification of habitats for aquatic plants?	Yes	Further assessment required
		No	No further action
Benthic invertebrates	Could the activity change the hydromorphology and/or physico-chemistry of the water body, or lead to the direct loss or modification of habitats for aquatic invertebrates?	Yes	Further assessment required
		No	No further action
Fish	Could the activity change the hydromorphology and/or physico-chemistry of the water body, or lead to the direct loss or modification of shelter, feeding and spawning habitats for fish?	Yes	Further assessment required
		No	No further action
Hydromorphology			
Hydrological regime	Could the activity change the volume, energy or distribution of flows in the water body?	Yes	Further assessment required
		No	No further action
Morphological conditions	Could the activity change the width, depth, bank conditions, bed substrates and structure of the riparian zone?	Yes	Further assessment required
		No	No further action
River continuity	Could the activity create a permanent barrier to the downstream movement of water and/or sediment, or the upstream movement of fish?	Yes	Further assessment required
		No	No further action
Physico-chemistry			
General	Could the activity change the temperature, pH, oxygenation, salinity or nutrient concentrations in the water body?	Yes	Further assessment required
		No	No further action
Specific pollutants	Could the activity release dangerous chemicals into the water body?	Yes	Further assessment required

Parameter	Scoping question	Answer	Notes
		No	No further action
Protected Areas			
Protected Areas	Is the activity within 2km of a protected area?	Yes	Further assessment required
		No	No further action.
Improvement measures and mitigation measures			
Improvement measures (non-A/HMWBs)	Is the activity likely to impact on one of the improvement measures in place?	Yes	Further assessment required
		No	No further action
	Is the activity likely to prevent the delivery or effectiveness of one of the improvement measures that is not yet in place?	Yes	Further assessment required
		No	No further action
Mitigation measures (A/HMWBs)	Is the activity likely to impact on one of the mitigation measures in place?	Yes	Further assessment required
		No	No further action
	Is the activity likely to prevent the delivery or effectiveness of one of the mitigation measures that is not yet in place?	Yes	Further assessment required
		No	No further action

Table 3.2: Scoping questions for transitional and coastal water bodies

Parameter	Scoping question	Answer	Notes
Biology			
Fish (transitional water bodies)	Will the activity present a barrier to fish movement, risk or entrainment, risk to health and/or impact on a spawning area?	Yes	Further assessment required
		No	No further action
Fish (coastal water bodies)	Will the activity impinge the movement of estuarine fish, or place them at risk of entrainment?	Yes	Further assessment required
		No	No further action
Phytoplankton	Will the activity change water temperature, transparency and/or nutrient levels of the water body for greater than 14 days?	Yes	Further assessment required
		No	No further action
Flora/fauna/angiosperms/benthic invertebrates	Which type of habitat is likely to be impacted and what percentage of the habitat is impacted within the water body?		<p>If there are any sensitive habitats (such as seagrass) within 500 m, further assessment will be required.</p> <p>If the habitat is considered to be of low sensitivity, then a percentage impact of the habitat within the water body will be calculated. Based on the potential area of impact, a decision will be made as to whether further assessment is required (if <5% no further assessment required).</p> <p>If the development footprint is more than 0.5 km² of habitat or more than 0.5% of the habitat in a water body may be affected by the development then further assessment will be required.</p> <p>-</p>
Hydromorphology			
Hydromorphology	Is the water body high status/is the water body heavily modified for the same reason/use as the proposed project?	Yes	Further assessment required
		No	No further action.
Physico-chemistry			
Chemistry	Is the activity potentially releasing dangerous chemicals from surfaces, sediments and/or outfalls into the water body?	Yes	Further assessment required
		No	No further action.

Parameter	Scoping question	Answer	Notes
	Is the activity taking place in an area with limited water exchange (with the potential to cause thermal changes or change dilution factors)?	Yes	Further assessment required
		No	No further action.
Protection Areas			
Protected Areas	Is the activity within 2km of a protected area	Yes	Further assessment required
		No	No further action.
Improvement measures and mitigation measures			
Improvement measures (non-A/HMWBs)	Is the activity likely to impact on one of the improvement measures in place?	Yes	Further assessment required
		No	No further action
	Is the activity likely to prevent the delivery or effectiveness of one of the improvement measures that is not yet in place?	Yes	Further assessment required
		No	No further action
Mitigation measures (A/HMWBs)	Is the activity likely to impact on one of the mitigation measures in place?	Yes	Further assessment required
		No	No further action
	Is the activity likely to prevent the delivery or effectiveness of one of the mitigation measures that is not yet in place?	Yes	Further assessment required
		No	No further action

Table 3.3: Scoping questions for groundwater bodies

Parameter	Scoping question	Answer	Notes
Groundwater quantity	Will the activity change groundwater levels affecting Groundwater Dependent Terrestrial Ecosystems (GWDTEs) or dependent surface water features	Yes	Further assessment required
		No	No further action
	Will the activity (comprising abstraction) lead to saline intrusion?	Yes	Further assessment required
		No	No further action
	Will the level of proposed groundwater abstraction (dewatering) exceed recharge at a water body scale?	Yes	Further assessment required
		No	No further action
	Will the activity lead to an additional surface water body that will become non-compliant and lead to failure of the Dependent Surface Water test?	Yes	Further assessment required
		No	No further action
	Will the activity result in additional abstraction that will exceed any groundwater body scale headroom between the Fully licensed quantity and the limit imposed by the total recharge?	Yes	Further assessment required
		No	No further action
	Will the activity result in additional groundwater depletion of surface water flows that will exceed any groundwater body scale headroom between Fully Licensed depletion and the Limit imposed by the total low flows resource?	Yes	Further assessment required
		No	No further action
Groundwater quality	Will the activities have the potential to result in or exacerbate widespread diffuse pollution at a water body scale?	Yes	Further assessment required
		No	No further action.
	Will the activities have the potential to result in pollution of groundwater dependent terrestrial ecosystems (GWDTEs) or other dependent surface water features?	Yes	Further assessment required
		No	No further action.
	Will abstraction (dewatering) lead to saline intrusion?	Yes	Further assessment required

Parameter	Scoping question	Answer	Notes
	Will the activities have the potential to cause deterioration in the quality of a drinking water abstraction?	No	No further action.
		Yes	Further assessment required
	No	No further action.	
	Will the activities have the potential to result in increasing trends in pollutant concentrations or reduce the ability of the water body being able to reverse significant trends in groundwater pollutants?	Yes	Further assessment required
		No	No further action.
	Will the activities result in the failure of the 'prevent or limit' objective of the Groundwater Daughter Directive?	Yes	Further assessment required
No		No further action.	

3.7 Stage 3: Detailed compliance assessment

3.7.1 Aim of this stage

The Stage 3 assessment will determine whether the activities and/or scheme components that have been put forward from the Stage 2 scoping assessment will cause deterioration and whether this deterioration will have a significant non-temporary effect on the status of one or more WFD quality elements at water body level. For priority substances, the process requires the assessment to consider whether the activity is likely to cause the quality element to achieve good chemical status.

If it is established that an activity and/or scheme component is likely to affect water status at water body level (that is, by causing deterioration in status or by preventing achievement of WFD objectives (including those for Protected Areas) and the implementation of mitigation measures for HMWBs), or that an opportunity may exist to contribute to improving status at a water body level, potential measures to avoid the effect or achieve improvement must be investigated. This stage will consider such measures and, where necessary, evaluate them in terms of cost and proportionality.

3.7.2 Proposed method for the detailed compliance assessment

As outlined in **Section 3.6**, the end result of Stage 2 would be an agreed list of water bodies, scheme activities and quality elements to be carried forward for further assessment. Stage 3 will then consider the potential for status deterioration associated with each scheme activity (i.e. not the scheme as a whole) on the biological, hydromorphological and physico-chemical and chemical quality elements of each relevant surface water body, and the quantitative and chemical quality elements of each relevant groundwater body.

The assessment will establish whether the scheme activities will:

- Cause deterioration within a water body;
- Prevent WFD status objectives (i.e. GES or GEP) being achieved, including prevention of the delivery of mitigation measures identified in the RBMP; and/or
- Prevent status objectives being achieved in any other water bodies, including prevention of the delivery of mitigation measures identified in the RBMP.

Following the broad principles of the WFD, the scheme will be considered to be non-compliant if any of the scheme components are likely to cause a non-temporary deterioration in any of the quality elements individually or cumulatively at a water body level.

Impacts of the scheme on other European legislation, including the Habitats Directive, Birds Directive, Bathing Waters Directive (2006/7/EC) and Freshwater Fish Directive (2006/44/EC) for example will also be considered in line with Articles 4.8 and 4.9 of the WFD. Where necessary, reference will be made to supporting information contained in the relevant EIA chapters, and in the case of Natura 2000 protected areas, the Shadow HRA (both of which will accompany the project application documents).

If, at the end of the Stage 3 assessment process, negative impacts have been identified, measures to mitigate the impacts and, if possible, to improve the state of the water environment would be considered. Where possible, multiple benefits will be sought from each measure (e.g. across different water bodies or improving more than one quality element). Appropriate guidance will be consulted, such as the online “WFD Mitigation Measures Manual” (Environment Agency, undated) and “Estuary Edges: Ecological Design Guidance” (Thames Estuary Partnership and Environment Agency, undated). The scope of all measures will be agreed in consultation with the appropriate regulatory authorities.

In the unlikely event that no suitable measures can be identified to mitigate the potential adverse impacts of the scheme, it may be necessary to undertake an Article 4.7 assessment (noting that the overall ethos of the project is to prevent deterioration in water body status and avoid the need for an application for an exemption under Article 4.7 of the WFD). To determine the scope of this assessment, consultation with the Environment Agency will be required and will include:

- An assessment of whether the scheme can be classified as being of imperative overriding public interest and if the benefits to society resulting from the scheme outweigh the local benefits of WFD implementation.
- An assessment of whether all practicable steps to avoid adverse impacts have been taken. These steps are defined as those that are technically feasible, not disproportionately costly, and compatible with the overall requirements of the scheme.
- An assessment of whether the scheme can be delivered by an alternative, environmentally better option. This option will need to be technically feasible and not disproportionately costly to be feasible.

3.7.3 Determination of deterioration

Any deterioration identified would be considered within the context of the water body in terms of the scale and magnitude of the impact as well as the timescales over which the impact would occur. This assessment is likely to differ depending on the nature of the water body (i.e. marine, freshwater or groundwater). Our suggested approach for undertaking the deterioration assessment is provided in the subsequent sections.

There is currently no clear guidance from the Environment Agency on how deterioration in the status of water bodies should be assessed. We have therefore developed an outline methodology for use in rivers (**Table 3.4**), coastal (**Table 3.5**) and transitional (**Table 3.6**) water bodies and groundwater (**Table 3.7**).

Since the Environment Agency's policy of no deterioration applies to WFD compliance assessments, it is important to consider all levels of deterioration from short term *de minimis* impacts to potentially long term changes to water body status classifications. The methods outlined in **Tables 3.4 to 3.7** therefore consider the potential for between class, within class and temporary deterioration in water body status. Where deterioration is not predicted, the activity will also be considered against the water body objectives to ensure status objectives (i.e. GES or GEP) will not be prevented.

The methods presented in **Tables 3.4 to 3.7** draw upon several existing guidance documents that could have some application in the assessment of WFD compliance:

- The Water Framework Directive (Standards and Classification) Directions (England and Wales (2015). This document provides the most up to date standards used to determine the ecological and chemical status of surface water bodies and quantitative and chemical status of groundwater.
- UKTAG (2011) Defining & Reporting on Groundwater Bodies. This document provides information on the approaches used to classify groundwater bodies.
- Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme (2009) WFD Expert Assessment of Flood Management Impacts. This document provides a framework for the assessment of changes to hydromorphology.
- UKTAG (2003) Guidance on Morphological Alterations and the Pressures and Impacts Analyses. This document provides additional information on hydromorphological pressures.
- Internal Environment Agency guidance on WFD risk screening thresholds for river water bodies produced by the Environment Agency (document reference 488_10_SD06). This document provides an assessment of the level of risk of deterioration in water body status associated with different activities.

Table 3.4: Assessment of status deterioration in river water bodies

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Ecological status					
Biology	<p>Between class deterioration: Long term impact on fish, macrophytes or benthic invertebrates that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to ecological quality ratio for phytobenthos, macrophytes, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes between-class deterioration in the ecological quality ratios for phytobenthos (River DARLEQ2), macrophytes (River LEAFPACS2), invertebrates (WHPT metric in RICT; number of taxa or average score per taxon) or fish (FCS2), as provided in the provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Length of water body affected by the activity is greater than or equal to the between class deterioration thresholds for hydromorphology.</p> <p>Activity causes between-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>
	<p>Within class deterioration: Long term impact on fish, macrophytes or benthic invertebrates that is not sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to ecological quality ratio for phytobenthos, macrophytes, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes within-class deterioration in the ecological quality ratios for phytobenthos (River DARLEQ2), macrophytes (River LEAFPACS2), invertebrates (WHPT metric in RICT; number of taxa or average score per taxon) or fish (FCS2), provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Length of water body affected by the activity is greater than the within class deterioration thresholds for hydromorphology, but less than the thresholds for between class deterioration.</p> <p>Activity causes within-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on fish, macrophytes or benthic invertebrates, which will fully recover once the pressure is removed.</p> <p>OR any impacts on fish, macrophytes or benthic invertebrates are very spatially constrained.</p>	<p>Qualitative assessment based on predicted changes to ecological quality ratio for phytobenthos, macrophytes, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity does not cause deterioration in the ecological quality ratios for phytobenthos (River DARLEQ2), macrophytes (River LEAFPACS2), invertebrates (WHPT metric in RICT; number of taxa or average score per taxon) or fish (FCS2), provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Length of water body affected is less than or equal to the no deterioration / short term impact thresholds for hydromorphology.</p> <p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any deterioration is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	Compliant: no action required.	
Hydromorphology	<p>Between class deterioration: Long term impact on hydrological regime or morphological conditions that is sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment of changes to hydromorphological quality elements based on WFD Expert Assessment Framework (Defra, 2009).	<p>Physical modifications (bank reinforcement, bank reprofiling, embankment, bypass channel) > 100 m of river channel length.</p> <p>Management activities (management of in-channel or riparian vegetation, woody debris) > 200 m of river length.</p> <p>Long term barrier to river continuity (e.g. weir, culvert) or long term change to channel geomorphology (widening, deepening, straightening or realigning).</p>	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on hydrological regime or morphological conditions that is not sufficient to</p>		<p>Physical modifications (bank reinforcement, bank reprofiling, embankment, bypass channel) > 10 m but ≤ 100 m of river channel length.</p> <p>Management activities (management of in-channel or riparian vegetation, woody debris) > 20 m but ≤ 200 m of</p>		

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>decrease the overall status classification of the water body.</p> <p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on hydrological regime, morphological conditions or river continuity, which will fully recover once the pressure is removed.</p> <p>OR any impacts on hydrological regime, morphological conditions or river continuity are very spatially constrained.</p>		<p>river length.</p> <p>Bridges and crossings that include in-channel supports and/or abutments that are not set back from the channel.</p> <p>Physical modifications (bank reinforcement, bank reprofiling, embankment, bypass channel) ≤ 10 m of river channel length.</p> <p>Management activities (management of in-channel or riparian vegetation, woody debris) ≤ 20 m of river length.</p> <p>Bridges and crossings with abutments that are set back from the channel and that do not include in-channel supports.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	<p>likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p> <p>Compliant: no further action required.</p>	
Physico-chemistry	<p>Between class deterioration: Long term impact on temperature, pH, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to physico-chemical quality elements, using an expert judgement approach.</p>	<p>Activity causes between-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p> <p>If impact on ecology not identified for parameters without thresholds, compliant and no action required.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>Within class deterioration: Long term impact on temperature, pH, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants that is not sufficient to decrease the overall status classification of the water body.</p>		<p>Activity causes within-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance. If impact on ecology not identified for parameters without thresholds, compliant and no action required.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on temperature, pH, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants, which will fully recover once the pressure is removed.</p> <p>OR any impacts on temperature, pH, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants are very spatially constrained.</p>		<p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p> <p>Any impact is spatially constrained (<2% water body) and insufficient to impact upon biological quality elements.</p>	<p>Compliant: no further action required.</p>	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Chemical status					
Priority substances	<p>Between class deterioration: Long term impact on concentrations of priority substances that is sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to chemical quality elements.	Activity causes concentrations to exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on concentrations of priority substances that is not sufficient to decrease the overall status classification of the water body.</p>		<p>Baseline concentrations below EQS: Activity causes concentrations to increase without exceeding the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Baseline concentrations above EQS: Activity causes concentrations that already exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 to increase further.</p>	Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.	An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on concentrations of priority substances, which will fully recover once the pressure is removed.</p> <p>OR any impacts on concentrations of priority substances are very spatially constrained.</p>		<p>Activity does not cause deterioration in the thresholds for chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p> <p>Any impact is spatially constrained (<2% water body) and insufficient to impact upon biological quality elements.</p>	Compliant: no further action required.	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Protected Areas					
Habitats Directive and Birds Directive	Will be considered within the HRA and therefore no additional requirements for WFD compliance assessment.				
Freshwater Fish Directive	Will already be considered under biological parameters and therefore no further assessment required.				
Nutrient sensitive sites	Will be considered within the EIA and therefore unlikely to be addition requirements for WFD compliance assessment if no impacts or minor impacts identified.				

Table 3.5: Assessment of status deterioration in coastal water bodies

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Ecological status					
Biology	<p>Between class deterioration: Long term impact on phytoplankton and other aquatic flora, benthic invertebrates or fish that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio for phytoplankton or benthic invertebrates.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes between-class deterioration in the ecological quality ratios for phytoplankton (Coastal Water Phytoplankton Tool) or benthic invertebrates (Infaunal Quality Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected by the activity is greater than or equal to the between class deterioration thresholds for hydromorphology.</p> <p>Activity causes between-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>
	<p>Within class deterioration: Long term impact on phytoplankton and other aquatic flora, benthic invertebrates or fish that is not sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio for phytoplankton or benthic invertebrates.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes within-class deterioration in the ecological quality ratios for phytoplankton (Coastal Water Phytoplankton Tool) or benthic invertebrates (Infaunal Quality Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected by the activity is greater than the within class deterioration thresholds for hydromorphology, but less than the thresholds for between class deterioration.</p> <p>Activity causes within-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (standards and Classification) Directions (England and Wales) 2015.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>
	<p>Temporary or no deterioration: Short term impact (less</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio</p>	<p>Activity does not cause deterioration in the ecological quality ratios for phytoplankton (Coastal Water Phytoplankton Tool) or benthic invertebrates (Infaunal</p>	<p>Compliant: no action required.</p>	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>than 12 months) or no impact on phytoplankton and other aquatic flora, benthic invertebrates or fish, which will fully recover once the pressure is removed.</p> <p>OR any impacts on phytoplankton and other aquatic flora, benthic invertebrates or fish are very spatially constrained.</p>	<p>for phytoplankton or benthic invertebrates.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Quality Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected is less than or equal to the no deterioration / short term impact thresholds for hydromorphology.</p> <p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any deterioration is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>		
Hydromorphology	<p>Between class deterioration: Long term impact on morphological conditions or tidal regime that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to coastal processes obtained from modelling.</p>	<p>Activity results in permanent changes to wave conditions or sediment transport processes in more than 5% of the water body area.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>
	<p>Within class deterioration: Long term impact on morphological conditions or tidal regime that is not sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to coastal processes obtained from modelling.</p>	<p>Activity results in permanent changes to wave conditions or sediment transport processes in less than 5% but more than 2% of the water body area.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on morphological conditions or tidal regime, which will fully recover once the pressure is removed.</p> <p>OR any impacts on morphological conditions or tidal regime are very spatially constrained.</p>	Qualitative assessment based on expert judgement and interpretation of coastal process data.	<p>Activity results in changes to wave conditions or sediment transport processes in less than 2% of the water body area.</p> <p>Any deterioration is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	Compliant: no action required.	
Physico-chemistry	<p>Between class deterioration: Long term impact on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants that is sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to physico-chemical quality elements obtained from water quality modelling.	Activity causes between-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category. For parameters without thresholds (such as temperature) and impact on ecology not identified, compliant and no action required.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific</p>	Qualitative assessment based on predicted changes to physico-chemical quality elements, obtained from water quality modelling.	Activity causes within-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.	Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all	An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>pollutants that is not sufficient to decrease the overall status classification of the water body.</p>			<p>mitigation has been included, monitoring is likely to be required to demonstrate compliance. If impact on ecology not identified for parameters without thresholds, compliant and no action required.</p>	
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants, which will fully recover once the pressure is removed.</p> <p>OR any impacts on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants are very spatially constrained.</p>	<p>Qualitative assessment based on predicted changes to physico-chemical quality elements obtained from water quality modelling..</p>	<p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	<p>Compliant: no further action required.</p>	
Chemical status					
Priority substances	<p>Between class deterioration: Long term impact on concentrations of priority</p>	<p>Qualitative assessment based on predicted changes to chemical quality elements. Water quality modelling of</p>	<p>Activity causes concentrations to exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category,</p>

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	substances that is sufficient to decrease the overall status classification of the water body.	discharges will consider baseline environment and risk of exceeding EQS over long periods.		be considered to reduce the impact to a lower deterioration category.	the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on concentrations of priority substances that is not sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to chemical quality elements. Water quality modelling of discharges will consider baseline environment.	<p>Baseline concentrations below EQS: Activity causes concentrations to increase without exceeding the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Baseline concentrations above EQS: Activity causes concentrations that already exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 to increase further.</p>	Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.	An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on concentrations of priority substances, which will fully recover once the pressure is removed.</p> <p>OR any impacts on concentrations of priority substances are very spatially constrained.</p>	Qualitative assessment based on predicted changes to chemical quality elements using an expert judgement approach.	<p>Activity does not cause deterioration in the thresholds for priority substances provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p> <p>Any impact is spatially constrained (<2% water body) and insufficient to impact upon biological quality elements.</p>	Compliant: no further action required.	
Protected Areas					
Shellfish/bathing water standards	Will be considered using the relevant standards as part of the WFD compliance assessment.				
Habitats Directive	Will be considered within the HRA and therefore no additional requirements for WFD compliance assessment.				

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Nutrient sensitive sites					Will be considered within the EIA and therefore unlikely to be addition requirements for WFD compliance assessment if no impacts or minor impacts identified.
Freshwater fish					Will already be considered under biological parameters and therefore no further assessment required.

Table 3.6: Assessment of status deterioration in transitional water bodies

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Ecological status					
	<p>Between class deterioration: Long term impact on phytoplankton and other aquatic flora, benthic invertebrates or fish that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio for phytoplankton, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes between-class deterioration in the ecological quality ratios for phytoplankton (Transitional Water Phytoplankton Tool), benthic invertebrates (Infaunal Quality Index) or fish (Transitional Fish Classification Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected by the activity is greater than or equal to the between class deterioration thresholds for hydromorphology.</p> <p>Activity causes between-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>
Biology	<p>Within class deterioration: Long term impact on phytoplankton and other aquatic flora, benthic invertebrates or fish that is not sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio for phytoplankton, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity causes within-class deterioration in the ecological quality ratios for phytoplankton (Transitional Water Phytoplankton Tool), benthic invertebrates (Infaunal Quality Index) or fish (Transitional Fish Classification Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected by the activity is greater than the within class deterioration thresholds for hydromorphology, but less than the thresholds for between class deterioration.</p> <p>Activity causes within-class deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on phytoplankton and other aquatic flora, benthic invertebrates or fish, which will fully recover once the pressure is removed.</p> <p>OR any impacts on phytoplankton and other aquatic flora, benthic invertebrates or fish are very spatially constrained.</p>	<p>Qualitative assessment based on predicted changes to the ecological quality ratio for phytoplankton, benthic invertebrates or fish.</p> <p>OR Qualitative assessment based on expert judgement of impacts on hydromorphology and physico-chemistry.</p>	<p>Activity does not cause deterioration in the ecological quality ratios for phytoplankton (Transitional Water Phytoplankton Tool), benthic invertebrates (Infaunal Quality Index) or fish (Transitional Fish Classification Index) provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Area of water body affected is less than or equal to the no deterioration / short term impact thresholds for hydromorphology.</p> <p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any deterioration is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	Compliant: no action required.	
Hydromorphology	<p>Between class deterioration: Long term impact on morphological conditions or tidal regime that is sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to coastal processes obtained from modelling.	Activity results in permanent changes to wave conditions or sediment transport processes in more than 5% of the water body area.	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on morphological conditions or tidal regime that is not sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to coastal processes obtained from modelling.	Activity results in permanent changes to wave conditions or sediment transport processes in less than 5% but more than 2% of the water body area.	Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring	An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
				is likely to be required to demonstrate compliance.	
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on morphological conditions or tidal regime, which will fully recover once the pressure is removed.</p> <p>OR any impacts on morphological conditions or tidal regime are very spatially constrained.</p>	Qualitative assessment based on expert judgement and interpretation of coastal process data.	<p>Activity results in changes to wave conditions or sediment transport processes in less than 2% of the water body area.</p> <p>Any deterioration is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	Compliant: no action required.	
Physico-chemistry	<p>Between class deterioration: Long term impact on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants that is sufficient to decrease the overall status classification of the water body.</p>	Qualitative assessment based on predicted changes to physico-chemical quality elements obtained from water quality modelling.	Activity causes between-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category. For parameters without thresholds (such as temperature) and impact on ecology not identified, compliant and no action required.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on</p>	Qualitative assessment based on predicted changes to physico-chemical quality	Activity causes within-class deterioration in the thresholds provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.	Deterioration within class should be reduced as far as	An Article 4.7 assessment may be required where good

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants that is not sufficient to decrease the overall status classification of the water body.	elements, obtained from water quality modelling.		possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance. If impact on ecology not identified for parameters without thresholds, compliant and no action required.	status is prevented from being achieved or water body objectives are undermined.
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants, which will fully recover once the pressure is removed.</p> <p>OR any impacts on transparency, temperature, oxygenation, salinity, nutrient concentrations or concentrations of specific pollutants are very spatially constrained.</p>	Qualitative assessment based on predicted changes to physico-chemical quality elements obtained from water quality modelling.	<p>Activity does not cause deterioration in the thresholds for physico-chemistry provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements.</p>	Compliant: no further action required.	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Chemical status					
Priority substances	<p>Between class deterioration: Long term impact on concentrations of priority substances that is sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to chemical quality elements. Water quality modelling of discharges will consider baseline environment and risk of exceeding EQS over long periods.</p>	<p>Activity causes concentrations to exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p>	<p>Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.</p>	<p>If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.</p>
	<p>Within class deterioration: Long term impact on concentrations of priority substances that is not sufficient to decrease the overall status classification of the water body.</p>	<p>Qualitative assessment based on predicted changes to chemical quality elements. Water quality modelling of discharges will consider baseline environment.</p>	<p>Baseline concentrations below EQS: Activity causes concentrations to increase without exceeding the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Baseline concentrations above EQS: Activity causes concentrations that already exceed the EQS provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 to increase further.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.</p>
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no impact on concentrations of priority substances, which will fully recover once the pressure is removed.</p> <p>OR any impacts on concentrations of priority substances are very spatially constrained.</p>	<p>Qualitative assessment based on predicted changes to chemical quality elements using an expert judgement approach.</p>	<p>Activity does not cause deterioration in the thresholds for priority substances provided in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon biological quality elements. Any impact is spatially constrained (<2% water body) and insufficient to impact upon biological quality elements.</p>	<p>Compliant: no further action required.</p>	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Protected Areas					
Shellfish/bathing water standards	Will be considered using the relevant standards as part of the WFD compliance assessment.				
Habitats Directive	Will be considered within the HRA and therefore no additional requirements for WFD compliance assessment.				
Nutrient sensitive sites	Will be considered within the EIA and therefore unlikely to be addition requirements for WFD compliance assessment if no impacts or minor impacts identified.				
Freshwater fish	Will already be considered under biological parameters and therefore no further assessment required.				

Table 3.7: Assessment of status deterioration in groundwater bodies

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
Groundwater quantity	<p>Between class deterioration: Long term impact on groundwater levels, groundwater dependent surface water bodies or groundwater dependent terrestrial ecosystems that is sufficient to decrease the overall status classification of the water body.</p>	Assessment of changes to groundwater quantity receptors based on interpretation of the results of the FEFLOW-MIKE11 model of groundwater and groundwater surface water interactions within the model domain, and qualitative extrapolation of these results beyond if necessary.	<p>Activity results in a significant upward trend in salinity or indicators of other intrusions of pollutants that is sufficient to require any abstracted water to be treated.</p> <p>Activity prevents surface water bodies with $\geq 50\%$ groundwater-derived flows from reaching target status over 20% of the groundwater body.</p> <p>Activity results in significant change to groundwater dependent terrestrial ecosystems as a result of reduced water availability.</p> <p>Activity results in abstraction that exceeds the available water resources in the groundwater body and supported surface flows.</p>	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant and an Article 4.7 assessment will be required.
	<p>Within class deterioration: Long term impact on groundwater levels, groundwater dependent surface water bodies or groundwater dependent terrestrial ecosystems that is not sufficient to decrease the overall status classification of the water body.</p>	Additional qualitative assessment of changes to key species for impacts on terrestrial ecosystems.	<p>Activity causes concentrations of substances that are indicative of saline intrusion or other intrusions of pollutants to exceed the thresholds provided in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Activity results in changes to groundwater levels that are identified as a potential contributor factor to unsatisfactory flow conditions in an associated surface water body.</p> <p>Activity results in changes to groundwater levels that are identified as a potential contributor to unsatisfactory conditions in a groundwater dependent terrestrial ecosystem.</p> <p>The quantity of groundwater abstracted from the water body as a result of the activity exceeds the long-term annual average rate of overall recharge.</p>	Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.	An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined.
	<p>Temporary or no deterioration:</p>		Activity does not cause concentrations of substances indicative of saline intrusion or other intrusions of	Compliant: no action required.	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>Short term impact (less than 12 months) or no impact on groundwater levels, groundwater dependent surface water bodies or groundwater dependent terrestrial ecosystems, which will fully recover once the pressure is removed.</p> <p>OR any impacts on groundwater levels, groundwater dependent surface water bodies or groundwater dependent terrestrial ecosystems are very spatially constrained.</p>		<p>pollutants to exceed the thresholds provided in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon surface water bodies or groundwater dependent terrestrial ecosystems.</p> <p>Any impact is spatially constrained (<2% water body) and insufficient to impact upon surface water bodies or groundwater dependent terrestrial ecosystems.</p>		
Groundwater quality	<p>Between class deterioration: Long term impact on conductivity, oxygenation, pH, concentrations of nitrates, ammonia and priority substances, drinking water quality and groundwater dependent terrestrial ecosystems that is sufficient to decrease the overall status classification of the water body.</p>	<p>Changes to water quality resulting from changes to the quantity will be assessed based on interpretation of the results of the FEFLOW- MIKE11 model within the model domain, and qualitative extrapolation of these results beyond.</p> <p>Where changes to water quality could result from additional input of contaminant, the assessment will take a tiered approach. The first tier will consider the dilution of the contaminant within the aquifer. The second tier (if necessary) will also consider attenuation</p>	<p>Activity results in a significant upward trend in salinity or indicators of other intrusions of pollutants that is sufficient to require any abstracted water to be treated.</p> <p>Activity causes pollutant concentrations that result in failure of a surface water body to meet good status, with inputs from the groundwater accounting for ≥ 50% of the relevant surface water standard.</p> <p>Activity releases pollutants that result in significant change to groundwater dependent terrestrial ecosystems as a result of groundwater pollution.</p> <p>Activity results in a deterioration in the quality of water within a drinking water protected area that is sufficient to require additional treatment.</p> <p>Activity results in pollutant concentrations that exceed the thresholds provided in Schedule 5 of the Water</p>	Potentially non-compliant: appropriate mitigation options to be considered to reduce the impact to a lower deterioration category.	If mitigation cannot be put in place to reduce the impact to a lower deterioration category, the activity will be considered to be non-compliant. If changes to water quality result from change to the quantity, an Article 4.7 assessment will be required.

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
		within the unsaturated zone (if applicable). The third tier (if necessary) will also consider attenuation within the groundwater body (including the hyporheic zone if relevant).	Framework Directive (Standards and Classification) Directions (England and Wales) 2015 at all representative monitoring points, and the concentration of the pollutant exceeds the maximum allowable concentration for drinking water in at least one sample from a representative monitoring point.		
	<p>Within class deterioration: Long term impact on conductivity, oxygenation, pH, concentrations of nitrates, ammonia and priority substances, drinking water quality and groundwater dependent terrestrial ecosystems that is not sufficient to decrease the overall status classification of the water body.</p>		<p>Activity causes concentrations of substances that are indicative of saline intrusion or other intrusions of pollutants to exceed the thresholds provided in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.</p> <p>Activity causes the groundwater body to exceed a threshold value in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 which is indicative of a risk to the ecological or chemical quality of an associated surface water body.</p> <p>Activity results in groundwater pollution that is identified as a potential contributor to unsatisfactory conditions in a groundwater dependent terrestrial ecosystem, and causes a threshold value in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 that is indicative of the risks to the ecological quality of the ecosystem to be exceeded.</p> <p>Activity results in the quality of abstracted water to exceed a threshold value in Schedule 5 of the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015, causing a risk of deterioration in water intended for human consumption or significant impairment of water abstracted for other uses.</p>	<p>Deterioration within class should be reduced as far as possible with mitigation. If deterioration is still likely after all mitigation has been included, monitoring is likely to be required to demonstrate compliance.</p>	<p>An Article 4.7 assessment may be required where good status is prevented from being achieved or water body objectives are undermined due to changes in quantity.</p>
	<p>Temporary or no deterioration: Short term impact (less than 12 months) or no</p>		<p>Activity does not cause concentrations of substances indicative of saline intrusion or other intrusions of pollutants to exceed the thresholds provided in Schedule 5 of the Water Framework Directive (Standards and</p>	<p>Compliant: no action required.</p>	

Parameter	Type of deterioration	Assessment methodology	Assessment criteria	Compliance	Assessment summary
	<p>impact on conductivity, oxygenation, pH, concentrations of nitrates, ammonia and priority substances, drinking water quality and groundwater dependent terrestrial ecosystems, which will fully recover once the pressure is removed.</p> <p>OR any impacts on conductivity, oxygenation, pH, concentrations of nitrates, ammonia and priority substances, and groundwater dependent terrestrial ecosystems are very spatially constrained.</p>		<p>Classification) Directions (England and Wales) 2015.</p> <p>Any impact is temporally constrained (<12 months) and insufficient to impact upon surface water bodies or groundwater dependent terrestrial ecosystems.</p> <p>Any impact is spatially constrained (<2% water body) and insufficient to impact upon surface water bodies or groundwater dependent terrestrial ecosystems.</p>		

3.7.4 Protected areas

Impacts of the scheme on other European legislation, including the Habitats Directive, Birds Directive and the Bathing Waters Directive would be considered in line with Articles 4.8 and 4.9 of the WFD. However, it is anticipated that the majority of the assessments for these areas would have been assessed within the Shadow Habitats Regulations Assessment and Environmental Statement (which would accompany the project application documents).

3.7.5 Mitigation measures

If, at the end of the assessment process, adverse impacts have been identified, Stage 3 would then consider the development of measures to mitigate the impacts of relevant scheme components and if possible improve the state of the water environment. Where possible, multiple benefits would be sought from each measure (e.g. across different water bodies or improving more than one quality element). Appropriate guidance will be consulted, such as the online “Healthy Catchments” guidance (Environment Agency, 2013) and “Estuary Edges: Ecological Design Guidance” (Thames Estuary Partnership and Environment Agency, undated). The scope of all measures would be agreed with the Environment Agency.

In the unlikely event that no suitable measures can be identified to mitigate the impacts of the scheme, it may be necessary to undertake an Article 4.7 assessment. To determine the scope of this assessment, consultation with the Environment Agency (including the National Article 4.7 Support Team) would be required. This would include:

- An assessment of whether the scheme can be classified as being of imperative overriding public interest and if the benefits to society resulting from the scheme outweigh the local benefits of WFD implementation.
- An assessment of whether all practicable steps to avoid adverse impacts have been taken. These steps are defined as those that are technically feasible, not disproportionately costly, and compatible with the overall requirements of the scheme.
- An assessment of whether the scheme can be delivered by an alternative, environmentally better option. This option would need to be technically feasible and not disproportionately costly to be feasible.

3.8 Stage 4: Summary of mitigation, improvements and monitoring

3.8.1 Aim of this stage

This stage of the process provides a summary of the preceding stages and any mitigation and monitoring proposals for each of the activities assessed.

3.8.2 Proposed method

This stage would summarise the results of the assessment that is described in the previous sections. This summary will include:

- An overview of the results of the assessment, including whether proposed scheme activities have been screened out, assessed in detail, or mitigated against.
- A description of potential impacts on water body status, including a summary of the activities that cause the impact, and a breakdown of the water bodies and quality elements that they affect.

- A description of the mitigation measures that are required to address any impacts, and prevent deterioration in status or failure to meet WFD objectives set for the relevant water bodies.
- A description of any monitoring that is required in order to demonstrate that the scheme will not result in impacts on water body status.
- A description of any improvements that can be implemented as part of the proposed development.

3.9 Structure of the Sizewell C WFD compliance assessment

It is proposed that the Sizewell C WFD Compliance Assessment is divided into five main sections:

- Introduction, which includes overall background, methods and a consultation record.
- A separate compliance assessment for the Main Development Site and Associated Development Sites.
- A cumulative impact assessment, which considers the potential for cumulative impacts resulting from the Main Development Sits and the Associated Development Sites.
- A summary of the findings of each separate assessment.

The contents of each part of the Sizewell C WFD Compliance Assessment are demonstrated schematically in **Figure 3.1**.

Figure 3.1: Proposed structure of the Sizewell C WFD Compliance Assessment

<p>Part 1: Introduction Overall scheme description WFD compliance assessment process and methodology Consultation record</p>	
<p>Part 2a: Main Development Site Stage 1: Description of project and baseline conditions Stage 2: Preliminary screening exercise Stage 3: Detailed compliance assessment Stage 4: Summary of mitigation measures, improvements and any monitoring required</p>	<p>Part 2b: Associated Development Sites Separate section covering Stages 1 – 4 for each Associated Development Site</p>
<p>Part 3: Cumulative Impact Assessment Assessment of cumulative impacts that could arise from the Main Development Site and Associated Development Sites Identification of any mitigation and monitoring requirements</p>	
<p>Part 4: Summary and conclusions Overview of the results of each assessment Description of potential impacts on water body status (including cumulative impacts) Description of any mitigation measures and monitoring requirements Overall statement of WFD compliance</p>	

3.10 Provision of technical information for the Sizewell C WFD Compliance Assessment

The information presented in the Sizewell C WFD Compliance Assessment will be largely derived from the EIA work undertaken for the Sizewell C Project and it is important that the two assessment work streams are based upon the same information sources.

A significant amount of survey and reporting effort has been expended in determining the environmental baseline conditions for the Sizewell C Project. This body of work will be made available to stakeholders involved in the assessment process.

The specific nature of the assessment work required for the Sizewell C WFD Compliance Assessment is, however, recognised and there may be a requirement for dedicated items of work to be produced in order to address issues as the assessment progresses. NNB GenCo has a team of technical experts working on the project and has set up a marine environment focussed research team (British Energy Estuarine and Marine Studies - BEEMS) under the auspices of Cefas. For information needs not already addressed via the work undertaken to date or through the planned EIA programme, specific technical reports will be commissioned by NNB GenCo and the results made available to stakeholders. The provision of information throughout the assessment process should enable issues to be discussed and, hopefully, resolutions agreed prior to the release of the full Sizewell C WFD Compliance Assessment with the DCO submission.

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