

An underwater photograph showing bubbles rising from the bottom, with some rocks visible in the lower right corner. The water is a deep blue color.

Scotland to England Green Link (SEGL)  
also known as Eastern Link

Environmental Assessment Methodology

National Grid and Scottish Power Transmission

29<sup>th</sup> March 2021

## Quality information

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## 1. Introduction

Scotland to England Green Link (SEGL), also known as Eastern Link (EL) is a major reinforcement of the electricity transmission system which will provide additional north-south transmission capacity between Scotland and Northern England.

This additional capacity is needed in response to increasing renewable energy generation from onshore and offshore wind as well as interconnectors and will be crucial in helping the UK and Scottish Governments meet their net zero targets. Both the Scottish and UK governments are committed to seeing renewable energy generation increase as the countries aim to reach net zero carbon emissions by 2045 in Scotland and 2050 in England.

The Project is being jointly developed by National Grid Electricity Transmission (NGET), Scottish Power Energy Networks (SPEN) and Scottish and Southern Electricity Networks (SSEN) and comprises two separate and distinct cable projects: Eastern Link 1 Torness to Hawthorn Pit (EL1) and Eastern Link 2 Peterhead to Drax (EL2).

Each project is made up of three key components: The onshore works in Scotland, (the '*Scottish Onshore Scheme*'); Works in Scottish and English waters, (the Marine Scheme'); and the onshore works in England, (the '*English Onshore Scheme*')

This document sets out a common approach to Environmental Impact Assessment (EIA) / Environmental Appraisal (EA), including methodology and terminology with the objective of ensuring consistency across all environmental assessment and consent application documents for all project components of the SEGL / EL Project.

## 2. Approach to Environmental Assessment

### 2.1 Introduction

The Environmental Impact Assessment Directive (Council Directive 85/337/EC) (as amended 2003/35/EC and most recently 2014/52/EU) requires that certain types of project with the potential to significantly affect the environment have an environmental impact assessment (EIA) before a licence decision is made.

The following EIA Regulations (including Schedules) transpose the requirements of the Environmental Impact Assessment Directive (2014/52/EU) into UK law. The EIA Regulations set out the requirement for the EIA process as they may be expected to apply to the Eastern Link projects. Key regulations include:

- Town and Country Planning (Environmental Impact Assessment) Regulations 2017;
- The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017;
- Marine Works (EIA) Regulations 2007;
- Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017; and
- Town and Country Planning (Environmental Impact assessment) (Scotland) Regulations 2017.

There is no reference to interconnector projects or the constituent inshore or offshore component parts of this type of development in the EIA Regulations. The installation of cables or cable protection in marine waters is not listed on either Schedule A1 or A2 of the Marine EIA Regulations.

SSEN, SPT and NGET consider that no part of the two projects (EL1 and EL2) – terrestrial or marine – in themselves falls under Schedule 1 or Schedule 2 of the relevant EIA Regulations. However, there is a risk that one or more of the consenting bodies may take a view that one or more components of the Projects is EIA development.

Consequently, on the 28th January 2020, SPT and NGET screening requests were submitted to the relevant consent authorities for EIA for both the Scottish and English onshore schemes and for the marine elements of the Projects which fall within the consenting jurisdiction of MS-LOT and the MMO.

MS-LOT and MMO screening opinion/ screening rejection letters were received on the 3rd February and 15 March 2021 respectively (MS-LOT Pers. Comm, 2021; MMO Case Reference EIA/2021/00006, 2021). This determined that the components of the English Onshore / Marine / Scottish Marine Scheme within its authority area not to be 'EIA development'.

On this basis, an Environmental Appraisal will be carried out and an Environmental Appraisal Report (EAR) will be submitted with any future planning / marine licence application.

### Environmental Impact Assessment Guidance

Whilst not screened as EIA development, the Environmental Appraisal that will accompany the required consent applications for the Project will be undertaken in accordance with relevant best practice.

The assessments will be carried out taking into account (but not limited to) the guidance provided in the following documents:

- The Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, 2004;
- National Planning Practice Guidance: Environmental Impact Assessment (2014 last updated May 2020)<sup>1</sup>
- The UK Chartered Institute of Ecology and Environmental Management (CIEEM): Guidelines for Ecological Impact Assessment in UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2018);

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<sup>1</sup><https://www.gov.uk/guidance/environmental-impact-assessment>

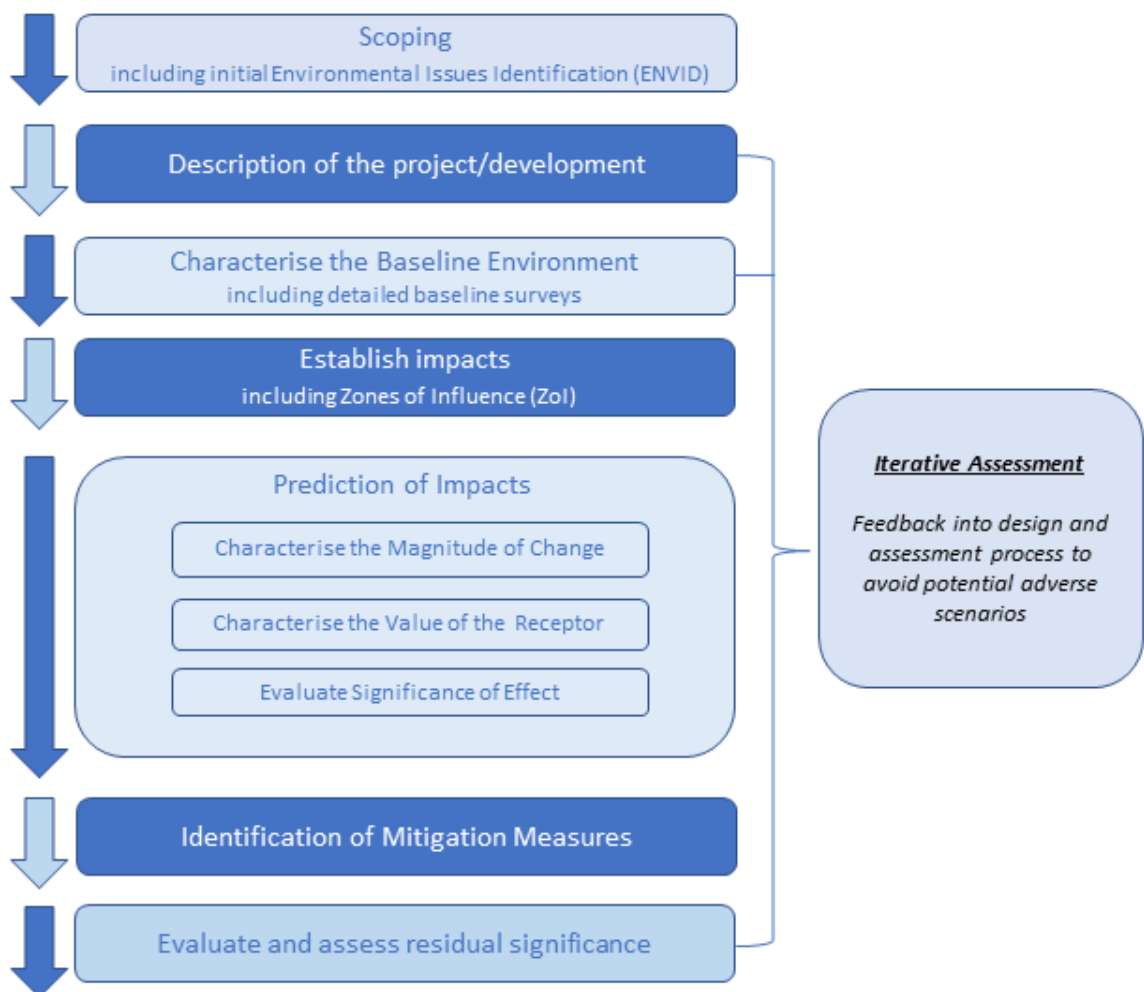
## 2.2 Overview of Approach to Environmental Appraisal

The assessment methodology follows a systematic approach in order to assess the potential impacts and subsequent effects of the Project on physical, biological and human receptors in a robust and transparent manner.

The Project will follow best practice by integrating environmental considerations into the design process at all stages. This has already begun through route development and optimisation work comprising both desk studies and initial baseline surveys that have sought to avoid or reduce disturbance of known environmental constraints, wherever possible.

The environmental assessment should identify potentially significant adverse environmental effects and, if any, propose project specific mitigation measures to avoid, reduce or offset adverse environmental effects or maximise environmental benefits. These can then be incorporated into the further, post-consent configuration refinement of the Projects.

The environmental assessment process involves the following main steps:



**Figure 1: Steps of an Environmental Appraisal**

The steps are described in more detail below and should be followed and presented within the receptor topic chapters of this report.

## 2.3 Scoping

### 2.3.1 Environmental Issues Identification (if using)

Early and systematic consideration should be given to the potential for interactions to occur between the project activities and known environmental sensitivities within the study area. These should be recorded in a simple matrix form using the Environmental Issues Identification (ENVID) matrix. Where potential interactions are not expected as a result of specific design parameters or already committed mitigation these integral environmental design features should be clearly identified. Where potential interactions are identified, these should be further explained through the scoping analysis sections to be included within the remainder of the scoping report.

### 2.3.2 Scoping

Potential project activity/ environment issues preliminarily identified in the ENVID process should be expanded on in the remainder of the scoping report. Discussion can be qualitative at this stage. An initial description of the key environmental sensitivities should be included followed by an explanation of the key features of the interaction that has been identified and of the potential for impacts which may result from that interaction. This discussion should also set out the approach to assessment that will be followed (e.g. qualitative, quantitative and, any impact modelling (e.g. noise propagation, sediment distribution patterns etc))

## 2.4 Characterisation of the Baseline Environment

In order to assess the potential impacts resulting from the Project it is necessary to first establish the physical, biological, and human environmental baseline conditions that currently exist along and within the vicinity of the Project area as well as the likely evolution of the baseline without implementing the Project.

Appropriate understanding of the baseline for each environmental receptor should be collated through some or all of the following:

- Review of primary baseline studies (field);
- Review of additional specialist baseline studies (desk-based);
- Detailed review of all secondary sources (i.e. existing documentation and literature); and
- Stakeholder consultation.

The key data sources used to establish the baseline should be described in each technical assessment chapter.

The following limitations or assumptions should be noted:

- Third party and publicly available information is correct at the time of publication;
- Baseline conditions are accurate at the time of physical surveys but due to the dynamic nature of the environment, conditions may change before or during the installation and operation phases of each Project (although the effects of the natural variation are included in the assessment); and
- The Project area will not be subject to force majeure resulting in a complete shift from the existing baseline.

Note: Integration with and duplication of certain parts of the baseline characterisation for the connecting onshore schemes at each end will be required to ensure appropriate coverage and understanding of environmental sensitivities within the potential Zones of Influence (Zol) of intertidal activities, where they may locally extend above Mean High Water Springs (MHWS).

## 2.5 Establish Potential Impacts

The IEMA (2004) guidelines state:

*“The assessment stage of the EIA should follow a clear progression; from the characterisation of ‘impact’ to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors.”* (p11/2)



For consistency, the terms interaction, impact and effect, as defined in **Table 2-1** below and should be used appropriately throughout the environmental assessment.

**Table 2-1: Definitions of interaction, impact and effect**

Terms	Definition
Interaction	The link between an activity and the receptor. There must be an interaction for an effect to occur.
Impact	The action that occurs as a result of an identified interaction. The predicted change in the baseline environment.
Effect	An observable consequence of impacts, usually measurable. Effects only occur when an activity or environmental impact is present within an environment that is sensitive to it.

The prediction of potential impacts should be undertaken to determine what could happen to each environmental receptor as a consequence of the Project and its associated activities. There is expected to be a diverse range of potential impacts to consider within the assessment process and it will likely be appropriate to use a range of prediction methods including quantitative, semi-qualitative and qualitative. The definitions used to describe impacts are recommended in the

**Table 2-2** below.

**Table 2-2: Impact definitions**

Impact	Definition
Direct impact	Impacts that result from a direct interaction between The Project activities and the receiving environment.
Indirect impact	Impacts on the environment, which are not a direct result of the Project/Project activities, often produced away from the activity or as a result of a complex pathway.
Cumulative impact	Impacts that result from incremental changes caused by other present or reasonably foreseeable actions together with The Project (European Commission 1999). Generally considered to be the same impact but from different projects e.g. underwater noise from two separate projects combining to affect marine mammals.
Beneficial impact	An impact that is considered to represent an improvement on the baseline condition or introduces a new desirable factor (IEEM 2010).
Adverse impact	An impact that is considered to represent an adverse change from the baseline condition or introduces a new undesirable factor (IEEM 2010).

### 2.5.1 Establishing Impact Zones of Influence

For each potential impact, the 'Zone of Influence' (Zoi) – the spatial extent over which the activities are predicted to have an impact on the receiving environment – is established. This will vary for different activities and for the different stages of the Project (installation, operation and decommissioning).

Establishing the Zoi for different activities and receptors should be undertaken quantitatively where possible. Where necessary it can be undertaken based on the Project description, project experience, appropriate professional judgment and literature reviews.

Potential for impacts on receptors which occur outside the Zoi and which cannot or are unlikely to travel into the zone (e.g. benthic communities) can be screened out. Conversely, mobile species and other mobile receptors such as other sea users can travel into the Zoi and may therefore be impacted by the Project.

### 3. Prediction of Impacts

#### 3.1.1 Magnitude of Change

In order to fully characterise an impact or level of change from baseline conditions the parameters shown in **Table 3-1** and **Table 3-2** provide a guide to inform the consideration of the magnitude of change.

**Table 3-1: Example factors which may assist in the determination of the magnitude of the impact**

Factors	Description
Scale of change	The scale of change refers to the degree of change to or from the baseline environment caused by the impact being described
Spatial extent	The extent of an impact is the full area over which the impact occurs.
Duration and frequency	The duration is the period within which the impact is expected to last prior to recovery or replacement of the feature. Frequency refers to how often the impact will occur.

**Table 3-2: Example criteria for characterising the magnitude of an impact**

Magnitude	Criteria
High	Long term (> 5 years) and/or regional level loss; or major alteration to key elements/features of the baseline condition such that post development character/composition of the baseline will be fundamentally changed.
Medium	Medium term (1- 5 years) loss and/or local level change (greater than the Project footprint) or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed.
Low	Short term (<1 year), site specific and/or a minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation.
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a "no change" situation.

#### 3.1.2 Sensitivity of the Receptor

The sensitivity of a receptor or feature is characterised by the vulnerability to change, recoverability and importance of the receptor or feature (**Table 3-3**). Characterisation of the receptor is achieved by balancing out these three considerations to determine the receptor's sensitivity.

**Table 3-3: Factors which may assist in the determination of the sensitivity of a receptor**

Factor	Definition
Vulnerability	The vulnerability of the receptor relates to its capacity to accommodate change i.e. the tolerance/intolerance of the receptor to change.
Recoverability	The ability of the receptor to return to the baseline state before the Project impact caused the change.
Importance	The importance of the receptor or feature is a measure of the value assigned to that receptor based on biodiversity and ecosystem services, social value and economic value. Importance of the receptor is also defined within a geographical context, whether it is important internationally, nationally or locally.

The criteria used to characterise the sensitivity of a receptor are presented in

**Table 3-4.**

**Table 3-4: Example criteria which may assist in the determination the sensitivity of a receptor**

Receptor value	Definition
High	<p>Receptor has little or no ability to absorb change without fundamentally altering its character. For example:</p> <ul style="list-style-type: none"> <li>• Receptor has low/no capacity to return to baseline conditions within Project life, e.g. low tolerance to change and low recoverability such as a physical feature formed over a geological time scale, or loss of access with no alternatives</li> <li>• The receptor is a designated feature of a protected site, or is rare or unique</li> <li>• Damage to asset(s), e.g. at cable crossing, resulting in major financial consequences for the company</li> <li>• Receptor is economically valuable</li> </ul>
Medium	<p>Receptor has moderate capacity to absorb change without significantly altering its character, however some damage to the receptor will occur. For example:</p> <ul style="list-style-type: none"> <li>• Receptor has intermediate tolerance to change</li> <li>• Medium capacity to return to baseline condition, e.g. &gt;5 of up to 10 years</li> <li>• The receptor is valued but not protected</li> <li>• Damage to asset(s), e.g. at cable crossings, resulting in financial consequences for the company</li> </ul>
Low	<p>The receptor is tolerant to change without significant detriment to its character. Some minor damage to the receptor may occur. For example:</p> <ul style="list-style-type: none"> <li>• Receptor has high tolerance to change. E.g. disturbance to unconsolidated seabed sediments or sandwaves</li> <li>• High capacity to return to baseline condition, e.g. within 1 year or up to 5 years</li> <li>• May affect socio-economic behaviour but is not a nuisance to users</li> <li>• Minor/no financial consequence to the company</li> <li>• The receptor is common and/or widespread</li> </ul>
Negligible	<p>The receptor is tolerant to change with no effect on its character. The Project activity does not have a detectable effect on survival or viability.</p>

### 3.1.3 Evaluating Significance of Effect

Having established the magnitude of change and the sensitivity of the receptor the significance of the effect can be assessed. The identification of significance typically requires the application of professional judgement; however a significance matrix (**Table 3-5**) may also be used as a guide to help identify the likely significance of effects.

**Table 3-5: Significance Matrix**

		Magnitude of change			
		Negligible	Low	Medium	High
Sensitivity of receptor	High	Negligible/Minor	Moderate	Major	Major
	Medium	Negligible	Minor	Moderate	Major
	Low	Negligible	Negligible	Minor	Moderate
	Negligible	Negligible	Negligible	Negligible	Negligible/Minor

The result of using this matrix approach is the assignment of the level of significance of the effect for all Project potential impacts. This is done prior to any mitigation and re-evaluated following the incorporation of appropriate mitigation measures (Section 3.10). **Table 3-6** provides typical descriptions for each of the four impact significant definitions.

**Table 3-6: Example descriptions of significance categories**

Significance Category	Indicative Description <sup>2</sup>	Significant Effect?
Major	<p>A large and detrimental change to a sensitive receptor: likely or apparent exceeding of accepted (often legal) threshold.</p> <p>A large and beneficial change, resulting in improvements to the baseline resulting in previously poor conditions being replaced by new legal compliance or major contribution being made to national targets.</p> <p>These effects may represent key factors in the decision-making process. Potentially associated with site and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.</p>	Yes
Moderate	<p>A medium scale change which, although not beyond an acceptable threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy rather than a legal statute.</p> <p>These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets are contributed to.</p>	Yes (typically)
Minor	<p>A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach planning policy.</p> <p>A small positive change, but not one that is likely to be a key factor in the overall balance of issues.</p> <p>These effects may be raised as local issues and may be of relevance in the detailed design of a project but are unlikely to be critical in the decision-making process.</p>	No
Negligible	<p>A very small scape change that is so small and unimportant that it is considered acceptable to disregard.</p> <p>Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making irrespective of other effects.</p>	No

Moderate and major levels of significance are usually considered to be significant in Environmental Appraisal terms, whilst Negligible or Minor impacts are not considered to be significant.

### 3.2 Environmental Risk (Accidental/Unplanned Events)

For unplanned events, the likelihood of an event occurring also requires consideration. **Table 3-7** below sets out indicative guidance for the consideration of potential likelihood.

**Table 3-7: Indicative likelihood criteria**

Definition	Indicative description*
Remote	Never occurred during Company's activities but has been known to occur in the wider industry.
Unlikely	Has occurred in Company's activities in the past but as an isolated incident under exceptional circumstance.

<sup>2</sup> Adapted from Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2, Part 5 HA205/08

Occasional Has occurred on more than one occasion during Company's activities in the past.

Likely Occurs regularly during Company's activities.

\*Note these descriptions are for guidance only. Professional judgement may be applied in specific circumstances out with these guide descriptions.

Significance of an impact (as determined through **Table 3-5** is combined where appropriate with the likelihood of the identified impact occurring (**Table 3-7**) in order to determine overall risk of an impact occurring, as shown in **Table 3-8** below.

**Table 3-8: Risk Matrix**

		Likelihood			
		Remote	Unlikely	Occasional	Likely
Impact Significance	Major	Negligible/Minor	Moderate	Major	Major
	Moderate	Minor	Minor	Moderate	Major
	Low	Negligible	Minor	Minor	Moderate
	Negligible	Negligible	Negligible	Minor	Negligible/Minor

## 4. Ecological Impact Assessment

Ecological Impact Assessment (EclA) is the process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions specifically on relevant terrestrial, freshwater, coastal and marine habitats, species and ecosystems ('relevant ecological features'). As such, it is the common approach to impact assessment to be adopted across all of the ecology chapters.

The assessment approach applied is based upon recognised good practice Guidelines for Ecological Impact Assessment in the UK and Ireland published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019). The aims of this EclA are to:

- identify relevant ecological features (i.e. designated sites, habitats, species or ecosystems) which may be impacted;
- provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Proposed Development. Impacts and effects may be beneficial (i.e. positive) or adverse (i.e. negative);
- facilitate scientifically rigorous and transparent determination of the consequences of the Project in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- set out what steps would be taken to adhere to legal requirements relating to the relevant ecological features concerned.

The principal steps involved in the CIEEM approach can be summarised as:

- ecological features that are both present and might be affected by the Project are identified (both those likely to be present at the time works begin, and for the sake of comparison, those predicted to be present at a set time in the future) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions;
- the importance of the identified ecological features is evaluated to place their relative biodiversity and nature conservation value into geographic context, and this is used to define the relevant ecological features that need to be considered further within the EclA process;
- the changes or perturbations predicted to result as a consequence of the Proposed Development (i.e. the potential impacts), and which could potentially affect relevant ecological features are identified and their nature described;
- established best-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are considered;
- the likely effects (beneficial or adverse) on relevant ecological features are then assessed, and where possible quantified;
- measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines). If necessary, measures to compensate for effects on features of nature conservation importance are also included;
- any residual effects of the Proposed Development are reported; and
- scope for ecological enhancement is considered.

In line with the CIEEM guidelines the terminology used within the EclA draws a clear distinction between 'impact' and 'effect'. For the purposes of the EclA these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature. For example, demolition activities leading to the removal of a building utilised as a bat roost; and
- effect – outcome resulting from an impact acting upon the conservation status or structure and function of an ecological feature. For example, killing/injury of bats and reducing the availability of breeding

habitat as a result of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

## 4.1 Approach taken when valuing ecological features

The data obtained through consultation, desk studies and field surveys have identified a variety of ecological features, not all of which require further consideration within the EclA. One of the key challenges in EclA is to decide which ecological features are important and should be subject to detailed assessment. CIEEM guidance states that it is only necessary to "undertake a systematic assessment of relevant ecological features that could be significantly affected (including adverse and beneficial effects)". This is consistent with EIA Regulations<sup>3</sup>, which only require investigation of likely significant effects. Such an approach also has the benefit of helping to keep EclA focussed and manageable.

Given this "it is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable", although this does not mean that efforts should not be made to safeguard wider biodiversity, and national policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity (CIEEM, 2019).

To support focussed EclA there is a need to determine the scale at which the specific ecological features identified through the desk studies and field surveys undertaken for the Proposed Development are of value. The approach taken when valuing ecological features needs to be robust as it provides much of the rationale for the identification and further assessment of relevant ecological features.

Ecological features can be of value for a variety of reasons and the rationale used should be explained to demonstrate a robust selection process. Value may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline. There are a number of factors to consider when determining the relative value of an ecological feature.

Importance may be defined by the quality or extent of designated sites or habitats, their rarity in a geographical context, and their rate of decline either locally or nationally. CIEEM (2019) identifies a number of characteristics that can be used to identify ecological features likely to be important in terms of their biodiversity value as follows:

- Animals or plant species, subspecies or varieties that are rare or uncommon, internationally, nationally or more locally;
- Ecosystems and their component parts that provide the habitats required by the above species, population and/ or assemblages;
- Endemic species or locally distinct sub-populations of a species;
- Habitat diversity, connectivity and/ or synergistic associations;
- Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
- Plant communities (and their associated animals) that are considered to be typical of valued natural/ semi-natural vegetation types;
- Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change;
- Species-rich assemblages of plants or animals; and
- Typical faunal assemblages that are characteristic of homogenous habitats.

Where available, relevant guidance is used to inform valuation of ecological features. The status of habitats and species that are rare or threatened is outlined nationally in various Red Data Books and Lists, and also in the Natural Environment and Rural Communities Act (NERC) Act Section 41 list of habitats and species of principal importance for nature conservation in England. There are national criteria for rarity and level of threat to populations for different groups of species, and guidance on the assessment of relative value such as the Ratcliffe Criteria (Ratcliffe, 1977). Species may be widespread or common nationally but be of scarce

<sup>3</sup> Whilst the project has not been screened as EIA development, the approach and principles of EIA are relevant to inform the Environmental Appraisal process.

occurrence in the county or borough. Conversely, a species may be common in a county or borough context but considered rare nationally. In addition, some species termed legally protected species, such as bats, badger and reptiles, are given statutory protection that protects them from harm or forms of disturbance but that does not necessarily translate to biodiversity value e.g. a transitory occurrence of a single individual of a protected bat species would not be afforded the same weight as a regularly occurring large population of bats.

Expert judgement has also been used as appropriate when assigning value, particularly where species or habitats are poorly known, or guidance is lacking. Ecological features may be identified that are not included in lists of notable habitats and species, but that can be considered important on the basis of expert judgment e.g. because of their local rarity or because they enable effective conservation of other important features (CIEEM, 2019).

The value of ecological feature has been defined with reference to the geographical level at which it matters. The frames of reference generally used for this assessment, and based on CIEEM guidance, are:

- International (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
- National (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in an England / Scotland context relative to Great Britain as a whole);
- Regional;
- County;
- Borough;
- Local (ecological features that do not meet criteria for valuation at a borough or higher level, but that have sufficient value to merit retention or mitigation); and
- Negligible (common and widespread ecological features of such low priority that they do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status).

Not all of the above geographic levels are applicable to, or otherwise require modification for, marine ecological features, which are more highly connected with few of the administrative boundaries applicable for terrestrial and freshwater aquatic ecology. Thus, the geographical levels adopted for the for the marine ecological impact assessment are:

- **International**;
- **National**;
- **Regional**; and
- **Local**.

## 4.2 Characterising Potential Ecological Impacts

When describing potential impacts (and where relevant the resultant effects) reference is made to the following characteristics:

- Beneficial/ adverse - i.e. is the change likely to be in accordance with nature conservation objectives and policy;
- **Beneficial** (i.e. positive) - a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value;
- **Adverse** (i.e. negative) - a change that reduces the quality of the environment. e.g. destruction of habitat or increased noise disturbance;
- **Magnitude** - the 'size', 'amount' or 'intensity' of an impact - this is described on a quantitative basis where possible;
- **Spatial extent** - the spatial or geographical area or distance over which the impact/effect occurs;



- **Duration** - the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. The likely duration of the impact should be quantified (e.g. 2 weeks duration; 5 to 10 years). Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- **Reversibility** - i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and an enforceable. A permanent effect is one from which recovery is either not possible, or cannot be achieved within a reasonable timescale (in the context of the feature being assessed); and
- **Timing and frequency** - i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons.

For each receptor only those characteristics relevant to understanding the ecological effect and determining the significance are described.

### 4.3 Method for Determining the Significance of Effects

The assessment approach follows the good practice guidelines for EclA described in CIEEM (2019). For each ecological feature only those characteristics relevant to understanding the ecological consequences (effect) of the impact and its relative significance are described, based on the project description and the assumption that standard industry best practice would be applied (e.g. implementation of standard dust suppression and pollution prevention measures).

Potential impacts on relevant ecological features are assessed and a judgement reached on whether or not the resultant effect on conservation status or structure and function is likely to be significant. This process takes into consideration the characteristics of the impact, the sensitivity of the ecological feature concerned, and the geographic scale at which the feature is considered important.

CIEEM (2019) states that: "*For the purpose of EclA a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (i.e. relevant ecological features) or for biodiversity in general ... In broad terms, significant effects encompass impacts on the structure and function of defined application sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).*"

For nature conservation designations, other defined habitats and ecosystems the assessment considers what effect the potential impacts are likely to have on conservation objectives or interest/ qualifying features. For ecosystems, consideration is given to whether a change in ecosystem structure and/ or function is likely that would substantively alter its ecological integrity.

For habitats and species, the assessment considers what effect the potential impacts will have on "conservation status", and whether or not the effect is likely to substantively alter the ecological integrity of the habitat or species under consideration. Further guidance on how to assess conservation status is provided in CIEEM (2019) as follows:

- For habitats: "*conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area*"; and
- For species: "*conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.*"

In considering effects on conservation status, reference is made to relevant available guidance on the current conservation status of the ecological feature under consideration. Effects will either be:

- **Not significant** (i.e. no ecologically meaningful effect on conservation status); or
- **Significant** (i.e. an ecologically meaningful effect on conservation status).

Such judgements will be based, wherever possible, on quantitative evidence. However, where necessary the professional judgement of an experienced ecologist has been applied.

For those effects considered significant, the effect will also be characterised as appropriate (e.g. adverse or beneficial) and qualified with reference to the geographic scale at which the effect is significant (e.g. an adverse effect significant at a national level).

The scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, a local effect on a species of principal importance for nature conservation in England (i.e. a species listed on NERC Act Section 41) may not have a significant effect on the national population of that species.

#### 4.4 Application of the Ecological Mitigation Hierarchy

The identification and specification of mitigation proposals in this assessment has been undertaken with regard to the principles of the mitigation hierarchy i.e.:

1. Avoid ecological features where possible;
2. Reduce (minimise) the magnitude of the potential impact e.g. through iterative design and/ or advance commitment to sensitive methods or timing of working (sometimes termed as embedded mitigation or mitigation by design);
3. Mitigate the potential effect through the application of additional proven measures, such that the residual effect realised is reduced in magnitude (non-embedded mitigation); and
4. Compensate for significant residual effects, e.g. by providing suitable habitats elsewhere. Proposals should achieve appropriate compensation in a reasonable timeframe and be legally enforceable.

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. Where it is reasonably practicable to do so then attempts have been made to avoid potential impacts. Where impacts cannot be avoided then efforts have been made to limit the magnitude of the potential impact and to mitigate the resultant effects through the provision of appropriate measures. Where effects cannot be mitigated to a level where they are not significant then compensatory measures have been employed to (as far as is reasonably possible) offset any remaining adverse effects.

#### 4.5 Comparing CIEEM Assessment Outputs with Significance Categories used in Environmental Appraisal Methodology in Chapter 3

In order to provide consistency of terminology in the conclusions of the assessment the residual effects of the Proposed Development are translated to a significance level on a scale of neutral, minor, moderate and major comparable to that used in other Environmental Appraisal chapters as outlined in **Table 4-1**. These conclusions are provided in each case in brackets following the equivalent CIEEM assessment conclusion

**Table 4-1: Relating CIEEM EclA Assessment Terminology to Chapter 3 EIA Terminology**

CIEEM assessment terminology	Equivalent significance terminology used in the wider Environmental Statement	
Beneficial effect on structure/function or conservation status at regional, coastal cell, national or international level.	Significant (beneficial)	Major beneficial
Beneficial effect on structure/function or conservation status at borough, estuary or county level.	Significant (beneficial)	Moderate beneficial
Beneficial effect on structure/function or conservation status at site or local level.	Not significant	Minor beneficial
No effect on structure/function or conservation status.	Not significant	Neutral
Adverse effect on structure/function or conservation status at site or local level	Not significant	Minor adverse
Adverse effect on structure/function or conservation status at borough, estuary or county level.	Significant (adverse)	Moderate adverse
Adverse effect on structure/function or conservation status at regional, coastal cell, national or international level.	Significant (adverse)	Major adverse

## 5. Identification of Mitigation Measures

A standard hierarchical approach to identifying mitigation requirements should be used:

- **Avoid or Prevent:** In the first instance, mitigation should seek to avoid or prevent the adverse effect at source for example, by routeing the marine cables away from a sensitive receptor.
- **Reduce:** If the effect is unavoidable, mitigation measures should be implemented which seek to reduce the significance of the effect.
- **Offset:** If the effect can neither be avoided nor reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation.

Mitigation measures fall into two categories: 'mitigation by design' which form part of the Project, as described in the Project Description Chapter of the environmental report; and 'Project Specific Mitigation' which is in addition to project design commitments and which are identified as a result of the assessment the Project. Project Specific Mitigation should be documented in each topic specific assessment chapter.

### 5.1.1 Mitigation by Design

The Project has been developed through an iterative process which involved seeking to avoid or reduce potential environmental effects through the appropriate routeing and siting of the Project infrastructure. This represents the first opportunity to mitigate potential effects. Mitigation measures which form part of the design for which consent is sought are an inherent part of the Project and should be considered as the 'base case' throughout the assessment.

In addition, where clear obligations on the installation, operation and maintenance, and/or decommissioning of the Project are set out within regulation or statutory authority guidance documents, the assessment will assume that these will be adhered to as part of the Project design. These obligations should be identified as appropriate within the topic specific assessment chapters.

### 5.1.2 Project Specific Mitigation

Project specific mitigation refers to measures which have been identified and proposed as a result of the assessment, and which should be presented within each of the topic chapters. These should seek to further avoid or reduce identified potentially adverse environmental effects.

Project specific mitigation to be incorporated into post-consent further detailed design development may include, for example, micro-routeing to avoid sensitive features identified during the assessment process or use of a specific installation method in favour of an alternative type of tool to reduce environmental impacts.

## 5.2 Evaluate and Assess Residual Significance

Following identification of project specific mitigation measures, the significance assessment should then be re-evaluated to determine whether there is likely to be a residual impact. When applied after mitigation, the resulting significance level is referred to as the residual significant effect. Tables within the topic chapters present the results of both assessments.

Residual effects assessed as moderate or major after consideration of proposed mitigation measures will normally require additional analysis and consultation in order to discuss and possibly further mitigate impacts where possible. Where further mitigation is not possible a residual effect may remain. In addition, where a process of post-development monitoring is recommended in order to verify the predicted impacts and the successful application of mitigation measures, this should also be identified here to ensure appropriate inclusion of monitoring commitments within the Project's Environmental Management Plan (EMP).

## 6. Cumulative and In-Combination Effects Assessment Methodology

The term cumulative effects refer to effects upon receptors arising from the Project when considered alongside other plans and projects and that result in an additive impact with any element of the Project. Cumulative effects can be described as the net effect of both direct and indirect cumulative pressures, from different activities. An individual effect alone may be considered insignificant, but the additive effects of more than one effect, from any number of sources, could result in a significant cumulative effect, either beneficial or adverse.

### 6.1.1 Defining the Scope of the Cumulative Assessment

The approach to cumulative assessment follows the principles and guidelines as set out by the Planning Inspectorate (The Planning Inspectorate, 2015) and the MMO Strategic Framework for Scoping Cumulative Effects (MMO 2014) and following the staged approach as summarized in **Figure 2** below:



**Figure 2: Staged methodology for cumulative assessment (Planning Inspectorate, 2019)**

### 6.1.2 Stage 1: 'long list' of other Developments

The spatial extent (Zol) over which the Project is predicted to have an impact on the receiving environment should already have been established through the EIA methodology outlined above. The long list of 'other developments', taking account of the spatial extent of the Project should be identified and agreed. Stage 2: Shortlisting of CA Developments

The shortlist of projects considered for potential cumulative effects will be defined from the longlist for each technical subject area with reference to the Zol identified for the Project. These short-listed projects should then be taken forward for consideration within the Cumulative assessment

### 6.1.3 Stages 3 and 4: Information Gathering and Assessment

Consideration of cumulative effects should be set out for each topic specific assessment. Each of the 'other developments' identified during stage 2 should be considered, based on publicly available information, as to whether cumulative effects may arise. For each 'other development' a description should be provided along with an assessment of effects, specifically identifying any potential likely significant cumulative effects.

Mitigation measures should be identified where necessary in relation to adverse cumulative effects. Consideration should be given where possible to the relative contribution of different projects to the cumulative effect and to the where it may be reasonable to propose shared mitigation.

#### 6.1.4 Cumulative Assessment Chapter

Cumulative Effects will be reported as a separate chapter within the environmental report and should cross reference back to the primary assessments set out in each of the environmental assessment chapters set out earlier in the document.

The assessment should be undertaken to an appropriate level of detail, commensurate with the information available at the time of assessment and should where possible following the approach and terminology used in the EIA.

Information on some proposals may be limited and such gaps should be acknowledged within the assessment.

## 7. Transboundary Effects

The Convention on Environmental Impact Assessment in a Transboundary Context (UN, 1991) sets out the obligations of parties to assess the transboundary environmental effect of certain activities at an early stage of planning. It also lays down the general obligations of states to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental effect across boundaries.

The potential for transboundary effects on neighbouring national jurisdictions should be considered at scoping stage, however this is considered more relevant to the offshore sections of the Project and given the location of the projects' in UK waters (EL2 aligns closest to the UK / Dutch boundary which lies approximately 170 km to the west at its closest point), it is currently considered unlikely that significant transboundary effects will be identified.

## 8. Terminology

### 8.1 Ensuring Consistency across all Projects

All TOs agree that the Projects are the sum of their components and that a consistent approach to the Projects in their entirety (i.e. end to end, across all documents for all project components) is required.

In response to this, the following initial points of consistency in terminology should be used in all documents.

### 8.2 Project Referencing

**Scottish Onshore Scheme** All project component between the connection point to the NETS and MLWS in Scotland – East Lothian and Aberdeenshire. This includes DC and AC cables, converter station, substation (if needed), wider network works, permanent access road, as well as any temporary working areas.

**Marine Scheme** This includes the subsea DC cable between MHWS in Scotland and MHWS in England.

**English Onshore Scheme** All project component between the connection point to the NETS and MLWS in England – Sunderland City Council/ County Durham and East Riding of Yorkshire/ Selby District Council. This includes DC and AC cables, converter station, substation (if needed), wider network works, permanent access road, as well as any temporary working areas.

Each component of the Project will be described as 'proposed' when referenced within deliverables i.e. the proposed converter station at Hawthorn Pit. This list will be expanded as more terminology is agreed between the TOs.

### 8.3 Glossary

Key project terminology is summarised below.

Table 8-1 Project Terminology

Term	Acronym or Abbreviation	Definition
Automatic Identification System	AIS	An AIS-equipped system on board a ship presents the bearing and distance of nearby vessels in a radar-like display format.
Admiralty Chart		Nautical charts issued by the United Kingdom Hydrographic Office and subject to Crown Copyright.
Anchor handling vessel or Anchor Handling Tug Supply	AHTS	Anchor Handling Tug Supply (AHTS) vessels are mainly built to handle anchors for oil rigs, tow them to location, and use them to secure the rigs in place.
Appropriate Assessment	AA	An AA is an assessment used during a Habitats Regulations Assessment (HRA) and can be broken down into two distinct phases: 1. a scientific appraisal of all the likely significant effects of the plan or project on the relevant qualifying interests of a European site, based on the site's conservation objectives 2. a decision-making process based on the conclusions of this appraisal – i.e. coming to a conclusion about the integrity of a European site
Archaeological Exclusion Zones	AEZ	Archaeological Exclusion Zones are to be declared by the developer (i.e. Consent Holder) so that identified seabed anomalies of known or possible archaeological interest are avoided by all project contractors conducting seabed-impacting operations.
Areas of Intense Aerial Activities	AIAA	Within these areas, night operations may be conducted by aircraft using reduced navigation and/or anti-collision lights.
Artificial and Heavily Modified Water bodies	A/HMWB	Sometimes the natural conditions of a water body are substantially altered, e.g. by irrigation, drinking water supply, power generation and navigation. The Water Framework Directive recognises that in some cases the benefits of such uses need to be retained. If a series of criteria are fulfilled, it allows designation of the water body as "artificial" or "heavily modified", e.g. reservoirs, canals or canalised rivers.
As Low As Reasonably Practicable	ALARP	ALARP, which stands for "as low as reasonably practicable", is a term often used in the regulation and management of safety-critical and safety-involved systems. The ALARP principle is that the residual risk shall be reduced as far as reasonably practicable.
Automatic RADAR Plotting Aid	ARPA	A marine radar with automatic radar plotting aid (ARPA) capability can create tracks using radar contacts. The system can calculate the tracked object's course, speed and closest point of approach (CPA), thereby knowing if there is a danger of collision with the other ship or landmass.
Bathymetry data		Bathymetry is the information that describes the topography of the seabed. It is an essential component in understanding the dynamics of the marine environment, both in terms of sediment transport but also in the prediction of tides, currents and waves.
British Trust for Ornithology	BTO	The British Trust for Ornithology (BTO) is an organisation founded in 1932 for the study of birds in the British Isles.
Cable crossings		The crossing of existing subsea cables by the inter-array and/or export cables .



Term	Acronym or Abbreviation	Definition
Cable Lay Barge	CLB	A Cable Laying Barge (cable layer or cable ship) is a sea going vessel specially designed to lay underwater cables (telecommunications, electric power transmission, or other).
Cable Lay Vessel	CLV	A Cable Laying Vessel (cable layer or cable ship) is a sea going vessel specially designed to lay underwater cables (telecommunications, electric power transmission, or other).
Centre for Environment, Fisheries and Aquaculture Science	Cefas	The Centre for Environment, Fisheries and Aquaculture Science is an executive agency of the United Kingdom government Department for Environment, Food and Rural Affairs. It carries out a wide range of research, advisory, consultancy, monitoring and training activities for a large number of customers around the world
Chartered Institute for Archaeologists	CIfA	The Chartered Institute for Archaeologists is a professional organisation for archaeologists working in the United Kingdom and overseas.
Chartered Institute of Ecology and Environmental Management	CIEEM	The leading professional membership body representing and supporting ecologists and environmental managers in the UK, Ireland and abroad.
Coastal Flood Boundary Dataset	CFBD	Created in partnership with SEPA (Scottish Environment Protection Agency), this data provides an up-to-date scientifically robust national evidence base and practical guidance on appropriate design sea level and swell wave conditions around the country.
Cofferdam		A cofferdam is an enclosure built within a body of water to allow the enclosed area to be pumped out. This pumping creates a dry working environment so that the work can be carried out safely.
Combined Effects		These effects derive from combinations of Scheme-specific impacts which, when acting together, would result in a new or different likely significant effect or an effect of greater significance than one impact would result in when considered in isolation.
Concrete mattresses		A rectangular unit made of concrete blocks joined together by polypropylene ropes. The mattress is flexible in two dimensions and is available in a range of thicknesses to suit the conditions required. Concrete mattresses are used for the anchorage and protection of underwater pipelines and cables and for protecting the foundations of structures against water scouring.
Construction Environmental Management Plan	CEMP	The purpose of a construction environmental management plan is to outline how a construction project will avoid, minimise or mitigate effects on the environment and surrounding area.
Convention on the International Regulations for Preventing Collisions	COLREGs	Published by the International Maritime Organization (IMO) and set out, among other things, the "rules of the road" or navigation rules to be followed by ships and other vessels at sea to prevent collisions between two or more vessels.
Converter station		An HVDC converter station (or simply converter station) is a specialised type of substation which forms the terminal equipment for a high-voltage direct current (HVDC) transmission line. It converts direct current to alternating current or the reverse.
Court of Justice of the European Union	CJEU	The European Court of Justice, formally just the Court of Justice, is the supreme court of the European Union in matters of European Union law.
Crossing Agreements		Crossing agreements help ensure that pipeline operators know about upcoming crossings or excavation work so they can help prevent accidents.

Term	Acronym or Abbreviation	Definition
Cumulative Effects		These effects derive from Scheme-specific impacts which, when considered together with the impacts of other planned developments, could result in a new or different likely significant effect or an effect of greater significance than the Scheme's effect when considered in isolation.
Department for Business, Energy and Industrial Strategy	BEIS	The Department for Business, Energy and Industrial Strategy (BEIS) is a department of the government of the United Kingdom.
Department of the Environment Northern Ireland (DENI)		The Department of the Environment was a devolved Northern Irish government department in the Northern Ireland Executive. The minister with overall responsibility for the department was the Minister for the Environment.
Do nothing' option		A scenario used for the purposes of assessments where the Scheme is not created.
Dredging vessels		Dredging vessels are used for the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies. It is a routine necessity in waterways around the world because sedimentation—the natural process of sand and silt washing downstream—gradually fills channels and harbors.
Drinking Water Protected Areas Safeguard Zones	SgZs	Drinking water safeguard zones are designated areas in which the use of certain substances must be carefully managed to prevent the pollution of raw water sources that are used to provide drinking water.
Drop-down video	DDV	An underwater video sampling technique that can provide semi-quantitative or fully quantitative data for environmental assessment using small dropdown/towed camera systems,
Electro Magnetic Fields	EMF	Electric and magnetic fields are invisible areas of energy, often referred to as Radiation, that are associated with the use of electrical power and various forms of natural and man-made lighting.
Embedded mitigation measures		Mitigation measures designed into the project.
Emergency Spill Response Plan		A plan which is followed after a spillage of hazardous chemicals.
English Landfall		The point at which the Project Marine Scheme reaches land within England.
Environmental Assessment	EA	Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made.
Environmental Impact Assessment	EIA	An assessment which provides detailed information on the potential environmental impacts of development proposals.
Environmental Impact Assessment Directive		A piece of legislation which aims to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation of projects, plans and programmes with a view to reduce their environmental impact.
Environmental Issues Identification	ENVID	The purpose of the Environment Identification (ENVID) process is for the early identification of aspects that can potentially impact the environment. Another key element of the process is the identification of proposed measures to prevent, control or mitigate the potential environmental hazards identified.
European Nature Information System	EUNIS	The European Nature Information System (EUNIS) provides access to the publicly available data in the EUNIS database for species, habitat types and protected sites across Europe.

Term	Acronym or Abbreviation	Definition
European Protected Sites		The EU's Natura 2000 network and the Bern Convention's Emerald Network are ecological networks of protected areas, set up to ensure the survival of Europe's most valuable species and habitats.
European Subsea Cables Association	ESCA	The European Subsea Cables Association is an organisation of submarine cable owners, operators and suppliers and is primarily aimed at promoting marine safety and protecting cable installations in European and surrounding waters.
Fall pipe vessel	FPV	A fallpipe vessel (FPV) is a self-propelled vessel that is equipped with a flexible fallpipe. The vessel's design allows the fallpipe to be lowered into the water beneath the vessel allowing it to position rock with extreme accuracy down to a depth of 1,500 meters.
Fisheries Liaison Officer	FLO	FLOs liaise between fishing vessels and Clients, using local knowledge and fisheries experience to encourage co-operation and help ensure operations run smoothly and efficiently.
Formal Safety Assessment	FSA	FSA is a structured and systematic methodology, aimed at enhancing maritime safety, including protection of life, health, the marine environment and property, by using risk analysis and cost benefit assessment.
Functionally-linked habitat		Habitat outside the boundaries of a European site but which is essential for achieving the conservation objectives of that European site.
Future of the Atlantic Marine Environment	FAME	The FAME project involved partners from 5 countries (UK, Ireland, France, Spain and Portugal) who have interest, knowledge and expertise in the marine environment, ranging from seabird tracking and monitoring to mapping, data analysis and engagement with the offshore renewable energy and fisheries sectors.
Geographical Information System	GIS	A geographic information system is a conceptualized framework that provides the ability to capture and analyze spatial and geographic data.
Good Chemical Status		For surface waters, good chemical status means that no concentrations of priority substances exceed the relevant EQS established in the Environmental Quality Standards Directive 2008/105/EC (as amended by the Priority Substances Directive 2013/39/EU).
Good Ecological Potential	GEP	Surface waters identified as Heavily Modified Water Bodies or Artificial Water Bodies must achieve 'good ecological potential' (good potential is a recognition that changes to morphology could make Good Ecological Status very difficult to achieve).
Good Ecological Status	GES	The state of a water body, derived from a number of factors, including: the abundance of aquatic flora and fauna, nutrient availability, salinity, temperature and chemical pollution levels. If the water body meets certain criteria it can be assessed as having 'good ecological status'.
Greenhouse gases	GHG	A greenhouse gas is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect.
Guard vessel		During the construction stage of an offshore wind farm, a substation platform or a cable route, the construction site needs to be secured by a guard vessel. The vessel must constantly monitor marine traffic near the construction site visually and with radar and AIS.

Term	Acronym or Abbreviation	Definition
Habitat Regulations Assessment	HRA	A Habitats Regulations Assessment (HRA) refers to the several distinct stages of Assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if a plan or project may affect the protected features of a habitats site before deciding whether to undertake, permit or authorise it.
High Voltage Alternating Current	HVAC	The preferred mode of onshore electricity transmission over long distances.
High Voltage Direct Current	HVDC	A high-voltage, direct current (HVDC) electric power transmission system (also called a power superhighway or an electrical superhighway) uses direct current (DC) for the bulk transmission of electrical power, in contrast with the more common alternating current (AC) systems.
High Water Springs or Mean High Water Springs	HWS	Mean high water springs is the highest level that spring tides reach on the average over a period of time. The height of mean high water springs is the average throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Historic Environment Records	HER	HERs are information services that provide access to comprehensive and dynamic resources relating to the archaeology and historic built environment of a defined geographic area.
Horizontally Directional Drilling	HDD	Horizontal Directional Drilling is a guided trenchless method in which a pilot borehole is drilled along a pre-determined bore path, subsequent hole enlargement follows the path set by the pilot bore, from the surface with minimum disturbance.
Inshore Fisheries and Conservation Authorities	IFCAs	Inshore Fisheries and Conservation Authorities lead, champion and manage a sustainable marine environment and inshore fisheries by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry
Inter Agency Marine Mammal Working Group	IAMMWG	The Joint Nature Conservation Committee chairs an inter-agency working group on marine mammals and industries in order to share knowledge across the four countries' nature conservation agencies and facilitate a joined-up approach to advice.
International Cable Protection Committee	ICPC	The International Cable Protection Committee is a submarine cable protection non-profit organization. It was formed in 1958 to promote the protection of international telecommunications and power submarine cables against human and natural hazards.
International Council for Exploration of the Sea	ICES	The International Council for the Exploration of the Sea is the world's oldest intergovernmental science organization.
International Maritime Organisation	IMO	The International Maritime Organization is a specialised agency of the United Nations responsible for regulating shipping.
Intertidal area		The extent of soft sediment beach that lies between High Water Springs and Low Water Springs at the landfall location.
Intertidal benthic habitat		Benthic habitat is the ecological region at the lowest level of a body of water such as an ocean, lake, or stream, including the sediment surface and some sub-surface layers.
Invasive NonNative Species	INNS	Species which have been introduced into areas outside their natural range through human actions and are posing a threat to native wildlife, are known as invasive non-native species.
Jack-up barge		A jackup barge or a self-elevating unit is a type of mobile platform that consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of the sea. Often used as a base for servicing other structures such as offshore wind turbines, long bridges, and drilling platforms.

Term	Acronym or Abbreviation	Definition
Joint Nature Conservation Committee	JNCC	The Joint Nature Conservation Committee is the public body that advises the UK Government and devolved administrations on UK-wide and international nature conservation.
Kilometre Points	KP	A kilometre point is a term used to provide reference points alongside a transport route such as a road, a railway line or a canal. It is the distance in kilometres from a specified point.
Kingfisher Bulletins		The Kingfisher Bulletin provides the fishing and marine industries with alerts of offshore hazards, activity notices and news via a website, app and a personalised alerts service.
KIS-ORCA Marine Cables Information	KIS-ORCA	The KIS-ORCA project is the only EU service aiming to provide complete coverage of offshore subsea cables and renewable developments. It is a joint initiative between the European Subsea Cables Association (ESCA), Renewable UK and the Kingfisher Information Service of Seafish.
Likely Significant Effects	LSEs	When screening likely significant effects (LSE) in a Habitats Regulations Assessment (HRA), 'likely' means it is possible and might happen, rather than probable. 'Significant' means not trivial or inconsequential but an effect that is noteworthy and which could undermine the site's conservation objectives.
Low Water or Low Water Springs	LWS	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Marine and Coastal Access Act	MCAA	The Marine and Coastal Access Act 2009 (c 23) is an Act of the Parliament of the United Kingdom. It creates "a new system of marine management".
Marine aquaculture sites		Locations of registered active and inactive marine finfish and shellfish farming sites.
Marine Cable Route		The proposed route of the marine elements of the Scheme.
Marine Conservation Zone	MCZ	Marine Conservation Zones are areas that protect a range of nationally important, rare or threatened habitats and species.
Marine Licence		Marine licences are an authorisation for activities such as: coastal and marine developments. windfarms. wave and tidal power. removing and disposing of marine dredged material at sea.
Marine Management Organisation	MMO	The Marine Management Organisation is an executive non-departmental public body in the United Kingdom established under the Marine and Coastal Access Act 2009, with responsibility for English waters.
Marine Scotland Act	MSA	An Act of the Scottish Parliament to make provision in relation to functions and activities in the Scottish marine area, including provision about marine plans, licensing of marine activities, the protection of the area and its wildlife including seals and regulation of sea fisheries; and for connected purposes.
Marine Scotland Licence Operating Team	MS-LOT	MS-LOT is the regulator on behalf of Scottish Ministers for marine licence applications in the Scottish inshore region (between 0 and 12 nm) under the Marine (Scotland) Act 2010 and in the Scottish offshore region (between 12 and 200 nm) under the Marine and Coastal Access Act 2009.

Term	Acronym or Abbreviation	Definition
Marine Traffic Survey	MTS	A survey of maritime traffic, combining radar, Automatic Identification System and visual observations.
Mass Flow Excavation		Mass flow excavation systems are used for trenching and deburial on varying types of seabed in advance of operations starting.
Mean High water Springs or High Water Springs	MHWS	Mean high water springs is the highest level that spring tides reach on the average over a period of time. The height of mean high water springs is the average throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean Low Water Springs or Low Water Springs	MLWS	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Mechanical ploughing		A mechanical plough is a device towed along the seabed and is optimised to help deliver reductions in the cost of offshore wind installation and to minimise project risk by combining operations to reduce the time required to install subsea cables.
Metoccean		Metoccean conditions refer to the combined wind, wave and climate (etc.) conditions as found on a certain location.
Multi-Beam Echo Sounder	MBES	A multibeam echosounder is a type of sonar that is used to map the seabed. Like other sonar systems, multibeam systems emit acoustic waves in a fan shape beneath the transceiver of the multibeam echosounder.
National Coastal Erosion Risk Mapping	NCERM	The National Coastal Erosion Risk shows the coastal baseline. This baseline is split to 'frontages'. These are defined as lengths of coast with consistent characteristics based on the cliff behaviour characteristics and the defence characteristics.
National Federation of Fishermen's Organisations	NFFO	The National Federation of Fishermen's Organisations (NFFO) exists to provide a voice for fishermen, irrespective of where on the coast they are based or the size of the vessel they operate.
National Grid Electricity Transmission	NGET	The electricity transmission licensee that owns and maintains the onshore electricity transmission assets in England and Wales.
National Marine Plan Interactive	NMPi	Interactive mapping tool is to assist in the development and implementation of Scotland's National Marine Plan (NMP) by Marine Scotland.
National Policy Statements	NPSs	National Policy Statements are produced by government. They give reasons for the policy set out in the statement, and must include an explanation of how the policy takes account of government policy relating to the mitigation of, and adaptation to, climate change. They comprise the government's objectives for the development of nationally significant infrastructure in a particular sector and state.
Natural Environment and Rural Communities	NERC	The act created Natural England and the Commission for Rural Communities and, amongst other measures, it extended the biodiversity duty set out in the Countryside and Rights of Way (CROW) Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity.
Natural Resources Wales	NRW	Natural Resources Wales is a Welsh Government sponsored body, which became operational from 1 April 2013, when it took over the management of the natural resources of Wales.

Term	Acronym or Abbreviation	Definition
Nautical Mile	NM	A nautical mile is a unit of measurement used in air, marine, and space navigation, and for the definition of territorial waters. It is based on the circumference of the earth, and is equal to one minute of latitude. It is slightly more than a statute (land measured) mile (1 nautical mile = 1.1508 statute miles ). Nautical miles are used for charting and navigating.
NAVAREA warnings		NAVAREAs are the maritime geographic areas in which various governments are responsible for navigation and weather warnings.
Navigational dredging sites		Dredging sites to deepen berths and channels for the purpose of navigation. Navigational dredging will usually require a licence but there is an exemption available for low volume dredging and harbour authorities in certain circumstances.
Navigational Risk Assessment	NRA	Navigation (Marine) Risk Assessment identifies and assesses the hazards and risks affecting vessel navigation, before considering current controls to mitigate risks and further controls that could be adopted to minimise risk as low as reasonably practicable (ALARP).
Navigational Telex	NAVTEX	NAVTEX (NAVigational TEleX), sometimes styled Navtex or NavTex,[1] is an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent maritime safety information (MSI) to ships.
Nephrop grounds		Areas where Norway prawns (Nephrops norvegicus) can be fished.
Nitrate Vulnerable Zones	NVZ	Nitrate Vulnerable Zones (NVZs) are areas designated as being at risk from agricultural nitrate pollution.
North Eastern Inshore Fisheries and Conservation Authority	NEIFCA	Inshore Fisheries and Conservation Authorities lead, champion and manage a sustainable marine environment and inshore fisheries by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.
Northern Lighthouse Board		The Northern Lighthouse Board is the general lighthouse authority for Scotland and the Isle of Man.
Northumberland IFCA	NIFCA	Inshore Fisheries and Conservation Authorities lead, champion and manage a sustainable marine environment and inshore fisheries by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.
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Notice to Mariners	NtM	A notice to mariners advises mariners of important matters affecting navigational safety, including new hydrographic information, changes in channels and aids to navigation, and other important data. Over 60 countries which produce nautical charts also produce a notice to mariners.
O&G installation	Oil and Gas Installation	Infrastructure installations relating to the oil and gas industries.
Open cut		Open cut is a method of pipeline installation that requires opening up the surface of the ground to the required depth for installing a pipeline.

Term	Acronym or Abbreviation	Definition
Percussive piling		These are commonly types of hammer designed to deliver an impact blow to the top of the pile. The type of subsoil and pile will determine both the hammer weight and the drop height. A steel helmet padded with a sand bed and cushioned with a 'dolly' (plastic or hardwood block) is used to protect the pile head from damage.
PLONOR substances		Substances/Preparations Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR).
Post Lay Burial		This is the final stage of the cable laying process where the subsea cable is buried.
Pre-lay grapnel run	PLGR	The Pre Lay Grapnel Run – or PLGR – occurs a few days before the installation. The ship dredges a grapnel to clear any obstacle that could obstruct the plough, such as fishing nets, ropes, lines
Pre-sweep dredging		Before installation of a pipeline or cable, pre-sweeping of sand waves is usually required in order to level the seabed. One or more dredgers may do the pre-sweeping with pipe-laying vessels following behind. The pre-sweeping operation prepares a smooth enough seabed upon which to lay the pipeline or cable.
Project Design Envelope	PDE	The Rochdale Envelope approach or Project Design Envelope was developed during onshore planning applications to provide flexibility in design options where details of the whole project are not available when the application is submitted, while ensuring the impacts of the final development are fully assessed during the Environmental Impact Assessment (EIA).
Project Marine Scheme		The offshore elements of the Scheme which fall within Scottish Waters.
Project Scottish Onshore Scheme		The onshore elements of the Scheme within Scotland.
RADAR		Radar is a detection system that uses radio waves to determine the range, angle, or velocity of objects.
Ramsar sites		Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
Recommended Clearance Zones	RCZ	Safety zones which will be established around the installation vessels, notified via Notice to Marinas and navigation warnings as appropriate and monitored by the guard vessels.
Remotely Operated Vehicle	ROV	ROVs are often used when diving by humans is either impractical or dangerous, such as working in deep water or investigating submerged hazards. ROVs and AUVs carry equipment like video cameras, lights, robotic arms to grab things.
River basin management plans	RBMP	River basin management plans (RBMPs) set out how organisations, stakeholders and communities will work together to improve the water environment.
Rock placement vessel		A rock placement vessel or fallpipe vessel (FPV) is a self-propelled vessel that is equipped with a flexible fallpipe. The vessel's design allows the fallpipe to be lowered into the water beneath the vessel. Uniquely, the fallpipe vessel can position rock with extreme accuracy down to a depth of 1,500 meters.



Term	Acronym or Abbreviation	Definition
Royal National Lifeboat Institution	RNLI	The Royal National Lifeboat Institution is the largest charity that saves lives at sea around the coasts of the United Kingdom, the Republic of Ireland, the Channel Islands, and the Isle of Man, as well as on some inland waterways. It is one of several lifeboat services operating in the same area.
Royal Society for the Protection of Birds	RSPB	The Royal Society for the Protection of Birds is a charitable organisation registered in England and Wales and in Scotland. It was founded in 1889.
Royal Yachting Association	RYA	The Royal Yachting Association is a United Kingdom national body for dinghy sailing, yacht and motor cruising, sail racing, RIBs and Sportsboats, windsurfing and personal watercraft and a leading representative for inland waterways cruising.
Sandwave dredging		The process of clearing sandwaves by dredging prior to cable installation.
Scoping report		A report which outlines the intended scope of an environmental impact assessment.
Scottish and Southern Energy Networks	SSEN	Scottish and Southern Electricity Networks manages two distribution networks and one transmission network. The company manages two of the fourteen distribution licenses in Great Britain. The company's electricity distribution and transmission networks carry electricity to over 3.7 million homes and businesses across the north of the Central Belt of Scotland, as well as Central Southern England.
Scottish Environment Protection Agency	SEPA	The Scottish Environment Protection Agency is Scotland's environmental regulator and national flood forecasting, flood warning and strategic flood risk management authority. Its main role is to protect and improve Scotland's environment.
Scottish Fishermen's Organisation	SFO	The Scottish Fishermen's Organisation (SFO) is the largest fish Producer Organisation (PO) in the UK and one of the biggest in Europe.
Scottish landfall		The point at which the Project Marine Scheme reaches land within Scotland.
Scottish Natural Heritage	SNH	NatureScot, which was formerly known as Scottish Natural Heritage, is the public body responsible for Scotland's natural heritage, especially its natural, genetic and scenic diversity.
Scottish Power Transmission	SPT	SP Transmission (SPT) is responsible for the transmission of electricity in central and southern Scotland.
Scottish Whitefish Producers Association	SWFPA	The <i>Scottish Whitefish Producers Association</i> (SWFPA) is the largest <i>Association</i> of fishermen in the UK, its member's activities account for a significant proportion of <i>Scottish</i> and UK landings both in terms of volume and income.
Seabed plough		Subsea cable ploughs are used for the process of pre-trenching cable routes and backfilling the seabed and are designed to work in a seabed consisting mostly of sands and clays, where the seabed is well known and understood.
Seabird Tracking and Research	STAR	The BirdLife International Seabird Tracking Database is the largest collection of seabird tracking data in existence. It serves as a central store for seabird tracking data from around the world and aims to help further seabird conservation work and support the tracking community.
Search and rescue helicopter	SARH	Helicopters used in search and rescue operations.

Term	Acronym or Abbreviation	Definition
Section 126 of the Marine and Coastal Access Act (MCAA)		Section 126 of the Marine and Coastal Access Act (MCAA) (2009) places specific duties on the MMO relating to Marine Conservation Zones (MCZs) and marine licence decision making.
Shipboard Oil Pollution Emergency Plan	SOPEP	The Shipboard Oil Pollution Emergency Plan, or SOPEP, is a prevention plan carried on board tanker and other vessels. It contains an overview of possible procedures in case of an oil spill. It also describes who should be contacted (list of authorities, oil cleanup teams and port state control) and how to report the event to the nearest coast guard station.
Side-Scan Sonar surveys		Side-scan sonar produces a detailed picture of the seafloor or riverbed, regardless of water clarity. The system, which may be towed from a surface vessel or mounted on a ship's hull, emits fan shaped pulses down towards the seafloor across a wide angle, perpendicular to the path of the sensor through the water.
Special Areas of Conservation	SAC	A Special Area of Conservation (SAC) protects one or more special habitats and/or species – terrestrial or marine – listed in the Habitats Directive.
Special Protection Areas	SPA	A Special Protection Area (SPA) is the land designated under Directive 2009/147/EC on the Conservation of Wild Birds. SPAs are strictly protected sites classified in accordance with Article 4 of the EC Birds Directive, which came into force in April 1979.
Statutory consultation		Engagement with stakeholders determined or governed by statutory requirements.
Statutory consultee		Organisations and bodies, defined by statute, which must be consulted on relevant planning matters.
Strategic Options Appraisal Report	SOAR	An options appraisal is a technique for reviewing options and analyzing the costs and benefits of each one.
Study Area		The spatial area within which environmental effects are assessed (i.e. extending a distance from the project footprint in which significant environmental effects are anticipated to occur).
Substation		A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions.
Subtidal drill conduit breakout points		The area below MHWS where the drill route will breach through the seabed, forming connection points for the marine cable.
Suspended Particulate Matter	SPM	Suspended particulate matter (SPM) are finely divided solids or liquids that may be dispersed through the air from combustion processes, industrial activities or natural sources.
Suspended sediment concentration		Is defined as the total value of both mineral and organic material carried in suspension by a river.
The Scheme		All offshore and onshore elements of the project within the Scheme boundary.

Term	Acronym or Abbreviation	Definition
The Town and Country Planning Act	The T&CP Act	The Town and Country Planning Act 1990 is an act of the United Kingdom Parliament regulating the development of land in England and Wales. It is a central part of English land law in that it concerns town and country planning in the United Kingdom.
Traffic Separation Schemes	TSSs	A traffic separation scheme or TSS is a maritime traffic-management route-system ruled by the International Maritime Organization or IMO. The traffic-lanes (or clearways) indicate the general direction of the ships in that zone; ships navigating within a TSS all sail in the same direction or they cross the lane in an angle as close to 90 degrees as possible.
Transboundary effects		The term used to describe the significant environmental effects of a project which extend beyond the boundary of the European Economic Area State within which it would be implemented.
Transition Joint Pit		Sterile working area forming the connection point between marine HV and terrestrial HV cable.
UK Climate Projections	UKCP	The UK Climate Projections (UKCP) is a climate analysis tool that forms part of the Met Office Hadley Centre Climate Programme.
UK Marine Area		The UK marine area extends over 867,400 km <sup>2</sup> . It is rich in marine life and natural resources.
UKHO		The UK Hydrographic Office ( <i>UKHO</i> ) is a world-leading centre for hydrography, specialising in marine geospatial data that helps others to unlock a deeper understanding of the world's oceans.
Unexploded ordnance	UXO	Explosives that did not explode when deployed and thus still pose a risk of detonation.
United Kingdom Single Issuing Authority	UKSIA	The UKSIA manages UK domestic fishing vessel access to non-UK waters and foreign vessel access to UK waters.
United Kingdom's exclusive economic zone	UK EEZ	The United Kingdom's exclusive economic zone comprises the exclusive economic zones surrounding the United Kingdom, the Crown dependencies, and the British Overseas Territories.
Vessel Monitoring System	VMS	Vessel Monitoring System data tracks vessels in a similar way to an Automatic Identification System but this data has historically been restricted to government regulators or other fisheries authorities.
Vessel-side discharge methods		A method used for placing material after a subsea cable has been laid. Less precise than using a fall-pipe vessel.
Vibratory piling		To drive or extract a pile by means of inducing a vibration in to the pile element, greatly reducing skin friction properties and allowing the pile to move through the ground with considerably less resistance than it would do under a static load.
Waste Management Plan	WMP	A plan that is used to outline how a construction project would avoid, minimise or mitigate effects on waste production and handling on the environment and surrounding area.
Water Environment and Water Services Scotland Act 2003	WEWSSA	An Act of the Scottish Parliament to make provision for protection of the water environment, including provision for implementing European Parliament and Council Directive 2000/60/EC; to amend the Sewerage (Scotland) Act 1968 and the Water (Scotland) Act 1980 in relation to the provision of water and sewerage services; and for connected purposes.

Term	Acronym or Abbreviation	Definition
Water Framework Directive	WFD	A European Union Directive which commits member states to achieve good status of all waterbodies (both surface and groundwater), and also requires that no such waterbodies experience deterioration in status. Good status is a function of good ecological and good chemical status, defined by a number of elements.
Water jetting		High Pressure Water Jetting (also known as hydroblasting and water cutting) is an industrial tool capable of removing material and cleaning a wide variety of materials using extremely high-pressure jets of water, or a mixture of water and chemicals.
Wetland Bird Survey	WeBS	The <i>Wetland Bird Survey</i> (WeBS) monitors non-breeding waterbirds in the UK. WeBS surveyors monitor the UK's internationally important non-breeding waterbirds.
Wildfowl and Wetlands Trust	WWT	The Wildfowl & Wetlands Trust is an international wildfowl and wetland conservation charity in the United Kingdom.
Written Scheme of Investigation	WSI	Documents which set out the approach to undertaking archaeological monitoring of ground investigation works.





