Technical Appendix 9.1: Assessment Methodology

Technical Appendix 9.1: Hydrology, Hydrogeology and Geology Method of Assessment

9.1.1 Overview

9.1.1.1 The assessment methodology, including criteria for assessing sensitivity of receptors, magnitude of change and cumulative effects, as well as overall significance criteria, is detailed below.

9.1.1.2 Effects on water resources are described as beneficial, neutral or adverse and are considered with reference to the value or sensitivity of the receptor, as described in Table 9.1.1.

Table 9.1.1: Sensitivity of Environmental Receptor

Sensitivity of Receptor	Definition	Typical Criteria
High	International or national level importance. Receptor with a high quality and rarity, regional or national scale and limited potential for substitution/replacement.	• High likelihood of fluvial/tidal flooding in the sub catchment – defined as 1:10 probability in a year; • European Commission (EC) Designated Salmonid/Cyprinid fishery; • Surface Water Framework Directive (WFD) class 'High'; • Scottish Government Drinking Water Protected Areas; • Aquifer providing regionally important resource such as abstraction for public water supply, abstraction for private water supply; • Supporting a site protected under EC or UK habitat legislation/species protected by EC legislation; • Protected Bathing Water Area; • Active floodplain; • Highly GWDTEs; and • Average peat depth >1 m within the sub-catchment.
Medium	Regional, county and district level importance. Receptor with a medium quality and rarity, regional scale and limited potential for substitution/replacement.	• Medium likelihood of fluvial/tidal flooding in the sub catchment – defined as a 1:200 probability in a year; • Surface water WFD class 'Good' or 'Moderate'; • Aquifer providing water for agricultural or industrial use; • Local or regional ecological status/locally important fishery; • Contains some flood alleviation features; • Average peat depth >0.5 m within the sub catchment; and • Moderately GWDTEs.
Low	Local importance Receptor is on-site or on a neighbouring site with a low quality and rarity, local scale. Environmental equilibrium is stable and is resilient to changes that are greater than natural fluctuations, without detriment to its present character.	• Surface water WFD class 'Poor'; • Unproductive strata/no abstractions for water supply. • Sporadic fish present; • No flood alleviation features; • Sewer; and • Average peat depth <0.5 m within the sub catchment.

9.1.2 Criteria for Assessing the Magnitude of Change

9.1.2.1 The size or magnitude of each impact is determined as a predicted deviation from the baseline conditions during construction, operation and decommissioning of the Proposed Development, as described in Table 9.1.2

Table 9.1.2: Magnitude of Impact on a Receptor

Magnitude of Impact	Criteria
Large	Large alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource.
Medium	Medium alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource.
Small	Small alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource.
None	No alteration/change detectable in the quality or quantity of and/or to the physical or biological characteristics of environmental resource.

9.1.3 Criteria for Assessing Cumulative Effects

9.1.3.1 The potential for cumulative effects to occur as a result of the Proposed Development is assessed based on:

- The potential hydrological connection of other similar developments, which are the subject of a valid planning application;
- The potential for concurrent phases of construction with other similar developments with the potential for hydrological connection to the Turbine Array; and
- Applicable planning conditions with regards to the potential impact of other similar developments on the water environment.

9.1.4 Criteria for Assessing Significance

9.1.4.1 Table 9.1.3 illustrates how residual effects are determined by comparison of the sensitivity of the receptor with the magnitude of impact (i.e., predicted change). For the purposes of this assessment significant effects are **Major** or **Moderate**.

Table 9.1.3: Significance Criteria

		Magnitude of Impact			
		None	**Small**	**Medium**	**Large**
Sensitivity of Receptor	**High**	None	Minor	Major	Major
	Medium	None	Minor	Moderate	Moderate
	Low	None	Negligible	Minor	Minor