

## 18 INTER-RELATIONSHIPS & INTERACTIONS

This Chapter considers the potential for interactions and inter-relationships between one aspect of the environment and another which can result in an impact being either positive or negative, as well as having varying levels of significance.

Direct, indirect, cumulative, and interactive impacts were considered during the design of the proposed pipeline project to minimise impacts on the human environment, flora and fauna, traffic, hydrology, water quality and archaeological, architectural and cultural heritage to name just a few. However, all environmental topics are interlinked to a degree such that interrelationships exist on numerous levels. A summary matrix has been developed to identify key interactions that exist with respect to this specific project. As such, this does not represent a form of relative assessment of impacts and other interactions are recognised to exist and have been addressed in individual chapters of this EIS. Table 18.1 herein provides a matrix showing the key interactions and inter-relationships between the key environmental aspects of the proposed development.

Table 18.2 also provides further detail and examples of the diverse range of interactions and inter-relationships between the key environmental aspects.

**Table 18.1: Summary of Interactions & Inter-relationships between the Key Environmental Aspects**

	Air Quality & Climate	Noise & Vibration	Flora & Fauna	Soils, Geology & Hydrogeology	Surface Water Quality & Drainage	Human Environment	Material Assets	Traffic & Transportation	Archaeological, Architectural & Cultural Heritage	Landscape & Visual
Air Quality & Climate	Interaction	No interaction	Interaction	No interaction	No interaction	Interaction	No interaction	Interaction	No interaction	No interaction
Noise & Vibration	No interaction	Interaction	Interaction	Interaction	No interaction	Interaction	No interaction	Interaction	Interaction	No interaction
Flora & Fauna	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	No interaction	Interaction	No interaction	Interaction
Soils, Geology & Hydrogeology	No interaction	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	No interaction	Interaction	Interaction
Surface Water Quality & Drainage	Interaction	No interaction	Interaction	Interaction	Interaction	Interaction	No interaction	Interaction	No interaction	No interaction
Human Environment	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction	Interaction
Material Assets	No interaction	No interaction	No interaction	Interaction	No interaction	Interaction	Interaction	Interaction	No interaction	No interaction
Traffic & Transportation	Interaction	Interaction	Interaction	No interaction	Interaction	Interaction	Interaction	Interaction	Interaction	No interaction
Archaeological, Architectural & Cultural Heritage	No interaction	Interaction	No interaction	Interaction	No interaction	Interaction	No interaction	Interaction	Interaction	Interaction
Landscape & Visual	No interaction	No interaction	Interaction	Interaction	No interaction	Interaction	No interaction	Interaction	Interaction	Interaction

 = interaction or inter-relationship

 = no interaction or inter-relationship

Table 18.2: Description of Impacts

Interaction	Description
Human Environment, Air Quality & Climate, Traffic & Transportation	Impacts on air quality during the construction phase will occur due to dust emissions from construction activities. Impacts will also occur through increased traffic and associated exhaust emissions from construction traffic. Positive impacts may also arise from the potential removal of road tankers as a result of the scheme. These interactions were therefore considered as part of the EIS, with suitable mitigation measures provided to minimise these potential impacts. The indirect impacts on climate from the displacement of traffic emissions arising from fuel tankers was also considered during the assessment.
Noise and Vibration, Human Environment, Traffic & Transportation	Noise impacts may occur during the construction phase and will be associated with construction plant and traffic. Vibration impacts may also occur during certain aspects of the construction phase which has the potential to impact on the local community as well as buildings and structures. These interactions were therefore considered as part of the EIS. Mitigation measures have been carefully designed in order to minimise these impacts, particularly noise impacts.
Flora and Fauna, Soils, Geology & Hydrogeology, Surface Water Quality & Drainage	There are direct links between these key environmental aspects. Impacts on flora and fauna during the construction phase could include disturbance to birds and mammals from loss/changes in habitat. The hydrological regime could also be altered, through increased flooding and sedimentation/pollution of watercourses, which in turn could impact on flora and fauna. Excavations introduce the risk of increased sedimentation which would impact on flora and fauna and the hydrological environment. During the operation of the pipeline any leak has the potential to impact on soils, water quality and in turn flora and fauna species dependent on them. Given the direct links between these aspects, they were considered in the chapters that support all of these topics in recognition of the fact that impacts on one aspect of this complex system may have knock-on, indirect impacts on other aspects.
Vibration, Archaeology and Cultural Heritage, and Architectural Heritage	The potential for vibration impacts on features of archaeological or cultural importance and architectural heritage has been considered.
Noise and Vibration, Flora and Fauna	Noise impacts during construction (from construction plant and increased traffic) has the potential to impact on local flora and fauna (birds and mammals) in the surrounding environment. These interactions were therefore considered in the EIS, particularly in relation to assessing suitable mitigation measures to reduce the impacts.
Landscape and Visual, Archaeological, Architectural and Cultural Heritage	The construction of the proposed pipeline may impact in the short-term on archaeological, architectural and cultural heritage sites within and in the vicinity of the proposed pipeline corridor. These interactions have been considered in the EIS, particularly in defining mitigation measures to minimise any impacts.
Traffic & Human Environment	Traffic impacts and mitigation measures have the potential to impact on socio economic activity (human environment). The potential for indirect impacts of this nature has been considered when defining appropriate mitigation measures.
Human Environment - Landuse and Socio-economics	Impacts on commercial landuses can often have a knock-on effect in terms of socio-economics. Interactions between the two environmental topics were therefore considered to ensure that both direct and indirect impacts were considered and appropriate mitigation measures put in place.

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<sup>i</sup> White Paper 'Delivering a Sustainable Energy Future for Ireland' <http://www.dcenr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/27356/EnergyWhitePaper12March2007.pdf>

<sup>ii</sup> Guidelines for the Treatment of Noise and Vibration in National Road Scheme, National Roads Authority, 2004

<sup>iii</sup> National roads Authority, 2004. Guidelines for the Treatment of Noise & Vibration in National Road Schemes

4 Waste Management Act 1996. Waste Management (Amendment) Act 2001 (No 36 of 2001). Department of Environment, Community and Local Government.

<sup>5</sup> Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects. June 2006. Department of Environment, Community and Local Government.