

18 SUMMARY OF IMPACTS AND MITIGATION MEASURES

18.1 INTRODUCTION

This chapter provides a summary of the assessment of potential impacts and impact mitigation in Table 18.2 for the construction and the operation phases of the proposed development, extracted from Chapters 6 – 16. A description is provided of the potential impacts and the predicted residual impact (the impact remaining after mitigation) upon the human environment, natural environment, and on cultural heritage. In addition, a summary is provided of the proposed mitigation and monitoring measures that will, when implemented, reduce the potential impacts. SEPIL are committed to implementing these measures, and achieving a level of environmental management and performance consistent with national and international standards and legislation.

It is important to note that certain specialists based their assessment of impacts on different significance criteria, e.g., Chapters 12 and 13 and therefore for a complete understanding of potential impacts, reference should be made to the relevant chapters.

Generally, the assessments of impact duration have considered the EPA criteria as outlined in Table 18.1 below:

Table 18.1: EPA Classification Criteria for Duration of Impacts.

Temporary	Impact lasting for one year or less.
Short-term	Impact lasting one to seven years.
Medium-term	Impact lasting seven to fifteen years.
Long –term	Impact lasting fifteen to sixty years.
Permanent	Impact lasting over sixty years.

Table 18.2 Summary of Potential Impacts and Mitigation Measures.

SOURCE AND SCALE OF POTENTIAL IMPACT	MITIGATION, PREVENTATIVE AND MANAGEMENT MEASURES	RESIDUAL IMPACT ¹	CHAPTER
OPERATIONAL PHASE			
- Long-term restriction of development within wayleave (generally 14m wide but 20m wide in peatlands) (localised)	- Compensation - Careful Reinstatement	Minor	Chapter 6
- Long-term visible impact of Landfall Valve Installation (LVI).	- Design of LVI in excavated lower terrain position dished - Careful Reinstatement	Moderate	Chapter 10
- Loss of 20mx22m of grassland habitat	- Natural regeneration of grassland areas on the slopes - Careful Reinstatement & Monitoring	Slight –moderate (long term)	Chapter 12
CONSTRUCTION PHASE			
HUMAN ENVIRONMENT			
Construction Traffic			
- Short-term, localised disturbance from increased traffic - Short-term, localised increased vehicular emissions - Short-term, localised increase in dust	- Traffic Management Plan - Dust Management Measures - Ongoing Community Liaison - Environmental Management Plan - Tunnelling from one side - No nighttime haulage (except for abnormal loads) - Speed restrictions near Pollatmish school	None	Chapters 6 to 9
- Short-term, localised increase in noise	- Noise Monitoring - Traffic Management Plan - Ongoing Community Liaison - Environmental Management Plan		
- Short term, localised / global (for GHG) Impact on Climate	- Traffic Management Plan	Imperceptible	Chapter 8
- Short-term, localised increased traffic on local road network - Short-term, localised impact on local roads	- Traffic Management Plan - Ongoing Community Liaison - Reuse of tunnel arisings - Reuse of bentonite - Reuse of water	Imperceptible	Chapter 7

All Construction Activities			
- Temporary, localised structural issues resulting from increased vibration (piling and rock breaking, traffic)	- Pre-construction monitoring and structural survey	None	Chapter 9
- Short-term, localised change in landscape character - Increased Visual Impact	- Lighting system designed to minimise visual impact - Appropriate use of colour for structures and surfaces in tunnelling compound in Aghoos - Careful Reinstatement and Monitoring	None	Chapter 10
- Short-term, localised decrease in development potential	- Compensation	None	Chapters 6, 11
- Short-term, localised disturbance to landowners/occupiers - Localised removal of land from production (e.g., forestry)	- Ongoing Landowner Liaison - Environmental Management Plan - Compensation	Minor – Grazing Moderate –Forestry	Chapter 11
- Short-term, localised intermittent disruption to accesses, water supplies, etc	- Ongoing Landowner Liaison - Ongoing Community Liaison - Rainwater harvesting on site in Aghoos tunnelling compound - Reuse of water and tunnelling drilling fluid where possible - Environmental Management Plan	None	
- Short-term, localised disruption due to noise.	- Noise attenuation barriers around tunnelling compounds - Sound-proofing of plant such as generators and pumps - Noise Monitoring - Ongoing Community Liaison - Environmental Management Plan	None	Chapter 9
- Short-term, localised and regional creation of employment opportunities	n/a	None	Chapter 6
- Generation of surplus material from excavation and demobilisation	- Reuse of material from excavation of tunnel, excavation of LVI site and demobilisation of compounds where possible	None	Chapter 11

NATURAL ENVIRONMENT			
Stream Crossings & Leenamore River Crossing			
<ul style="list-style-type: none"> - Temporary, localised release of Suspended Solids/Contaminants - Temporary, localised disruption to Freshwater habitat/ invertebrates/ spawning beds 	<ul style="list-style-type: none"> - Use of appropriate Construction Methods (flume pipe, pumping, temporary bridging structures across certain watercourses to allow movement of construction vehicles, sedimentation control, retain streambed substrate) - Monitoring and appropriate treatment of water discharged from the works and hydrostatic test water - Construction carried out in accordance with EMP (including refuelling, drip trays, spill containment / recovery measures, etc.) - Liaison and consultation with NPWS and NWRFB - Hazardous Substance Management (EMP) 	Minor- Negligible (Temporary)	Chapter 13
<ul style="list-style-type: none"> - Temporary, localised disturbance to otters 	<ul style="list-style-type: none"> - Monitoring dense vegetation during clearance - Exclusion Zones/Screening³ - Evacuation of holts³ - Ramps in trenches - Environmental Management Plan - Liaison and consultation with NPWS 	Moderate (short term) Neutral (long term)	Chapter 12
<ul style="list-style-type: none"> - Temporary, localised destruction / loss of habitat (saltmarsh) (Leenamore River Crossing) 	<ul style="list-style-type: none"> - Liaison and consultation with NPWS - Specialist Construction Techniques (Turving of saltmarsh) - Environmental Management Plan - Careful Reinstatement & Monitoring 	Slight-moderate (short term) Neutral /Imperceptible (long term)	Chapter 12
Tunnelling			
<ul style="list-style-type: none"> - Temporary, localised impact to fauna from noise and vibration from tunnelling process 	<ul style="list-style-type: none"> - Monitoring of fish and birds during tunnelling works 	None	Chapter 9 Chapter 12 Chapter 13 Chapter 14
<ul style="list-style-type: none"> - Temporary to short-term, localised disturbance to birds in the vicinity of the Aghoos and Glengad tunnelling compounds 	<ul style="list-style-type: none"> - Non-transparent screening and noise attenuation barriers around tunnelling compounds - Sound-proofing of plant such as generators and pumps - Noise monitoring - Downward lighting at perimeter of Aghoos compound - Green lighting to be used at top of crane in Aghoos to avoid bird collision - Environmental Management Plan 	Slight/ Imperceptible (short term) Neutral (long term)	Chapter 12

- Temporary, localised release of suspended solids / contaminants to Sruwaddacon Bay from Aghoos compound construction	- Implementation of robust surface water management system during peat excavation, compound construction and reinstatement and during construction of tunnel - Environmental Management Plan	None	Chapter 13
Tunnelling (Emergency Surface Intervention²)			
- Temporary, localised disruption to smolt/salmonids & other fish	- Liaise and consult with NPWS and NWRFB - Monitor movement of smolt - Stop works to allow smolt to pass - NWRFB supervision of works - Retention of excavated material for reinstatement - Spill Contingency Measures - Environmental Management Plan - Careful Reinstatement & Monitoring	Imperceptible (short term)	Chapter 13
- Temporary, localised loss/change of sediment habitat			Chapter 14
- Temporary, localised change in water quality and sediment load			
- Temporary, localised increased Noise pollution (marine fauna excl. avi-fauna)			
- Temporary, localised disturbance of bird population		Imperceptible to Neutral (short term) Long term (neutral)	Chapter 12
- Temporary, localised loss/deterioration of habitat		Neutral	Chapter 14
- Temporary, localised scour and deposition effects	- Use of scour protection - Appropriate sizing and shape of pit - Reinstatement of sediment scour around features	Slight - imperceptible	
- Temporary, localised disturbance to otters	As outlined in stream crossings.	Neutral (long term)	Chapter 12
- Temporary, localised destruction / loss of habitat (saltmarsh)	As outlined in Leenamore River crossing.	Slight-moderate (short term) Neutral/Imperceptible (long term)	

Construction in Blanket Bog			
<ul style="list-style-type: none"> - Temporary, localised potential weakening of peat structure/stability - Temporary, localised disturbance of natural hydrology - Temporary, localised consolidation of peat - Temporary, localised destruction/loss of habitat 	<ul style="list-style-type: none"> - Specialised Construction Techniques (Turving) - Restriction of storage of peat on bog - Use of low permeability material to prevent impact on peat hydrology (e.g. peat plugs) - Surface Water Management Measures - Careful Reinstatement & Monitoring - Spill Contingency Measures - Hazardous Substance Management Measures - Environmental Management Plan - Reuse of vegetated surface layer of peat in areas of eroded bog 	<p>Slight to moderate (medium term)</p> <p>Neutral / Imperceptible (long term)</p>	Chapter 12
Construction of LVI and Glengad Tunnelling Compound			
<ul style="list-style-type: none"> - Temporary, localised disturbance to faunal species which forage in the agricultural grassland 	<ul style="list-style-type: none"> - Protective Fencing around exclusion zone - Vegetation clearance measures - Badger gates, where appropriate - Environmental Management Plan - Landowner liaison - Careful Reinstatement & Monitoring 	<p>Slight/ Moderate (short-term)</p> <p>Imperceptible - slight (long-term)</p>	Chapter 12
<ul style="list-style-type: none"> - Temporary, localised destruction / loss of habitat (improved agri. Grassland,) 		<p>Slight (short-term)</p> <p>Neutral (long term)</p>	
<ul style="list-style-type: none"> - Temporary, localised disturbance to sand martin colony 		<p>Slight negative (short-term)</p> <p>Neutral (long-term)</p> <p>Neutral</p>	
General Construction Activities			
<ul style="list-style-type: none"> - Temporary, localised destruction / temporary loss of habitat (Sod (earthen) banks, scrub (gorse & willow), conifer) 	<ul style="list-style-type: none"> - Protective Fencing and reinstatement - Vegetation Clearance Measures - Environmental Management Plan - Careful Reinstatement & Monitoring 	<p>Slight (short-term)</p> <p>Neutral (long-term)</p>	
<ul style="list-style-type: none"> - Temporary, localised disturbance to badgers³ Irish Hare, Stoat, and Pine marten, small mammals, frogs/lizards 		<p>Slight (short-term)</p> <p>Neutral (long-term)</p>	
<ul style="list-style-type: none"> - Temporary disturbance or displacement of bird species in temporary working area 			

CULTURAL HERITAGE			
Topsoil stripping & Excavation & Trafficking within Temporary Working Areas			
<ul style="list-style-type: none"> - Temporary, localised disturbance of Archaeological Sites - Temporary, localised disturbance of field systems and townland boundaries 	<ul style="list-style-type: none"> - Pre-construction testing and analysis (under licence from DoEHLG) - Archaeological monitoring during topsoil stripping, peat excavation, and monitoring of tunnel arisings (under licence from DoEHLG) - Fencing of potential archaeological sites and temporary construction sites - Environmental Management Plan 	None	Chapter 16

Note 1: Residual impacts are post construction unless otherwise stated.

Note 2: Emergency Surface Intervention assessed for completeness, not expected to be required

Note 3: If active setts/holts are located within the temporary working area.

Following an extensive study of the potential impacts of the proposed development summarised in Table 18.2, it can be concluded that the onshore pipeline will not have a significant long-term negative impact on the human, natural environments and on cultural heritage. The majority of impacts will occur during the construction phase of the development. Therefore, these impacts are considered to be transient and of a temporary to short-term nature. Measures that will be used in the mitigation of any adverse impacts have been identified.

The preparation of this Environmental Impact Statement represents one stage of the Environmental Management process for the development. This process will continue throughout the duration of the project, during the detailed design, construction, commissioning and operation phases of the project. The assessments and surveys carried out to date are detailed in this EIS. Further surveys will be undertaken prior to, during and after construction to ensure and demonstrate that all potential environmental impacts are considered and adequately addressed. An outline of the requirements for these is further detailed in the relevant EIS chapters. Detailed specifications for the surveys will be developed and agreed with the relevant regulatory authorities.

Consultation will continue during the pre-construction and construction (including reinstatement) phases, with all relevant bodies, to ensure that construction and reinstatement methods are carried out in the most satisfactory manner.

18.2 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Preventative and management measures will be applied throughout the construction phase to ensure that all environmental effects associated with the proposed development are minimised, mitigated or avoided as outlined in the table 18.2 above. Various tools will be implemented to ensure sound environmental management. These include the preparation of an EMP.

The EMP will be used as an environmental management tool to ensure compliance with all relevant environmental regulations and standards and to minimise the potential impacts associated with the development. This EIS will form the basis for many of the environmental procedures that will be fully developed within the EMP.

The EMP will be drawn up in accordance with the schedule of commitments presented in Chapter 18 of this EIS. It will detail measures to minimise actual and potential impacts associated with the construction phase, describing or referencing the procedures and equipment proposed to prevent, monitor and manage possible effects. The EMP will serve as a compliance document recording the progress of commitments and their conformity with the requirements set by the relevant authorities and the expectations of the public.

The EMP will include:

- Measures to provide environmental protection, conservation and, where appropriate, enhancement whilst ensuring the viability of the project;
- Detailed Method Statements;
- Monitoring programmes and management practices to be undertaken during the execution phases of the project;
- Arrangements for effective liaison with regulatory authorities and other interested parties on environmental matters regarding mitigation;
- Arrangements to ensure that the conditions imposed by the EMP are enforced;
- Contingency measures.

Typical topics to be covered by the EMP are listed below:

- Vegetation clearing
- Audits and review
- Environmental Liaison and Consultation
- Pollution Control
- Waste Management
- Traffic Management
- Hazardous Substance management
- Environmental Supervision & Training (all personnel)
- Environmental Health and Safety (EHS) performance
- Spill Contingency
- Dust Management
- Noise Management
- Reinstatement Management/Monitoring
- Disease Prevention
- Community Liaison
- Surface Water Management
- Landowner Liaison

Method statements will be developed to demonstrate how potential impacts during construction will be managed. The EMP will also establish monitoring protocols for ecology, archaeology, water, dust, noise and sediment control. The monitoring programmes will be outlined in detail within the EMP and will include the timing and frequency of monitoring and policies for evaluating and amending the monitoring programme.

Once detailed design information is available, the EMP will be finalised. Upon the commencement of construction, the EMP will be reviewed according to a regular timeframe and updated, if necessary. These updates will be made in consultation with relevant regulatory authorities.

The EMP will provide systems for the effective environmental management of the construction process covering important items such as waste management and pollution control. Environmental auditing will be carried out to ensure compliance with the EMP.

Environmental liaison and consultation with statutory bodies, local authorities and non-statutory organisations, where required, will continue throughout the construction of the onshore pipeline system.

SEPIL is committed to achieving a level of environmental management and performance consistent with national and international standards and in compliance with all relevant statutory obligations. It will seek to incorporate the most environmentally sound technology and procedures into the design of the project in order to ensure optimal management of all activities.

18.2.1 Roles, Responsibilities and Reporting

A full time Environmental Officer will supervise the works from an environmental perspective. This will include monitoring the implementation and compliance with the EMP and approved construction method statements, and ensuring that the EMP is effective and up to date through regular reviews.

The Environmental Officer will have the power to stop any works not following agreed method statements or the environmental procedures set out in the EMP. The Environmental Officer will also ensure that all construction personnel receive appropriate induction training, including pollution awareness and control prior to commencing work. The Environmental Officer will co-ordinate and be the site focal point for communication with the relevant statutory bodies e.g. NPWS and NWRFB. The construction works will also be monitored by a dedicated Project Ecologist and Project Archaeologist.

Environmental liaison and consultation with statutory bodies, local authorities and non-statutory organisations (where required) will continue throughout the construction of the onshore pipeline system.

18.2.2 Environmental Labelling and Signage

Notices and appropriate warning signs will be erected on the site to inform staff of the precautions and measures required when working close to designated conservation sites, protected species or other relevant environmental constraints or sensitivities.