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19 Summary of Mitigation, Monitoring and Residual Effects

This chapter provides a summary of the proposed mitigation and monitoring measures as well as an overview of the residual likely significant effects associated with the proposed development (as identified in **Chapters 6 - 18**).

A number of safeguards and management measures have been identified in order to mitigate negative environmental effects during construction and operation. It should be noted that this generally excludes any inherent measures and elements that have been incorporated in the design. Further, any environmental management measures during construction that have been identified and are associated with construction activity and methodology are documented in the CEMP which as available in **Appendix 4.1**.

Table 19.1: Summary table of potential effects, mitigation and monitoring measures and residual effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Traffic and Transportation				
Local Residents, Businesses and Tourists	Inconvenience due to roadworks and diversions due to road closures	<ul style="list-style-type: none"> • Programming of works to avoid summer tourist peak, following consultation with local residents and businesses; • Construction Traffic Management Plan; 	Monitoring of traffic volumes and compliance with CTMP during the works	Short-term temporary significant
Air Quality and Climate				
Population	Elevated air emissions during construction	<ul style="list-style-type: none"> • Spraying of exposed earthwork activities, stockpiles and site haul roads during dry weather; • Provision of wheel washes at exit points; • Covering of stockpiles; • Control of vehicle speeds, speed restrictions and vehicle access; and • Sweeping of hard surface roads. • Exhaust emissions from vehicles operating within the working areas, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor through regular servicing of machinery; 	Dust deposition monitoring will be conducted at locations near the proposed development. At a minimum, monitoring will be carried out at the nearest sensitive receptors to the proposed converter station site and landfall site, as the works at these areas will be of a larger scale than those along the onshore pipeline route.	None

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<ul style="list-style-type: none"> • During dry periods when dust generation is likely or during windy periods, working areas and vehicles delivering material with dust forming potential will also be sprayed with water, as appropriate; • Areas where materials will be handled and stockpiled will be designed to minimise their exposure to wind - all stockpiles shall be kept to the minimum practicable height with gentle slopes; • There shall be no long-term stockpiling within the working areas and storage time will be minimised; • Material drop heights from plant to plant or from plant to stockpile will be minimised; • Dust screens will be implemented at locations where there is the potential for air quality effects during the construction phase; and • Truck loads will be covered when carrying material likely to generate dust. • Materials will be handled efficiently on site to minimise the waiting time for loading and unloading, thereby reducing potential emissions; • Engines will be turned off when machinery is not in use; and 		

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<ul style="list-style-type: none"> The regular maintenance of plant and equipment will be carried out. Implementation of the Construction Traffic Management Plan 		
Vegetation	Elevated air emissions during construction phase	See above	See above	None
Air Quality, Biodiversity, Population and Human Health	Significant long-term beneficial indirect effect due to reduction in emissions from fossil fuel generation	None	None	Significant long-term beneficial indirect effect due to reduction in emissions from fossil fuel generation
Climate	Significant long-term beneficial effect on climate due to reduction in greenhouse gas emissions from fossil fuel generation	None	None	Significant long-term beneficial effect on climate due to reduction in greenhouse gas emissions from fossil fuel generation
Noise and Vibration				
All Noise and Vibration Receptors	Noise and vibration from construction processes	Specific noise abatement measures will be taken to comply with the recommendations of BS 5228-1 and 2:2009+A1:2014 <i>Code of practice for noise</i>	Noise and vibration monitoring will be carried out at sensitive	Temporary significant noise effects for receptors

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>associated with the cable construction</p>	<p><i>and vibration control on construction and open sites: Noise and vibration</i> (BSI, 2014) and the <i>European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001</i> (EC, 2001).</p> <p>The following specific measures will be implemented during the construction phase to ensure noise and vibration effects are minimised:</p> <ul style="list-style-type: none"> • Site representatives shall be appointed to be responsible for matters relating to noise and vibration; • Equipment will be switched off when not required; • Internal haul routes will be well maintained; • Rubber linings shall be used in chutes and dumpers etc. to reduce impact noise; • Drop heights of materials will be minimised; • Plant and vehicles will be started sequentially rather than all together; • Construction plant and activities to be employed on site will be reviewed to ensure that they are the quietest available for the required purpose; • Generators will be located away from sensitive receivers and will be enclosed; 	<p>receptors nearby the working areas during the construction phase to demonstrate the effectiveness of the mitigation measures and compliance with the limit values. If exceedances are recorded, alternative construction methodologies will be proposed to ensure limits are complied with.</p>	<p>adjacent to the cable route</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<ul style="list-style-type: none"> • Where required, improved sound reduction methods e.g. enclosures shall be used; • Site equipment will be located away from noise sensitive areas, as much as is feasible; • Regular and effective maintenance by trained personnel will be carried out to reduce noise and/or vibration from plant and machinery; • Acoustic barriers will be provided around construction works to minimise the effects of noise and vibration generating activities in the vicinity of sensitive locations; • Typically, site activities will be limited to 7am - 7pm, Monday to Friday; and 7am - 2pm, Saturday. It may also be necessary in exceptional circumstances to undertake some other types of activities outside of normal construction core working hours. Any such working hours outside the normal construction core working hours will be agreed with Wexford County Council. The planning of such works will have regard to nearby sensitive receptors; and • A Community Liaison Plan shall be prepared to provide for effective community liaison to help ensure the smooth running of construction activities and to address any issues that may arise. 		

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
<p>All Noise and Vibration Receptors</p>	<p>Noise and vibration from construction processes associated with the construction of the converter station and the tail station, and temporary contractors' compounds.</p>	<p>Greenlink Interconnector Ltd will ensure that the following specific noise abatement measures are taken to comply with the recommendations of BS 5228-1 and 2:2009+A1:2014 <i>Code of practice for noise and vibration control on construction and open sites: Noise and vibration</i> (BSI, 2014) and the <i>European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001</i> (EC, 2001).</p> <p>The following specific measures will be implemented during the construction phase to ensure noise and vibration effects are minimised:</p> <ul style="list-style-type: none"> • Site representatives shall be appointed to be responsible for matters relating to noise and vibration; • Unnecessary revving of engines will be avoided and equipment will be switched off when not required; • Internal haul routes will be well maintained; • Rubber linings shall be used in chutes and dumpers etc. to reduce impact noise; • Drop heights of materials will be minimised; • Plant and vehicles will be started sequentially rather than all together; • Construction plant and activities to be employed on site will be reviewed to ensure 	<p>Noise and vibration monitoring will be carried out at sensitive receptors nearby the working areas during the construction phase to monitor the effectiveness of the mitigation measures and compliance with the limit values. If exceedances are recorded, alternative construction methodologies will be proposed to ensure limits are complied with.</p>	<p>No significant effects</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<p>that they are the quietest available for the required purpose;</p> <ul style="list-style-type: none"> • Generators will be located away from sensitive receivers and will be enclosed; • Where required, improved sound reduction methods e.g. enclosures shall be used; • Site equipment will be located away from noise sensitive areas, as much as is feasible; • Regular and effective maintenance by trained personnel will be carried out to reduce noise and/or vibration from plant and machinery; • Acoustic barriers will be provided around construction works to minimise the effects of noise and vibration generating activities in the vicinity of sensitive locations; • Typically, site activities will be limited to 7am - 7pm, Monday to Friday; and 7am - 2pm, Saturday. It may also be necessary in exceptional circumstances to undertake some other types of activities outside of normal construction core working hours. Any such working hours outside the normal construction core working hours will be agreed with Wexford County Council. The planning of such works will have regard to nearby sensitive receptors; 		

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<ul style="list-style-type: none"> • A Community Liaison Plan will be prepared to provide for effective community liaison to help ensure the smooth running of construction activities and to address any issues that may arise. • Construction work within 400 metres of the Gas Networks Ireland transmission pipeline will be carried out in accordance with the Code of Practice for Working in the Vicinity of the Gas Transmission Network (included as Appendix 4.2 to this EIAR). This may include the assessment of potential peak particle velocity effects associated with rock removal activities. • For the locations where significant temporary noise effects are predicted during cable route excavation, Greenlink Interconnector Ltd and the appointed contractor will develop and implement specific measures to mitigate impacts, potentially including temporary acoustic screening and discretionary pre-condition surveys. • The use of vibratory roller compactors will be in ‘static’ mode only, for compaction activities within 50m of properties. • To minimise the impulsive noise and vibration associated with the driving of pre-cast piles, the following measures will be taken as required, to meet the established noise and 		

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		vibration thresholds: acoustic screen for hammer head and top of pile and the use of a resilient pad (dolly) between the pile and the hammer head.		
All Noise and Vibration Receptors	Operation of the Proposed Development	The key operational mitigations are the enclosure of key noise-emitting equipment. This includes acoustic enclosures for transformers, and the placing of particular items of plant at the converter station within buildings, thereby already limiting noise breakout to the atmosphere.	None	Within EPA limits, with a slight to moderate negative effect at the closest receptor only.
Biodiversity				
Converter Station and Tail Station Site and Adjacent Lands				
Buildings and artificial surfaces (BL3)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects
Recolonising bare ground ED3/ Buildings and artificial surfaces (BL3)/Scrub WS1	Negative, slight, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Improved agricultural grassland (GA1)	Negative, slight, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Immature woodland (WS2)	Neutral, imperceptible, long-term impact.	None proposed	None proposed	No significant effects
Scrub (WS1)	Negative, slight, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Treelines (WL2) /(Mixed Broadleaved Woodland (WD1)/ Scrub	Neutral, not significant, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Hedgerow (WL1)/Scrub (WS1)/ Dry meadow and grassy verge (GS2)	Negative, not significant, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Tidal River CW2	Negative, slight, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Off-road area between Great Island and the Campile River Estuary				
Improved agricultural grassland (GA1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Arable crop (BC1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Hedgerow (WL1)	Neutral, not significant, temporary impact.	None proposed	None proposed	No significant effects
Dry meadow and grassy verge (GS2) (of insufficient size to be mapped)	Neutral, not significant, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Buildings and artificial surfaces (BL3)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects
(Mixed) broadleaved woodland (WD1)/ Treeline (WL2)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects
Stone walls and other stonework (BL1)/ Spoil and bare ground (ED2)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects
Drainage ditch (FW4)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Tidal river (CW2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Minor off-road areas adjacent to roads				
Arable crop (BC1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Improved agricultural grassland (GA1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Campile River Estuary Crossing				
Tidal rivers (CW2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Upper salt marsh (CM2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Mixed broadleaved/ conifer woodland (WD2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Mixed broadleaved woodland (WD1)/Treelines (WL2)/Hedgerows (WL1)/Scrub (WS1)	Neutral, imperceptible, temporary impact	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Improved agricultural grassland (GA1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Recolonising Bare Ground (ED3)/Scrub (WS1)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects
Embankment (BL2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Baginbun Beach Landfall Site and Road-side Car Parking Area				
Rocky sea cliffs (CS1) / Sedimentary sea cliffs (CS3)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Buildings and artificial surfaces (BL3) / Spoil and bare ground (ED2)	Neutral, imperceptible, temporary impact.	None proposed	None proposed	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Sand shores (LS2)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Improved agricultural grassland (GA1)	Neutral, imperceptible, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Arable crop (BC1)	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Scrub WS1	Negative, slight, permanent impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Otter				
Habitat	Negative, slight, short-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Bats				
Roosting sites, foraging sites, hibernation sites	Negative, slight to negligible, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Badger				
Habitat and setts	Negative, slight, long-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Other Mammals				
Habitats, noise and disturbance	Negative, slight, long-term impact	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Birds				
Habitat	Negative, slight, permanent impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Shoreline / Estuarine Habitats	Negative, slight, short-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Other Fauna				
Amphibians, reptiles, invertebrates	Negative, slight, temporary impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Water Quality and Aquatic Ecology				
Marine and aquatic habitats	Negative, not significant, short-term impact.	Refer to CEMP and detailed breakdown in Section 9.5	Refer to CEMP and detailed breakdown in Section 9.5	No significant effects
Archaeology, Architectural and Cultural Heritage				
Visual Receptors in the vicinity of the landfall site and compounds	Locally moderate temporary negative effects	2.4m hoarding will be provided around the construction compounds, which will provide a visual screen.	None	Locally moderate temporary negative effects
Known archaeological sites and greenfield sites of archaeological potential	Significant	The proposed development site has a density of recorded archaeological sites. No other archaeological sites were detected during the field assessment. It is possible however that previously unrecorded subsurface archaeological features are present within the development area. The burial exposed at Churchtown is an example of accidental discovery during ground disturbance. All ground disturbance within the four complexes of archaeological monuments, all greenfield areas, including off-road locations of works and any ground disturbance associated with the excavation of launch and receptor pits, the development of a converter station and tail station at Greatisland and the temporary construction compound at Lewistown will be monitored by a suitably qualified archaeologist. Topsoil strip will be re-inspected after some days to locate any Stone Age (Mesolithic and	See mitigation column	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<p>Neolithic) lithic material that may not be apparent in freshly-turned soil. The archaeologist will secure an excavation licence for monitoring in the event of an archaeological discovery. The licence is issued by The Heritage Service, Department of Culture, Heritage and The Gaeltacht and approved by the National Museum of Ireland.</p> <p>The monitoring archaeologist will be empowered to halt the development if buried archaeological features or finds are uncovered. If archaeological remains are uncovered, these sites become an archaeological site and are protected by the National Monuments legislation. Further work on the site will require consultation with the archaeological staff of The Heritage Service, Department of Culture, Heritage and The Gaeltacht. Any newly discovered site will be archaeologically resolved.</p> <p>At the site of the proposed converter station and tail station, where a number of archaeological sites are extant in the wider area, and where previous works during gas pipeline construction uncovered previously unknown archaeological sites, a geophysical survey will be undertaken. If potential archaeological material is detected, this will be archaeologically resolved prior to construction.</p> <p>Provisions, including financial and time will be made at the outset of the proposed development to facilitate any excavation or recording of archaeological material that may be uncovered during the developmental works.</p> <p>All test pits for engineering purposes will also be archaeologically monitored to prevent accidental</p>		



Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<p>damage to buried archaeological features and to record any accidental discovery of features and/or finds.</p> <p>As the proposed route for much of the cable trench is along the existing road network it is not expected that any townland boundaries will be breached. If townland boundaries are impacted in greenfield areas, these will be archaeologically recorded.</p>		
Architectural Heritage	None	None	None	No significant effects
Underwater Archaeology	None	None	None	No significant effects
Landscape and Visual				
Vicinity of Converter Station Site	<p>Construction: locally moderate negative temporary effects on the landscape character</p> <p>Operation: locally slight to moderate negative long-term visual effects, with slight negative/neutral and long-term landscape character effects</p>	<p>Embedded mitigation measures which have been incorporated into the design process include:</p> <p>Selection of materials and colours</p> <p>Provision of landscape mitigation as follows:</p> <ul style="list-style-type: none"> Integration of the development into the surrounding landscape, in particular to the buildings, roads, fences and services, minimising where possible landscape and visual impact. The proposed buildings will have a restricted range of materials and colours in order to 	Implementation of Construction Environmental Management Plan	In general, on maturity of the landscape mitigation, there will be no significant visual impacts, and no significant impacts on landscape character during the operation of the proposed development. There will be moderate visual impact on views from the north, with slight impacts on views to the east and

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>Visual impacts from light will be slight negative for views and areas to the north and north-east</p>	<p>create a degree of visual consistency. The colour scheme will be based upon the visibility of the structure when viewed against a mixed and coniferous woodland backdrop, using natural, colours in a matt finish. Elements viewed predominantly against rural backdrop will be dark grey (Anthracite Grey RAL 7016 and Merlin Grey RAL 180 50 05). Upper portions of the southern elevations which may be seen against the sky from views from the south will be in a lighter grey colour (Goosewing Grey RAL 080 70 05). Perimeter security fencing to be black (RAL 9005).</p> <ul style="list-style-type: none"> • Placement of external electrical equipment (transformers, compound etc.) behind buildings and topography where possible. • Use of native, mixed woodland shelterbelt planting to define the boundaries, and the entrance road. • Retention and incorporation of existing landscape features i.e. the trees and hedgerows on the boundaries and in the lands between the existing power station and the proposed site. <p>Along the route of the underground cable, existing hedgerows and vegetation will be maintained and protected where possible during construction. However, there will be a</p>		<p>south. There will be an intensification of use of the site and there will be no significant cumulative impacts</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<p>requirement for sections of existing vegetation to be removed to facilitate the cable laying, which will be replanted with native hawthorn hedgerow planting upon completion of the works. At the Campile River estuary crossing, the existing riparian/riverside trees will be protected during construction.</p> <p>Landscape planting is proposed to further ameliorate visual impact and enhance the overall development. Its principal objectives are to:</p> <ul style="list-style-type: none"> • Screen and/or 'filter' views from nearby residential properties and roads. • Assist a visual integration of the development into the surrounding landscape by screening the lower elements of the development such as roads, administration buildings, and ancillary features of the converter station. • To provide an internal site landscape structure, enhance internal road corridors and further reduce the impact of the built environment from outside the site. • Car parking throughout the scheme will be screened by tree, hedge, and shrub planting, while still allowing passive supervision of these areas. • The planting scheme will be implemented with the appropriate tree and shrub species that will suit the site's location and 		

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
		<p>character with an emphasis on indigenous species to the woodland shelter belts.</p> <p>All landscape areas shall be formed using adequate depths of subsoil and good quality topsoil. Sub-bases/subsoil shall be adequately decompacted prior to topsoiling. Where areas are not free draining, land drains connected to appropriate drainage shall be used to alleviate possible ponding or waterlogging.</p>		
<p>Vicinity of Landfall Site</p>	<p>Construction: locally moderate negative temporary effects on the landscape character</p> <p>Construction: locally significant negative cumulative temporary effects on residents and beach visitors</p> <p>Operation: no effects</p>	<p>Construction activities will avoid the peak tourism season of July and August. There will be full re-instatement of the area post construction, with the removal of compound, topsoiling and landscaping. A new public car parking area will also be provided.</p>	<p>Implementation of Construction Environmental Management Plan</p>	<p>Construction: locally moderate negative temporary effects on the landscape character</p> <p>Construction: locally significant negative cumulative temporary effects on residents and beach visitors</p> <p>Operation: no effects</p>
<p>Cabling Route</p>	<p>Construction: locally significant negative temporary effects on landscape character for nearby residents</p> <p>Operation: no effects</p>	<p>Undergrounding the entire length of the cables.</p> <p>Construction compounds at HDD landfall close to Baginbun Beach, Lewistown and the Campile estuary crossing.</p>		<p>Construction: locally significant negative temporary effects on landscape character for nearby residents</p> <p>Operation: no effects</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Land and Soils				
Compression of Substrata	Removal of soils and replacement with structures will not impact on the characteristics of the soils	Implementation of CEMP	Movement Monitoring	Imperceptible
Loss of agricultural land overburden	Irreversible loss of a small proportion of local high fertility soils	Area in which soils will be removed permanently has been minimised in the design. Soils will be replaced in the cable trench and at the construction compounds on completion of construction		Imperceptible
Loss of solid geology	Loss of a small proportion of any possible aggregate reserves	Volume of bedrock removed permanently has been minimised in the design		Slight
Effects of excavation on surrounding ground	Adequate design of temporary works limits movements to an acceptable limit	Excavation support Ground settlement control Implementation of CEMP	Movement Monitoring	Imperceptible
Excavation of soft mineral soils	Requirements to excavate small proportion of soft	Implementation of CEMP		Imperceptible

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	mineral soils beneath the route			
Mobilisation of sediments	Based on ground conditions, there should be limited mobilisation of those sediments.	Implementation of CEMP		Imperceptible
Water & Hydrology				
Existing watercourses and land	Pollution associated with silt-laden or cementitious construction run-off	Preparation and implementation of the CEMP (refer to Appendix 4.1)	Controls and management established in the CEMP to be implemented	No significant effects
Existing watercourses and land	Pollution associated with washing of vehicles and equipment during construction	Preparation and implementation of the CEMP (refer to Appendix 4.1)	Controls and management established in the CEMP to be implemented	No significant effects
Existing watercourses and land	Pollution associated with spills of fuel or oils during construction	Preparation and implementation of the CEMP (refer to Appendix 4.1)	Controls and management established in the CEMP to be implemented	No significant effects
Existing watercourses and land	Accidental spillage of hydrocarbons during operation	Installation of hydrocarbon interceptors in the surface water drainage network at the converter station site	Hydrocarbon interceptors to be checked and	No significant effects

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
			maintained on an ongoing basis	
Existing watercourses and land	Contamination due to coliforms during operation	Installation and maintenance of a proprietary wastewater treatment unit	Wastewater treatment unit to be checked and maintained on an ongoing basis	No significant effects
Resource and Waste Management				
Construction	<p><i>Waste:</i> Generation of waste during site clearance, excavation and general construction works. Considering the predicted quantities of these waste streams are small in the wider context of the national generation of waste materials, with an imperceptible adverse effect on waste recycling / processing and disposal facilities.</p>	Implementation of a Construction Waste Management Plan.	Ongoing monitoring as part of the Construction Environmental Management Plan to ensure all opportunities for reduction, reuse and recycling are taken.	Imperceptible adverse effect
	<p><i>Resource Use</i> required during construction include the use of weak</p>			Slight adverse and long-term.

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>mix concrete, bentonite, crushed stone. In addition, power and water usage will be required. The predicted quantities of resources that will be consumed are typical for a construction project of this scale, with a slight adverse effect on resources predicted to arise from the use of key construction materials.</p>			
<p>Operation</p>	<p><i>Waste:</i> Considering the limited occupancy of the converter station site relatively very small quantities of household-type and office-type municipal waste will be generated. Maintenance works associated with the proposed development will generate municipal waste. The potential effects are predicted to be imperceptible.</p>	<p>Considering the imperceptible effect, no mitigation measures are required.</p>	<p>Apart from good housekeeping practices no additional monitoring is considered necessary</p>	<p>Imperceptible and permanent</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p><i>Resource Usage:</i> The operation of the converter station and tail station will have ongoing electrical power requirements. This demand will have a slight adverse long-term effect. However indirectly the proposed development will support renewable generation by reducing curtailment, reduce fuel consumption in fossil fuel power plant and the generation of waste.</p>			<p>Slight adverse long-term effect</p>
<p>Decommissioning</p>	<p><i>Waste:</i> It is expected that, by the time the proposed development will need to be decommissioned, circular economy principles will be in full operation and nearly all of the material arising from the decommissioning works will be reusable.</p>	<p>Implementation of a decommissioning materials management plan which will cover the same topics as the CWMS, updated to reflect best practice at the time.</p>		<p>Not Significant</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	Consequently, it is expected that the effects on resources or waste management from the decommissioning phase are not significant .			
	<i>Resource Usage:</i> Electrical power, water and fuel will be used during the decommissioning phase. The quantities will be relatively insignificant.			Not Significant
Population and Human Health				
Construction Phase				
Local and transient population	<ul style="list-style-type: none"> Possible effects on the general amenity of the surrounding area (air and noise emissions, effects on the visual amenity) in particular in close proximity to Baginbun Beach. 	<ul style="list-style-type: none"> Mitigation measures relating to traffic and transportation, air quality, noise and visual amenity are discussed in Chapters 6, 7, 8 and 11 respectively. Access to local residences, shops and community facilities along the onshore cable route will be maintained during the construction phase. 	Monitoring measures in relation to air quality and noise are discussed in Chapters 7 and 8 respectively	Short-term, significant negative, for duration of HVDC cable installation.

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<ul style="list-style-type: none"> Possible effects on road network <p>Possible disruption to accessibility to local businesses and community facilities</p>	<p>Additional mitigation measures include -</p> <ul style="list-style-type: none"> The erection of directional and information signage where paths are temporarily closed; The provision of information to local householders during the construction phase; The provision of community liaison and nomination of personnel to manage community relations; The implementation of a Construction Environmental Management Plan (CEMP) to minimise effects of construction works on local amenity and on traffic flow (refer to Chapter 4 Construction Strategy and Appendix 4.1 for further details); The preparation of an emergency response plan to cover foreseeable risks; and Construction works in the landfall site (close to Baginbun Beach) will be completed outside of July and August to avoid impacts in this peak season in the area. No on road works will be carried out during July or August to avoid disturbance during peak season at Dunbrody. 		
Tourism	There is potential for a disturbance to tourists in	<ul style="list-style-type: none"> Construction works in the landfall site (close to Baginbun Beach) will be completed outside 		Short-term, significant negative on tourism, for

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	the form of traffic, noise and air emissions and possible visual effects due to the close proximity of the works to Baginbun Beach and the wider area including Ramsgrange (e.g. cycle routes may receive additional traffic due to diversions).	<p>of July and August to avoid impacts in this peak season in the area.</p> <ul style="list-style-type: none"> The implementation of a Construction Environmental Management Plan (CEMP) to minimise effects of construction works on local amenity and on traffic flow (refer to Chapter 4 Construction Strategy and Appendix 4.1 for further details). 		duration of HVDC cable installation.
Human Health	Possible effects on human health as a result of the construction works	<ul style="list-style-type: none"> Implementation of the CEMP in relation to control of dust, noise, and emissions to air from construction vehicles 	As specified in the CEMP	None
Businesses and Employment	There is likely to be a positive effect on businesses as a result of the proposed development as there is likely to be an increase in demand for their goods and services. The construction phase will also generate demand for some locally sourced inputs such as materials or machinery.	None	None	None

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	The proposed development will provide employment during construction.			
Operational Phase				
Local and Transient Population	<ul style="list-style-type: none"> Possible effects on the general amenity of the surrounding area (noise emissions, effects on the visual amenity) in particular in close proximity to the converter station site. The proposed development will provide an improved energy security to the people of Ireland Additional parking spaces on access road to Baginbun Beach will be a positive effect. 	<ul style="list-style-type: none"> All plant at the converter station and tail station, which have the potential to generate noise, will be housed within buildings, thereby limiting noise breakout to the atmosphere. <p>The converter station and tail station will be located adjacent to the current power station and sub-station at Great Island and mounding of earthworks will be created around the converter station and will be landscaped appropriately. It will be visually in keeping with the immediate surroundings.</p>	None	<p>The provision of long-term energy security for the people of Ireland.</p> <p>Additional parking spaces on the access road to Baginbun Beach and extended footpath and additional street lighting at Ramsgrange village will be a permanent moderate beneficial effect.</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<ul style="list-style-type: none"> Extended footpath and additional street lighting at Ramsgrange village. 			
Business, Tourism, Employment and Consumers	<ul style="list-style-type: none"> Contribution to security and continuity of electricity supply; Increased efficiency of the interconnected systems - commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations; Increased competition between neighbouring systems; 	None	None	<ul style="list-style-type: none"> Contribution to security and continuity of electricity supply; Increased efficiency of the interconnected systems - commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations; Increased competition between neighbouring systems; Greater integration of renewable energies; and By reducing curtailment of wind

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<ul style="list-style-type: none"> • Greater integration of renewable energies; and • By reducing curtailment of wind and solar energy, and facilitating export of surplus power, Greenlink will improve efficiency of power networks, with associated improvements in wholesale power prices for renewable generation. • Greenlink is anticipated to provide permanent employment for approximately 20 people during the operational phase for the overall project, five people will have particular responsibility for the 			<p>and solar energy, and facilitating export of surplus power, Greenlink will improve efficiency of power networks, with associated improvements in wholesale power prices for renewable generation.</p> <ul style="list-style-type: none"> • Greenlink is anticipated to provided permanent employment for approximately 20 people during the operational phase for the overall project, of which approximately five people will have particular responsibility for the proposed development. • Additional parking spaces on the access road to Baginbun Beach will be a permanent moderate beneficial impact.

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	proposed development. <ul style="list-style-type: none"> Additional parking spaces on access road to Baginbun Beach will be a positive effect 			
Material Assets				
Land use and existing utilities	Temporary occupation of farmland and temporary disturbance to services during construction	Measures will be put in place to protect existing services	Ongoing consultation with service providers	Short term significant effects on land use
National energy security	Improved energy security and promotion of the use of sustainable energy	None required	None	Long-term positive effects
Land use	Restrictions on activities and development over the cable wayleave during operation	None	None	Long-term slight negative effects
Electricity supply	Slight Increase in demand for electricity from the operation of	None	None	Not significant

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	the proposed development			
Mains water supply	Slight increase in water demand during operation	None	None	Not significant
Wastewater	Negligible volume to be discharge to local sewage treatment plant during operation	None	None	Moderate, during construction phase Negligible during operation
Major Accidents and Disasters				
Environment	No major accident or disaster identified; no potential effects predicted	No major accident or disaster identified, no mitigation required	No major accident or disaster identified, none required	None predicted
Cumulative and Interactive Effects				
Interactive and Indirect Effects				
Traffic and Visual Amenity	During construction of the landfall and cable route, there will be local, short term,	Implementation of construction environmental controls, which are specified in the CEMP and the construction traffic management plan	Monitoring will be in accordance with the	Local, short term, significant, negative

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>significant effects on the visual amenity of residents and visitors along the cable route and at Baginbun Beach. Once construction is completed there will be no significant effects on landscape or visual amenity resulting from the traffic generation by the project.</p>		<p>CEMP and construction traffic management plan</p>	
<p>Traffic and Population</p>	<p>There will be a short-term significant impact on the residents and road users in the vicinity of the HVDC cable trench excavations and cable installation works for the duration of the works. Once the cable works have been completed, there will not be a significant impact on the road network or on traffic.</p>	<p>Implementation of construction environmental controls, which are specified in the CEMP, and the construction traffic management plan</p>	<p>Monitoring will be in accordance with the CEMP and construction traffic management plan as committed-to in the CEMP</p>	<p>Local, short term, significant, negative</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Visual amenity and population	During construction of the landfall and cable route, there will be local, short term, significant effects on the visual amenity of residents and visitors along the cable route and at Baginbun Beach. Once construction is completed there will be no significant effects on landscape or visual amenity.	Implementation of construction environmental controls, which are specified in the CEMP, and the construction traffic management plan	Monitoring will be in accordance with the CEMP and construction traffic management plan as committed-to in the CEMP	Local, short term, significant, negative
Population, Natural Resources and Waste Management	The construction and decommissioning phases of the proposed development will create employment, which will give rise to greater use of natural resources and greater waste generation in the region. The direct employment arising from the operation of Greenlink will be negligible.	none	none	Local, short term, slight negative

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
<p>Material Assets and Air Quality and Climate</p>	<p>The operation of Greenlink will support renewable generation by reducing curtailment at times of surplus generation. The indirect effect will be to reduce emission to air of nitrous oxides, sulphur dioxide, particulate and carbon dioxide from fossil fuel power plants. This will improve air quality and reduce a cause of climate change.</p>	<p>none</p>	<p>none</p>	<p>Positive, significant</p>
<p>Material Assets and Natural Resources</p>	<p>The operation of Greenlink will support renewable generation by reducing curtailment at times of surplus generation. The indirect effect will be to reduce fuel consumption in fossil fuel power plants, and the generation of waste by solid fuel plants.</p>	<p>none</p>	<p>none</p>	<p>Positive, significant</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
Material Assets and Population	The proposed development will increase the security of electricity supply in Ireland. It should also provide more competition in the electricity market in Ireland. This will provide economic and social benefits to electricity consumers.	none	none	Positive, significant
Combined Effect of Individual Impacts on a Particular Receptor				
Visual Amenity	During the construction of the landfall and cable route, there will be a local, short term, significant effect on residents and users of the beach	Implementation of construction environmental controls, which are specified in the CEMP, and the construction traffic management plan	Monitoring will be in accordance with the CEMP and construction traffic management plan, as committed-to in the CEMP	Local, short term, significant, negative
Material Assets, Population	Provision of the 500MW interconnector will enhance security of energy supply and competition in the Irish energy market, and	No mitigation	None	Widespread, long term, significant, positive

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	support renewable energy generation			
Combination of Incremental Effects - Past, Present and Future with Proposed Development				
Population	Cumulative effects of construction activities with concurrent construction of the Great Island - Kilkenny 110kv Line Uprate project, and the Great Island Energy Storage System Project	Implementation of construction environmental controls, the CEMP, and the construction traffic management plan	Monitoring will be in accordance with the CEMP and construction traffic management plan as committed-to in the CEMP	Not significant
Greenlink Intra-Project Effects				
Amenity	Intra-project effects with the construction of the subsea cable. There is potential that if works in the nearshore area occur at the same time as works at the onshore HDD compound there could be a temporary elevation in the visual disturbance to the recreational users of Baginbun Beach. At	Seasonal restrictions will be implemented to reduce the significance of the effect.	None	Not significant

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>certain times of the year the public will be more sensitive due to increased use of the beach or specific events i.e. May 2020 (Anglo-Norman commemorations), July and August.</p>			
<p>Birds</p>	<p>Intra-project effects with the construction of the subsea cable.</p> <p>The Campile Estuary is spatially too far apart from activities within the Marine Ireland component for there to be intra-project effects on birds between these two project components. Potential effects are fully documented in Chapter 9 of the EIAR.</p> <p>The area identified as having potential for intra-project effects is at the interface between onshore works at the</p>	<p>None</p>	<p>None</p>	<p>Not significant</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	<p>landfall site close to Baginbun Beach and nearshore works in the Marine Ireland component.</p> <p>However, due to a lack of temporal overlap between the two project component activities which could affect birds, and due to the difference in bird species which have the potential to be affected by the different project components, it has been concluded there will be no significant intra-project effects.</p>			
<p>Population and economic development, material assets</p>	<p>€400 million investment in Ireland, United Kingdom and location of materials and equipment manufacturers, suppliers and contractors.</p> <p>500MW additional interconnector capacity, which will provide</p>	<p>None</p>	<p>None</p>	<p>Widespread, long term, significant, positive</p>

Receptor	Potential Effects	Mitigation	Monitoring	Residual Effects
	increased security of supply, support for low carbon generation in Ireland and Great Britain, lower energy prices and increased market competition.			
Transboundary Effects				
Population and economic development, material assets	<p>€400 million investment in Ireland, United Kingdom and location of materials and equipment manufacturers, suppliers and contractors.</p> <p>500MW additional interconnector capacity, which will provide increased security of supply, support for low carbon generation in Ireland and Great Britain, lower energy prices and increased market competition.</p>	None	None	Widespread, long term, significant, positive