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## 14 SUMMARY OF INTERACTIONS OF THE FOREGOING

### 14.1 INTRODUCTION

The preceding Chapters 5 to 13 of this EIAR identify the potential environmental impacts may occur during the construction and operational stages of the proposed Greenway with regards to Human Beings, Population & Human Health, Biodiversity, Land Use, Soils & Geology, Water, (including Hydrology and Hydrogeology), Air / Noise & Vibration, Climate, Landscape & Visual, Cultural Heritage and Material Assets (including Traffic), as a result of the proposed development.

All of the potential impacts of the proposed development and the measures proposed to mitigate these have been outlined in the preceding sections of this report. However, for any development with the potential for significant environmental impact there is also the potential for interaction between these impacts. The result of interactive impacts may either exacerbate the magnitude of the impact or ameliorate it.

This Chapter identifies the principal interactions between the potential impacts of the environmental factors identified in Chapters 5 to 13, inclusive, for the Limerick City Greenway (UL to NTP). The principal interactions are summarised in Table 14.1, and further discussed in **Section 14.2** of this Chapter. The predicted impacts identified in Chapters 5 to 13 have considered the principal interactions listed below and associated mitigation measures.

Cumulative and in-combination effects arising from the interaction of impacts identified below are outlined in **Section 14.3** of this Chapter.

Table 14.1: Matrix of Interactions between Environmental Factors

Environmental Topic	Human Beings, Population & Human Health	Biodiversity	Water (inc. Hydrology & Hydrogeology)	Land Use, Soils & Geology	Air Quality /Noise Vibration	Landscape & Visual	Climate	Material Assets including Traffic	Cultural Heritage
Human Beings, Population & Human Health		✓	x	✓	✓	✓	x	✓	x
Biodiversity	x		✓	✓	✓	✓	x	x	x
Water (inc. Hydrology and Hydrogeology)	x	✓		✓	x	✓	✓	x	x
Land Use, Soils & Geology	x	✓	✓		x	✓	x	x	x
Air Quality /Noise & Vibration	✓	✓	x	x		x	x	✓	x
Landscape & Visual	✓	✓	x	✓	x		x	x	x
Climate	x	x	✓	x	x	x		✓	x
Material Assets including Traffic	✓	x	✓	x	✓	✓	✓		x
Cultural Heritage	x	x	x	x	x	✓	x	x	

## 14.2 INTERACTIONS

### 14.2.1 HUMAN BEINGS, POPULATION & HUMAN HEALTH

Population and Human Health interacts with other environmental factors as outlined in Chapter 5 of this EIAR. These are summarised as follows: -

- Biodiversity - Potential impacts on the receiving biodiversity could result in associated population and human health impacts in the context of a loss of amenity and ecosystem services. However, impact on biodiversity is not significant and no biodiversity risk habitats used for amenity will be lost. The mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 6: Biodiversity will ensure that these are suitability mitigated. These measures will enhance the ecosystem services for the surrounding communities.
- Land Use, Soils and Geology – Potential impacts, as identified in Chapter 7, on the receiving land, soils and geology could also result in associated impacts on human beings due to changes in land use, excavation and movement of soils and stone, and temporary loss of artificial surfaces during construction of additional measures. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 7: Land Use, Soils & Geology will ensure that these are suitably mitigated. These mitigations include on-site storage and re-use of excavated materials and suitable re-instatement of all artificial surfaces as appropriate.
- Air Quality / Noise & Vibration – Potential impacts on the receiving air quality and climate could also result in associated population and human health impacts as a result of change to air quality in the local area. There is potential for air quality impact on, and nuisance to the local community during construction phase as a result of increased dust emissions and increased exhaust emissions from construction related traffic. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 9: Air Quality / Noise & Vibration will ensure that these are suitably mitigated.
- Traffic – Potential impacts on the receiving transport environment could also result in associated population and human health impacts due to nuisance and disturbance during both construction and operation. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 13: Material Assets will ensure that these are suitably mitigated.
- Noise and Vibration – Potential impacts on the receiving noise and vibration could also result in associated population and human health impacts involving nuisance and noise disturbance during construction phase. Specific construction activities are assessed in Chapter 9 as potentially having a temporary to short-term impact in duration and moderate to significant negative impacts in qualitative terms. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 9: Air Quality, Noise & Vibration will ensure that these are suitably mitigated. These mitigations include noise level monitoring, limitation of permitted working hours, appointment of a designated responsible person on-site specific to noise levels and establishing clear and transparent channels of communication between all involved parties.

- Landscape – Potential impacts on the receiving landscape and visual amenity could also result in associated population and human health impacts involving loss of visual amenity during construction and operational phases. Landscape impacts are assessed in Chapter 11 as potentially having temporary to short-term, slight to significant negative impacts. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 11: Landscape will ensure that these are suitably mitigated. These measures include advance specialist arboricultural input, erection of hoarding where required and restriction of plant movements within sensitive areas during construction phase. Additionally, operational phase mitigation measures include re-instatement of vegetation, as a compensation measure to achieve no net loss of trees and the species they hold.
- Material Assets – Potential impacts on material assets including traffic, services (electricity, water, telecoms) and waste management may be disrupted during construction phase of the development and could result in human being impacts. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 13: Material Assets will ensure that these are suitably mitigated. Such measures during construction phase include implementation of a Traffic Management Plan (TMP) and Construction Environmental Management Plan (CEMP), advance notification of services disruptions, advance scheduling and sequencing of construction works as appropriate, maintenance of local access and consultation with residents and interested parties as required. Mitigation measures during operational phase, such as for maintenance, will align with those applied during construction.

### 14.2.2 BIODIVERSITY

Biodiversity interacts with other environmental factors as outlined in Chapter 6 of this EIAR. These are summarised as follows:

- Water, Hydrology and Hydrogeology – Potential impacts on the receiving hydrology and hydrogeological environment could also result in associated biodiversity impacts. This will be temporary short term in nature and confined to the construction phase. Upon completion, aquatic habitat, flora and fauna within the affected lengths of channel should recover and re-colonise from adjacent sources resulting in a temporary slight-moderate negative effect. Impact on water quality and smothering of aquatic habitats as a result of sediment runoff during construction or operations and release of suspended solids and contamination as a result of accidental hydrocarbon or cement spillage during construction and or operations are assessed in Chapter 6. However, it is unlikely that construction works would significantly impact watercourses, because they will be confined and set back along the route of the existing path. Therefore, no long-term negative impacts on habitats, species and water quality are foreseen. The mitigation measures described in Chapter 6: Biodiversity and Chapter 8: Water, Hydrology and Hydrogeology will ensure that negative impacts are suitably mitigated. These measures comprise the use of sediment barriers to trap sediment to prevent its transport into the river, install a silt fence on all sides of temporary site compounds, conduct works in accordance with best practice Guidance for Pollution Prevention. These measures will be consolidated by physical monitoring during construction phase. The ECoW will also be on-site to monitor construction works and adjacent environments.

- Land Use, Soils and Geology – Potential impacts on the receiving land, soils and geological environment could also result in associated biodiversity impacts with direct loss of habitats on land within the footprint of the project. Impacts on agricultural land are assessed in Chapter 7 as being potential short-term in duration and negative in qualitative terms. However, the mitigation measures described in Chapter 6: Biodiversity and Chapter 7: Land Use, Soils & Geology will ensure that these are minimised and are suitably mitigated.
- Air Quality and Climate – Potential impacts on the receiving air quality and climate could also result in associated biodiversity impacts as a result of nitrogen and carbon emissions. However, the mitigation measures described in Chapter 6: Biodiversity and Chapter 9: Air Quality, Noise & Vibration and Chapter 10: Climate will ensure that these are suitably mitigated.
- Noise and Vibration - Potential impacts on the receiving noise and vibration environment could also result in associated biodiversity impacts because of disturbance to species. However, the mitigation measures described in Chapter 6: Biodiversity and Chapter 9: Air Quality /Noise and Vibration will ensure that these are suitably mitigated.
- Landscape – potential impacts associated with the loss of treelines could also result in associated biodiversity impacts. However, the mitigation measures described in Chapter 6: Biodiversity will ensure that these are minimised and are suitably mitigated.

#### 14.2.3 LAND USE, SOILS & GEOLOGY

Land Use, Soils and Geology interacts with other environmental factors as outlined in Chapter 7 of this EIAR. These are summarised as follows:

- Water, Hydrology and Hydrogeology – Potential impacts on the receiving hydrological and hydrogeological environment could also result in associated land, soils and geological impacts with changes to ground water conditions. However, the mitigation measures described in Chapter 7: Land Use, Soils & Geology and Chapter 8: Water, Hydrology and Hydrogeology will ensure that these are suitably mitigated.
- Landscape– Potential impacts on the receiving Land, Soils and Geology as a result of loss or movement of soil and to a lesser extent bedrock could also result in associated landscape impacts by causing a visual change in the landscape. However, the mitigation measures described in Chapter 7: Land Use, Soils & Geology and Chapter 11: Landscape Assessment will ensure that these are suitably mitigated.
- Biodiversity– Potential impacts on the receiving Land, Soils and Geology could also result in associated biodiversity impacts with movement of soil and bedrock and changes in Land Use potentially resulting in loss of habitats and species. Movement of bedrock may also result in changes to the hydrogeological environment thereby having an effect on groundwater-dependant habitats. However, the mitigation measures described in Chapter 7: Land Use, Soils & Geology and Chapter 6: Biodiversity will ensure that these are suitably mitigated.

#### 14.2.4 WATER, HYDROLOGY AND HYDROGEOLOGY

Water, Hydrology and Hydrogeology interact with other environmental factors as outlined in Chapter 8 of this EIAR. These are summarised as follows:

- Land Use, Soil and Geology – Potential impacts on the receiving hydrology and hydrogeology environment through the removal and movement of materials could also result in associated land, soils and geology impacts such as changes in water groundwater volumes and quality. However, the mitigation measures described in Chapter 7: Land Use, Soils & Geology and Chapter 8: Water, Hydrology and Hydrogeology will ensure that these are suitably mitigated.
- Landscape– Potential impacts on the receiving landscape could also result in associated water impacts by altering the natural flow of surface water in the area. However, the mitigation measures described in Chapter 8: Water, Hydrology and Hydrogeology and Chapter 11: Landscape Assessment will ensure that these are suitably mitigated.
- Biodiversity – Potential impacts on the receiving hydrological and hydrogeological environment could also result in associated biodiversity impacts with changes in the hydrology of rivers potentially resulting in loss of habitats and species. Changes to the hydrogeological environment may also result in changes to groundwater-dependant habitats. There may be impacts on water quality and smothering of aquatic habitats as a result of sediment runoff during construction and release of suspended solids and contamination as a result of accidental hydrocarbon or cement spillage during construction. However, the mitigation measures described in Chapter 6: Biodiversity and Chapter 8: Water, Hydrology and Hydrogeology will ensure that these are suitably mitigated.

#### **14.2.5 AIR QUALITY / NOISE & VIBRATION**

Air Quality / Noise & Vibration interact with other environmental factors as outlined in Chapter 9 of this EIAR. These are summarised as follows:

- Traffic – Potential impacts of the proposed development on transport could also result in associated impacts on the receiving air quality and climate due to an increase in the volume of vehicles and machinery and therefore increased emissions including dust, and increased noise and vibration during construction phase. However, the mitigation measures described in Chapter 13: Material Assets and Chapter 9: Air Quality, Noise & Vibration will ensure that these are suitably mitigated. These measures comprise inspection, cleaning and maintenance of all roads within construction works areas and site boundaries, watering of roads as appropriate during periods of dry or windy weather, speed limits and suitable protective covering on vehicles transporting materials with dust emission potential, coordinating and sequencing of plant and vehicular movements as well as excavation, spreading and removal of surplus material off site. During construction, noise limits, noise control measures, hours of operation and selection of plant items will be considered in relation to disturbance of fauna. Plant machinery will be turned off when not in use. These measures will be consolidated with regular reviews and inspections.
- Biodiversity – Potential impacts on the receiving air quality and climate could also result in associated biodiversity impacts as a result of nitrogen deposition. Additionally, site activity during the construction phase could give rise to noise that could cause disturbance to fauna. All construction activities will be temporary in nature with limited interaction with sensitive habitats and will progress sequentially across the works area of the entire project, minimising the duration of works in any one area. The mitigation measures described in Chapter 6: Biodiversity and Chapter 9: Air Quality, Noise & Vibration will ensure that these

are suitably mitigated. These measures include those set out in the previous paragraph (Traffic).

- Population & Human Health – Potential impacts on the receiving air quality and climate could also result in associated population and human health impacts as a result of change to air quality in the local area during construction phase. There is potential for air quality impact on the local community during construction phase as a result of increased dust and exhaust emissions. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 9: Air Quality, Noise & Vibration will ensure that these are suitably mitigated.

#### **14.2.6 TRAFFIC (ASSESSED WITHIN MATERIAL ASSETS)**

Traffic interacts with other environmental factors as outlined in Chapter 13 of this EIAR, these are summarised as follows:

- Noise and Vibration - Potential impacts as a result of traffic could also result in associated noise and vibration impacts due to an increase in the volume of vehicles and machinery and therefore noise and vibration during construction phase. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health, Chapter 13: Material Assets and Chapter 9: Air Quality, Noise & Vibration will ensure that these are suitably mitigated.
- Landscape – Effects on landscape were considered in design of the proposed development and are deemed to be low impact. Mitigation measures have been proposed in Chapter 11 – Landscape & Visual in the form of construction vehicle avoidance of sensitive areas, retention of vulnerable trees and hedgerows, reinstatement of boundaries and hedgerows and additional appropriate planting.
- Population & Human Health – Potential impacts as a result of traffic could also result in associated population and human health impacts due to nuisance and disturbance during construction phase. However, the mitigation measures described in Chapter 5: Human Beings, Population & Human Health and Chapter 13: Material Assets will ensure that these are suitably mitigated.
- Air Quality, Noise & Vibration and Climate – Potential impacts as a result of traffic could also result in associated impacts on the receiving air quality and climate due to an increase in the volume of vehicles, plant and machinery and therefore an increase in emissions during construction phase. Potential impacts as a result of traffic could also result in associated impacts on the receiving environment due to an increase in noise and vibration during construction phase. However, the mitigation measures described in Chapter 13: Material Assets, Chapter 9: Air Quality, Noise & Vibration and Chapter 10: Climate, will ensure that these are suitably mitigated.

#### **14.2.7 CLIMATE**

Climate interacts with other environmental factors as outlined in Chapter 10 of this EIAR, these are summarised as follows:

- Population and Human Health – Increased traffic and construction activities during the construction phase can result in an increase of greenhouse gas emissions and other pollutants



that can have an adverse effect on human health of the community directly surrounding the construction area. These works will be temporary and localised in nature. The mitigation measures proposed in Chapter 5: Human Beings and Population, Chapter 9: Air Quality, Noise & Vibration, Chapter 10: Climate and Chapter 13: Material Assets, will ensure that these potential impacts are suitably mitigated.

- Water, Hydrology and Hydrogeology - The impacts of climate change are considered as part of the flood risk assessment, summarised in Chapter 8: Water, Hydrology and Hydrogeology and Chapter 10: Climate, of this report, as a result of extreme weather events in future climate scenarios.
- Air Quality - Potential impacts on air quality can result from an increase of greenhouse gas emissions during the construction works due to plant use, machinery, traffic and other auxiliary works. Mitigation measures proposed in Chapter 9: Air Quality, Noise & Vibration, Chapter 10: Climate and Chapter 13: Material assets will ensure that the potential impacts are mitigated.
- Material Assets and Traffic – There is an interaction between climate and material assets as the amount of material to be imported, and waste generated during the construction of the proposed greenway, influences the embodied carbon, assessed in Chapter 10: Climate. The redistribution of traffic associated with the traffic management during construction, will also generate GHG emissions during the construction stage. However, during its operation, the greenway will result in an overall reduction of GHG emissions associated with road travel, as it will promote more sustainable travel modes, supporting the decarbonisation path locally and nationally.

#### **14.2.8 LANDSCAPE AND VISUAL IMPACT**

During the construction phase, construction activities and traffic are likely to have an impact on the landscape and visual elements surrounding the greenway.

- Cultural and Built Heritage: The proposed greenway has the potential to cause visual impacts on archaeological and cultural heritage features. Construction impact interactions relate to introduction of construction compounds, stockpiling, cranes and other machinery and construction traffic into the scenic environment of the River Shannon. The evolution of the design of the proposed development has recognised the archaeological and cultural heritage and landscape and visual interactions from the outset, including through the constraints and route selection stages as well as the preliminary design, to ensure that the greenway results in the minimum intrusion on the landscape as much as possible. The photomontage produced as part of the landscape and visual assessment have been used to determine visual intrusion of the proposed greenway on key archaeology and cultural heritage features.
- Biodiversity: The mitigation measure to address the landscape and visual impacts arising from the works have the potential for interaction with biodiversity by of the nature and extent of the proposed planting. To support biodiversity and ensure no net loss, appropriate planting is required in the landscape design and has been considered as part of the mitigation measures. The planted species, location and extent of planting will have operational interactions with potential positive effects on biodiversity.

Chapter 11: Landscape and Visual and Chapter 12: Cultural Heritage assess the potential impacts on the landscape features. It also interacts with other environmental factors as outlined in Traffic (Material Assets), Land Use, Soil and Geology.

Mitigation measures proposed across the EIAR chapters will ensure that all potential impacts are suitably mitigated.

#### **14.2.9 CULTURAL HERITAGE – ARCHAEOLOGY & BUILT HERITAGE**

As with Landscape and Visual above, the proposed development has the potential to cause visual and physical impacts on archaeological/built heritage features due to change in the character of the historic environment.

A number of features also have shared heritage value in terms of overlap between the Archaeological & Cultural Heritage and Architectural Heritage assessments, as in:

- Landscape and Visual: The potential interactions between cultural heritage elements and landscape and visual elements are outlined above in Section 14.2.8.
- Biodiversity: During pre-construction site enabling works, archaeological testing will be undertaken along the proposed greenway route. Terrestrial and aquatic surveys have been undertaken and if needed, should be repeated, to secure all biodiversity receptors.

#### **14.2.10 MATERIAL ASSETS**

Material Assets interact with other environmental factors as outlined in Human Beings, Population and Human Health, Hydrology and Hydrogeology, and Climate above.

### **14.3 SUMMARY OF CUMULATIVE AND IN-COMBINATION IMPACTS**

Where cumulative and in-combination impacts are considered to arise, these are outlined in the relevant Chapters of this EIAR. The below sections outline the cumulative and in-combination impacts as raised in each relevant Chapter.

#### **14.3.1 HUMAN BEINGS, POPULATION & HUMAN HEALTH**

There are no large-scale developments proposed in the vicinity of the Greenway project that would together have potential to give rise to in-combination effects on the health and socio-economics of the local population. No potential for significant in-combination cumulative effects on population and human health in the area are anticipated.

#### **14.3.2 BIODIVERSITY**

The potential for the proposed development to result in cumulative effects on biodiversity when considered in combination with a number of other relevant plans and projects was assessed in Chapter 6. Each element of the proposed Greenway was considered both cumulatively and in-combination with other plans and projects and no additional effects or potential for cumulative adverse effects on biodiversity were identified. The proposed Greenway will not result in significant effects on any biodiversity when considered on its own or with other plans or projects.

Chapter 6: Biodiversity, Chapter 8: Water, Hydrology and Hydrogeology and Chapter 15: Schedule of Mitigation Measures detail the appropriate mitigations which have been identified and will be put in place during construction and operational phases.

### **14.3.3 LAND, SOILS & GEOLOGY**

An assessment of the cumulative impacts on Land, Soils & Geology is detailed in Chapter 7 of this report. Based on the assessment of all elements of the proposed project, no significant cumulative effects are anticipated.

It is considered that the design of the proposed Greenway, the scale of the works and the implementation of effective mitigation and best practice will ensure, when considered in its entirety, will minimise, as much as possible, significant effects on land, soils and geology.

Chapter 3 and Chapter 7 identify where other plans, projects and associated activities have potential to contribute to in combination effects. It is considered that there is no potential for significant in combination or cumulative effects on land, soils and geology.

### **14.3.4 WATER, HYDROLOGY AND HYDROGEOLOGY**

The impacts of the proposed development on Water, Hydrology & Hydrogeology has been assessed in Chapter 8 as being moderate to significantly positive overall.

The proposed development represents a standalone project relating to the improvement of the current path, which is not part of a broader scheme of physical modifications by others to manage flooding that are planned on the banks of the River Shannon and River Mulkear.

However, it is important to note that the River Mulkear is part of the Arterial Drainage Act 1945 and has routine annual monitoring to ensure that adequate flood drainage is in place throughout the watercourse. These monitoring and maintenance actions involve removal of features that may interfere with the design conveyance of a channel. These activities may act on a range of species and habitats within the River Mulkear, with subsequent downstream impacts within the River Shannon.

Chapters 8 Water, Hydrology and Hydrogeology and Chapter 15 Schedule of Mitigation Measures detail the appropriate mitigations which have been developed and will be put in place during the construction and operational phases of the proposed development.

### **14.3.5 AIR QUALITY, NOISE & VIBRATION**

An assessment of the cumulative impacts on climatic factors, air quality, noise & vibration is detailed in Chapter 9 of this EIAR.

The potential cumulative effects on air quality, climate, noise and vibration between the proposed Greenway and other projects in the vicinity, as presented in Chapter 3 of the EIAR, were assessed.

During the construction phase of the proposed Greenway, there will be potential dust emission from construction activities and minor emissions from construction vehicles and machinery. There will also be a short-term increase in noise and vibration in the vicinity of the proposed development during the construction phase as a result of machinery use, plant movements and construction activities. However, once the outlined mitigation measures have been implemented, there will be no cumulative negative effect on air quality, noise or vibration.

The proposed project has been assessed to have a negligible impact on air quality, noise and vibration following construction and therefore there will be no measurable negative in-combination effects with other projects on air quality, climate, noise and vibration during the operation phase of the Greenway.

An assessment of the cumulative noise & vibration impact from construction activities on the development site is detailed in Chapter 9 of this report. In summary, there is potential for the development to result in temporary slight to significant noise impact (dependent on specific construction activities as detailed in Chapter 9) at the closest residential receptors during daytime working hours. Mitigations are detailed in Chapter 9.

There are no other proposed developments in the receiving environment that will add to noise or dust emissions. Therefore, there will be no predicted negative in-combination effects from noise, vibration and dust emissions on the receiving environment.

#### **14.3.6 CLIMATE**

An assessment of the cumulative and in-combination impacts of the proposed Greenway on climate, is detailed in Chapter 10 of this report.

The climate assessment has been considered on a national basis and not confined to a specific study area, as the drivers and impacts of climate change operate on a wider scale.

During the construction phase, there will be an increase in greenhouse gas emissions attributable to construction materials, traffic and activities such as embodied carbon of cementitious materials, plant use, fuel and electricity use, vegetation clearance, tree felling among others. However, these emissions will be offset during the operational lifetime of the greenway which promotes sustainable travel modes (cycling, walking) away from fuel-based transportation.

The Greenway achieves the objectives of supporting the delivery of a low carbon and climate resilient transport mode, which supports the objectives of LCCC's and Ireland's emissions reduction targets.

#### **14.3.7 LANDSCAPE AND VISUAL IMPACT**

An assessment of the cumulative and in-combination impacts of the proposed Greenway on landscape and visual amenity is detailed in Chapter 11 of this report.

The review of the Limerick City & County Council planning register documented relevant general development planning applications in the vicinity of the proposed greenway, most of which relate to the provision and/or alteration of one-off housing and other structures. The Castletroy WwTP Upgrade Project was granted permission by An Bord Pleanála in 2023. Should the construction programmes overlap there is potential for cumulative impacts on the local landscape and its surrounding area. However, mitigations detailed in Chapters 11 & 15 of this report will ensure that these potential cumulative impacts are minimised.

#### **14.3.8 CULTURAL HERITAGE**

An assessment of the cumulative impacts on Cultural Heritage is detailed in Chapter 12 of this EIAR.

The main potential cumulative impact is related to the upgrade of the Castletroy WwTP which was granted permission in 2023. Construction works related impacts from the greenway, as detailed in section 14.2.9, might result in cumulative impacts on the Plassey Mill complex as its zone of notification is <15 meters from the WwTP boundary.

The mitigation measures detailed in Chapter 12: Cultural Heritage of this report will ensure that the potential cumulative impacts are suitably mitigated.

#### 14.3.9 MATERIAL ASSETS (INCLUDING TRAFFIC)

An assessment of the cumulative impacts on Material Assets, including impacts on and increased volumes of Traffic, is detailed in Chapter 13 of this EIAR.

The construction phase of the project will give rise to some temporary road closures and restrictions of traffic movements during the construction phase of the project. This will create some short-term inconvenience for road users. By ensuring that these impacts occur at times and locations provided for in a traffic management plan, this will be mitigated in so far as is possible.

The movement of construction vehicles within, to and from the works areas has the potential to give rise to noise and dust nuisance impacts during the construction phase of the project. The transportation of construction material to and from site has the potential to affect the embodied carbon of the project and this has the potential to affect climate by increasing the GHG emissions to the atmosphere during. Material transport required during the operational phase will not be significant enough to have a detectable effect on climate. Furthermore, the operation of the greenway will contribute to the reduction of GHG emissions by promoting more sustainable transport modes at a local scale. These effects and the measures that are in place to avoid any cumulative or interactive effects are fully described in Chapters 3, 9, 10, 13 & 15 of this EIAR.

Poor management of waste has the potential to cause nuisance to human beings and an adverse impact on water, soils and biodiversity, particularly due to the presence of Japanese Knotweed and Himalayan Balsam in the vicinity of the proposed working areas. These effects and the measures that are in place to avoid any cumulative or interactive effects are fully described in Chapters 3, 6 & 13 of this EIAR.

Following a detailed assessment of the potential for any further impact when considered in combination with any or all of the plans and projects set out in set out in Chapter 3, the proposed Greenway, with mitigation measures in place, was found to have no potential for significant in-combination cumulative effects on material assets.

Overall, there will be a **positive significant residual impact** on Material Assets, including roads, water distribution network and drainage within the Study Area.