



Bloodmill Road

Screening for Environmental Impact  
Assessment

Doherty Environmental Consultants Ltd.

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## Bloodmill Road

### Screening for Environmental Impact Assessment

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## **1.0 INTRODUCTION**

Limerick City & County Council have commissioned Doherty Environmental Consultants (DEC) Ltd. to undertake an Environmental Impact Assessment Screening Report for the development of the proposed Bloodmill Road realignment. The location of the project is shown on Figure 1.1 while Figure 1.2 provides an aerial view of the project.

The findings of the EIA Screening assessment for the project (i.e. the project) are presented in this report.

### **1.1 PURPOSE OF THIS REPORT**

This EIA screening report contains necessary information to enable the competent authority, in this case An Bord Pleanála (ABP), to undertake an EIA screening assessment and determine whether an EIA is required for the project. The findings of the EIA screening assessment are presented in this report and will inform the determination by An Bord Pleanála (ABP), for the proposed development, (to be referred to throughout this report as “the project”).

The purpose of this Report is to determine whether or not the project is likely to have significant effects on the environment and, as such, requires an EIA to be carried out and an EIAR to be prepared. This Report provides an overview of the project (section 3), the existing baseline environment (section 4) and then assesses the potential environmental impacts (section 5) posed by the proposed project.

### **1.2 SPECIALIST INPUTS**

The report has been compiled by Pat Doherty (BSc, MSc, MCIEEM) of DEC Ltd.. Specialist inputs have been relied during the assessment provided in this Report. Specialist inputs have been provided by:

- MHL Consulting Engineers
- DEC Ltd; and

All of the contributors are experienced professionals, each with over 10 years of experience completing assessments in their respective fields of competency.

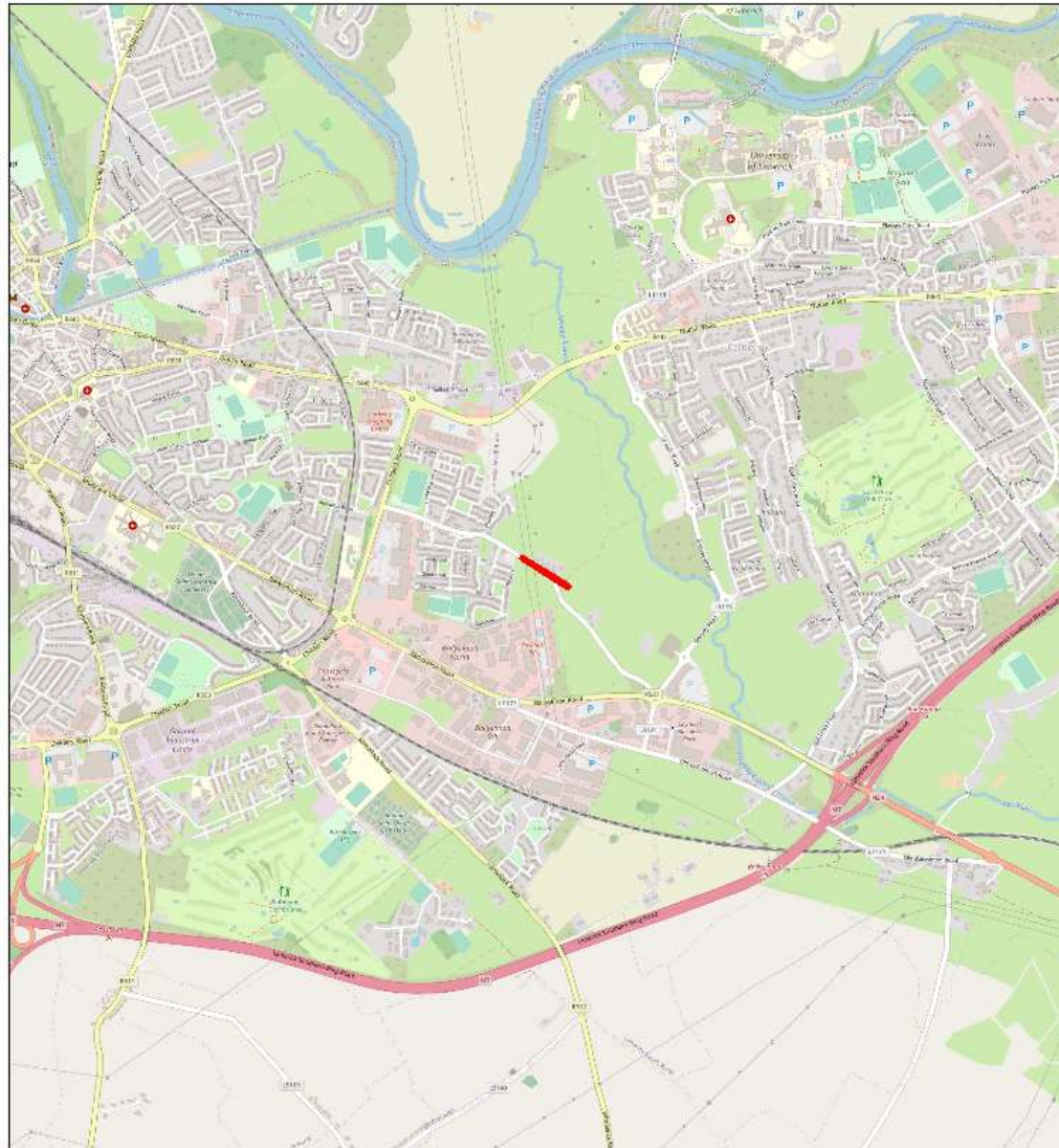
### **1.3 PURPOSE OF THE BLOODMILL ROAD**

The aim of the project is to realign the existing Bloodmill Road to link with the recently constructed developer provided link road to the Northern Trust Roundabout on Groody Road. The scheme will implement improved Active Travel measures for pedestrians, cyclists and public transport to serve the currently under construction secondary school and private hospital on surrounding zoned lands. The scheme should encourage the uptake of more sustainable transport options by providing safer road infrastructure for vulnerable road users. The scheme will provide high quality facilities for pedestrians, cyclists and the mobility impaired with a view to encouraging modal shift from private car use to more sustainable, active travel options such as walking and cycling.

This is a strategically important link road required for connectivity in the Towlerton/Ballysimon/Castletroy area as well as for opening up zoned lands for development in this rapidly growing suburban district centre. The delivery of the road will provide alternative traffic routing in the area and provide access to the new secondary school, new private hospital and other public and commercial buildings that will be constructed adjacent to the road in the future.

The project will involve:

- Construction of approx. 260m of new road corridor with a 6.2m wide carriageway, 2x2m footpaths, 2x2m landscaped verges and 2x2m off-road cycle tracks.
- The construction of a new surface water drainage system.
- The installation of a new public lighting system.
- The construction of a new culvert across the Towlerton Stream where the existing newly constructed link road terminates.



## Bloodmill Road

Figure 1.1

### Location of the Proposed Road Development

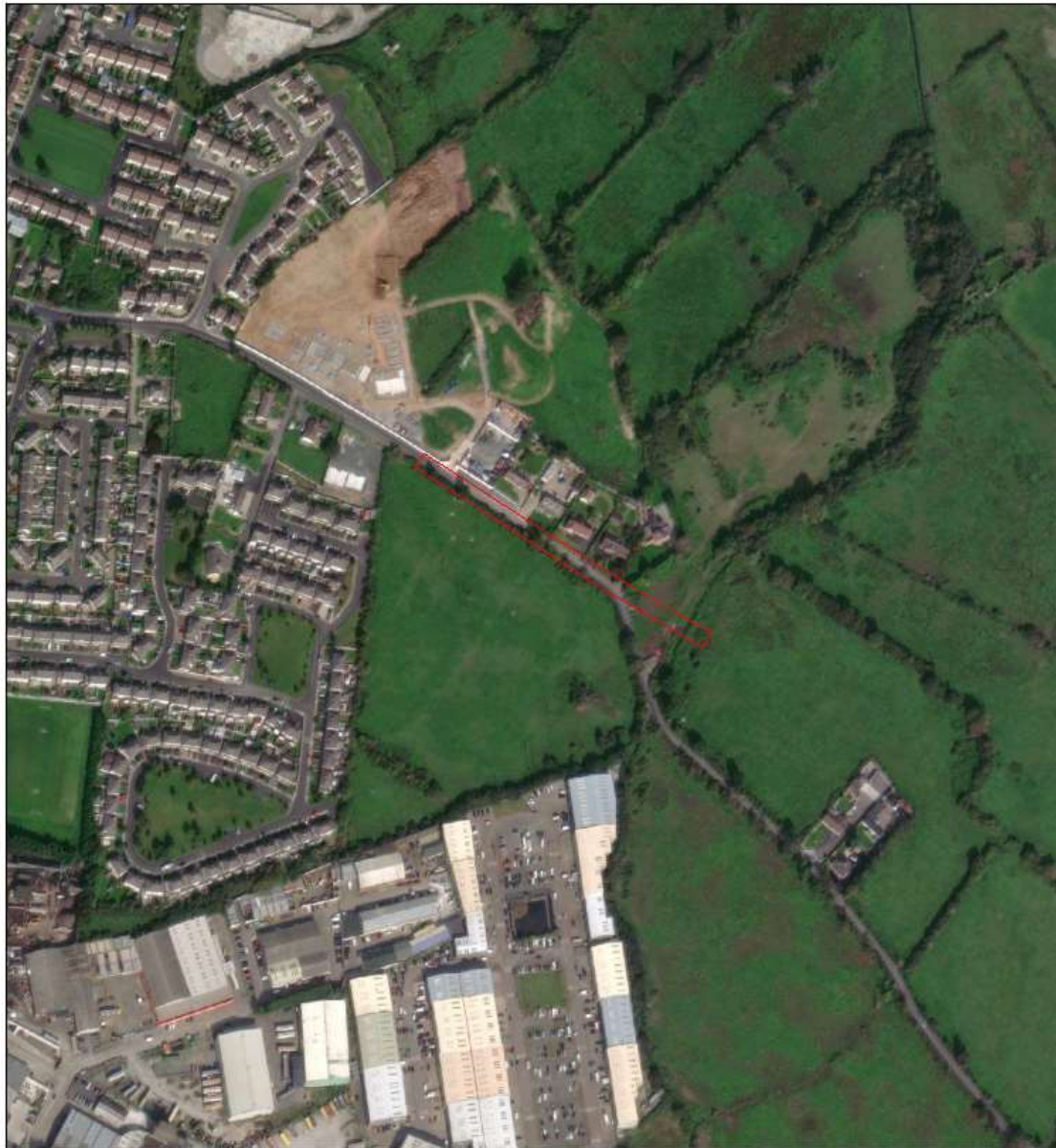
 Proposed Road Development

0 0.225 0.45 0.9 Km



Drawn By	PD
Date	25/11/2022
Data Source	Bing





### Bloodmill Road

Figure 1.2

Aerial view of the Proposed Road Development Location

 Proposed Road Development

0 0.075 0.15 Km



Drawn By	PD
Date	25/11/2022
Data Source	Bing

## 2.0 LEGISLATIVE CONTEXT

Directive 2011/92/EU as amended by Directive 2014/52/EU (the EIA Directive) sets out the requirements for environmental impact assessment (“EIA”), including screening for EIA. Projects listed in Annex I of the EIA Directive require a mandatory EIA while projects listed in Annex II require screening to determine whether an EIA is required. The project does not require a mandatory EIA under the provisions of the EIA Directive as it is not a project listed in Annex I.

The prescribed classes of development and thresholds or criteria that trigger the need for an EIA are set out in Schedule 5 of the Planning and Development Regulations, 2001, as amended. A review of the classes of development was carried out to determine whether the project falls into any of the development classes which require an EIA. The project does not fall into any of the classes described in Schedule 5 of the Planning and Development Regulations, 2001. The need for an EIA has therefore not been triggered under the requirements of the Planning and Development Regulations, 2001, as amended.

The project also falls under the EIA requirements of the Roads Act 1993 as amended by the Planning and Development Acts (2000-2011) and the Roads Act (2007) as well as regulations made under the Roads Acts, the European Communities (Environmental Impact Assessment) (Amendment) Regulations 1989-2001, and EC Directives 85/337/EC and 97/11/EC referenced above. A road within the 1993 act is defined to include:

- (a) any street, lane, footpath, square, court, alley or passage,
- (b) any bridge, viaduct, underpass, subway, tunnel, overpass, overbridge flyover, carriageway whether single or multiple, pavement or footway,
- (c) any weighbridge or other facility for the weighting or inspection of vehicles, toll plaza or other facility for the collection of tolls, services area, emergency, telephone, first aid post, culvert, arch, gully, railing, fence, wall, barrier, guardrail, margin, kerb, lay-by, hard shoulder, island, pedestrian refuge, median, central reserve.

Section 50 of the Roads Act 1993 (as amended) outlines the requirements for EIA for “proposed road developments”. An overview of the legislative requirements of section 50 of the Roads Act 1993 (as amended), and its applicability to the project are outlined in Table 2.1 below.

**Table 2.1: Screening for Mandatory EIA**

Screening Question	Regulatory Reference	Response
Does the project comprise the construction of a motorway, busway or service area?	S.50(1)(a) of the Roads Act, 1993, as amended.	The project is not a motorway, busway or service area.  This requirement for mandatory EIA is not triggered.
Is the project representative of a prescribed type of proposed road development consisting of the construction of a proposed public road or the improvement of an existing public road, where the prescribed types of road development comprise: <ul style="list-style-type: none"> <li>• The construction of a new road of four or more lanes, or the realignment or widening of an existing road so as to provide four or more lanes, where such new, realigned or widened road would be eight kilometres or more in length in a rural area, or 500 metres or more in length in an urban area.</li> <li>• The construction of a new bridge or tunnel</li> </ul>	Article 8 of the Roads Regulations, 1994 (Road development prescribed for the purposes of S. 50(1)(a) of the Roads Act, 1993  The project does not involve the provision of a road of four or more lanes for a distance of 8km or more in a rural area or 500m or more in an urban area.  The project does not involve the construction of a bridge or tunnel 100m or more in length.  These requirements for mandatory EIA are not triggered.	

which would be 100 metres or more in length.		
Has a direction been issued by An Bord Pleanála (ABP) to the Road Authority to prepare an Environmental Impact Assessment Report (EIAR)?	S.50(1)(b) of the Roads Act, 1993	ABP has not directed the Road Authority (Limerick City & County Council) to prepare an EIAR for the project.
Where the road authority consider that the proposed road development would be likely to have significant effects on the environment it shall inform ABP in writing and where ABP concurs, it shall direct the road authority to prepare an EIAR?	S.50(1)(c) of the Roads Act, 1993	Where Limerick City & County Council considers the project would be likely to have significant effects on the environment, Limerick City & County Council is to inform ABP in writing of this and await direction from the Board.
Is the proposed road development located on 'certain environmental sites' and has the road authority determined whether any significant effects are likely on the environment as a result?	S. 50(1)(d) of the Roads Act, 1993, as amended by reg. 56(7) of the European Communities (Birds and Natural Habitats) Regulations 2011)	No.  An Appropriate Assessment Screening Report and Natura Impact Statement Report have been undertaken for the project and these Reports concluded, subject to the implementation of all mitigation measures, that the project will not have any likely significant effects, whether on its own or in combination with other plans or projects, on any European sites based on the best scientific evidence and taking into account the

		<p>conservation objectives of the European sites.</p> <p>The project will not have the potential to interact with or adversely affect the conservation status of any Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA) in the wider area surrounding the project site.</p> <p>No geological heritage sites are located in close proximity to the project site.</p>
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Pursuant to section 50(1)(c) of the Roads Act 1993 (as amended), Limerick City & County Council are required to turn their attention to whether the project is likely to have significant effects on the environment, such that an EIAR is required.

Section 50(1)(e) of the Roads Act, 1993 (as amended) states “Where a decision is being made pursuant to this subsection on whether a proposed road development would or would not be likely to have significant effects on the environment, An Bord Pleanála or the road authority concerned (as the case may be) shall have regard to the criteria specified for the purposes of article 27 of the European Communities (Environmental Impact Assessment) Regulations, 1989.”

The purpose of this EIA Screening Report is to assist Limerick City & County Council in determining whether the project is likely to have significant effects on the environment.

According to European Commission Guidance (2017<sup>1</sup>)

“Screening has to implement the Directive’s overall aim, i.e. to determine if a Project listed in Annex II is likely to have significant effects on the environment and, therefore, be made subject to a requirement for Development Consent and an assessment, with regards to its effects on the environment. At the same time, Screening should ensure that an EIA is carried out only for those Projects for which it is thought that a significant impact on the environment is possible, thereby ensuring a more efficient use of both public and private resources. Hence, Screening has to strike the right balance between the above two objectives.”

Recent guidelines from the Department of Housing, Planning and Local Government (2018)<sup>2</sup> in relation to screening state:

“3.1. Screening is the initial stage in the EIA process and determines whether or not specified public or private developments are likely to have significant effects on the environment and, as such, require EIA to be carried out prior to a decision on a development consent application being made. A screening determination is a matter of professional judgement, based on objective information relating to the proposed project and its receiving environment. Environmental effects can, in principle, be either positive or negative.

3.2. Screening must consider the whole development. This includes likely significant effects arising from any demolition works which must be carried out in order to facilitate the project. In the case of transboundary developments, screening must consider the likely significant effects arising from the whole project both sides of the boundary. A screening determination that EIA is not required must not undermine the objective of the Directive that no project likely

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<sup>1</sup> **Environmental Impact Assessment of Projects Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU). European Commission 2017. Page 23.**

<sup>2</sup> **Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment**

to have significant effects on the environment, within the meaning of the Directive, should be exempt from assessment.”

Annex III of the EIA Directive (as amended)/Schedule 7 to the Planning and Development Regulations 2001, as amended, lists the criteria for determining whether a project should be subject to EIA.

Annex IIA of the EIA Directive (as amended)/Schedule 7A to the Planning and Development Regulations, 2001, as amended, set out the information to be provided for the purposes of EIA Screening. The information set out in Schedule 7A is grouped together under 3 main headings:

Annex IIA requirements	Relevant section of this screening report
<p>A description of the project, including in particular –</p> <ul style="list-style-type: none"> <li>a description of the physical characteristics of the whole project and, where relevant, of demolition works, and</li> <li>a description of the location of the project, with particular regard to the environmental sensitivity of geographical areas likely to be affected</li> </ul>	<p>Section 3 of this Report describes the characteristics of the project and provides an assessment against the criteria contained in Schedule 7A under this category heading</p>
<p>A description of the aspects of the environment likely to be significantly affected by the project</p>	<p>Section 4 of this Report describes the aspects of the environment that may be affected by the project</p>
<p>A description of any likely significant effects, to the extent of the information available on such effects, of the project on the environment resulting from— (a) the expected residues and emissions and the production of waste, where relevant, and (b) the use of natural resources, in particular soil, land, water and biodiversity</p>	<p>Section 5 of this Report describes the characteristics of the project and provides an assessment against the criteria contained in Schedule 7A under this category heading.</p>

During the assessment of the aspects of the environment likely to be significantly affected by the project and the description of any likely significant effects on the environment current Transport Infrastructure Ireland (TII) assessment guidelines have been relied upon to inform

these assessments. While it is acknowledged that the project does not represent a national road scheme the various environmental assessment guidelines published by TII represent best practice guidance for the assessment of road schemes in Ireland. As such these guidelines have been relied upon during the preparation of this Screening Report.

### **3.0 CHARACTERISTICS OF THE PROJECT**

#### **3.1 PROJECT OVERVIEW**

The site is located on the south-eastern side of Limerick City. The existing Bloodmill Road is approximately 1.6km long and connects Childers Road to Ballysimon Road. The aim of the project is to realign the existing Bloodmill Road through agricultural lands to link with a recently constructed developer provided link road section. The completed road will link Groody Road to Childers Road and open up zoned lands for development. Approximately 60m of new road corridor will be constructed in agricultural lands and approximately 200m of existing road corridor will be widened into adjacent agricultural lands.

#### **3.2 DESCRIPTION OF THE WORKS**

The works will include road realignment, road widening, a new river culvert to bridge the proposed new road over the Towlerton stream, road reconstruction and resurfacing, new footpath construction, new cycle track construction, services diversions and new ducting for telecommunications, gas, power supply, watermain replacement, a new surface water drainage system, a new road lighting scheme, new boundary treatments, retaining walls, embankments, accommodation works driveways, walls, gates and fences, new landscaping, new road markings, upgraded road signage and street furniture and all ancillary works necessary for completion. Detailed layout drawings for the proposed upgrade works are provided in the enclosed drawing pack.

The proposed culvert has been designed for a 1 in 100-year rainfall event plus 20% climate change allowance. The dimensions of the new bridge aperture to accommodate these flows will be 1.8m width x 2.1m in height (including associated freeboards). The length of the culvert will be 18.0m. The proposed culvert design is subject to approval of a pending Section 50 application to the Office of Public Works.



All storm water generated on the upgraded road surface will be collected in roadside drainage gullies and conveyed in a new surface water drainage pipe network. All road gullies will have silt traps for the collection of debris. The drainage pipe network will pass through a large silt trap chamber, hydrocarbon interceptor chamber and a 220m<sup>3</sup> attenuation tank before out falling to the Towleron Stream.

### **3.3 APPROACH TO BRIDGE REPLACEMENT & INSTREAM WORKS**

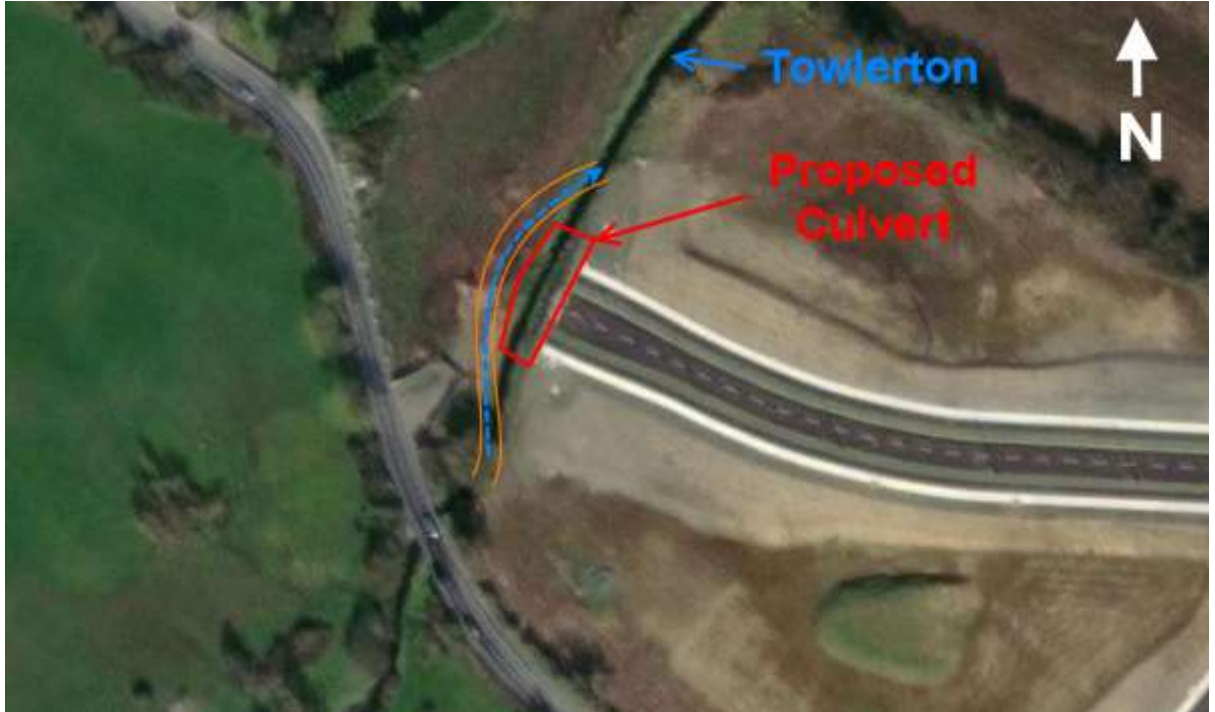
It is expected that the Towleron stream will need to be diverted locally around its current course in order to put the new culvert in place. A new course will be excavated for the stream in the ground to the west of the proposed new link road crossing point. See proposed stream diversion layout in Figure 3.1 below. This stream diversion will be temporary, and its construction methodology will be subject to agreement with Inland Fisheries Ireland. Once the excavation works for the stream diversion are completed and all bank and bed finishes are in place, the downstream embankment opening will be made first and then the upstream embankment will be opened to allow the waters flow through the diversion. The existing river channel will be damned using sandbags. Once the riverbed has dried out at the proposed culvert location the foundations and ground will be prepared to receive the new concrete culverts. These will be lifted into position in 2m precast unit lengths. The culvert units will be lifted into position and placed one by one. The backfill and surrounding fill to the culverts will be completed to formation level of the road. Once the newly placed culvert joints are dried and cured, the river will be re-diverted from the temporary loop through the completed culvert again by removing the temporary coffer dams. Using this approach there will be continued flow along the Towleron Stream at all times during the bridge replacement works. All cofferdams, or other structure installed within the channel, to allow working in dry conditions will be designed by a competent person, be constructed of appropriate materials and take account of site conditions (i.e. depth of water, available space, bed substrate, flow velocities, flow patterns, duration of works, accessibility and potential ingress of water). During any working with cofferdams the following methods will be adhered to:

- The cofferdam will be inspected daily for any movement, leakage and general deterioration; any defects found will be remedied immediately.
- De-watering of the coffer dam may be required in order to maintain dry working conditions. Any water being pumped from the coffer dam will not be discharged directly into the Towleron.

- Before removal of the cofferdam at completion of the works all materials, debris, tools, plant and equipment will be removed from the work area.
- The de-watered area will be re-watered before the cofferdam is removed to avoid the sudden ingress of water which may cause erosion of the replaced substrate.
- When re-watering is undertaken, the pump inlets will be screened appropriately to prevent the intake of fish or other aquatic animals.
- IFI's guidelines and advise will be followed right through the process. For example, any existing fish population may need to be removed by stunning and placed downstream before the commencement of the river diversion works to avoid fish kills.

The proposed culvert has been designed for a 1 in 100-year rainfall event plus 20% climate change allowance. The culvert will be a closed bottom box culvert, 1.8m wide, 2.1m high and 18m in length. The new culvert will be set 200mm below bed level as per IFI requirements. The proposed culvert design is subject to approval of a pending Section 50 application to the Office of Public Works.

**Figure 3.1: Proposed Temporary Stream Diversion for Culvert Construction**



### **3.4 PLANT & CONSTRUCTION MATERIALS REQUIRED**

The type of plant and machinery required will be typical road construction plant for earthworks and paving, and is likely to include:

- 360-degree 20 tonne Excavators (track machines)
- Rubber tyred Excavators 6t JCB
- 3t Mini Digger
- 30t Dump Trucks
- 6t Dumpers
- 7.5 tonne multi-purpose truck
- 20 tonne and 30 tonne delivery trucks (importation of rock and bitumenous paving materials)
- Teleporter for erection of lighting columns

- Site Vehicles
- Compactor plates
- 6t vibrating Rollers
- 10t rollers
- Paving Machine
- Bitumen Boiler/Hot Box
- Road Planing Machine
- Extruded Kerb Laying Machine
- Road Saws/Con Saws/chain saws
- Compressors,
- Jack Hammers
- Stihl Saws
- Small tools/hand tools
- Traffic Management Signs, Cones & Barriers
- Traffic Lights
- Road Sweeper & Water Tank Truck
- PPE

All machinery will be inspected and certified to be free of leaks and weeps prior to mobilisation on site.

The materials will be typical civil engineering road construction materials consisting of cement, sand, gravel of various aggregate sizes, recycled stone from demolition of sod and stone walls/ditches, imported and reused rock fill, imported and reused top soil, concrete blocks, paviors and sets, natural stone paviors and sets, precast concrete kerbs, manhole bases, covers, precast concrete culverts, pipes, precast concrete services chambers, PVC-u ducts & chambers, PVC-u drainage channels with galvanised steel covers, galvanised metal chamber covers, galvanised, powder-coated street lighting columns and traffic signal poles, galvanised steel sign

posts and metal traffic signs, bituminous road paving materials, thermoplastic road marking materials, LED lighting lanterns & electrical equipment, traffic signals & controller electronic equipment, galvanised metal field gates, driveway gates and posts.

### **3.5 SITE PERSONNEL**

At its peak it is expected that there will be between 20 and 30 personnel on site full time. The personnel will consist of general operatives, skilled operatives and tradesmen, apprentice tradesmen, machine operators, truck drivers, engineers, technicians, surveyors and construction managers.

### **3.6 CONSTRUCTION COMPOUND**

The construction compound will be located on one of the new, unused serviced sites within the new development park to the east. These sites are well buffered (i.e. a minimum of 200m) from the Towlerton and any other watercourses.

The developer constructed section of Bloodmill Road will provide ideal access for construction traffic and construction staff as it is a newly constructed road that only services a new school and potentially other sites under construction adjacent to the road.

It is proposed that the main entrance to the site during construction of the road extension will be via the existing developer constructed section of the Bloodmill Road. The site entrance for the road extension is located just 1.8km from the M7 motorway via the Groody Road and Ballysimon Road, this area of Ballysimon is an industrial/commercial zone that caters to large numbers of HGV traffic daily.

The site has excellent access to the National Road and Motorway network and as such, construction traffic is not envisaged as causing a nuisance to local residences or businesses.

Movement of vehicles to/from the site will be confined to the working hours permitted by Limerick City & County Council. The existing developer constructed section of the Bloodmill Road will be used for inward and outward deliveries. This road will provide ideal access for construction traffic and construction staff as it is a newly constructed road that only services a

new school and potentially other sites under construction adjacent to the road and it has a general width of 6.5m.

Drawings BR-CMP-D01 & BR-CMP-D02 (Construction Traffic Management Plans), provided under separate cover with the planning application documentation, indicates the proposed site compound location, staff parking area and indicative haul routes to and from the site.

### **3.7 DESCRIPTION OF CONSTRUCTION WORKS**

#### **Phase 1(a)- Site Set Up**

Set up of a site office, hoarding to site perimeter to secure the construction site and erection of signage for site security and safety purposes. The provision of temporary welfare facilities will be provided close to the site office location. The welfare facilities will be portable type as there is no existing foul sewer network.

#### **Phase 1(b)- Construction of the Bridge Culvert**

The placing of the new culvert (as outlined in Section 3.3 above) will take place ahead of construction of the new road and widening of the existing road.

#### **Phase 1(c)- Excavation of Attenuation Tank**

The proposed attenuation tank will be excavated to facilitate the attenuation of surface water from the proposed road. Hydrocarbon interceptor and silt traps to be put in place.

#### **Phase 2(a)- Removal of topsoil under road corridor (New Road Section)**

The topsoil under the proposed new section of road corridor will be removed. It is envisioned that topsoil will be stockpiled on-site in a designated area for re-use.

#### **Phase 2(b)- Importation and compaction of road embankments (New Road Section)**

Fill material will be required to construct the new road embankments. This phase of construction will involve the importation of fill material via truck and the placement/compaction of the fill material using excavators. The fill for the new section of road will firstly be placed and compacted.

#### Phase 2(c)- Road construction (New Road Section)

This phase will involve the installation of ancillary road services (drainage, public lighting ducts, utility ducts) and the construction of the road carriageway, kerbing, footpaths, cycle tracks and verges.

#### Phase 3(a)- Site Clearance to Facilitate Road Widening

Site clearance will include removal of the existing trees and hedgerows along the existing Bloodmill Road to facilitate widening and realignment of the road.

#### Phase 3(b)- Importation and compaction of road embankments (Widening of Existing Road)

This stage will involve the importation of fill material via truck and the placement/compaction of the fill material using excavators to facilitate the widening of the existing Bloodmill Road.

#### Phase 3(c)- Road construction (Widening of Existing Road)

This phase will involve the installation of ancillary road services (drainage, public lighting ducts, utility ducts) and the construction of the road carriageway, kerbing, footpaths, cycle tracks and verges.

#### Phase 4(a)- Installation of public lighting columns and road signage

This phase will involve the installation of public lighting columns, road signage and street furniture.

#### Phase 4(b)- Landscaping

Prior to the road opening, all tree planting, verge planting and embankment planting will be carried out.

### **3.8 SCHEDULE & DURATION OF CONSTRUCTION PHASE**

It is estimated that the construction process will take up to 12 months and it is proposed that there will be several phases of construction.

Phase 1(a)- Site Set Up (Month 1)

Phase 1(b)- Construction of the Bridge Culvert (Month 1-3)

Phase 1(c)- Excavation of Attenuation Tank (Month 3)

Phase 2(a)- Removal of topsoil under road corridor (New Road Section) (Month 3)

Phase 2(b)- Importation and compaction of road embankments (New Road Section) (Month 4)

Phase 2(c)- Road construction (New Road Section) (Month 4-6)

Phase 3(a)- Site Clearance to Facilitate Road Widening (Month 6)

Phase 3(b)- Importation and compaction of road embankments (Widening of Existing Road) (Month 6)

Phase 3(c)- Road construction (Widening of Existing Road) (month 7-10)

Phase 4(a)- Installation of public lighting columns and road signage (month 11)

Phase 4(b)- Landscaping (Month 12)



### **3.9 EARTHWORKS**

Approximately 730m<sup>3</sup> of fill material will be required to construct the link road embankments. This phase of construction will involve the importation of fill material via truck and the placement/compaction of the fill material using excavators. The volume of fill material required for this project is minimal as the existing gradient of the lands being constructed on are close to the level required to construct the road.

### **3.10 SIZE & DESIGN**

The proposed development consists of the provision of a new road carriageway and associated works. A description of project is presented in Section 3.1.

### **3.11 CUMULATION WITH EXISTING AND/OR APPROVED PROJECTS**

An assessment of the project's potential to combine with other existing and/or approved projects to result in likely significant effects on the environment is provided in Section 5.11 of the report.

### **3.12 NATURE OF ANY DEMOLITION WORKS**

No demolition works are proposed as part of the project.

### **3.13 USE OF NATURAL RESOURCES**

Aside from the materials required for the construction phase, the project will not require the use of any other natural resources. The construction phase will require the removal of soil to facilitate the construction of the proposed carriageway. Where possible this material will be reused on-site during the detailed design and construction of the carriageway. Where such soil material is required to be transported off-site to an authorised disposal facility, the transport of all material will be undertaken in line with mitigation measures outlined in Section 5.6.2 and 5.7.2 of this Screening Report. These measures aim to ensure that the project does result in nuisance as a result of emissions to air and noise. The implementation of these measures will ensure traffic movements associated with the transport of soil material from the site do not result in likely significant effects on the environment.

No groundwater or surface water from surrounding resources will be required during the construction or operation phase of the project.

### **3.14 PRODUCTION OF WASTE**

Solid inert waste in the form of soil and stone along with other waste such as plastic wrapping and wood pallets will be produced during construction. Materials will be only ordered as required. Any wastes from the construction process will either be reused within the scheme, or recycled/disposed of at an authorised waste facility.

### **3.15 POLLUTION & NUISANCE**

Pollution and nuisance that could arise as a result of the project relate to residues and emissions generated during the construction and operation phase. Examples of potential residues include the contamination of soils and waters with polluting materials. Potential emissions include:

- the discharge of polluted surface water runoff to receiving surface waters and groundwaters;
- the generation of noise and vibration during the construction and operation phase;
- the generation of aerial emissions such as dust during the construction phase;
- the generation of aerial emissions such as exhaust emissions during the operation phase.

Section 5 of this Screening provides an assessment of the significance of potential pollution and nuisance sources associated with the project.

### **3.16 RISK OF MAJOR ACCIDENTS AND/OR DISASTERS**

The potential for the construction phase of the project to result in major accidents and/or disasters is low. This is based on the relatively small-scale nature of the project and the recognised risks associated with construction projects involving machinery, excavations, working from height and enclosed areas and working with bulk materials etc. Provided standard

health and safety procedures are adopted, implemented and complied with the risk of major accidents and/ or disasters during the construction phase will be low. The implementation of all standard health and safety procedures will be requirement of the contractor during the construction phase.

It is an objective of the project to reduce the frequency and severity of collisions in the surrounding road network, with a focus on improving safety for vulnerable road users.

The design of the proposed road scheme includes for the provision of a closed/sealed surface water drainage system during both the construction phase and operation phase. This system will provide the opportunity to monitor and treat all surface water draining from the road corridor and will provide measures to ensure that only effectively treated surface water is discharged from the road scheme.

As outlined in Section 3.3 the proposed road scheme has been designed to prevent flooding along the proposed route corridor.

During the operation phase of the project the risk of accidental spillage and subsequent discharge of potentially polluting material to the Towlerton Stream and River Groody will be low. This is based on:

- the low speed limit of 50kph that will apply;
- the low risk of heavy good vehicles (HGVs) accidents given the low-speed limit and design layout of the road in accordance with DMURS. It is noted that the risk of accidental spillage and a pollution incident on any road is proportionate to the risk of a HGV road traffic collision (TII, 2015).
- The design and provision of the proposed road, which aims to support the Road Safety Authority (RSA) Road Safety Strategy by alleviating the congestion currently experienced on the surrounding road network is anticipated to result in a reduction in collisions in the surrounding road network.

### **3.17 RISK TO HUMAN HEALTH**

An assessment of the risk to human health is provided in Section 5.2 of this screening report.

## **4.0 LOCATION OF THE PROJECT**

### **4.1 POPULATION & HUMAN HEALTH**

The project site is located within the Castletroy area. The total population of the Castletroy area according to the 2016 census was 14,733. The population in 2011 covered by the Small Area Population set out in the census was 13,841. The total population residing in the Castletroy area in 2006 was 10,601, which made up 8.06% of the total population of County Limerick. It is clear that there has been a significant population increase in Castletroy (39%) since the population of 10,601 recorded in the 2006 census.

#### ***4.1.1 Community Facilities & Amenities***

There are other open space and amenity areas in the vicinity of the study area such as those associated with residential housing estates to the southwest of the proposed road alignment.

In terms of potential sensitive receptors for human beings to environmental effects, such as noise, air quality and dust the following summarised the approach.

#### ***Sensitive Receptors***

Based on the “Draft Advice Notes for Preparing Environmental Impact Statements issued by the EPA” (EPA, 2017), the following types of sensitive receptors should be noted in particular during impact assessment:

- homes;
- hotels and holiday accommodation;
- schools/university; and
- sports clubs including golf clubs, GAA clubs; rugby clubs

The principal sensitive receptors within the environs of the study area are restricted to residential properties to the north and west of the proposed road alignment.

#### **4.1.2 Noise & Human Health**

##### **WHO Guideline**

In 2018 the WHO issued updated guidelines Environmental Noise Guidelines for the European Region. They issued specific guidelines for road noise. They can be summarised as follows:

For average noise exposure, they recommend reducing noise levels produced by road traffic below 53 decibels (dB) Lden, as road traffic noise above this level is associated with adverse health effects.

For night noise exposure, they recommended reducing noise levels produced by road traffic during night time below 45 dB Lnight, as night-time road traffic noise above this level is associated with adverse effects on sleep.

They specifically recommend “To reduce health effects,” the GDG (Guideline Development Group) strongly recommends that policymakers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.

One might ask how one can reconcile these guidelines with road traffic anywhere? The fact is that these guidelines are for populations. The WHO absolutely realise that every individual residence will not be below 45dB Lnight. However, the question in relation to the assessment of the impact on health will be determined by the overall impact on the population.

##### **Vibration**

Vibration has the potential to have health effects when perceptible. These could include for example sleep disturbance. Another issue which is sometimes described is infrasound. The latter is sound but at a frequency so low that it is not audible to the human ear. If at high levels it may be perceived as vibration. These effects, in relation to vibration and infrasound, however only occur when the levels are high and perceptible to human beings for example an underground train.

### **4.1.3 Air Quality & Human Health**

An examination of recent EPA and Local Authority data in Ireland<sup>3 4</sup> has indicated that SO<sub>2</sub> and smoke are unlikely to be exceeded at the majority of locations within Ireland and thus these pollutants do not require detailed monitoring or assessment to be carried out. However, the analysis did indicate potential issues in regards to nitrogen dioxide (NO<sub>2</sub>), PM<sub>10</sub> and PM<sub>2.5</sub> at busy junctions in urban centres. Benzene, although previously reported at quite high levels in urban centres, has recently been measured at several city centre locations to be well below the EU limit value. Historically, CO levels in urban areas were a cause for concern. However, CO concentrations have decreased significantly over the past number of years and are now measured to be well below the limits even in urban centres. The key pollutants reviewed in the assessments are NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, benzene and CO, with particular focus on NO<sub>2</sub> and PM<sub>10</sub>.

As part of the implementation of the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), four air quality zones have been defined in Ireland for air quality management and assessment purposes. Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone

#### Appropriate Standards

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<sup>3</sup> EPA (2019) EPA Website: <http://www.epa.ie/whatwedo/monitoring/air/>

<sup>4</sup> EPA (2018) Air Quality Monitoring Report 2017 (& previous annual reports 2012-2016)

In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or “Air Quality Standards” are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set. Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which incorporate EU Directive 2008/50/EC, which has set limit values for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, benzene and CO (see Table 4.2).

The concern from a health perspective is focussed on particles of dust which are less than 10 microns (PM<sub>10</sub>) and less than 2.5 microns (PM<sub>2.5</sub>) and the EU ambient air quality standards outlined in Table 4.2 have set ambient air quality limit values for PM<sub>10</sub> and PM<sub>2.5</sub>.

With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been stipulated for nuisance dust in respect of this development.

With regard to dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) sets a maximum permissible emission level for dust deposition of 350 mg/(m<sup>2</sup>\*day) averaged over a one-year period at any receptors outside the site boundary. Recommendations from the Department of the Environment, Health & Local Government<sup>(2)</sup> apply the Bergerhoff limit of 350 mg/(m<sup>2</sup>\*day) to the site boundary of quarries. This limit value can also be implemented with regard to dust impacts from construction of the proposed development.

**Table 4.1: Limit values of CAFE Directive 2008/50/EC**

<b>Pollutant</b>	<b>Limit Value Objective</b>	<b>Averaging Period</b>	<b>Limit Value ug/m3</b>	<b>Limit Value ppb</b>	<b>Basis of Application of the Limit Value</b>	<b>Limit Value Attainment Date</b>
<b>NO<sub>2</sub></b>	<b>Protection of human health</b>	<b>1 hour</b>	<b>200</b>	<b>105</b>	<b>Not to be exceeded more than 18 times in a calendar year</b>	<b>1 Jan 2010</b>
<b>NO<sub>2</sub></b>	<b>Protection of human health</b>	<b>calendar year</b>	<b>40</b>	<b>21</b>	<b>Annual mean</b>	<b>1 Jan 2010</b>
<b>PM10</b>	<b>Protection of human health</b>	<b>24 hours</b>	<b>50</b>		<b>Not to be exceeded more than 35 times in a calendar year</b>	<b>1 Jan 2005</b>
<b>PM10</b>	<b>Protection of human health</b>	<b>calendar year</b>	<b>40</b>		<b>Annual mean</b>	<b>1 Jan 2005</b>
<b>PM2.5 -</b>	<b>Protection of human health</b>	<b>calendar year</b>	<b>25</b>		<b>Annual mean</b>	<b>1 Jan 2015</b>
<b>Carbon Monoxide</b>	<b>Protection of human health</b>	<b>8 hours</b>	<b>10,000</b>	<b>8620</b>	<b>Not to be exceeded</b>	<b>1 Jan 2005</b>
<b>Benzene</b>	<b>Protection of human health</b>	<b>calendar year</b>	<b>5</b>	<b>1.5</b>	<b>Annual mean</b>	<b>1 Jan 2010</b>



### Potential Health Impacts from Air

In 2010, the Health Effect Institute (HEI) Panel in the US, in a study partially funded by the US EPA on the Effects of Traffic-Related Air Pollution, concluded that exposure to air pollutants specifically from roads is likely to be associated with all-cause mortality<sup>5</sup>, cardiovascular disease incidence and mortality, and reduced lung function, albeit with weaker evidence (due to fewer and smaller studies) than the wider air pollution health evidence base.

The WHO published a review in 2005 of the health effects of transport-related air pollution which concluded that health effects include increased cardiopulmonary mortality risk and respiratory morbidity risk.

Since 2013, the International Agency for Research on Cancer (IARC) defines diesel engine exhaust as carcinogenic to humans. Petrol engine exhaust is classified by IARC as possibly carcinogenic, as there is inadequate evidence to form a firmer conclusion.

A relatively recent article by Chen et Al published in the Lancet in early 2017 showed a small (7%) increase in the incidence of dementia in those living less than 50 meters from major roads but no increase in the incidence of Multiple Sclerosis or Parkinson's disease. The authors postulated that increased levels of PM<sub>2.5</sub> and NO<sub>2</sub> may be associated factors. However, there were important limitations on the study as the study was based in Ontario, Canada where major roads would include very busy highways and trunk roads. Perhaps the most significant criticism of the study was that the authors could not control adequately for socio-economic effects. Socio-economic effects are related to the incidence of dementia. If the individuals living within 50 metres of major roads in Ontario were of lower socio-economic status than those living further away this might explain the relatively small effect. Overall while further studies are recommended one can draw relatively little from this one study.

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<sup>5</sup> **This is mortality from all causes e.g. cancer, heart, lung etc.**

While there are some difficulties making comparisons between the impact of road building in say China, far more relevant information can be gleaned with similar projects within Ireland while being conscious of international published data. This is due to the fact that the baseline environment in densely populated counties such as China, which currently includes polluted air quality in its baseline, is not comparable to that of Ireland.

The 2014 publication from the OECD The Cost of Air Pollution, The Health Impacts of Road Transports points out that while the health impacts of air pollution in western countries is decreasing, that it is increasing in countries like China and India. It is more important for us in Ireland to consider the data from this country and similar countries.

While it is now 13 years old, an important document in Ireland was the Health Impacts of Transport, a Review published in March, 2005 by the Institute of Public Health in Ireland. This remains the most recent publication from this body on this subject.

The document reviews the elements of health impacts of transport. It originated as part of the transport HIA in Ballyfermot organised by the Eastern Regional Health Authority and proceeds from the Institute's strategic objective to strengthen the capacity of those working for public health.

In the Executive Summary they stated:

*“the effect of air quality on human health has been extensively researched and expert opinion is available in this area. Currently, evidence is strongest for air pollution as a cause for short-term health problems in certain groups such as the elderly and those with underlying health problems such as heart or lung disease. Longer term health impacts are suspected to result from certain components of air pollution. However, it has been difficult to ascribe a cause and effect with certainty. Traffic is a leading source of air pollution and any issues which would reduce traffic volume can have potential benefits to health by improving air quality. Vehicle speeds is also a factor warranting consideration. Low average speeds such as those on congested routes are less efficient in the use of fuel and result in greater pollution emissions.”*

It can be concluded that the principal of moving traffic to a road with higher average speeds has actually a potential benefit on health.

It is important in these areas to consider the baseline environment. The EPA Air Quality Index shows that the air quality at the proposed Bloodmill Road site and in the surrounding Castletroy area is good.

## 4.2 BIODIVERSITY

The project is not subject to any statutory nature conservation designation. During a screening for Appropriate Assessment, completed by An Bord Pleanála, total of 5 no. European Sites have been identified in the wider area surrounding the proposed road. These European Sites and their distance from the proposed road are listed in Table 4.3 below.

**Table 4.3: European Sites within 15km of the Proposed Road**

European Sites	Distance
Lower River Shannon SAC	1.4km to the north/north-west or 1.8km downstream of the project site.
River Shannon and River Fergus Estuaries SPA	3.4km to the west or 9.1km downstream from the project site.
Glenomra Wood SAC	11.2km to the north.
Tory Hill SAC	13.8km to the southwest.
Slievefelim to Silvermines Mountains SPA	12.5km to the east.

### 4.2.1 Habitats

The proposed road extension will involve an upgrade of the existing Bloodmill Road within the boundary of the project site. The habitats occurring in this section of the project site are representative of buildings and artificial surfaces and boundary hedgerows with mature trees. Trees occurring along and adjacent to the existing road corridor include hornbeam, ash, crab apple, elder, hawthorn and sycamore. The eastern section of the proposed road extension as it

ties in with the completed section of new road corridor is characterised by spoil and bare ground (ED2) habitat as well as the Towlerton Stream (which is representative of a depositing watercourse FW2).

#### **4.2.2 Fauna**

This section provides details of survey results for fauna species that can be listed as qualifying features of interest/special conservation interests of European Sites. Such fauna include waterbirds and otters.

The habitats occurring along the proposed road extension are not suitable for supporting wetland bird species and none were recorded on site during field surveys completed during November 2022, February and March 2023. No evidence indicating the presence of otters was identified along the Towlerton Stream during field surveys completed during the above months. In addition, no evidence of otter use of or reliance on this stream was recorded during previous surveys along the stream during April and May 2019 (under Planning Ref. No. 19546), during October 2022 (under Planning Ref. No. 22950) and during November 2022 and January 2023 (under Planning Ref. 23102).

#### **4.2.3 River Groody**

The project site is located within the River Groody catchment. The Groody rises in the townland of Caherconlish and predominantly flows in a north-westerly direction towards the River Shannon, north of the proposed route.

The River Groody is a direct tributary of the River Shannon and the confluence of these rivers is located approximately 1.7km downstream of the project site. Environmental Protection Agency (EPA) monitoring of the River Groody upstream of the project site has classified this watercourses at Moderate status. Previous monitoring completed along the river as part of the Water Frameworks Directive Mulkear Water Management Unit Action Plan report the River Groody to be in an unsatisfactory ecological condition when surveyed in 2008. Dominance of pollution tolerant macroinvertebrate fauna was recorded at Killonan Bridge (Monitoring Station ID No. 0150) and indicated moderate pollution, other indicators included luxuriant macrophyte growth and excessive siltation. Further downstream at Ballysimon (0200) the lack of sensitive

macroinvertebrate taxa, excessive siltation and enhanced macrophyte and algal growth indicated no improvement in ecological quality.

A report published by the EPA (EPA, 2018) has identified diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas as the principal (and significant) pressure to the River Groody with elevated concentrations of phosphate and ammonia associated with these pressures sources being the significant issues.

The River Groody support a small population of breeding Atlantic Salmon and brown trout are also supported by this watercourse.

The Mulkear WMU has identified pressures to the morphology of the section of the River Groody downstream of the project site.

### **4.3 LAND, SOILS & GEOLOGY**

The topography of the proposed road alignment is generally flat. The land cover at the proposed road alignment is predominantly representative of disturbed ground associated with recent development working.

Land use along the proposed route and in the surrounding area is predominantly agricultural land and residential housing, with industrial and commercial land uses occurring in the wider surrounding area.

#### ***4.3.1 Geological Heritage Sites and Protected Habitats***

There are no recorded geological heritage sites in the close proximity to the study area. The nearest geological heritage sites are located at Mungret Quarry, approximately 7 km to the west.

#### ***4.3.2 Historic Landfills and Illegal Dumping***

A review of EPA data on waste licence and unlicensed sites has confirmed that there are no known historic landfills or illegal landfills in the area of the study area.

### 4.3.3 Quarrying

There are no quarries located within the vicinity of the project site. The nearest quarry is the Bobby O’Connell & Sons Ltd. operation approximately 9km to the northwest.

## 4.4 WATER

### 4.4.1 Hydrogeology

This section provides information on the hydrogeological environment. In the vicinity of the proposed road alignment the aquifer is classified as ‘Lm’ a mainly “locally important aquifer” which is ‘generally moderately productive’ to ‘Li’ a mainly ‘locally important aquifer’ which is ‘moderately productive only in local zones’.

### 4.4.2 Aquifer Vulnerability

The bedrock geology consists of Visean limestone. This is overlain by till derived from limestone. The vulnerability of the aquifer is high along and within the vicinity of the proposed road alignment. As per Table 4.4 below this suggests that the thickness of the overburden is greater than a depth of 3m.

**Table 4.4: Aquifer Vulnerability Rating**

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High permeability (sand/gravel)	Moderate permeability (e.g. Sandy subsoil)	Low permeability (e.g. Clayey subsoil, clay, peat)	(Sand/gravel aquifers only)	(<30 m radius)
Extreme (E)	0 - 3.0m	0 - 3.0m	0 - 3.0m	0 - 3.0m	-
High (H)	> 3.0m	3.0 - 10.0m	3.0 - 5.0m	> 3.0m	N/A
Moderate (M)	N/A	> 10.0m	5.0 - 10.0m	N/A	N/A
Low (L)	N/A	N/A	> 10.0m	N/A	N/A

Notes: (1) N/A = not applicable.  
 (2) Precise permeability values cannot be given at present.  
 (3) Release point of contaminants is assumed to be 1-2 m below ground surface.

#### **4.4.3 Water Framework Directive Groundwater Status**

The Water Framework Directive (WFD) classification scheme for water quality includes two status classes: good and poor. The assignment of the status class depends on the above factors e.g. ecological and chemical status of the groundwater body.

The groundwater body in the Castletroy area has been assigned 'Good' status (EPA, 2015). The underlying groundwater body is the Limerick East groundwater body (GWB). The relevant European codes are IE\_SH\_G\_138.

#### **4.4.4 Water Supplies**

There are no regional groundwater supplies or Source Protection Areas identified within the wider area surrounding the project site. The nearest SPA site is approximately 9.1km (Hydrologically) from the site.

The GSI Well Card Index is a record of wells drilled in Ireland. It is noted that this record is not comprehensive, as licensing of wells is not currently a requirement in Ireland. A review of the current index indicates that no springs and/or wells have been drilled on/near the project site.

#### **4.4.5 Hydrology**

The proposed road is located within the Lower Shannon River Basin District in Hydrometric Area No. 25 of the Irish River Network. The Lower River Shannon catchment encompasses an area of approximately 1,040km<sup>2</sup>. The proposed road lies within the sub-basin site code: Shannon\_Lower\_SC\_090, which is drained by the River Groody to the north of the proposed road alignment.

#### **4.4.6 Water quality**

Environmental Protection Agency (EPA) monitoring of the River Groody upstream of the confluence with the Towleron Stream at a bridge in Ballysimon has classified this watercourse at Q3-4 in 2021 which is indicative of slight pollution. Previous monitoring completed along the river as part of the Water Frameworks Directive Mulkear Water Management Unit Action Plan report the River Groody to be in an unsatisfactory ecological condition when surveyed in

2008. Dominance of pollution tolerant macroinvertebrate fauna was recorded at Killonan Bridge (Monitoring Station ID No. 0150) and indicated moderate pollution, other indicators included luxuriant macrophyte growth and excessive siltation. Further downstream at Ballysimon (0200) the lack of sensitive macroinvertebrate taxa, excessive siltation and enhanced macrophyte and algal growth indicated no improvement in ecological quality.

A report published by the EPA (EPA, 2018) has identified diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas as the principal (and significant) pressure to the River Groody with elevated concentrations of phosphate and ammonia associated with these pressures sources being the significant issues.

#### **4.4.7 Flooding**

##### **4.4.7.1 Fluvial Flooding**

The River Groody catchment has been the subject of an arterial drainage scheme which was implemented between 1970 and 1973 along 55km of channel within the River Groody sub-catchment and benefits approximately 12km<sup>2</sup>. The scheme is currently managed by the OPW. A desktop flood risk analysis was carried out as part of this report. The OPW Flood map does not indicate that the lands within or adjacent to the proposed road alignment are subject to flooding major flood events from the Towlerton Stream. Critically, there is no probability of flooding in the location of the proposed attenuation tank. The proposed surface water drainage system has been designed for no flooding during the 1 in 100-year storm event. This also includes a 20% allowance for climate change.

##### **4.4.7.2 Pluvial Flooding**

Pluvial flooding is usually caused by intense rainfall that may only last a few hours. The resulting water follows natural valley lines, creating flow paths along roads and through and around developments and ponding in low spots, which often coincide with fluvial floodplains in low lying areas. Any areas at risk from fluvial flooding will almost certainly be at risk from pluvial flooding.



#### **4.4.7.3 Groundwater Flooding**

Groundwater flooding can be due to high water tables and increased recharge following long periods of wet weather. Groundwater flooding typically occurs in areas underlain by limestone and where underlying geology is highly permeable with high capacity to receive and store rainfall. The OPW Flood map does not indicate that the lands within or adjacent to the proposed road alignment are subject to groundwater flooding.

### **4.5 AIR**

As part of the implementation of the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2020). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D. The project site is located within Zone C. The long-term monitoring data has been used to determine background concentrations for the key pollutants in the region of the proposed scheme. The background concentration accounts for all non-traffic derived emissions (e.g. natural sources, industry, home heating etc.). In terms of a proposed road development the applicable air quality parameters that require assessment are those associated with traffic related pollutants. These parameters are NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. A conservative estimate of the current background NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations for the region of the proposed scheme is 11 µg/m<sup>3</sup>, 19 µg/m<sup>3</sup>, and 15.2 µg/m<sup>3</sup> respectively. In addition to these three parameters estimates for background concentrations of benzene and CO have also been made and are estimated to be in the region of 0.2 µg/m<sup>3</sup> and 0.6 mg/m<sup>3</sup> respectively.

### **4.6 NOISE**

A review of EPA noise mapping indicates that the proposed road alignment is located outside an area mapped for road noise.

### **4.7 LANDSCAPE**

The project site is located within the Castletroy urban character area. The river forms a natural boundary for the area and endows it with many natural resources. Scattered throughout the area

are many impressive trees, both individual and parts of larger stands and groups. Within open space and other zoned areas are field boundaries, which, while lacking mature impressive trees nonetheless form an essential part of the natural fabric of the area.

Mature trees in hedgerow within and adjacent to the proposed alignment are the most prominent landscape features along with existing residential housing.

There are no scenic routes and protected views within the vicinity of the project.

## **4.8 CULTURAL HERITAGE**

### **4.8.1 Archaeology**

There is one archaeological monument in the general vicinity of the proposed development. This is a well located approximately 50m to the south of the existing Bloodmill Road. LI005-034001. This well will not be affected by the road construction.

An Archaeology Impact Assessment (AIA) has been completed for the section of new road to the east of the currently proposed road alignment (see Limerick County Council Planning Reference No. 19546). The AIA found that no previously unrecorded archaeological features were noted along the new section of road connecting to and immediately adjacent to the proposed road alignment.

### **4.8.2 Architectural Heritage**

Singland House (Reg. No.1631), a former Miller's house, and King William's Well (Spring Well) (Reg. No.1632) are adjacent to the proposed site.

## **4.9 MATERIAL ASSETS**

A baseline rating of all material assets occurring within and in the vicinity of the project has been completed. The baseline environment or rating for a material asset is evaluated based on the material asset type, significance and sensitivity to construction and operation effects.

#### 4.9.1 Land Use

The existing land use along the proposed road alignment is for agricultural purposes.

The criteria for property baseline ratings are presented in Table 4.6.

**Table 4.6: Baseline Rating Criteria**

Information	Source
High	Residential property.  Commercial property.  Community property used for public and private recreation amenity.  Development land / site with planning permission.
Medium	Development land / site without planning permission.  Residential property (vacant / derelict).  Commercial property (vacant / derelict).
Low	Property consisting of public roadbed only.

Given that the proposed road alignment is located in area that has been zoned for future development, that is currently not in receipt of planning permission the baseline rating for these lands is determined to be medium.

#### **4.9.2 Existing Utilities**

There is an extensive network of utilities within and adjacent to the proposed development, which provide services to the existing farms, residential, industrial and commercial development.

##### ESBN Services (Overhead & Underground)

The ESB network assets identified in the vicinity of the project site include a MV/LV (10kV) overhead lines. There are no known or identifiable ESB sub-stations located within the extents of the project site.

There are existing overhead ESB powerlines crossing overhead in the vicinity of the project site.

The baseline rating for ESB Services is low.

##### Telecommunications

There are overhead telecommunications cable lines occurring within the footprint of the proposed road alignment. These telecommunications cables will be replaced with underground telecommunications cables as part of the project.

The baseline rating for telecommunications is low.

##### Gas Network Ireland (GNI) Services

There are no gas main lines occurring within the footprint of the proposed road alignment.

The baseline rating for GNI Services is low.

### Irish Water

It may be necessary to replace watermains within the footprint of the proposed road alignment.

The baseline rating for Irish Water watermains is low.

### Foul sewer

It may be necessary to replace foul lines within the footprint of the proposed road alignment.

The baseline rating for foul sewers is low.

### Storm sewer

There are no storm sewers occurring within the footprint of the proposed road alignment.

The baseline rating for storm sewers is low.

## **5.0 CHARACTERISTICS OF LIKELY SIGNIFICANT EFFECTS**

### **5.1 INTRODUCTION**

The likely significant effects of the proposed Link Road on the environment were considered and assessed by reference to the following factors

- Population and human health;
- Biodiversity
- Land, Soils & Geology
- Water
- Air & Climate

- Noise
- Landscape & Visual
- Cultural Heritage
- Material Assets

## **5.2 POPULATON & HUMAN HEALTH**

The project will involve the use of minor quantities of substances such as hydrocarbons, cement mortar and lubricants that can be injurious to human health. The project will also have the potential to generate noise and dust during the construction phase. Given the scale of the works any noise and dust generated at the project site will be minor in scale and of negligible impact to population and human health.

In addition, best practice measures relating to the use and storage of potentially polluting substances will minimise the potential impact posed by these substances to humans. All relevant best practice mitigation measures required for avoiding likely significant effects to populations and human health through potential effects to soils, water, noise, air etc will be required to be implemented as part of the project.

## **5.3 BIODIVERSITY**

The habitats occurring at the proposed road alignment are of low nature conservation value and low sensitivity. The Groody River and Towleron Stream represent the sensitive biodiversity receptors.

Potential impacts relating to water quality and the river are addressed under Water below.

## **5.4 LAND, SOILS & GEOLOGY**

Negative impacts to land, soils and geology will have the potential to arise as a result of compaction during construction works, the importation of non-native material of a different geo-chemical signature to the native material occurring at the project site, the disruption to or

loss of karst features. The significance of impacts to land, soils and geology will be dependent on the importance of the attribute affected by the project.

The importance of attributes of land, soil and geology occurring within and adjacent to the project site have been assessed in line with the Transport Infrastructure Ireland (TII) guidance document “Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Scheme” (2009).

The assessment of attributes is considered to be predominantly of low to medium importance (based on the TII above). This is based on the fact that the route is all fully or partly underlain by poorly drained to moderately drained and/or low to moderate fertility soils. There are no geological heritage areas, NHAs, or area of economic reserve. Overall, the impacts of imperceptible significance will apply for these attributes during the construction and operation phase of the project.

The following measures will be implemented to minimise the impact of the proposed development to surrounding soils and geology:

All excavated material will be re-used as construction fill material where feasible. The Contractor will ensure acceptability of the material for re-use within the proposed road development with appropriate handling, processing and segregation of the material.

Any additional material required for filling will be derived from native material or other pH compatible material;

Earthworks haulage will be along predetermined routes within and outside the proposed development boundary;

Granular fill material will be used for embankments to reduce the likelihood of the washout of fines.

## **5.5 WATER**

The potential impacts that may arise as a result of the project relate to the discharge of contaminated surface water from the project site during the construction phase to the Towlerton Stream, the River Groody and on downstream to the Lower River Shannon SAC.

The potential impacts that may arise as a result of the project relate to the discharge of contaminated surface water from the project site during the construction phase directly to the Towlerton Stream and downstream to the River Groody. For instance, the proposed road extension will require a crossing of the Towlerton Stream, where it is propose to install a box culvert.

Earthworks associated with the construction phase of the project will require the excavation of existing overburden within site boundary the of the proposed development. In the absence of an appropriate design and mitigation measures, such activities will have the potential to generate silt-laden runoff from the works area and for this runoff to be discharged to the Towlerton Stream and on downstream to the Groody River and eventually the Lower River Shannon SAC.

Any deposition of contaminants such as hydrocarbons or cement material to the Towlerton Stream and on downstream to Groody River and the Lower River Shannon SAC could conceivably result in the contamination of benthic fauna and epifauna which represent the prey species of Atlantic salmon and lamprey species. In addition, the discharge of such contaminants will also have potential to contribute towards existing water quality pressures that could undermine the suitable condition of habitats within the Lower River Shannon SAC downstream to support spawning and juvenile qualifying freshwater fish species, such as lamprey species which are known to be widely distribution within the section of the Lower River Shannon SAC downstream of the project site. The toxic effect of such contaminants, particularly hydrocarbons, on feeding, growth, development and reproduction are known to cascade and bioaccumulate throughout the food chain affecting benthic fauna, fish, birds and mammals (Ferrando, 2015).

The significance of the impact of the uncontrolled release of contaminants from the project site to the Towlerton Stream and downstream to the Lower River Shannon SAC, will depend upon the frequency of the release and the concentration of contaminating materials in surface water



discharging from the site. In a worst-case scenario the ongoing discharge of waters with high concentrations of contaminating substances during the construction phase could, over time, lead to the deposition of such contaminants to these receiving waters. Revitt et al. (2014) demonstrated the potential of car parking areas to result in a build-up of diffuse pollution loads on their surfaces with subsequent mobilization and direct discharge to receiving waters. In the absence of appropriate design safeguards (such as the inclusion of interceptors and the proper storage of potentially contaminating materials) the discharge of such contaminated surface water during the construction phase could represent a source of temporary contamination to surface drainage waters being discharged to the River Groody. Accidental spillages of contaminating materials during the construction phase could also represent sources of acute pollution to the Towlerton Stream and on downstream to the River Groody and the Lower River Shannon SAC.

The exposure of benthic freshwater fauna as well as qualifying freshwater fish species to such contaminants can result in disturbance and stress effects. Upon detection of such contaminants mobile species may simply move away from the affected area, with the potential to result in a decline in the distribution of these species within the SAC. For sessile benthic fauna, such as freshwater pearl mussel, there will be no potential for escape and their exposure to contaminants may result in biological changes designed to aid survival. In some cases, these benthic species may acclimatise to contaminated conditions, while in others the contaminants may lead to mortality and decreases in population density.

Whilst it is acknowledged that there may be some dilution and dispersion of contaminants downstream of the project site, any release of such polluting material could combine with existing pressures (as set out in Section 4.1.3 above) to the water quality of the River Groody and combine with these sources to exacerbate water quality pressures along this river with resultant implications (considered in more detail in Section 6.2 below) for the conservation status of qualifying features of interest of the SAC occurring downstream.

The implementation of standard best practice design and mitigation measures for the construction phase and operation phase will provide effective controls to ensure that the above-described impacts do not arise during the construction phase or operation phase of the proposed road. These measures are set out in detail in the Natura Impact Statement that has been prepared for the project.

## 5.6 AIR

During the construction phase the greatest impact on air quality and human health is related to the generation of construction dust emission and the potential for dust nuisance and PM<sub>10</sub>/PM<sub>2.5</sub> emissions. Due to the size and nature of the scheme it can be categorised as minor, indicating that there are potential dust soiling effects within 25 m of the works areas (Table 8). While construction dust tends to be deposited within 200 m of a construction site, the majority of the deposition occurs within the first 50m.

The impact to air quality and the associated impacts to population and human are summarised below with reference to the parameters that are emitted during the operation phase of a road:

NO<sub>2</sub>: given the scale of the proposed road alignment and the fact that it will replace an existing road corridor the overall impact of NO<sub>2</sub> concentrations as a result of the proposed scheme is long-term and not significant.

PM<sub>10</sub>: given the scale of the proposed road alignment and the fact that it will replace an existing road corridor the overall impact of PM<sub>10</sub> concentrations as a result of the proposed scheme is long-term and not significant.

PM<sub>2.5</sub>: given the scale of the proposed road alignment and the fact that it will replace an existing road corridor the overall impact of the proposed scheme on PM<sub>2.5</sub> concentrations is predicted to be long-term and not significant.

Overall the impact of the proposed scheme on ambient air quality in the operational stage is considered long-term, localised, negative and not significant.

In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of a dust minimisation plan. These follow recommendations and guidance contained in the Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction for sensitive receptors. Provided the dust minimisation measures and construction management plan are adhered to, the air quality impacts during the construction phase should be not be significant. In summary the measures which will be implemented will include:

Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.

Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.

Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.

Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.

Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.

Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.

Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.

During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

At all times, these procedures will be strictly monitored and assessed by the site contractor. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust shall be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations. The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board shall also include head/regional office contact details. Community engagement before works commence on site shall be put in place, including a communications plan. All dust and air quality complaints shall be recorded, and causes identified, along with the measures taken to reduce emissions.

## 5.7 NOISE

Based upon the results of assessments for a larger road corridor project within the vicinity of the Bloodmill Road realignment (i.e. the Castletroy Link Road) it is considered that with the implementation of standard best practice noise control measures will not result in significant noise impacts. Standard best practice mitigation measures will be implemented to control noise and these measures are outlined below.

Mitigation measures to be implemented will include for the setting out of provisions in the contract documents for the construction phase that will clearly specify the construction noise criteria which the construction works must operate within. The Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228- 1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001. These measures will ensure that:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps that is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.

During the course of the construction programme, the contractor will be required to manage the works to comply with the limits using methods outlined in BS 5228-1:2009+A1 2014. Part 1 – Noise BS 5228 -1: 2009+A1 2014 Part 2 which include guidance on several aspects of construction site practices, which include, but are not limited to the measures discussed below.

The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative. For static plant such as compressors and generators used at work areas such as construction compounds etc., the units will be supplied with manufacturers proprietary acoustic enclosures where possible.

The contractor will evaluate the choice of excavation, breaking or other working method taking into account various ground conditions and site constraints. Where possible, where alternative lower noise generating equipment that would economically achieve, in the given ground conditions, equivalent structural/excavation/ breaking results, these will be selected to minimise potential disturbance.

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control “at source”. This refers to the modification of an item of plant, or the application of improved sound reduction methods in consultation with the supplier or the best practice use of equipment and materials handling to reduce noise.

Proposed techniques will also be evaluated in light of their potential effect on occupational health and safety. The following outline guidance relates to practical noise control at source techniques which relate to specific site considerations:

- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant will be switched off when not in use and not left idling;
- For percussive tools such as pneumatic concrete breakers or tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker ‘tool’ and ensuring any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries are other suitable forms of noise reduction;
- For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum;

- For all materials handling, the contractor will ensure that best practice site noise control measures are implemented including ensuring that materials are not dropped from excessive heights;
- Where compressors, generators and pumps are located in areas in close proximity to noise sensitive properties/ areas and have potential to exceed noise criterion, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation;
- Resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can be controlled by fixing resilient materials in between the surfaces in contact;
- Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary, and;
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Typically, screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen, its mass, and its position relative to both the source and receiver. The length of the screen should in practice be at least five times the height, however, if shorter sections are necessary then the ends of the screen will be wrapped around the source.

BS 5228 -1:2009+A1 2014 states that on level sites the screen should be placed as close as possible to either the source or the receiver. The construction of the barrier will be such that there are no gaps or openings at joints in the screen material. In most practical situations the effectiveness of the screen is limited by the sound transmission over the top of the barrier rather than the transmission through the barrier itself. In practice screens constructed of materials with a mass per unit of surface area greater than  $10 \text{ kg/m}^2$  will give adequate sound insulation performance. As an example, the use of a standard 2.4m high construction site hoarding will provide a sufficient level of noise screening once it is installed at a suitable position between the source and receiver.

Normal working times will be 07:00 to 19:00hrs Monday to Friday and 08:00 to 13:00hrs Saturday. Works other than the pumping out of excavations, security and emergency works will

not be undertaken outside these working hours without the written permission of the Contracting Authority. This permission, if granted, can be withdrawn at any time should the working regulations be breached.

Works other than the pumping out of excavations, security and emergency works will not be undertaken at night and on Sundays without the written permission of the Contracting Authority. Night is defined as 19:00 to 07:00hrs.

When overtime and shift work is permitted, the hauling of spoil and delivery of materials outside normal working hours is prohibited and the noise limits outlined in Table 1 will apply.

## **5.8 LANDSCAPE & VISUAL**

The proposed road links up existing roads with minimal impact on the open space amenity. The proposed route has a minimal impact on mature trees within open space which are considered to be the dominant natural landscape feature occurring the proposed road alignment.

The main elements of the project that have the potential to result in landscape and visual impacts during the construction phase are:

- Landscape disturbance during construction works;
- Construction activity, site compounds and construction traffic;
- Vegetation removal.

The main elements of the project that have the potential to result in landscape and visual impacts during the operation phase are:

- The presence of noise barriers;
- Lighting; and
- Traffic;

There are no scenic route surrounding the proposed road alignment and there will be no impact on such routes.

No views and prospects are identified within the vicinity of the project site and there will be no impact on any listed view or prospects.

The design of landscape and visual mitigation for the project will comply with the TII's A Guide to Landscape Treatments for National Road Schemes in Ireland. The general approach to landscape planting will focus on using bare-root transplants, whips and feathered trees as these are more adaptable to establishment on disturbed ground conditions. A preference will be given for planting mixes and tree species of native origin that are in keeping with the local area.

The following mitigation measures for the potential landscape and visual impacts will be implemented as part of the construction phase and operation phase of the project.

### ***Construction phase***

- Monitoring of the construction phase will be undertaken to ensure that areas outside the construction footprint are protected.
- All plant and machinery required for the construction phase will be generally restricted to operating within the construction footprint.
- Construction compounds and storage areas will be selected in areas that minimise impacts on existing residential and other property and surrounding woodland habitats.
- Boundary hoarding will be provided where construction works and compounds are located in close proximity to residential properties.
- The construction compounds will be fully-decommissioned and reinstated to pre-construction condition at the end of the construction phase.

### ***Operation phase***

Along the route, perimeter hedgerow planting will be established using native species. General hedgerow plants shall be 90 to 120cm in height at planting, standard trees will be included at intervals to mimic mature hedgerows in the locality that have mature trees. A grass verge will provide a buffer and facilitate the planting of street trees.

In order to minimise the visual impact of noise barriers planting of hedgerows and/or shrubs/climbers using primarily species of native origin will be established along the full off-road elevation of noise barriers.



A detailed lighting design will be completed for the project and this will include all necessary measures that will minimise light-spill, glare and light pollution from both public lighting along the proposed route and headlights from traffic. The lighting design will be prepared to comply with the requirements of BS EN 13201-2:2003 and BS5489-1: 2003, Code of Practice for Design of Road Lighting. Lighting of Roads and Public Amenity Areas and shall comply with the requirements of the TII/NRA DMRB DN-LHT-03038.

## **5.9 CULTURAL HERITAGE**

Given that a previously completed AIA for the newly constructed section of road that the proposed road alignment will tie into, as set out in Section 4.8 above, did not reveal the presence of archaeological features no significant effects to archaeology and cultural heritage are predicted to occur.

Notwithstanding this finding, all measures set out in the AIA prepared for the road project under Planning Reference No. 19546 will be required to be implemented as part of the works associated with the proposed road alignment.

## **5.10 MATERIAL ASSETS**

### ***5.10.1 Impacts***

The impacts on property arising from the construction and operation of the proposed road include:

- Landtake;
- Land severance;
- Impact on buildings / parking facilities;
- Potential impact on utilities’
- Potential impact on waste management.

#### **5.10.1.1 Landtake**

The effect of landtake can be significant and the acquired area together with its location and duration will determine the magnitude of impact. The area and location of landtake are interlinked as an area of landtake near the centre of operations on a property will be of a greater magnitude than a similar area at the external boundary of the same property. The duration of landtake can vary from permanent (greater than sixty years), short term (one year to seven years) to temporary (less than one year). The degree of the magnitude of impact decreases with shorter durations. The proposed road alignment is on agricultural lands and existing road corridor along its entire length.

#### **5.10.1.2 Land Severance**

The severance of land is determined by the landtake location and can often result in more significant impacts on property than landtake. Similar to the effect of landtake, the area of severed lands, their location relative to remaining lands and duration will influence the magnitude of impact. The severance of a significant area or an area of intensive operational activity will have a higher magnitude of impact. The permanent severance of lands will have a greater magnitude of impact than temporary severance.

The proposed road will result in the severance of a minor area of agricultural land which will not represent a significant effect to material assets.

#### **5.10.1.3 Impact on Buildings / Parking Facilities**

The impact of a proposed road development on property buildings or parking facilities is generally indicative of a high magnitude of impact. The degree of magnitude will depend on the property type and the type and nature of buildings that are affected. The project will not impact on any buildings or parking facilities.

#### **5.10.1.4 Other Impacts Such as Impacts to Land Drainage and Services**

The construction activities on a proposed road development may result in the disturbance of existing land drainage and the potential interruption of supply for utilities such as water, power, phone, broadband, etc. The magnitude of impact will be influenced by the type of disturbance

and the duration involved. These impacts are generally of a temporary to short term duration being limited to the extent of construction works.

While further information is required regarding the existence and location of all utilities it is likely that any such interruptions will be managed to limit any adverse effects.

With regard to land drainage, it is noted that the proposed road alignment will be required to cross one drain and one stream/drain.

#### **5.10.1.5 Potential Impact on Utilities**

##### **ESBN Services (Overhead & Underground)**

Electric supply will be required to feed the temporary lighting and temporary traffic signals during the construction stage. This is likely to be fed by mobile generators.

Power will be required to provide the proposed new public lighting and bus stops during the operational stage. The power demands during the operational phase on the existing electricity network are considered to be imperceptible.

##### **Telecommunications**

New telecommunications ducts will be installed under the proposed new footpaths to replace existing overhead telecommunications cables and also to future proof the requirements for telecommunications infrastructure in the newly developing areas around the road extension.

During the construction stage, underground telecommunications cables could be damaged during the excavation works within the scope of works and would result in the loss of signal to the existing holdings.

The increased demand on the existing telecommunication during the operational stage is considered to be imperceptible.

### **Gas Network Ireland (GNI) Services**

No new gas main or additional gas supply is required during the construction phase of the proposed scheme. However, existing underground gas pipelines at the tie ins to the existing road network could be damaged during the excavation works within the scope of works. This is expected to result in a slight, negative and short term impact.

No additional gas supply is required to the site. There's no predicted impacted on the existing gas network.

### **Irish Water**

A separate water supply connection will be required to serve the construction activities during the construction phase. However, the water demands during the construction phase are expected to result in a slight, negative and short-term impact.

No additional water supply is required to the proposed development. There's no predicted impact on the existing water supply network during the operational phase. However, it is likely that proposed new mains may be required under the new road to facilitate future development of the surrounding zoned lands.

### **Foul Sewer**

No additional sewerage discharge is required to service the proposed development. There's no predicted impact on the existing foul sewer network. There is a possibility that proposed new wastewater collection pipe network may be required under the new road to facilitate future development of the surrounding zoned lands.

### **Storm Sewer**

The proposed road scheme will involve a new storm sewer system. Temporary drainage will be required for the surface water run-off generated during the construction phase. Ingress of groundwater and overland flows into the excavated areas may have the potential impact to the existing watercourse. This is expected to result in a slight, negative and short-term impact. A

system of filter drains will be installed parallel to the toe of the road embankment to prevent overland flows directly entering the watercourses.

Surface water runoff generated from the hardstanding of the proposed development will be collected by sealed drainage system, e.g. gullies, storm sewer pipes and discharge to the proposed attenuation system and discharge into the existing watercourse via a hydrocarbon interceptor. The design of the permanent drainage system shall be in accordance with the local authority requirements and Sustainable Urban Drainage Systems (SuDS).

#### **5.10.1.6 Potential Impact on Waste Management**

There will be excavated waste materials which will have to be exported during the construction stage, such as bituminous materials, gravels and some existing redundant services, such as pipes, ducts, chambers will have to be excavated and disposed off site during the enabling works. All such disposal will be controlled under the waste licencing Act. The contractor and his agents will be required to comply with all waste licensing Acts and have the necessary licences in place for transportation of waste to licenced fill sites.

Fuel/ oil which will be used by the construction vehicle is hazardous and has the potential to cause pollution to the environment.

There's no predicted impact on waste during the operational stage.

#### **5.10.1.7 Magnitude of Impact**

The criteria used to determine the magnitude of impact for property on the proposed road development are shown in Table 5.4 Magnitude of Impact Criteria. The criteria for each of the impact ratings have been developed in consideration of the relevant EPA guidelines on the assessment of impact.

**Table 5.1: Magnitude of Impact Criteria**

<b>Impact</b>	<b>Criteria</b>
High	An impact on the property where the use of the property cannot continue.
Medium	An impact on the property where the use of the property can continue.  An impact of permanent duration resulting in a change to the character of the property.
Low	An impact on the property where the use of the property can continue.  An impact of permanent or temporary duration with a minimal or temporary effect on the character of the property.
Very low	An impact on the property that does not affect the use of the property (i.e. acquisition of public road only)

The magnitude of impact on the agricultural land occurring within the footprint of the proposed alignment is determined to be Low to Very Low.

The potential impact on roads and traffic is determined to be Very Low.

The potential impact on utilities is determined to be Very Low.

The potential impact on waste management is determined to be Low.

### 5.10.1.8 Significance of Impact

The significance of impact on property is determined by the baseline rating combined with the magnitude of impact of the proposed road development. There are three categories of baseline rating ranging from ‘low’ to ‘high’. There are four categories of magnitude of impact ranging from ‘very low’ to ‘high’. The likely significance rating is determined by reference to the matrix in Table 5.5 using the baseline rating and magnitude of impact. The likely significance of impact is prior to the implementation of any mitigation measures.

**Table 5.2: Significance of Impact**

Baseline rating	Magnitude of impact			
	High	Medium	Low	Very low
High	Profound	Significant	Slight	Imperceptible
Medium	Significant	Moderate	Slight	Imperceptible
Low	Imperceptible	Imperceptible	Imperceptible	Imperceptible

The significance of impact on agricultural land is determined to be Imperceptible.

The significance of impact on Roads and Traffic is determined to be imperceptible and positive impact on local transport infrastructure.

The significance of impact on Utilities is determined to be imperceptible.

The significance of impact of Waste Management is determined to be imperceptible.

## **5.10.2 Mitigation**

### **5.10.2.1 Land Use**

The compulsory acquisition of land is subject to the statutory code governing the assessment of compensation for such acquisition. Compensation will be considered on an individual property owner basis and is dependent on a variety of factors such as, landtake severance, injurious affection, disturbance and potential damage to future viability of the property.

Construction and Environmental Management Plan (CEMP) shall be put in place by the appointed contractor during the construction phase to monitor the noise levels and dust emissions in order to minimise the noise and vibration impact and air pollution to the adjacent properties.

Compensation payments for lands to be acquired as a result of the scheme will be agreed, where possible between the relevant landowners and Limerick City & County Council and will otherwise be referred to arbitration. Where part of a property/field is to be acquired a replacement boundary treatment will be provided.

Existing boundary treatments will be upgrade and development of new noise boundary treatments along the road edge will be constructed in order to reduce the noise impact to affected residents.

### **5.10.2.2 Roads and Traffic**

Temporary traffic management plans (TTMP) shall be in place by the appointed contractor to ensure access to all properties to be maintained during the construction stage and safety of the road users.

Where access is affected, the access will be reinstated or an alternative access will be provided, in agreement with the property's owner.

### **5.10.2.3 Utilities**

#### **ESBN**

The appointed contractor shall ensure that all electricity services are maintained throughout the construction phase. Appropriate measures and protection will be put in place to the existing



electric cables during the construction phase in accordance with the requirements and guidelines of the ESB Network.

In order to reduce the risk of striking the existing underground electric cables and causing damages during construction phase, GPR survey and slit trenches will be carried out prior to work commencing to locate the exact location and depth of the existing electrical cables. The slit trenches and GPR information shall be made available to the appointed contractor and the location of the underground electrical cable will be marked prior to the excavation in the area.

Any impact arises from the overhead electrical cables will be mitigated in accordance with the code of practice documents issued by ESB Network.

Where new services are required, the Contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

### **Telecommunications**

The appointed contractor shall ensure that all existing telecommunication services are maintained throughout the construction phase. Appropriate measures and protection to be put in place to the existing telecommunication cables during the construction phase in accordance with the requirements and guidelines of the telecommunication providers.

In order to reduce the risk of striking the existing underground telecommunication cables and causing damages during construction phase, GPR survey and slit trenches will be carried out prior to work commencing to locate the exact location and depth of the existing underground telecommunication cables. The slit trenches and GPR information shall be made available to the appointed contractor and the location of the existing underground telecommunication cable will be marked prior to the excavation in the area.

Where new services are required, the Contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

### **Gas Networks Ireland (GNI) Services**

The appointed contractor shall ensure that all existing gas pipelines are maintained throughout the construction phase. Appropriate measures and protection will be put in place to the existing gas pipelines during the construction phase in accordance with the requirements and guidelines of Bord Gáis.

In order to reduce the risk of striking the existing underground gas pipeline and causing damages during construction phase, GPR survey and slit trenches will be carried out prior to work commencing to locate the exact location and depth of the existing underground gas pipeline. The slit trenches and GPR information shall be made available to the appointed contractor and the location of the underground gas pipeline will be marked prior to the excavation in the area.

### **Irish Water**

The appointed contractor shall ensure that all existing watermains are maintained throughout the construction phase. Appropriate measures and protection will be put in place to the existing watermains during the construction phase in accordance with the requirements and guidelines of the Irish Water, specifically in the vicinity of the asbestos watermain.

In order to reduce the risk of hitting the existing watermain and causing damages during construction phase, GPR survey and slit trenches will be carried out prior to work commencing to locate the exact location and depth of the existing watermain. The slit trenches and GPR information shall be made available to the appointed contractor and the location of the existing watermain will be marked prior to the excavation in the area.

### **Foul Sewer**

The appointed contractor shall ensure that all existing foul sewers are maintained throughout the construction phase.

In order to reduce the risk of striking the existing foul sewer pipes and causing damages during construction phase, GPR survey and slit trenches will be carried out prior to work commencing to locate the exact location and depth of the existing foul sewer pipes. The slit trenches and GPR

information shall be made available to the appointed contractor and the location of the foul sewer pipes will be marked prior to the excavation in the area.

### **Storm Sewer**

As discussed above, the additional surface water runoff generated for the proposed development will be controlled and restricted to the greenfield runoff rate by implemented SuDS in the detailed design.

Construction and Environmental Management Plan (CEMP) shall be in place by the appointed contractor during the construction phase to prevent pollution to the adjacent land and watercourse by the sediment and contaminated surface water generated from the construction activities, such as oil spillage.

### **Waste Management**

The appointed contractor shall have the Waste Management Plan (WMP) in place prior to construction. All waste generated from the site shall be recycled whenever possible.

The contractor shall handle, store, transport and dispose of waste in a proper manner to ensure no adverse impact to the environment.

If hazardous material is encountered on site, such as asbestos pipes, a specialist contractor shall be employed to carry out the assessment and, if required, removal of the hazardous materials.

#### ***5.10.3 Residual Impacts***

The likely residual impact on material assets will be imperceptible.

### **5.11 INTERACTIVE & CUMULATIVE EFFECTS**

#### ***5.11.1 Interactive Effects***

Interactive effects may arise from the interaction between various impacts within a project. Interactive effects occur when a receptor is impacted by multiple effects. Potential interactive effects on the environment include:

- Traffic will have the potential to interact with the following environmental factor:
  - hydrology and water quality as a result of runoff and accidental spillage
  - landscape and visual impacts to properties in the vicinity of the proposed route;
  - population and human health as a result of noise and air emissions;
  - material assets during the construction phase when access to properties may be affected.
- Impacts to soils and geology and the potential to interact with the following environmental parameters:
  - Biodiversity due to the excavation of vegetation and the removal of trees and hedgerows. The vegetation clearance will mobilise sediment with potential for discharge to receiving watercourses. It is noted that the potential impact to receiving watercourses associated with the mobilization of suspended solids is predicted to result in an imperceptible and negligible effect.
  - Landscape and visual during the construction phase through excavations and the storage of spoil.
  - Archaeology during ground excavations; and
  - Hydrology during excavations and the potential for the loss of sediment to receiving watercourses.
- Impacts to hydrology will have the potential to interact with the following environmental parameters:
  - Biodiversity through the discharge of road drainage to the River Groody and associated aquatic habitats and fauna.
  - Soils and geology by mobilizing sediment during periods of high precipitation
  - Material assets by temporary disturbance to the existing surface water drainage system in the vicinity of the project.
  - Population and human health by presenting a risk of flooding or a risk to water quality. It is noted that the hydrological assessment has concluded that, in the absence of control and management measures, the project will not present a significant risk of flooding or risk to water quality.
- Impacts to air quality will have the potential to interact with the following environmental parameters:

- Population and human by presenting a risk of a decline in air quality at properties adjacent to the proposed route. This impact has been assessed and it is predicted that, under a worst case scenario impacts to air quality of sensitive receptors will be slight negative.
- Material assets a risk of a decline in air quality at properties adjacent to the proposed route and the generation of dust during the construction phase.
- Impacts to noise will have the potential to interact with the following environmental parameters:
  - Population and human health by presenting a risk to sensitive properties adjacent to the project route.
  - Landscape and visual through the provision of noise barriers which will alter the landscape and visual setting for adjacent properties.
  - Material assets by disturbing livestock in adjacent areas such as the racecourse and agricultural lands to the east.
  - Archaeology by generating vibration which could result in impacts to any unknown archaeological features that may occur along the route alignment.

The significance of any potential negative interactive effects are predicted to be slight and predominantly of a temporary nature. Mitigation measures as outlined in Section 5.1 to 5.10 will provide effective management of the project and will eliminate the potential for interactive effects to result in likely significant effects on the environment.

### ***5.11.2 Cumulative Effects with Existing and/or Approved Projects***

A search of the Limerick City and Council Planning Enquiries Portal has been completed to identify any other projects that could combine with the proposed project to result in in-combination effects to the Lower River Shannon SAC. A search was completed for all recent projects within the last five years along the Towlerton Stream and the River Groody upstream and downstream of the project site. The projects identified and the potential for the proposed road extension project to combine with these other projects to result in cumulative adverse effects to the environment is examined below.

Planning Reference No. 19546 – this project comprises the development of a new public road, 637m in length, with footpaths and cycle tracks, public lighting, landscaping and ancillary main services within the roadway, from the City East Roundabout on Groody Road across the

'Towlerton Development Lands' to the north-western boundary of the lands; surface water drainage system for the new road consisting of 3 no. underground attenuation tanks and ancillary services, and disposal to 2 existing streams and to an existing surface water manhole adjacent to City East Roundabout; new foul gravity rising mains and new watermain along the length of the new road; abandonment of existing 800mm asbestos cement watermain on the development lands and provision of new watermain in lieu; demolition of existing buildings on the development lands comprising a two-storey house and associated sheds and out-buildings; relocation of an existing bus stop from the south to the north of City East roundabout on Groody Road and associated diversion of existing cyclepaths and footpaths; new cyclepaths and footpaths to accommodate future widening of Groody Road; widening of southern entrance to and northern exit of City East Roundabout on Groody Road and amendment of road markings at the roundabout. All works to occur on the public domain or on the 'Towlerton Development Lands' only. An Appropriate Assessment was completed by the Planning Authority for this development. The Appropriate Assessment was informed by an Natura Impact Statement. The Appropriate Assessment found that, provided all mitigation measures specified in the Natura Impact Statement and subsequently conditioned as part of the grant of planning are implemented, this project will not have the potential, alone or in-combination with other plans or projects, to result in adverse effects to the Lower River Shannon SAC. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC. Furthermore it is also noted that the construction phase works associated with this development have been completed and as such there will be no potential for the currently proposed road extension to combine with the construction phase of the road element of this project.

Planning Reference No. 191061 – this project comprises the construction of a part three storey, part two storey post primary school, (Roll No. 68309N) including PE hall, 4 classroom Special Educational Needs Unit and all ancillary site works. The proposed development also incorporates associated car parking, access road, drop off areas, pedestrian access, bicycle lane, construction of external ball courts, landscaping, connection to public services, ESB sub-station and all associated siteworks. The development also includes a section of public road, footpaths, cycle track, landscaping, public lighting, mains services and relocated bus stop. An Natura Impact Statement was completed for this project and this concluded that that, provided all mitigation measures specified in the Natura Impact Statement and subsequently conditioned as part of the grant of planning are implemented, this project will not have the potential, alone or

in-combination with other plans or projects, to result in adverse effects to the Lower River Shannon SAC. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC. Furthermore it is also noted that the construction phase works associated with this development have been completed and as such there will be no potential for the currently proposed road extension to combine with the construction phase of the road element of this project.

Planning Reference No. 217006 – this project comprises an extension of duration for the planning approved project under Planning Reference No. 16693. The Planning Authority completed a screening for Appropriate Assessment for this project as described under Ref. No. 16693 and found that the project “should not exercise a significant effect on the conservation status of any SAC or SPA and therefore an Appropriate Assessment is not necessary”. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC.

Planning Reference No. 22950 – this project comprises the development of: Building A: The provision of a single storey discount foodstore including off license use with gross floor area of 2,205 sq.m as well as roof mounted plant and solar panels. (Net retail area: 1,408 sq.m). Building B: A single-storey café building with external seating area (gross floor area - 150 sq.m). Building C: A 3 no. storey building comprising 6 no. commercial units at ground floor area to accommodate Shop use (Class 1) or Office/Professional/Financial Services use (Class 2) or Office use (Class 3) or Medical use (Class 8) (gross floor area 625 sq.m). First and second floors consist of office floorspace including circulation space with entrance at ground floor (gross floor area 1,545 sq.m). Building D: A 6 no. storey building comprising 4 no. commercial units at ground floor to accommodate Shop use (Class 1) or Office/Professional/Financial Services use (Class 2) or Office use (Class 3) or Medical use (Class 8) (gross floor area of 786 sq.m). The upper five floors comprise 38 no. apartments, with entrance at ground floor, (gross floor area of 3,900 sq.m), as follows: (a) 10 no 1-bedroom apartments, (b) 26 no 2-bedroom apartments, (c) 2 no 3-bedroom apartments. Provision of signage for Buildings A, B, C & D (130.9 sq.m). Provision of pedestrian and vehicular access, 172 no. car parking spaces including 6 no. disabled bays, 6 no. family bays, 142 no. cycle spaces, public realm area with street furniture, residents' communal open space, site landscaping, public lighting, boundary

treatments, EB substation (24 sq.m), external bin storage areas (56.5 sq.m) and all other site development works and services ancillary to the proposed development.

In the absence of appropriate safeguards the potential would exist for the current proposed road extension project to combine with this other project to result in perturbations to local surface water quality and downstream impacts to the Lower River Shannon SAC. However it is noted that an Natura Impact Statement has been completed for this project and this Natura Impact Statement has set out a range of mitigation measures that aim to ensure this project does not have the potential, alone or in-combination with other plans or projects, to result in adverse effects to this SAC. The Natura Impact Statement for this project has concluded that this project will not have the potential, alone or in-combination with other plans or projects, to result in adverse effects to the Lower River Shannon SAC. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC.

Planning Reference No. 211740 – this project comprises development of a new c.19,405sqm hospital over 2 to 4 no. storeys, with plant(c.3,100sqm) at roof level and associated c.504sqm 2no. storey energy centre. The proposed development will provide a 79no. bed hospital, with both in-patient and out-patient facilities and treatment rooms. The principal access and egress to the site will be from Groody Road to the south-east. Service access is proposed from the newly constructed link road in the north-east corner of the site with associated service egress point to the south-west onto Bloodmill Road. Pedestrian and cyclist access is provided from Groody Road and from the new link road. The development will also include ancillary administration offices, laboratories, patient pharmacy, oratory, operating theatres, staff and patient facilities including a staff and patient restaurant, car park at surface level with motorbike and cycle parking spaces, EV charging facilities, payment kiosks and security barriers. The development will also include signage, including 3no. signage totems, internal wayfinding, c.13sqm security cabin, public lighting, plant and associated screening, including gas infrastructure tank and vacuum insulated evaporator compound, all piped infrastructure and ducting, 1no. ESB substation, 3no. attenuation tanks, rainwater harvesting tanks, SUDs including green roof provision, services provision, boundary treatments, waste marshalling compound storage area, hard and soft landscaping, changes in level, internal roads and paths including vehicle set down areas, and all associated site development works above and below ground. The Planning Authority completed a screening for Appropriate Assessment for this



project and found that the project “should not exercise a significant effect on the conservation status of any SAC or SPA and therefore an Appropriate Assessment is not necessary”. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC.

Planning Reference No. 23102 – this project comprises the development of: the construction of a new 5-storey (5,529sq.m. approx.) Medical Building with plant at roof level, accommodating Medical Diagnostics (including X-Ray Screening / Diagnostics and PET CT), Medical Consulting Rooms and Treatment Rooms, offices, service areas, circulation, storage, refuse management, ESB substation and switchroom. The development will also include staff and patient facilities, including car park at surface level providing 97 no. car parking spaces and 56 no. cycle parking spaces with secure, covered bicycle parking stands, EV charging facilities, car park access barrier, internal roads and paths including vehicle set down area; signage comprising building signage and 2 no. signage totems; public lighting, boundary treatments, hard and soft landscaping, connection to existing water and waste-water services, new surface water outfall to existing drain and all related site development works and excavation works above and below ground. Vehicular, pedestrian and cyclist access to and egress from the site will be via the newly constructed link road (Towlerton Distributor Road, permitted under Limerick City & County Council Register Reference No. 19/546).

In the absence of appropriate safeguards, the potential would exist for the current proposed road extension project to combine with this other project to result in perturbations to local surface water quality and downstream impacts to the Lower River Shannon SAC. However it is noted that an Natura Impact Statement has been completed for this project and this Natura Impact Statement has set out a range of mitigation measures that aim to ensure this project does not have the potential, alone or in-combination with other plans or projects, to result in adverse effects to this SAC. The Natura Impact Statement for this project has concluded that this project will not have the potential, alone or in-combination with other plans or projects, to result in adverse effects to the Lower River Shannon SAC. On the basis of this finding, it can be concluded that the current project will not have the potential to combine with this project to result in cumulative adverse effects to the Lower River Shannon SAC.

Limerick City & County Council Castletroy Link Road: this project comprises the development of a new link road connecting Golf Links Road from Schoolhouse Road junction with the Groody Road at Kilbane Roundabout.

In the absence of appropriate safeguards, the potential would exist for the current proposed road extension project to combine with this other project to result in perturbations to local surface water quality. However, with the implementation of standard best practice measures have been set out for this project and are detailed in the documentation accompanying this project. Provided all standard best practice measures are implemented for both this project and the currently proposed road alignment there will be no potential for both to combine to result in likely significant effects to the environment.

## **6.0 CONCLUSION**

The proposed Bloodmill Road does not trigger the threshold for mandatory EIA/EIAR as set out in the Roads Act 1993 (as Amended) and/or in the Road Regulations of 1994 and has been assessed as a sub-threshold EIA development. This EIA Screening Assessment has determined that the characteristics of the proposed development are considered not significant due to the scale and nature of the proposed road development, the characteristics and sensitivities of the receiving environment and design and standard best practice mitigation measures that will be implemented as part of the construction phase and operation phase of the proposed development.

