

Bloodmill Road Extension

Limerick City and County Council
Comhairle Cathrach & Contae Luimnígh
Transportation & Mobility Directorate

Report on

Project Description



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& Contae **Luimnígh**
Limerick City
& County Council



July 2023



Document Control Sheet

Client	Limerick City and County Council
Project Title	Bloodmill Road Extension
Document Title	Project Description
Document No.	22103RD – Doc01

Revision	Status	Author	Reviewed By	Approved By	Date
01	Internal Draft	B Loughrey			28-02-2023
02	External Draft	B Loughrey	B Loughrey		29-05-2023
03	External Draft	B Loughrey	D Connell	J Daly	10-07-2023
04	Client Issue	B Loughrey	D Connell	J Daly	13-07-2023

1.1 PROJECT AIMS

MHL Consulting Engineers have been appointed by Limerick City and County Council (LCCC) to design and manage the delivery of the Bloodmill Road Extension Scheme, at Towlerton, Ballysimon, Limerick.

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.

1.2 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.

Figure 1.1 below shows the site location in the south-eastern side of Limerick City centre.



Figure 1.1 Site Location of Proposed Bloodmill Road Extension

1.3 DESCRIPTION OF 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 220m³ attenuation tank before out falling to the Towlerton Stream. Detailed layout drawings and long sections for the proposed surface water drainage works are provided in the enclosed drawing pack. **Refer to document 22103RD-Doc 06 “Surface Water Drainage and Flood Risk Summary” for further details on the surface water drainage system.**

1.4 APPROACH TO BRIDGE REPLACEMENT AND INSTREAM WORKS

It is expected that the Towlerton 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 1.2 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 Towlerton 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 Towlerton.
- 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.

A cross section through the proposed culvert is provided in the enclosed drawing pack.

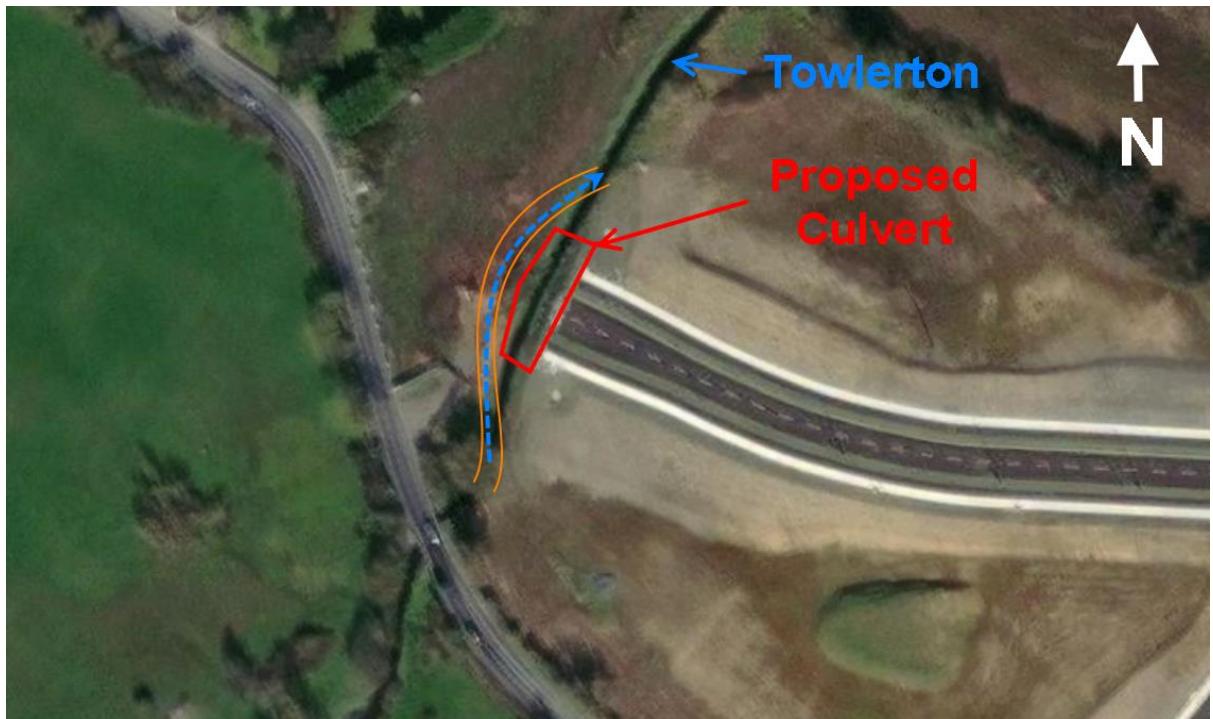


Figure 1.2 Proposed Temporary Stream Diversion for Culvert Construction

1.5 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 masonry arch bridge and walls/ditches, imported and reused rock fill, imported and reused top soil, concrete blocks, pavers and sets, natural stone pavers 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, galvanized, 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.

1.6 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.

1.7 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) that indicate proposed site compound location, staff parking area, storage areas and indicative haul routes to and from the site are provided in the enclosed drawing pack.

1.8 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 1.4 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 link road opening, all tree planting, verge planting and embankment planting will be carried out.

1.9 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 (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)

1.10 EARTHWORKS

Approximately 730m³ 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.

Refer to document 22103RD-Doc 05 “Outline Construction Environmental Management Plan” for details on the project organisation and responsibilities, project communication and co-ordination, analysis of potential impacts, environmental control measures, control of pollution, watercourses, construction management information, construction scheduling, site traffic/deliveries, waste mitigation measures, air and noise control measures, sensitive receptors, invasive species, monitoring and emergency procedures.