Water Rock Urban Expansion
Area Infrastructure Works
Part 8 Planning Application Report
Cork County Council

November 2018
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1. Introduction

1.1. Objective of Report
The objective of this report is to describe the projects which comprise the ‘Water Rock Urban Expansion Area Infrastructure Works’. The aim of the proposed infrastructure works is to facilitate and accelerate future housing delivery in the Water Rock Urban Expansion Area (UEA) which is located approximately one kilometre to the north west of Midleton Town Centre. In accordance with the Planning and Development Regulations, 2001 (as amended), this report details the proposed development together with the accompanying drawings which together describe the nature and extent of the proposed development.

1.2. Proposed Development - Water Rock UEA Infrastructure Works
With reference to Figure 1-1 the eight projects which comprise the Water Rock UEA Infrastructure Works are as follows:

1. Services Corridor Link Road - connecting the Midleton Northern Relief Road to Water Rock Road;
2. Surface Water Drainage System - for new/ upgraded roads and to allow for attenuated flows from future UEA development;
3. Junction Upgrade of Cork/ Midleton Road and Midleton Northern Relief Road;
4. Traffic Management Measures for Water Rock Road - to protect the N25 national road traffic from any increased turning movements at the Water Rock Road/ N25 junction;
5. Bridge over Railway and Extension to Services Corridor Link Road;
6. Railway Stop - along existing Cork-Midleton Railway;
7. Upgrade/ Realignment of Water Rock Road - between Water Rock Road Level Crossing and the Carrigane Road;
8. Wastewater Pumping Station - to Pump Wastewater from Future UEA Development to the Existing Carrigtwohill Wastewater Treatment Plant.

Further detail on each of these projects is included in Section 3 of this report.
1.3. Part 8 Documents

The following is a list of documents contained in the Part 8 planning application for the Water Rock UEA Infrastructure Works:

- Part 8 Planning Application Report (this document);
- Ecological Impact Assessment;
- Outline Construction Environmental Management Plan (CEMP);
- Flood Risk Assessment;
- Environmental Impact Assessment Screening Report;
- Report on Screening for Appropriate Assessment;
- Archaeological, Architectural and Built Heritage Impact Assessment;
- Part 8 Drawings.

1.4. Public Exhibition

A Public Exhibition has been scheduled for November 15th 2018 from 12:00 to 21:00 in the Midleton Park Hotel. This will provide the public with an opportunity to view the plans and raise queries with the project team for the Water Rock UEA Infrastructure Works.

Plans and particulars of the proposed development are available for inspection and/or purchase at a fee of €15 per set from November 9th 2018 up to and including December 7th 2018 as follows:
• Planning Counter, Ground Floor, County Hall, Cork between the hours of 09:00 to 17:00 on each working day;
• Cork County Council Midleton Area Engineer’s Office, The Lodge, Youghal Road, Midleton, Co. Cork between the hours of 09:00 to 17:00 on each working day;
• Cork County Council Cobh Area Engineer’s Office, Ballinglanna, Cobh, Co. Cork between the hours of 09:00 to 17:00 on each working day.
• Midleton Library, Main Street, Midleton Co. Cork between the hours of 09:30 and 17:30 between Tuesday and Saturday;
• Cobh Library, Arch Building, Casement Square, Cobh, Co. Cork between the hours of 09:30 and 17:30 between Tuesday and Saturday.

Plans and particulars are also available for inspection and to print from Cork County Council’s website at the below address:
https://www.corkcoco.ie/planning/housing-infrastructure-implementation-team

1.5. Submission Process
Submissions and observations with respect to the proposed development may be made on or before 13:00 on Friday December 21st 2018 as follows:
• Online at Cork County Council’s website at https://www.yourcouncil.ie or
• In writing and clearly marked ‘Part 8 – Water Rock UEA Infrastructure Works’ to Ross Palmer, A/Senior Planner, Housing Infrastructure Implementation Team, Cork County Council, County Hall, Carrigrohane Road, Cork, T12 R2NC
2. Project Background and Design Approach

2.1. East Cork Local Area Plan (Cork County Council, 2017)

2.1.1. Water Rock Urban Expansion Area

2.1.1.1. Policy Background
The planning process leading to the current Water-Rock Urban Expansion Area proposal began with the publication of the Cork Area Strategic Plan 2001 (CASP) which established the case to focus future population and employment growth along the Cork to Midleton rail corridor as part of an integrated land use and transportation strategy. Through Local Area Plans, substantial new residential areas were planned for the station hinterlands including Water-Rock in Midleton. Originally designated as a Strategic Policy Area in 2005, the Midleton Electoral Area Local Area Plan in 2011 emphasised the importance of the Water-Rock in delivering a high level of growth and achieving future population targets and also made provision for the preparation of a Framework Masterplan for Water-Rock in 2015. This Masterplan has since been incorporated into the most recent East Cork Municipal District Local Area Plan 2017 which divides the site into independent zonings within the UEA.

Meanwhile, the County Development Plan 2014 (CDP 2014) sets out the strategy for the delivery of new housing for County Cork. The Core Strategy of this plan outlines targets for the delivery of new housing to meet the likely needs of the future population in the various urban and rural areas that make up the County as a whole. The CDP 2014 itself follows a strategy developed by CASP 2001 (updated 2008) where the intention is to integrate housing and transport infrastructure particularly in the Metropolitan Cork area and identifies Water Rock as a priority project where delivery is required in the short term if a shortage of land suitable for housing development is to be avoided in Metropolitan Cork.

2.1.1.2. East Cork Municipal District Local Area Plan
The East Cork Municipal District Local Area Plan (MDLAP) published by Cork County Council in 2017 aims to expand the economic base of Midleton to enhance local employment opportunities and to underpin population growth. The priority area identified for population growth in that document in the future is the Water Rock UEA. The UEA area, which is shown in Figure 2-1, was chosen to form the basis of a major urban expansion of the town of Midleton because of its proximity to the Cork to Midleton railway line.

Within the East Cork MDLAP provision is made for the development of the UEA for a range of uses including approximately 2,500 residential units, school sites, a neighbourhood centre, parks, a greenway, a railway station and business uses over three separate phases.

The intention of the East Cork MDLAP is that the Water Rock UEA development will be implemented over three phases. As part of Phase 1 up to 1,000 houses will be completed, 1,800 houses will be completed by the end of Phase 2 and by the completion of the UEA development in Phase 3 a total of approximately 2,500 houses will have been completed. Other development such as school and parks will be developed over the three phases.
2.1.2. Delivery of Core Infrastructure Required for Water Rock UEA
The existing Water Rock UEA lands are made up of multiple land ownerships and the assembly of the entire site into a single ownership would be a difficult challenge for any housing developer. Also, this pattern of land ownership adds to the complexity of funding and delivering the roads, water services and other infrastructure necessary at the outset of development.
Because of this, within the East Cork MDLAP, Cork County Council proposes that three ‘bundles’ of core infrastructure will be developed within the UEA that will enable individual parcels of zoned land to be developed independently of each other but in accordance with the LAP. These infrastructure bundles are to be delivered to facilitate the development of individual phases of the UEA construction. The first bundle ‘A’ would be constructed to facilitate the development of phase 1 of the UEA. Bundles B and C would be delivered to facilitate subsequent development.
Off-site infrastructure works which are necessary for the development of the UEA are also identified in the MDLAP. Again, these works are linked to phases 1 to 3 of the UEA development.

2.1.3. Water Rock UEA Infrastructure Works
The eight projects which comprise the ‘Water Rock UEA Infrastructure Works’ include all of the infrastructure projects identified in the East Cork LAP as being required to facilitate the development of Phase 1 of the UEA as well as a number of key pieces of infrastructure required for later phases.

2.1.4. Local Infrastructure Housing Activation Fund (LIHAF) Funding
Cork County Council have been awarded Local Infrastructure Housing Activation Fund (LIHAF) funding by the Department of to the value of €5.5 million for the following infrastructure works:
1. Services Corridor Link Road connecting the Midleton Northern Relief Road to Water Rock Road;
2. Surface Water Drainage System for new road and to allow for attenuated flows from future UEA development;
3. Junction Upgrade of Cork/ Midleton Road and Midleton Northern Relief Road;
4. Traffic Management Measures for Water Rock Road to protect the N25 national road traffic from any increased turning movements at the Water Rock Road/ N25 junction;
The funding award is based on 520 houses being delivered within the Water Rock UEA by 2021. Land acquisition will not be funded through the LIHAF scheme.

2.2. Objectives of Proposed Development

The objective of the Water Rock UEA Infrastructure Works is to facilitate and accelerate housing delivery in the Water Rock UEA as outlined in the Cork County Council’s East Cork MDLAP. The proposed infrastructure should promote and enhance the sustainable growth of the UEA. To do so it should facilitate future access to planned services within the UEA in terms of rail infrastructure, employment and education. The proposed infrastructure should provide safe access for users of all ages and degrees of personal mobility. The infrastructure should also promote alternative modes of travel such as walking and cycling.

A description of each piece of infrastructure included in the Water Rock UEA Infrastructure Works is provided in Section 3.

2.3. Design Guidance and Standards

The infrastructure works are designed in accordance with the following guidance and standards:

- Design Manual for Urban Roads and Streets (Department of Transport Tourism and Sport, 2013)
- National Cycle Manual (National Transport Authority (NTA), 2011)
- The SuDS Manual (CIRIA C753) (CIRIA, 2015)
- The Greater Dublin Strategic Design Strategy
- DN-GEO-0344 – The Geometric Layout of Signal Controlled Junctions and Signalised Roundabouts (Transport Infrastructure Ireland (TII), 2005)
- IW-CDS-5030-01 - Wastewater Infrastructure Standard Details, Connections and Developer Services (Irish Water, 2017)
- IW-CDS-5030-02 - Design Risk Assessment for Wastewater Infrastructure Standard Details, Connections and Developer Services (Irish Water, 2016)
- IW-CDS-5030-03 - Code of Practice for Wastewater Infrastructure, Connections and Developer Services (Irish Water, 2017)
- IW-CDS-5030-04 - Design Risk Assessment associated with Code of Practice for Wastewater Infrastructure, Connections and Developer Services (Irish Water, 2018)
3. Description of Proposed Projects

3.1. Services Corridor Link Road

3.1.1. Overview
The Services Corridor Link Road is a proposed road connecting the Midleton Northern Relief Road with the Water Rock Road. The aim of the road is to facilitate housing development and other development as per the East Cork MDLAP on lands adjoining the road and elsewhere within the Water Rock UEA. It shall include all ducts and services to facilitate the development of housing and associated public infrastructure in the UEA. This includes the provision of drinking water and wastewater services below the road. A segregated cycle track and footpath and bus stops will be provided along both sides of the road. Provision has also been made for junctions with future roads to be provided within the UEA.

3.1.2. Drawings
The proposed Services Corridor Link Road is shown in the following preliminary drawings:
- 5163809-HTR-DR-0010 to 0016

3.1.3. Description of Services Corridor Link Road

3.1.3.1. Cross-Section
The proposed cross-section for the Services Corridor Link Road is shown in Figure 3-1 and is described in Table 1.

![Figure 3-1 - Proposed Services Corridor Link Road cross-section](image)

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<th>Element</th>
<th>Width</th>
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<td>Carriageway</td>
<td>7m</td>
<td>This is based on a lane width of 3.5 metres to allow access for larger vehicles as described in DMURS. This access may be required for larger vehicles to the lands zoned for enterprise to the south of the railway line. Access would be via the proposed extension to the Services Corridor Link Road and proposed bridge over the railway which are described in Section 3.4.1 of this document. The carriageway will be widened locally at a number of junctions to allow for right turn lanes. These locations are shown in drawings 5163809-HTR-DR-0010 to 0014.</td>
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Element | Width | Description
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Verge | 2 x 3m | A verge is to be provided on both sides of the carriageway to act as a buffer between vehicular traffic and pedestrians/ cyclists. Trees/planting will be provided in the verge. The proposed width of the verge will also allow for the installation of below ground services in the verge adjacent to the carriageway where they will not be impacted by planting/tree roots.
Cycle Track | 2 x 2.25m | Two-way cycle tracks will be provided on both sides of the road. This will provide easy access to the cycle track from future residential developments on both sides of the Services Corridor Link Road without excessive crossing of the road for cyclists. The cycle track shall encourage cycling within the UEA from an early stage in the development of the UEA.
Footway | 2 x 2m | Footways will be provided outside each of the cycle tracks. This will provide easy access to the footway from future residential developments on both sides of the Services Corridor Link Road without excessive crossing of the road for pedestrians. The planted verge buffer should also make footways more desirable and safer for pedestrians. This shall encourage walking within the UEA from an early stage in the development of the UEA.
Services | - | Below ground services are proposed outside of the carriageway where possible for health and safety and ease of maintenance reasons.

### 3.1.3.2. Junctions

For major junctions along the Services Corridor Link Road signalised junctions are proposed. Raised table signalised crossing facilities for pedestrians and cyclists are proposed at these junctions to prioritise safe pedestrian and cyclist movements over vehicular traffic.

It is proposed that the junctions of minor roads with the Services Corridor Link Road will be priority junctions. Traffic travelling east to west along the Services Corridor Link Road will have priority. Raised table crossing facilities for pedestrians and cyclists shall be provided at all minor junctions to prioritise safe pedestrian and cyclist movements over vehicular traffic.

The locations of signalised and priority junctions are shown in drawings 5163809-HTR-DR-0011 to 0014.

### 3.1.3.3. Route Description

The process for selecting the route of the proposed Services Corridor Link Road is described in a Route/Layout Selection Report which has been prepared for the Infrastructure Works. This involved a constraints study, an assessment of numerous route options based on environmental, engineering and economic criteria and a project evaluation of the preferred route.

It is proposed that the Services Corridor Link Road will be accessed via the existing Midleton Northern Relief Road roundabout. The road will initially follow the line of the existing extension of the Northern Relief Road towards the CGI Industrial Estate. It will then move off this line continuing in a north westerly direction and a crossroads junction will then be provided. This crossroads will provide the new access point to the Industrial Estate and would be the gateway point for the UEA.

After the crossroads the road will continue in a north westerly direction before turning a bend and continuing in generally south westerly direction. The road will continue in this general direction with junctions proposed along the route before the road connects to the existing Water Rock Road at a new junction to be provided between the two roads. The route of the road is shown in drawings 5163809-HTR-DR-0011 to 0014.

### 3.1.3.4. Pavement

The pavement will be designed in compliance with TII standards. The process will start with a ground investigation and a consideration of the cumulative traffic loading which the pavement is required to carry followed by the design of the road foundations and the base and surface layers. A change of surface will be provided at raised tables.
3.1.3.5. Drainage
The proposed drainage for the Services Corridor Link Road is described in Section 3.2 of this report.

3.1.3.6. Public Lighting
Public lighting will be provided along the length of the Services Corridor Link Road. The road lighting will be designed to the correct lux levels for the road carriageway, cycle lanes and pedestrian footways. The lighting shall be designed in accordance with Cork County Council’s Public Lighting Manual and Product Specification 2018 and BS 5489:2013.

3.1.3.7. Signage and Road Markings
Junction layouts are outlined in drawings 5163809-HTR-DR-0011 to 0014. Traffic signs and road markings will be reviewed and confirmed as part of the detailed design of the proposed Services Corridor Link Road.
3.2. Surface Water Drainage System

3.2.1. Overview
The proposed surface water drainage system will accommodate surface water run-off from the Services Corridor Link Road and the upgrade/realignment of the Water Rock Road. Run-off from these areas will be attenuated within the surface water drainage system. The proposed surface water drainage system will also accommodate attenuated design flows that will be generated by the future UEA development.

3.2.2. Drawings
The proposed Surface Water Drainage System is shown in the following preliminary drawings:
- 5163809-HTR-DR-0080 to 0084

3.2.3. Description of Surface Water Drainage System
The process for designing the surface water drainage system is described in the Route/Layout Selection Report and in the Surface Water Drainage Report which have been prepared for the Infrastructure Works. They include an assessment of SuDS techniques which would be suitable for the proposed Services Corridor Link Road and the upgrade/realignment of the Water Rock Road. This assessment is based on a Constraints Study, a Flood Risk Assessment and a Hydrogeological Characterisation Report which have all been prepared for the proposed development.

The proposed road drainage will consist of trapped gullies which will collect surface water run-off from the Services Corridor Link Road and the Water Rock Road upgrade/realignment. The gullies will connect to a network of pipes and catch-pit manholes which will remove sediment and debris from the run-off. Treatment shall be provided by a by-pass separator with attenuation provided by below ground attenuation (5 tanks and 1 oversized pipe) with discharge controlled by a flow control device.

The overall proposed surface water drainage layout is shown in drawing 5163809-HTR-DR-0080. The majority of the surface water run-off from the upgrade/realignment of the Water Rock Road will discharge to the Owenacurra via the extension of an existing 1050mm diameter surface water sewer while the remainder of the run-off from the upgrade/realignment of the Water Rock Road will continue to discharge to the Water Rock Stream.

Run-off to the Owenacurra will be limited to greenfield run-off rates (QBAR where practicable and 1 in 100-year greenfield runoff rates where QBAR is not practicable). Technical input from the Midleton Flood Relief Scheme project has confirmed that these flows would have negligible impact on water levels and flood risk in the Owenacurra River.

Discharge rates to the Water Rock Stream will be lower than existing rates. This is due to a reduction in catchment draining to the Water Rock Stream and attenuation of previously unattenuated sections of Water Rock Road. These works would therefore provide a reduction in flows during extreme flood events and so the Water Rock UEA Infrastructure Works would be neutral or slightly beneficial with regards to flood risk in the Water Rock Stream.
3.3. Junction Upgrade of Cork/ Midleton Road and Northern Relief Road

3.3.1. Overview
The primary objective of the junction upgrade is to reconfigure the junction to reduce overall queue lengths from the junction towards the N25 eastbound diverge lane which would otherwise result from the additional traffic generated by development of the UEA.

3.3.2. Drawings
The proposed upgrade of the Cork/ Midleton Road and Northern Relief Road junction is shown in the following preliminary drawing:
- 5163809-HTR-DR-0071

3.3.3. Description of Junction Upgrade
The process for designing the junction upgrade is described in the Route/ Layout Selection Report which has been prepared for the Water Rock UEA Infrastructure Works. This followed a constraints study for the junction upgrade.

It is proposed to reconfigure the junction so that on the western arm of the junction the existing left turn lane to the Northern Relief Road will be converted to a shared straight-ahead and left turn lane. A merge lane will be provided on the eastern arm of the junction to allow the two Midleton bound lanes to merge into a single lane. In order to accommodate this the existing build-out between the footpath and the road will be removed. The existing right turn lane onto the Northern Relief Road from the eastern arm will also be removed and this movement will be prohibited. The traffic light phasing will be optimised for the remaining permitted movements. The proposed junction upgrade requires the re-location of existing utility apparatus including existing ESB mini-pillars and Eir chambers.

A Traffic and Transport Assessment has been undertaken for the Water Rock UEA. A micro-simulation model of different options for the junction upgrade was developed. Traffic modelling which was undertaken shows that the proposed upgrade, as outlined above and shown in drawing 5163809-HTR-DR-0071, is far more effective at preventing traffic backing up on to the N25 from the junction than an upgrade of the junction which does not involve prohibiting the right turn movement on to the Midleton Northern Relief Road.

Further information on the Traffic and Transport Assessment for the Water Rock UEA is included in Section 4.2 of this report.
3.4. Traffic Management Measures for Water Rock Road

3.4.1. Overview
The objective of the traffic management measures for Water Rock Road is to ensure that the Water Rock development does not result in additional traffic movements at the existing Water Rock Road / N25 junction as it is unsuitable for accommodating these additional movements. The traffic management measures will consist of the closure of the Water Rock Road level crossing to vehicular traffic. It is intended that the Services Corridor Link Road connecting the Midleton Northern Relief Road and the Water Rock Road will be completed prior to the closure of the Water Rock Road level crossing to vehicular traffic.

3.4.2. Drawings
The proposed closure of the Water Rock Road level crossing to vehicular traffic is shown in the following preliminary drawing:

- 5163809-HTR-DR-0095

3.4.3. Description of Traffic Management Measures
The process for selecting the traffic management measures for Water Rock Road is described in the Route/Layout Selection Report which has been prepared for the Water Rock UEA Infrastructure Works. This included an environmental, engineering and economic assessment of numerous options for the road closure and a project appraisal for the preferred option.

It is proposed to close the Water Rock Road level crossing to vehicular traffic using bollards at both sides of the level crossing. This will limit the amount of traffic using the junction of the Water Rock Road and the N25 to the Water Rock Road properties to the south of the level crossing. It will also prevent traffic from the future UEA using the junction. Suitable signage will be provided at both sides of the closure to inform road users. A turning head will be provided on the south side of the closure to allow vehicles who travel as far as the closure in error to turn around.
3.5. Bridge over Railway and Extension to Services Corridor Link Road

3.5.1. Overview
The railway bridge over the Cork to Midleton railway line and the extension to the Services Corridor Link Road will provide vehicular, pedestrian and cyclist access from the Water Rock UEA to the lands zoned for enterprise, to the south of the UEA and the railway line. It will also provide access from the UEA and the lands zoned for enterprise to the proposed railway station (Infrastructure Works Project 6).

3.5.2. Drawings
The proposed extension of the Services Corridor Link Road and Bridge over the existing Cork to Midleton Railway Line are shown in the following preliminary drawings:

- 5163809-HTR-DR-0050 to 0054

3.5.3. Description of Bridge over Railway and Extension to Services Corridor Link Road

3.5.3.1. Bridge Construction
The selection of the bridge type is based on the most appropriate bridge type for the span of the bridge required. The bridge will be constructed from inverted precast concrete T-beams spanning between reinforced earth abutments. The T beams will support a reinforced concrete slab. A vertical clearance of 6.4 metres above the railway line will be provided to allow for future electrification of the railway line as per Irish Rail’s requirements.

3.5.3.2. Cross Sections
The proposed cross section of the extension to the Services Corridor Link Road is the same as the proposed cross-section of the Services Corridor Link Road. The proposed cross-section of the bridge over the railway will also be the same except that verges are not proposed on either side to avoid the structure becoming excessively wide and costly.

3.5.3.3. Junctions
For major junctions along the extension of the Services Corridor Link Road signalised junctions are proposed. Raised table signalised crossing facilities for pedestrians and cyclists will be provided at these junctions to prioritise safe pedestrian and cyclist movements over vehicular traffic.

It is proposed that the junctions of minor roads with the extension to the Services Corridor Link Road will be priority junctions. Traffic travelling north to south along the extension to the Services Corridor Link Road will have priority. Raised table crossing facilities for pedestrians and cyclists will be provided at all minor junctions to prioritise safe pedestrian and cyclist movements over vehicle traffic.

3.5.3.4. Route and Layout Description
The process for selecting the route and layout of the bridge and the extension to the Services Corridor Link Road is described in a Route/ Layout Selection Report which has been prepared for the Infrastructure Works. This involved a constraints study, an assessment of numerous route/layout options based on environmental, engineering and economic criteria and a project evaluation of the preferred option.

The extension to the Services Corridor Link Road provides a direct north route for vehicular traffic, pedestrians and cyclists from the Services Corridor Link Road to the proposed railway station which is located in a central location within the UEA. The junction to access the bridge over the railway will be located between the Services Corridor Link Road and the railway station. The bridge will be located between the existing Water Rock Road level crossing and the CGI Industrial Estate level crossing.

3.5.3.5. Pavement
The pavement will be designed in compliance with TII standards. The process will start with a ground investigation and a consideration of the cumulative traffic loading which the pavement is
required to carry followed by the design of the road foundations and the base and surface layers. A change of surface will be provided at raised tables.

3.5.3.6. Drainage
The proposed drainage for the extension to the Services Corridor Link Road is described in Section 3.2 of this report.

3.5.3.7. Public Lighting
Public lighting will be provided along the length of the proposed bridge and the extension to the Services Corridor Link Road. The road lighting will be designed to the correct lux levels for the road carriageway, cycle lanes and pedestrian footways. The lighting shall be designed in accordance with Cork County Council's Public Lighting Manual and Product Specification 2018 and BS 5489:2013.

3.5.3.8. Signage and Road Markings
Traffic signs and road markings will be reviewed and confirmed as part of the detailed design of the proposed bridge and extension to the Services Corridor Link Road.
3.6. Railway Stop

3.6.1. Overview
A railway stop is proposed within the Water Rock UEA along the Cork to Midleton Railway. The provision of the railway station aims to facilitate and accelerate housing development and other development within the Water Rock UEA. It will provide an alternative and sustainable transport mode for future residents of the UEA to commute to and from employment centres along the Cork to Midleton railway line.

3.6.2. Drawings
The proposed railway stop along the Cork to Midleton railway line is shown in the following preliminary drawing:
- 5163809-HTR-DR-0055

3.6.3. Description of Railway Stop

3.6.3.1. Railway Stop Location
The proposed location of the railway stop has been selected based on a site selection process as described in the Route/ Layout Selection Report which has been prepared for the Water Rock UEA Infrastructure Works and following consultation with Irish Rail. This site selection process involved a constraints study, an assessment of numerous route/ layout options based on environmental, engineering and economic criteria and a project evaluation of the preferred option. In addition Irish Rail have undertaken a feasibility study of the proposed location.

The proposed train station will be located centrally in the Water Rock UEA within walking distance of all parts of the UEA. It will be located approximately 1.3 kilometres to the west of Midleton Railway Station. It will be accessible by car, bus, bicycle and foot from the UEA via an extension to the Services Corridor Link Road. The proposed railway stop will be the main southern gateway to the UEA.

3.6.3.2. Railway Stop Layout
The railway stop layout has been developed with the objective of encouraging the use of sustainable transport modes by users of the railway stop. Footways and cycle tracks are proposed on each side of the extension to the Services Corridor Link Road to access the railway platform directly. Generous cycle parking facilities are proposed at the railway station drop-off area. A number of disabled car parking spaces, set down areas and taxi parking areas are also proposed.

A 90-metre-long, 4-metre-wide platform is proposed to accommodate 4 number rail carriages. The ticket machines will be automated. A simple shelter is proposed on the platform for waiting passengers. Disabled access to the platform will be provided at a location convenient to the disabled parking bays and the set down and taxi areas.
3.7. Upgrade/ Realignment of Water Rock Road

3.7.1. Overview
It is proposed to upgrade and realign the Water Rock Road between its junction with the Carrigane Road and just north of the railway line level crossing of the Water Rock Road. The upgrade/realignment is proposed so that the Water Rock Road will be suitable for the anticipated increase in traffic volumes along the road and to facilitate development within the UEA along this road and will include the provision of ducts and services. Pedestrian and cycling facilities are proposed along the road. Provision has also been made for junctions with future roads to be provided within the UEA.

3.7.2. Drawings
The proposed upgrade of Water Rock Road between the Carrigane Road and the railway line level crossing of the Water Rock Road is shown in the following preliminary drawings:
- 5163809-HTR-DR-0030 to 0034 and 0036 to 0038

3.7.3. Description of Upgrade/ Realignment of Water Rock Road

3.7.3.1. Cross-Section
The proposed cross-section for the upgrade/realignment of the Water Rock Road varies along its length due to a number of constraints along the line of the road. It is anticipated that the section of Water Rock Road between the Services Corridor Link Road and the Carrigane Road will be the most highly trafficked part of this road. It will be used for circulation within the UEA once a future UEA Loop Road is constructed to connect to the Water Rock Road. It will also be an alternative route to the Carrigane Road. The section between the Services Corridor Link Road and just north of the railway line level crossing of the Water Rock Road will have less traffic and will provide local access to future UEA development and existing houses. The proposed cross-section is as described in Table 3-2.

| Table 3-2 - Proposed Cross-Section for Water Rock Road Upgrade/ Realignment |
|---------------------------------|-----------------|
| **Element**                     | **Description** |
| Carriageway                     | A 6-metre carriageway is proposed between the junctions of the Water Rock Road with the Services Corridor Link Road and the Carrigane Road. This is based on a reduced lane width of 3 metres which is suitable for lower speeds. Between the junction of the Services Corridor Link Road and the Water Rock Road level crossing a carriageway width of 5.5 metres is proposed. |
| Verge                           | A verge is proposed on the east side of the road between the junction with the Services Corridor Link Road northwards as far as the junction with the future Loop Road. This verge is to be 1.5 metres in width. To the south of the junction with the Services Corridor Link Road a verge of 1 metre width is proposed on the east side of the road. To the north of the junction with the future Loop Road space is limited due to numerous existing houses along the road and no verge is proposed. In sections of the road where offline realignment will be undertaken a buffer will be maintained on the western side of the realignment between the new section of road and the existing road. This buffer will be a planted verge which will vary in width. Where possible the existing planting in this verge will be retained. |
| Cycle Track                     | A two-way off-road cycle track is proposed on the east side of the Water Rock Road between the junction with the Services Corridor Link Road and the junction with the future Loop Road. The cycle track will be 2.25 metres in width. This cycle track shall encourage cycling within the UEA from an early stage in the development of the UEA. |
Table 3-2 - Proposed Cross-Section for Water Rock Road Upgrade/ Realignment

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footway</td>
<td>Pedestrian facilities will be provided on both sides of the upgraded/realigned Water Rock Road along its entire length. These will comprise of a 2-metre footway along the entire eastern side of the road. On the western side of the road a 2-metre footway will be provided in sections of on-line realignment. Where the road is to be upgraded off-line pedestrians will be able to use the existing Water Rock Road. Vehicular traffic on this road will be restricted to residents of a maximum of 6 houses and will therefore be minimal. This shall encourage walking within the UEA from an early stage in the development of the UEA.</td>
</tr>
<tr>
<td>Services</td>
<td>Below ground services are proposed outside of the carriageway where possible for health and safety and ease of maintenance reasons.</td>
</tr>
</tbody>
</table>

3.7.3.2.  Junctions
For major junctions along the upgrade/realignment of the Water Rock Road signalised junctions are proposed. Raised table signalised crossing facilities for pedestrians and cyclists will be provided at these junctions to prioritise safe pedestrian and cyclist movements over vehicular traffic.

It is proposed that the junctions of minor roads with the upgraded/realigned Water Rock Road will be priority junctions. Traffic travelling north to south along the Water Rock Road will have priority. Raised table crossing facilities for pedestrians and cyclists shall be provided at all minor junctions to prioritise safe pedestrian and cyclist movements over vehicular traffic.

The locations of signalised and non-signalised junctions are shown in drawings 5163809-HTR-DR-0031 to 0034.

3.7.3.3. Route Description
The process for selecting the route of the proposed upgrade/realignment of the Water Rock Road is described in a Route/Layout Selection Report which has been prepared for the Infrastructure Works. This involved a constraints study, an assessment of a number of route options based on environmental, engineering and economic criteria and a project evaluation of the preferred route.

It is proposed that there will be a mixture of on-line upgrade and off-line realignment of the Water Rock Road between its junctions with the Services Corridor Link Road and the future Loop Road. In areas of off-line realignment, the new road will run very close to the existing road. A planted buffer, comprising of existing hedgerows if possible, will separate the new and old roads. The old road will be used to access existing Water Rock Road dwellings.

To the north of the junction with future Loop road and to the south of the junction with the Services Corridor Link Road the road will mainly be upgraded within its existing extents.

Upgrade works will consist of re-surfacing, provision of services and pedestrian and cyclist facilities as described in Table 3-2. Re-alignment will consist of the construction of a new road running parallel to the existing Water Rock Road as per Table 3-2.

3.7.3.4. Pavement
The pavement will be designed in compliance with TII standards. The process will start with a ground investigation and a consideration of the cumulative traffic loading which the pavement is required to carry followed by the design of the road foundations and the base and surface layers. A change of surface will be provided at raised tables.

3.7.3.5. Drainage
The proposed drainage for the upgrade/realignment of Water Rock Road is described in Section 3.2 of this report.

3.7.3.6. Public Lighting
Public lighting will be provided along the length of the upgrade/realignment of the Water Rock Road. The road lighting will be designed to the correct lux levels for the road carriageway, cycle

3.7.3.7. Signage and Road Markings

Junction layouts are outlined in drawings 5163809-HTR-DR-0031 to 0034. Traffic signs and road markings will be reviewed and confirmed as part of the detailed design of the upgrade/realignment of Water Rock Road.
3.8. Wastewater Pumping Station

3.8.1. Overview
A wastewater pumping station is proposed to facilitate future development within the Water Rock UEA. Foul wastewater generated within the development area will be conveyed, via a new gravity foul drainage network, to the proposed pumping station. Provision has also been made for a future connection from other areas within Midleton. From here wastewater will be conveyed to the existing Carrigtwohill Wastewater Treatment Plant, via a proposed pumped rising main, for treatment. The foul wastewater pumping station has been designed to accommodate the proposed development within the Water Rock UEA i.e. 2,460 dwellings and three schools in accordance with East Cork MDLAP.

3.8.2. Drawings
The proposed wastewater pumping station is shown in the following preliminary drawings:
- 5163809-HTR-DR-0086 to 0089

The proposed foul drainage network which will connect to the pumping station and the route of the rising main within the UEA are shown in drawings:
- 5163809-HTR-DR-0100 to 0121

3.8.3. Description of Wastewater Pumping Station

3.8.3.1. Location
The process for selecting the location of the proposed Wastewater Pumping Station is described in a Foul Pumping Station Site Selection Report. This involved an assessment of potential locations for the pumping station. This assessment identified the proposed site location and layout in accordance with the relevant Irish Water standards as outlined in Section 2.3.

The proposed location of the pumping station is south of railway line and north west of the Midleton Northern Relief Road opposite to the junction of the Midleton Northern Relief Road and Avoncore Cottages. It will be accessed from an existing access road from the Northern Relief Road to a hardstanding storage area.

3.8.3.2. Description
The pumping station will consist of the following below ground structures:
- An inlet manhole;
- Valve and meter chambers;
- A wet well;
- An emergency overflow tank.

The pumping station site will contain the following above ground features:
- A control building which will include welfare facilities for operatives;
- Two kiosks (wet kiosk & control kiosk);
- A galvanised steel decorative vent stack with protective grill;
- Ground level chamber and manhole covers.

The pumping station will be located within a compound. A 2.4-metre-high green mesh fence will surround the pumping station with both vehicular and pedestrian access gates. An access road will be provided from the existing access road to the hardstanding storage area. This will allow for private off-road parking.

The proposed pumping station will facilitate the development of the Water Rock UEA and help loading of the Midleton Waste Water Treatment Plant by conveying the foul wastewater to the Carrigtwohill Wastewater Treatment Plant. The construction of the pumping station and rising main (and associated costs) are being separately funded through Irish Water and it is intended that this infrastructure would be implemented by Irish Water (independently of any of the other infrastructure).
4. Environmental Summary

4.1. Flood Risk Assessment

A flood risk assessment (FRA) for the Water Rock UEA Infrastructure Works has been undertaken in accordance with “The Planning System and Flood Risk Management” 2009 guidelines (The Guidelines) and is included as part of the Part 8 planning application. This includes detailed hydraulic modelling and analysis of the Water Rock Stream that flows along the western side of the UEA and discharges to the estuary south of Midleton. In addition, this FRA incorporates the recently revised (January 2018) Flood Zone Mapping provided by the LeeCFRAMS study where relevant to the UEA which summarises flood risk associated with the Owenacurra River. The Midleton Flood Relief Scheme team consisting of Cork County Council, the Office of Public Works (OPW) and Arup Consulting Engineers were consulted during the preparation of the FRA. Preliminary technical information from that project was used in the FRA.

The FRA concludes that the Water Rock UEA Infrastructure Works are outside of any anticipated zone of flooding from the Owenacurra River and the majority of works are outside the areas identified as being at risk of flooding from the Water Rock Stream. Most of the works are therefore in Flood Zone C with estimated flood risk of less than 1 in 1000 years (<0.1% AEP).

The proposed infrastructure works located in Zone B (with flood risk estimated between 1 in 100 to 1 in 1000 years (1% AEP to 0.1% AEP) are an essential part of an overall strategy to facilitate a major urban expansion of the town of Midleton and fully utilise the Cork to Midleton railway line.

The recommendations of this FRA for the Water Rock UEA Infrastructure Works have been incorporated to ensure that, as applicable, all of the Water Rock UEA Infrastructure Works including those located in Zone B are:

- Not vulnerable to flooding;
- Are not at risk of flooding;
- Do not increase flood risk elsewhere;
- Remain accessible to emergency vehicles during the extreme flood event.

The Water Rock UEA Infrastructure Works are therefore considered to be justified in accordance with The Guidelines and appropriate for the location subject to implementation of the recommendations of this FRA for the Water Rock UEA Infrastructure Works.

Recommendations from the FRA have been incorporated into the design of the surface water drainage system. Surface water runoff from the majority of the Water Rock UEA Infrastructure Works will be attenuated to greenfield runoff rates (QBAR where practicable and 1 in 100 year greenfield runoff rates where QBAR is not practicable) with most discharging to the Owenacurra River. Technical input from the Midleton Flood Relief Scheme project has confirmed that these flows would have negligible impact on water levels and flood risk in the Owenacurra River.

Discharge rates to the Water Rock Stream will be significantly lower than existing rates. This is due to a reduction in catchment draining to the Water Rock Stream and attenuation of previously unattenuated sections of Water Rock Road. These works would therefore provide a reduction in flows during extreme flood events and so the Water Rock UEA Infrastructure Works would be neutral or slightly beneficial with regards to flood risk in the Water Rock Stream.

4.2. Transport Assessment

Cork County Council have commissioned the Water Rock Strategic Transport Assessment (WRSTA) for the Water Rock UEA. The objective of the WRSTA is to assess the impact on the local road network in each phase of the development of the Water Rock UEA. The WRSTA also includes for the impact of other development outside of the Water Rock UEA as the Water Rock UEA develops. This includes all other potential development in Midleton and Carrigtwohill, including the Carrigtwohill UEA and along the N25 corridor between Cork and Midleton. The assumed level of development, and associated trip generation, therefore represents the worst-case scenario for traffic generation in the study area.

The assessment relating to Phase 1 of the Water Rock UEA includes all of the transport infrastructure projects related to Phase 1 of the UEA, which are included in the Part 8 planning application for the Water Rock UEA Infrastructure Works as follows:
• Project 1: Services Corridor Link Road
• Project 3: Junction Upgrade of Cork/ Midleton Road and Midleton Northern Relief Road;
• Project 4: Traffic Management Measures for Water Rock Road - to protect the N25 national road traffic from any increased turning movements at the Water Rock Road/ N25 junction;
• Project 6: Railway Stop - along existing Cork-Midleton Railway;

The other two transport infrastructure projects, i.e. bridge over railway (Project 5) and upgrade / realignment of Water Rock Road (Project 7) included in the Part 8 planning application for the Water Rock UEA Infrastructure Works, will be progressed in conjunction with later phases of the development and are assessed in Phases 2 and 3 in the WRSTA along with other infrastructure projects, which are planned or are identified as being required within the WRSTA study area.

The WRSTA involved the development of two traffic models as follows:

i. A strategic level Local Area Model (LAM) developed in SATURN (Simulation Assignment of Traffic to Urban Road Networks), which is used to assess the transport impacts of the development of the study area on the road network in Midleton and Carrigtwohill and the N25 Cork to Rosslare Road between Midleton and Carrigtwohill;

ii. A micro-simulation model developed in VISSIM (Verkehr In Städten –SIMulationsmodell), which is used for a more detailed assessment of the impacts of the development on existing junctions close to the Water Rock UEA and proposed junctions within the UEA.

The SATURN and VISSIM traffic modelling have been completed and the WRSTA will be published by Cork County Council shortly. The results of the traffic modelling show that infrastructure projects 1, 3, 4 and 6 outlined above will allow the development of Phase 1 of the Water Rock UEA i.e. 1054 housing units, a new primary school and office, retail and leisure space without significant impacts on the local road network. In particular, the micro-simulation modelling demonstrates that the Part 8 proposal for the Cork/ Midleton and Midleton Northern Relief Road junction will prevent traffic approaching this junction from the N25 from regularly queuing back to the N25 carriageway.

As the Water Rock UEA develops beyond Phase 1 along with other developments in Midleton, Carrigtwohill and along the N25 corridor, further upgrades to local transport infrastructure will be required. These include the upgrade / realignment of the Water Rock Road and the bridge over the railway, which are included in this Part 8 submission. They also include offsite infrastructure works, such as the upgrade of the N25 (including the existing junctions at Cobh Cross, Knockgriffin and Lakeview), Phases 2 and 3 of the Midleton Northern Relief Road, an upgrade of the Midleton Gyratory and upgrades to a number of junctions in Midleton and Carrigtwohill. These offsite infrastructure projects will be necessary to mitigate the traffic impacts of further development in Water Rock UEA beyond Phase 1, together with further development elsewhere in Midleton and Carrigtwohill. Further, more detailed studies and assessments will be required to define and progress the planning and design of these off-site infrastructure projects.

As outlined elsewhere in this document the Water Rock UEA Infrastructure Works include measures which will encourage sustainable modes of transport from an early stage in the development and discourage use of the road network. This includes the provision of generous off-road cyclist and pedestrian facilities and traffic calming measures in the Services Corridor Link Road, the upgrade/ realignment of the Water Rock Road and the extension of the Services Corridor Link Road to access the proposed train station. It also includes a new railway stop to encourage future residents of the UEA to use the railway line to commute to employment centres along the Cork to Midleton railway line.

4.3. Ecological Impact Assessment

An Ecological Impact Assessment (EcIA) for the Water Rock UEA Infrastructure Works has been undertaken and is included as part of the Part 8 planning application. This aim of the assessment was to identify, quantify and evaluate potential effects of the proposed infrastructure works on habitats species and ecosystems in the surrounding environment. Impacts to ecological receptors are considered and mitigation measures are proposed to offset or reduce the identified impacts.

A desk study was initially undertaken for which an ecological study area was identified followed by a preliminary site walkover. Habitat and species surveys were then undertaken. A hydrogeological characterisation report also fed into the EcIA.

The EcIA report notes that the proposed infrastructure project was developed with reference to the National Roads Authority (NRA) and Transport Infrastructure Ireland (TII) project management
guidance. Therefore, the project has been progressed through the different project phases, which involves the examination of alternative options to determine a preferred option and the development of the project design based on both technical and environmental inputs.

It notes that a Constraints Report and Route Selection Report were prepared during the development of the proposed project for the selection of the preferred route option. Thus, during the development of the project certain design measures were incorporated into the project to reduce the impact of the proposed project on the environment.

The EclIA identified a number of pre-construction surveys which are to be undertaken in advance of construction and within the appropriate season. It identifies construction phase mitigation measures which are included in the Construction Environmental Management Plan (CEMP) as well as mitigation during operation.

The EclIA concludes that consideration of the pre-construction surveys and mitigation measures results in the residual effects being reduced to ‘not significant’. In essence, this can be described as having no perceivable impacts on ecological features (habitats or species). Impacts may be beneath levels of perception, within normal bounds of variation.

4.4. Environmental Impact Assessment Screening

An Environmental Impact Assessment (EIA) Screening has been carried out to determine whether the Water Rock UEA Infrastructure Works requires an Environmental Impact Assessment Report (EIAR). The EIA Screening report concludes that given the scale and nature of the project and taking account of all available information, the overall probability of impacts on the receiving environment is considered to be low.

The conclusion of the EIA Screening is that the preparation of an EIA, is therefore not required for the proposed development under the Planning and Development Act 2000, as amended and incorporating the Planning and Development Regulations 2001, as amended.

4.5. Appropriate Assessment Screening

A screening for Appropriate Assessment (AA) report has been prepared to assist the competent authority, in this case Cork County Council, to carry out a Screening for Appropriate Assessment for the Water Rock UEA Infrastructure Works.

This Screening for Appropriate Assessment report is based on the best available scientific information. It is concluded by the authors of the AA screening report that the proposed project poses no likely significant effects on the Great Island Channel SAC and Cork Harbour SPA. Thus, it is recommended that it is not necessary for the proposed project to proceed to Appropriate Assessment.

Should the scope or nature of the proposed project change, a new Appropriate Assessment Screening report would be required.

4.6. Archaeological, Architectural and Built Heritage Impact Assessment

An archaeological and architectural impact assessment was carried out of the lands in the vicinity of the proposed infrastructure project. Three recorded monuments are located within the study area for the assessment; a lime kiln, a mill and a tree-ring, and a number of potential archaeological features were noted on aerial images. None of archaeological sites noted in the assessment are within the study area are within the footprint of the proposed project. The nearest example is the former site of the lime kiln which is located c.30 metres south-west of the proposed upgrade/re-alignment of the Water Rock Road. It is therefore concluded that none of these archaeological sites will be impacted by the proposed development.

There are no Protected Structures or buildings listed in the National Inventory of Architectural Heritage (NIAH) within 600m of the proposed work areas. A site inspection recorded a U-shaped arrangement of buildings, which are likely to be remains of a former agricultural complex, to the northeast of the proposed railway stop. The field to the north of the industrial park contained fragments of post-medieval and modern pottery. Gunflint was recovered during the inspection towards the east of this field, however no features of archaeological significance were noted in the fields through which the new service corridor road is proposed. No potential archaeological features
were noted on the footprint of the proposed road re-alignment of the Water Rock road, surface water drainage route and junction upgrade.

The Cultural Heritage Impact Assessment identifies a number of archaeological surveys which shall be undertaken prior to construction of the infrastructure works projects.

4.7. Outline Construction and Environmental Management Plan

An outline Construction and Environmental Management Plan (CEMP) has been prepared for the Water Rock UEA Infrastructure Works. The principle objective of the outline CEMP is to provide recommended measures to avoid, minimise and control adverse environmental impacts associated with the construction of the proposed infrastructure works. The outline CEMP details measures relating to preparation of the site, traffic management, waste management, emergency response, noise and vibration, ecology, invasive species, pollution prevention, archaeology and dust.

The elements included in the outline CEMP are working methods that the contractor will be required to operate according to during the works in order to comply with a suite of Irish environmental legislation. With respect to the aquatic environment, Irish legislation prohibits any ‘polluting matter’ to enter ‘waters’; e.g. Fisheries (Consolidation) Act 1959, Environmental Protection Agency Acts 1992 and 2003, and Local Government (Water Pollution) Acts 1977 and 1990. Such procedures include the keeping of vehicles in good repair, leak-free and fitted with drip trays, provision of spill kits in the cab of mobile vehicles, and the refuelling of vehicles off-site or at a distance greater than 20m from a watercourse. Implementation and adherence to these standard operating procedures during the proposed works is to ensure compliance with national legislation.

Thus, the working methods outlined in the CEMP for the proposed project meet the following criteria:

- The methods are a demonstrable part of invariable routine practice and procedures;
- The methods are not intended to avoid or reduce significant effects on any European site; and,
- The methods would certainly be implemented if the project was located away from a European site.