



Engineering Assessment Report

Proposed Residential Development at Beaumont Road / Beaumont Grove / Grace Park Court / Ellenfield Road, Beaumont, Dublin 9

September 2026

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Client Name: Urban Life (BMD) Ltd
Document Reference: 20-048r.013
Project Number: 20-048

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
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Comments

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1. Introduction

This Engineering Assessment Report (EAR) has been prepared by Waterman Moylan on behalf Urban Life (BMD) Ltd, as part of the planning application for a large-scale residential development on a site comprises of 100 no. units located at Beaumont Road / Beaumont Grove / Grace Park Court / Ellenfield Road, Beaumont, Dublin 9.

1.1 Site Location and Description

The subject site is located at Beaumont Road, Beaumont, Dublin 9. The subject site is approximately 0.58 hectares. The subject site is bounded by the Beaumont Grove Road to the northeast, by the Grace Park Court and Beaumont Road to the southeast and by Grace Park Court to the southwest and existing neighbouring houses to the north and west.

The location of the site is shown in Figure 1. Please refer to Waterman Moylan Drawing No. 20-048-P2010-Site Location Map for the exact site location and surrounding lands.

Figure 1 - Site Location Map



1.2 Existing Site

The overall site area is approximately 0.58 Ha. The site is currently brownfield area with car parking area and existing former properties to the west of the overall site. The site is bounded in the north by large, scaled trees.

It falls from southeast to northwest gently with the high point of c. 42.09m OD observed to the southwest and the low point of c. 39.24m OD to the northeast. The road located within the subject site will range between 40.74m and 40.14m OD Malin.

The lands are zoned as Z1 Sustainable Residential Neighbourhood land use zoning in the new Dublin City Council Development Plan 2022-2028.

1.3 Proposed Development

The proposed Large Scale Residential Development (LRD) will comprise 100 no. apartments/duplexes (17 no. studios, 45 no. 1-beds, 27 no. 2-beds and 11 no. 3 beds) within 4 no. blocks ranging in height from 3 to 6 storeys. All residential units will be provided with associated private balconies/terraces to the north/ south/ east/ west elevations. Provision of internal amenity space and lobby/reception area at ground floor of the apartment block. Vehicular/pedestrian/cyclist access from Grace Park Court and pedestrian/cyclist and emergency access via Ellenfield Road. All associated site development works including import, export and reuse of material to achieve appropriate site levels, infrastructure and enabling works including water services provision and upgrades, public utilities, open spaces (including play areas), surface car parking, set down areas, cycle parking areas/buildings, landscaping and boundary treatment works, plant areas (at ground and roof level), green roofs, roof mounted photovoltaic (PV) panels, ESB substation, and waste storage.

1.4 Background of Report and Summary

This report describes the criteria used to design and detail the options available for the disposal of stormwater (subject to a restriction on the discharge rate), disposal of foul water, water supply, and roads access to the developed site.

A previous planning application was submitted to Dublin City Council under Planning Application Reference No. 3881/22, and planning permission was granted with conditions on 11 January 2022. The proposed development comprised the construction of two apartment blocks with a semi-basement parking area, a No. of 99 apartments, car parking spaces, and open space.

There is an existing 300mm diameter foul water gravity sewer traversing the site from the northwestern boundary to the southeastern corner of the site, whereafter it is piped to the Beaumont Foul Pumping Station which is located on the southeastern corner of the Beaumont Road/Beaumont Grove junction.

A pre-connection enquiry, Uisce Éireann Reg. Ref. CDS26004442, was submitted to Uisce Éireann in May 2026. A response from Uisce Éireann was received confirming that the connection is feasible without upgrades. Please refer to Appendix A for the Confirmation of Feasibility.

The quantity of stormwater discharged from the proposed development to the existing system will be restricted based on the recommendations of the Greater Dublin Strategic Drainage Study. This flow restriction is achieved utilizing a Hydro-Brake, or similar approved, installed at the outfall manhole of the development with the excess stormwater stored on-site for the duration of the storm. The subject site is located on ground that is typically classified as "Soil Type 4", thus a Qbar runoff value of 5.45 l/s/ha will be taken as the minimum acceptable runoff, in line with the GDSDS recommendations. It is noted that the actual existing runoff from the subject site is significantly higher given the brownfield nature of the site.

It is proposed to divert the existing 225 mm surface water network that crosses the site from northwest to southeast into the existing surface water network to the south of the site, located on Beaumont Road.

Surface water from the proposed development will drain by gravity through a new surface water network. The network is divided into two catchments. One catchment will discharge to a storage area under the parking spaces to the northeast and the second catchment will be attenuated within the green area to the northwest. Excess stormwater will ultimately outfall, at a restricted rate (restricted to the Greenfield Runoff Rate), into the proposed diverted surface water network that runs through the centre of the site at a restricted rate achieved via a Hydro-Brake, or similar. The attenuation system has been sized to cater for the critical 1-100 year storm event with 20% climate change.

It is proposed to connect the subject site to the existing 150mm uPVC watermain on Beaumont Road to the south of the site. A pre-connection enquiry, Uisce Éireann Reg. Ref. CDS26004442, was submitted to Uisce Éireann in May 2026. A response from Uisce Éireann was received confirming that the connection is feasible without upgrades. Please refer to Appendix A for the Confirmation of Feasibility.

As shown in the breakdown in Section 5.1, Planning Application Reference No. 3881/22 provided for a total daily water demand of 44.59 m³/day, considering No. of 99 apartment units and a 263 m² community facility. The proposed development will require 42.15 m³/day, representing a 5.47% reduction in daily water consumption.

It is proposed that the site will have the primary access point from Beaumont Road to the south of the site, and a secondary pedestrian access from Ellenfield Road, located to the north. The development will also benefit from a separate access to the residents car parking in the south west portion of the overall site. Details are shown on Waterman Moylan Drawing 20-048-P2011-Proposed Road Layout & Levels.

2. Foul Water Drainage

2.1 Introduction

The subject site was previously the subject of a Planning Application Reference No. 3881/22. The estimated total daily foul discharge for the previous planning application was 49.10 m³/day, based on 99 apartment units and a 263 m² community facility. The proposed development will discharge 45.41 m³/day – Table 3, representing a 7.51% reduction in daily foul discharge.

A pre-connection enquiry, Uisce Éireann Reg. Ref. CDS26004442, was submitted to Uisce Éireann on December 2025 for 110 units, and the confirmation of Feasibility can be found in Appendix A.

2.2 Receiving Environment

The existing drainage surrounding the subject site comprises a 300mm pumped sewer in Beaumont Grove Road and an existing 300mm diameter concrete foul sewer line traversing the site from the northwestern boundary to the southeastern corner of the subject site. There is a pump station located across the junction of Beaumont Grove Road and Beaumont Road, to the east of the subject site.

It is proposed that the existing 300mm sewer be diverted to follow a new route which will be adjacent to the site boundary to the northeast and ultimately outfall into the existing sewer manhole located in the footpath on the corner of Beaumont Road and Beaumont Grove, immediately southeast of the subject site. Please refer to Waterman Moylan Drawing No. 20-048-P2200 Proposed Drainage Layout for the relevant details.

It is proposed that foul sewerage from the proposed development will drain via a new network of gravity sewers and outfall into an existing foul manhole located in the southeastern corner of the site.

2.3 Foul Water – General

Foul water sewers within the proposed development will be laid to comply with the requirements of the Building Regulations and in accordance with the recommendations contained in the Technical Guidance Documents, Section H.

Foul water sewers which will be taken into charge will be laid strictly in accordance with Uisce Eireann's requirements for taking in charge.

In accordance with the Uisce Eireann "*Code of Practice for Wastewater Supply*", 150mm nominal internal diameter sewers have been proposed for carrying wastewater from 20 properties or less: whilst 225mm nominal internal diameter carrying Wastewater from more than 20 properties. Furthermore, where there are at least ten dwelling units connected, the 150mm diameter pipes are laid at a minimum gradient of 1:60 for up to nine connected dwelling units.

2.4 Foul Water Calculations

The foul water drainage for the proposed development has been designed so that minimum cleansing velocities outlined in the "Uisce Eireann Code of Practice for Wastewater Infrastructure" are achieved for all foul sewers. The peak foul flow is based on Uisce Eireann recommended peak demand/flow factors which are provided in the Uisce Eireann 'Code of Practice for Wastewater Infrastructure'. Pipe capacities

and velocities have been calculated using the Colebrook-White formula with a roughness coefficient (Ks) of 1.5mm.

The estimated foul flows generated from the proposed overall development are as follows:

Table 1 - Calculation of Proposed Foul Water Flow

Total Discharge Foul Water						
Description	No. of Units/ Floor Area	Population Per unit	PE	Flow l/h/d	Infiltration factor	Total Discharge(l/d)
Residential	100 Units	2.7 per unit	270	150	1.1	44,550

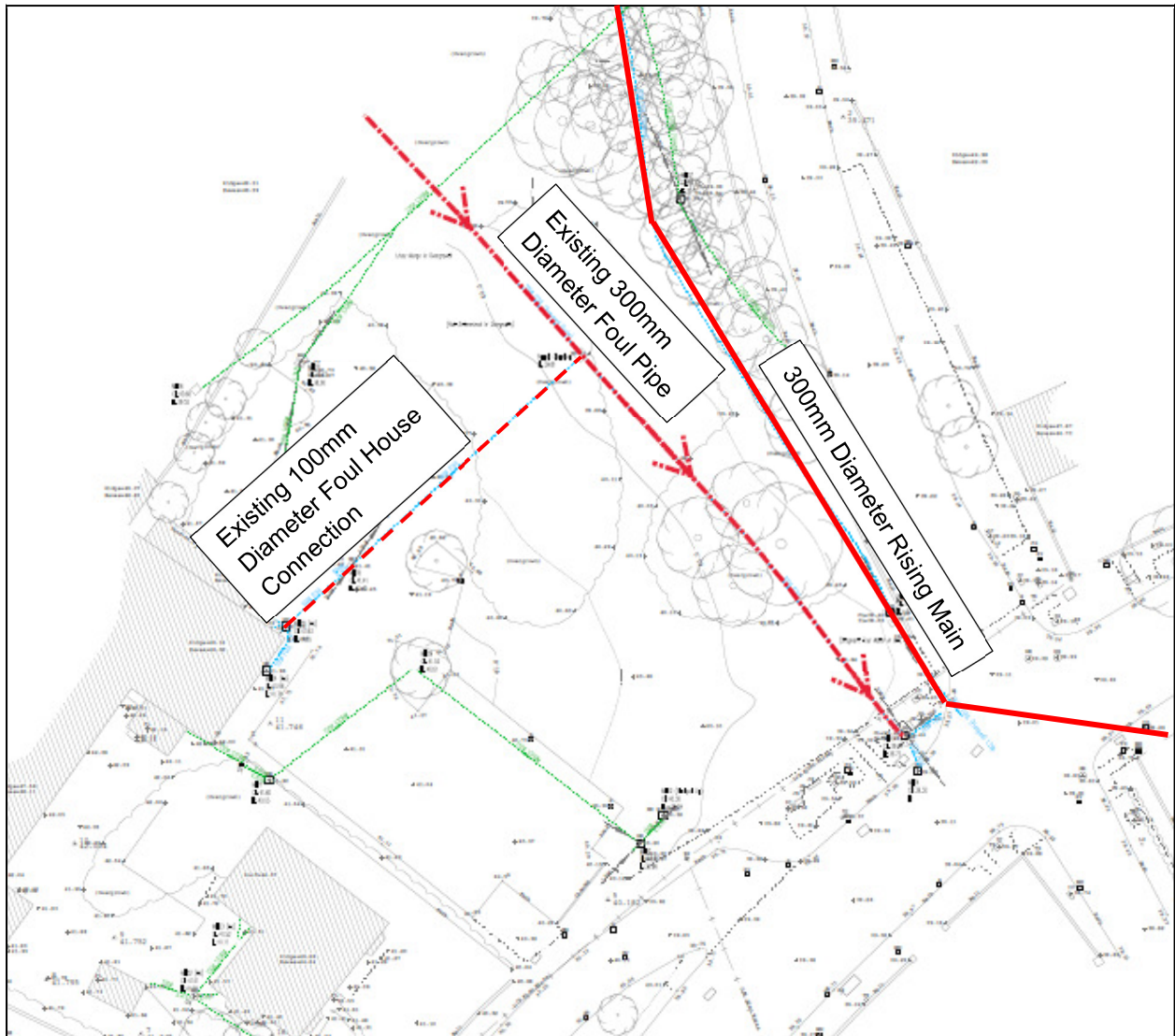
Calculation of Proposed Peak Foul Flow		
Total Daily Discharge	44,550	l/d
Dry Weather Flow (DWF)	0.515	l/s
Peak Foul Flow = 6 x DWF	3.09	l/s

The proposed foul outfall is a 225 mm-diameter pipe laid at a gradient of 1:200, giving a capacity of 32l/s and therefore has adequate capacity to cater for the flows from the development.

2.5 Existing Foul Drainage

There is an existing 300mm diameter concrete foul sewer line traversing the site from the northwestern boundary to the southeastern corner of the subject site. The foul network ultimately outfalls to the Beaumont Wastewater Pump Station, which is located across the road from the subject site, whereafter it is pumped into the 300mm diameter rising main, that is located along the eastern boundary of the subject site, northwards. The existing rising main has an average depth of c. 1.47m.

Figure 2: Existing 375mm Foul Pipe



There is also a 100mm diameter foul house connection which tees off from the said 300mm pipe towards the existing buildings. Any existing house connections on the subject site will ultimately become redundant and removed as it is proposed that these buildings be demolished.

2.5.1 Proposed Foul Drainage Diversion

It is proposed that this pipe is to be diverted to a more suitable location, adjacent to the Beaumont Road. The diversion will ultimately tie into the existing sewer manhole located in the southeastern corner of the site.

It is proposed that the existing 300mm foul network be diverted as indicated on Waterman Moylan Drawing No. 20-048-P2200-Proposed Drainage Layout. The diverted pipe will fully comply with the Uisce Eireann Code of Practice and will at all instances be at an offset greater than or equal to 3.0m from any structure.

3. Surface Water Drainage

3.1 Introduction

The Surface Water drainage system has been designed as a Sustainable Urban Drainage System. In this regard, varied SuDS element were incorporated into the design including green-blue roofs on the apartment block. It is also proposed to attenuate Surface Water runoff from the subject site to Greenfield Runoff rate, restricting the outflow by means of a hydrobrake and storing excess surface water within underground stone storage areas. The details for our storm water drainage design are set out below and on our engineering drawings submitted with this planning application.

There is an existing 225mm diameter surface water vitrified clay pipe traversing the subject site from the northwestern boundary to the southeastern boundary. Diversion of the existing surface water that is currently travelling through the site is required. All onsite surface water will be flowing into the diverted line at a restricted rate and ultimately connected to the existing 250mm diameter surface water line to the south of the site.

The attenuation storage required for the subject site is sized to accommodate the Qbar runoff rate of 3.16 l/s and a contributing hard standing area of 0.381ha. The runoff will be restricted via the Hydro-Brake (or similar approved) manhole, with excess runoff stored in an underground stone filled attenuation. The above-mentioned input data were utilized in the CAUSEWAY – FLOW modelling software to determine the storage required.

A green/blue roof structure is proposed for the building offering surface water storage up to and including the 1-in-100 year rainfall event. The green/blue roof will connect separately into the proposed surface water network of the subject site. Surface water flow from the green/blue roof will be restricted to 0.40 l/s. The flow restriction will be achieved by means of an overflow control device fitted to the roof system.

3.2 Planning Application Reference No. 3881/22

The site was previously the subject of Planning Application Reference No. 3881/22. The current proposals are in line with the previous approved, with minor modifications to cater for the layout changes of the development.

3.3 Surface Water – General

Sustainable Urban Drainage systems (SUDS) have been developed and are in use to alleviate the detrimental effects of traditional urban stormwater drainage practices that typically consisted of piping runoff of rainfall from developments to the nearest receiving watercourse. Surface water drainage methods that take account of quantity, quality and amenity issues are collectively referred to as sustainable urban drainage systems; they are typically made up of one or more structures built to manage surface water runoff.

The proposed surface water drainage system for this development has been designed as a sustainable urban drainage system and uses, green-blue roof, swales, bioretention systems, tree pits, flow control device, permeable paving and two storage area together with petrol interceptors to:

- Treat runoff and remove pollutants to improve quality.

- Restrict outflow and control quantity.
- Increase amenity value.

Strict separation of surface water and wastewater will be implemented within the development. Drains will be laid out to minimise the risk of inadvertent connection of waste pipes etc. to the surface water system.

Surface water local drains will be 225mm dia. and generally will consist of PVC (to IS 123) or concrete socket and spigot pipes (to IS 6). These drains will be laid to comply with the requirements of the Building Regulations 2010, and in accordance with the recommendations contained in the Technical Guidance Documents, Section H. Surface water sewers will consist of uPVC or concrete socket and spigot pipes (to IS 6) and lay strictly in accordance with the requirements of Dublin City Council.

3.4 Proposed Surface Water Drainage Strategy

The attenuation strategy for the overall site has been designed considering 2 catchments as highlighted in the Figure below. The split is proposed to reduce the size of the underground attenuation structures within the site, by providing 2 shallow structures, rather than one large structure. The surface water for each catchment will be attenuated within an attenuation area and excess stormwater will outfall at a restricted rate calculated for each catchment. For the surface water connection, it is proposed to construct a new surface water manhole on the existing surface water network at south of the site.

Please refer to Waterman Moylan Drawing No 20-048-P2200 - Proposed Drainage Layout for details of the proposed drainage arrangements.

Figure 3: Site Catchment Split Up



3.5 Site Characteristics

The greenfield runoff rate for this site has been calculated using the Institute of Hydrology report No 124 "Flood Estimation for Small Catchments" and the UK tools for design and evaluation of sustainable drainage systems - Appendix C.

Table 2: Surface Water Overall Site Details

	Overall	Catchment 1	Catchment 2
Subject Site Area – Ha	0.581	0.384	0.197
Factored Impermeable Area – Ha	0.386	0.250	0.136
% Hardstanding	66%	65%	69%
SAAR - mm		776	
SOIL Index		0.47	
Climate Change		20%	

Hardstanding area for the development includes the roads, footpath, parking spaces, roof and permeable surfaces included as part of this planning application. Area breakdown for the areas of the proposed catchments can be seen in the table below, together with the Run-off coefficient considered for each element.

We would note that the SOIL Index for the site was considered as 0.47 for a soil Type 4. The soil type selection was made based on the current use of the site, making it more impermeable, and also based on the percolation test results, that shows the site does not benefit from any infiltration. Site Investigation report can be found in Appendix C of this Report.

Table 3: Surface Water Catchment 1 Details

	Area (m ²)	CV	Area (m ²)
Roofs	1481.81	1.00	1481.81
Permeable Paving	688.79	0.70	482.153
Roads and Concrete paths	504.24	0.95	482.15
Green area	1162.21	0.05	58.11
TOTAL	3,837.06		2,501.11

Table 4: Surface Water Catchment 2 Details

	Area (m ²)	CV	Area (m ²)
Roofs	513.49	1	513.49
Permeable Paving	581.47	0.7	407.03
Roads and Concrete Paths	439.45	0.95	417.47
Green area	439.30	0.05	21.96
TOTAL	1,973.71		1,359.96

3.6 Outflow Limits and Attenuation Sizing

The outflow limits are calculated in accordance with the Institute of Hydrology report No 124 “Flood Estimation for Small Catchments” for sites less than 50 Ha, where:

$$Q_{bar} = 0.00108(\text{Area})^{0.89} \times (\text{SAAR})^{1.17} \times (\text{SOIL})^{2.17}$$

Allowable Discharge = Greenfield Run-off x Area

Area = Site area in km² (Or 50 hectares if the site is less than 50 Hectares)

The following input data is relevant to the subject site:

- SAAR – mm 776*
- Soil Type 4**
- SOIL Index 0.47***
- Climate Change 1.2

*Met Eireann 1981-2010 Annual Average Rainfall Grid

**Flood Studies Report, Section V, Fig. 1.4.18 (I)

***GDSDS Vol2

The Q_{bar} calculation is thus as follows:

$$\Rightarrow Q_{bar_{rural}} = 0.00108(0.58)^{0.89} \times (776)^{1.17} \times (0.47)^{2.17}$$

$$\Rightarrow Q_{bar_{rural}} = 272.3\text{l/s (For a 50-hectare site)}$$

$$\Rightarrow Q_{bar_{rural}} = 5.45\text{ l/s/Ha}$$

Therefore, the permitted outflow for the overall site has been calculated as follows:

$$\Rightarrow \text{Site Area} = 0.581\text{ Ha}$$

$$\Rightarrow Q_{bar_{rural}} = 5.45\text{ l/s/Ha}$$

$$\Rightarrow \text{Outflow} = 3.16\text{ l/s}^*$$

It is proposed that the subject site will have underground storage provided for a 1:100-year flood event and 20% climate change for each catchment. The stormwater will be released after the storm, at a controlled rate via the Hydro-Brake, or similar approved device. Each catchment will be restricted as follows:

Table 5 - Run off table

	Catchment 1	Catchment 2	Total
Site Area - Ha	0.384	0.197	0.581
Hardstanding Area - Ha	0.250	0.136	0.386
Outflow– l/s	2.09	1.08*	3.16

*We would note that the final outflow rate for this catchment will be set to 2.0l/s, to comply with the minimum allowable orifice size (50mm) of the hydrobrake.

3.7 Storm Water Calculations

Calculations for pipe sizes and gradients are based on stormwater runoff from the roofs and surfaced areas using the Rational Method for surface water design (Bilham's Formula), with a storm return period (N) of 5 years.

Pipe capacities and velocities have been calculated using Colebrook-White formula with a roughness coefficient (Ks) of 0.6mm.

The total impermeable area for each subject catchment of the site set out in item above was used in the software Causeway Flow calculations for the design of the surface water system, which are included in Appendix B.

For Catchment 1, c. 120 m³ of storage is required to cater for the 1:100-year critical storm event, plus an allowance for an additional 20% climate change factor for the whole catchment. It is noted that an underground attenuation will be provided with c. 56.6 m³ of storage, the green/blue roof above the apartment blocks will cater for c.49.6 m³ of storage, the permeable paving provided for the parking spaces and the main shared area of the development will store c. 18.9 m³ for the subject catchment area, and additionally the proposed tree pits and bioretention systems along the development will cater for the excess volume required.

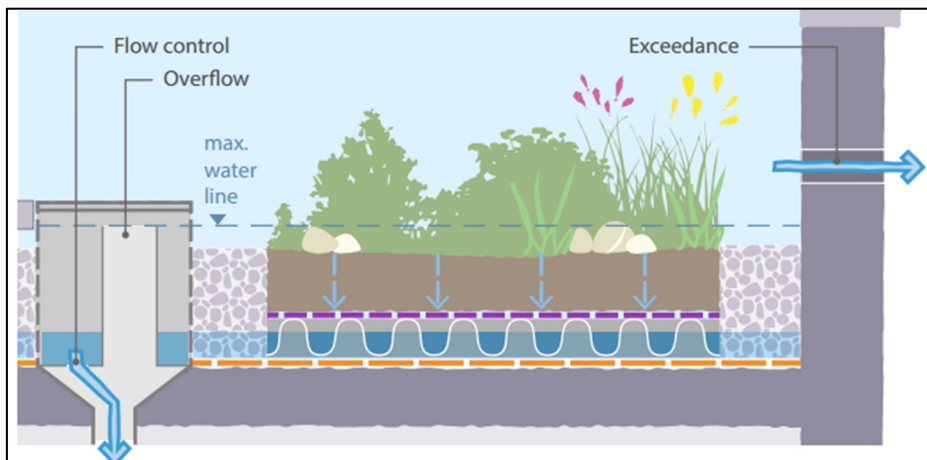
For Catchment 2, c. 61.5 m³ of storage is required to cater for the 1:100-year critical storm event, plus an allowance for an additional 20% climate change factor for the catchment. It is noted that an underground attenuation will be provided with c. 45.6m³ and the permeable paving for the parking spaces will cater for c. 15.9m³ for the subject catchment area. Additionally, the proposed SuDS elements such as tree pits and bioretention systems can cater for any excess volume required.

The green/blue roof is designed and is to be constructed and maintained in accordance with the Dublin City Council Green & Blue Roof Guide (2021) and Appendix 11 of DCC Development Plan.

A large green/blue roof is proposed for the building with a total vegetation area of 398m² and a total blue roof area for attenuation of 797m². The SuDS feature will offer a 100mm depth of storage for surface water. The total storage volume offered by the green/blue roof is c. 50m³.

An outflow of 0.40l/s (in line with Qbar calculations for the roof area) is required on the green/blue roof to offer maximum storage capacity of the structure while ensuring no flooding occurs in the 1-in-100 year flood event. The green/blue roof will be fitted with an overflow control device at roof level that will restrict the surface water flow to 0.40l/s. Refer to Figure 4 below, for an image of an example of flow control, overflow and exceedance arrangement on a green/blue roof sourced from the DCC Green & Blue Roof Guide (2021).

Figure 4 - Example flow control, overflow & exceedance arrangement (DCC)



Surface water should be managed in accordance with council specific prerequisites and with the Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Volume 2, for New Developments and CIRIA documents. These documents specify that surface water run-off should be managed as close to its source as possible, with the re-use of rainwater within the buildings prioritised. For a more detailed surface water management assessment, please refer to Waterman Moylan's report No. 20-048r.20 Surface Water Management Plan.

Surface water local drains will be 150 mm to 225 mm and generally will consist of PVC (to IS 123) or concrete socket and spigot pipes (to IS 6). These drains will be laid to comply with the Requirement of the Building Regulations 2010 and in accordance with the recommendations contained in the Technical Guidance Documents, Section H.

Surface water public sewers will be 225 mm will generally consist of concrete socket and spigot pipes (to IS 6) and lay strictly in accordance with the requirements of Dublin City Council.

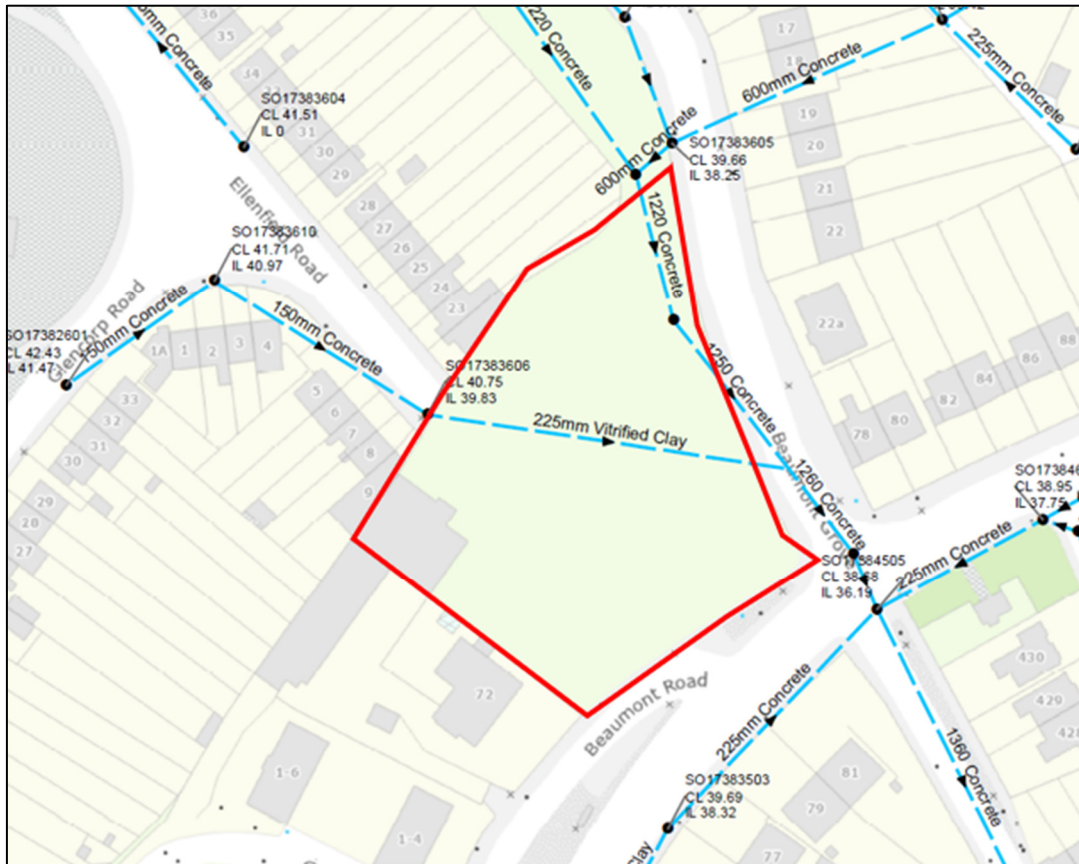
For the exact location of each of the storage areas referred above, please refer to Waterman Moylan Drawing No. 20-048-P2200-Proposed Drainage Layout.

3.8 Existing Surface Water Pipe

There is an existing 225mm diameter vitrified clay pipe traversing the subject site from the northwestern boundary to the southeastern boundary. The upstream manhole, located in Ellenfield Road on the northwestern boundary of the site, has an existing invert level of 39.55m OD Malin and outfalls into the 1250mm culvert in Beaumont Grove.

Any existing house connections on the subject site will ultimately become redundant and removed as it is proposed that these buildings be demolished.

Figure 5 - Existing Surface Water Infrastructure



It is proposed that this pipe be diverted through the subject site at a distance of c. 3.0m offset from any structure and outfall into the existing manhole located on the northeastern boundary in Beaumont Road.

It is proposed that the existing 225mm sewer be diverted as indicated on Waterman Moylan Drawing No. 20-048-P2200 – Proposed Drainage Layout. The diverted pipe will fully comply with the Dublin City Council's standards. It is proposed that a manhole be built on the existing line on the southern boundary and is proposed to construct a new manhole in the existing network.

The proposed diversion is shown in the Figure below, highlighted in yellow.

that take account of quantity, quality and amenity issues are collectively referred to as SUDS. They are typically made up of one or more structures, built to manage surface water run-off. The use of SUDS to control run-off also provides the additional benefit of reducing pollutants in the surface water by settling out suspended solids, and in some cases providing biological treatment.

A stormwater management or treatment train approach ensures that run-off quantity and quality is improved. The following objectives of the treatment train provide an integrated and balanced approach to help mitigate the changes in stormwater run-off flows that occur as land is urbanised and to help mitigate the impacts of stormwater quality on receiving systems:

- 1) **Source control:** conveyance and infiltration of run-off; and
- 2) **Site Control:** reduction in volume and rate of surface run-off, with some additional treatment provided.

The applicant has considered the use of all appropriate SUDS measures as part of the site SUDS strategy, details are outlined in Table 3 below.

The applicant has considered the use of all appropriate SUDS devices as part of the site SUDS strategy.

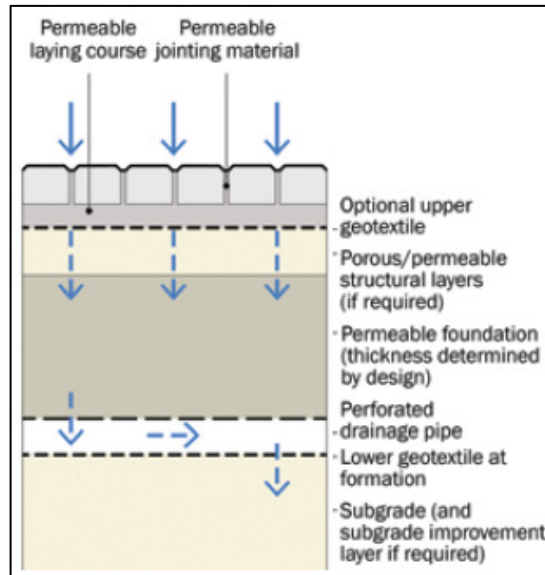
- Permeable Paving
- Tree Pits
- Rain Gardens / Bioretention System
- Petrol Interceptor
- Hydrobrakes / Flow Control Device
- Stone storage area
- Green/Blue roof

The effectiveness of each SUDS / drainage mechanism proposed is outlined below:

Permeable Paving:

Permeable pavement reduces the overall impermeable area of the hard-standing area, which will reduce the impact of the discharge and improve the quality of the effluent from the proposed development. Permeable pavement will be provided in private driveway areas. The permeable paving is provided for the purpose of improving the quality of the surface water runoff. No reduction in the rate of run-off as a result of the permeable paving provision is allowed for in the surface water calculations which assumes the system is in a saturated state.

Figure 7: Permeable Paving Schematic (CIRIA C753 SuDS Manual)



Stone storage area:

The stone storage area will attenuate surface water to restrict the outflow to the equivalent of the existing agricultural runoff. This ensures the development will not give rise to any impact downstream of the site.

Petrol Interceptor:

It is proposed that surface water will pass through a petrol interceptor prior to each outfall into the attenuation in order to ensure primary treatment of any pollutants.

Flow Control Device:

It is proposed that surface water from the subject site's outfall rate be reduced to the agricultural outflow (Q_{bar}) by means of a Hydro-Brake, or similar flow control device.

Blue/Green roof:

Green roofs are multi-layered system that covers the roof of a building or podium structure with vegetation over a drainage layer. Green roofs are used to reduce the volume and rate of runoff from development roofs, and hence reduce the amount of hardstanding resulting from a development. The green roof areas are shown on enclosed architects' drawings.

Blue Roofs are a roof construction that stores water and can include open water surfaces, storage within or beneath a porous media or modular surface or below a raised decking surface or cover. The total amount of available flat roofs will be used as blue roofs.

3.10 SUDS Maintenance Section

In order to comply with the County Development Plan “Development Design Standards,” it is proposed to:

- Separate foul and surface water
- Include appropriate on-site disposal of surface water
- Comply with the standards set out in the GDSDS
- Implement appropriate SUDS measures

All SUDS measures included will be designed in accordance with the CIRIA SUDS Manual C753 as required by the GDSDS prepared by the Dublin City Council and the other Local Authorities in the Greater Dublin Area.

For the proposed SuDS strategy to work as designed it is important that the entire drainage system is well maintained. It will be the responsibility of the site management team to ensure the drainage system is maintained during the construction stage and initial plots of occupation. This will include maintenance and cleaning of gullies, drain manholes (including catch pits) and the attenuation basin to ensure adequate performance. The recommended program is outlined in the tables below.

Table 6: Permeable Paving Maintenance Schedule

SUDS Element	Maintenance		
Permeable Paving	Maintenance period	Maintenance Task	Frequency
	Regular	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or as required, based on site specific observations of clogging or manufacturer's recommendations.
	Occasional	Removal of weeds	As required
	Remedial work	Remediation work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users	As required
	Monitoring	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
		Monitor inspection chambers	Annually

Table 7: Stone Storage Area Maintenance Schedule

SUDS Element	Maintenance
--------------	-------------

Below Ground System	Maintenance Issues	Failure of components, blockage from debris	
	Maintenance Period	Maintenance Task	Frequency
	Regular	Inspect and identify any elements that are not operating correctly. If required, take remedial action.	Monthly for three months, then annually
		Remove sediment/debris from catchment surface that may lead to blockage of structures.	Monthly or as required
		Remove sediment/debris from catch pits/gullies and control structures.	Annually, after severe storms or as required
	Remedial Work	Repair inlets, outlets, vents, overflows and control structures.	As required
	Monitoring	Inspect all inlets, outlets, vents, overflows and control structures to ensure they are in good condition and operating as designed.	Annually or after severe storms
		Survey inside of tank for sediment build-up and remove if necessary	Every year or as required

Table 8 – Blue/Green Roof Maintenance Schedule

SUDS Element	Maintenance		
Blue/Green Roof	Maintenance period	Maintenance Task	Frequency
	Regular Inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes and roof structure for proper operation, integrity of waterproofing and structural stability	Annually and after severe storms
		Inspect soil substrate for evidence of erosion channels and identify any sediment sources	Annually and after severe storms
		Inspect drains inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system	Annually and after severe storms
		Inspect underside of roof for evidence of leakage	Annually and after severe storms
	Regular maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth	Six month and annually or as required
		During establishment (ie year one), replace dead plants as required	Monthly (but usually responsibility of manufacturer)
		Post establishment, replace dead plants as required (Where > 5% of coverage)	Annually (in Autumn)

		Remove fallen leaves and debris from deciduous plant foliage	Six monthly or as required
		Remove nuisance and invasive vegetation, including weeds	Six monthly or as required
		Mow grasses, prune shrubs and manage other planting (if appropriate) as required – Clippings should be removed and not allowed to accumulate	Six monthly or as required
	Remedial actions	If erosion channels are evident, these should be stabilised with extra soil substrate similar to the original material, and source of erosion damage should be identified and controlled	As required
		If drain inlet has settled, cracked or moved, investigate and repair as appropriate	As required

3.10.1 Petrol Interceptor Maintenance:

Petrol Interceptor Maintenance should be carried out in accordance with British Standards BS EN 858-2:2003 Separator system for light liquids (e.g. oil and petrol – Part 2: selection of nominal size, installation, operation and maintenance which provides specific guidance on how to maintain petrol interceptors.

The above-mentioned standard states the following:

“All parts which have to be regularly maintained shall be at all times reachable. Maintenance of the systems has to be carried out at least every six months by experienced personnel. The maintenance shall be carried out in accordance with the manufacturer’s instructions, but at least shall include the following

a) sludge trap

- determination of sludge volume

b) separator

- measure the thickness of light liquids
- check the operation of the automatic closure device
- check the coalescing devices for permeability, if the water levels in front and behind the coalescing device show significant difference
- check the function of the warning device

c) sampling shaft

- clean the drain channel

Light liquid and sludge shall be removed as required. Before putting in service sludge trap and separator shall be re-filled with fresh water.

NOTE Emptying is recommended when one half of the sludge volume or 80 % of the storage capacity of the separator is reached.

In exceptional circumstances, when personnel need to enter the separator, it shall be fully drained and thoroughly ventilated.

In intervals of at maximum five years the separator system shall be emptied and then submitted to general inspection covering the following items:

- tightness of the system;
- structural condition;
- internal coatings, if present;
- state of inbuilt parts;
- state of electrical devices and installations;
- checking of adjustment of automatic closure device, e.g. floating bodies.

Oil/Petrol interceptor maintenance should be conducted by experienced personnel at least every 6 months. Usually, an interceptor service will not be necessary every 6 months and an interception inspection will be sufficient to fulfil this requirement.

This should also include a 5 year integrity check.

3.10.2 Hydrobrakes/Flow control device Maintenance:

These should be services and maintained strictly in accordance with the recommendation of the manufacturers. It is recommended that these be serviced on a 3-, 6- or 12-month basis, depending on the device installed.

4. Water Supply

4.1 Water Supply – General

It is proposed to connect the subject site to the existing 150mm uPVC watermain on Beaumont Road to the south of the site.

A pre-connection enquiry, Uisce Éireann Reg. Ref. CDS25009341, was submitted to Uisce Éireann on the December 2025 for the 110 units. A response from Uisce Éireann was received confirming that the connection is feasible without upgrades. Please refer to Appendix A for the CoF.

Watermains suitable for Works and approved by Uisce Éireann shall be either ductile iron (DI) or polyethylene (PE), with PE80 or PE100 rating (MDPE, HDPE or HPPE).

The minimum depth of cover from the finished ground level to the external crown of a Water Main shall be 900mm. A greater depth of cover and/or greater strength pipe and/or a higher class of bedding may be required where high traffic loading is anticipated. Depths may be altered to avoid obstructions, including separation distances between other utility services. The desirable maximum cover for a Service Connection pipe or a Water Main should be 1200mm, where practicable.

Sluice valves will be provided so that no more than 40 houses can be isolated at any time and hydrants provided so that each part of the dwellings are within 46 metres of a hydrant.

It is proposed that the 150mm diameter water network of the subject site tie into the existing 300mm ductile Iron water network in Beaumont Road. Please refer to Waterman Moylan's Drawing No. 20-048-P2300 Proposed Watermain Layout for the relevant water supply details.

4.2 Water Demand Calculation

An estimate of water demand from the public water supply system for the current proposed development has been based on the development of 100 residential units, with an average occupancy of 2.7 persons. Details are shown below.

Table 9: Total Water Demand Calculation

Development Description	PE	Flow (l/h/day)	Total Water Demand (l/day)
Residential	270	150	40,500
		Total	40,500

Table 10: Peak Water Demand Calculation – Proposed Phase 2a Development

Calculation of Proposed Water Demand – Phase 2a	
Total Daily Demand	40,500 l/d
Average Daily Demand (ADD)	0.468 l/s
Average Peak Demand (ADD x 1.25)	0.585 l/s
Peak Water Demand (=5.0 x Avg Peak)	2.93 l/s

4.3 Water Supply – General

Water Mains suitable for Works and approved by Irish Water shall be either ductile iron (DI) or polyethylene (PE), with PE80 or PE100 rating (MDPE, HDPE or HPPE).

The minimum depth of cover from the finished ground level to the external crown of a Water Main shall be 900mm. A greater depth of cover and/or greater strength pipe and/or a higher class of bedding may be required where high traffic loading is anticipated. Depths may be altered to avoid obstructions, including separation distances between other utility services. The desirable maximum cover for a Service Connection pipe or a Water Main should be 1200mm, where practicable.

Sluice valves will be provided so that no more than 40 houses can be isolated at any time and hydrants provided so that each part of the dwellings are within 46 meters of a hydrant.

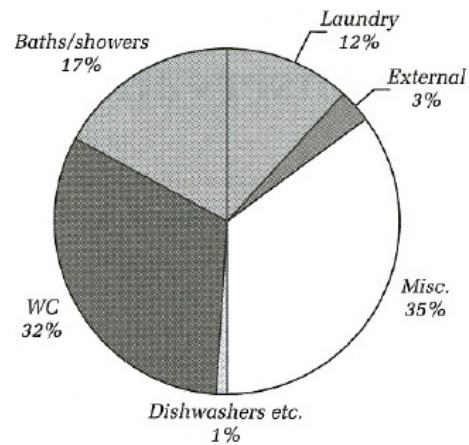
4.4 Water Conservation

The water demand for the development can be subdivided as follows:

- Potable / Non-potable Breakdown

Detailed studies have quantified the breakdown between potable and non-potable uses for residential uses.

The following diagram illustrates the current percentage breakdown of water usage in domestic circumstances and is from Griggs and Shouler 1994 as published in Chapter 11 of 'Water, Sanitary & Waste Services for Buildings' by Wise and Sheffield.



In addition, water conservation measures will be used, to further reduce overall water demand, including:

- Low volume flush / dual flush WC's
- Aerated shower heads
- Spray taps
- Draw off tap controls.
- Leak detection measures – through the metering of supply
- Rainwater reuse – water butts, as outlined above

5. Roads and Transport Network

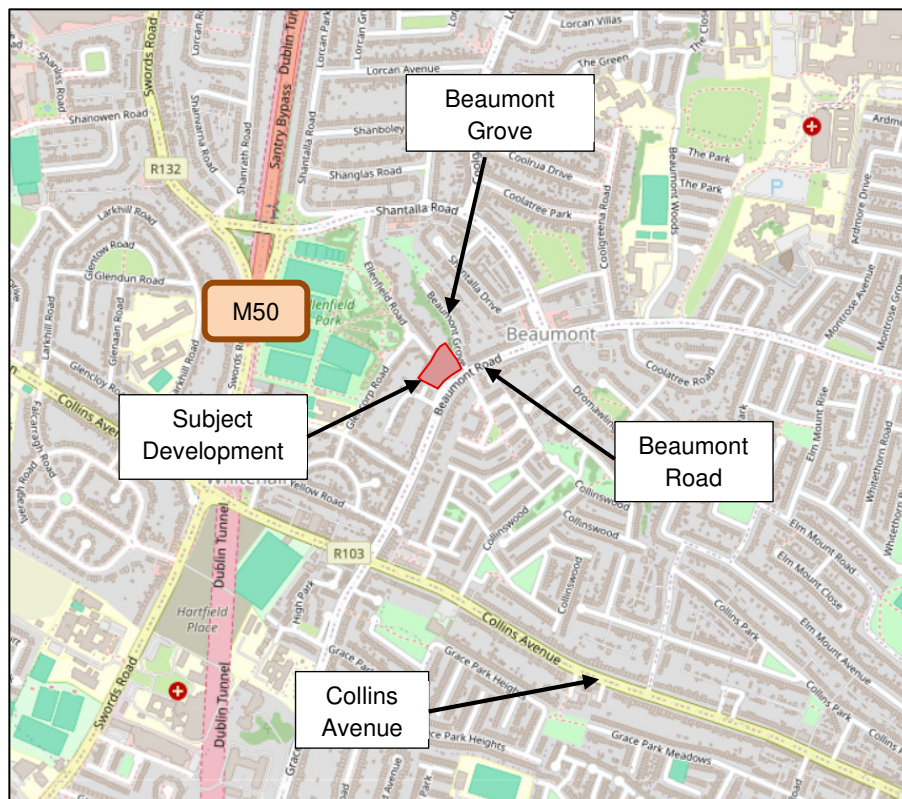
5.1 Existing Road Network

The subject site will be accessed from **Beaumont Road**. Beaumont Road single carriageway road that runs through a residential area. It has a posted speed limit of 30 km/hr. There are dedicated cycle lanes and pedestrian footpaths on both sides of the carriageway.

Beaumont Grove is a residential cul-de-sac off Beaumont Road. It provides access to residential developments located northeast of the subject site. It has footpaths on both sides of the carriageway.

Collins Avenue (R103) is a regional single carriageway road. It runs north of Dublin city centre through Whitehall and Donnycarney. It is well served by Dublin Bus routes with frequent services to the city centre and local areas. Major roads like the M1, M50, Swords Road, Malahide Road, and Port Tunnel are easily accessible, making it convenient for commuting. There are no dedicated cycling facilities along road. However, there are dedicated pedestrian footpaths on both sides of the carriageway.

Figure 8 - Existing Road Network



5.2 Proposed Development

5.2.1 Development Description

The proposed development consists of construction of a Large-Scale Residential Development of 100 no. apartments/duplexes (comprising 17 no. studios, 45 no. 1-beds, 27 no. 2-beds and 11 no. 3 beds) within 4 no. blocks ranging in height from 3 to 6 storeys.

The Schedule of Accommodation is shown in the table below.

Table 11 - Schedule of Accommodation

Description	Studio	1-bed	2-bed	3-bed	Total
Apartments/Duplexes	17	45	27	11	100

The proposed development also includes associated site development works, services provision, open spaces, car parking, cycle parking, bin stores, vehicular/pedestrian accesses, landscaping, boundary treatment works, foul and surface water drainage, and all associated site development works, etc, all on an overall site area of c. 0.58 hectares.

5.2.2 Internal Layout and Access Points

Vehicular and pedestrian access to the subject development will be provided off a local access road running parallel to Beaumont Road, on the southern side of the development as shown in Figure 9 below. A second vehicular access road to the site will be provided to the southwest side of the site, for the residential car parking spaces.

Additionally, a pedestrian and cyclist access will be provided on the northern side of the development to link to surrounding neighbourhoods. This access will also comprise of the emergency vehicles route ingress/egress controlled with collapsible or removable bollards.

All internal roads within the subject development are designed for a speed limit of 30km/h.

The design and layout of the proposal have been prepared to fully comply with the current relevant design standards and specifications applicable to this form of development.

Figure 9 - Subject Development - Access Points



5.3 Multi-modal access to the site

5.3.1 Bus Network

The nearest bus stops to the site are located on Beaumont Road. The closest stop is immediately adjacent to the subject development, with additional stops approximately 150 m (2-minute walk) from the site. These stops are served by bus routes 14 and 16.

Dublin Bus Route 14 links Beaumont with the LUAS Green Line Stop at Dundrum via Connolly Station, the City Centre and Rathmines. Services run at a frequency of 15-minute intervals up to 09:00, 12-minute intervals up to 15:30, 10 – 12 minutes intervals up to 19:30 and 15-minute intervals up to 23:30. On average, there are 5 services per hour in both directions.

Dublin Bus Route 16 links Dublin Airport with Ballinteer serving O'Connell Street, Harold's Cross and Terenure. Services run at a frequency of 10-minute intervals up to 09:30, 12-minute intervals up to 19:06 and 15 minutes intervals up to 23:30. On average, there are 5 services per hour in both directions.

There are also several bus routes which serve the site in the road network surrounding. Along Collins Avenue approximately 500m (7-minute walk), the subject development is served by bus route N4.

Dublin Bus Route N4 was introduced by Bus Connects at the end of May 2022. Services generally operate at 10-minute intervals between 05:30 and 22:50 with 6 buses per hour in each direction.

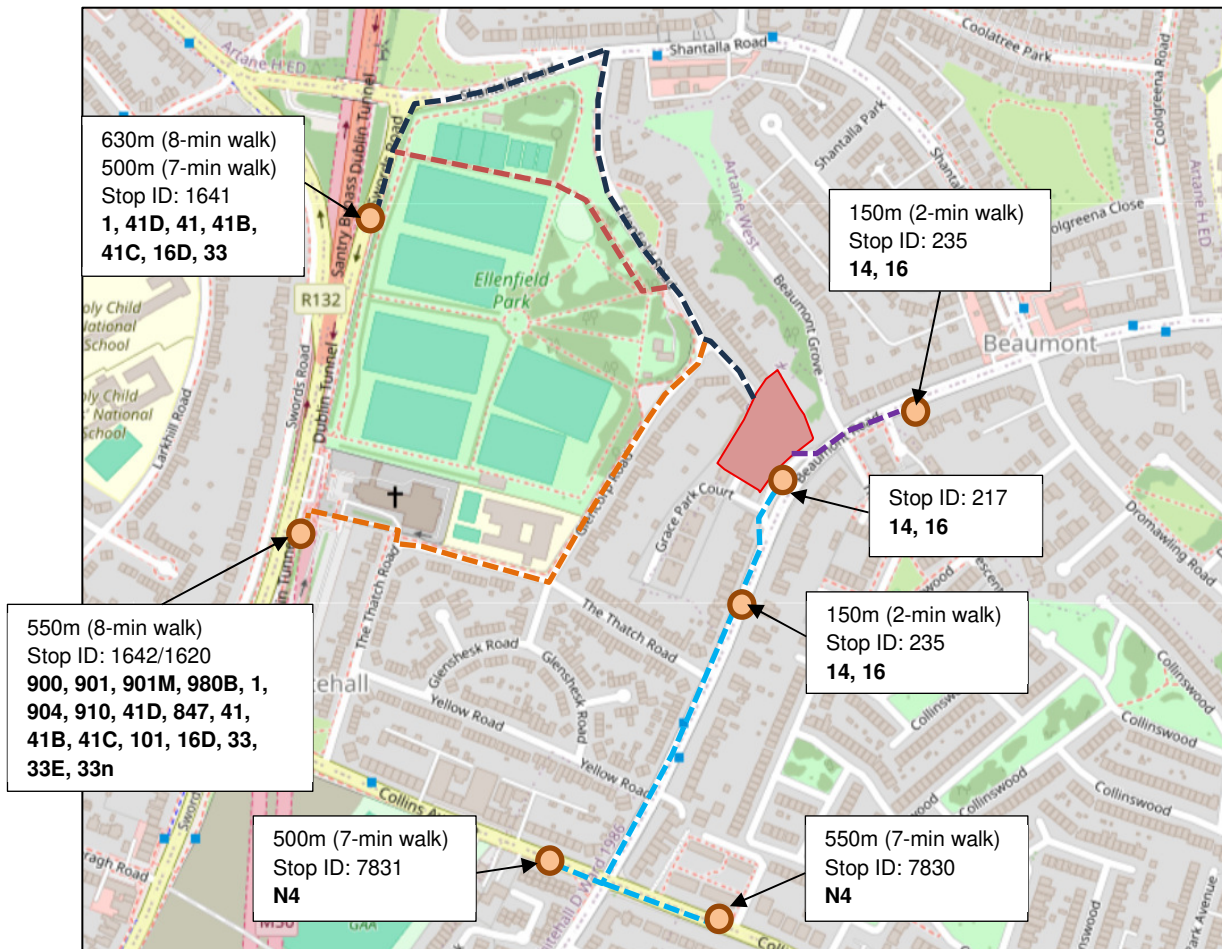
The subject site is located approximately 450m (in a straight line from centre of the site) from the N1/Swords Road, which is a Quality Bus Corridor (QBC), that is served by additional bus routes. The closest bus stop on Swords Road is located within a 8min walk (600m total distance walk from centre of the site). There are optional walking routes to the bus stops on the N1/Swords Road as shown in Figure 10 below. Table 12 below shows the frequency of the bus routes serving Swords Road.

Table 12 - Bus Routes serving Swords Road

Route No	Operator	Origin	Destination	Frequency
1	Dublin Bus	Santry	City Centre	10 -12 minutes
16D	Dublin Bus	Dublin Airport	Ballinteer	6 per day at intervals of 20 minutes between 7.10 and 8.50
33	Dublin Bus	Balbriggan	City Centre	8 per day
41	Dublin Bus	Swords	City Centre	20 minutes
41b	Dublin Bus	Swords	City Centre	4 per day
41c	Dublin Bus	Swords	City Centre	20 minutes
41d	Dublin Bus	Swords	City Centre	2 per day
44	Dublin Bus	DCU	Enniskerry	60 minutes
101	Bus Eireann	Drogheda	City Centre	30 minutes
900	Matthews	Dundalk	City Centre	30 minutes
901	Matthews	Dundalk	City Centre	60 minutes
910	Matthews	Drogheda	City Centre	6 per day

The location of the bus routes and walking distances is shown in Figure 10 below.

Figure 10 - Bus Network – Walking distance from development to Bus Stops



5.3.2 Pedestrian Infrastructure and Walking Accessibility

In the immediate vicinity of the subject development, there are footpaths on both sides of the carriageway along Beaumont Road.

To provide an indication of the catchment areas associated with the Subject Site, reference from the “*Guidelines for Providing for Journeys on Foot*” published by the *Institution of Highways & Transportation* in 2000, have been taken. This guideline indicates that acceptable walking distances vary between individuals and circumstances. These include an individual’s fitness, physical ability, and personal motivation; the size of the city itself and the quality of the surrounding footpath network. Furthermore, the document proposes walking distances and times based on an average walking speed of 1.4 metres per second (approximately 400 metres in five minutes). Table 13 below provides a summary of these suggestions.

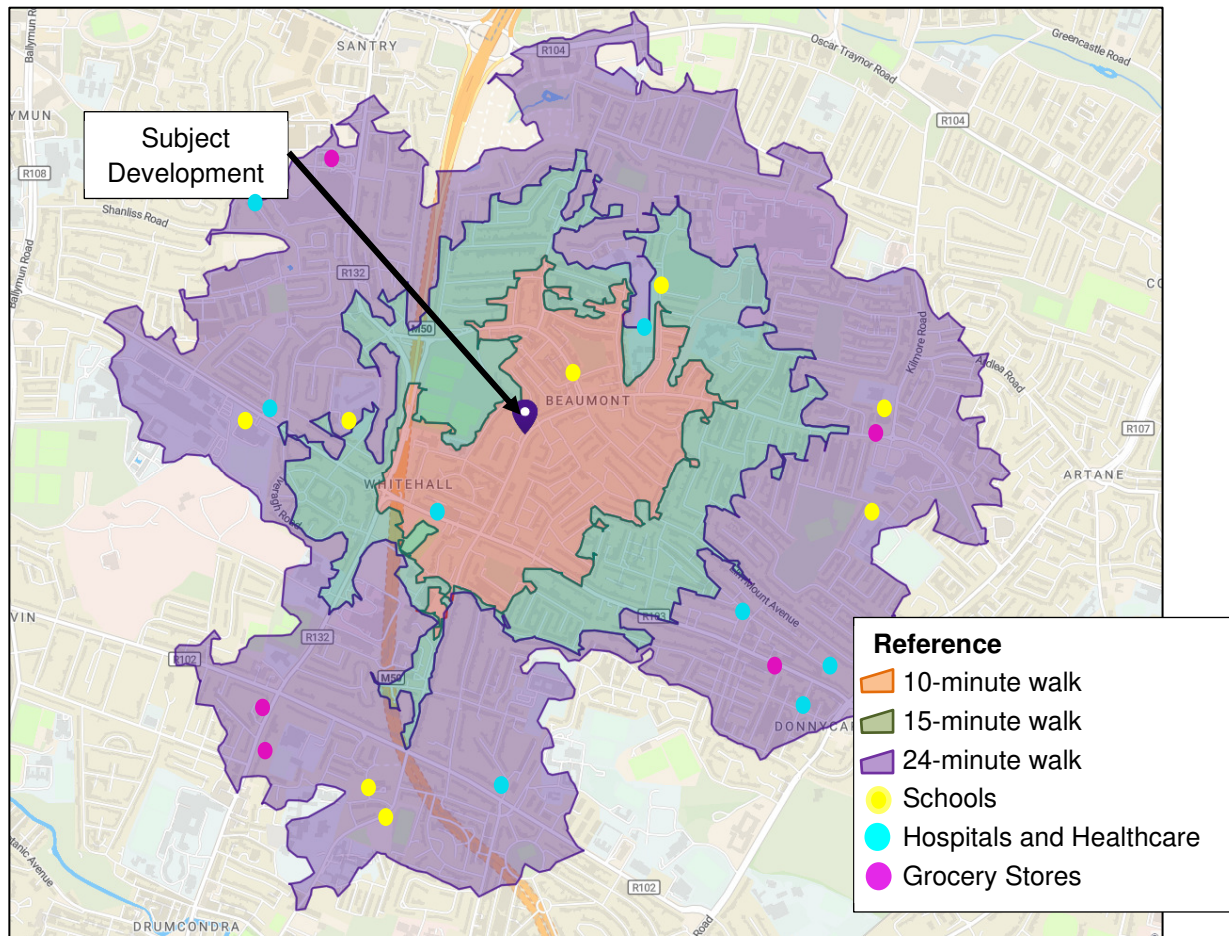
Table 13 - Ideal Walking Distances

	Town Centre	Commuting / School / Site Seeing	Elsewhere
Desirable	200m (2.5-minutes)	500m (6-minutes)	400m (5-minutes)
Acceptable	400m (5-minutes)	1,000m (12-minutes)	800m (12-minutes)
Preferred Maximum	800m (10-minutes)	2,000m (24-minutes)	1,200 (15-minutes)

Figure 11 below shows the considerable extent of the pedestrian catchment areas accessible from the subject development, for different walking times, namely 10 minutes, 15 minutes, and 24 minutes.

The subject development is well connected to surrounding areas via pedestrian infrastructure. A 24-minute walk provides access to a range of amenities, including healthcare facilities such as Beaumont Hospital; educational facilities such as St. David's Boys National School and St. David's College, Artane; grocery stores including Centra, Tesco and Lidl; and retail destinations such as Omni Shopping Centre and Artane Castle Shopping Centre, as illustrated in Figure 11.

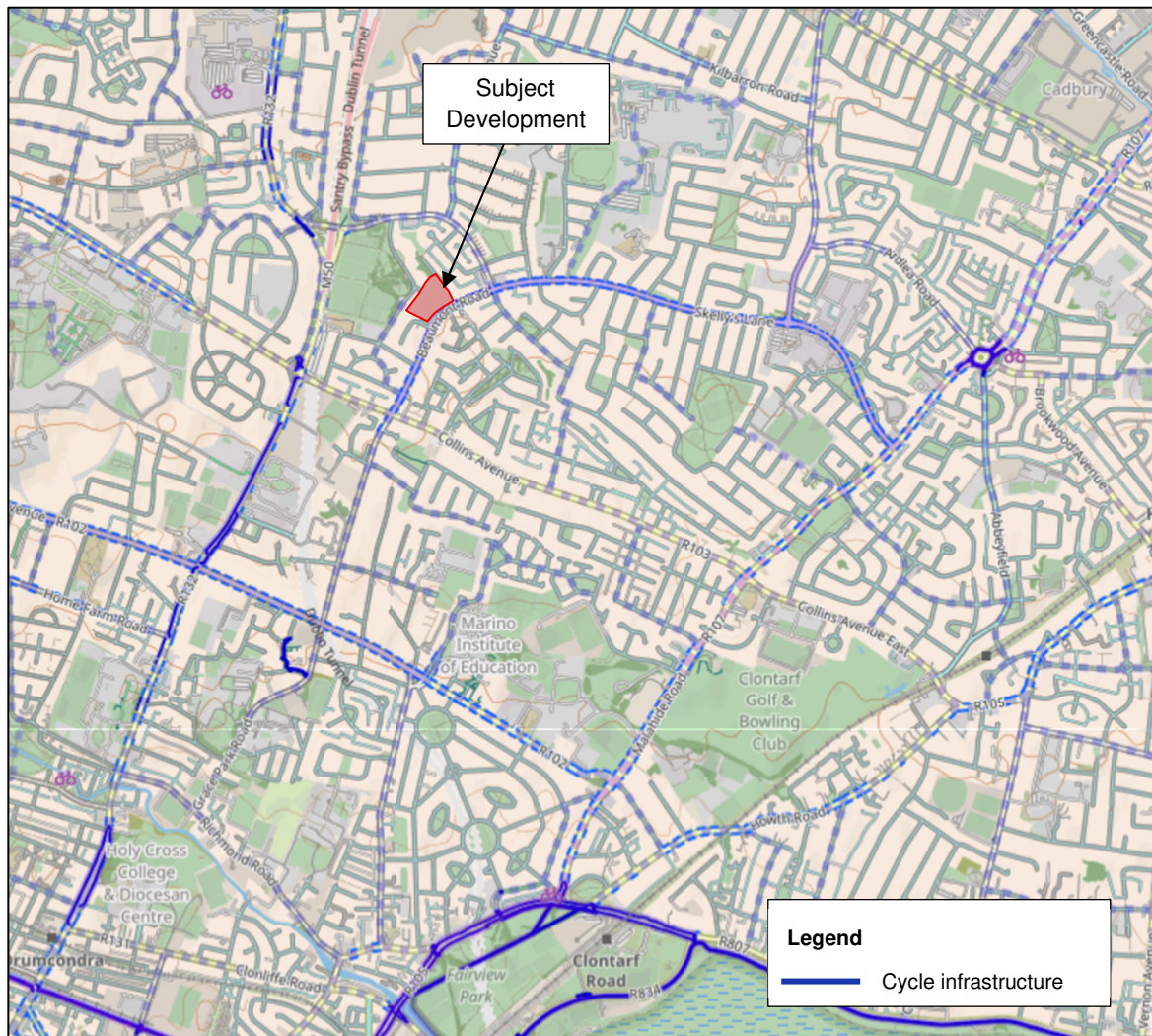
Figure 11 - Walking Accessibility Isochrone Map



5.3.3 Cycle Infrastructure and Cycling Accessibility

In the immediate vicinity of the subject development, there are cycle lanes on both sides of the carriageway along Beaumont Road.

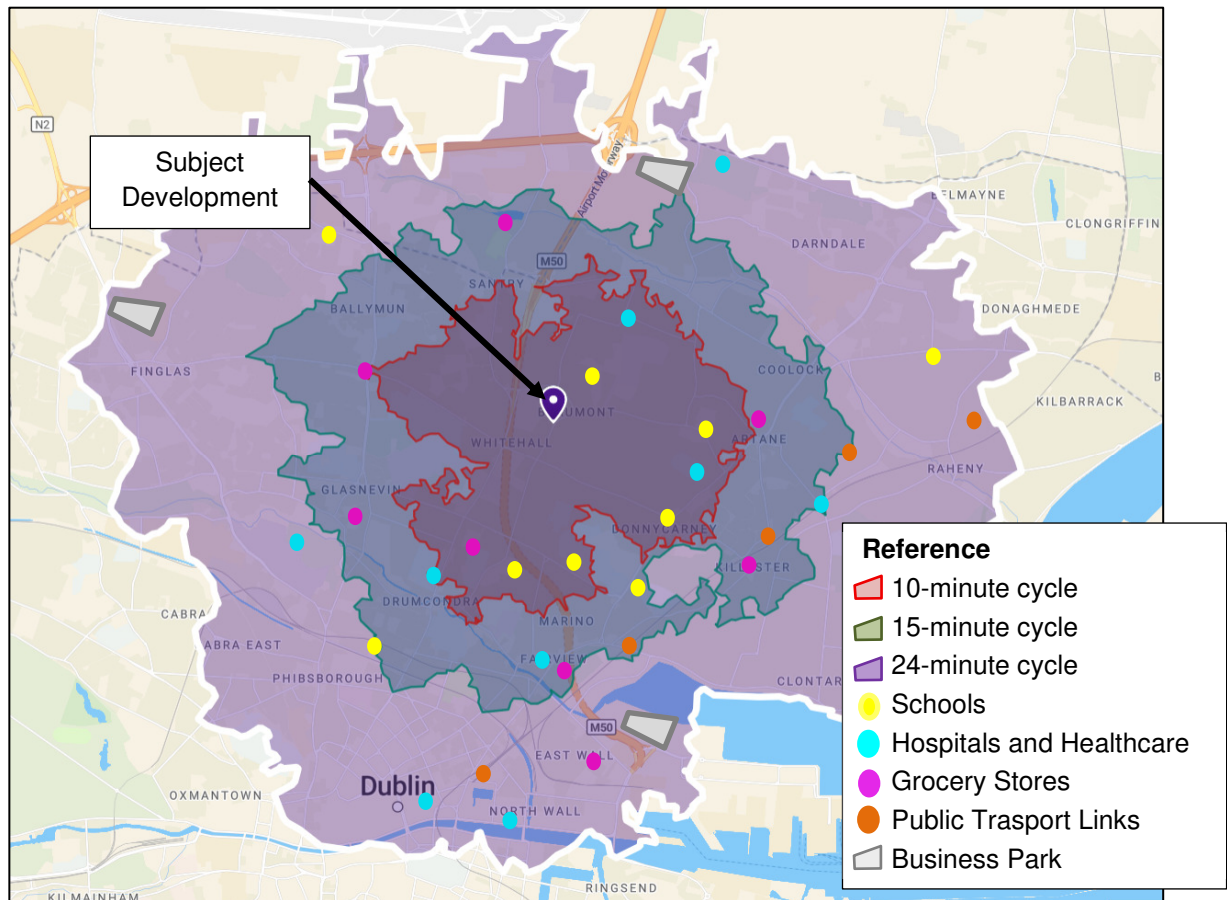
Figure 12 - Existing cycle facilities



A similar catchment exercise has been conducted for the cycling mode of transport, in accordance with the methodology previously employed for walking. The average cycling speed was calculated to be 3.3 metres per second (equivalent to 15 kilometres per hour). Figure 13 below indicates the typical cycling catchments from the subject site for 10-minute, 15-minute, and 24-minute cycling times.

The subject development is well connected to surrounding areas via cycling infrastructure. A 24-minute walk provides access to a range of amenities, including healthcare facilities such as Beaumont Hospital; educational facilities such as St. David's Boys National School and St. David's College, Artane; grocery stores including Centra, Tesco and Lidl; retail destinations such as Omni Shopping Centre and Artane Castle Shopping Centre; public transport links including Killester, Connolly and Clontarf DART stations; and employment hubs such as Eastpoint Business Park, Jamestown Business Park and Port Tunnel Business Park, as illustrated in Figure 13.

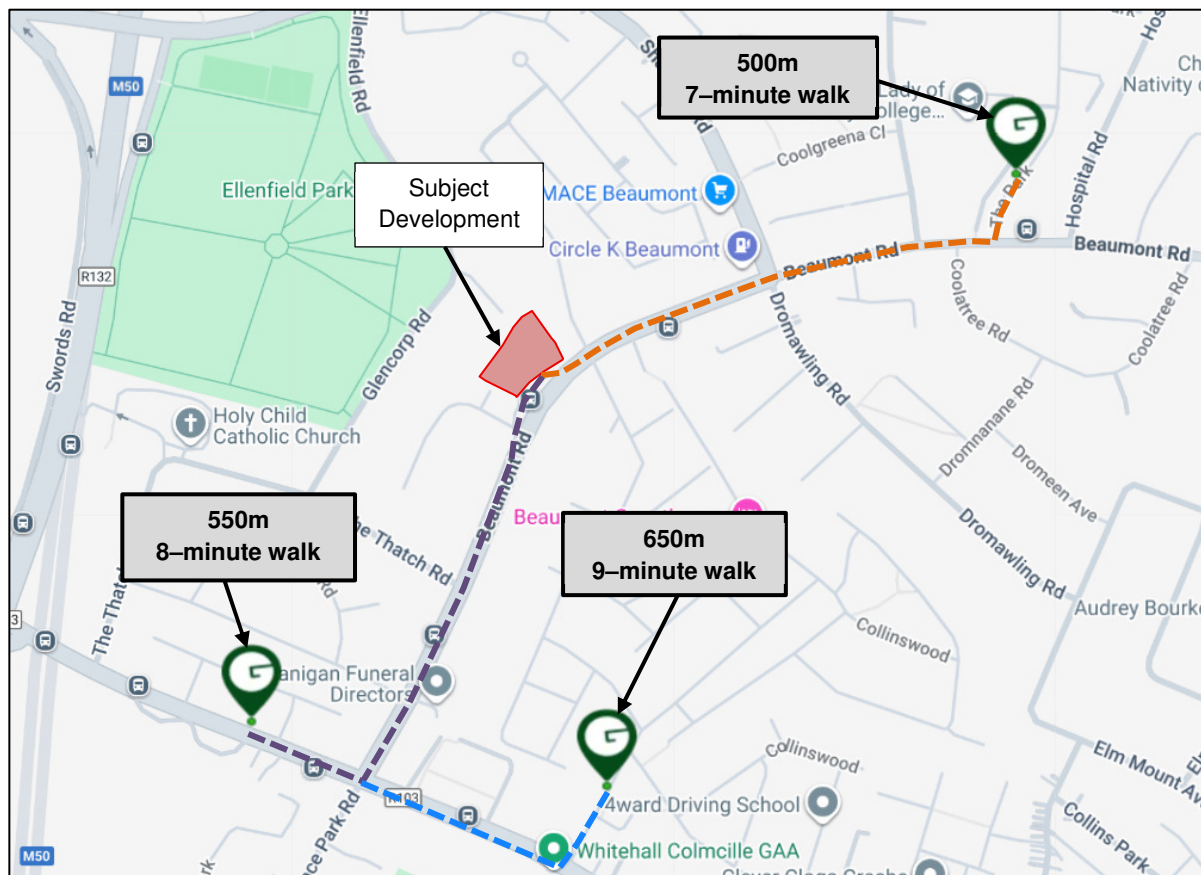
Figure 13 - Site Accessibility – Isochrone map indicating cycling accessibility



5.3.4 Nearest Car Sharing Facilities (GoCar)

The site is located in close proximity to various alternative Go-Car facilities which are less within a 10-minute walking catchment from the subject site. The location of these Go-Car facilities is shown in Figure 14.

Figure 14 - Go-Car Locations



The subject site will benefit from a car sharing scheme with an allocated Go-Car parking space within the subject development. The space will be available for use by both future residents of the development and the wider local community. The applicant will engage with suitable car share schemes regarding the provision of a car club space within the development when/if planning permission is received.

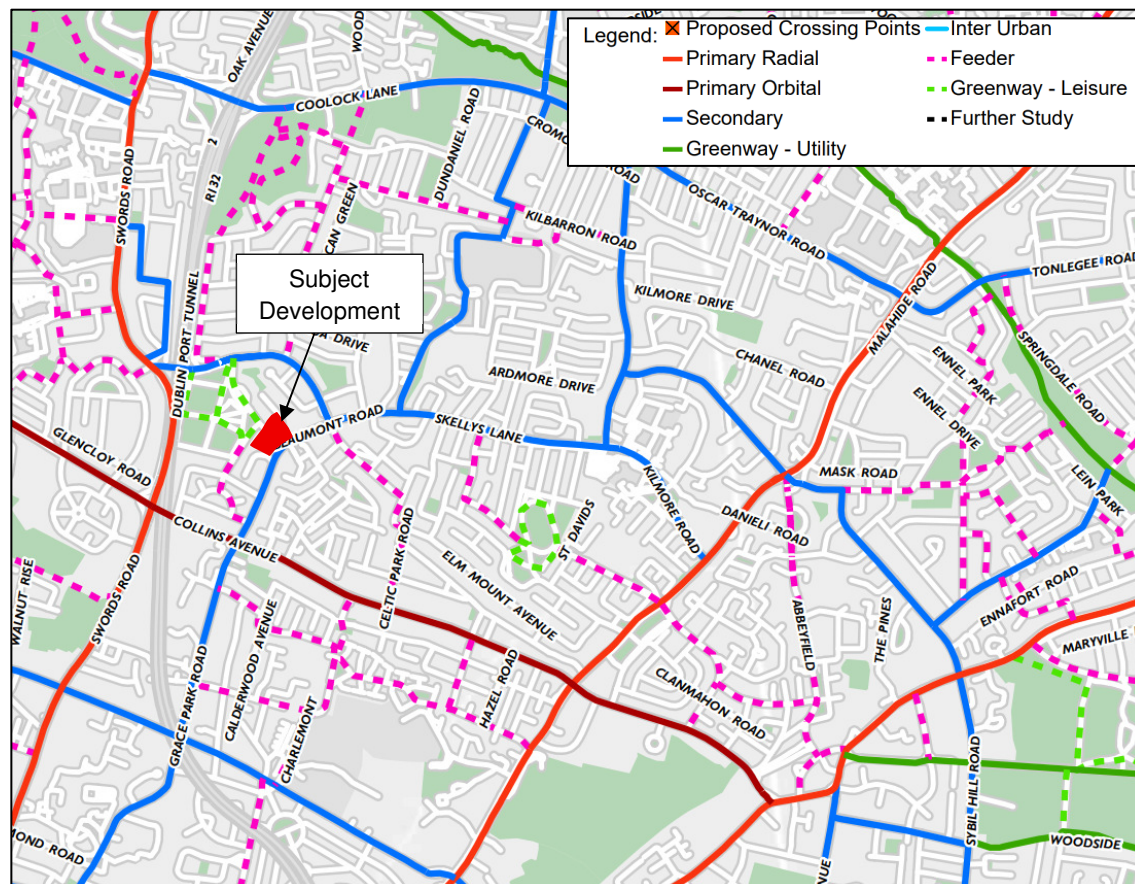
5.4 Transport Improvements

5.4.1 Cycling facilities

In January 2023 the Greater Dublin Area (GDA) Cycle Network Plan was adopted consisting of the Urban Network, Inter-Urban Network and Green Route Network for each of the seven Local Authority areas comprising the GDA. This Plan was part of the GDA Transport Strategy 2022-2042.

An extract of the proposed cycle network is reproduced in Figure 15 below.

Figure 15 - Proposed Cycle Network



The future local cycle network, as outlined in the 2022 GDA Cycle Network Plan, includes a west-east primary orbital route running along Collins Avenue (R103), which provides access to Whitehall and DonnyCarney areas.

5.4.2 BusConnects

The BusConnects project, currently being promoted by the National Transport Authority (NTA), aims to deliver a significantly improved bus service in the Greater Dublin Area (GDA). Some of the route improvements identified in the BusConnects plan are already in place or underway. According to BusConnects the above route types can be defined as follows:

Spines routes: are very frequent routes made up of individual bus services that are timetabled to work together over their common sections.

Radials routes: are other services that operate into Dublin city centre. These services are not part of any Spine and operate to their own timetable.

Orbitals routes: provide connections between suburbs, without having to travel into the city centre.

Local routes: provide connections to Local centres and link to onward transport connections.

Peak routes operate during peak travel periods, providing additional capacity along key bus corridors. Express routes are direct services from outer suburbs to the city centre during peak hours, serving limited stops to get passengers to their destination faster.

The routes proposed to serve the surrounding area of the Subject Development are shown in Table 14 below, which also gives the route name and weekday and weekend frequency, and the map showing the location of each bus route is shown in Figure 16 below. The subject development is proposed to be served by all of the A-Spine routes as well as a couple of routes that operate in Beaumont Road.

It is worth noting that that route N4 is currently operational along Collins Avenue as outlined in Section 5.3.1 above.

Figure 16 - BusConnects Route Map

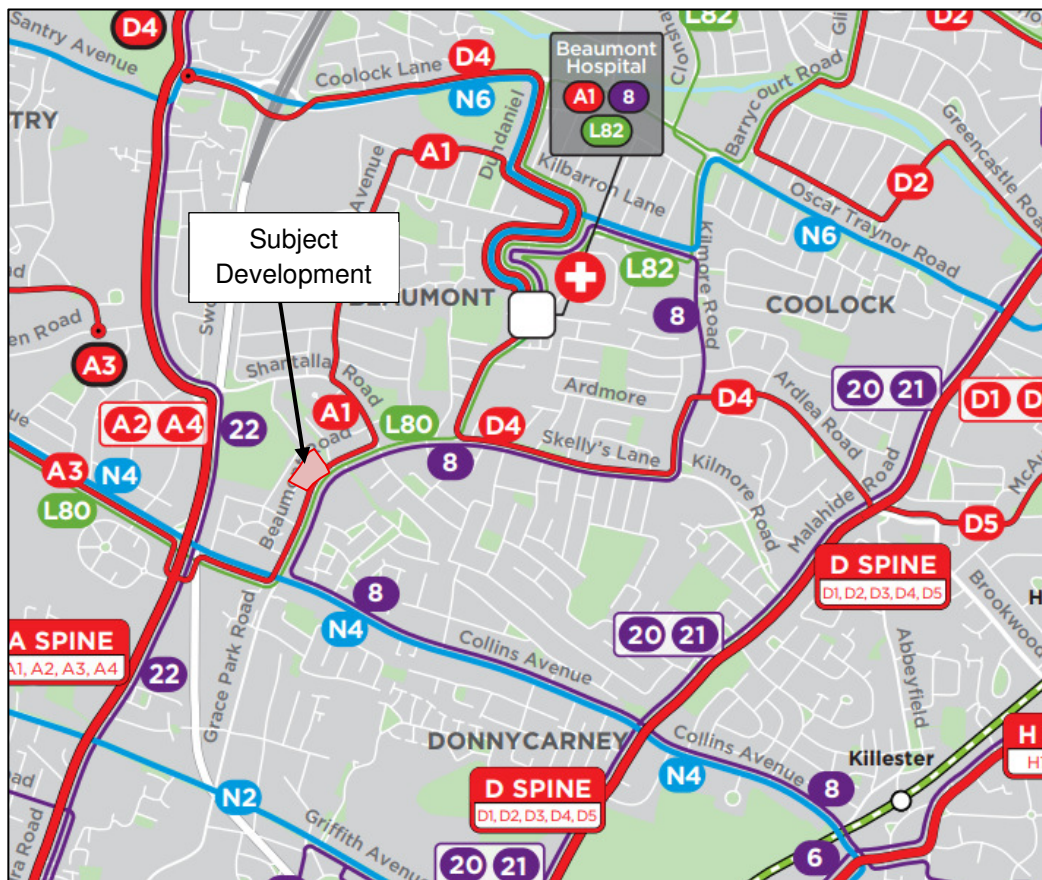


Table 14 - BusConnects - Frequency Service

Route No.	Destination	Frequency		
		Weekday	Saturday	Sunday
A1	Beaumont-City Centre-Knocklyon	Every 30 minutes between 05:00 and 06:00 Every 12-15 minutes between 06:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 20 minutes between 06:00 and 09:00 Every 30 minutes between 09:00 and 19:00 Every 20 Minutes between 19:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 30 minutes between 08:00 and 10:00 Every 20 Minutes between 10:00 and 19:00 Every 30 minutes between 19:00 and 00:00
A2	Airport-City Centre-Ballinteer-Dundrum	Every 30 minutes between 05:00 and 06:00 Every 12-15 minutes between 06:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 20 minutes between 06:00 and 09:00 Every 30 minutes between 09:00 and 19:00 Every 20 Minutes between 19:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 30 minutes between 08:00 and 10:00 Every 20 Minutes between 10:00 and 19:00 Every 30 minutes between 19:00 and 00:00
A3	DCU-City Centre-Tallaght	Every 30 minutes between 05:00 and 06:00 Every 12-15 minutes between 06:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 20 minutes between 06:00 and 09:00 Every 30 minutes between 09:00 and 19:00 Every 20 Minutes between 19:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 30 minutes between 08:00 and 10:00 Every 20 Minutes between 10:00 and 19:00 Every 30 minutes between 19:00 and 00:00
A4	Swords-City Centre-Dundrum	Every 30 minutes between 05:00 and 06:00	Every 20 minutes between 06:00 and 09:00	Every 30 minutes between 08:00 and 10:00

		Every 12-15 minutes between 06:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 30 minutes between 09:00 and 19:00 Every 20 Minutes between 19:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 20 Minutes between 10:00 and 19:00 Every 30 minutes between 19:00 and 00:00
L80	Clongriffin- Beaumont Hospital- DCU	Every 20-40 minutes	Every 60 minutes	Every 60 minutes
8	Beaumont Hospital- Clontarf-Abbey Street	Every 60 minutes	Every 60 minutes	Every 60 minutes
22	Glen Ellan Rd.- River Valley-City Centre	Every 30 minutes between 05:00 and 06:00 Every 15 minutes between 06:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 20 minutes between 06:00 and 09:00 Every 15 minutes between 09:00 and 19:00 Every 20 minutes between 19:00 and 23:00 Every 30 minutes between 23:00 and 00:00	Every 30 minutes between 08:00 and 10:00 Every 20 minutes between 10:00 and 19:00 Every 30 minutes between 19:00 and 00:00

5.5 Car Parking

5.5.1 Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024)

The *Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities* set national planning policy and guidance in relation to the planning and development of urban and rural settlements, with a focus on sustainable residential development and the creation of compact settlements.

Based on the Table 3.8 of the Guidelines and considering the information in **Section 5.3** above, it can be concluded that the current development is situated in an urban neighbourhood, as it is a High-Capacity Public Transport Node or Interchange.

Chapter 5.3.4 of the guideline establishes car parking requirements for urban neighbourhoods, indicating that a maximum of 1 parking space per dwelling is required.

Table 15 - Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024) – Maximum Car Parking Spaces

Land Use	Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities	
	Parking space Ratio	Car Parking spaces required (Maximum)
Apartments / Duplexes (100 units)	1	100

5.5.2 Sustainable Urban Housing: Design Standards for New Apartments (2025)

The following extract from the *Sustainable Urban Housing: Design Standards for New Apartments (2025)*, summarises the car parking guidelines for new apartments:

Having regard to the types of location in cities and towns that may be suitable for apartment development, car parking ratios should be minimised, substantially reduced or wholly eliminated at locations that have good access to urban services and to public transport. Maximum car parking rates are set out in Section 5.25 (SPPR 3) of the SRDCSGs.

5.5.3 Dublin City Development Plan 2022-2028

Dublin City Development Plan 2022-2028 divides Dublin City into three zones for the purpose of parking control, as illustrated on Map J of the development plan. In addition, *Table 2: Maximum Car Parking Standards for Various Land Uses* within the *Appendix 5 of the Dublin City Development Plan 2022-2028*, sets out the required level of on-site parking to be provided.

The Subject Development is in Zone 2. Therefore, the maximum number of car parking spaces is 1 per each dwelling. The table below summarises the maximum number of car parking spaces according to the *Dublin City Development Plan 2022-2028*.

Table 16 - Dublin City Development Plan 2022-2028 – Maximum Car Parking Spaces

Dublin City Development Plan 2022-2028 Car Parking Spaces Required (max)			
Unit Type	No.	Standard	Total
Apartments / Duplexes	100	1	100

5.5.4 Car Parking Proposed

Dublin City Development Plan 2022-2028 stipulates that a relaxation of maximum car parking standards will be considered in Zone 1 and Zone 2 for any site located within a highly accessible location. It is considered that the subject site is aligned with the criteria:

- **Location suitability and site advantages:** The site is located in a strategic location with several schools, health centres, retail areas and business parks within walking distance (see Figure 11 above).

- **Proximity to High Frequency Public Transport services (10 minutes' walk):** The site is well served by public transport, and future improvements will enhance this further, providing an excellent public transportation as outlined in Section 5.3.1 and 5.4.2 above.

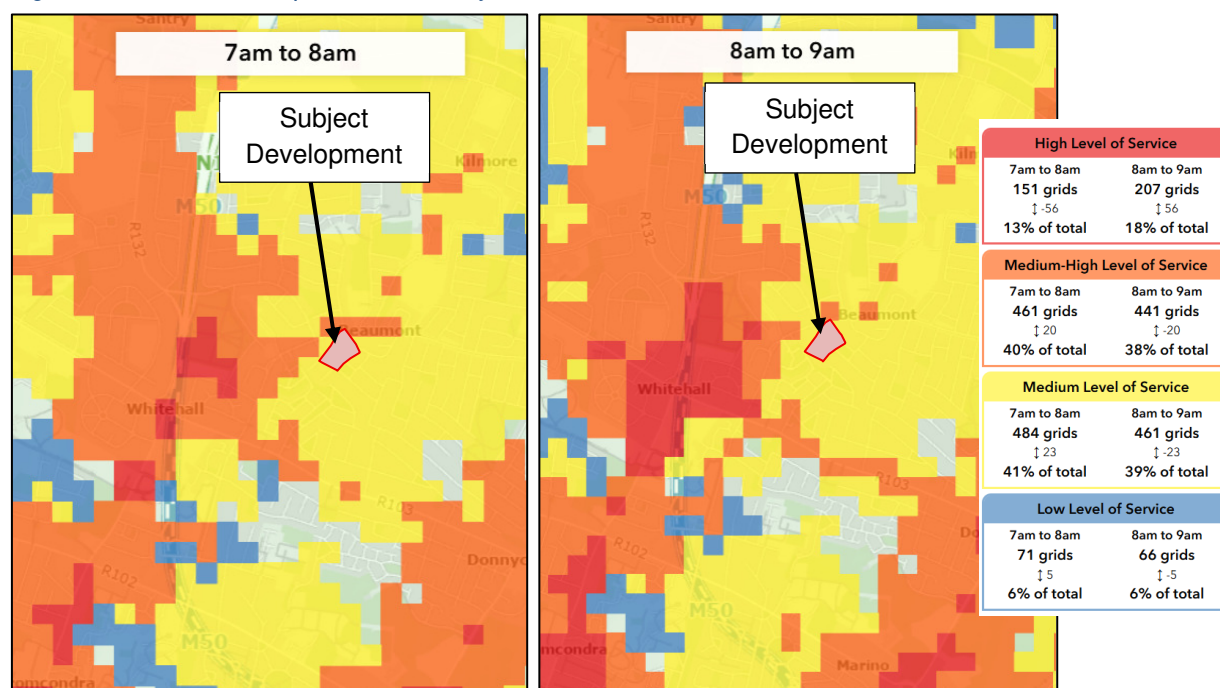
The nearest bus stops to the site are located on Beaumont Road (See Figure 10 above). The closest stop is immediately adjacent to the subject development, with additional stops approximately 150 m (2-minute walk) from the site. These stops are served by bus routes 14 and 16. These services run at a frequency of 10 – 15 minutes.

There are also several bus routes which serve the site in the road network surrounding. Along Collins Avenue approximately 500m (7-minute walk), the subject development is served by bus route N4 which has a frequency of 10 minutes.

The subject site is located approximately 650m (8-minute walk), from the N1/Swords Road, which is a Quality Bus Corridor (QBC), that is served by additional bus routes such as 900, 901, 901M, 980B, 1, 904, 910, 41D, 847, 41, 41B, 41C, 101, 16D, 33, 33E and 33n.

Additionally, according to the Public Transport Accessibility Level (PTAL) analysis, the subject development is located in an area that has medium to high level of service as illustrated in Figure 17 below

Figure 17 - Public Transport Accessibility Level



- **Walking and cycling accessibility/permeability and any improvement to same:** The internal layout is designed to provide pedestrian pathways to link internal units to the surrounding pedestrian network. The permeability of the site is ensured by providing access to/from the surrounding road network (see Section 5.2.2)

- **The range of services and sources of employment available within walking distance of the development:** The overall development is surrounded by several services and employment areas as indicated in Figure 11 and Figure 13 above.

A 24-minute walk provides access to a range of amenities, including healthcare facilities such as Beaumont Hospital; educational facilities such as St. David's Boys National School and St. David's College, Artane; grocery stores including Centra, Tesco and Lidl; and retail destinations such as Omni Shopping Centre and Artane Castle Shopping Centre.

The subject development is well connected to surrounding areas via cycling infrastructure. A 24-minute walk provides access to a range of amenities, including healthcare facilities such as Beaumont Hospital; educational facilities such as St. David's Boys National School and St. David's College, Artane; grocery stores including Centra, Tesco and Lidl; retail destinations such as Omni Shopping Centre and Artane Castle Shopping Centre; public transport links including Killester, Connolly and Clontarf DART stations; and employment hubs such as Eastpoint Business Park, Jamestown Business Park and Port Tunnel Business Park.

- **Availability of shared mobility:** The site is located in close proximity to various alternative Go-Car facilities which are less than a 10-minute walking catchment from the subject site. The subject site will benefit from the Go-Car scheme with an allocated Go-Car parking space immediately adjacent to the subject development's access.
- **Impact on the amenities of surrounding properties or areas, including overspill parking:** in terms of mobility, the primary objective of the developments is to discourage the use of private vehicles and encourage residents to choose more sustainable means of transport. The extensive public transport service in the area and the provision of carsharing within the development help to ensure that residents do not feel the need to own a car in order to reach their destination. In addition, to mitigate any potential negative effects, the following measures have been proposed:
 - **Resident Parking Permits:** Introduction of a resident parking permit scheme to prioritize local residents.
 - **Enhanced Public Transport:** Encouragement of public transport use through improved accessibility and frequency of services.
 - **Cycle Facilities:** Provision of ample bicycle parking to promote cycling as an alternative mode of transport.

These measures aim to ensure that the development does not adversely affect the amenities of the surrounding properties and maintain the quality of life for local residents. Further information about this is provided in the Waterman Moylan Consulting Engineer report No. 20-048.018 *Mobility Management Plan*, which is attached to the current planning application under separated cover.

- **Impact on traffic safety, including obstruction of other road users:** the overall development has been analysed to determine its potential impact on traffic safety, with a focus on preventing obstructions to other road users. Key strategies to enhance traffic safety and minimize obstructions include:
 - **Clear Signage:** Installation of clear and visible signage to guide drivers and pedestrians, reducing the risk of accidents.

- **Provision of sufficient sightlines:** Sufficient sightlines have been provided at the entrance of subject development (see Waterman Moylan Drawing No. 20-048-P2016 – *Proposed Entrance Sightlines*).
- **Robustness of Mobility Management Plan to support the development:** The planning application documentation includes a Mobility Management Plan (Waterman Moylan Report No. 20-048r.018 *Mobility Management Plan*) which provides for several measures to be adopted to encourage the use of sustainable means of transport by residents of the subject development.

The proposed breakdown of car parking spaces is presented in table below.

Table 17 - Car Parking Proposed

Proposed Car Parking Summary			
Unit Type	No. of Units	Spaces Proposed	Number of Spaces
Apartments / Duplexes	100	41 Spaces	41
Shared Car Station	-	1 marked space	1 (10 Worth)
TOTAL			42 (51 Worth)

The complete management strategy for the car park is addressed within the Parking Management Plan submitted with this application under separate cover

5.6 Cycle Parking

5.6.1 Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024)

Chapter 5.2.5 of the guidelines outlined Bicycle Parking and Storage requirements. The table below shows the breakdown of cycle parking spaces in accordance with the guidelines.

Table 18 - *Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024) – Cycle Parking Spaces Required*

Land Use	No. Units	Cycle Parking Spaces Ratio		Cycle Parking Spaces Required	
		Resident	Visitor	Resident	Visitor
Studio	17	1 per bedroom	0.5 per units	17	50
1 bed	45	1 per bedroom	0.5 per units	45	
2-bed	27	1 per bedroom	0.5 per units	54	
3-bed	11	1 per bedroom	0.5 per units	33	

Total	100		149	50
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5.6.2 Dublin City Development Plan 2022 – 2028

According to the *Table 1: Bicycle Parking Standards for Various Land Uses* within *Appendix 5 of the Dublin City Development Plan 2022-2028*, Residential Apartments should have 1 cycle parking spaces per bedroom for residents (or long-term users), plus 1 per 2 apartments for visitors.

Accordingly, the number of bicycle spaces required as per Dublin City Development Plan 2022-2028 is shown in the table below.

Table 19 - Dublin City Development Plan 2022-2028: Cycle Parking Spaces

Land Use	No. Units	Cycle Parking Spaces Ratio		Cycle Parking Spaces Required	
		Resident	Visitor	Resident	Visitor
Studio	17	1 per bedroom	1 per two apartments	17	50
1 bed	45	1 per bedroom		45	
2-bed	27	1 per bedroom		54	
3-bed	11	1 per bedroom		33	
Total	100			149	50

5.6.3 Cycle parking proposed

Cycle parking has been proposed in accordance with Dublin City Development Plan 2022-2028 as illustrated in Table 20 below. Cycle parking has been proposed to encourage residents to use more sustainable transport modes. For this reason, a total of 154 no. cycle parking spaces are proposed for residents and 42 no. for visitors.

Table 20 - Cycle Parking Spaces Proposed

Land Use	No. Units	Cycle Parking Spaces Ratio		Cycle Parking Spaces Required	
		Resident	Visitor	Resident	Visitor
Studio	17	1 per bedroom	1 per two apartments	17	50
1 bed	45	1 per bedroom		45	
2-bed	27	1 per bedroom		54	
3-bed	11	1 per bedroom		34	

Total	100		150	50
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5.7 DMURS

5.7.1 Background

The stated objective of DMURS is to achieve better street design in urban areas. This will encourage more people to choose to walk, cycle or use public transport by making the experience safer and more pleasant. It will lower traffic speeds, reduce unnecessary car use, and create a built environment that promotes healthy lifestyles and responds more sympathetically to the distinctive nature of individual communities and places. The implementation of DMURS is intended to enhance how we go about our business, how we interact with each other, and have a positive impact on our enjoyment of the places to and through which we travel.

5.7.2 DMURS: Statement of Design Consistency

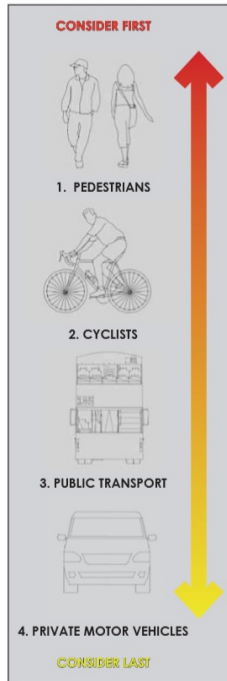
Waterman Moylan Consulting Engineers considers that the proposed road and street design is consistent with the principles and guidance outlined in the Design Manual for Urban Roads and Streets (DMURS). Outlined below are some of the specific design features that have been incorporated within the proposed scheme with the objective of delivering a design that is in compliance with DMURS.

5.7.3 Creating a Sense of Place

Four characteristics represent the basic measures that should be established in order to create people friendly streets that facilitate more sustainable neighbourhoods. These characteristics are connectivity, enclosure, active edges, and pedestrian activities/facilities.

Connectivity:

“The creation of vibrant and active places requires pedestrian activity. This in turn requires walkable street networks that can be easily navigated and are well connected.”



In order of importance, DMURS prioritises pedestrians, cyclists, public transport and private cars. This is illustrated in the adjacent image extracted from DMURS.

The proposed development has been designed with pedestrians and cyclists taking precedence over other modes of transport. In this regard, footpaths are provided throughout the development with suitable connections through the open spaces. Footpaths within the development will generally be 1.5 - 1.8m wide.

The site is well served by public transport, and future improvements will enhance this further, providing an excellent public transportation. The nearest bus stops to the site are located on Beaumont Road (See Figure 10 above). The closest stop is immediately adjacent to the subject development, with additional stops approximately 150 m (2-minute walk) from the site. These stops are served by bus routes 14 and 16. There are also several bus routes which serve the site in the road network surrounding. Along Collins Avenue approximately 500m (7-minute walk), the subject development is served by bus route N4. The subject site is located approximately 650m (8-minute walk), from the N1/Swords Road, which is a Quality Bus Corridor (QBC), that is served by additional bus routes.

The overall development includes a total of 42 No. car parking spaces for the residential units (41 spaces for the proposed development and 1 space for the GoCar Car share company).

Enclosure:

“A sense of enclosure spatially defines streets and creates a more intimate and supervised environment. A sense of enclosure is achieved by orientating buildings towards the street and placing them along its edge. The use of street trees can also enhance the feeling of enclosure.”

The proposed development has been designed with residential units overlooking streets and pedestrian routes throughout. High quality landscaping and tree planting are proposed throughout the scheme which creates a definitive sense of place.

Active Edge:

“An active frontage enlivens the edge of the street creating a more interesting and engaging environment. An active frontage is achieved with frequent entrances and openings that ensure the street is overlooked and generate pedestrian activity as people come and go from buildings.”

As stated in Section 2.2.1 of DMURS, an active frontage enlivens the edge of the street, creating a more interesting and engaging environment. An active frontage is achieved with frequent entrances and openings. The proposed development incorporates these principles through building layouts that provide entrances and openings overlooking the internal road network.

In addition, on-street parking is provided within the development and serves to separate pedestrians from the vehicular carriageway. In accordance with Section 4.4.9 of DMURS, on-street parking separates pedestrians from the vehicle carriageway, can calm traffic by increasing driver caution, contribute to pedestrian comfort by providing a buffer between the vehicular carriageway and footpath and provide good levels of passive security.

Pedestrian Activities/Facilities:

“The sense of intimacy, interest and overlooking that is created by a street that is enclosed and lined with active frontages enhances a pedestrian’s feeling of security and well-being. Good pedestrian facilities (such as wide footpaths and well-designed crossings) also make walking a more convenient and pleasurable experience that will further encourage pedestrian activity.”

As outlined in the items above, the proposed development has been designed to provide excellent pedestrian connectivity, with footpaths providing permeability throughout the site. Footpaths within the development will generally be 1.8m-2m wide.

5.7.4 Key Design Principles

DMURS sets out four core design principles which designers must have regard to when designing roads and streets. These four core principles are set out below together with a commentary establishing how these design principles have been incorporated into the design of the proposed development.

Design Principle 1: Pedestrian Activity/Facilities:

“To support the creation of integrated street networks which promote higher levels of permeability and legibility for all users and in particular more sustainable forms of transport.”

The proposed development has been designed to provide excellent pedestrian connectivity, with footpaths providing permeability throughout the site.

Design Principle 2: Multi-Functional Streets:

“The promotion of multi-functional, place-based streets that balance the needs of all users within a self-regulating environment.”

The subject development achieves a high-quality pedestrian environment through a clear and legible street hierarchy and the segregation of pedestrian and vehicular movement. Pedestrian routes are provided via dedicated footpaths throughout the site, ensuring safe, continuous, and accessible connections between buildings and to the surrounding street network.

Design Principle 3: Pedestrian Focus:

“The quality of the street is measured by the quality of the pedestrian environment.”

The design of the scheme has placed a particular focus on the pedestrian. Connectivity throughout the scheme is weighted towards the pedestrian. There are pedestrian links throughout the development which link to the surrounding road network.

In addition, the overall development includes a total of 42 No. car parking spaces, which is a relaxation of maximum car parking standards outlined in Dublin City Development Plan 2022-2028. This reduced level of car parking further reinforces the pedestrian-focused nature of the scheme and contributes to a safer and higher-quality public realm.

Design Principle 4: Multi-Disciplinary Approach:

“Greater communication and co-operation between design professionals through promotion plan led multidisciplinary approach to design.”

The design of the proposed scheme has been developed through the design team working closely together. The proposed development design is led by Henry J Lyons Architects working together with Waterman Moylan Consulting Engineers, McGill Planning Consultants and Park Hood Landscape Architect.

Appendices

A. Confirmation of feasibility

CONFIRMATION OF FEASIBILITY

Barbara Klaumann Lucas
Block S Eastpoint Business Park
Alfie Byrne Road
Dublin 3
Dublin
D03H3F4

22 July 2026

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Our Ref: CDS26004442 Pre-Connection Enquiry
Site at, Beaumont Road, Dublin 9, Dublin

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 110 unit(s) at Site at, Beaumont Road, Dublin 9, Dublin, (the **Development**).

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- As per Uisce Éireann GIS records (please see Section B of this letter), Uisce Éireann assets are present on the site. The Developer must demonstrate that proposed structures and works will not inhibit access for maintenance or endanger structural or functional integrity of the assets during and after the works. For design submissions and queries related to diversion/build near or over, please contact UÉ Diversion Team via email address diversions@water.ie.

Stiúrthóirí / Directors: Jerry Grant (Cathaoirleach / Chairperson), Niall Gleeson (POF / CEO), Douglas Millican, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh, Rena O'Sullivan and Orlagh Nevin.

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.

Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

Where can you find more information?

- **Section A** - What is important to know?
- **Section B** - Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit www.water.ie/connections, email newconnections@water.ie or contact 1800 278 278.

Yours sincerely,



Dermot Phelan
Connections and Developer Services

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • What to do? - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • What to do? - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with <i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i>, available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann’s Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email

datarequests@water.ie



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Note: The information provided on the included maps as to the position of Uisce Éireann’s underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann’s network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann’s underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann’s underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

B. Surface Water Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	15.700	Minimum Backdrop Height (m)	0.200
Ratio-R	0.276	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SWIC1	0.035	4.00	40.300	600	717331.303	738633.901	1.050	39.250
IC2	0.007	4.00	40.600	600	717294.352	738676.429	1.632	38.968
IC3	0.047	4.00	40.700	600	717279.190	738663.132	1.833	38.867
SWIC5	0.005	4.00	40.100	600	717320.518	738616.488	0.714	39.386
SWIC6			40.200	600	717308.204	738606.016	0.985	39.215
PP1	0.004	4.00	40.750		717294.351	738628.101	0.500	40.250
PPEntrance	0.016	4.00	40.600		717297.448	738620.818	0.500	40.100
SMH1			40.400	1200	717293.703	738621.492	1.291	39.109
SMH2			40.300	1200	717298.081	738625.359	1.453	38.847
GR/BR	0.089	4.00	40.915		717306.502	738641.927	0.600	40.315
IC4 - HB	0.003	4.00	40.600	1200	717299.581	738639.753	0.800	39.800
Attenuation 01	0.030	4.00	40.700		717294.276	738630.286	1.900	38.800
SMH3 - HB			40.550	1200	717290.463	738625.373	1.781	38.769
PP8	0.040	4.00	40.700		717279.870	738592.966	0.500	40.200
SMH4	0.014	4.00	40.650	1200	717279.614	738584.175	1.425	39.225
PP6	0.003	4.00	40.700		717271.318	738598.712	0.500	40.200
PP7	0.007	4.00	40.800		717269.113	738588.823	0.500	40.300
SMH5	0.018	4.00	40.800	1200	717273.015	738591.665	1.625	39.175
PP2	0.003	4.00	41.000		717261.369	738615.216	0.500	40.500
PP3	0.008	4.00	41.000		717250.784	738619.516	0.500	40.500
SMH7	0.009	4.00	41.090	1200	717255.456	738616.635	1.425	39.665
PP4	0.005	4.00	40.900		717257.479	738605.337	0.500	40.400
PP5	0.005	4.00	40.900		717248.088	738599.866	0.500	40.400
SMH6			40.963	1200	717248.325	738604.780	1.928	39.035
SWIC7	0.022	4.00	40.600	600	717271.916	738606.463	0.975	39.625
SWIC8			40.600	600	717267.393	738603.826	1.027	39.573
Attenuation 02			40.900		717260.847	738609.205	1.931	38.969
SMH8 - HB	0.004	4.00	40.600	1200	717273.242	738609.396	1.693	38.907
EXSWMH1		4.00	40.750	1200	717269.069	738653.104	0.920	39.830
SDMH1	0.006	4.00	40.750	1200	717273.724	738649.836	1.425	39.325
SDMH2	0.005	4.00	40.940	1200	717280.004	738637.122	1.686	39.254
SDMH3			40.490	1200	717288.742	738621.372	1.818	38.672
SDMH4	0.006	4.00	40.250	1200	717303.671	738601.285	1.703	38.547
SDMH5			40.500	1200	717303.783	738584.827	2.035	38.465
EX SMH			39.690	1200	717315.084	738574.152	1.303	38.387

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	SWIC1	IC2	56.338	0.600	39.250	38.968	0.282	200.0	225	5.02	50.0
1.001	IC2	IC3	20.167	0.600	38.968	38.867	0.101	200.0	225	5.38	50.0
1.002	IC3	Attenuation 01	36.145	0.600	38.867	38.800	0.067	539.5	225	6.47	50.0
2.000	SWIC5	SWIC6	16.165	0.600	39.386	39.224	0.162	100.0	225	4.21	50.0
2.001	SWIC6	SMH1	21.211	0.600	39.215	39.109	0.106	200.0	225	4.59	50.0
3.000	PP1	SMH1	6.641	0.600	40.250	39.918	0.332	20.0	100	4.06	50.0
4.000	PPEntrance	SMH1	3.805	0.600	40.100	39.910	0.190	20.0	100	4.04	50.0
2.002	SMH1	SMH2	5.841	0.600	39.109	39.080	0.029	201.4	225	4.70	50.0
2.003	SMH2	Attenuation 01	6.225	0.600	38.847	38.816	0.031	200.0	225	4.81	50.0
5.000	GR/BR	IC4 - HB	7.254	0.600	40.315	39.952	0.363	20.0	150	4.05	50.0
5.001	IC4 - HB	Attenuation 01	10.852	0.600	39.800	39.257	0.543	20.0	150	4.13	50.0
1.003	Attenuation 01	SMH3 - HB	6.219	0.600	38.800	38.769	0.031	200.0	300	6.56	50.0
1.004	SMH3 - HB	SDMH3	4.355	0.600	38.769	38.747	0.022	200.0	225	6.64	40.0
6.000	PP8	SMH4	8.799	0.600	40.200	40.112	0.088	100.0	150	4.15	50.0
6.001	SMH4	SMH5	9.999	0.600	39.225	39.175	0.050	200.0	225	4.33	50.0
7.000	PP6	SMH5	7.259	0.600	40.200	40.127	0.073	100.0	100	4.16	50.0
8.000	PP7	SMH5	4.833	0.600	40.300	40.058	0.242	20.0	100	4.05	50.0
6.002	SMH5	SMH6	27.959	0.600	39.175	39.035	0.140	199.7	225	4.83	50.0
9.000	PP2	SMH7	6.096	0.600	40.500	40.439	0.061	100.0	100	4.13	50.0
10.000	PP3	SMH7	5.496	0.600	40.500	40.445	0.055	100.0	100	4.12	50.0
9.001	SMH7	SMH6	13.834	0.600	39.665	39.538	0.127	108.9	225	4.32	50.0
11.000	PP4	SMH6	9.171	0.600	40.400	40.308	0.092	100.0	100	4.20	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.921	36.6	6.3	0.825	1.407	0.035	0.0	63	0.691
1.001	0.921	36.6	7.6	1.407	1.608	0.042	0.0	70	0.732
1.002	0.556	22.1	16.1	1.608	1.675	0.089	0.0	143	0.606
2.000	1.307	52.0	0.8	0.489	0.751	0.005	0.0	20	0.484
2.001	0.921	36.6	0.8	0.760	1.066	0.005	0.0	23	0.378
3.000	1.734	13.6	0.7	0.400	0.382	0.004	0.0	15	0.897
4.000	1.734	13.6	2.9	0.400	0.390	0.016	0.0	32	1.386
2.002	0.917	36.5	4.4	1.066	0.995	0.025	0.0	53	0.627
2.003	0.921	36.6	4.4	1.228	1.659	0.025	0.0	53	0.629
5.000	2.262	40.0	16.2	0.450	0.498	0.089	0.0	67	2.147
5.001	2.262	40.0	16.6	0.650	1.293	0.092	0.0	68	2.164
1.003	1.108	78.3	42.6	1.600	1.481	0.236	0.0	158	1.131
1.004	0.921	36.6	34.1	1.556	1.518	0.236	0.0	173	1.042
6.000	1.005	17.8	7.3	0.350	0.388	0.040	0.0	67	0.957
6.001	0.921	36.6	9.8	1.200	1.400	0.055	0.0	80	0.783
7.000	0.769	6.0	0.6	0.400	0.573	0.003	0.0	21	0.490
8.000	1.734	13.6	1.3	0.400	0.642	0.007	0.0	21	1.085
6.002	0.921	36.6	15.1	1.400	1.703	0.083	0.0	101	0.878
9.000	0.769	6.0	0.6	0.400	0.551	0.003	0.0	21	0.490
10.000	0.769	6.0	1.5	0.400	0.545	0.008	0.0	34	0.637
9.001	1.252	49.8	3.8	1.200	1.200	0.021	0.0	42	0.743
11.000	0.769	6.0	0.9	0.400	0.555	0.005	0.0	26	0.551

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
12.000	PP5	SMH6	4.920	0.600	40.400	40.351	0.049	100.0	100	4.11	50.0
6.003	SMH6	Attenuation 02	13.281	0.600	39.035	38.969	0.066	200.0	225	5.07	50.0
13.000	SWIC7	SWIC8	5.236	0.600	39.625	39.573	0.052	100.0	225	4.07	50.0
13.001	SWIC8	Attenuation 02	8.473	0.600	39.573	39.488	0.085	100.0	225	4.17	50.0
6.004	Attenuation 02	SMH8 - HB	12.402	0.600	38.969	38.907	0.062	200.0	225	5.30	50.0
6.005	SMH8 - HB	SDMH3	19.613	0.600	38.907	38.809	0.098	200.0	225	5.65	50.0
14.000	EXSWMH1	SDMH1	5.688	0.600	39.830	39.802	0.028	200.0	225	4.10	50.0
14.001	SDMH1	SDMH2	14.180	0.600	39.325	39.254	0.071	200.0	225	4.36	50.0
14.002	SDMH2	SDMH3	18.012	0.600	39.254	39.164	0.090	200.0	225	4.69	50.0
1.005	SDMH3	SDMH4	25.027	0.600	38.672	38.547	0.125	200.0	300	7.02	50.0
1.006	SDMH4	SDMH5	16.458	0.600	38.547	38.465	0.082	200.0	300	7.27	50.0
1.007	SDMH5	EX SMH	15.546	0.600	38.465	38.387	0.078	200.0	300	7.50	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
12.000	0.769	6.0	0.9	0.400	0.512	0.005	0.0	26	0.551
6.003	0.921	36.6	20.7	1.703	1.706	0.114	0.0	121	0.947
13.000	1.307	52.0	4.0	0.750	0.802	0.022	0.0	43	0.786
13.001	1.307	52.0	4.0	0.802	1.187	0.022	0.0	43	0.786
6.004	0.921	36.6	24.7	1.706	1.468	0.137	0.0	136	0.987
6.005	0.921	36.6	25.5	1.468	1.456	0.141	0.0	138	0.993
14.000	0.921	36.6	0.0	0.695	0.723	0.000	0.0	0	0.000
14.001	0.921	36.6	1.1	1.200	1.461	0.006	0.0	26	0.405
14.002	0.921	36.6	2.0	1.461	1.101	0.011	0.0	36	0.495
1.005	1.108	78.3	70.1	1.518	1.403	0.388	0.0	222	1.247
1.006	1.108	78.3	71.2	1.403	1.735	0.394	0.0	225	1.249
1.007	1.108	78.3	71.2	1.735	1.003	0.394	0.0	225	1.249

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
Rainfall Events	Singular	Drain Down Time (mins)	240
FSR Region	Scotland and Ireland	Additional Storage (m³/ha)	20.0
M5-60 (mm)	15.700	Starting Level (m)	
Ratio-R	0.276	Check Discharge Rate(s)	x
Summer CV	1.000	Check Discharge Volume	x
Analysis Speed	Normal		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	20	0	0
100	20	0	0

Node GR/BR Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	5.000	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0039-4000-0100-4000
Invert Level (m)	40.315	Min Outlet Diameter (m)	0.075
Design Depth (m)	0.100	Min Node Diameter (mm)	1200
Design Flow (l/s)	0.4		

Node SMH3 - HB Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.004	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0063-2100-1500-2100
Invert Level (m)	38.769	Min Outlet Diameter (m)	0.075
Design Depth (m)	1.500	Min Node Diameter (mm)	1200
Design Flow (l/s)	2.1		

Node SMH8 - HB Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	6.005	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0061-2000-1500-2000
Invert Level (m)	38.907	Min Outlet Diameter (m)	0.075
Design Depth (m)	1.500	Min Node Diameter (mm)	1200
Design Flow (l/s)	2.0		

Node PP1 Online Orifice Control

Flap Valve	x	Invert Level (m)	40.500	Diameter (m)	0.018
Downstream Link	3.000	Design Depth (m)	0.500	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	0.5		

Node PPEntrance Online Orifice Control

Flap Valve	x	Invert Level (m)	40.300	Diameter (m)	0.026
Downstream Link	4.000	Design Depth (m)	0.500	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		

Node PP3 Online Orifice Control

Flap Valve	x	Invert Level (m)	40.700	Diameter (m)	0.018
Downstream Link	10.000	Design Depth (m)	0.500	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	0.5		

Node GR/BR Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	830.0	830.0	0.100	830.0	840.2	0.101	0.0	840.2

Node PP1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.250
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	50.0	50.0	0.350	50.0	58.8	0.351	0.0	58.8

Node Attenuation 01 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	38.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	157.0	157.0	0.900	157.0	197.0	0.901	0.0	197.0

Node PPEntrance Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	218.0	218.0	0.350	218.0	236.3	0.351	0.0	236.3

Node Attenuation 02 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	39.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	152.0	152.0	0.750	152.0	184.8	0.751	0.0	184.8

Node PP2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	107.0	107.0	0.350	107.0	119.8	0.351	0.0	119.8

Node PP3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	107.0	107.0	0.350	107.0	119.8	0.351	0.0	119.8

Node PP4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	107.0	107.0	0.350	107.0	119.8	0.351	0.0	119.8

Node PP5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	57.6	57.6	0.350	57.6	67.0	0.351	0.0	67.0

Node PP6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	57.6	57.6	0.350	57.6	67.0	0.351	0.0	67.0

Node PP7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	80.6	80.6	0.350	80.6	91.7	0.351	0.0	91.7

Node PP8 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	40.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.40	Time to half empty (mins)	2

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	103.7	103.7	0.350	103.7	116.3	0.351	0.0	116.3

Results for 30 year +20% CC Critical Storm Duration. Lowest mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	SWIC1	570	39.440	0.190	1.9	0.1787	0.0000	OK
720 minute summer	IC2	570	39.440	0.472	2.3	0.1768	0.0000	SURCHARGED
720 minute summer	IC3	570	39.440	0.573	4.5	0.4534	0.0000	SURCHARGED
720 minute summer	SWIC5	570	39.439	0.053	0.3	0.0219	0.0000	OK
600 minute summer	SWIC6	510	39.439	0.224	0.3	0.0634	0.0000	OK
2160 minute summer	PP1	1320	40.393	0.143	0.1	2.1600	0.0000	SURCHARGED
8640 minute summer	PPEntrance	5520	40.280	0.180	0.2	15.8399	0.0000	SURCHARGED
720 minute summer	SMH1	570	39.439	0.330	0.4	0.3736	0.0000	SURCHARGED
720 minute summer	SMH2	570	39.439	0.592	0.3	0.6700	0.0000	SURCHARGED
600 minute summer	GR/BR	555	40.544	0.229	5.6	35.9890	0.0000	SURCHARGED
15 minute summer	IC4 - HB	10	39.821	0.021	1.6	0.0249	0.0000	OK
720 minute summer	Attenuation 01	570	39.439	0.639	6.8	40.3628	0.0000	SURCHARGED
720 minute summer	SMH3 - HB	570	39.439	0.670	1.7	0.7583	0.0000	SURCHARGED
30 minute summer	PP8	20	40.284	0.084	15.1	3.6248	0.0000	OK
360 minute summer	SMH4	304	39.597	0.372	4.7	0.4936	0.0000	SURCHARGED
60 minute summer	PP6	37	40.220	0.020	1.0	0.4625	0.0000	OK
30 minute summer	PP7	20	40.324	0.024	2.7	0.7768	0.0000	OK
360 minute summer	SMH5	296	39.597	0.422	7.3	0.5709	0.0000	SURCHARGED
120 minute summer	PP2	72	40.516	0.016	0.7	0.6760	0.0000	OK
8640 minute summer	PP3	4980	40.667	0.167	0.1	7.1999	0.0000	SURCHARGED
15 minute summer	SMH7	10	39.709	0.044	4.0	0.0555	0.0000	OK
15 minute summer	PP4	10	40.440	0.040	2.0	0.0079	0.0000	OK
60 minute summer	PP5	36	40.426	0.026	1.4	0.6003	0.0000	OK
360 minute summer	SMH6	296	39.597	0.562	8.5	0.6351	0.0000	SURCHARGED
15 minute summer	SWIC7	10	39.695	0.070	9.1	0.0521	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	SWIC1	1.000	IC2	1.9	0.393	0.052	2.1261	
720 minute summer	IC2	1.001	IC3	1.9	0.214	0.052	0.8021	
720 minute summer	IC3	1.002	Attenuation 01	4.4	0.347	0.200	1.4375	
720 minute summer	SWIC5	2.000	SWIC6	0.3	0.355	0.006	0.3739	
600 minute summer	SWIC6	2.001	SMH1	0.3	0.278	0.008	0.8431	
2160 minute summer	PP1	3.000	SMH1	0.0	0.000	0.000	0.0000	
8640 minute summer	PPEntrance	4.000	SMH1	0.0	0.000	0.000	0.0000	
720 minute summer	SMH1	2.002	SMH2	0.3	0.259	0.008	0.2323	
720 minute summer	SMH2	2.003	Attenuation 01	-0.3	0.009	-0.007	0.2476	
600 minute summer	GR/BR	5.000	IC4 - HB	0.6	0.800	0.014	0.0050	
15 minute summer	IC4 - HB	5.001	Attenuation 01	1.6	1.102	0.040	0.0159	
720 minute summer	Attenuation 01	1.003	SMH3 - HB	1.7	0.184	0.022	0.4379	
720 minute summer	SMH3 - HB	1.004	SDMH3	1.7	0.456	0.045	0.0158	
30 minute summer	PP8	6.000	SMH4	10.1	1.017	0.568	0.0872	
360 minute summer	SMH4	6.001	SMH5	4.7	0.509	0.129	0.3977	
60 minute summer	PP6	7.000	SMH5	0.5	0.470	0.086	0.0080	
30 minute summer	PP7	8.000	SMH5	1.6	1.149	0.119	0.0068	
360 minute summer	SMH5	6.002	SMH6	6.6	0.526	0.179	1.1120	
120 minute summer	PP2	9.000	SMH7	0.3	0.406	0.053	0.0048	
8640 minute summer	PP3	10.000	SMH7	0.0	0.000	0.000	0.0000	
15 minute summer	SMH7	9.001	SMH6	3.9	0.740	0.079	0.0737	
15 minute summer	PP4	11.000	SMH6	2.0	0.686	0.331	0.0267	
60 minute summer	PP5	12.000	SMH6	0.8	0.536	0.140	0.0078	
360 minute summer	SMH6	6.003	Attenuation 02	8.1	0.354	0.222	0.5282	
15 minute summer	SWIC7	13.000	SWIC8	9.1	0.903	0.175	0.0528	

Results for 30 year +20% CC Critical Storm Duration. Lowest mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SWIC8	10	39.639	0.066	9.1	0.0186	0.0000	OK
360 minute summer	Attenuation 02	304	39.597	0.628	10.2	36.2978	0.0000	SURCHARGED
360 minute summer	SMH8 - HB	304	39.596	0.689	1.7	0.8149	0.0000	SURCHARGED
15 minute summer	EXSWMH1	1	39.830	0.000	0.0	0.0000	0.0000	OK
15 minute summer	SDMH1	10	39.364	0.039	2.4	0.0470	0.0000	OK
15 minute summer	SDMH2	10	39.308	0.054	4.5	0.0639	0.0000	OK
15 minute summer	SDMH3	11	38.734	0.062	7.3	0.0696	0.0000	OK
15 minute summer	SDMH4	11	38.620	0.073	9.4	0.0873	0.0000	OK
15 minute summer	SDMH5	11	38.538	0.073	9.4	0.0820	0.0000	OK
15 minute summer	EX SMH	11	38.456	0.069	9.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SWIC8	13.001	Attenuation 02	9.1	0.972	0.175	0.0794	
360 minute summer	Attenuation 02	6.004	SMH8 - HB	1.5	0.166	0.041	0.4932	
360 minute summer	SMH8 - HB	6.005	SDMH3	1.6	0.459	0.043	0.0666	
15 minute summer	EXSWMH1	14.000	SDMH1	0.0	0.000	0.000	0.0000	
15 minute summer	SDMH1	14.001	SDMH2	2.4	0.418	0.065	0.0834	
15 minute summer	SDMH2	14.002	SDMH3	4.3	0.614	0.118	0.1273	
15 minute summer	SDMH3	1.005	SDMH4	7.3	0.623	0.093	0.2942	
15 minute summer	SDMH4	1.006	SDMH5	9.4	0.718	0.120	0.2160	
15 minute summer	SDMH5	1.007	EX SMH	9.4	0.737	0.119	0.1973	45.7

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 99.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	SWIC1	585	39.666	0.416	2.4	0.3921	0.0000	SURCHARGED
720 minute summer	IC2	585	39.666	0.698	2.9	0.2617	0.0000	SURCHARGED
720 minute summer	IC3	585	39.666	0.799	5.8	0.6326	0.0000	SURCHARGED
720 minute summer	SWIC5	600	39.666	0.280	0.3	0.1153	0.0000	SURCHARGED
720 minute summer	SWIC6	600	39.666	0.451	0.5	0.1276	0.0000	SURCHARGED
4320 minute summer	PP1	2460	40.440	0.190	0.1	2.8800	0.0000	SURCHARGED
10080 minute summer	PPEntrance	6420	40.316	0.216	0.2	18.9786	0.0000	FLOOD RISK
720 minute summer	SMH1	585	39.666	0.557	0.5	0.6296	0.0000	SURCHARGED
720 minute summer	SMH2	585	39.666	0.819	0.7	0.9260	0.0000	SURCHARGED
720 minute summer	GR/BR	705	40.561	0.246	6.3	49.5756	0.0000	SURCHARGED
15 minute summer	IC4 - HB	10	39.823	0.023	1.9	0.0271	0.0000	OK
720 minute summer	Attenuation 01	585	39.666	0.866	8.5	54.6408	0.0000	SURCHARGED
720 minute summer	SMH3 - HB	585	39.666	0.897	1.7	1.0141	0.0000	SURCHARGED
30 minute summer	PP8	19	40.303	0.103	19.7	4.4250	0.0000	OK
360 minute summer	SMH4	320	40.111	0.886	6.1	1.1766	0.0000	SURCHARGED
30 minute summer	PP6	21	40.224	0.024	1.7	0.5625	0.0000	OK
30 minute summer	PP7	20	40.328	0.028	3.5	0.9241	0.0000	OK
360 minute summer	SMH5	320	40.111	0.936	8.8	1.2673	0.0000	SURCHARGED
120 minute summer	PP2	72	40.519	0.019	0.8	0.7965	0.0000	OK
10080 minute summer	PP3	5820	40.700	0.200	0.1	8.6398	0.0000	FLOOD RISK
360 minute summer	SMH7	320	40.111	0.446	1.4	0.5635	0.0000	SURCHARGED
15 minute summer	PP4	10	40.447	0.047	2.6	0.0091	0.0000	OK
30 minute summer	PP5	20	40.431	0.031	2.4	0.7304	0.0000	OK
360 minute summer	SMH6	320	40.111	1.076	10.7	1.2168	0.0000	SURCHARGED
360 minute summer	SWIC7	320	40.111	0.486	2.7	0.3604	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	SWIC1	1.000	IC2	2.4	0.393	0.065	2.2406	
720 minute summer	IC2	1.001	IC3	2.5	0.205	0.069	0.8021	
720 minute summer	IC3	1.002	Attenuation 01	5.7	0.351	0.258	1.4375	
720 minute summer	SWIC5	2.000	SWIC6	0.3	0.355	0.006	0.6429	
720 minute summer	SWIC6	2.001	SMH1	0.3	0.242	0.008	0.8436	
4320 minute summer	PP1	3.000	SMH1	0.0	0.000	0.000	0.0000	
10080 minute summer	PPEntrance	4.000	SMH1	0.1	0.464	0.006	0.0006	
720 minute summer	SMH1	2.002	SMH2	-0.5	0.259	-0.015	0.2323	
720 minute summer	SMH2	2.003	Attenuation 01	-0.7	-0.016	-0.018	0.2476	
720 minute summer	GR/BR	5.000	IC4 - HB	0.6	0.808	0.014	0.0052	
15 minute summer	IC4 - HB	5.001	Attenuation 01	1.9	1.161	0.048	0.0179	
720 minute summer	Attenuation 01	1.003	SMH3 - HB	1.7	0.149	0.022	0.4379	
720 minute summer	SMH3 - HB	1.004	SDMH3	1.7	0.456	0.045	0.0158	
30 minute summer	PP8	6.000	SMH4	13.5	1.082	0.758	0.1097	
360 minute summer	SMH4	6.001	SMH5	5.6	0.519	0.152	0.3977	
30 minute summer	PP6	7.000	SMH5	0.8	0.525	0.126	0.0105	
30 minute summer	PP7	8.000	SMH5	2.3	1.262	0.166	0.0087	
360 minute summer	SMH5	6.002	SMH6	8.4	0.488	0.229	1.1120	
120 minute summer	PP2	9.000	SMH7	0.4	0.448	0.073	0.0060	
10080 minute summer	PP3	10.000	SMH7	0.0	0.000	0.000	0.0001	
360 minute summer	SMH7	9.001	SMH6	1.4	0.543	0.027	0.5502	
15 minute summer	PP4	11.000	SMH6	2.6	0.734	0.431	0.0325	
30 minute summer	PP5	12.000	SMH6	1.2	0.595	0.204	0.0102	
360 minute summer	SMH6	6.003	Attenuation 02	10.5	0.348	0.287	0.5282	
360 minute summer	SWIC7	13.000	SWIC8	2.7	0.660	0.052	0.2082	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 99.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	SWIC8	320	40.111	0.538	2.7	0.1522	0.0000	SURCHARGED
360 minute summer	Attenuation 02	320	40.111	1.142	12.9	45.6608	0.0000	SURCHARGED
360 minute summer	SMH8 - HB	320	40.111	1.204	1.8	1.4226	0.0000	SURCHARGED
15 minute summer	EXSWMH1	1	39.830	0.000	0.0	0.0000	0.0000	OK
15 minute summer	SDMH1	10	39.369	0.044	3.1	0.0533	0.0000	OK
15 minute summer	SDMH2	10	39.315	0.061	5.8	0.0733	0.0000	OK
15 minute summer	SDMH3	11	38.739	0.067	8.6	0.0757	0.0000	OK
15 minute summer	SDMH4	11	38.628	0.081	11.7	0.0970	0.0000	OK
15 minute summer	SDMH5	11	38.546	0.081	11.6	0.0916	0.0000	OK
15 minute summer	EX SMH	11	38.464	0.077	11.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	SWIC8	13.001	Attenuation 02	2.7	0.688	0.052	0.3370	
360 minute summer	Attenuation 02	6.004	SMH8 - HB	1.8	0.173	0.048	0.4932	
360 minute summer	SMH8 - HB	6.005	SDMH3	1.8	0.479	0.049	0.0734	
15 minute summer	EXSWMH1	14.000	SDMH1	0.0	0.000	0.000	0.0000	
15 minute summer	SDMH1	14.001	SDMH2	3.1	0.447	0.085	0.1007	
15 minute summer	SDMH2	14.002	SDMH3	5.6	0.661	0.154	0.1540	
15 minute summer	SDMH3	1.005	SDMH4	8.7	0.646	0.111	0.3373	
15 minute summer	SDMH4	1.006	SDMH5	11.6	0.756	0.148	0.2517	
15 minute summer	SDMH5	1.007	EX SMH	11.6	0.784	0.148	0.2302	50.0

C. Percolation Test Results



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Ground Investigations Ireland

Beaumont, Co. Dublin

Waterman Moylan Consulting Engineers

Ground Investigation Report

May 2026

Directors:

Fergal McNamarra, Conor Finnerty, Barry Sexton, Stephen Kealy and Micheal Sutton
Ground Investigations Ireland Limited | Registered in Ireland Company Registration No.: 405726



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DOCUMENT CONTROL SHEET

Project Title	Beaumont, County Dublin
Engineer	Waterman Moylan Consulting Engineers
Project No	15510-04-26
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	S. O'Brien	P. Moloney	C. Finnerty	Dublin	06 May 2026

Ground Investigations Ireland Ltd. present the results of the fieldworks and laboratory testing in accordance with the specification and related documents provided by or on behalf of the client. The possibility of variation in the ground and/or groundwater conditions between or below exploratory locations or due to the investigation techniques employed must be taken into account when this report and the appendices inform designs or decisions where such variation may be considered relevant. Ground and/or groundwater conditions may vary due to seasonal, man-made or other activities not apparent during the fieldworks and no responsibility can be taken for such variation. The data presented and the recommendations included in this report and associated appendices are intended for the use of the client and the client's geotechnical representative only and any duty of care to others is excluded unless approved in writing.



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APPENDICES

Appendix 1	Site Location Plan
Appendix 2	Soakaway Records



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1.0 Preamble

On the instructions of Waterman Moylan Consulting Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., in April 2026 at the site of the proposed development at Beaumont, County Dublin.

2.0 Overview

2.1. Background

It is proposed to construct a new development with associated services at the proposed site at Beaumont, County Dublin.

2.2. Purpose and Scope

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 3 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.

The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Soakaway Testing

The soakaway testing was carried out in the selected trial pits at the location shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 2 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were variable across the site and generally comprised;

- Topsoil
- Made Ground
- Cohesive Deposits

TOPSOIL: Topsoil was encountered and was present to a maximum depth of 0.60mBGL.

MADE GROUND: Made Ground deposits were encountered in the majority of the exploratory holes and were present to a depth of 0.90mBGL. These deposits were described generally as *greyish brown clayey gravelly fine to medium Sand and light greyish brown sandy gravelly Clay*.

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and were described typically as *greyish brown slightly sandy slightly gravelly CLAY with occasional cobbles and boulders* overlying a *stiff black sandy gravelly CLAY with occasional cobbles and boulders*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the cohesive matrix. These deposits had low (<5%) cobble content, where noted on the exploratory hole logs.

4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the tide, time of year, rainfall, nearby construction and other factors.

5.0 Recommendations & Conclusions

5.1. General

The recommendations given and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

5.2. Excavations

Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25mBGL or is required to permit man entry. Excavations in the Made Ground or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits. Any waste material to be removed off site should be disposed of to a suitably licenced landfill.

5.3. Soakaway Design

At the locations of SA-01, SA-02 and SA-03 the water level dropped too slowly to allow calculation of 'f' the soil infiltration rate.

The recommendations provided in this report should be verified in the design of the proposed buildings, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the building can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the building foundations.

APPENDIX 1 - Site Location Plan



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APPENDIX 2 – Soakaway Records





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Site Beaumont	Trial Pit Number SA01
Client Waterman Moylan	Job Number 15510-04-26
Engineer	Sheet 1/1

Machine : Kubuta u35-3a3 Method : Trial Pit	Dimensions 2.00m x 0.50m x 1.70m (L x W x D)	Ground Level (mOD)
	Location	Dates 28/04/2026

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						TOPSOIL: Greyish brown clayey gravelly fine to medium Sand with fragments of red brick and rootlets.		
					(0.60)			
					0.60	Soft greyish brown sandy slightly gravelly CLAY.		
					(0.50)			
					1.10	Firm greyish brown mottled light grey slightly sandy slightly gravelly CLAY		∇1
					(0.60)			
					1.70	Complete at 1.70mBGL		

Plan	Remarks
	Groundwater encountered at 1.10m BGL; slow seepage Trial pit stable Soakaway test completed in trial pit in accordance with BREDigest 365. Refusal at 1.70m BGL due to stiff clay Trial pit backfilled upon completion
	Scale (approx) 1:25
	Logged By SOB
	Figure No. 15510-04-26.SA01



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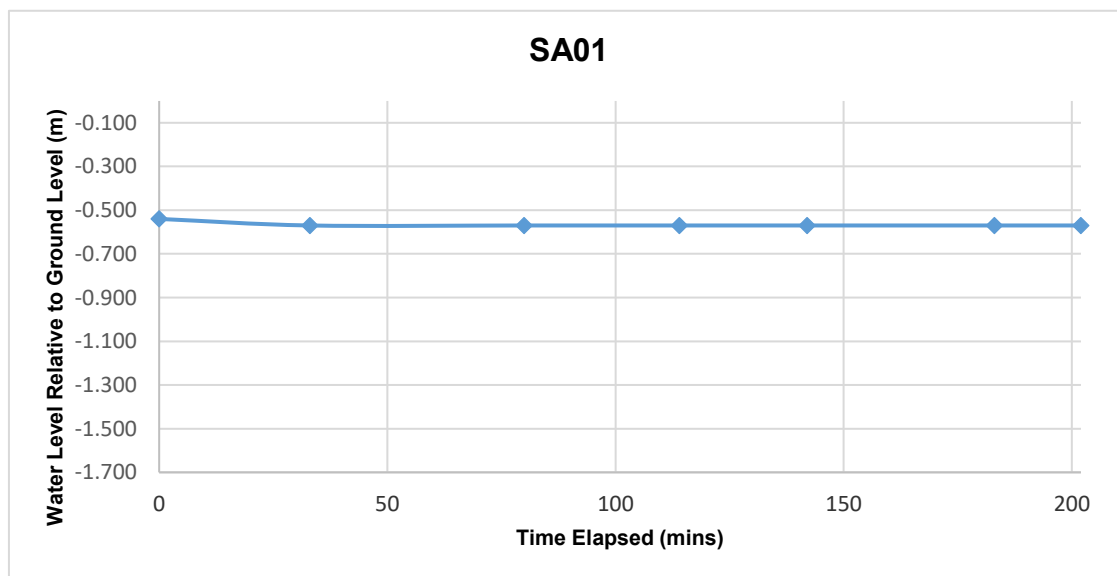
SA01

Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 2.00m x 0.50m x 1.70m (L x W x D)

Date	Time	Water level (m bgl)
28/04/2026	0	-0.540
28/04/2026	33	-0.570
28/04/2026	80	-0.570
28/04/2026	114	-0.570
28/04/2026	142	-0.570
28/04/2026	183	-0.570
28/04/2026	202	-0.570

Start depth	Depth of Pit	Diff	75% full	25%full
0.54	1.700	1.160	0.83	1.41



SA-01





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Site Beaumont	Trial Pit Number SA02
Client Waterman Moylan	Job Number 15510-04-26
Engineer	Sheet 1/1

Machine : Kubota u35-3a3 Method : Trial Pit	Dimensions 2.20m x 0.50m x 2.00m (L x W x D)	Ground Level (mOD)
	Location	Dates 28/04/2026

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
			Slow(1) at 0.90m.		(0.40)	TOPSOIL: Dark greyish brown sandy slightly gravelly Clay with rootlets and bricks.		
					0.40 (0.50)	MADE GROUND: Light greyish brown sandy gravelly Clay with low cobble content.		
					0.90 (1.30)	Firm greyish brown mottled light grey slightly sandy gravelly CLAY. Gravel is fine to medium angular to subrounded.		∇1
					2.20	Complete at 2.20mBGL		

Plan	Remarks
	Groundwater encountered at 0.90m BGL; slow seepage Trial pit stable Soakaway test completed in trial pit in accordance with BREDigest 365. Refusal at 2.20m BGL due to stiff clay Trial pit backfilled upon completion
	Scale (approx) 1:25
	Logged By SOB
	Figure No. 15510-04-26.SA01



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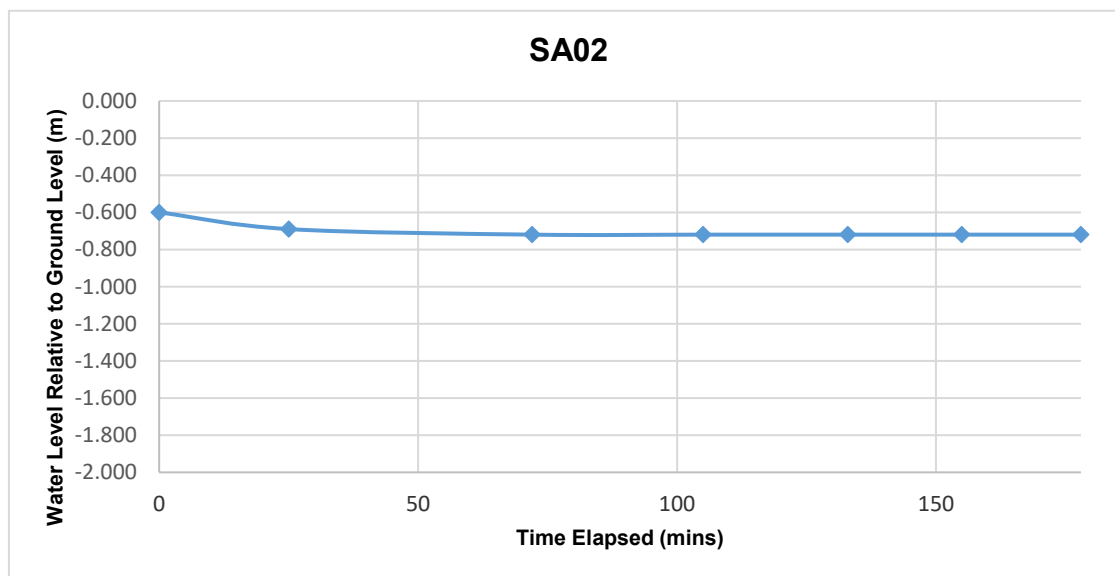
SA02

Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 2.20m x 0.50m x 2.00m (L x W x D)

Date	Time	Water level (m bgl)
28/04/2026	0	-0.600
28/04/2026	25	-0.690
28/04/2026	72	-0.720
28/04/2026	105	-0.720
28/04/2026	133	-0.720
28/04/2026	155	-0.720
28/04/2026	178	-0.720

Start depth	Depth of Pit	Diff	75% full	25%full
0.60	2.000	1.400	0.95	1.65



SA-02





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Site
Beaumont

Trial Pit
Number
SA03

Machine : Kubota u35-3a3 Method : Trial Pit		Dimensions 2.30m x 0.60m x 2.10m (L x W x D)	Ground Level (mOD)	Client Waterman Moylan	Job Number 15510-04-26
		Location	Dates 28/04/2026	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						MADE GROUND: Dark greyish brown slightly clayey gravelly fine to medium Sand with fragments of red brick, concrete, plastic, ceramic and to rootlets.		
					0.30 (0.30)	MADE GROUND: Dark brown sandy slightly gravelly Clay with fragments of red brick.		
					0.60 (0.50)	Firm greyish brown slightly sandy slightly gravelly CLAY with low cobble content.		
			Slow(1) at 1.00m.		1.10 (1.00)	Firm greyish brown mottled light grey slightly sandy gravelly CLAY with low cobble content.		▽1
					2.10	Complete at 2.10mBGL		

Plan					Remarks		
.	.	.	.	.	Groundwater encountered at 1.00m BGL; slow seepage Trial pit stable Soakaway test completed in trial pit in accordance with BREDigest 365. Refusal at 2.10m BGL due to stiff clay Trial pit backfilled upon completion		
.	.	.	.	.			
.	.	.	.	.			
.	.	.	.	.			
.	.	.	.	.			
.	.	.	.	.			
					Scale (approx)	Logged By	Figure No.
					1:25	SOB	15510-04-26.SA01



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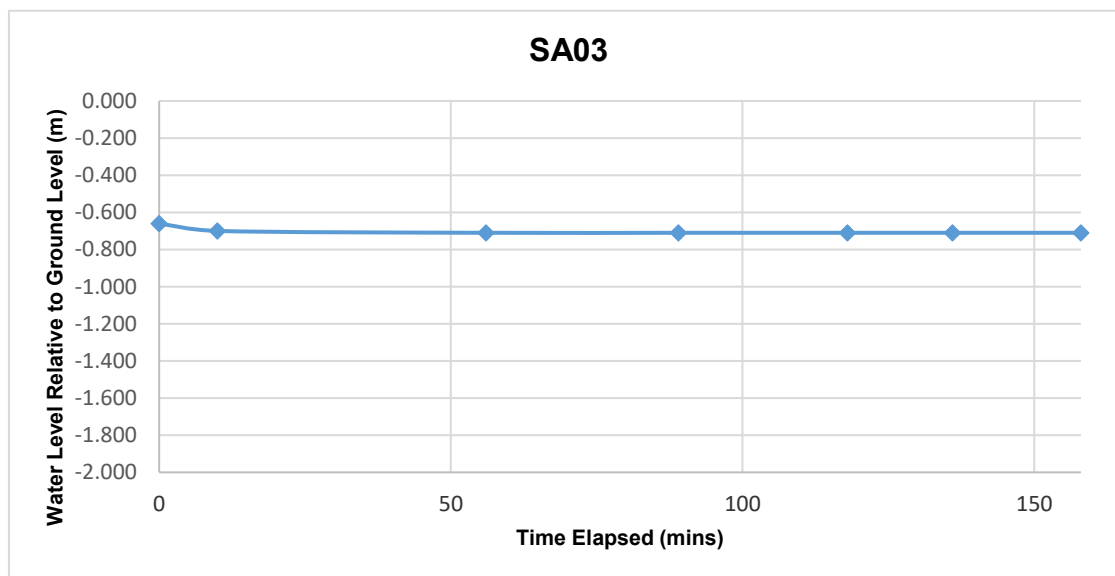
SA03

Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 2.30m x 0.60m x 2.10m (L x W x D)

Date	Time	Water level (m bgl)
28/04/2026	0	-0.660
28/04/2026	10	-0.700
28/04/2026	56	-0.710
28/04/2026	89	-0.710
28/04/2026	118	-0.710
28/04/2026	136	-0.710
28/04/2026	158	-0.710

Start depth	Depth of Pit	Diff	75% full	25%full
0.66	2.100	1.440	1.02	1.74



SA-03



D. SODA

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PO Box 448
South City
Delivery Office
Cork City

www.water.ie

17 July 2026

**Re: Design Submission for Site At, Beaumont Road, Beaumont, Dublin (the “Development”)
(the “Design Submission”) / Connection Reference No: CDS25009341**

Dear Sidharth Kurella,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Uisce Éireann has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before you can connect to our network you must sign a connection agreement with Uisce Éireann. This can be applied for by completing the connection application form at www.water.ie/connections. Uisce Éireann’s current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU)(https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

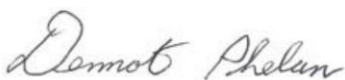
You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Uisce Éireann’s network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Uisce Éireann does not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Uisce Éireann representative:

Name: Antonio Garzón Mielgo

Email: antonio.garzonmielgo@water.ie

Yours sincerely,



Dermot Phelan
Connections and Developer Services

Stiúrthóirí / Directors: Jerry Grant (Cathaoirleach / Chairperson), Niall Gleeson (POF / CEO), Douglas Millican, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh, Rena O’Sullivan and Orlagh Nevin.

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

Appendix A

Document Title & Revision

- 20-048-P2200-Proposed Drainage Layout
- 20-048-P2300-Proposed Watermain Layout
- 20-048-P2206-Foul Water Long Sections

Additional Comments

The design submission will be subject to further technical review at connection application stage.

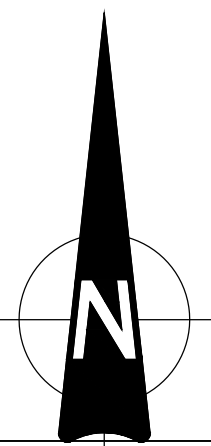
Uisce Éireann cannot guarantee that its Network in any location will have the capacity to deliver a particular flow rate and associated residual pressure to meet the requirements of the relevant Fire Authority, see Section 1.17 of Water Code of Practice.

For further information, visit www.water.ie/connections

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Uisce Éireann will not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.

NOTES:

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LEGEND

- SITE BOUNDARY
- F1
CL 7.16
IL 5.15
150mm Ø @ 1:200
PROPOSED uPVC FOUL WATER SEWER WITH PIPE SIZE, GRADE, MANHOLE REF. AND INVERT LEVEL
- S1
CL 7.16
IL 5.15
225mm Ø @ 1:200
PROPOSED SURFACE WATER SEWER WITH PIPE SIZE, GRADE, MANHOLE REF. AND INVERT LEVEL
- F1
CL 7.16
IL 5.15
150mm Ø @ 1:200
PROPOSED DIVERTED uPVC FOUL WATER SEWER WITH PIPE SIZE, GRADE, MANHOLE REF. AND INVERT LEVEL
- S1
CL 7.16
IL 5.15
225mm Ø @ 1:200
PROPOSED DIVERTED SURFACE WATER SEWER WITH PIPE SIZE, GRADE, MANHOLE REF. AND INVERT LEVEL
- G
INDICATES PROPOSED ROAD GULLY AND CONNECTION
- INDICATES PROPOSED PERMEABLE PAVING
- INDICATES NSBP003 PETROL INTERCEPTOR
- INDICATES PROPOSED PERMEABLE PAVING DRAINAGE CONNECTION
- PROPOSED STORM WATER HOUSE DRAIN AND ACCESS CHAMBER
- PROPOSED FOUL WATER HOUSE DRAIN AND ACCESS CHAMBER
- F1
CL 7.16
IL 5.15
150mm Ø @ 1:200
INDICATES EXISTING FOUL SEWER
- S1
CL 7.16
IL 5.15
225mm Ø @ 1:200
INDICATES EXISTING SURFACE WATER SEWER
- X—X—X—X—X—
INDICATES EXISTING FOUL SEWER LINE TO BE DECOMMISSIONED
- X—X—X—X—X—
INDICATES EXISTING SURFACE WATER SEWER LINE TO BE DECOMMISSIONED
- PROPOSED STORM WATER HOUSE DRAIN & CONNECTION

10 July 2026
-- DRAFT --
Samuel Hanlon



Rev	Date	Description	By	Chk
Amendments				

Project
PROPOSED RESIDENTIAL DEVELOPMENT ELLENFIELD PLACE, BEAUMONT ROAD, DUBLIN 9

Title
PROPOSED DRAINAGE LAYOUT

Client
URBAN LIFE

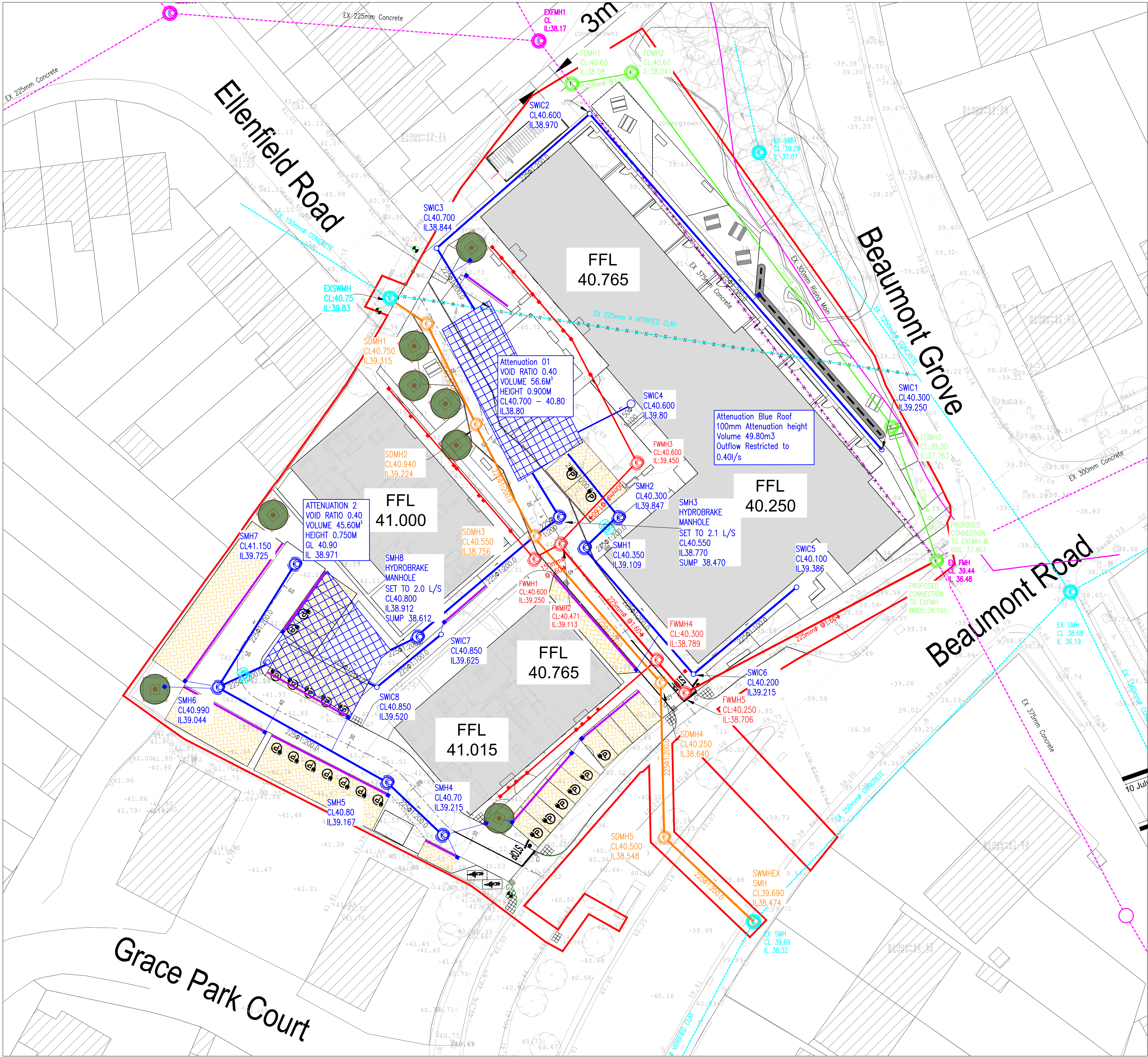
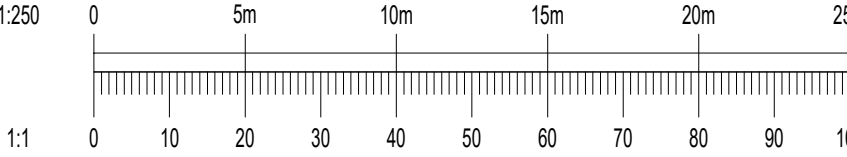


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DUBLIN D03 H3F4 IRELAND. Tel: (01) 864 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

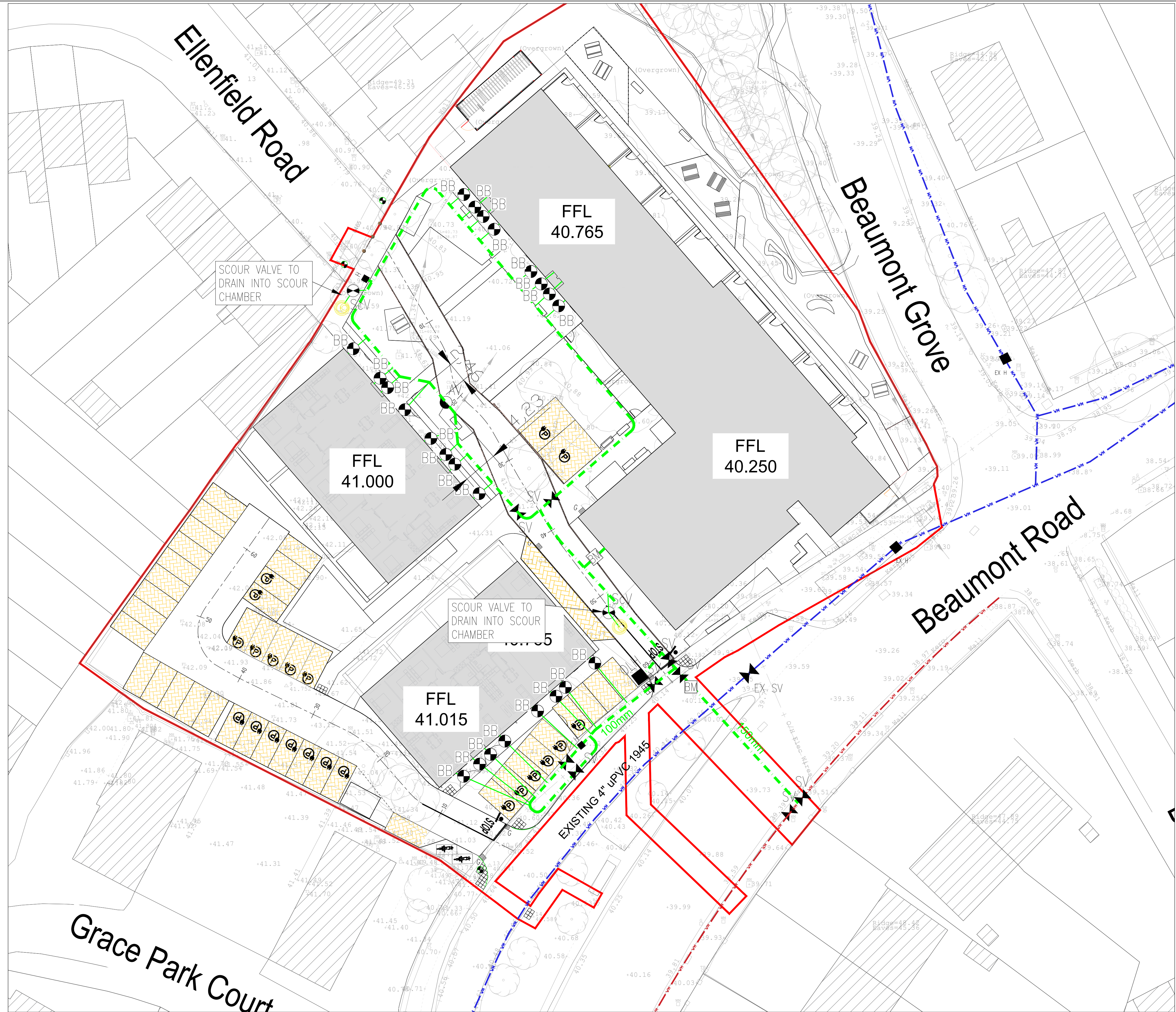
Status
FOR PLANNING ONLY

Designed By	DA	Approved	BG	Waterman Ref	20-048
Drawn By	SH	Date	12/02/2026	Scales @ A1	1:250 @A1
Project	Originator	Volume	Level	Type	Role
PRD	WMC	ZZ	XX	DR	C - P2200

Revision



PROPOSED DRAINAGE LAYOUT
SCALE 1:250 @A1



PROPOSED WATERMAIN LAYOUT
SCALE 1:250 @A1

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t+353 1 664 8900

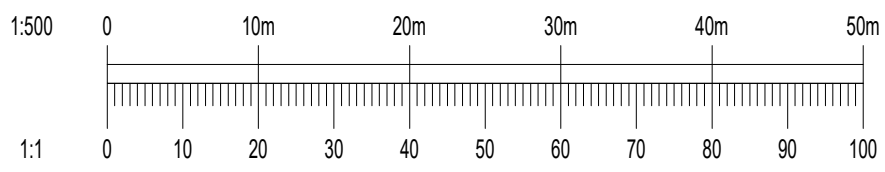
NOTES:

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LEGEND

- SITE BOUNDARY
- PROPOSED 100mm PE WATERMAIN
- SV PROPOSED SLUICE VALVE
- H PROPOSED HYDRANT
- SCV PROPOSED SCOUR VALVE
- BB PROPOSED BOUNDARY BOX
- BM PROPOSED BULK WATER METER
- AV PROPOSED AIR VALVE
- EX 150mm EXISTING WATERMAIN
- EX 150mm EXISTING 150mm WATERMAIN

10 July 2026
-- DRAFT --
Barbara Klamann
Lucas



Rev	Date	Description	By	Chk

Amendments

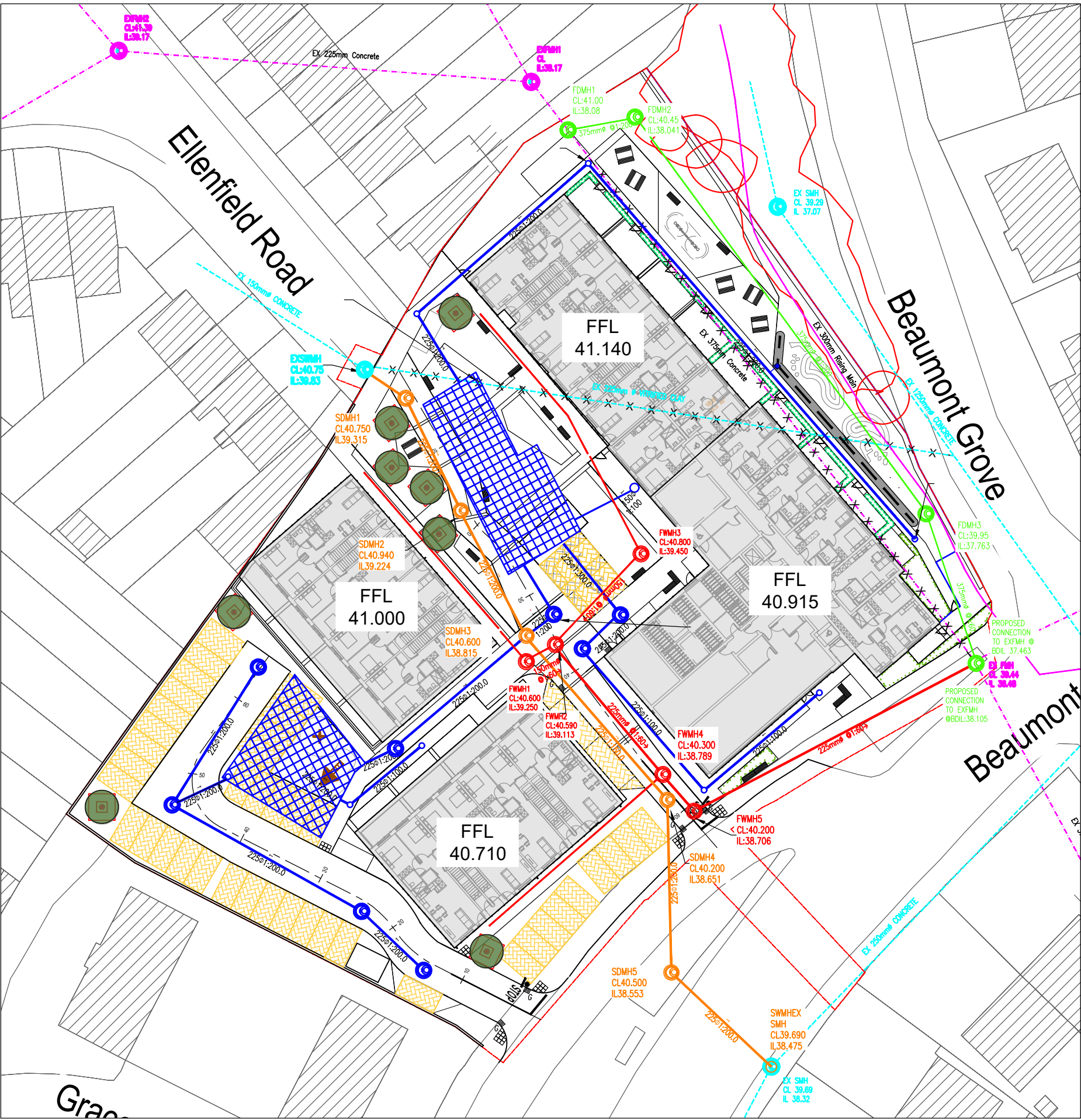
Project: PROPOSED RESIDENTIAL DEVELOPMENT ELLENFIELD PLACE, BEAUMONT ROAD, DUBLIN 9

Title: PROPOSED WATERMAIN LAYOUT

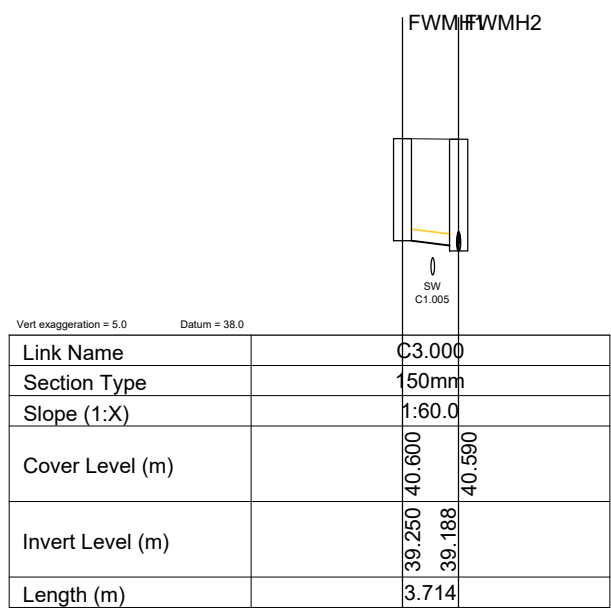
Client: URBAN LIFE



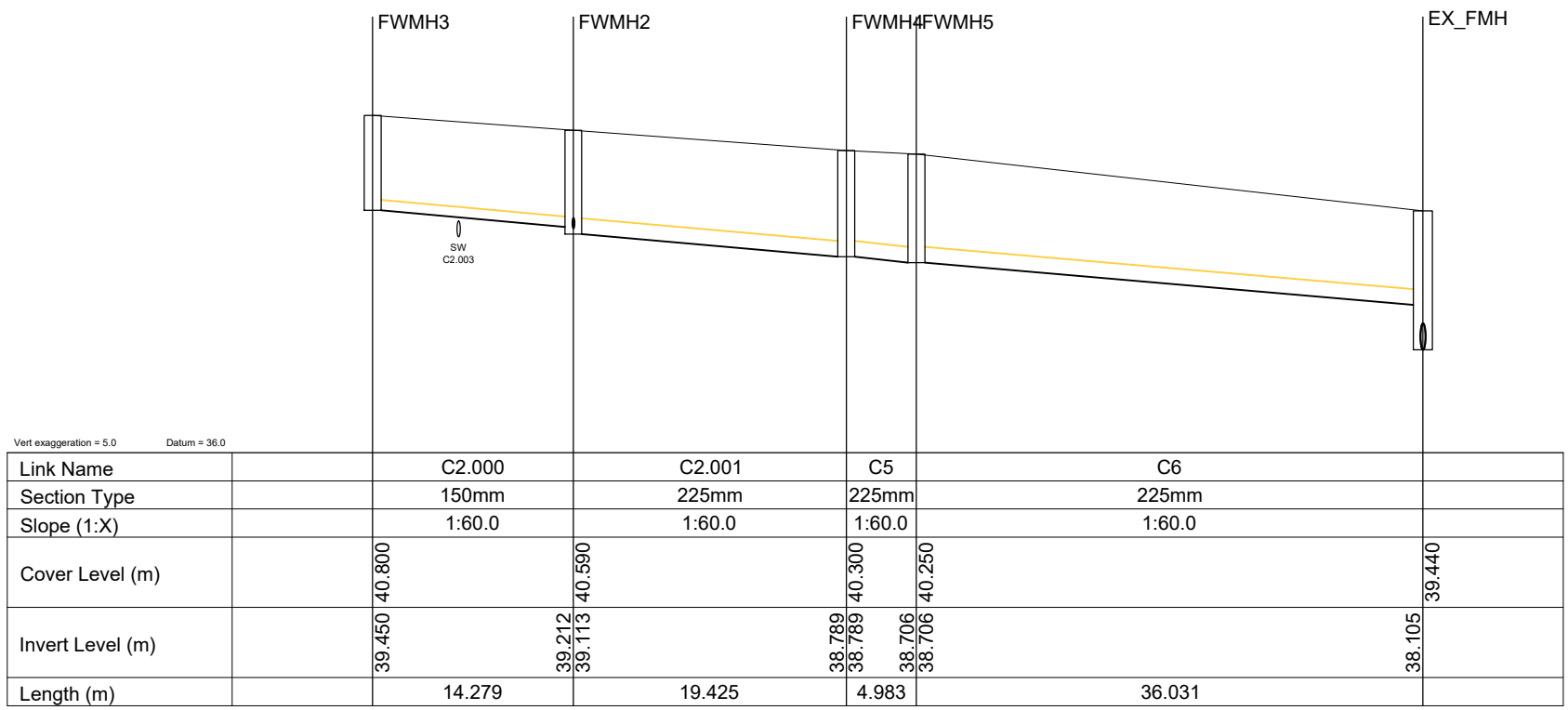
Status	FOR PLANNING ONLY
Designed By	DA
Approved	BG
Waterman Ref	20-048
Drawn By	SH
Date	12/02/2026
Scales @ A1	1:250 @A1
Project - Originator - Volume - Level - Type - Role - Number	PRD - WMC - ZZ - XX-DR- C - P2300
Revision	-



PROPOSED KEY PLAN
SCALE 1:500 @ A1

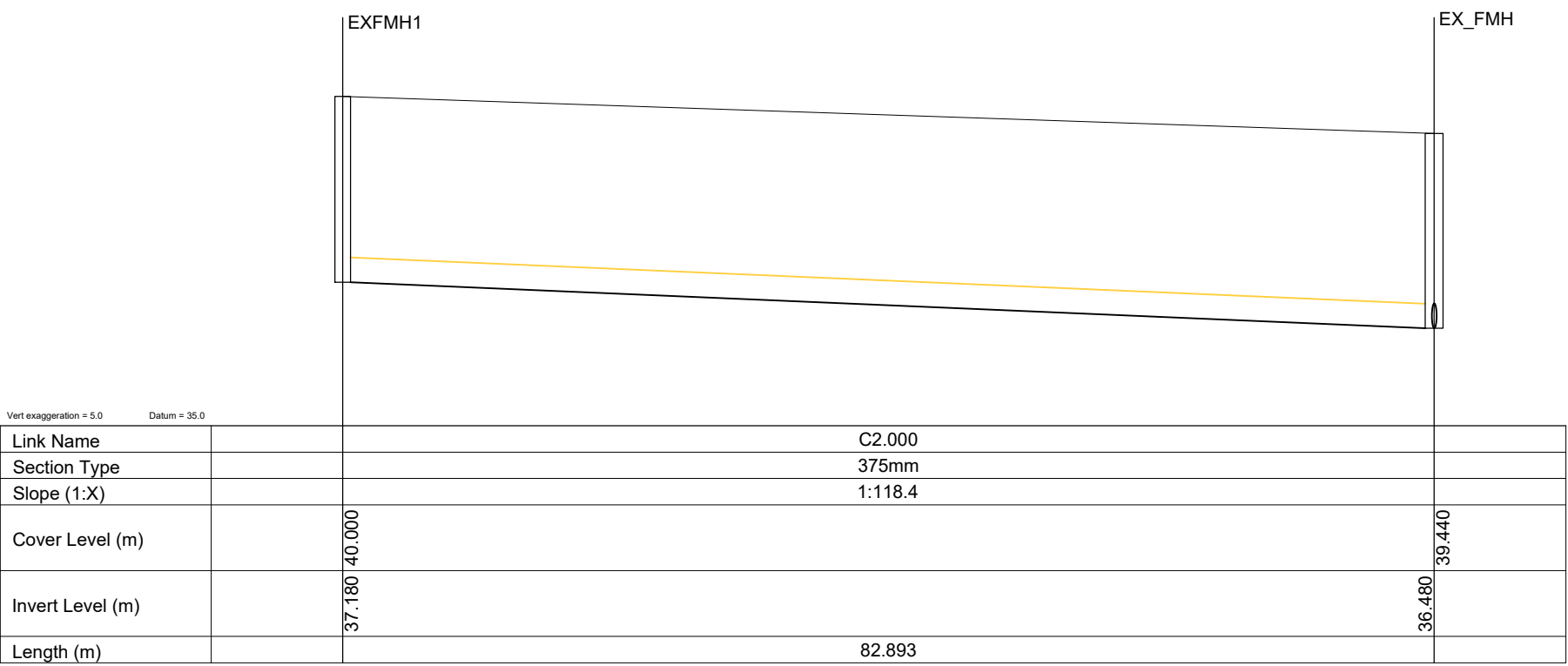


Link Name	C3.000
Section Type	150mm
Slope (1:X)	1:60.0
Cover Level (m)	40.000
Invert Level (m)	39.250
Length (m)	3.714



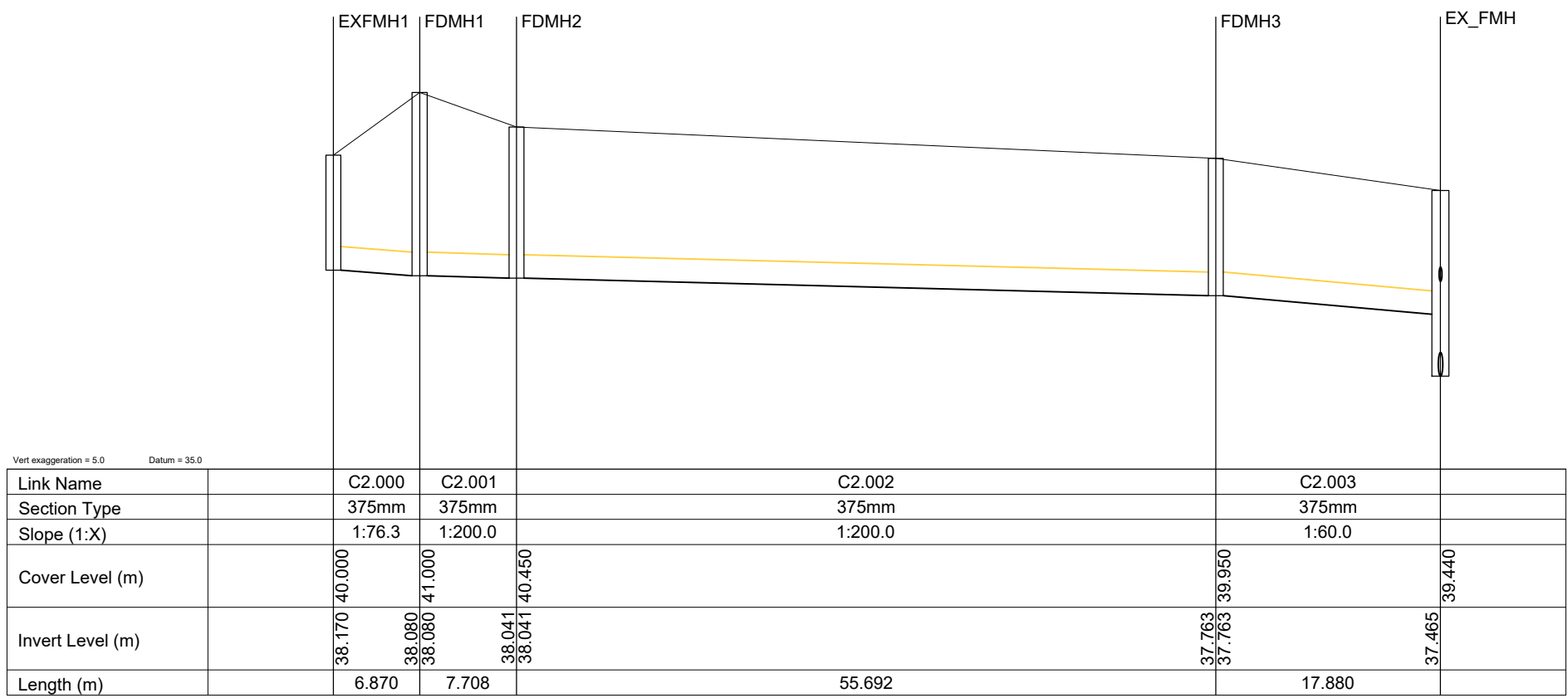
Link Name	C2.000	C2.001	C5	C6
Section Type	150mm	225mm	225mm	225mm
Slope (1:X)	1:60.0	1:60.0	1:60.0	1:60.0
Cover Level (m)	40.000	40.000	40.000	40.000
Invert Level (m)	38.706	38.706	38.706	38.706
Length (m)	14.279	19.425	4.983	36.031

FOUL WATER DRAINAGE LONGSECTION
FMH1-EX_FMH
SCALE 1:500 @ A1



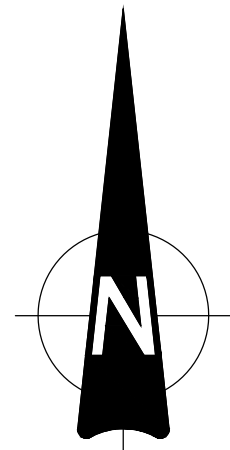
Link Name	C2.000
Section Type	375mm
Slope (1:X)	1:118.4
Cover Level (m)	40.000
Invert Level (m)	38.480
Length (m)	82.893

LINE TO BE ABANDONED FOUL WATER DRAINAGE LONGSECTION
EXFMH1-EX_FMH
SCALE 1:500 @ A1



Link Name	C2.000	C2.001	C2.002	C2.003
Section Type	375mm	375mm	375mm	375mm
Slope (1:X)	1:76.3	1:200.0	1:200.0	1:60.0
Cover Level (m)	40.000	40.000	40.000	40.000
Invert Level (m)	38.706	38.706	38.706	38.706
Length (m)	6.870	7.708	55.692	17.880

DIVERTED FOUL WATER DRAINAGE LONGSECTION
EXFMH1-EX_FMH
SCALE 1:500 @ A1



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Rev	Date	Description	By	Chk
Amendments				

Project
**PROPOSED RESIDENTIAL DEVELOPMENT
ELLENFIELD PLACE, BEAUMONT ROAD,
DUBLIN 9**

Title
FOUL WATER LONGSECTION

Client
URBAN LIFE

Status
FOR PLANNING ONLY

Designed By
BL

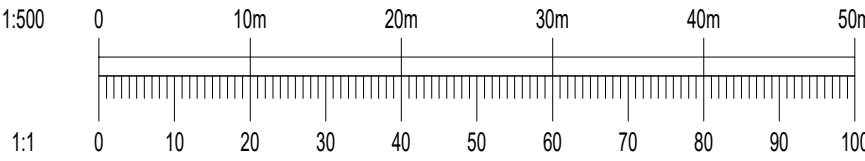
Drawn By
VU

Date
MAY 2026

Scale
AS SHOWN @ A1

Project - Originator - Volume - Level - Type - Role - Number - Revision

PRD - WMC - ZZ - XX - DR - C - P2206 -



UK and Ireland Office Locations

