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Engineering Services Report

Block 5 and Block 6

Clongriffin, Dublin 13

Client: The Land Development Agency

Job No. C216

August 2024

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ENGINEERING SERVICES REPORT

BLOCK 5 AND BLOCK 6, CLONGRIFFIN, DUBLIN 13

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BS 1192 FIELD	**CLN-CSC-ZZ-XX-RP-C-0002**

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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by The Land Development Agency to prepare an Engineering Services Report for a proposed standalone Large-scale Residential Development (LRD) at Block 5 and Block 6, Clongriffin, Dublin 13.

1.1 Report Overview

This report details the following aspects of the proposed development:

- Potable Water Supply
- Foul Drainage
- Surface Water Drainage

In preparing this report, CS Consulting has made reference to the following:

- Dublin City Development Plan 2022–2028
  (including Strategic Flood Risk Assessment)
- Building Regulations 2010 (Part H)
- Greater Dublin Regional Code of Practice for Drainage Works
  (Version 6)
- Greater Dublin Strategic Drainage Study (GDSDS) 2005
- The Planning System and Flood Risk Management: Guidelines for Planning Authorities 2009 (Flood Risk Management Guidelines)
- Uisce Éireann Code of Practice for Water Infrastructure (2020)
- Uisce Éireann Code of Practice for Wastewater Infrastructure (2020)
- Uisce Éireann Drainage and Supply Records
- Engineering Assessment Reports prepared by Waterman Moylan and previously submitted to An Bord Pleanála under SHD application refs. 305316 and 305319

The Engineering Services Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with all other documentation submitted by other members of the project design team. The following CS Consulting drawings in particular should be referred to:

- **CLN-CSC-XX-XX-DR-C-0109/0110** (Existing Services)
- **CLN-CSC-XX-XX-DR-C-0111/0112** (Proposed Drainage Layout)
- **CLN-CSC-XX-XX-DR-C-0113/0114** (Proposed Watermain Layout)
- **CLN-CSC-XX-XX-DR-C-0134** (SuDS Details)
- **CLN-CSC-XX-XX-DR-C-0138** (Proposed SuDS Layout)

2.0 SITE LOCATION, CONTEXT, AND PROPOSED DEVELOPMENT

2.1 Site Location

The application site is located within zoned development lands to the north-west of Clongriffin railway station in Dublin 13. It is bounded to the north and west by recently completed residential developments, and to the east and south by undeveloped lands. The site has a total area of approx. 2.2ha and is in the administrative jurisdiction of Dublin City Council (DCC), adjacent to the City Council's boundary with Fingal County Council.

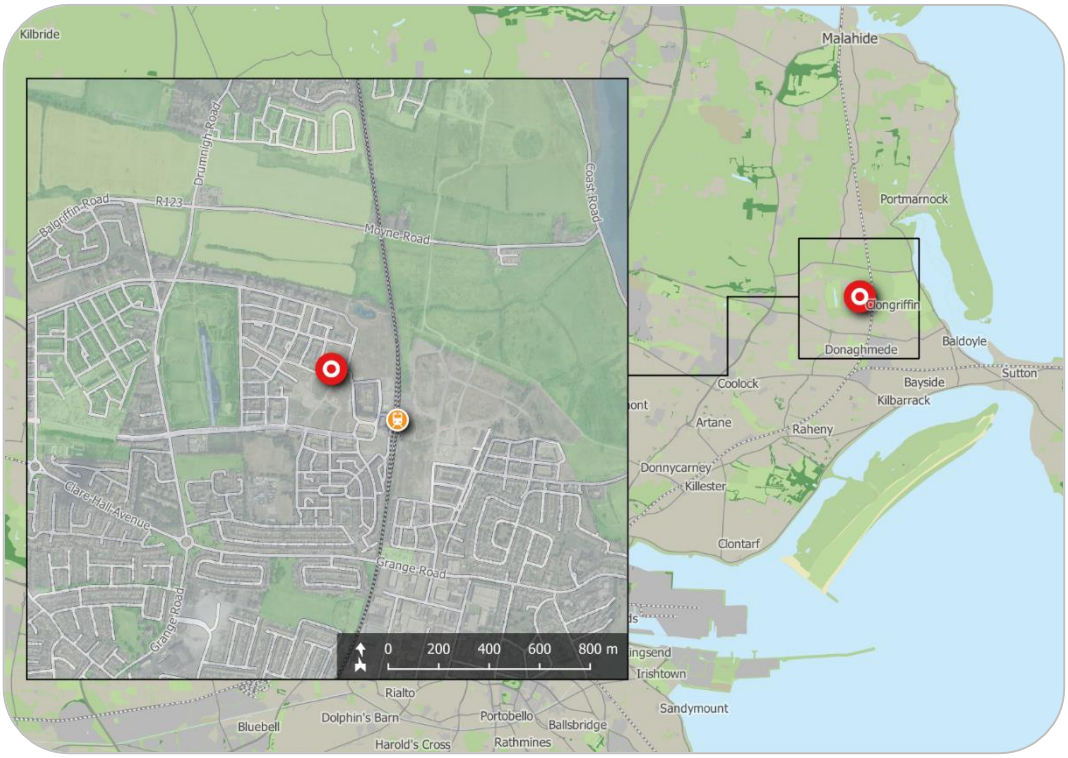


Figure 1 – Development site location
(sources: EPA, OSi, OSM Contributors, Google)

The location of the development site is shown in **Figure 1** above; its extents and environs are shown in more detail in **Figure 2**.

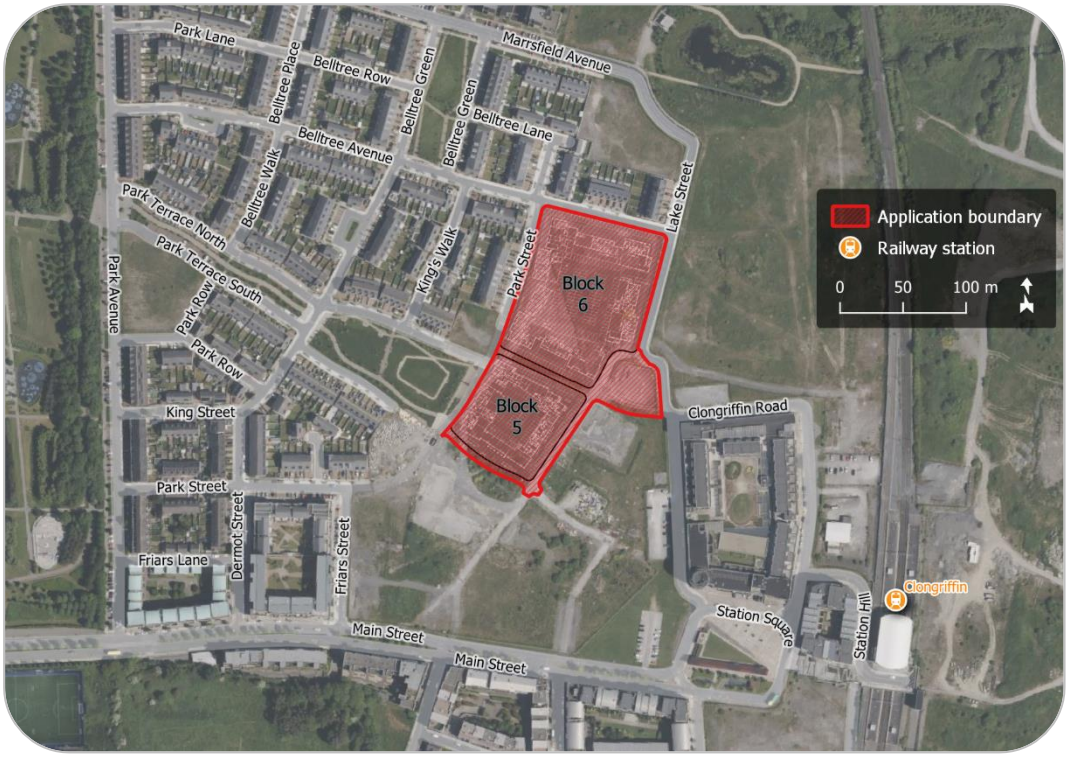


Figure 2 – Development site extents and environs
(sources: OSi, OSM Contributors, Microsoft)

2.2 Previous Clongriffin Masterplan Development

Development of the wider Clongriffin area has thus far been carried out largely in accordance with a 10-year masterplan planning permission granted to Gannon Homes on the 27th of June 2003 under DCC Reg. Ref. 0132/02 (An Bord Pleanála ref. PL29N.131058). This provided for development consisting of a total of 3,576no. dwellings and 80,600m^2 of mixed retail, commercial, leisure, and community uses, associated car parking and engineering works, and provision for a new railway station.

These previously permitted development proposals (referred to hereafter as the 'masterplan parent permission') comprised:

- 838no. houses, 428no. duplex units, and 2,310no. apartments.
- Commercial uses including 73no. retail units, a supermarket, offices (44,036m^2) and media-associated uses (8,386m^2), 2no. banks, 2no.

restaurants, 3no. public houses, a 70-unit aparthotel, 2no. hot food take-aways, a cinemaplex (5,700m^2), a gym-fitness centre, a pharmacy, 2no. off-licences, a betting office, motor showrooms, 3no. motor service units, and 19no. enterprise units (1,542m^2).

- Medical facilities including a 25-bed day hospital with 2no. operating theatres, a doctor's/dentist's surgery, and a veterinary surgery.
- 4no. childcare facilities (875m^2 in total).
- A community centre and provision for a Garda Services unit.
- 3no. kerbside recycling centres.

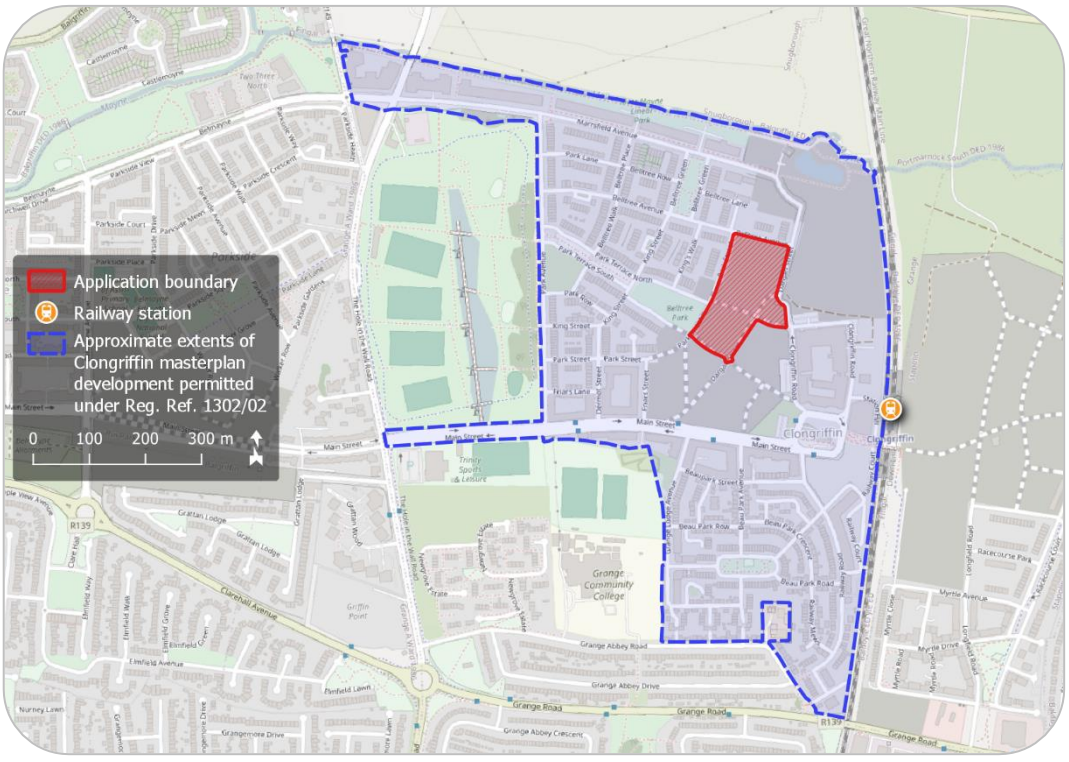


Figure 3 – Approximate Clongriffin masterplan extents
(sources: OSi, OSM Contributors)

The masterplan parent permission also provided for the following associated infrastructure works:

- Services infrastructure including water supply, foul drainage, surface water drainage, and internal roads.

- A new access road to the development from the Hole in the Wall Road through Father Collins Park [Main Street] and a new east-west access road parallel to the Mayne River [Marrsfield Avenue].
- A public stairway and lift and escalator enclosure for the proposed over-track railway station.
- An underground town carpark and park and ride carpark (420no. spaces), taxi rank, drop off points, and a bus interchange associated with the railway station.
- Civic town squares and spaces, and a linear park along the south side of the Mayne River with attenuation pond.
- Site development works for reserved sites for future uses.

Much of this development has been constructed in the intervening years, whether under the original masterplan parent permission, amendments thereto, or separate planning permissions for individual sites within the masterplan area. Infrastructure so far completed includes:

- The 2no. access roads from the Hole in the Wall Road (Clongriffin Main Street and Marrsfield Avenue).
- The majority of the masterplan area's internal roads.
- Comprehensive internal foul drainage and surface water drainage networks, including a foul pumping station and a stormwater attenuation pond in the north-east corner of the masterplan area.
- A well-developed internal potable water supply network.

2.3 Existing Subject Site Condition

The subject development site itself is generally greenfield, although parts of it have been used for access and storage to facilitate construction on adjacent lands.

2.4 Surrounding Drainage and Water Supply Infrastructure

Figure 4 shows an extract of Uisce Éireann water supply and drainage records in the vicinity of the development site. This identifies elements of the surrounding:

- Uisce Éireann water distribution network
- Uisce Éireann foul sewer network
- Surface water drainage infrastructure (to the extent recorded by Uisce Éireann)

The surrounding water distribution infrastructure, foul sewer infrastructure, and surface water drainage infrastructure are described in isolation in Sections 3, 4, and 5 of this report, respectively.

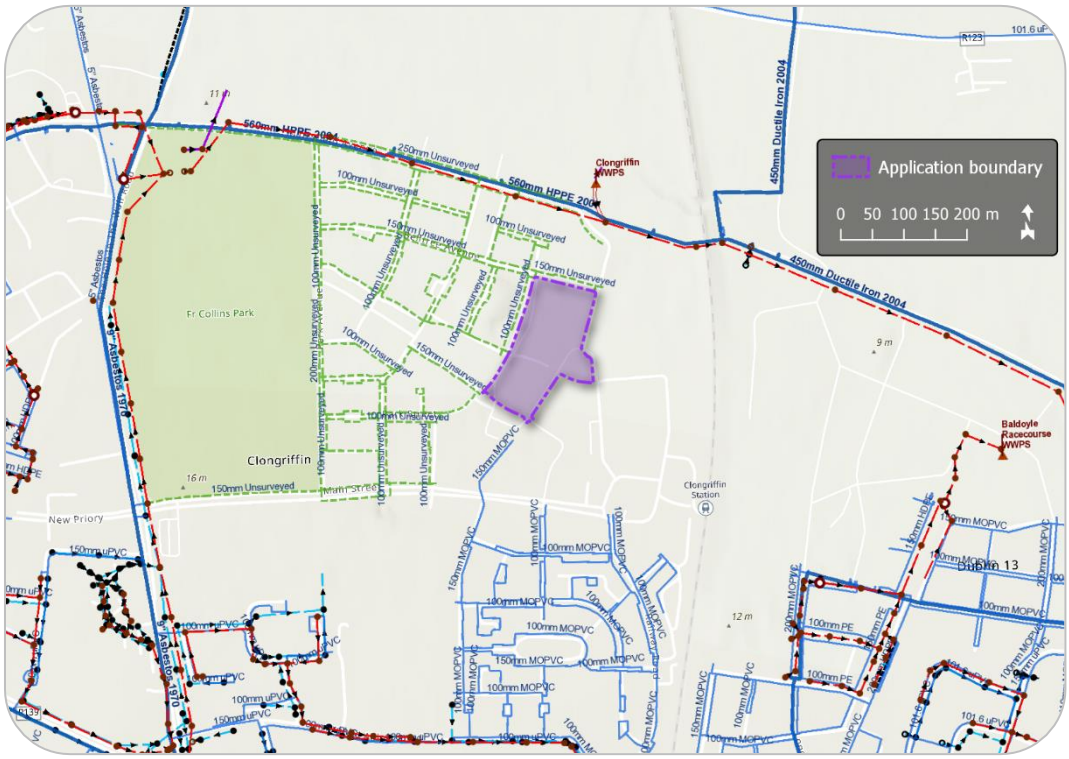


Figure 4 – Local extract of Uisce Éireann drainage and supply records
(sources: Uisce Éireann, Esri [1])

[1] Full list of Esri mapping sub-sources given in Appendix A.

2.5 Description of Proposed Development

The proposed development will consist of the construction of two Blocks ranging in height between 3- to 7-storeys to provide 408 no. apartments (comprising 180 x 1 bed; 226 x 2 bed and 2 x 3 bed units) together with ancillary car- ; bicycle and motorcycle parking provision. Ancillary communal amenity spaces are provided at podium level within the respective courtyards and at 4th floor roof terrace level.

At ground floor level provision is made for 1,209 sq.m Community / Arts and Cultural floorspace and a childcare facility of 413 sq.m (with an ancillary play area of 125 sq.m). Other facilities provided at ground floor level include refuse / bin stores; energy centre, plant rooms and integrated ESB substations and associated switch rooms. On-street loading bays are provided along Lake Street and Dargan Street.

Other works include the provision of road infrastructure and green infrastructure (in the form of a public open space / landscaped pocket park extending to 1,433 sq.m in area) together with street planting and public lighting throughout plus all associated engineering and site works (including an external multi-functional community / arts and cultural events space of 315 sq.m along Market Street and all underground services and utility connections) necessary to serve the proposed development.

2.6 Previously Permitted Developments on Subject Site

The present application is for a standalone development, comprising 2no. apartment blocks only, and does not seek to amend or derive from any extant planning permission. It is however relevant to note that 2no. apartment blocks of very similar design (also referred to as Block 5 and Block 6) are currently permitted within the area subject to this application.

Figure 5 – Previously permitted developments within application boundary
(sources: CCK Architects, OSM Contributors, Microsoft)

These permissions were granted on 13/12/2019 under separate but concurrent Strategic Housing Development (SHD) applications:

- Block 5 (138no. apartments) as part of the 500-unit SHD permitted under ABP ref. 305319, which also included blocks 4 and 14.
- Block 6 (270no. apartments) as part of the 1,030-unit SHD permitted under ABP ref. 305316, which also included blocks 8, 11, 17, 25, 26, 27, 28, and 29.

As permitted under ABP ref. 305319, Block 5 would comprise:

- 52no. 1-bedroom apartments.
- 83no. 2-bedroom apartments.

- 3no. 3-bedroom apartments.
- 4no. retail units with a combined GFA of 393m^2.
- 42no. on-street car parking spaces on Park Street, Dargan Street, and Lake Street.
- 54no. internal (undercroft) car parking spaces, with vehicular access from Park Street to the west.
- 194no. secure long term bicycle parking spaces.
- 30no. publicly accessible short stay bicycle parking spaces.

As permitted under ABP ref. 305316, Block 6 would comprise:

- 123no. 1-bedroom apartments.
- 147no. 2-bedroom apartments.
- A crèche with internal GFA of 418m^2, providing 59no. childcare spaces.
- 65no. on-street car parking spaces on Belltree Avenue, Lake Street, Dargan Street, and Park Street.
- 119no. internal (undercroft) car parking spaces, with vehicular access from Lake Street to the east.
- 550no. secure long term bicycle parking spaces.
- 22no. publicly accessible short stay bicycle parking spaces.

3.0 POTABLE WATER SUPPLY

3.1 Existing Water Supply Infrastructure

The 560mm diameter North Fringe trunk watermain runs along Marrsfield Avenue, approximately 130m to the north of the subject development site. A local network of distribution watermains 100mm and 150mm in diameter connects to the North Fringe trunk watermain and serves the Clongriffin masterplan lands north of Main Street. A secondary connection to this network is also provided from the 350mm diameter Hole in the Wall Road trunk watermain, approx. 300m west of Park Avenue.

Figure 6 – Existing local water supply network
(map data and imagery: Uisce Éireann, OSM Contributors)

This local watermain network was designed and constructed under the Clongriffin masterplan parent permission (Reg. Ref. 0132/02). Although shown on Uisce Éireann records, these local watermains remain in private

ownership. In the immediate vicinity of the subject development site, the local watermain network includes:

- A 150mm diameter watermain on the north side of Belltree Avenue, at the site's northern boundary.
- A 100mm diameter watermain on the west side of Park Street, at the site's western boundary.

Existing 150mm diameter and 100mm diameter capped spurs extend from these watermains into the subject site, at its north-western corner and where Park Terrace North meets its western boundary.

Figure 6 shows an extract of the relevant local Uisce Éireann water supply records; the full drainage and supply records are provided as **Appendix A** to this document.

3.2 Potable Water Demand

The Uisce Éireann *Code of Practice for Water Infrastructure* specifies an average potable water demand of 150 litres per person per day for domestic dwellings, and an average occupancy of 2.7 persons per residential unit. The proposed development comprises a total of 408no. apartments and therefore has a design population of 1,102 people (1102 pe), and the average potable water demand of the proposed development may be calculated as:

$$Avg.Demand = 1102pe \times 150l/day/pe = 165{,}300l/day = 1.913l/s$$

The peak potable water demand is calculated by applying a domestic peaking factor (Pf_{DOM}) of 5, in accordance with the Uisce Éireann *Code of Practice for Water Infrastructure:*

$$Peak\ Demand = Avg.Demand \times Pf_{DOM} = 1.913l/s \times 5 = 9.566l/s$$

3.3 Proposed Water Supply Arrangements

It is proposed to provide 160mm diameter ringmains around the perimeters of Block 5 and Block 6. These shall be interconnected and fed by a new connection to the existing 160mm diameter watermain in Belltree Avenue, at the development site's north-western corner. Refer to CS Consulting drawings nos. **CLN-CSC-XX-XX-DR-C-0113** and **CLN-CSC-XX-XX-DR-C-0114** for details of the development's proposed water supply connection.

Each block shall have 1no. connection to supply its residential elements. Individual, smaller connections shall be provided to the non-residential elements within each block. The exact details of all connections will be finalised at detailed design stage, through the Uisce Éireann connection application process.

3.4 Uisce Éireann Liaison

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann on the basis of a 425-unit residential development on the subject site. A Confirmation of Feasibility was received in response on the 12th of August 2024, stating that connection of such a development to the public water supply network (via the existing private water supply infrastructure) would be feasible without infrastructure upgrade by Uisce Éireann. This Confirmation of Feasibility is provided as **Appendix B**.

3.5 Applicable Design Standards

The proposed development's water supply arrangements have been designed in accordance with the Uisce Éireann *Code of Practice for Water Infrastructure* (document IW-CDS-5020-03) and its associated Standard Details (document IW-CDS-5020-01), with respect to watermain layout, pipe diameters, and connection details.

4.0 FOUL DRAINAGE

4.1 Existing Foul Drainage Infrastructure

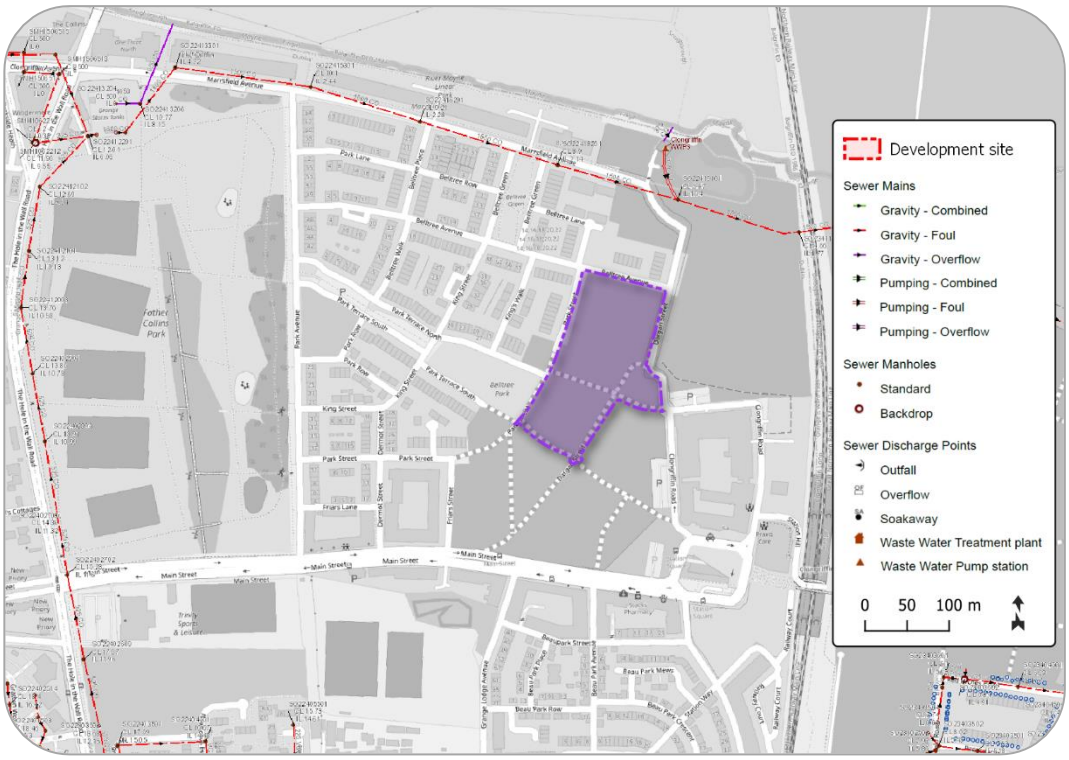


Figure 7 – Uisce Éireann local foul sewer network
(map data and imagery: Uisce Éireann, OSM Contributors)

An Uisce Éireann trunk foul sewer runs along Marrsfield Avenue, approximately 130m to the north of the subject development site. Within the Clongriffin masterplan area, a local foul drainage network was designed and constructed under the masterplan parent permission (Reg. Ref. 0132/02). These local foul sewers remain in private ownership and are not shown on Uisce Éireann records. All foul effluent collected by this network drains to the Clongriffin wastewater pumping station (WwPS); this was likewise constructed under the masterplan parent permission but has since been transferred to Uisce Éireann's control. A short foul rising main (also in Uisce Éireann ownership) conveys the pumped effluent to the Uisce Éireann trunk foul sewer.

In the immediate vicinity of the subject development site, the local foul drainage network includes foul sewers along the existing extents of Belltree Avenue, Lake Street, and Park Street, as well as along the intended future alignment of these streets' as yet incomplete sections.

Figure 8 – Existing public and private local foul sewer network
(map data: Uisce Éireann, Waterman Moylan, OSi)

4.2 Foul Effluent Generation

The proposed development shall comprise 408no. residential units. The Uisce Éireann *Code of Practice for Wastewater Infrastructure* specifies an average foul effluent flow rate of 165 litres per person per day for domestic dwellings (150 litres per person per day, plus a 10% allowance for external infiltration) and an average occupancy of 2.7 persons per residential unit. The development's maximum design population is therefore 1,102 people (1102 pe), and the maximum average effluent flow (dry weather flow or

DWF) to be generated by the proposed development may be calculated as:

$$\text{DWF} = 1102\text{pe} \times 165\text{l/day/pe} = 181{,}830\text{l/day} = 2.105\text{l/s}$$

For a population of between 1,001 and 5,000 people, the peak effluent flow (Design Flow) is calculated by applying a domestic peaking factor (Pf_{DOM}) of 3:

$$\text{Design Flow} = \text{DWF} \times \text{Pf}_{\text{DOM}} = 2.105\text{l/s} \times 3 = 6.315\text{l/s}$$

The effluent generated by the proposed development has negligible potential to impact negatively on the receiving foul drainage infrastructure. Surface water runoff from the proposed development shall be treated and attenuated within the site and shall not discharge to any foul sewer.

4.3 Proposed Foul Drainage Arrangements

It is proposed to discharge all foul effluent from the proposed development by gravity to the existing foul sewers in Park Street, Lake Street, and Belltree Avenue. At each connection, the last private manhole within the site shall be in accordance with DCC and Uisce Éireann requirements, and accessible for maintenance purposes. The final number and specifications of these connections to the external foul drainage network will be finalised at detailed design stage, through the Uisce Éireann connection application process.

All runoff from the development's internal (undercroft) parking areas shall pass through a Class 1 bypass interceptor (oil separator) before joining the development's internal foul drainage network and subsequently discharging to the external foul drainage network.

Please refer to CS Consulting drawings nos. **CLN-CSC-XX-XX-DR-C-0111** and **CLN-CSC-XX-XX-DR-C-0112** for details of the proposed foul drainage network layout.

4.4 Uisce Éireann Liaison

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann on the basis of a 425-unit residential development on the subject site. A Confirmation of Feasibility was received in response on the 12th of August 2024, stating that connection of such a development to the public wastewater network (via the existing private wastewater infrastructure) would be feasible without infrastructure upgrade by Uisce Éireann. This Confirmation of Feasibility is provided as **Appendix B**.

4.5 Applicable Design Standards

The proposed development's foul drainage network, including layout, pipe diameters, pipe gradients, and connection details has been designed in accordance with:

- the Uisce Éireann *Code of Practice for Wastewater Infrastructure* (document IW-CDS-5030-03) and its associated Standard Details (document IW-CDS-5030-01).
- the Greater Dublin Regional Code of Practice for Drainage Works (Version 6).
- Part H of the Building Regulations 2010.

5.0 SURFACE WATER DRAINAGE

5.1 Site Topography

The development site is almost level, with a general slight fall to the north. The only topographical variations within the site itself are temporary berms formed by previous site clearance works; these are for the most part less than 1.0m in height. With the exception of these, the highest point within the site (at its westernmost corner) has an elevation of 8.43m aOD, while its lowest point (at its northern boundary) is at 6.91m aOD. Please refer to CS Consulting drawings nos. **CLN-CSC-XX-XX-DR-C-0103** and **CLN-CSC-XX-XX-DR-C-0104** for a topographical survey of the development site and environs.

5.2 Land Drainage Features

The development site does not include any existing watercourses, open drains, ditches, or other land drainage features.

5.3 Existing Surface Water Drainage Network

Within the Clongriffin masterplan area, a local surface water drainage network was designed and constructed under the masterplan parent permission (Reg. Ref. 0132/02); this is shown in **Figure 9**. These local surface water sewers remain in private ownership. All runoff collected by this network drains to the Clongriffin attenuation pond, which is located adjacent to the Mayne River, at the northern boundary of the masterplan area and approximately 130m from the development site. The attenuation pond discharges to the Mayne River at a controlled rate of 249 l/s, as permitted under the masterplan parent permission. The attenuation pond was designed and sized to accommodate rainfall events exceeding a 1% Annual Exceedance Probability (i.e. a 1-in-100-year storm event) and has

over 6,400m^3 of attenuation storage on top of a permanent volume of approximately 2,500m^3.

In the immediate vicinity of the subject development site, the local surface water drainage network includes surface water sewers along the existing extents of Belltree Avenue, Lake Street, and Park Street, as well as along the intended future alignment of these streets' as yet incomplete sections.

Figure 9 – Existing private surface water drainage network
(map data: Waterman Moylan, OSi)

5.4 Proposed Surface Water Drainage Arrangements

In discussions with DCC Drainage Division, it has been agreed that surface water runoff from the proposed Block 5 and Block 6 development shall discharge at an unrestricted rate to the existing local surface water drainage network immediately adjacent to the development, through which it shall continue to the existing attenuation pond and outfall to the Mayne River (as described in sub-section **5.3**). Integration of the proposed

development with this existing infrastructure ensures that stormwater runoff from the development site shall not flow into neighbouring sites but shall instead be collected and subsequently released in a controlled manner after the peak storm duration has passed.

It is proposed to discharge surface water run-off from the proposed development by gravity via new connections to the existing 800mm diameter surface water sewer in Belltree Avenue, at the development's northern boundary, the existing 300mm/800mm diameter surface water sewer in Park Street, at the development's western boundary, and the existing 1050mm diameter surface water sewer in Lake Street, at the development's eastern boundary. At each connection, the last private manhole within the site shall be in accordance with DCC requirements and standard details, and accessible for maintenance purposes.

The proposed stormwater drainage arrangements have been designed in accordance with Part H of the *Building Regulations 2010* (*Building Drainage*), the *Greater Dublin Regional Code of Practice for Drainage Works* (Version 6), British Standard BS EN 752:2008 (*Drains and Sewer Systems Outside Buildings*), and the *Greater Dublin Strategic Drainage Study* (GDSDS).

Please refer to CS Consulting drawings nos. **CLN-CSC-XX-XX-DR-C-0111** and **CLN-CSC-XX-XX-DR-C-0112** for details of the proposed surface water drainage arrangements.

5.5 Projected Maximum Stormwater Discharge

Over the initial 15 minutes of a 1-in-100-year (1% AEP) rainfall event, increased by 20% for the predicted effects of climate change, it has been calculated that the maximum rate of stormwater discharge from each block of the completed development shall be as follows:

- 123 l/s from Block 5
- 274 l/s from Block 6

Over this 15-minute period, it is calculated that the following total stormwater runoff volumes shall discharge from the site to the existing receiving surface water drainage network:

- 102m^3 from Block 5
- 222m^3 from Block 6

It should be noted that these discharge rates and volumes have been calculated on the basis of 100% surface impermeability across Block 5 and Block 6. This therefore represents a worst-case scenario wherein all green roofs and soft landscaping areas are fully saturated.

As previously described, the existing Clongriffin attenuation pond and local surface water drainage network, which were permitted and constructed under the parent permission Reg. Ref. 0132/02, have been designed to accommodate stormwater runoff from the Clongriffin masterplan lands (of which the subject development site forms part) for a 1% AEP rainfall event.

5.6 Sustainable Drainage Systems (SuDS) Design

When rain falls on a natural landscape, it soaks into the ground, evaporates, or is taken up by plants, and some of it eventually find its way into streams and rivers. These stages of the water cycle can be impeded when land is altered by development. In urban areas, there tends to be less permeable

ground available for infiltration and less vegetation for evapotranspiration. When rain falls on impermeable surfaces, much more of it turns into surface water runoff, which can cause flooding, pollution, and erosion problems. Additionally, urbanisation has a negative impact on wildlife in urban areas.

Sustainable Drainage Systems (SuDS) is a series of management practices and control structures that aim to mimic the natural drainage in developed areas. The philosophy of sustainable drainage systems is about maximising the benefits and minimising the negative impacts of surface water runoff from developed areas.

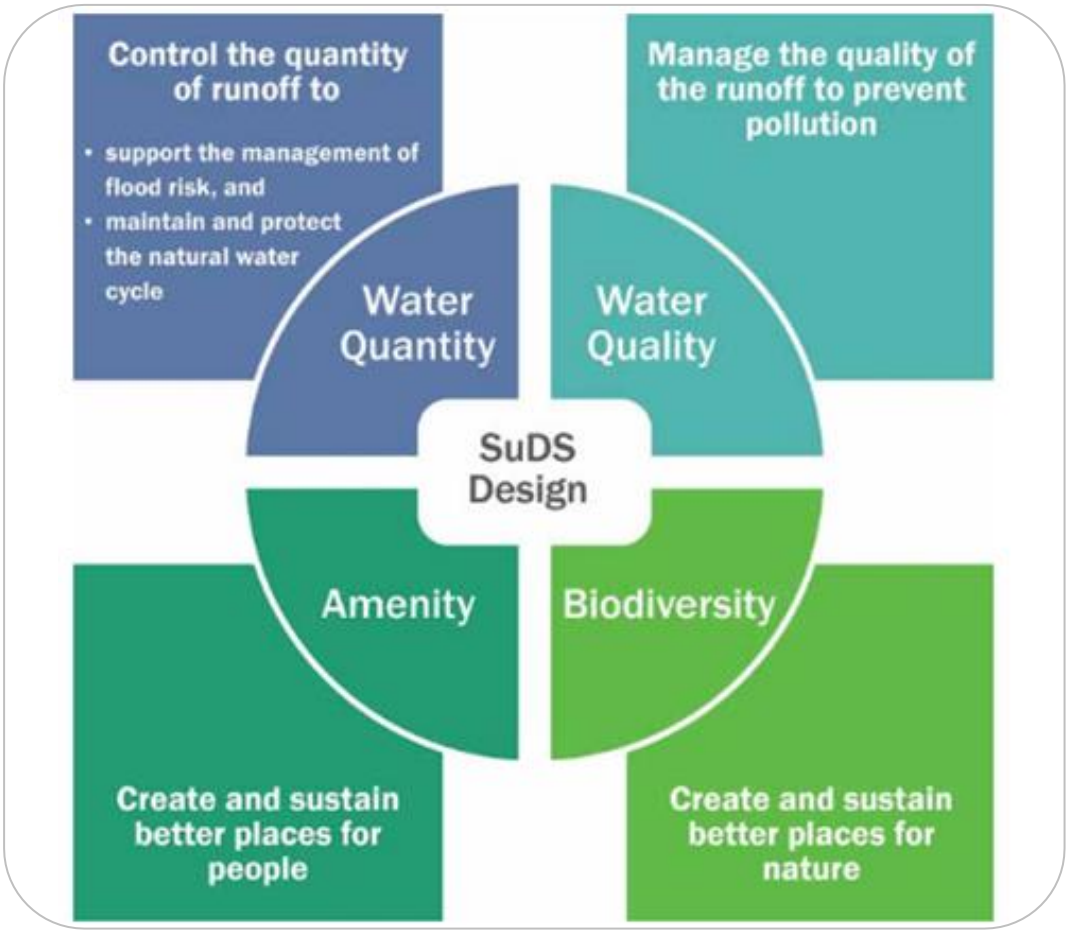


Figure 10 – The four pillars of SuDS design
(source: CIRIA C753 – The SuDS Manual)

The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area to manage downstream flood risk and reducing the risk of that runoff causing pollution. This can be achieved by harvesting, infiltrating, slowing, storing, conveying, and treating runoff on site, and where possible, on the surface rather than underground.

By adopting this approach, SuDS have the opportunity to deliver and enhance the green spaces within the developments, supporting the provision of habitats and places for wildlife as well as providing a positive impact for the wellbeing of the communities. As stated in CIRIA C753 (*The SuDS Manual*), there are four main categories of benefits that can be achieved through the implementation of SUDS: water quantity, water quality, amenity, and biodiversity.

These benefits are aligned with the objectives described in *Dublin City Development Plan 2022-2028* and in the *Greater Dublin Strategic Drainage Study*.

The following section outlines the proposed approach for the management of rainfall runoff from the development to ensure that there is no increase in the risk of flooding for the development or the adjacent areas, whilst the development benefits from improvements in water quality, amenity, and biodiversity.

5.7 SuDS Measures

The proposed development includes SuDS measures in accordance with the requirements of Dublin City Council and Objective GI01 of the *Dublin City Development Plan 2022-2028*, to provide on-site first stage interception of surface water run-off, improving its overall quality prior to ultimate discharge.

Details of the development's proposed SuDS measures are shown on CS Consulting drawing nos. **CLN-CSC-XX-XX-DR-C-0134** and **CLN-CSC-XX-XX-DR-C-0138**.

5.7.1 Green roofs

Extensive green roofs will be provided on the proposed buildings' flat roof areas. During typical low-intensity rainfall events, these will collect and retain rainwater until it subsequently evaporates. This will reduce the volumes of rainwater discharging to the public sewer network, as well as mitigating peaks in run-off and reducing the potential for contaminants to be washed from the roof, decreasing the development's impact on the receiving environment. Green roofs also have secondary environmental benefits, providing a temperature control effect by absorbing less solar radiation and improving air quality by trapping airborne particulate matter.

Appendix 11 to the *Dublin City Development Plan 2022-2028* requires that new developments with flat or gently sloped roof areas of more than 100m^2 meet the following green roof coverage requirements as a percentage of total roof area:

- 70% extensive green roof coverage, or
- 50% intensive green roof coverage.

As shown in **Table 1**, the proposed development achieves an overall extensive green roof coverage of 75%, thereby meeting this development plan requirement.

Table 1 – Extensive Green Roof Coverage

Building	Total Roof Area	Area of Extensive Green Roof	Green Roof Coverage
Block 5	2,577m^2	1,519m^2	59%
Block 6	4,716m^2	3,924m^2	83%
TOTAL	7,293m^2	5,443m^2	75%

5.7.2 Permeable paving

On-street car parking bays are to be finished with a block-constructed permeable paving surface that shall allow rainwater to percolate through the pavement, through layers of grit and coarse aggregate, and into strata below. A perforated filter drain shall collect excess stormwater at the base of the permeable paving system and convey this via overflow connections to the adjacent surface water sewers.

Permeable paving is also to be used for footpaths and other paved areas at podium level on both buildings. Direct infiltration to ground is not possible at these locations but the permeable paving shall provide first stage interception treatment and a degree of stormwater attenuation prior to its discharge to the surface water drainage network.

5.7.3 Tree pits and bio-retention areas

Tree pits and other bio-retention areas are integrated into the landscape design, primarily along the development's street frontages. Surface water runoff from footpaths and road carriageways shall be directed to these SuDS facilities, which allow direct infiltration to ground via layers of engineered topsoil and voided stone.

5.7.4 Rain gardens and planter boxes

Rain gardens and/or planter boxes shall be provided at podium level, at the outlets from downpipes that capture runoff from higher level terraced areas. These shall likewise provide first stage interception treatment and a degree of stormwater attenuation prior to its discharge to the surface water drainage network. The final locations and details of these SuDS facilities shall be determined as part of the development's final landscape design.

5.8 Stormwater Interception and Treatment

The Greater Dublin Strategic Drainage Study (GDSDS) recommends calculating stormwater interception and treatment volume requirements as follows:

- 80% runoff of hard standing areas with 5mm rainfall for first flush interception.
- 80% runoff from hard standing areas with 10mm rainfall for treatment volume.

This allows the combined interception and treatment volume requirement to be calculated on the basis of 80% runoff with 15mm rainfall. **Table 2** gives the resultant required volumes for the proposed development.

Table 2 – Interception and Treatment Volume Requirements

Building (inc. surrounds)	Approx. Net Hardstanding Area	Interception and Treatment Volume Requirement [2]
Block 5	1,700m^2	20.4m^3
Block 6	3,830m^2	46.0m^3
TOTAL	5,530m^2	66.4m^3

Across Blocks 5 and 6, 1,615m^2 of permeable paving is provided. Assuming a 50mm depth of stone and tray system below, this equates to a storage volume of 81m^3, which exceeds the development's required stormwater interception and treatment volume as outlined above.

[2] Calculated as: hardstanding area x 0.015m rainfall x 80% runoff

6.0 FEEDBACK RECEIVED FROM PLANNING AUTHORITY

Dublin City Council has reviewed the planning documentation submitted in respect of the current development proposals during the pre-application consultation phase of the LRD process (including a previous version of the present Engineering Services Report). An LRD pre-application consultation meeting of the Council and the applicant's design team was held on the 8th of May 2024. An LRD Opinion document was issued by Dublin City Council on the 5th of July 2024. This concluded that:

"the documentation submitted in accordance with Section 32B of the [Planning and Development (Amendment) (Large-scale Residential Development) Act 2021] requires further consideration and amendment to constitute a reasonable basis for an application for Large- scale Residential Development."

The DCC Opinion document further notes that:

"In the event that the applicant proceeds to submit a planning application, the applicant is advised that the LRD application should be accompanied in the first instance by:

- *"Statement of response to the issues set out in the LRD opinion.*
- *"Statement that in the applicant's opinion the proposal is consistent with the relevant objectives of the development plan for the area."*

A Statement of Response has been prepared by Declan Brassil & Company Planning Consultants and is submitted under separate cover as part of this planning application. This document addresses all issues raised in the July 2024 DCC Opinion document. A response to each of the drainage-related items of the DCC Opinion is also given below.

6.1 Opinion Item 3.1 – Stormwater Attenuation

6.1.1 DCC Opinion Item

"Clarification is required on the storage volumes provided in the existing attenuation pond. This pond appears to have been designed to store the 30 year rainfall event. However, current policy requires the 100 yr rainfall event (+20% climate change) to be catered for. In the absence of evidence to demonstrate that the existing pond can cater for this event, the applicant shall attenuate flows on site to 2l/s. The applicant is advised to consult with the Drainage Planning, Policy and Development Control (DPPDC) section prior to submission of a Stage 3 planning application."

6.1.2 Response

Following receipt of the DCC Opinion document, CS Consulting held a further consultation meeting with Mr Daniel Lowe of the DCC Drainage Planning, Policy & Development Control section on the 16th of July 2024. The primary focus of this meeting was discussion of the existing surface water attenuation infrastructure at Clongriffin (as permitted and constructed under Reg. Ref. 0132/02), in particular its capacity to provide attenuation storage for new development.

In subsequent correspondence (provided as **Appendix C** to this report), and after separate consultation with the designers of the existing surface water attenuation infrastructure, Mr Lowe confirmed that the development's proposed surface water drainage arrangements (as described in sub-section **5.4**) are acceptable.

6.2 Opinion Item 3.2 – SuDS Details

6.2.1 DCC Opinion Item

"The details of the SuDS devices proposed for public areas shall be agreed with the Drainage Planning, Policy and Development Control (DPPDC) section. In particular, the road gully and permeable paving arrangement needs to be revised. The inspection chambers shall be in accordance with the Greater Dublin Regional Code of Practice for Drainage Works Version 6.0."

6.2.2 Response

Details of SuDS devices to be employed in public areas and areas to be taken in charge by Dublin City Council are shown on CS Consulting drawing no. **CLN-CSC-XX-XX-DR-C-013**, which forms part of the planning submission documentation. These details have been shown to Mr Daniel Lowe of the DCC Drainage Planning, Policy & Development Control section on the 16th of July 2024 and are understood to meet the requirements of this section. It is noted that amendments to these details may be made by way of condition from DCC prior to commencement. Inspection chambers provided shall be in accordance with the Greater Dublin Regional Code of Practice for Drainage Works Version 6.0.

6.3 Opinion Item 3.3 – Tree Pits

6.3.1 DCC Opinion Item

"The proposed tree pits shall be designed by a landscape architect, and agreed with both DCC Parks and the Drainage Planning, Policy and Development Control (DPPDC) section."

6.3.2 Response

The development's proposed tree pit design details are shown on drawing no. **8** prepared by RMDA Landscape Architects, which forms part of the planning submission documentation. This design is understood to meet the requirements of the DCC Parks Department and the DCC Drainage Planning, Policy and Development Control (DPPDC) section. It is noted that amendments to this design may be made by way of condition from DCC prior to commencement.

6.4 Opinion Item 3.4 – Taking in Charge

6.4.1 DCC Opinion Item

"The full extent of areas and infrastructure to be taken in charge by Dublin City Council shall be clarified. Surface water drainage infrastructure, including SuDS devices within these areas must be in accordance with the Greater Dublin Regional Code of Practice for Drainage Works Version 6.0, and the requirements of the DPPDC section. Private drainage infrastructure is not permitted in public areas, or areas intended to be taken in charge."

6.4.2 Response

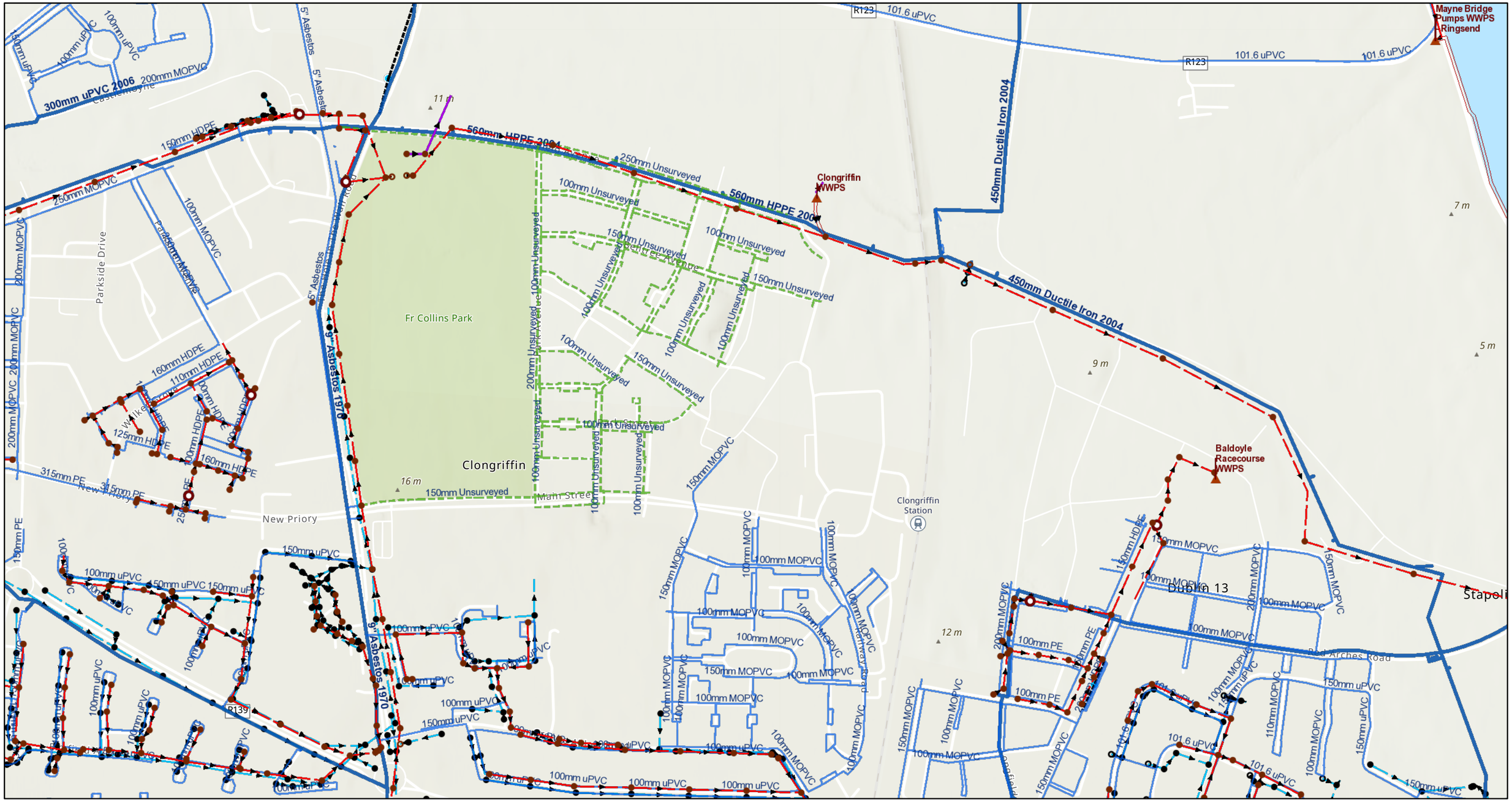
The applicant confirms that the proposed development's road/street network and associated infrastructure are proposed to be taken in charge by Dublin City Council. The accompanying Taking in Charge Plan drawing (no. **CLN-CCK-LRD-SI-00-DR-A-000010**) prepared by CCK Architects clearly shows the extents of areas to be taken in charge. The development's internal communal open space areas are to be maintained by a private Management Company.

Appendix A

Uisce Éireann Drainage and Water Supply Records

CS CONSULTING
GROUP

Uisce Éireann Combined Records



18/4/2024

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Esri, Intermap, NASA, NGA, USGS, Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Sewer Discharge Points
- Outfall
- Overflow
- Soakaway
- Other; Unknown
- Waste Water Treatment plant
- Waste Water Pump station
- Sewer Chambers

Sewer Mains
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown

Sewer Mains (Private)
- Gravity - Combined
- Gravity - Foul
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow

Sewer Mains (Private)
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Sewer Detention Areas

- Waste Water Asset Site Boundary
- Wastewater Discharge Authorisation Boundary
- Water Treatment Plant
- Abstraction Point

Reservoir
- Reservoir (Potable Water)
- Reservoir (Raw Water)
- Water Pump Stations

Water Network Structures
- Storage Cell
- Storage Tower
- Dosing Point

- Meter Station
- Water Pump
- Other; Unknown

Private Water Network Structures
- Storage Cell
- Storage Tower
- Dosing Point
- Meter Station
- Water Pump
- Other; Unknown

Water Distribution Mains
- Irish Water

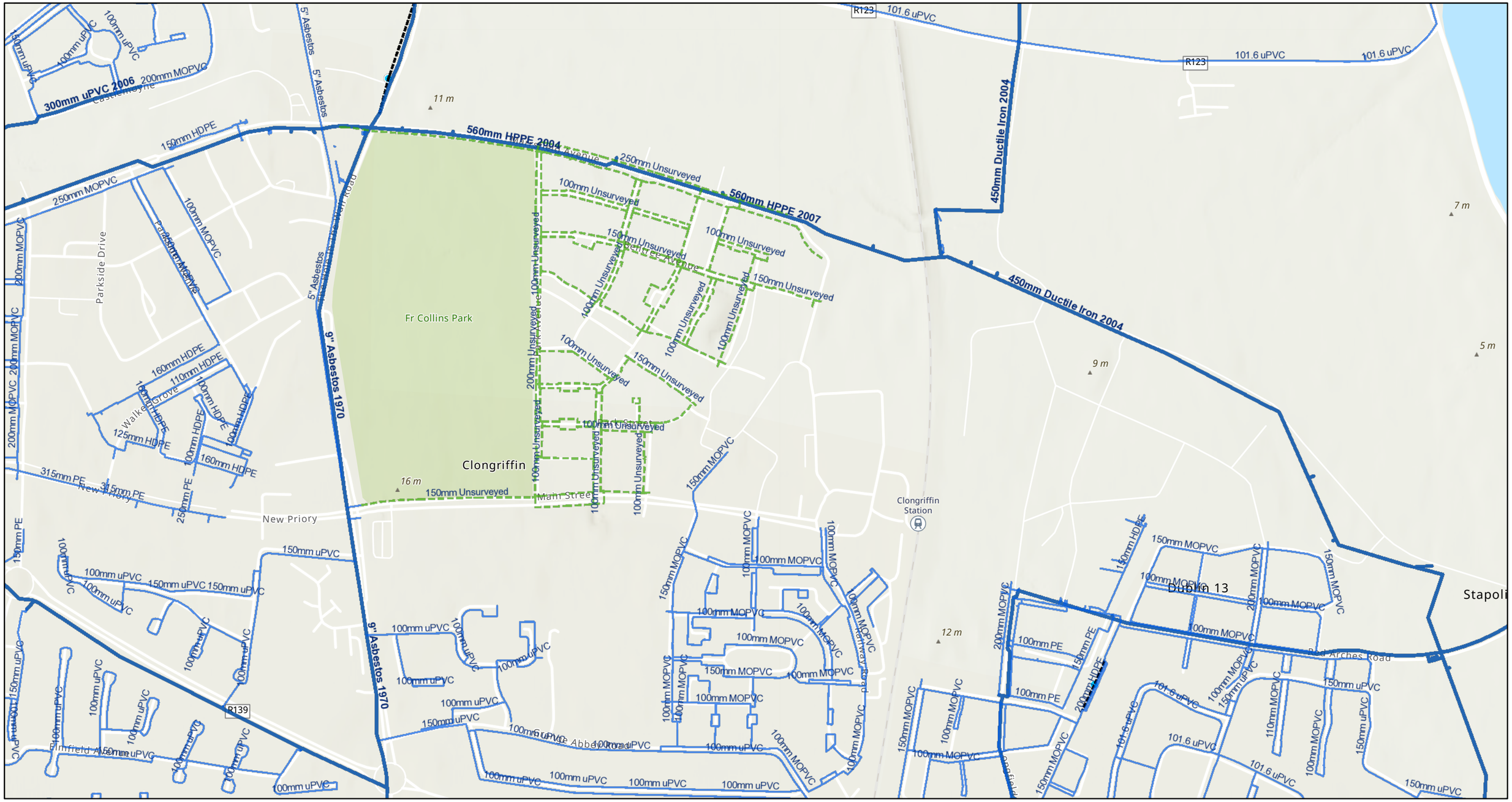
- Private

Trunk Water Mains
- Irish Water
- Private
- Water Abandoned Lines
- Water Abandoned Points

Storm Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private
- Storm Culverts
- Storm Open Drains

Uisce Éireann Water Distribution Network



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Esri, Intermap, NASA, NGA, USGS, Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

- Water Treatment Plant
- Abstraction Point

Reservoir

- Reservoir (Potable Water)
- Reservoir (Raw Water)
- Water Pump Stations

Water Network Structures

- Storage Cell
- Storage Tower
- Dosing Point
- Meter Station
- Water Pump
- Other; Unknown

Private Water Network Structures

- Storage Cell
- Storage Tower
- Dosing Point
- Meter Station

- Water Pump
- Other; Unknown

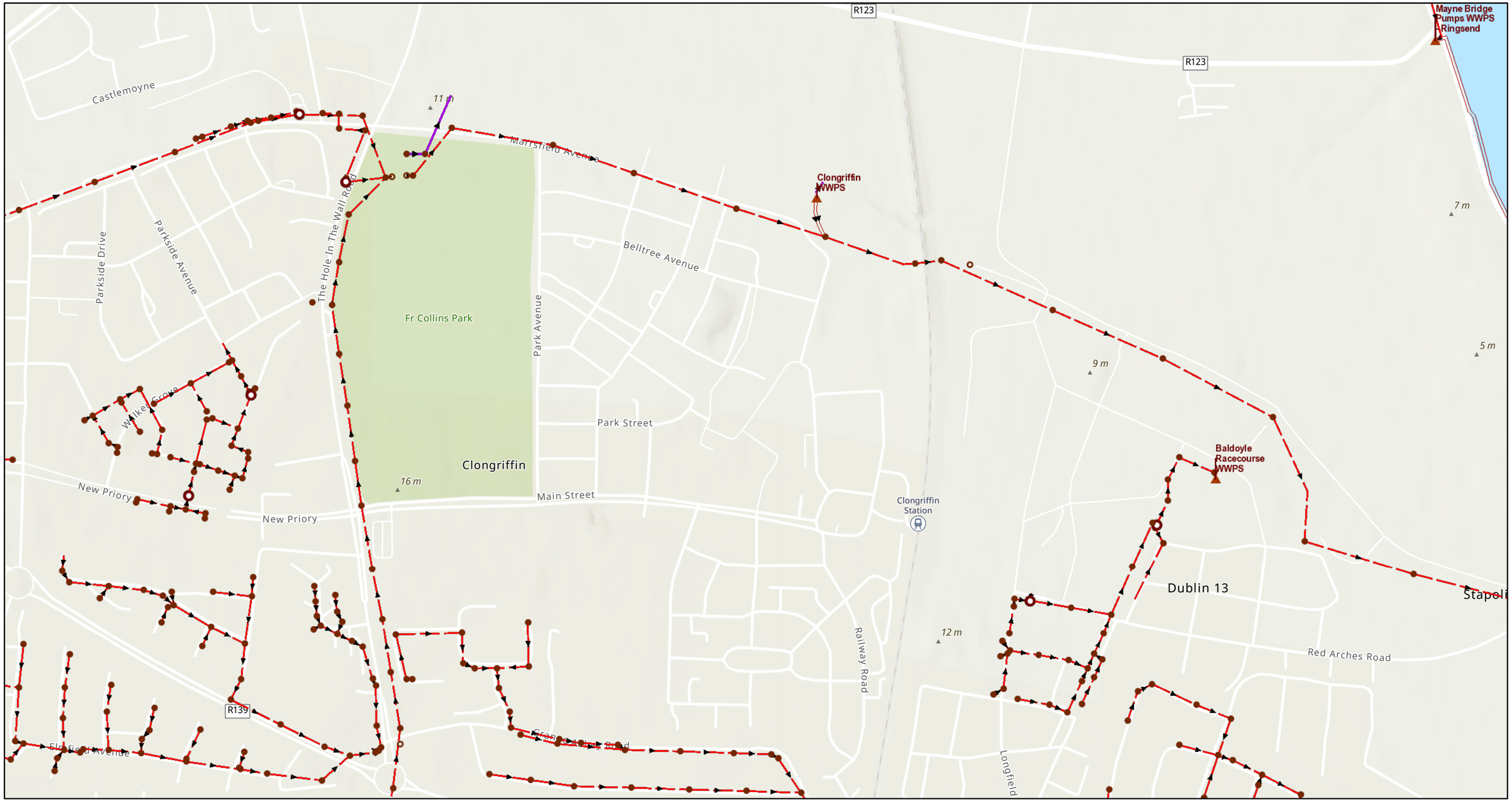
Water Distribution Mains

- Irish Water
- Private

Trunk Water Mains

- Irish Water
- Private
- Water Abandoned Lines
- Water Abandoned Points

Uisce Éireann Foul Drainage Network



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Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

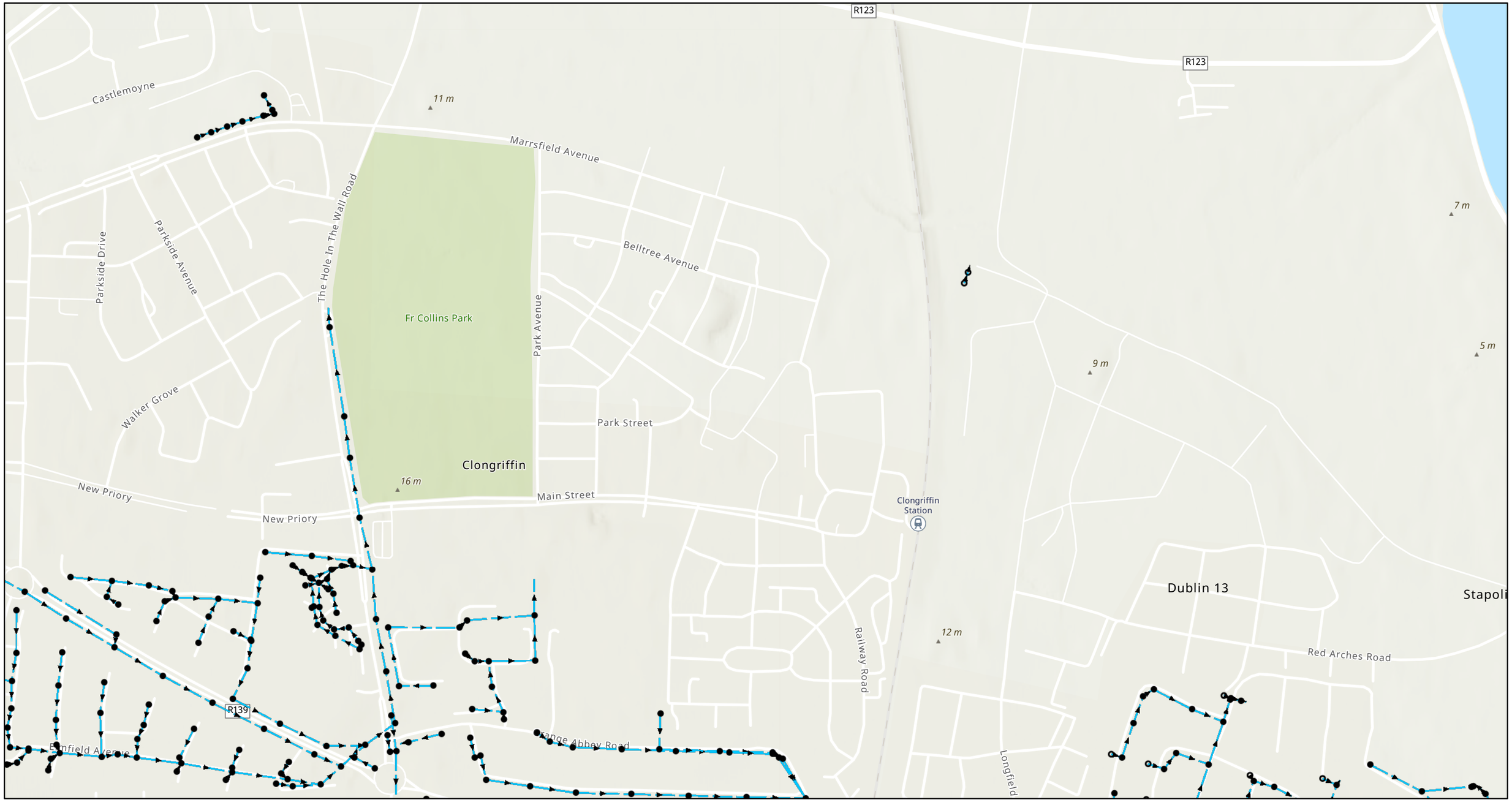
Sewer Discharge Points
- Outfall
- Overflow
- Soakaway
- Other; Unknown
- Waste Water Treatment plant

- Waste Water Pump station
- Sewer Chambers

Sewer Mains
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow

Sewer Mains (Private)
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Sewer Detention Areas
- Waste Water Asset Site Boundary
- Wastewater Discharge Authorisation Boundary

Uisce Éireann Records - Surface Water Drainage Infrastructure



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Esri, Intermap, NASA, NGA, USGS, Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Storm Manholes

- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Surface Water Mains

- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private
- Storm Culverts
- Storm Open Drains

Appendix B

Uisce Éireann Confirmation of Feasibility (CoF)

CS CONSULTING
GROUP

CONFIRMATION OF FEASIBILITY

Gary Lindsay

CS Consulting Group
19-22 Dame Street
Dublin
D02E267

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

12 August 2024

Our Ref: CDS24004024 Pre-Connection Enquiry
Main Street, Clongriffin, 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 Multi/Mixed Use Development of 425 unit(s) at Main Street, Clongriffin, 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 subject to following:

- Proposed connection to Uisce Éireann infrastructure is via a private water supply network.The Developer is responsible for all necessary consents and permissions required to connect to any private infrastructure.
- In order to supply the Development, the private network has to be of adequate capacity and integrity, connected to Uisce Éireann 560mm HPPE main at Marrsfield Road and in operation. All above must be verified at a connection application stage. As-build/survey drawings of the connectivity to the 560mm HPPE main will be required at the stage.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann subject to following:

- Proposed connection to Uisce Éireann infrastructure is via a private infrastructure. Please be advised that at connection application stage you have to provide written confirmation from the owner of the infrastructure that you have received a legal permission to connect to and that the infrastructure has capacity and integrity to cater for the additional demand from the Development.

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/

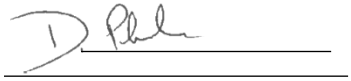
Where can you find more information?

- **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 Delivery Manager

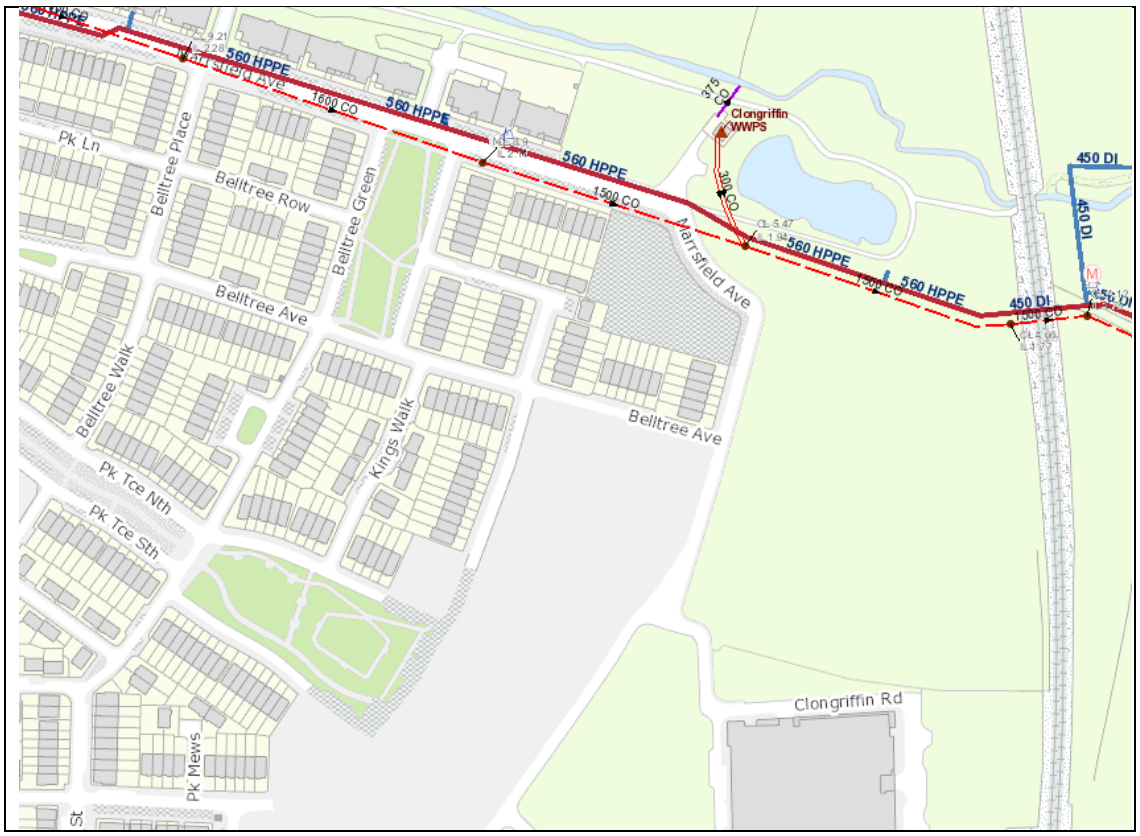
Section A - What is important to know?

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 and be granted and sign 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 ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** 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



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

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.

Appendix C

Correspondence with DCC Drainage Division

CS CONSULTING
GROUP

Gordon Finn

From: Daniel Lowe <daniel.lowe@dublincity.ie>
Sent: Friday 19 July 2024 11:25
To: Gary Lindsay
Cc: Luke McNamee; Joe Fryers; Gordon Finn
Subject: RE: C216 Clongriffin Blocks 5 & 6 - Drainage matters (Ref. LRD6064/24)

Hello Gary,

I've been corresponding on the matter with Mark Duignan of Waterman Moylan. Waterman Moylan as the designers of the attenuation pond and overall SW strategy for the Clongriffin lands have confirmed that there is sufficient storage available in the regional pond for the 100 year event + climate change, for this particular LRD at least. I'm satisfied for you to proceed with current proposals, which are an improvement on those in the extant SHD permission.

However, going forward, and in advance of the development of the remaining sites, a comprehensive review/report will be required on the surface water management strategy for the Clongriffin lands. It's clear that the original plan has been adapted and evolved over the years. For example, additional attenuation storage capacity was provided in certain areas, various development sites have underground attenuation tanks, new sub-catchments were developed etc. etc. The review will have to provide a full and up-to-date picture of the SW management strategy, from its original design to its capability of meeting current design standards. Location and capacities of the various attenuation facilities and flow controls will be required along with detailed calculations to support the review.

As part of this LRD application, your engineering report should address the volume and flows leaving the site up to the 100year event +CC factor. Also, interception storage volumes for the development should be provided.

Please don't hesitate to contact me if you have any queries on the above.

regards

Daniel Lowe | Senior Executive Engineer | Drainage Planning, Policy & Development Control

Dublin City Council, Block 1, Floor 4, Civic Offices, Wood Quay, Dublin 8, Ireland

Tel: +353 1 222 8801 | Mob: 087 997 1168 | Email: daniel.lowe@dublincity.ie

---

From: Gary Lindsay <gary.lindsay@csconsulting.ie>
Sent: 18 July 2024 17:23
To: Daniel Lowe <daniel.lowe@dublincity.ie>
Cc: Luke McNamee <Luke.McNamee@csconsulting.ie>; Joe Fryers <Joe.Fryers@csconsulting.ie>; Gordon Finn <gordon.finn@csconsulting.ie>
Subject: C216 Clongriffin Blocks 5 & 6 - Drainage matters (Ref. LRD6064/24)

Hi Daniel,

Sorry to put pressure on you, but have you any feedback from your offline chat to Mark Duignan in WM following our meeting on Tuesday last.

We are under a bit of pressure on our side to close out the matter.

Regards,

CS CONSULTING GROUP

GARY LINDSAY
Associate Director
Chartered Engineer
BE, CEng, MIEI

0870949419
gary.lindsay@csconsulting.ie
www.csconsulting.ie

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LONDON: Centralpoint, 45 Beech Street, London, EC2Y 8AD, UK | **T:** +44 (0) 207 070 3660 | **E:** info@csconsultinguk.com

LIMERICK: 45 O'Connell Street, Limerick, V94 XE18, Ireland | **T:** +353 61 594988 | **E:** info@csconsulting.ie

It may suit our Team to send emails at various times of day but we do not expect a response or action outside of normal working hours.

Smaoinigh ar an timpeallacht sula ndéanann tú an ríomhphost seo a phriontáil. Please consider the Environment before printing this mail.