Waterman Moylan
Engineering Consultants

Cheeverstown Engineering Assessment Report

Proposed Development at Templeogue Road, Dublin 6W

June 2021

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This document has been prepared and checked in accordance with
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Issue	Date	Prepared by	Checked by	Approved by
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Comments

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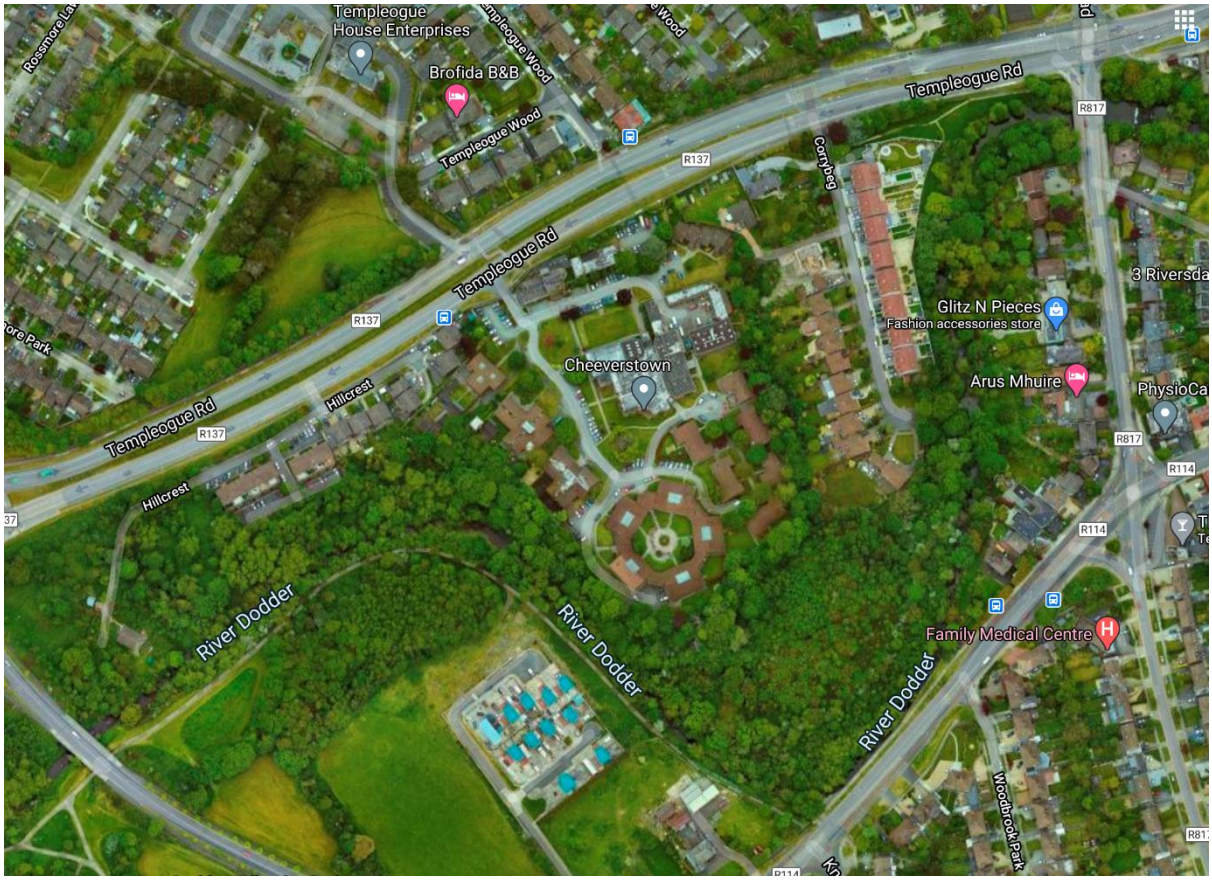
1. Existing Lands & Environment

1.1 Lands and Environs

The subject landholding is located on the southern side of Templeogue Roads between the Corrybeg and Hillcrest housing clusters. The site backs on to the River Dodder. The property current accommodates offices, a school and accommodation for people with disabilities.



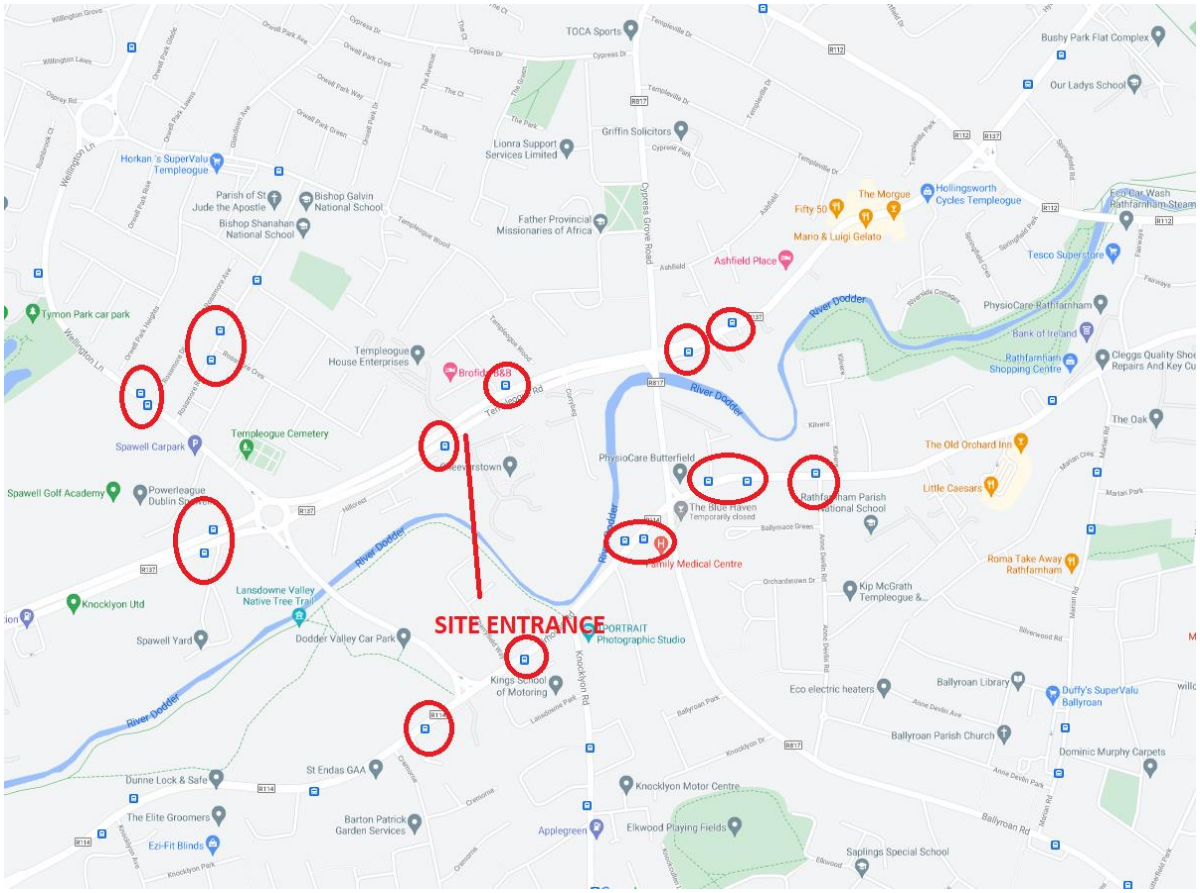
1.2 Mobility and Access

There is an existing direct entrance to the subject landholding from Templeogue Road to the north which will be re-used for future pedestrian and vehicular access. The vehicular access will maintain a left-in left-out operation as is currently in place. In addition, there is a signal-controlled pedestrian crossing at the site entrance which will aide pedestrians crossing the local road network.

1.3 Public Transport

Bus

The site is directly serviced by Dublin Bus with the bus service routes 65 and 65b serving the Cheeverstown House stop adjacent the site entrance, less than 1 minute walk from site entrance. 400m to the east at the Templeogue Bridge Bus Stop, 5 minute walk from the subject site, this point is served by both Dublin Bus (routes 15, 49, 65 and 65b) allowing easy access to Dublin City Centre. See image below for nearby bus stops:



Metro – Future

The proposed Metro North Estuary stop will be located ca. 700m east of the subject landholdings.

Bus Connects

The National Transport Authority is currently proposing to make numerous improvements to public transport within the Greater Dublin Area by means of Quality Bus Corridors (QBC).

The bus element, Bus Connects, includes infrastructures and bus priority measures, improvements to fares and ticketing and re-design of the bus network.

The same corridors that are important for buses are also the main cycling routes into the city centre. Bus Connects will see safe cycling facilities provided along each corridor, segregated as far as practicable from other traffic. The cycling infrastructure delivered under this programme will form the core of the region's cycling network and deliver a radical step-change in cycling facilities in Dublin.

As part of Bus Connects proposal, it is noted that the intention is to re-direct all services traveling to the same destination, to a single corridor, called Spine. These services will run together in the same spine and then branch to serve different destinations. It is noted that the proposal would deliver spines with high frequency, with a range of bus every 4 to 8 minutes at off peak times.

There are currently 16 No. proposed routes to be converted into QBC spines under the Bus Connects scheme:

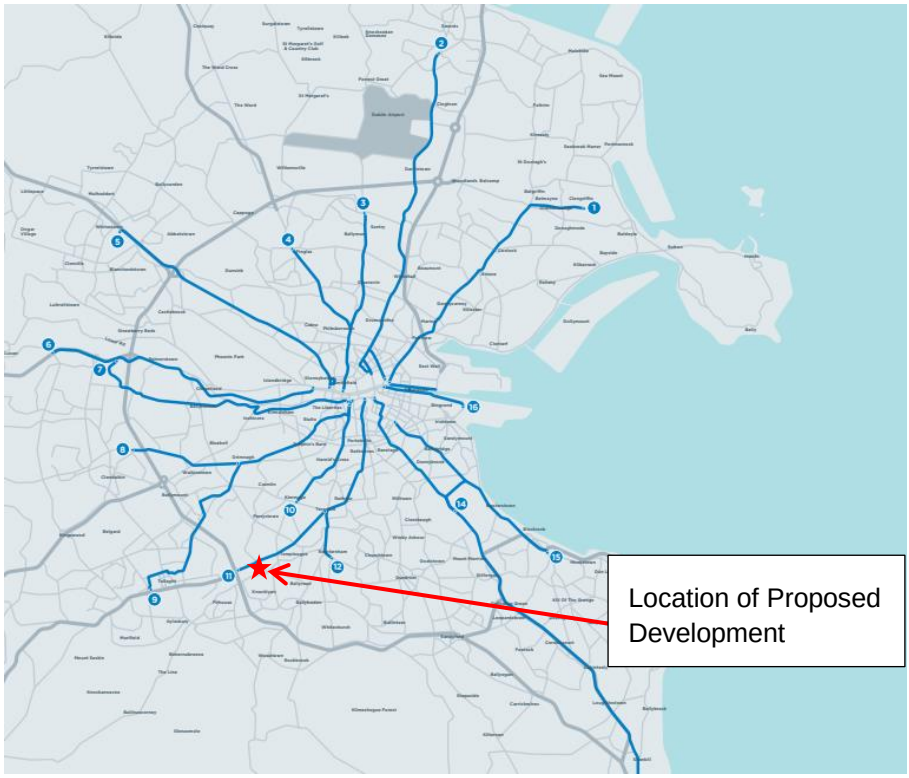


Figure 4: Proposed Bus Connects Routes

Bus Connects Route 11, from City Centre towards Firhouse, proposes a spinal bus corridor, together with cycling facilities along this route, that will connect the Firhouse area to the City Centre. As shown in the above Figure, this route is easily accessible from the proposed site.

In addition to the radial core bus corridors, there is also a plan for enhancement of the orbital bus corridors as part of Bus Connects Dublin. These proposals will form a separate plan which will be advanced at a future date. The proposed orbital routes are shown in the Figure below:

Figure 5: Future Orbital Routes

As seen in the Figure above there is a proposed orbital route running in close vicinity of the proposed site.

The objective of this scheme is to provide a continuous bus lane in each direction as well as maintaining two general traffic lanes. In addition, it is also proposed to provide a dedicated cycle track on each side of the road, providing safe cycling facilities, segregated from other vehicular traffic. The typical road layout also includes footpaths for pedestrians and supporting elements such as pedestrian crossings at all key road crossing points, and bus shelters for waiting passengers.

The below Figure details the branch routes connected to the major orbital and spine routes, forming part of the BusConnects scheme:

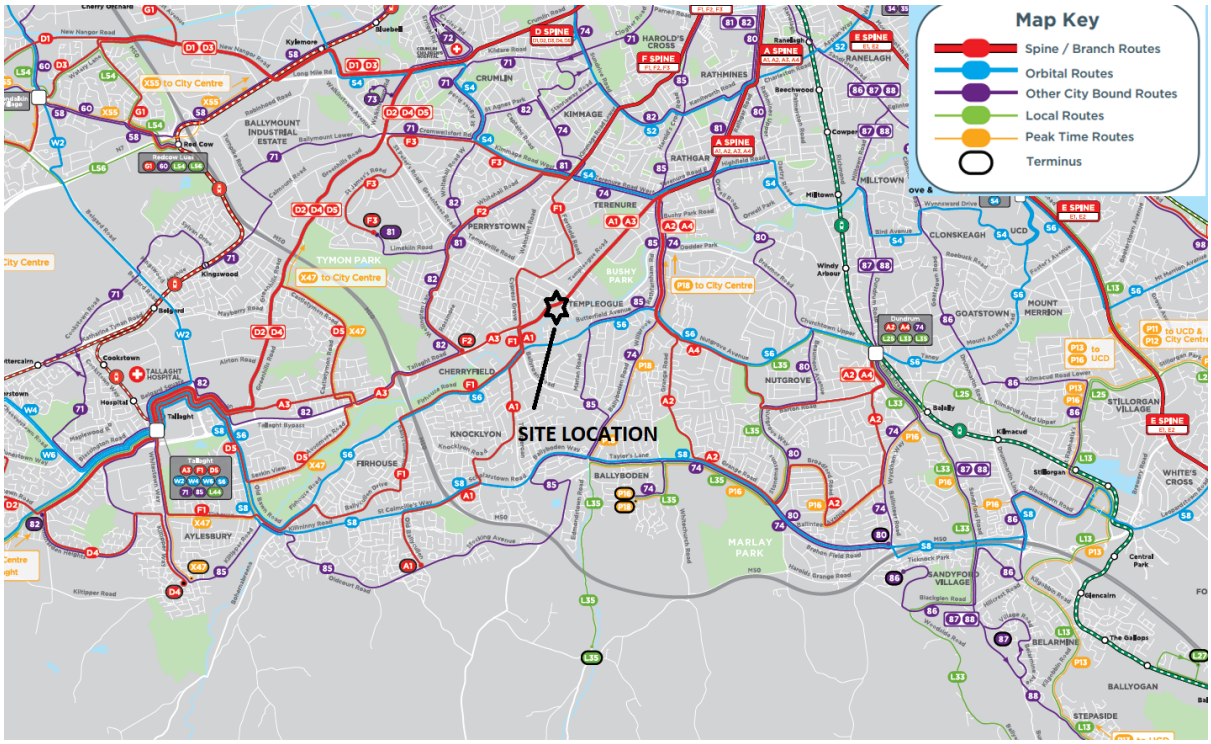


Figure 6: Bus Routes

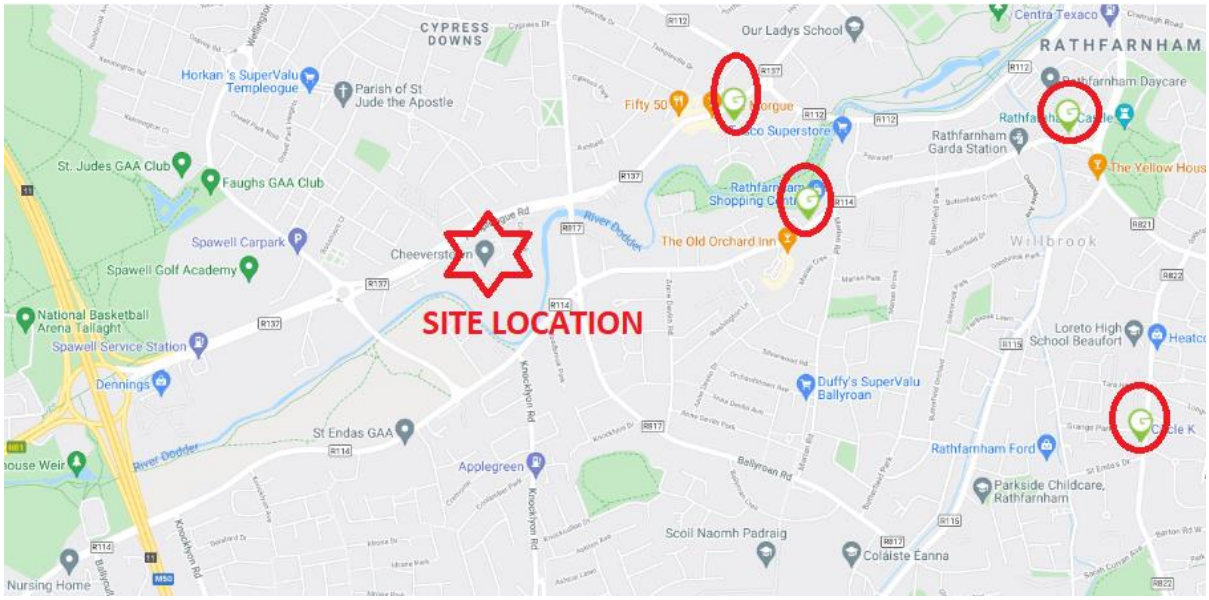
The Dublin BusConnects will significantly improve the connectivity of the subject site with surrounding areas by means on public transport.

Car Sharing Services

Car Sharing is a mode of car rental where people can rent cars for short-middle-long time. Car Sharing contributes to a sustainable mode of travel due to a decrease the car ownership. The following outlines the benefits of car sharing:

- Each car can be accessed by multiple drivers, 24/7 and bookable at a moment's notice;
- Reduce the requirement for private transport;
- Reduce the need for car parking spaces;
- Helps reduce the number of cars on the road, traffic congestion, noise and air pollution, frees up land traditionally used for parking spaces, and increases use of public transport, walking and cycling; and
- The vehicles used are newer than the average car, and therefore more environmentally friendly and safer.

There are numerous 'bases' of a car sharing services located in the proximity of the proposed site. Each base has 1 car available to rent by the hour. The car sharing services is GoCar (4 bases). See below for locations:



1.4 Pedestrian and Cycle Network

Templeogue Road had a good footpath network on both sides with signalized pedestrian crossing to promote safe crossing and access for users, there is on and off road cycle tracks on both sides of the road to facilitate cyclists in a safe manner.

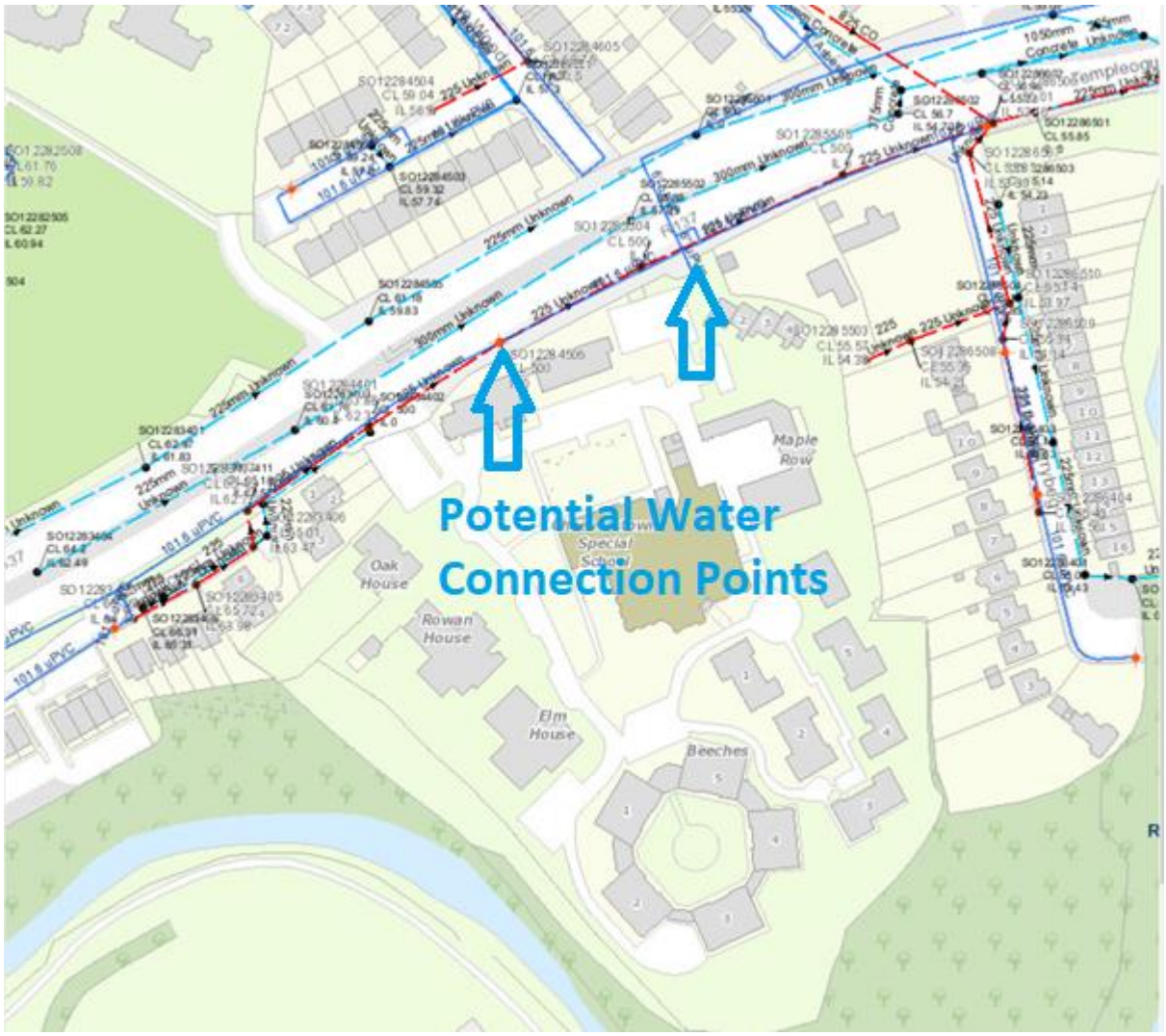
1.5 Existing Utilities

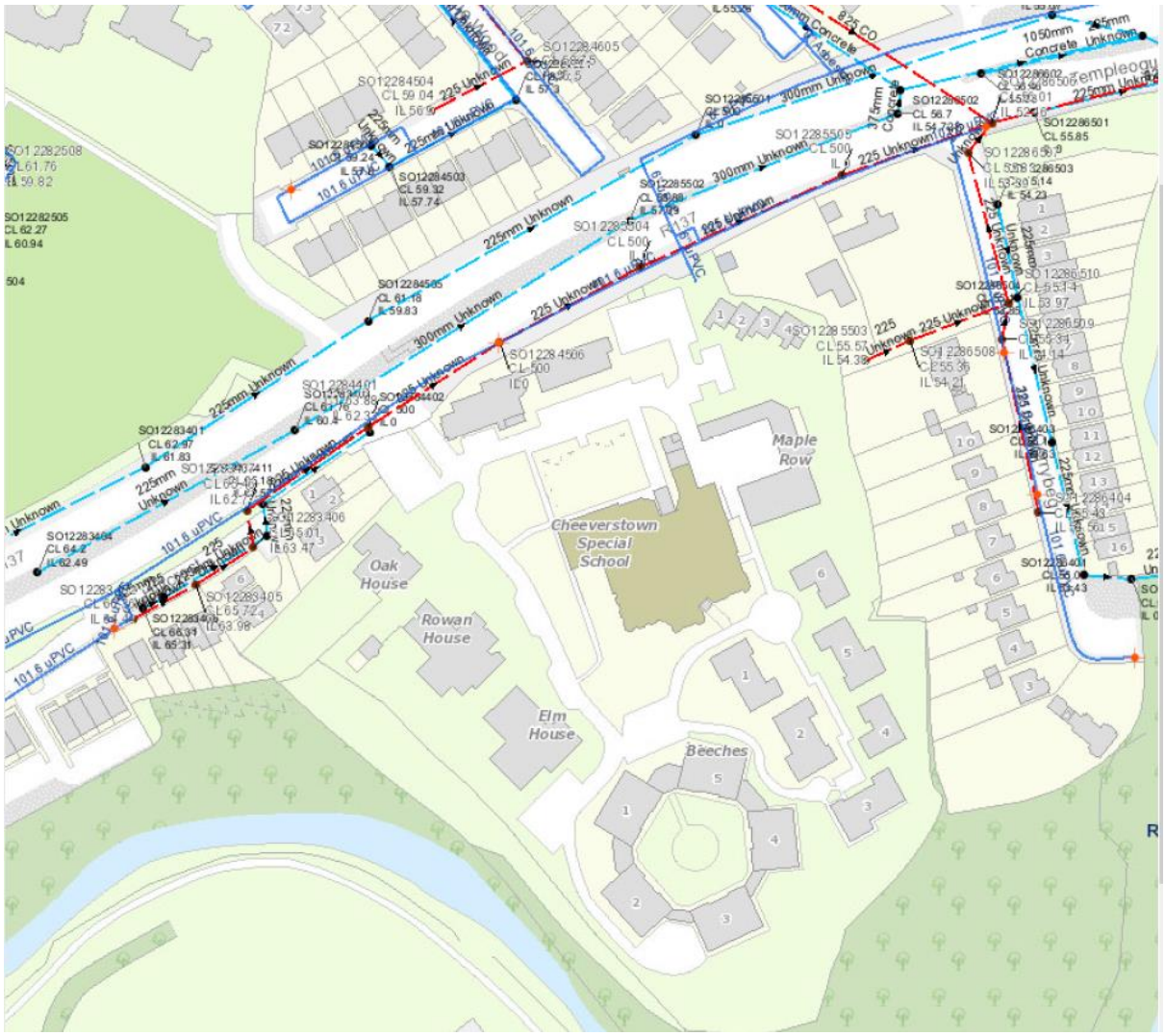
1.5.1 Mains Water

An existing 150mm water main pipe connects into the north west of the subject site to currently serve the site, there is also a separate 100mm watermain on Templeogue Road along site frontage traversing in an east-west direction.

A pre connection enquiry will be submitted to Irish Water to establish the feasibility of supplying the proposed development from the adjacent existing public water supply infrastructure once until numbers are finalised. It is envisaged that the existing 150mm diameter watermain will be able to provide the necessary water supply to the development. In this regard the main supply connection to the site would be located on the subject site to the north east.

A secondary back up connection could be provided to the existing water supply infrastructure along Templeogue Road to the north if required. Although this is only 100mm diameter it will provide a backup to ensure continuity of supply.


Potential Water
Connection Points
Maple
Row
Oak
House
Rowan
House
Elm
House
Beeches



Legend

Stormwater Gravity Mains (Irish Water Owned)
- Surface

Stormwater Gravity Mains (Non-Irish Water Owned)
- Surface

Storm Manholes
- Cascade
- Catchpit
- Hatchbox
- Lamphole
- Standard
- Other; Unknown

Storm Inlets
- Gully
- Standard
- Other; Unknown

Storm Fittings
- Vent/Col
- Other; Unknown

Storm Discharge Points
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Storm Culverts

Storm Clean Outs

Sewer Gravity Mains (Irish Water owned)
- Combined
- Foul
- Overflow
- Unknown

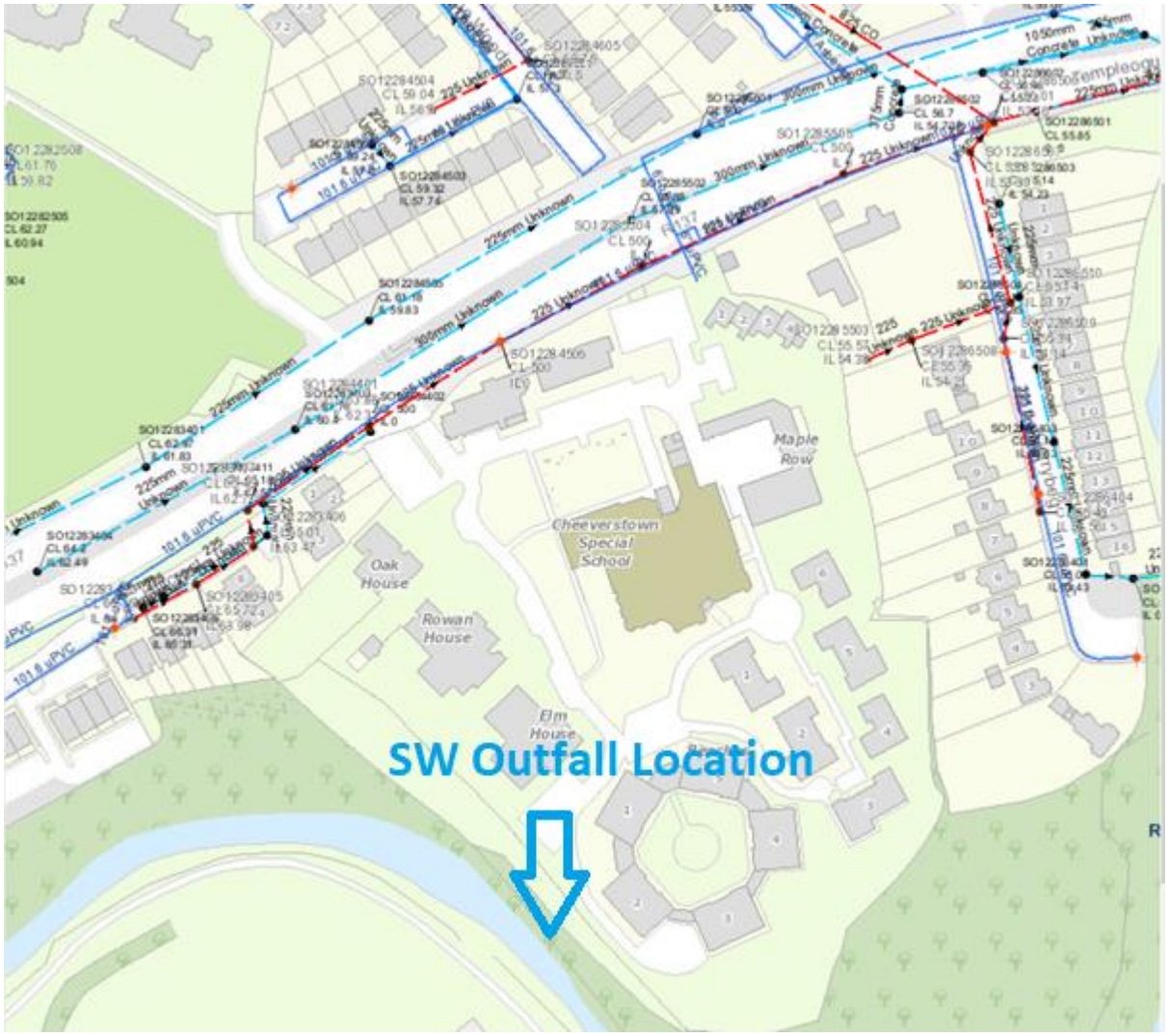
Sewer Gravity Mains (Non-Irish Water owned)
- Combined
- Foul
- Overflow
- Unknown

1.5.2 Surface Water

The site generally falls from north to south and drains naturally towards the Dodder River. The development of the subject site would need to provide a surface water drainage design that complies with the requirements of SuDs (sustainable urban drainage systems) together with the requirements of the GDSDS (Greater Dublin Strategic Drainage Study) Regional Drainage Policy, Volume 2 New Development.

Surface water drainage from the development of the subject site will discharge to the Dodder River. Surface water will be attenuated to restrict the runoff to the Dodder River to the equivalent of the existing agricultural runoff. The soil conditions on site are such that the allowable runoff from the site is expected to be 2.0 l/s/ha. The restriction on the outflow to the Dodder River will be achieved by means of a hydrobrake. Excess stormwater from the proposed development will be attenuated on site. In this regard underground storage will be provided for the excess stormwater arising from all storms up to a 1 in 30 year storm. Excess stormwater for storms in excess of 1 in 30 year up to 1 in 100 year will be stored in a landscaped grass depression suitable located within open space.

Other sustainable drainage measures such as permeable paving, filter drains, grass swales etc will be incorporated within the design.



The proposed surface water drainage system for this development will be designed as a sustainable urban drainage system and will use green roofs, permeable paving, filter drains, swales and storage tanks together with flow control device and petrol interceptor to:

- Treat runoff and remove pollutants to improve quality
- Restrict outflow and to control quantity

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.

A stormwater management or treatment train approach assures that runoff quantity and quality is addressed. The following objectives of the treatment train provide an integrated and balanced approach to help mitigate the changes in stormwater runoff 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 runoff;

2) Site Control: reduction in volume and rate of surface runoff, with some additional treatment provided; and

3) Regional Control: Interception of runoff downstream of all source and on-site controls to provide follow–up flow management and water quality treatment.

Green Roofs:

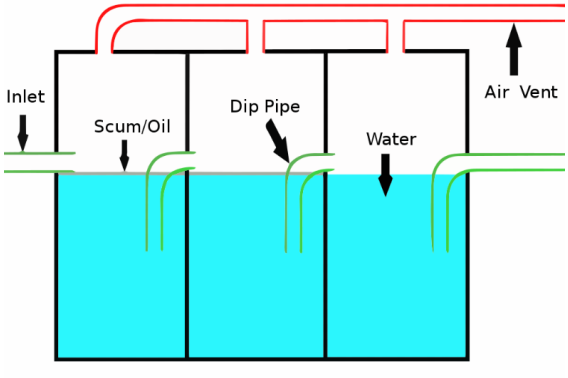
Green roofs are a multi-layered system that covers the roof of a building or podium structure with vegetation over a drainage layer. Green roofs are used to reduce the volume and rate of runoff from development roofs, and hence reduce the amount of hardstanding resulting from a development. It is proposed that green roofs be provided as part of the proposed development..

Storage Tank:

A hydrobrake on the outfall pipe from the development will restrict the discharge from the proposed development to greenfield runoff rate. Excess storm water will be stored in an underground storage tank. The storage tank proposed for this development will provide treatment to the storm water before it passes to the local network.

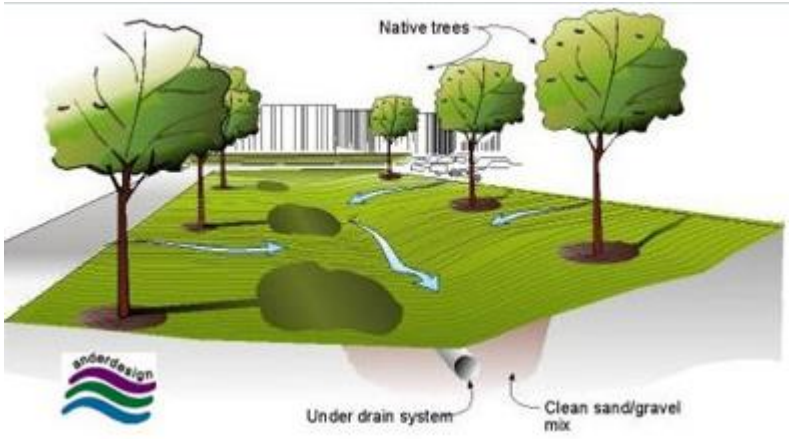
Petrol Interceptor:

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. Flows that bypass the separator will be very diluted as most pollutants would be washed down in the first flush of 5mm of rain.



Swales:

Swales are shallow, broad and vegetated channels designed to store and/or convey runoff and remove pollutants. They may be used as conveyance structures to pass the runoff to the next stage of the treatment train and can be designed to promote infiltration where soil and groundwater conditions allow.

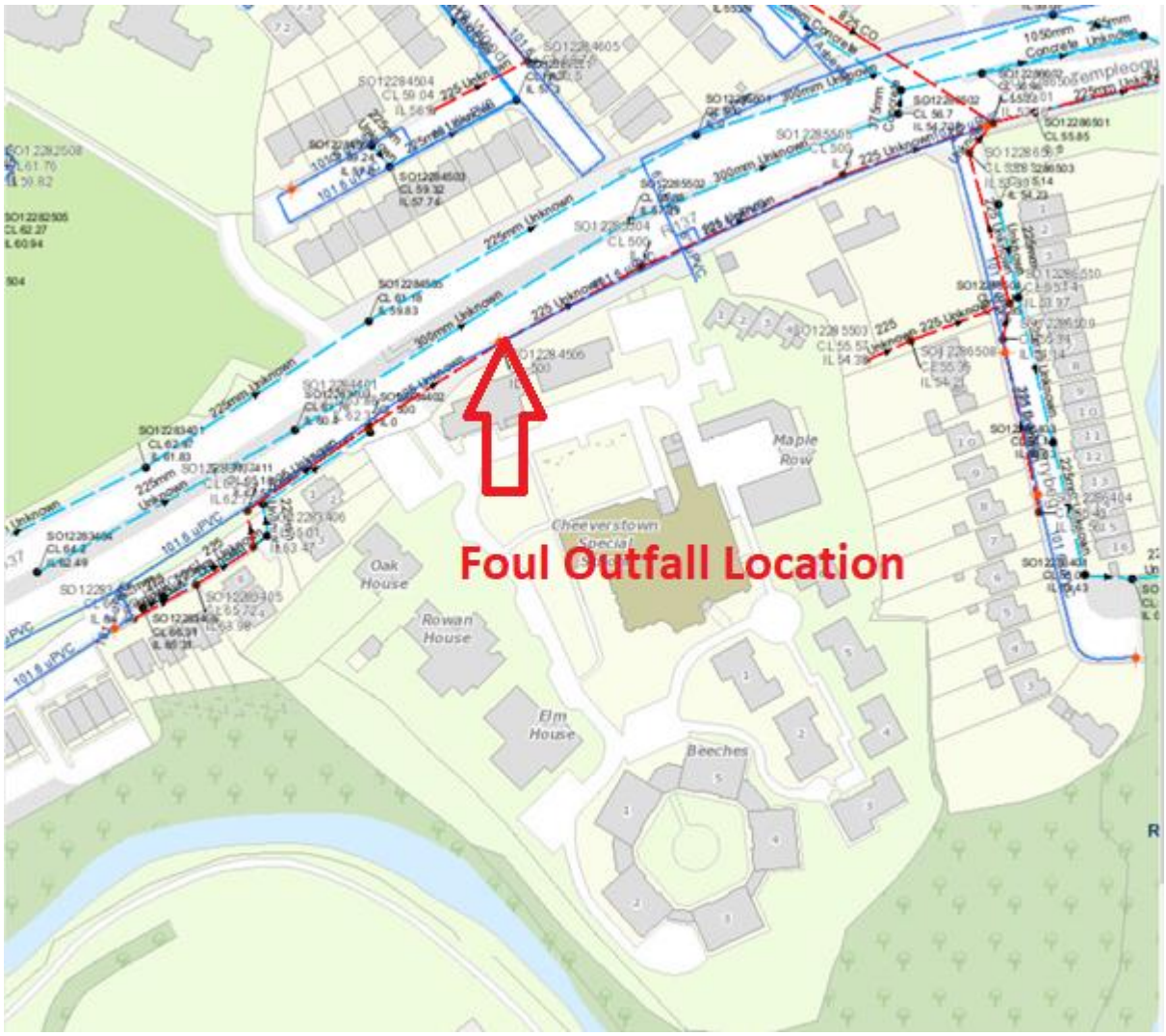


1.5.3 Foul Sewer

The subject site is currently served by a foul network with existing connection to the foul network along Templeogue Road to the north of the site. It is intended that any future development will be served from the 225mm diameter foul sewer.

Adjacent Residential properties at Corrybeg and Hillcrest are also serviced from this 225mm foul water sewer.

A pre connection enquiry will be submitted to Irish Water to establish the feasibility of supplying the proposed development from the adjacent existing public water supply infrastructure once until numbers are finalised. It is envisaged that the existing 225mm diameter foul sewer will be able to provide the necessary outfall to the development. In this regard the foul sewer connection to the site would be located on the subject site to the north. The connection will be by gravity if levels allow for same, if not a pump station will be provided at the low point on site and foul outfall pumped to a stand off manhole adjacent the connection point before outfalling by gravity.

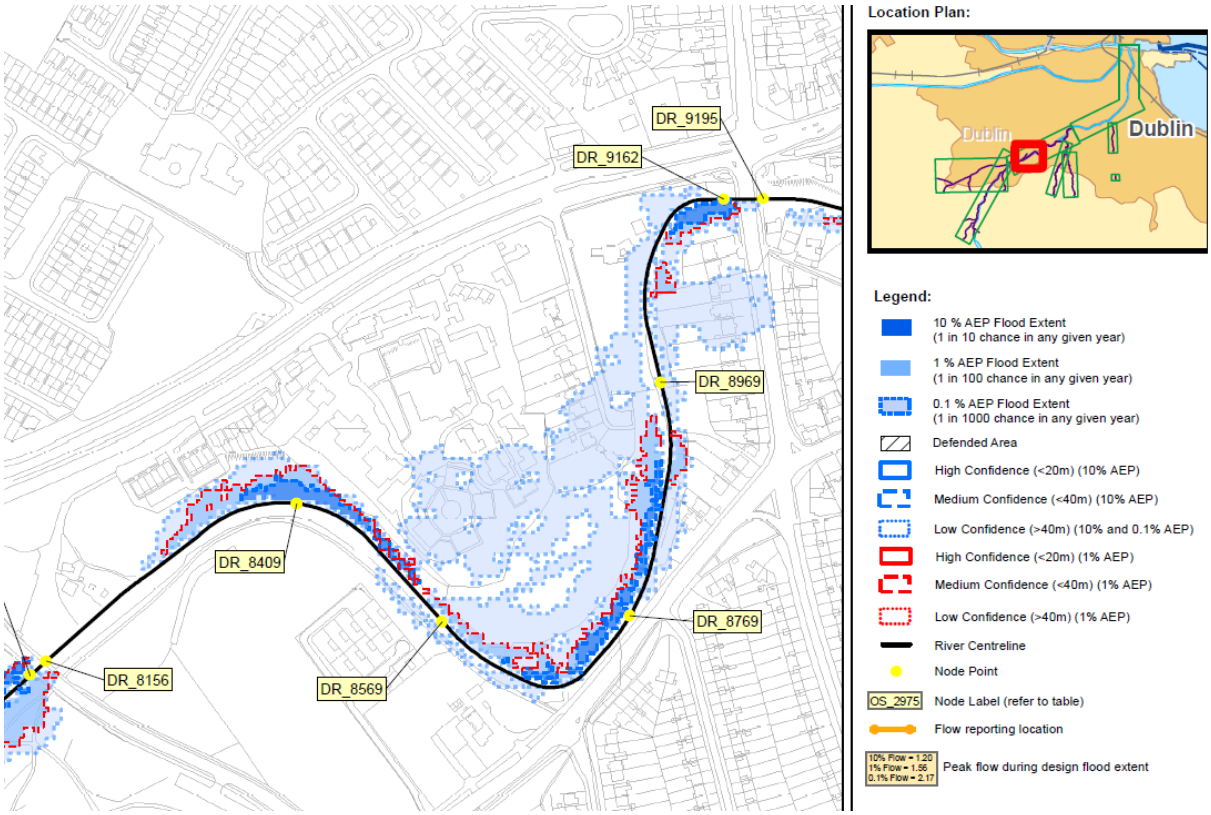


1.6 Flood Impact

OPW CFRAMS Maps

The proposed development is located adjacent to the Dodder River which is subject to flooding. The OPW CFRAMS flood maps have been developed to establish the extent of flooding which occurs during a 1 in 10, 1 in 100 and 1 in 1000 year flood event.

There is flooding shown on the subject site, the areas of site where flooding is shown will be used for open space areas with levels in these areas not to be altered. See extract from flood maps below:

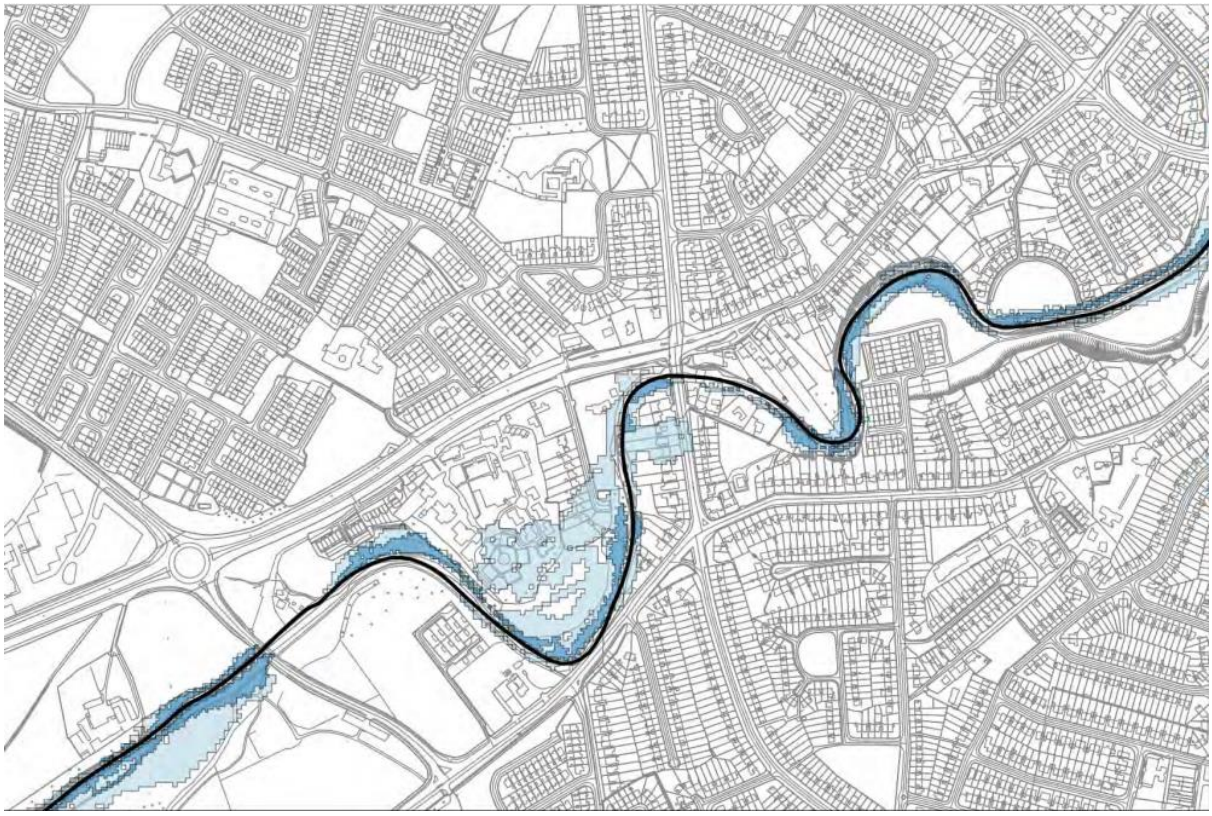


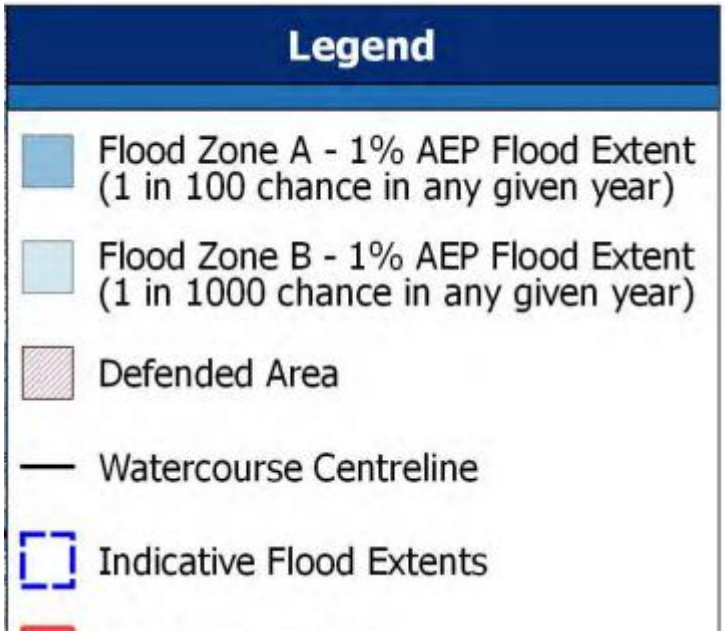
	Water Level (mOD) per AEP		
Node Label	WL 10%	WL 1%	WL 0.1%
DR-7219	63.58	64.54	65.43
DR-7284	63.31	64.28	65.17
DR-7499	62.39	63.26	64.23
DR-7769	60.77	61.59	62.33
DR-8029	59.02	59.76	60.63
DR-8138	58.43	59.21	59.95
DR-8156	58.32	59.15	59.85
DR-8409	56.74	57.33	58.16
DR-8569	55.81	56.59	57.48
DR-8769	54.60	55.33	56.24
DR-8969	53.06	53.74	54.62
DR-9195	51.57	52.20	52.93
DR-9162	52.09	52.60	53.38

There is 4 No. level nodes located immediately adjacent to the subject site. The 1 in 1000 year flood level immediately adjacent to the site ranges from 58.16m OD Malin to 54.62m OD Malin. Finished levels within the proposed development will be a minimum of 500mm above the nearest flood level from nodes and buildings will be outside of the flood areas defined in the image above.

SDCC Strategic Flood Risk Assessment Maps

The proposed development is located adjacent to the Dodder River which is subject to flooding. The SDCC Strategic Flood Risk Assessment Maps have been developed to establish the extent of flooding which occurs during a 1 in 10, 1 in 100 and 1 in 1000 year flood event. See extract from flood maps below:





This map reflects same as OPW CFRAM Map.

All surface water runoff from the subject site will be restricted to the equivalent of the existing agricultural runoff so there will be no additional flows added to the Dodder River, in fact there will be a reduction in flows as the subject site currently outfalls unrestricted. In this regard there will be no flooding impact downstream of the subject site as a result of the development of the site, there will actually be a benefit in terms of flows.

UK and Ireland Office Locations