
**PROPOSED RESIDENTIAL DEVELOPMENT AT
27 PATRICK STREET.**

DRAINAGE AND WATER SUPPLY

March 2022

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DRAINAGE AND WATER SUPPLY REPORT

**Nicholas O'Dwyer Ltd.,
Consulting Engineers,
Nutgrove Office Park,
Nutgrove Avenue,
Dublin 14.**

March 2022

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1. INTRODUCTION

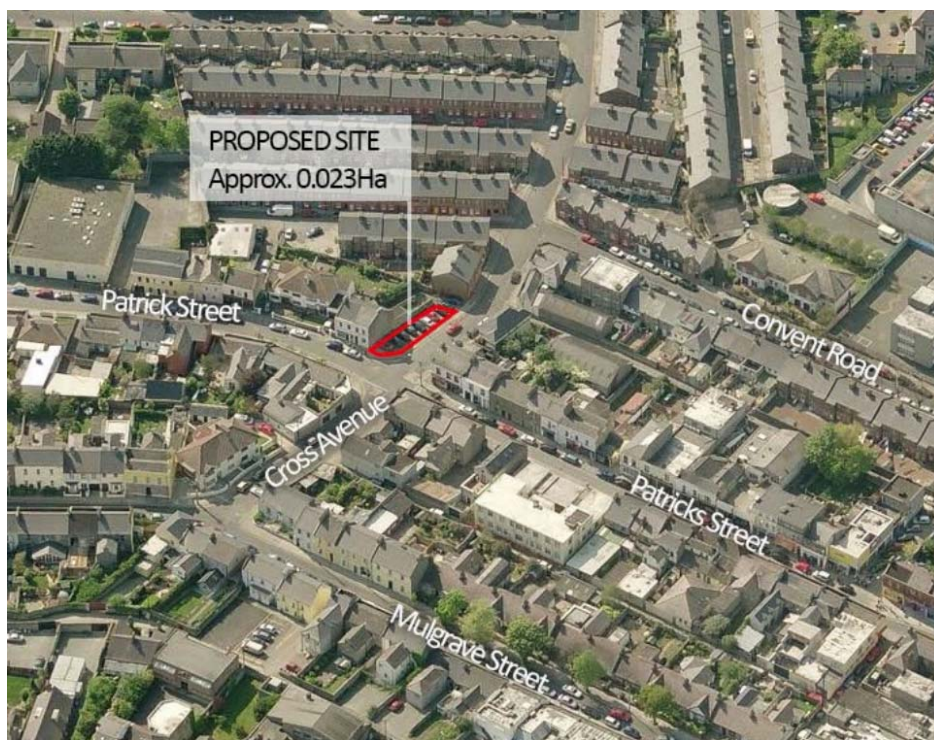
This report is to provide information on the design of the services for a new in-fill development of 4 housing units on a site at the junction of Cross avenue and Patrick Street, Dun Laoghaire

This report deals with the following aspects of the development:

- Surface Water Drainage
- Foul Water Drainage
- Water Demand

This report is to be read in conjunction with the following drawings:

| | |
|----------------------------|---------------------------------|
| 30429-NOD-01-XX-DR-C-08001 | Proposed Services Layout |
| 30429-NOD-01-XX-DR-C-08002 | STORM MANHOLE DETAILS |
| 30429-NOD-01-XX-DR-C-08003 | STANDARD STORM DRAINAGE DETAILS |
| 30429-NOD-01-XX-DR-C-08004 | FOUL MANHOLE DETAILS |
| 30429-NOD-01-XX-DR-C-08005 | FOUL DRAINAGE STANDARD DETAILS |

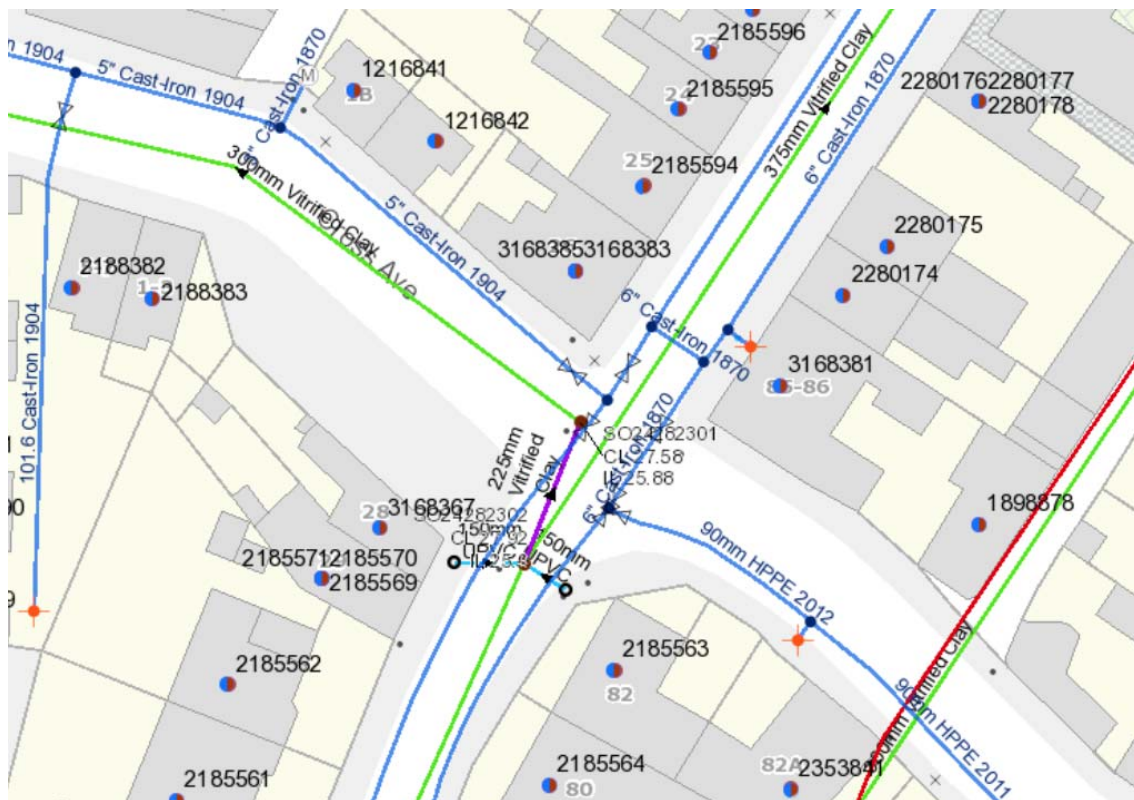


2. EXISTING SITE SERVICES

a. Existing Surface Water Drainage Network

The existing site is a carpark abutting Cross Avenue public road. There is currently no specific drainage system serving the carpark and it appears the surface water flows north across the footpath to gulleys along Cross Avenue.

There is a 300mm Vitrified Clay Combined Sewer pipe which flows westward along Cross Ave. There currently is no separated drainage system serving the site and all drainage discharges to the combined system.



b. Existing Foul Drainage Network

There is a 300mm Vitrified Clay Combined Sewer pipe which flows westward along Cross Ave, in addition to this there is a 375mm Vitrified Clay Combined Sewer pipe which flows northward along Patrick St. There currently is no separated drainage system serving the area and all foul drainage discharges to the combined system.

c. Water Supply

A public water main is available along the public roads, a 6" cast iron supply on Patrick St. and a 5" cast iron supply on Cross avenue.

2. SITE ASSESSMENT OF FLOOD RISK

The site has been reviewed in accordance with the Dun Laoghaire Rathdown County Development Plan 2016 -2022 and Appendix 13 Strategic Flood Risk Assessment to assess the location of the site and the potential of flooding occurring.

The site is not located in a flood risk area and therefore is in Zone C which is low risk probability of flooding.

In accordance with Appendix 13 of Dun Laoghaire Rathdown Development Plan an assessment has been carried out to determine the potential of local flooding in the site.

The proposed building footprint covers the entire site apart from 40sqm to the north west which is proposed to be finished in permeable paving. Any ponding that may occur along public roads adjoining the site are well served by road gulleys discharging to the combined drainage system. The natural fall along Patrick St is to the North and along Cross Avenue the fall is to West away from the Site, therefore any blockage in the street gully network near the site, surface water would flow along the kerbs away from the site. The building FFL will be 150mm above existing footpath level.

The existing 300mm combined sewer along Cross Avenue is currently at a depth of 1.8m approx below road level and the proposed building is at 28.0m approx, therefore the level difference provides adequate protection against surcharge within the Combined sewer.

3. SURFACE WATER DISCHARGE

a. Proposed Network

It is proposed to utilise the existing Combined sewer pipe system for the new proposed scheme. The current usage of the site is as a carpark with impermeable tarmac surfacing falling to the existing road gulleys, therefore it is envisaged that there will be no increase in SW runoff on completion of the development. It is proposed to implement a number of SUDS measures which will further reduce the proposed runoff from the site to the public drainage system.

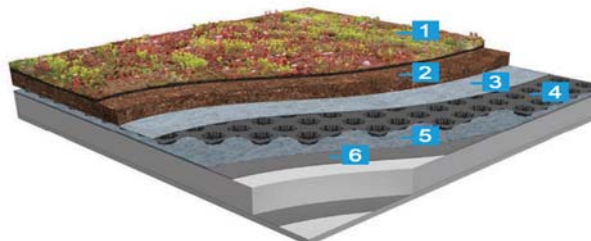
Roof drainage will be conveyed via rainwater downpipes to ground level where it will enter AJ's in the central courtyard and a new SW manhole before it enters the proposed foul manhole within the site, a single connection to the 300mm dia combined system on Cross Ave is proposed, See drawing "30429-NOD-01-XX-DR-C-08001" for details. This arrangement provides the option to separate the discharge flows from the site when/if the public system is separated. The remaining 40sqm to the north west of the building plot is proposed to be finished in permeable paving.

b. Sustainable Drainage Proposals

In accordance with the Greater Dublin Strategic Drainage Study (GSDSDS) and the Greater Dublin Regional Code of Practice for Drainage Works it is proposed to include a number of SUDS measures including the following:

Green Roof

To reduce the impact of surface water runoff within the development it is proposed to use sedum/ moss type green roof to the building. This is an intensive green roof with minimal growing medium depth. The roof area will have up to 60% of the surface with a sedum green roof.



Porous paving

The 40sqm hard landscaping area to the west of the development is designed with porous paving which will also utilise planar infiltration drainage through the stone sub-base below. Stone with a void ratio of 35% to 40% will be utilised for the subbase below the surfacing utilising the benefit of planar infiltration.

Rainwater harvesting

To reduce the impact of roof water runoff within the development it is proposed to include for Rainwater harvesting to be incorporated, if possible / practical.

4. FOUL WATER DISCHARGE

a. Proposed Network

It is proposed to collect the foul discharge from the units in the central entrance courtyard by a system of AJ's, which will then be directed to a new foul manhole within the curtilage of the site, a single connection to the existing 300mm combined sewer on Cross Avenue is proposed.

The existing 300mm combined sewer along Cross Avenue is currently at a depth of 1.8m approx below road level and the proposed building is at 28.0m approx, therefore the level difference provides adequate protection against surcharge within the Combined sewer.

Total foul water discharge is based on the following maximum population

| Type of Unit | Max Pop per unit | No of Units | Total PE |
|--------------|------------------|-------------|-----------|
| 2 bed Units | 4 | 1 | 4 |
| 1 bed Units | 2 | 3 | 6 |
| Total | | 4 | 10 |

Having a rate of 250l/pop/day over a 24-hour period the proposed maximum peak discharge from the site at 6 DWF will be **0.17 l/sec** and 0.03 l/sec averaged over a 24-hour period.

For layout and details of the proposed Foul Water drainage please refer to the drawings.

b. Consultations with Irish Water

To date there have been no consultations with Irish Water.

5. WATER SUPPLY

The proposed development of 4 units will be fed from the existing 5" watermains which is located along Cross avenue.

The water demand for the development is based on the following:

| | No. of Units | Required flow M3/hr (10x 250l/p/d) | Peak Usage (L/s) 3 x Ave | Avg Usage (L/s) |
|--------------|---------------------|---|---------------------------------|------------------------|
| Total | 4 | 0.1 m3/hr | 0.09 l/sec | 0.03l/sec |

The proposed watermain connections will all be installed in accordance with the Irish Water specification for developments.