LRD Development at Parklands Pointe

Infrastructure Design Report- Block CDE Amendment Application

220133-X-X-Z00-XXX-RP-DBFL-CE-0001

INFRASTRUCTURE

May 2024

DBFL CONSULTING ENGINEERS

Project Title:	**LRD Development at Parklands Pointe**		
Document Title:	**Infrastructure Design Report- Block CDE Amendment Application**		
File Ref:	**220133-X-X-Z00-XXX-RP-DBFL-CE-0001**		
Status:	**S4 Suitable for Stage Approval**	Rev:	**P03**

Rev.	Date	Description	Prepared	Reviewed	Approved
P01	11/12/2023	Issue for LRD Stage 2	Kabelo Mokoka	John Carr	Kevin Sturgeon
P02	10/05/2024	Draft for Planning	Kabelo Mokoka	John Carr	Kevin Sturgeon
P03	24/05/2024	Issue for Planning	Kabelo Mokoka	John Carr	Kevin Sturgeon

Contents

Figures

Tables

1 INTRODUCTION

1.1 Background

DBFL Consulting Engineers were commissioned by the applicant to provide engineering design services in support of an amendment planning application for Strategic Housing Development Blocks C, D and E at Fortunestown Lane & Garters Lane, Saggart. Dublin 24, Co. Dublin.

It is proposed to apply for planning permission to amend the scheme previously permitted under Reg. Ref. ABP-300563-19 (ABP-300555-18) which included 488 apartment units, public open spaces, creche, communal amenity spaces, private amenity spaces and parking/services.

1.2 Planning History

ABP-305563-19 (Parklands Phase 2): Granted for 10 years, this permission involves constructing residential and non-residential structures, with 488 apartments and commercial spaces. This is the parent permission proposed for amendment.

ABP-300555-18 (Parklands Phase 1): Granted for 526 dwelling units (459 terraced units and 67 duplex/apartments), along with parks, vehicular access, and pedestrian links. The Phase 1 application provided surface water attenuation and services which have been sized to accommodate the Phase 2 development. The Parklands Phase 1 development is under construction and nearing completion north of the current application site.Development Proposals

Refer to architects plans for detailed development description. A summary description relevant to engineering impacts provided below.

The proposed development under consideration is a Large-Scale Residential Development (LRD) and comprises of amendments to the permitted Blocks C, D and E within the permitted development Reg. Ref. ABP-305563-19. Blocks A and B remaining unchanged.

The proposed amendments to Blocks C, D and E comprise an enlarged basement, internal amendments to blocks and additional floors providing additional units. Site plan is largely unchanged with the exception of minor amendments to basement access position and surface landscaping & cycle parking.

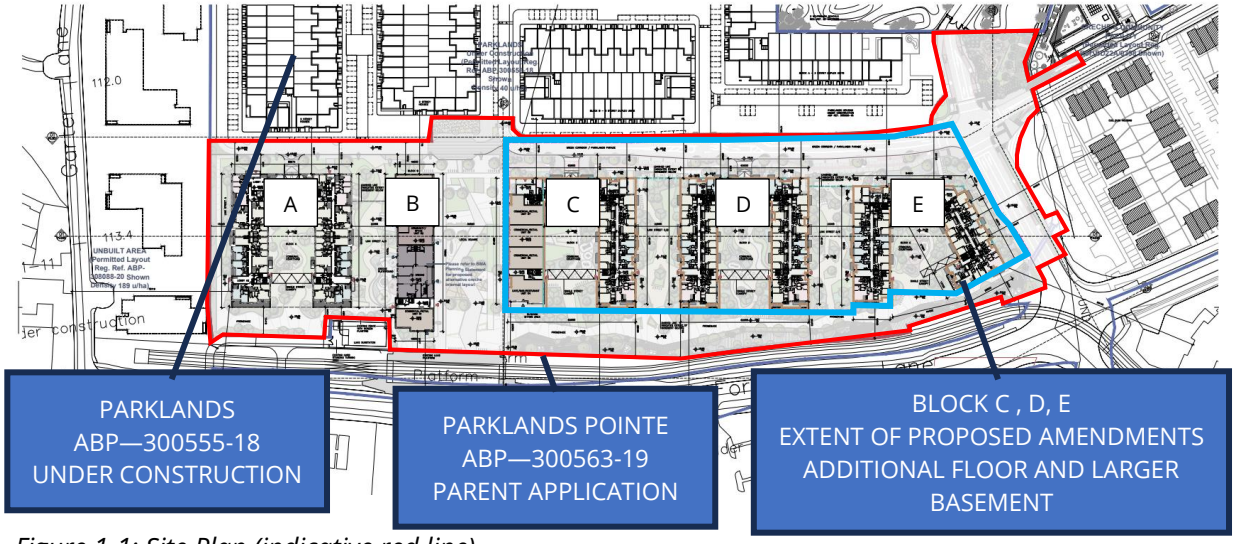


Figure 1-1: Site Plan (indicative red line)

Figure 1-2: Site location (indicative red line) [Source Bing maps]

1.3 Report Objectives

This report considers the impact of the proposed amendments to the subject site on the previously approved engineering details including the following;

- Road Layout/Site access.
- Surface water strategy and servicing.
- Foul sewer strategy and servicing.
- Water supply and servicing.
- Flood Risk.

1.4 Supporting Information

Detailed information relating to engineering aspects of the proposed development were included in the application for ABP-300563-19 and are largely unchanged by the proposed amendments. Particular documents to note are:

- Infrastructure Design Report (162073-REP-003)
- Flood Risk Assessment refer to JBA "Strategic Housing Development at Fortunestown Lane Flood Risk Assessment" (September 2019).

1.5 Existing Site

The subject site is located approximately 500m northeast of Saggart, Co. Dublin, in the neighbourhood of Saggart-Cooldown Commons, and within the jurisdiction of South Dublin County Council.

The site is currently a greenfield site and is approximately 3.3ha. It is bound to the North by Parklands Parade link road and Parklands residential development (Ref. ABP-300555-18) which is under construction. To the east by a road linking Fortunestown Lane with Citywest Avenue extension and Cuil Duin residential developments, to the south by Fortunestown Lane and the 'Red Line' LUAS and Saggart Luas Stop, and to the west by Garter Lane and a small pocket of undeveloped land (with permitted planning ref. ABP-308088-20/ SD22A/0357) in 3rd party ownership. Refer to Figure 1-2.

The site generally slopes in a south to north direction between approximately 116 and 114 mOD and currently comprises disturbed ground and site compound from Parklands Phase 1 construction works.

2 Roads and Access

2.1 Overall Road and Access Layout

The proposed amendments do not affect access measures to or from the site. The previously approved access plan remains unchanged, with the subject site accessed via Parklands Parade to the north which includes pedestrian and cycle facilities, which have been constructed under ref. ABP-300555-18.

The permitted planning provides on-street parking, in the form of parallel parking for retail units and proposed car club, as well as pedestrian and cycle network. It also includes a "Plaza" area between Blocks "B" and "C", providing a dedicated pedestrian/bicycle connection to Saggart LUAS Stop. These remain in place and unchanged.

It is proposed to have two entrances to the basement of Blocks C, D, and E. Block D's basement entrance has been shifted east by approx. 8m from the parent permission, and accordingly minor localized changes are proposed to the previously proposed road markings and signs. The basement access at Block C and all other pedestrian access points remain the same as previously permitted.

Refer to DBFL drawing 220133-X-04-Z00-DTM-DR-DBFL-CE-1201 for the location of vehicular access and associated infrastructure.

The road layout is designed in accordance with the recommendations of the Design Manual for Urban Roads and Streets (DMURS).

2.2 Sightlines & Speed Limit

The proposed amendments do not affect the previously permitted speed limit along Parklands Parade (Green Link) which remains at 30km/hr. Sightlines for the proposed vehicular entrance at Block-D are 2.4m x 24m as per the Design Manual for Urban Roads and Streets (DMURS) for a 30kmph speed limit.

2.3 Parking Management

The proposed amendments result in an increase in car parking spaces, to a total of 342 spaces These include 10 no. surface level parking spaces of which 2 no. are car club spaces previously permitted which remain unchanged. All additional parking spaces are provided within the proposed enlarged basement of Blocks C, D and E. bringing the total to 332 parking spaces.

A total of 962 no. bicycle parking spaces are proposed for Blocks C, D,& E. This include 748 no. long stay cycling parking spaces which are provided at basement level with within Blocks C, D and E. A total of 214 no. residential short stay spaces are provided at surface level adjacent to block C, D and E and 18 no. surface level cycle parking is provided for retail and café space. Provision of 6 No. Cargo Bike are provided at surface level for the development.

More information on parking management is detailed in a separate Traffic and Transport Assessment submitted with this report.

2.4 Waste Management

All waste bins will be transported from basement bin stores to the basement entrance at Blocks B and C, where suitable bin collection areas are present along Parklands Parade. Kerbside collection will be conducted by the refuse vehicles at these specified locations. Please refer to the figures below for the demarcated areas.

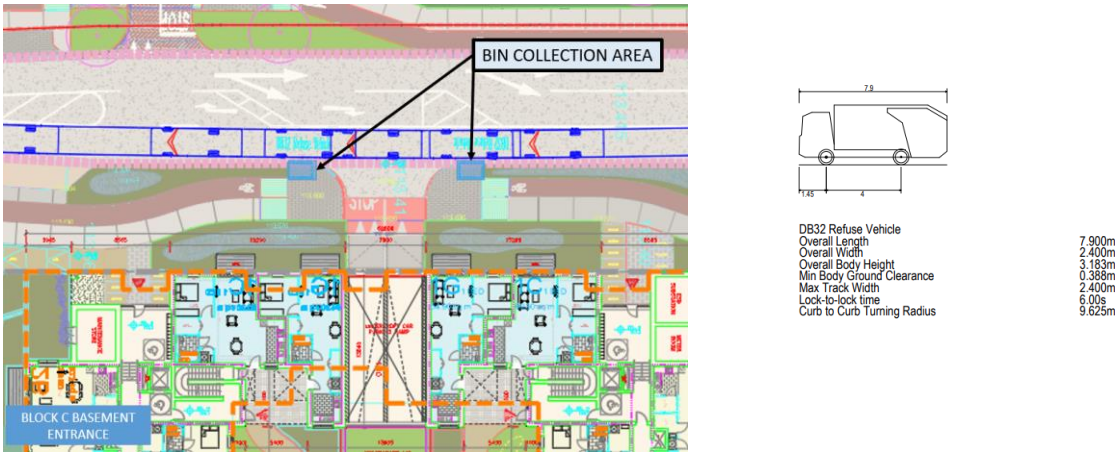


Figure 2-1: Bin collection located at the Basement entrance of Block C

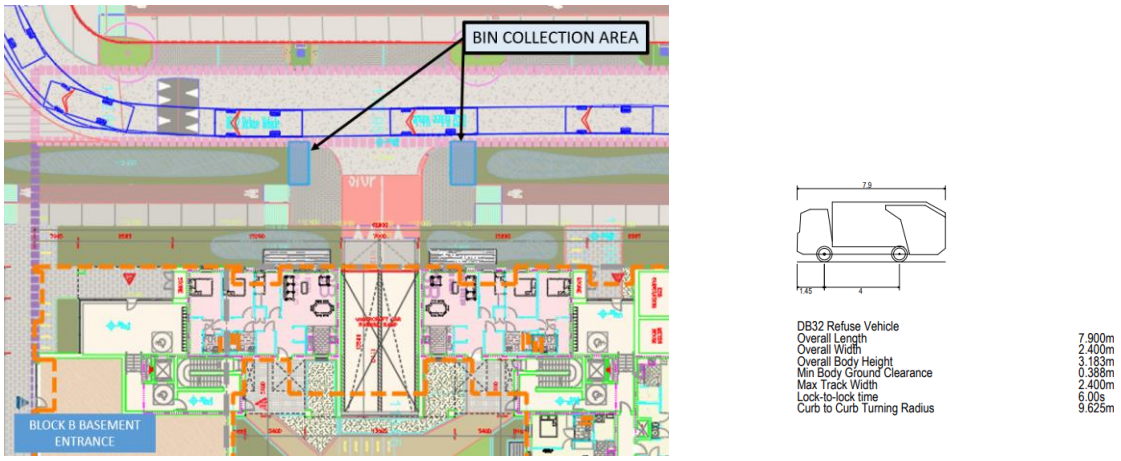


Figure 2-2: Bin collection located at the Basement entrance of Block B

2.5 Traffic & Transportation

A separate Traffic and Transport Assessment (TTA) report prepared by DBFL Consulting Engineers is included in the overall planning application pack which includes all relevant Transport data relating to the project, including background information on:

- Current Access to the Local Area
- Pedestrian and Cycling facilities along roads leading to the subject site
- Public Transport Provision in Citywest and near the site
- Proposed Roads, Cycling and Public Transport Infrastructure

The TTA also outlines relevant policy documents that guide the design of the traffic and transportation network of the proposed development. Changes in development standards since the parent planning permission are reflected in the proposed amendments to Blocks C, D & E, with higher cycle parking provision.

3 Surface Water Management

3.1 Strategy

In general the proposed amendments do not alter the site plan or surface water strategy from the permitted development. Nonetheless a number of additional Sustainable Urban Drainage Systems (SUDs) measures have been incorporated into the revised design as detailed in the following sections. Additionally, the proposed planning amendment seeks to reduce the extent of impermeable surfaces within the subject site compared to what is currently permitted under the parent permission.

The previously approved surface water drainage strategy for the subject site remains unchanged. The site is drained via SuDS principles with all roofs and podium decks covered with permeable green roof buildup / permeable landscaping. The limited site area which does not have building coverage, has collection drainage which routes runoff to the trunk drainage discharging to existing open SuDS Basins. All runoff collected from the subject site directed to the Parklands Phase 1 trunk drainage network where the runoff is attenuated in open SuDS basins and discharged at greenfield rates to the existing Vershoyles stream at the northern-east boundary of the development, refer to Figure 3-2.

The surface water storage for the subject site is accommodated in two open surface water detention basins A and B in located within the district park area (Parklands phase 1). These are designed to store runoff from 1 in 100 year storm event for both Phase 1(ABP-300555-18) and Phase 2 (ABP-305563-19) developments. Surface water runoff from both developments is be attenuated to greenfield runoff (Qbar), with surface water flows in excess of this stored in the detention basins. These basins are constructed and operational – see Figure 3-1/Figure 3-4

Figure 3-1: Existing Open SuDS Basins which receive site run-off,

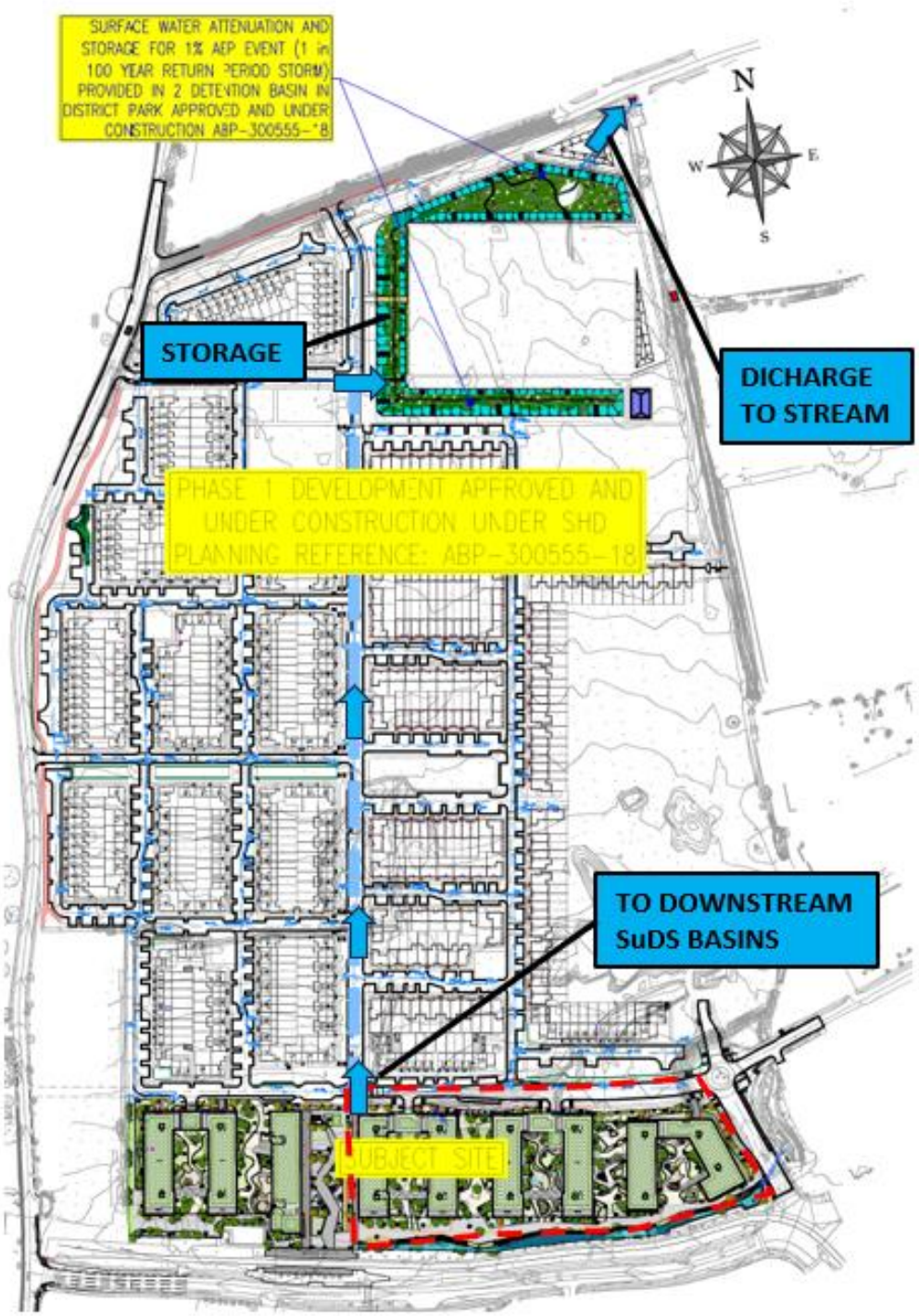


Figure 3-2: Overview of Stormwater drainage Conveyance Plan

3.2 Compliance with Surface Water Policy

Surface water management for the proposed development is designed to comply with the Greater Dublin Strategic Drainage Study (GDSDS) policies and guidelines and the requirements of South Dublin County Council. The guidelines require the following main 4 main criteria to be provided by the development's surface water design;

- Criterion 1: River Water Quality Protection – satisfied by providing interception storage, treatment of run-off within the SUDS features e.g. within the on-line swale detention basin at upper level and the lower level detention basin and petrol interceptor on the main surface water discharge from the development.
- Criterion 2: River Regime Protection – satisfied by attenuating run-off with flow control devices prior to discharge to the outfall.
- Criterion 3: Level of Service (flooding) for the site – satisfied by the Site being outside the 1000 year coastal and fluvial flood levels following proposed mitigation measures. (Refer to Flood Risk assessment by JBA Consulting included under separate cover). Pluvial flood risk addressed by development designed to accommodate a 100 year storm as per GDSDS. Planned flood routing for storms greater than 100 year level considered in design and development run-off contained within site. All roadways fall towards open space areas and in particular to the district park in the north east corner of the site.
- Criterion 4: River flood protection – attenuation provided within the SUDS features e.g. on-line attenuation basins.

3.3 Surface Water Drainage Design Standards

The proposed amendments do not affect the site plan from what is permitted under the parent permission however the extent of hard surfacing has been reduced in favor of soft landscape.

The mean annual catchment runoff from the site (Q_{bar}) remains the same as previous approved planning applications and was calculated using the Institute of Hydrology equation.

All calculations are unchanged from previous planning permission since there is no change to site layout or surface water strategy, with the following parameters applied:

- Return period for pipe network 2 years,
    - check 30-year 15 minute, no flooding;
    - check 100-year flooding in designated areas;
- Time of entry 4 minutes
- Pipe Friction (Ks) (concrete) 0.6 mm
- Minimum Velocity 1.0 m/s
- Standard Average Annual Rainfall 830mm
- M5-60 18.3mm
- Ratio r (M5-60/M5-2D) 0.267
- Storage System Storm Return Event GDSDS Volume 2, p61, Criterion 3
    - 10-year no flooding on site
    - 30-year no flooding on site
    - 100-year check no internal property flooding. Flood routing plan. FFL + 500mm freeboard above 100-year flood level. No flooding to adjacent areas.
- Climate Change 10%

3.4 Impermeable Areas

The SuDs basins were originally sized and permitted in Phase 1 using an estimated impermeable area of 2.65ha from the Phase 2 lands.

IMPERMEABLE AREAS	ha
Roofs	3.46
Roads	1.73
Paths	1.15
Cyclepath	0.25
Car Parking	0.77
Open Space	1.12
Estimated Impermeable Area from Phase 2 Site (subject to future design and separate future planning application)	2.65
Total	**11.13**

Table 3-1: Extract from Area Table in DBFL IDR approved under ABP300555-18

The subsequent Phase 2 application detailed the actual impermeable areas for the site. this was found to be 2.597ha and therefore was within the allowance made. For reference a summary of impermeable areas previously provided and approved via the parent permissions is presented below

SURFACE TYPE	GROSS IMPERMEABLE AREA (ha)	RUNOFF CO-EFFICIENT	FACTORED IMPERMEABLE AREA (ha)
Total Phase 2	**3.282**		**2.597**

Table 3-2: Extract from Area Table in DBFL IDR approved under 305563-19

The proposed amendments further reduce the impermeable areas from what is permitted under the parent permissions. A total factored impermeable area of 2.38ha is now proposed.

The proposed factored impermeable area of 2.449ha proposed, is substantially (>7.5%) lower than the allowance made in the design of the existing SuDS basins (2.65ha) ensuring no change is required the existing SuDs Basins.

IMPERMEABLE AREAS	**GROSS AREA (ha)**	**IMPERMEABILITYFACTOR**	**RUNOFF AREA (ha)**
Apartments - Portion with "Green Roofs"	0.714	0.750	0.535
Apartments - Portion with Traditional Roof	0.461	1.000	0.461
Canopys	0.029	1.000	0.029
Podium Deck ("Intensive green roof")	0.650	0.750	0.488
Paths to traditional drainage	0.463	1.000	0.463
Paths to Suds	0.250	0.500	0.125
Bioretention Area	0.050	0.300	0.015
Open Space	0.722	0.460	0.332
Total Phase 2	**3.340**	**0.746**	**2.449**

Table 3-3: Proposed development runoff areas

3.5 Surface Water Attenuation

Surface water runoff from the Parklands Phase 1 and the subject site (Phase 2) development will be stored in two existing SuDS basins in the district park in the north east corner of the Phase 1 lands (see Figure 3-4). **Surface water attenuation is provided entirely via Nature Based Solutions with no underground tanks proposed.** The total storage volume provided in both detention basins is 5519m^3 with the basins sized for the Phase1 development and the proposed Phase 2 development (subject site). This arrangement is approved under ABP-300555-18 SHD and is unchanged by the proposed amendments.

3.6 Climate Change

Surface water calculations for the development use rainfall values for the site provided by Met Eireann. Rainfall intensities were increased by a factor of 10% to allow for climate change, as required by the GDSDS for surface water drainage design.

3.7 Interception Volume

To prevent pollutants or sediments from discharging into water courses the GDSDS requires "interception storage" to be incorporated into the development.

Substantial interception storage is provided on the subject site, all buildings have primarily green roof/green podium surfaces which incorporate drainage boards and landscape buildup to provide interception storage. Additionally permeable paving and number of Bioretention areas/Bioretention swales are provided within the site to provide further interception of runoff.

The total on-site storage capacity has been significantly increased to 352.5m^3 through the implementation of Sustainable Urban Drainage Systems (SUDs). This enhanced capacity plays a crucial role in effectively intercepting and managing surface water runoff on the site. Below is a detailed breakdown of the storage distribution:

- Green Roof;
  - Area = 7139m2
  - Storage in Green Roof = 10 litres per sqm – drainage board;
  - Volume = 71.39 m3

- Podium Deck (Intensive Green Roof);
  - Area = 6595m2
  - Storage in Green Roof = 10 litres per sqm – drainage board;
  - Volume = 65.95 m3

- Permeable Paving = 536m2

- Stone layer 400mm deep;
- Void Ratio = 30%
- Storage = 64.32m3

- Bioretention swales
  - Area = 190m2
  - Stone layer 1000mm
  - Void ratio = 30%
  - Volume= 57m3

- Bioretention areas
  - Area = 312.91m2
  - Stone layer 1000mm
  - Void ratio = 30%
  - Volume=93.87m3

3.8 SUDs

In accordance with the GDSDS it is proposed to use Sustainable Urban Drainage systems (SUDS) for managing storm water for the proposed development. The Suds measures of the development remain unchanged and consist of green roofs and permeable paving and a "drainage layer" under the green podium deck, refer to Figure 3-3. The proposed amendments which are the subject of this application also add additional Suds in the form of Bioretention Swales collecting path/cycleway runoff and bioretention areas

The aim of the SUDS strategy for the site was to:

- Attenuate storm-water runoff
- Reduce storm-water runoff.
- Reduce pollution impact.
- Replicate the natural characteristics of rainfall-runoff for the site.

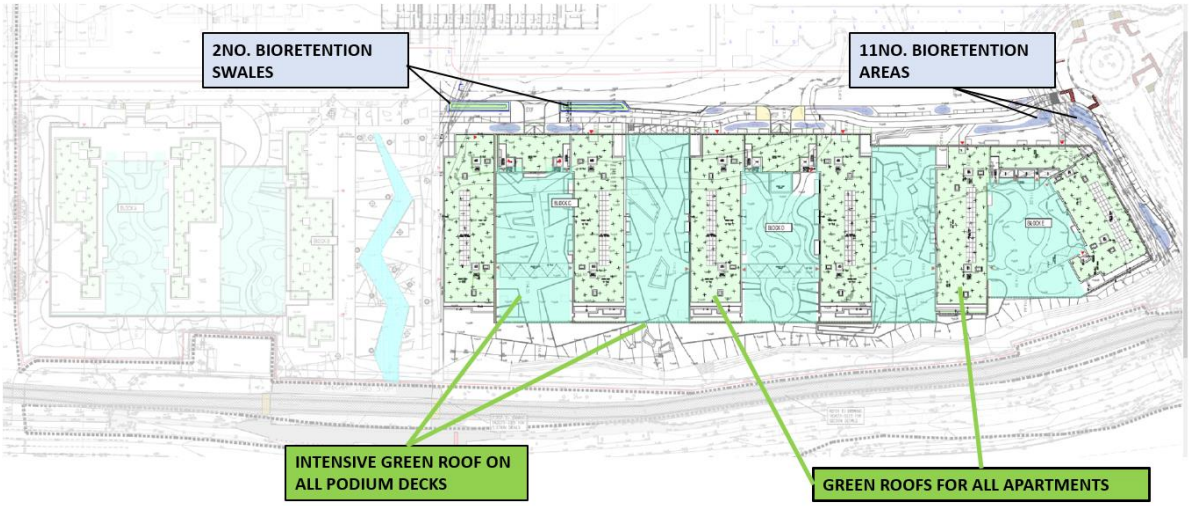
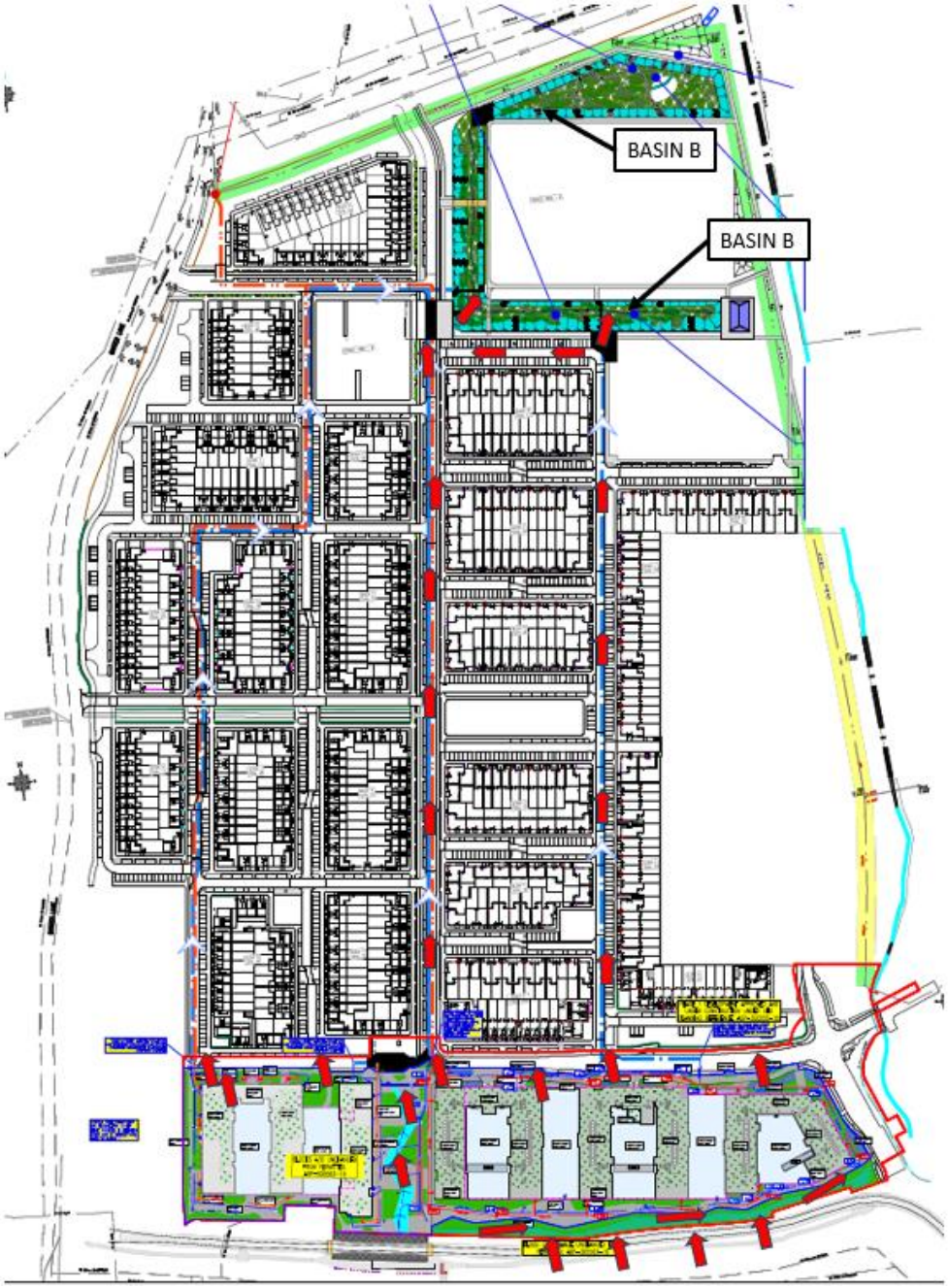


Figure 3-3: Overview of SUDs measures

Figure 3-4: Existing Open SuDS Basins which receive site run-off, Permitted under ref ABP 300555-18

3.9 Exceedance/Blockage Flow Analysis

In the extremely unlikely event of exceedance/Blockage of the drainage system causing surface flows. Flow would be directed by topography towards the north, flows would be contained within the existing Parklands Phase 1 road corridors and be directed toward the open SuDS basin in the lowest point of the site from where flows could be stored or pass into the adjacent Vershoyles Stream.



4 Foul Sewerage

4.1 Foul Discharge Strategy

The proposed amendments will slightly increase foul loading of the subject site as a result of additional units added via additional floors. However, there is no requirement for additional service connections or modifications to the already permitted foul sewerage network as sufficient capacity is in place.

The foul sewerage strategy discharges the development by gravity northwards through the Parklands Phase 1 network. Proposed connection points Northwest and North of the subject site discharged foul sewer into 225mm diameter foul sewer which runs north through Parklands Phase 1 and connects to an existing 450mm DIA foul sewer at an existing manhole at the northwest corner of Parklands Phase site. This foul sewer which is in the ownership of the applicant and was constructed under planning reference SD06A/0348.

4.2 Proposed Foul Drains and Sewers

It is proposed that foul discharge from Block C, D and E will drain by gravity via initial private building drainage and connect to the Irish Water 225mm diameter foul sewer within the site via a backdrop manhole detail, refer to DBFL drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1301

Private foul drains for the development are designed in accordance with the Building Regulations. The foul connection to the Irish water sewer is designed in accordance with the Irish Water code of practice and standard details.

4.3 Foul Loading

The proposed amendments will slightly increase foul loading of the subject site as a result of additional units added via additional floors. These proposed amendments will result in an equivalent increase in total average daily foul flow loading from 1.88l/s to 2.38l/s, or approximately 26.5%. Total predicted Development Peak foul flows are estimated to increase from 5.86 l/s to 7.39 l/s, refer to table below Table 4-1.

This additional loading/flow is easily accommodated by the existing 225mm diameter foul sewer (capacity 40.94/s) and the 450mm diameter Irish Water foul sewer (capacity 121l/s) into which the wider Parklands development discharges.

A confirmation of feasibility from Irish Water was provided with the permitted parent permission. A pre connection enquiry reflecting the increased units has been made to Irish Water and a Confirmation of Feasibility is provided in Appendix A :.

						Proposed	Permitted
Mixed USE - PREDICTED DEVELOPMENT FOUL FLOWS							**Permitted**
Unit Type	**No.**	**Occupancy**	**Occupancy**	**Loading**	**Daily Loading**	**Daily Loading**	**Daily loading**
		person/unit	**no.**	**l/person/day**	**l/day**	**l/s**	**l/s**
Residental Houses	396	2.7	1,069	150	160,380	1.86	1.45
					Residential Daily Loading	**1.86**	1.45
					Growth Factor @ %(as CoP App B 2.2.3)	0.19	0.15
					Infiltration @ % (as CoP App B 2.2.4)	0.19	0.15
					Residential Peak Factor (as CoP App B 2.2.5)		
					Dry Weather Flow l/s	**2.23**	1.74
					Design Foul Flow l/s	**6.68**	5.23
Unit Type	**Floor area (m^2)**	**m^2/person**	**no.**	**l/person/day**	**l/day**	**l/s**	**l/s**
Retail	555	18	31	25	771	0.02	0.12
Café / restarunt4	197	5	39	100	3,940	0.11	
					Non - Residential Daily Loading	**0.13**	0.12
					Growth Factor @ %(as CoP App B 2.2.3)	0.01	0.01
					Infiltration @ % (as CoP App B 2.2.4)	0.01	0.01
					Commercial Peak Factor (as CoP App B 2.2.7)		
					Dry Weather Flow l/s	**0.16**	0.14
					Design Foul Flow l/s	**0.71**	0.63
					TOTAL PREDICTED DEVELOPMENT AVERAGE FOUL FLOWS l/s	**2.38**	1.88
					TOTAL PREDICTED DEVELOPMENT PEAK FOUL FLOWS l/s	**7.39**	5.86
***Flow rates calculated using IW CoP for Wastewater Infrastructure Appendix C**							

Table 4-1: Estimated foul loading comparison for Blocks C, D& E (Proposed v Permitted)

5 Water Supply

5.1 Water Distribution Strategy

The proposed amendments will slightly increase water demand. However, there is no requirement for additional service connections or modifications to the already permitted water distribution network. The water supply and firefighting strategies remain unchanged from the previously approved.

As per previously permitted planning, water supply to the subject site will be provided through a connection to Irish Water 225mm diameter PE100 watermain on Parklands Parade opposite the proposed site.

It is proposed to connect the development to the public watermain situated along Parklands Parade with 225mm diameter PE100 SDR17 watermain via standard connection as per Irish Water standard detail STD-W-06 with a bulk meter and sluice valve provided at the rear of the public footpath in accordance with Irish water standard details, refer to DBFL drawing 220133-X-93-Z00-DTM-DR-DBFL-CE-1311.

A confirmation of feasibility from Irish Water was provided with the permitted parent permission. A pre connection enquiry reflecting the increased units has been made to Irish Water and a Confirmation of Feasibility is provided in Appendix A :.

5.2 Water Demand

The development proposals will result in a slight increase in water demand over the previously permitted design. The previous total daily average demand was 1.94l/s based 24-hour demand from 310 residential units and a 10-hour demand from retail commercial (7080m^2) and Café restaurant(188m^2) amenities at occupancy rate of 18m^2 and 5m^2 and consumption rates of 25 and 100 l/person/day respectively.

In Table 5-1, it is shown that the proposed daily average demand has increased from 1.94l/s to 1.99l/s, the average day peak week water demand has increased from 2.42l/s to 2.48l/s, and the peak hour water demand has increased from 12.11l/s to 12.42l/s. It is estimated that the total daily water demand for the proposed development will be approximately 171.9m^3/day, up from the previous estimate of 167.616m^3/day.

						Proposed	Permitted
Mixed Use Development - WATER DEMAND							
Unit Type	No. Dwellings	Occupancy person/unit	Occupancy	Per Capita Consumption l/Person/day	Average Daily Domestic Demand l/day	Average Daily Domestic Demand l/s	Permitted Daily loading l/s
Residental Houses	396	2.7	1,069	150	160,380	1.86	1.45
Residential Daily Demand					160,380	1.86	1.45
Average day/Peak Week Demand					1.25	2.32	1.82
Average day/ Peak Daily Demand					5.00	11.60	9.08
Unit Type	Floor area (m^2)	m^2/person	no.	l/person/day	l/day	l/s	l/s
Retail	555	18	31	25	771	0.02	0.02
Café / restarunt4	197	5	39	100	3,940	0.11	0.11
Non - Residential Daily Demand					4,711	0.13	0.13
Average day/Peak Week Demand					1.25	0.16	0.16
Average day/ Peak hour Demand					5.00	0.82	0.82
*Flow rates calculated using IW CoP for Water Infrastructure							
TOTAL AVERAGE DAILY DEMAND l/s						1.99	1.58
AVERAGE DAY/PEAK WEEK DEMAND l/s						2.48	1.98
PEAK HOUR WATER DEMAND l/s						12.42	9.90
*Flow rates calculated using IW CoP for Wastewater Infrastructure Appendix D							

Table 5-1:Estimated water demand comparison for Blocks C, D& E (Proposed v Permitted)

6 Flood Risk

A Site Specific Flood Risk Assessment was undertaken by JBA Consulting in 2019 for the parent permission ABP-305563-19.

The proposed amendments which are the subject of this application involve increased basement extents and additional floors and do not affect flood risk or the mitigation measures proposed in the report. Nonetheless, a "Flood Risk Assessment Technical Note" is provided with this application under a separate cover to address updates in the interim and queries raised in LRD Opinion.

6.1 Flood Risk Assessment Summary

A summary of flood risk findings from the Flood Risk Assessment are presented below for information. Refer to the "Flood Risk Assessment Technical Note provided under a separate cover for full details.

The assessment identified that as per the OPW Eastern Catchment Flooding Risk Assessment and Management (CFRAM) mapping, the main cause of flooding was from overland flows from the Corbally/ Vershoyles Stream south of the site, crossing the Luas line and passing along existing roads and open space in a northerly direction. The flood depths occurring onsite for both the 1% and 0.1% AEP events were shallow and generally less than 0.25m.

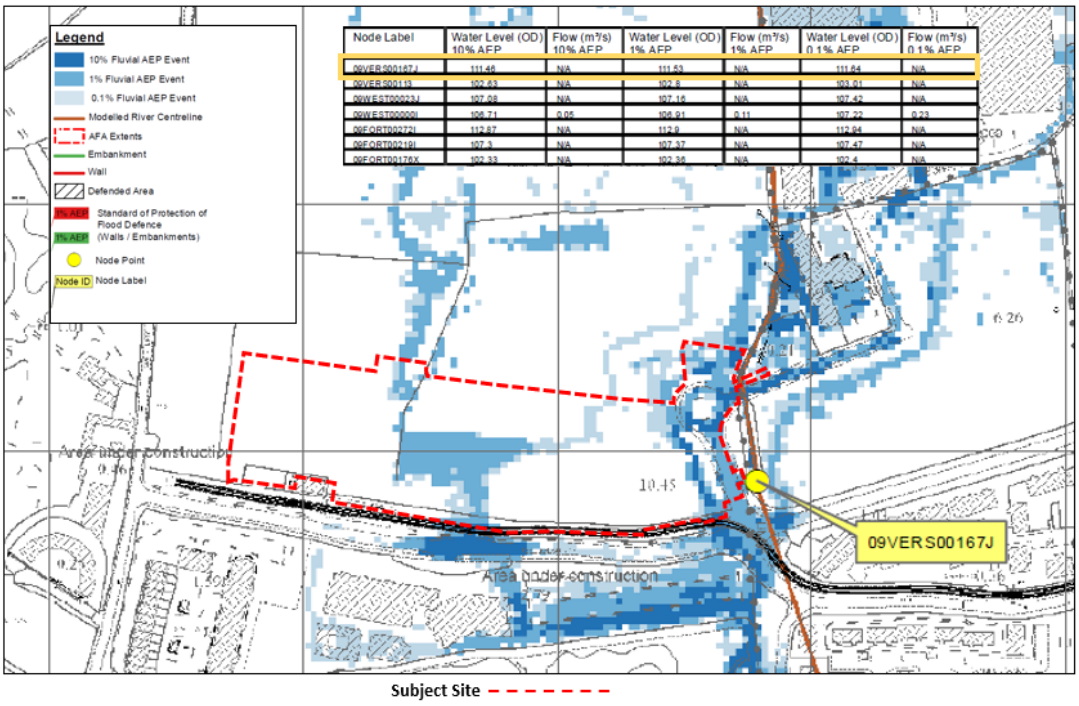


Figure 6-1: CFRAM Fluvial Flood Extents [Source OPW]

The proposed flood mitigation works included the construction of a flood conveyance channel along the southern boundary of Parklands residential development to intercept existing overland flows and redirect them into the Corbally/ Vershoyles Stream via the western part of the site (through the open space play area) ensuring that 1% & 0.1% AEP flood events were conveyed in a controlled manner while protecting vulnerable development. An interim flood channel is in place to protect the adjacent "Parklands" development. The channel is is to be further modified and landscaped as set out in the parent permission

A hydraulic model was developed by JBA to test the effectiveness of the channel during both the 1% & 0.1% AEP flood events. The results are depicted in Figure 6-2, which confirms the 1% and 0.1% AEP flood events are conveyed through the channel and back to the Corbally/ Vershoyles Stream without increasing flood risk to the site or adjacent properties.

As shown on Figure 6-2, the peak flood level for the 1% AEP event at the subject site was determined to be 113.30 OD. The lowest proposed finished floor level alongside the flood channel is 114.5m OD. This represents a freeboard of 1.2 m above the 1% AEP flood level, which is more than the 0.5m minimum freeboard to protect against flooding recommended by Greater Dublin Strategic Drainage Strategy (GDSDS) and Office of Public Works (OPW).

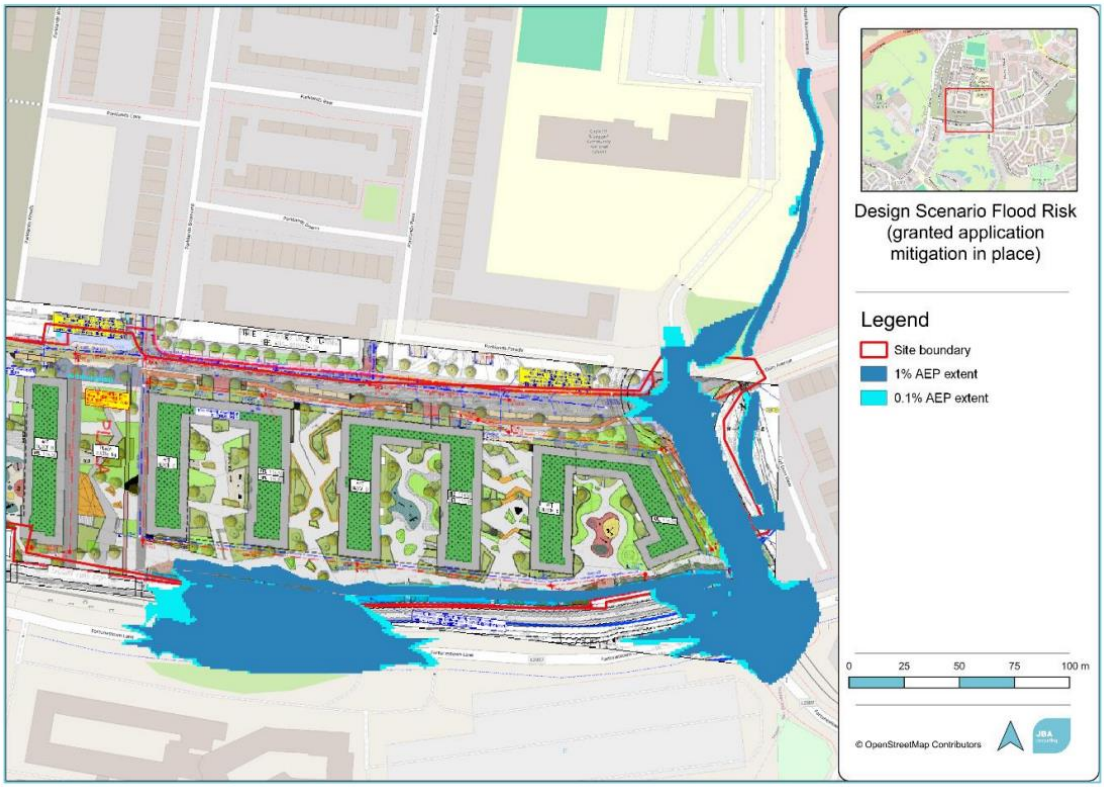


Figure 6-2: Design Scenario Flood Risk (granted application mitigation in place) (indicative Subject site red line) [Source JBA consulting]

The report concluded that;

- The proposed mitigation measures ensure the post-development residential development area is outside of Flood Zone A/B and located within Flood Zone C (Low risk of Flooding).
- The development (building FFL) is raised above the 1% AEP event including climate change and freeboard to minimise the risk to people and property as far as is possible. Flood flows are managed by an open channel drain diversion which routes any overland flows around the site in channel. The freeboard to the proposed buildings is 1.2m above the 1% AEP event and exceeds the minimum recommended freeboard detailed in the GDSDS.
- A stormwater system is included as part of the development to manage surface water runoff. The proposals for the site limits the discharge rate to its greenfield equivalent. Stormwater attenuation is provided which is designed to contain the capacity for a 1% (1 in 100 year) storm event plus an allowance for climate change.
- Residual risk is managed by the setting of appropriate finished floor levels, building placement and landscaping on site.
- The Flood Risk Assessment was undertaken in accordance with 'The Planning System and Flood Risk Management guidelines and is in agreement with the core principles contained within.

7 RESPONSE TO LRD OPINION

Following pre application discussions with the local authority (Ref LRD23A/005/23). A number of points for consideration were raised on the preplanning designs and were outlined in the LRD Opinion Report.

The design has been updated where necessary to respond to the points raised and the updates made have been reflected in the submitted planning documents. For ease of reference, a summary of items raised in relation to engineering are outlined below along with responses to the points raised.

7.1 Responses to Specified Information required in LRD Opinion

9. Traffic and Transport Assessment	
a. Updated to include current public transport routes serving the site. b. Capacity study of routes serving the site. c. All drawings within report to be consistent with final proposal	Refer to Traffic and Transportation Assessment provided under separate cover with this application. This includes updated information on public transport including capacity study of routes serving the site

15. Layout Plans, not less than 1:200 scale to show:	
a. Pedestrian and cycle routes throughout the development ensuring cycleways are compliant with the most recent cycle design manual from the NTA.	All pedestrian and cycle routes are detailed on drawing 220133-X-04-Z00-DTM-DR-DBFL-CE-1201
b. Vehicle access points detailing dimensions, sight lines, DMURS compliance and measures to prioritise pedestrian and cycle movements at these points.	All vehicle access points and road/ped/cycle details including dimensions and sight lines are detailed on drawing 220133-X-04-Z00-DTM-DR-DBFL-CE-1201

c. Autotrack detailing the altered basement layout and visibility splay of vehicles exiting the basement level.	Autotracking and visibility splays are detailed on drawing 220133-X-04-Z00-DTM-DR-DBFL-CE-1201 / 220133-X-04-Z00-DTM-DR-DBFL-CE-1202
d. Location of the refuse collection points and associated autotrack/swept path analysis where relevant.	See report section 2.4
e. Location of 20% EV charging car parking spaces	Refer to architectural layouts for the location of 20% EV charging spaces
f. A total of 5% Mobility Impaired Car Parking Spaces	Refer to architectural layouts for the location of 5% Mobility Impaired Car Parking Spaces

16. SUDs Strategy, to include:	
a. SUDs Design details	Drainage/SuDS Details are provided on drawings 220133-X-05-Z00-DTM-DR-DBFL-CE-5301 and 220133- X-05-Z00-DTM-DR-DBFL-CE-5302-
b. Flow route analysis for site.	The proposed drainage routing is shown on drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1301 with downstream routing though Phase 1 shown on 220133-X-05-Z00-DTM-DR-DBFL-CE-1300. Blockage/exceedance route in discussed in Section 3.9 of this report
c. Comprehensive surface water conveyance plan for the site	The proposed drainage routing is shown on drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1301 with downstream routing though Phase

	1 shown on 220133-X-05-Z00-DTM-DR-DBFL-CE-1300.
d. Drawing showing how much surface water is attenuated in m3 .	Total Attenuation provided is tabulated on drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1300
e. Revised report showing surface water attenuation calculations for proposed development.	Attenuation calculations for the approved and constructed attenuation basins in the district park which serve Phase 1 and Phase 2 were provided with the application ABP-300555-18 This report (Section 3.4) demonstrates that the current proposals have significantly less impermeable area proposed than the allowances made in the design of the SuDS features at that time. Therefore the proposed amendments have a positive impact by on the capacity of the existing basins. Furthermore, Additional local SuDS features have been included as part of the proposed amendments as detailed in this report
f. Revised calculation reports showing increased surface water attenuation provided and show calculations for same. Examine if additional surface water attenuation can be provided in green areas and by means of SuDS (Sustainable Drainage Systems).	As above – While the primary attenuation which serves the site is approved and constructed Additional local SuDS features have been included as part of the proposed amendments as detailed in this report SuDS measures proposed and resulting storage volumes are shown on drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1300
g. If underground tanks present, why these cannot be excluded from the design.	No underground tanks are proposed – All attenuation provided via Nature Based

	solutions in Open SuDS basins within the district park supported by a suite of On-Site Source Control measures (green roof, green podiums, permeable paving, Bioswales, Bioretention Areas).
h. SUDs Layout identifying the different types of SUDs features.	SuDS measures proposed and resulting storage volumes are shown on drawing 220133-X-05-Z00-DTM-DR-DBFL-CE-1300
i. Demonstrate adherence to SDCC SUDs guidance.	Detailed within this report Section 3
j. Drawing showing plan and cross-sectional views of all SuDS features	Drainage/SuDS Details are provided on drawings 220133- X-05-Z00-DTM-DR-DBFL-CE-5301- 220133- X-05-Z00-DTM-DR-DBFL-CE-5302. Plan of drainage features shown on drawings 220133-X-05-Z00-DTM-DR-DBFL-CE-1300 & 1301

17. SUDS Management Plan	Detailed within this report Section 3

18. Confirmation of Feasibility from Irish Water	Provided in Appendix A

7.2 Responses to Conclusions and Recommendations of LRD Opinion

Flow route analysis and conveyance plan required to inform SuDS strategy at the site which maximises above ground, natural, attenuation. While it is accepted that SuDS measures at the site have been permitted under SHD3ABP-305563-19, there is an opportunity to enhance and upgrade these proposals, to increase the level of above ground SuDS included within the scheme, minimise piping and incorporate additional green and blue landscape features to manage surface water. This is particularly important given the sites location within Flood Zones A and B.	See Reponses above with regard to Flow route analysis and conveyance plan and SuDS Strategy In general it is noted that the permitted scheme included a suite of Nature Based Solutions including open above ground SuDS basins integrated to district park, green roofs/podiums and permeable paving. The proposed amendments retain all these proposals and further enhance and upgrade these proposals with a reduction in hard surfacing proposed and the addition of Bioswales and landscape Bioretention

A revised Site-Specific Flood Risk Assessment is required to address the introduction of an additional 86 no. dwellings into Flood Zones A/B, notwithstanding the permitted footprint of any parent permission. The SFRA should exclude the consideration of flood risk intervention measures as these cannot be considered to alter a site's flood risk status as per the Flood Risk Guidelines for Planning Authorities. The Flood Risk Assessment must have a climate change allowance of +20%	Refer to Flood Risk Assessment Technical Note provided under a separate cover from JBA Consulting Engineers

8 CONCLUSIONS

The proposed development under consideration comprises amendments to the permitted Blocks C, D and E within the permitted development Reg. Ref. ABP-305563-19. Blocks A and B remain unchanged.

The proposed amendments to Blocks C, D and E comprise an enlarged basement, internal amendments to blocks and additional floors providing additional units. Site plan is largely unchanged with the exception of minor amendments to basement access position and surface landscaping & cycle parking.

- The proposed amendments which are the subject of this application do not affect flood risk or the mitigation measures proposed in the Flood Risk Assessment provided with the parent permission. Therefore, it is considered that the findings of the report are unchanged by the proposed amendments. Following the implementation of the mitigation measures proposed in the FRA, the development area is protected from flooding
- In general it is noted that the permitted scheme included a suite of Nature Based Solutions including open above ground SuDS basins integrated to district park, green roofs/podiums and permeable paving. The proposed amendments retain all these proposals and further enhance and upgrade these proposals with a reduction in hard surfacing proposed and the addition of Bioswales and landscape Bioretention. Runoff generated by the subject site is accommodated within constructed and operational SuDS basins in the District Park (phase 1) as per the permitted planning.
- Access measures are unchanged with the exception of a minor relocation to Basement Access Position. Cycle and Car parking for the amended blocks is proposed to be increased within the enlarged basement to reflect additional units and changes in development plan.

The foul and water distribution strategy and their related networks remain unchanged from the permitted development. The proposed amendments marginally increase the water and wastewater loading. There is sufficient capacity in the receiving infrastructure to accommodate this increase.

Appendix A : Irish Water Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Kabelo Mokoka

DBFL Consulting Eng.
Ormond House
Upper Ormond Quay
Dublin
D07W704

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

13 February 2024

Our Ref: CDS23007713 Pre-Connection Enquiry
Fortunestown LN & Garter LN, Fortunestown Lane, Saggart, 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 Temporary Connection of 593 unit(s) at Fortunestown LN & Garter LN, Fortunestown Lane, Saggart, Dublin, (the **Development)**.

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

- **Water Connection** - Feasible Subject to upgrades

- In order to accommodate the proposed connections, following are required:
  1. Approximately 60m of network extension via private land/s from the existing 200mm MOPVC main on Garter Lane to the site boundary. The pipe is to be a 200mm ID main with a meter installed on the line. Permission to connect via the private land/s will be required.

Figure 1: Site boundary, 200mm connection main and meter

2. Upsize of the existing 6'' uPVC main on Boherboy Road to a 300mm ID main for approximately 120m.

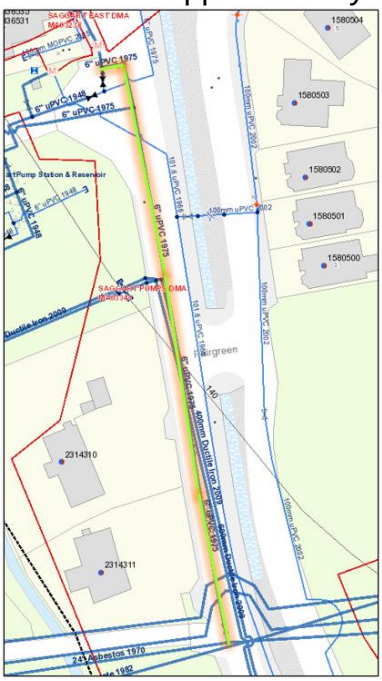


Figure 2: Existing 6" uPVC main to be upsized to 300mm DI (coordinates: 303830, 226337)).

3. Upsize of the existing 100mm DI main on Church Road to a 200mm ID main for approximately 40m.

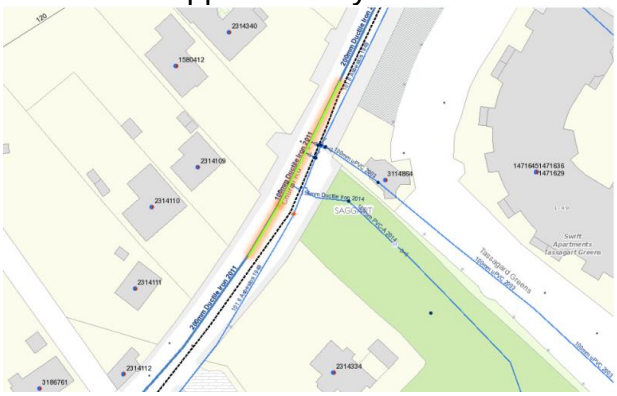


Figure 3: Existing 100mm DI main to be upsized to 200mm DI (coordinates: 303881, 226725)

4. New DMA meter and 100mm connecting main on Old Naas Road.

Figure 4: Location of new inlet meter for proposed new DMA for the north section of current Saggart East DMA (coordinates: 305442, 228886)

5. A new DMA boundary valve may be required.

- Uisce Éireann does not currently have any plans to upgrade its network in this area, therefore the applicant will be required to fund the upgrade works. The fee will be calculated at a connection application stage.
- Please note the requested fire flow of 25l/s cannot be met at the point of connection with the proposed network upgrades. In order to guarantee a flow to meet the Fire Authority requirements, you should provide adequate fire storage capacity within your development.

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

- Proposed connections are to foul sewers in Parklands Development Phase 1, currently under construction. Prior the connection, all arterial routs, from the subject Development up to the 675 CO (9B) trunk sewer, has to be taken in charge by Uisce Éireann. Proposed load from the subject Development must be adequately distributed to the downstream network to achieve sufficient capacity. Connecting units to the upstream extents of the "Harcourt Sewer" may be an option. At a connection application stage, capacity calculations of the downstream network will be required to prove the sufficient capacity.

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/

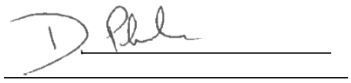
Where can you find more information?

- **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

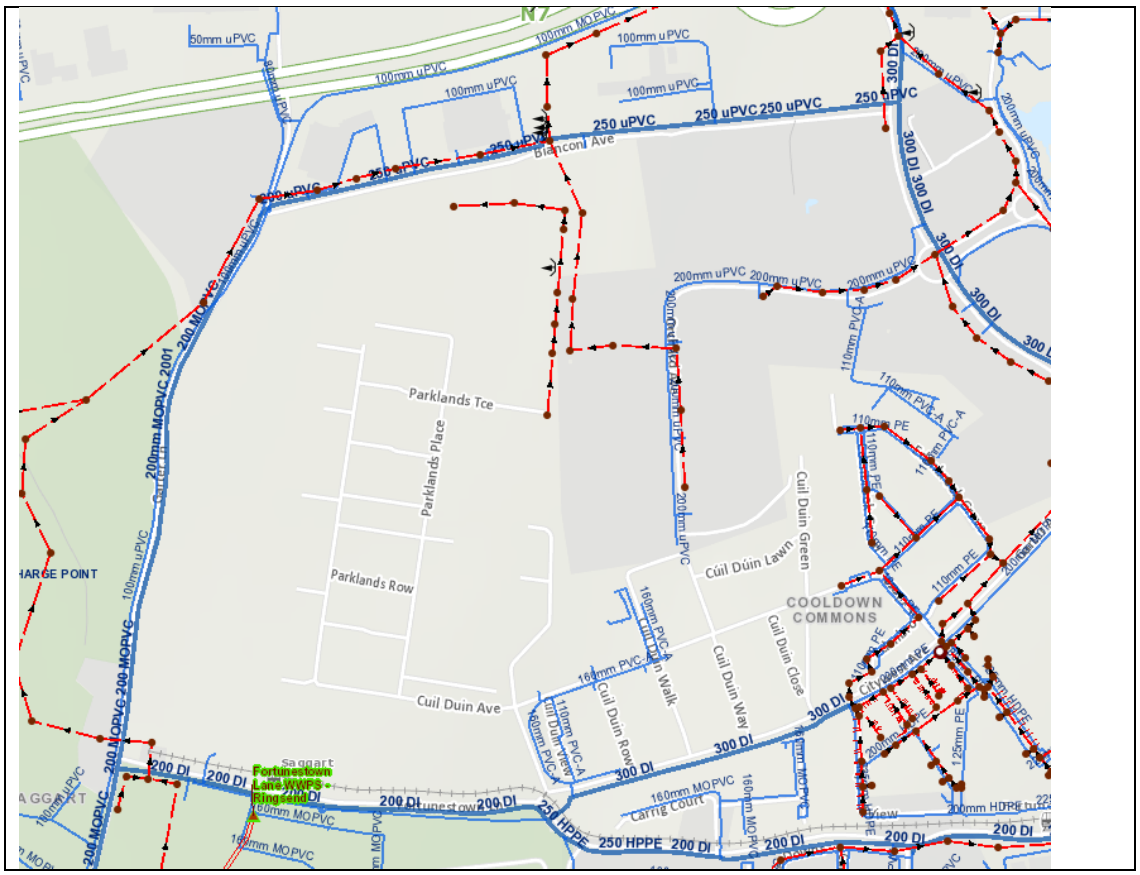
Section A - What is important to know?

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.

Kabelo Mokoka-DBFL Consulting Engineers

From: Kabelo Mokoka-DBFL Consulting Engineers
Sent: Wednesday 20 March 2024 17:18
To: newconnections
Cc: Padraig Power
Subject: RE: CDS23007713 Fortunestown LN & Garter LN, Fortunestown Lane, Saggart, Dublin EMAIL:0161421
Attachments: 162073-3211 Site Services Layout - Watermain.pdf; CUST17241 - CDSCOF2.pdf; 162073-3200 Site Services Layout - Ground Floor Level & Basement Level.pdf

To whom it may concern,

Please note that the proposed development is part of phase 2 of the development permitted under regulation reference ABP-300555-18, with construction nearing completion. The drainage and watermain network for Phase 1 have all been constructed and are currently undergoing the taking-in-charge process.

Upon review, it appears that the water connection was overlooked. The proposed development for Phase 2 was previously permitted under regulation reference ABP 305 563-19, where both watermain and drainage services were intended to connect to those of Phase 1. Please refer to the extracted figures 1 below, which illustrate the surface and foul water connections for both Phase 1 and Phase 2, and Figure 2 for the watermain connection to Phase 1.

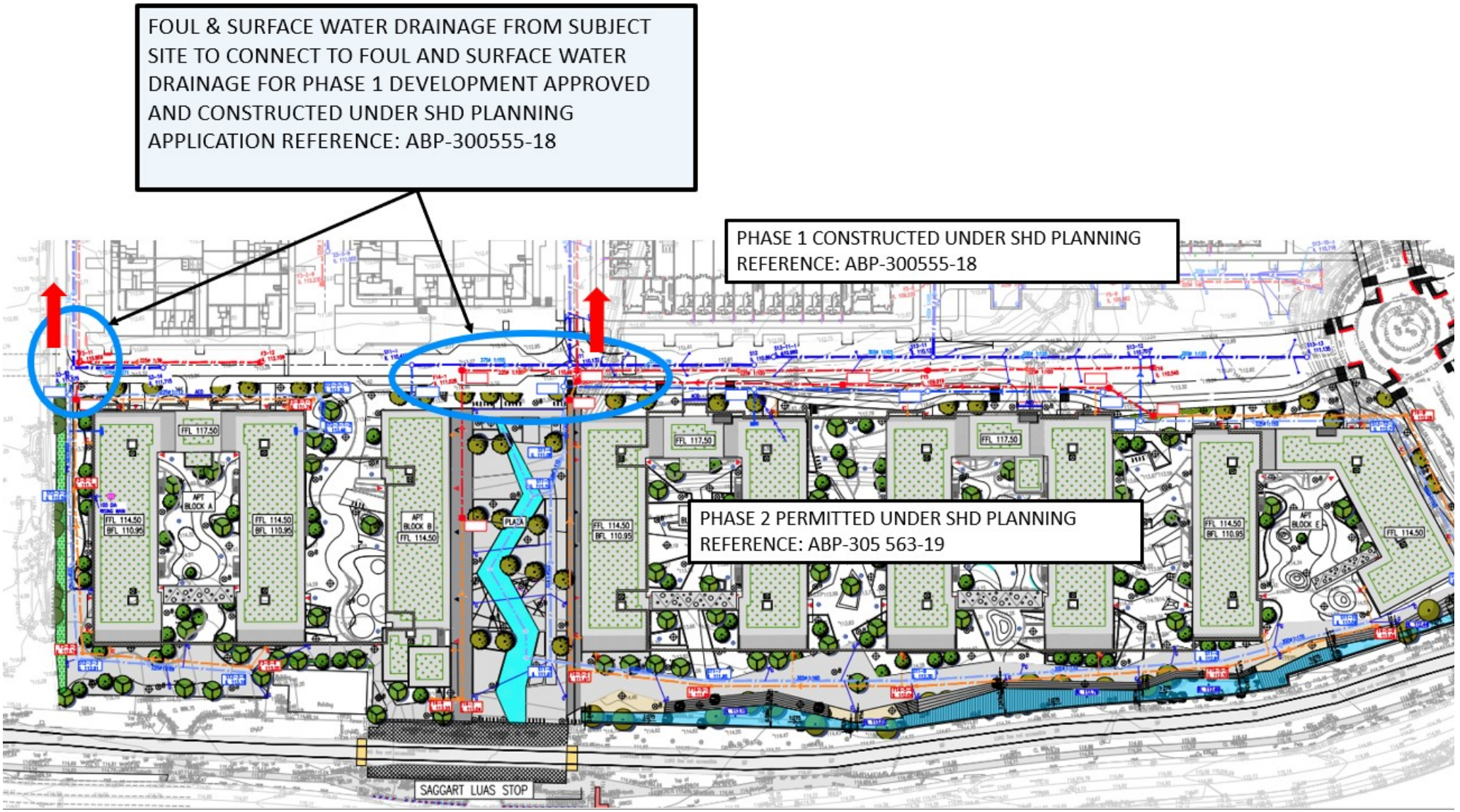


Figure 1: Proposed Surface and Foul drainage outfall discharge points

Figure 2: Watermain Supply to subject site from phase 1 works.

The previous COF CUST17241, which is attached, confirmed the feasibility for 451 units with the watermain and drainage connections as displayed above(see attached drawings 162073-3211 & 3200). Now, we are requesting an updated confirmation of feasibility for 591 units, resulting from an increase in units for blocks C, D, and E.

Should you require further clarification, I am available for a call at your convenience.

Regards,
Kabelo Mokoka

Kabelo Mokoka (he/him/his)
Civil Engineer
Tel: +353 1 400 4000
Kabelo.Mokoka@dbfl.ie

From: newconnections <newconnections@water.ie>
Sent: Tuesday, February 13, 2024 4:46 PM
To: Kabelo Mokoka-DBFL Consulting Engineers <Kabelo.Mokoka@dbfl.ie>
Cc: Padraig Power <padraig@harcourthouse.com>
Subject: CDS23007713 Fortunestown LN & Garter LN, Fortunestown Lane, Saggart, Dublin EMAIL:0161421

Subject: Pre-Connection Enquiry – CDS23007713 Fortunestown LN & Garter LN, Fortunestown Lane, Saggart, Dublin

With regard to the pre-connection enquiry submitted for the above named address, please find Confirmation of Feasibility letter attached.
If you have any queries please feel free to contact the Connections and Developer Services Design Engineer (see contact details in the attached letter).

Regards,

Connections and Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, Éire
Irish Water
Colvill House, 24-26 Talbot Street, Dublin 1, Ireland

Please do not respond to this email.

Thank you for your attention.

DBFL CONSULTING ENGINEERS

Registered Office
Ormond House
Upper Ormond Quay
Dublin 7 Ireland D07 W704

+ 353 1 400 4000
info@dbfl.ie
www.dbfl.ie

Cork Office
14 South Mall
Cork Ireland T12 CT91

+ 353 21 202 4538
info@dbfl.ie
www.dbfl.ie

Galway Office
Odeon House
7 Eyre Square
Galway Ireland H91 YNC8

+ 353 91 335 599
info@dbfl.ie
www.dbfl.ie

Waterford Office
Unit 2 The Chandlery
1-2 O'Connell Street
Waterford Ireland X91 WF99

+ 353 51 309 500
info@dbfl.ie
www.dbfl.ie