

The image features a large, semi-circular graphic on the left side, filled with a green wireframe architectural drawing of a city or industrial complex. The drawing shows various buildings, streets, and structures in a perspective view. The OCSC logo is positioned in the white space to the left of this graphic.

OCSC

O'CONNOR · SUTTON · CRONIN
MULTIDISCIPLINARY CONSULTING ENGINEERS

W370: WICKLOW FIRE STATIONS

DRAINAGE REPORT – STAGE 1 BALTINGLASS

**For
Wicklow County Council**

19 June 2023

NOTICE

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DOCUMENT CONTROL & HISTORY

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Rev.	Status	Authors	Checked	Authorised	Issue Date
P01	S4	Dharmesh Purohit	MK	AH	19/06/2023

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1 SITE SERVICES

EXISTING INFRASTRUCTURE & SITE CHARACTERISTICS

Existing records for the local area have been obtained from Irish Water and are included in **Appendix A** of this report. Additional site investigation works were commissioned which also included the Soakaway infiltration test for the proposed Baltinglass site.

Based on the received data and the conducted site investigation, it is established that there is:

- An existing wastewater network running north of the site along the White Hall Park Road. The said existing network is 225 mm diameter and drains to the Baltinglass WWTP.
- An existing 100 mm diameter watermain running north of the site running along the White Hall Park Road.
- An existing surface water pipe running in the close vicinity (approximately 25m) of the western boundary of the proposed development. The said existing pipe is 225 mm diameter and ultimately drains to the river Slaney.
- The proposed site is partially suited for infiltration solution for the surface water drainage.

The fire station development site is green field located south of the White Hall Park Road and north of the existing Baltinglass WWTP. The existing site topography dictates that the said green field drains largely from northwest to southeast direction. The surface water runoff generated from the site currently ponds locally in the small depressions and infiltrate slowly into the existing ground, the received site investigation results also suggests that the ground is suitable for infiltration.

River Slaney runs to the west of the site, and it forms as an outfall for the municipal stormwater network running in the vicinity of the project. Municipal stormwater network outfalls into river Slaney at two locations; one with a 225mm diameter pipe running north of the development and another with a 600mm diameter pipe running east of the development. The upstream stretch of the said 600 mm diameter pipe comprises of 225mm diameter pipe and forms the outfall for the development.



Figure 1: Site Location

SURFACE WATER DESIGN STRATEGY

The surface water design will comply with the following standards and best practice guidance:

- Wicklow County Development Plan 2022-2028
- Climate Change Adaptation Strategy 2019 - 2024;
- Greater Dublin Strategic Drainage Study (GDSDS);
- Greater Dublin Regional Code of Practice for Drainage Works (GDR COP);
- Technical Guidance Document H – Drainage and Wastewater Disposal;
- The SUDs Manual, CIRIA C753.

The Baltinglass fire station development covers only a part of the proposed site boundary, and the remaining western part of the site is left unused to maintain the existing drainage of the area. Please refer to the site layout below in Figure:2.

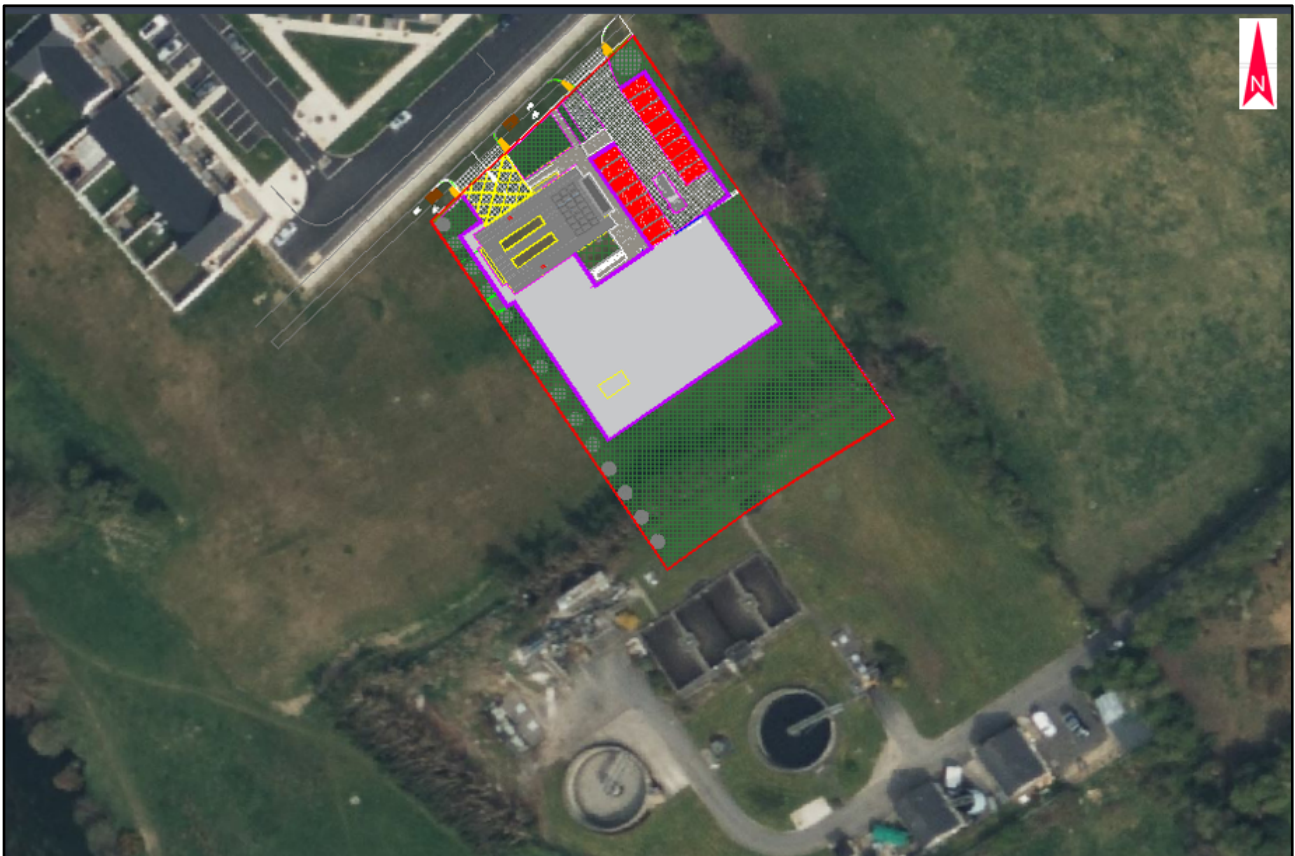


Figure 2: Proposed Site Layout

A combination of traditional gravity pipe and manhole network and the sustainable drainage features is provided to manage the surface water runoff generated from the development. Features like Permeable Car parks, Rainwater Harvesting Tanks, Silt Trap Manholes, Filter drains, Flow Controls, above ground detention basin and Class-1 Full retention oil separator will be provided. Please refer to Drg W370-OCSC-BG-XX-DR-C-0500 included with the Stage -1 submission for greater details of the proposed surface water drainage network.

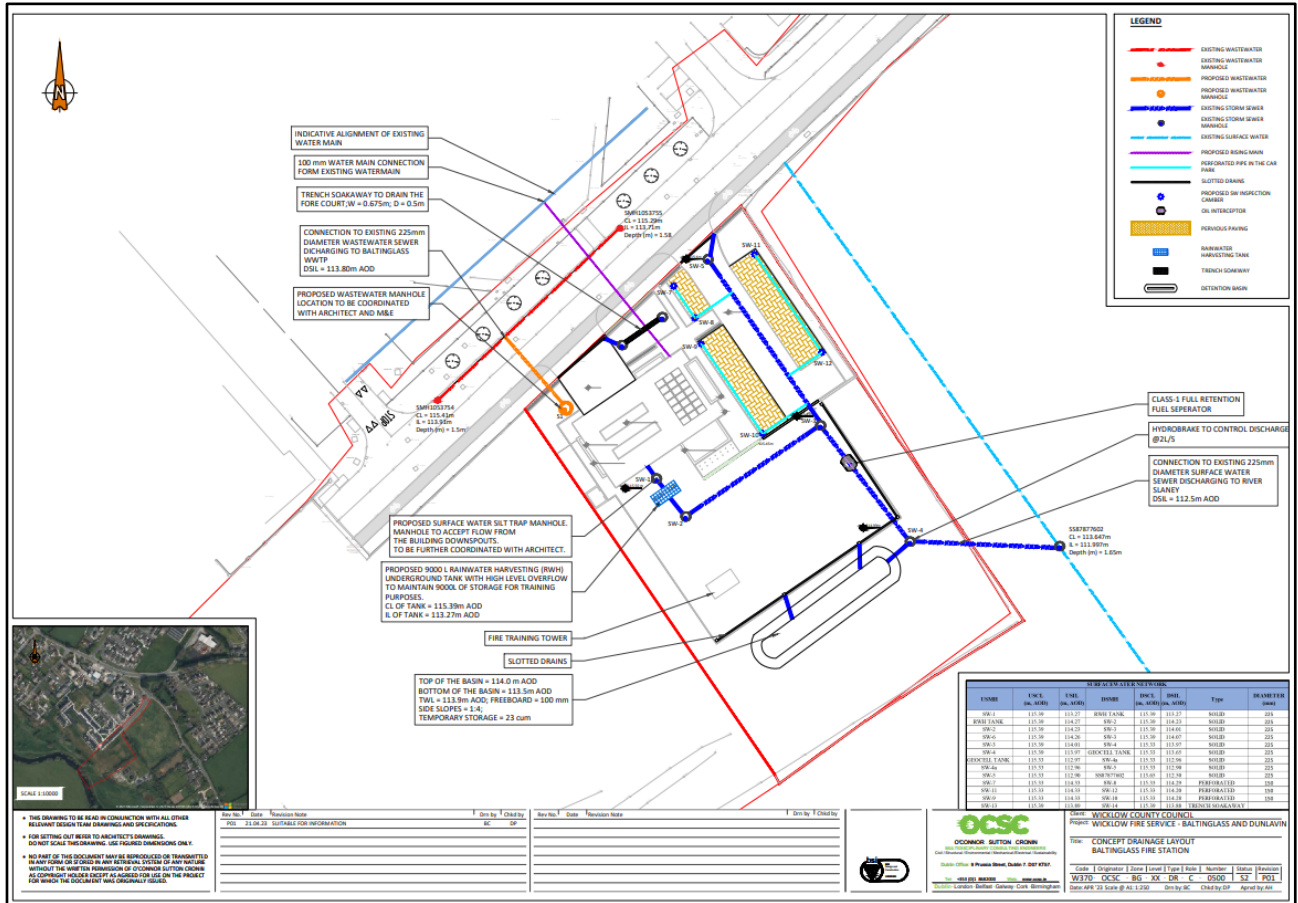


Figure 3: Drainage Strategy

The surface water drainage network will incorporate a variety of SuDS features. SuDS features typically considered for development such of this are summarised below.

- **Attenuation Storage: Detention Basin**

Above Ground, offline detention basin is provided for attenuating the surface water runoff before discharging into existing surface water network. The existing topography of the site and proposed ground levels dictated the location of the detention basin. The proposed basin would provide temporary storage in the event of rain and shall remain dry in the event of no rain.

The basin will provide sufficient temporary storage volume for rainfall events up to, and including, the design 1% AEP rainfall event (including climate change).



Figure 4: Typical Detention Basin

- Flow Control Devices

Flow Control devices provided immediately downstream of attenuation systems, in order to restrict the surface water discharge from site to a flow rate equivalent, or below, the natural greenfield runoff rate.

The required aperture of the proposed Hydro-Brake outlets is designed to be greater than 150mm diameter, to mitigate the risk of blockage. Each flow control chamber would be fitted with a penstock valve at the inlet and a bypass lever at the outlet (if required), to allow for easy access and maintenance.



Figure 5: Vortex Hydro-brake Flow Control Unit (Hydro International)

- Pervious Paving

Pervious pavements provide a pavement finish suitable for both pedestrian and vehicular traffic, while also allowing rainwater to infiltrate the surface layer and into the underlying pervious structural layers. Here, the rainwater is temporarily stored beneath the overlying finished surface before either infiltration to the ground or / and controlled discharge to the main surface water drainage network.

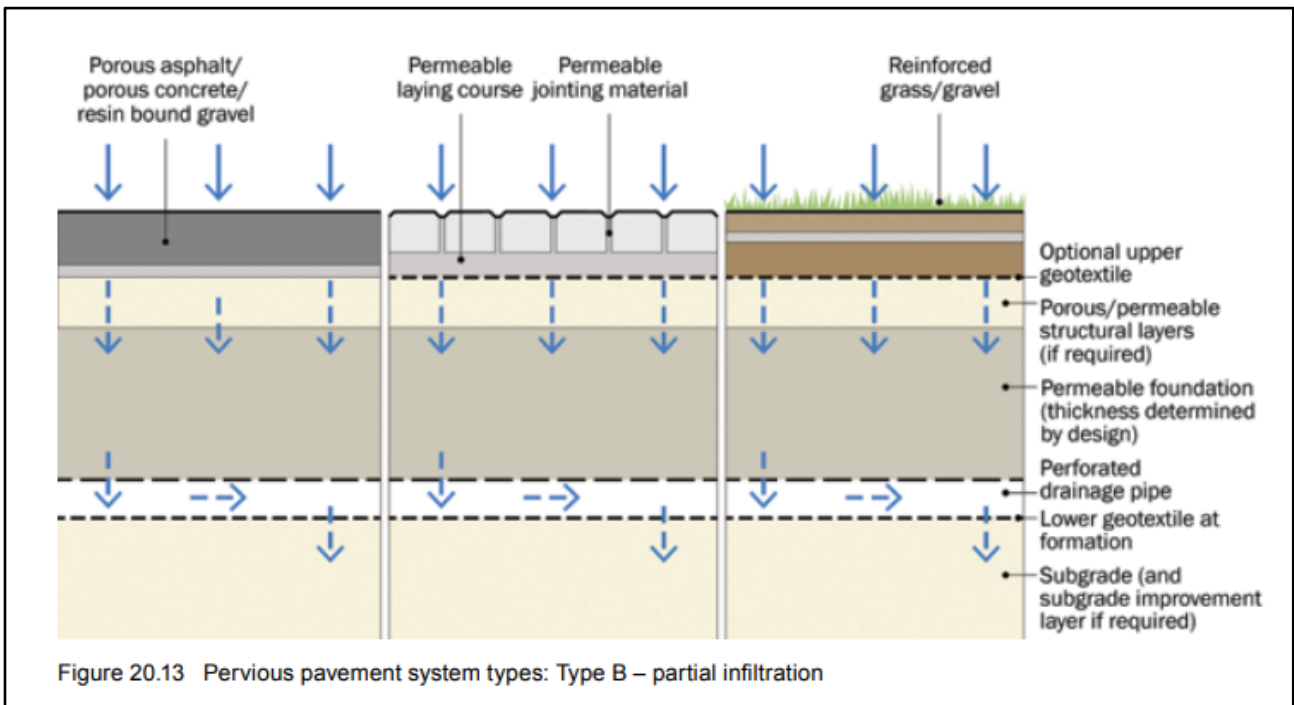


Figure 6: Detail of Type B Pervious Paving (CIRIA C753)

Pervious paving systems are an efficient means of treating the rainwater at source by providing initial interception of the rainwater, reducing the volume and frequency of the runoff and improving the surface water quality by providing at source treatment of the rainfall runoff leaving the site. This is achieved by helping remove and retain pollutants prior to discharge to the drainage system and / or groundwater system.

Pervious paving is to be provided in the car park areas, as indicated in the drainage drawing W370-OCSC-BG-XX-DR-C-0500

- Silt Traps

All manholes upstream of attenuation storage would contain a 600mm sump, below invert level of outlet pipe, in order to trap sediment and other gross pollutants, and prevent from entering the downstream watercourse; thus improving the water quality discharging from site.

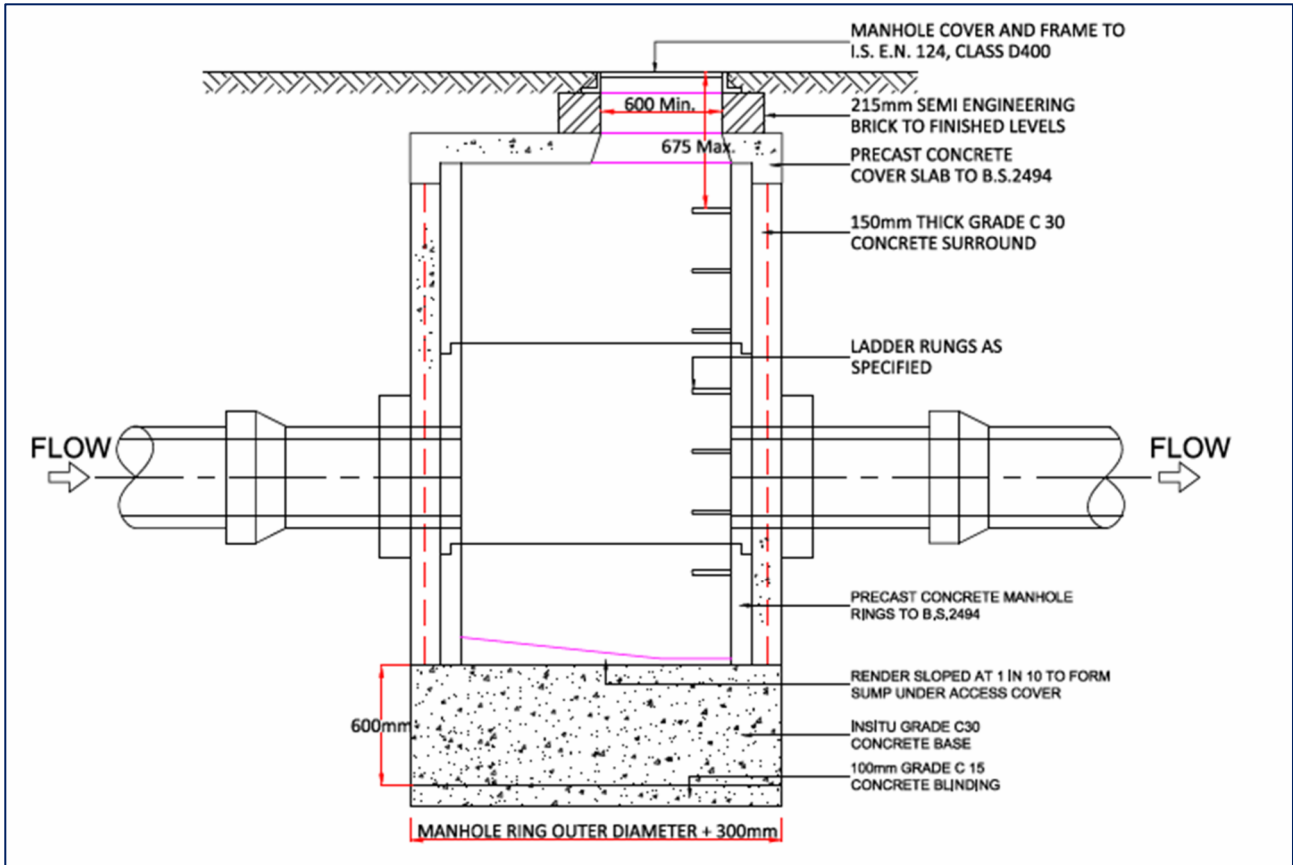


Figure 7: Typical Detail of Silt Trap Manhole

- Trapped Road Gullies

All road gullies serving the proposed development would be trapped to help prevent sediment and gross pollutants from entering the surface water network, therefore improving the water quality discharging from site.

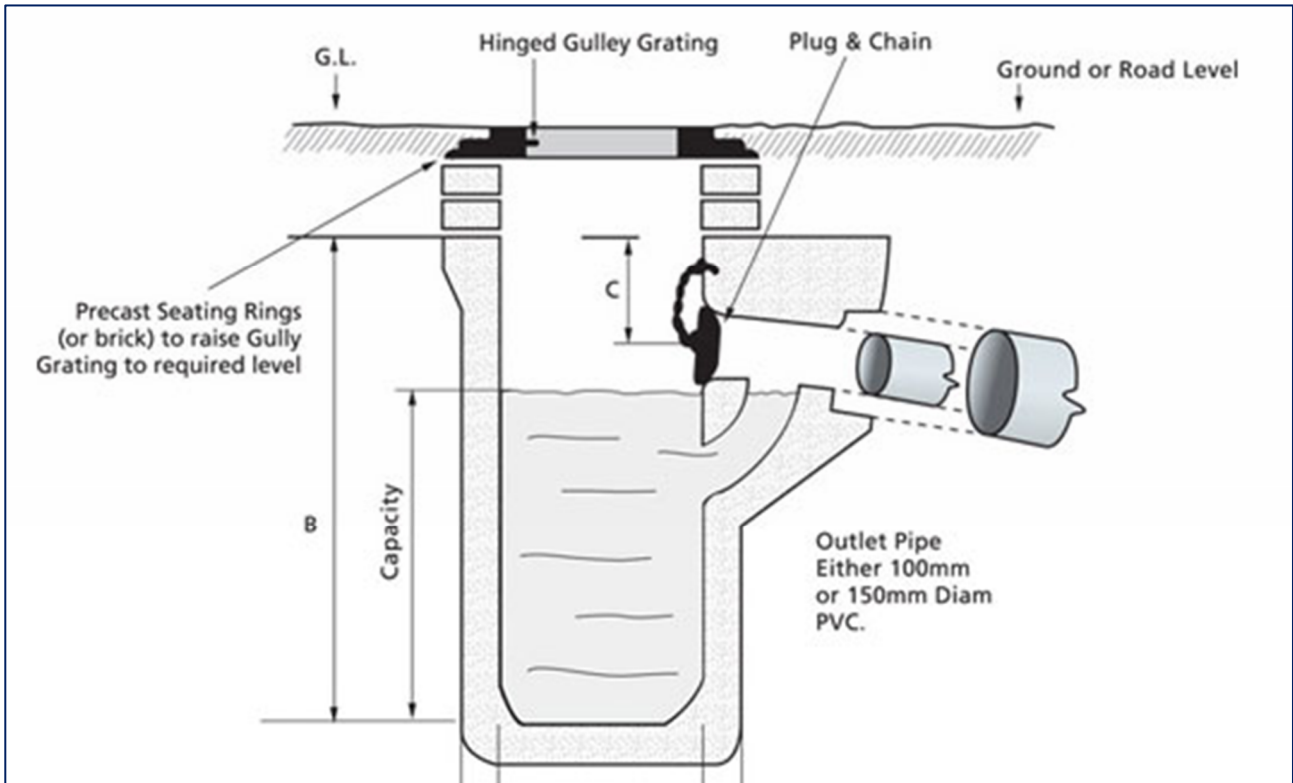


Figure 8: Trapped Road Gully (Typical Detail)

- Oil Separators

Oil separators are designed to separate gross amounts of oil and large (>250µm) suspended solids from the surface water, mainly through sedimentation process. The previously outlined measures also provide mitigation in this regard. However, a Class 1 bypass fuel separator would be additional and final mitigation measure, prior to surface water discharge to the public network.

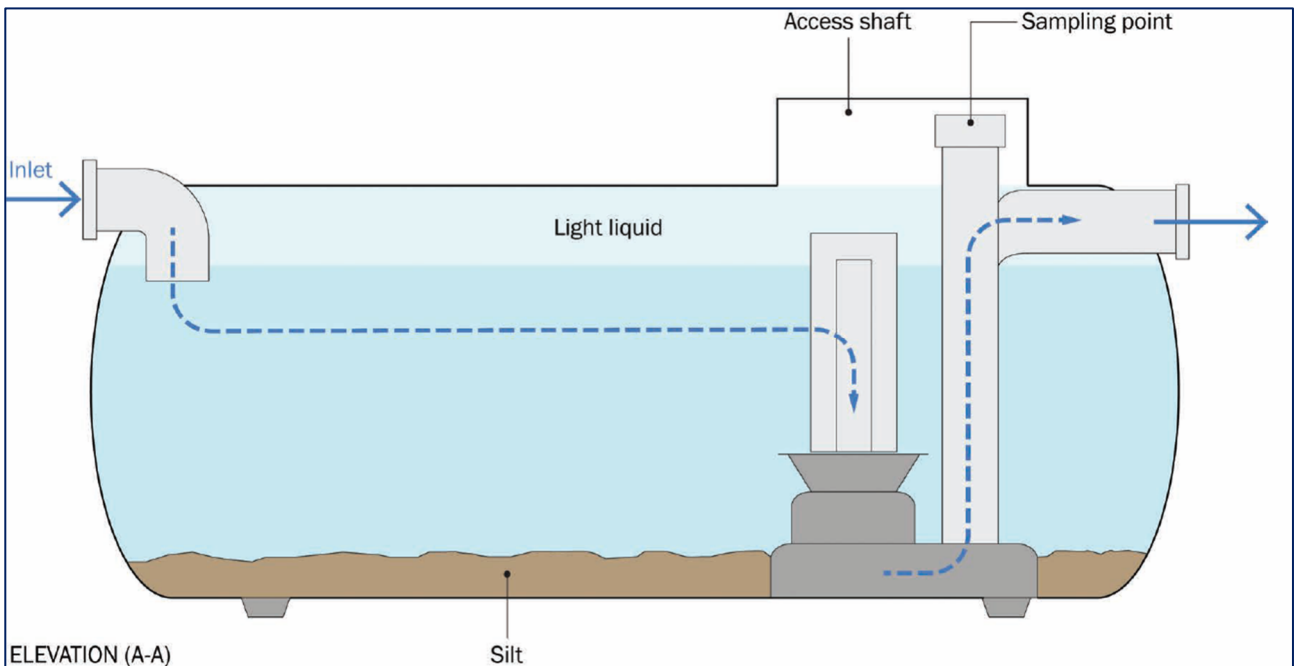


Figure 9: Typical Section Detail of Fuel Separator (CIRIA C753)

The feasibility of each of the aforementioned measures will be assessed as part of the design development and consultation with the Local Authority and incorporated where appropriate. Measures which can be incorporated into the extensive landscape design will also be considered.

WASTEWATER DRAINAGE DESIGN

The wastewater design will be carried out in accordance with the following:

- Irish Water Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03);
- Wicklow County Development Plan, 2022-2028;
- Building Regulations - Technical Guidance Document H – Drainage and Wastewater Disposal.

A traditional gravity pipe and manhole network will be provided. All wastewater from the development is to discharge to public wastewater sewer running along running north of the site along the White Hall Park Road. The said existing network is 225 mm diameter and drains to the Baltinglass WWTP.

Please refer to the included drainage drawing W370-OCSC-BG-XX-DR-C-0500 along with this submission.

A Confirmation of Feasibility (COF) has been received from the Irish Water which states that the connection to the existing network is feasible without any required upgrades. Please find the received confirmation of feasibility in the Appendix B of this report.

POTABLE WATER SUPPLY DESIGN

All proposed potable water design will be carried out in accordance with Irish Water's Code of Practice for Water Infrastructure, IW-CDS-5020-03.

The proposed development will require a 100mm watermain (with an additional 100mm branches to serve as a fire main (to be confirmed by the fire consultant), with a number of hydrants to be provided along its length at agreed locations.

The proposed watermain is to connect to the existing network north of the of the subject site on the White Hall Park Road.

A Confirmation of Feasibility (COF) has been received from the Irish Water which states that the connection to the existing network is feasible without any required upgrades. Please find the received confirmation of feasibility in the Appendix B of this report.

2 VERIFICATION

This report was compiled and verified by:

Dharmesh Purohit BE (Civil) MS Water Resources PMP
Senior Drainage Engineer
O'Connor Sutton Cronin & Associates

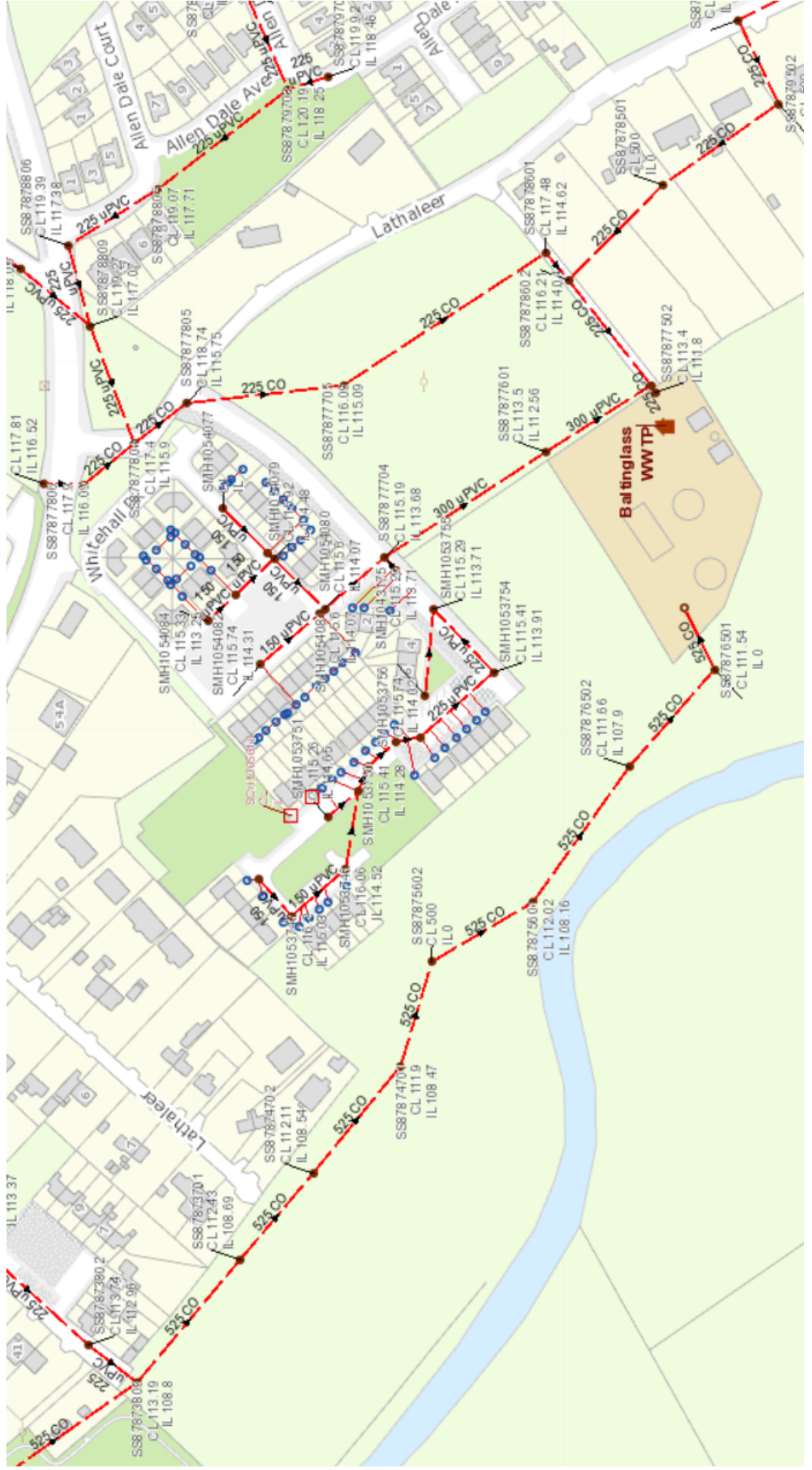


Appendix A **EXISTING SITE SERVICE RECORDS**

Hydrants marked in Red



Sewer Drainage Network



Appendix B **CONFIRMATION OF FEASIBILITY**

CONFIRMATION OF FEASIBILITY

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Cathair Chorcaí

Irish Water
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South City
Delivery Office
Cork City.

www.water.ie

12 May 2023

**Our Ref: CDS23002688 Pre-Connection Enquiry
Baltinglass Fire Station, Near White Hall Park, Wicklow**

Dear Applicant/Agent,

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

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Business Connection of 1 unit(s) at Baltinglass Fire Station, Near White Hall Park, Wicklow, Wicklow, (the **Development**).

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

- **Water Connection** - Feasible without infrastructure upgrade by Irish Water
- **Wastewater Connection** - Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water 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 Irish Water.

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/

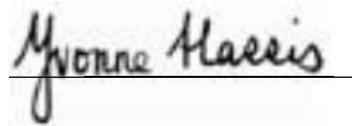
Where can you find more information?

- **Section A - What is important to know?**

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

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

Yours sincerely,

A handwritten signature in black ink that reads "Yvonne Harris". The signature is written in a cursive style and is positioned above a thin horizontal line.

**Yvonne Harris
Head of Customer Operations**

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