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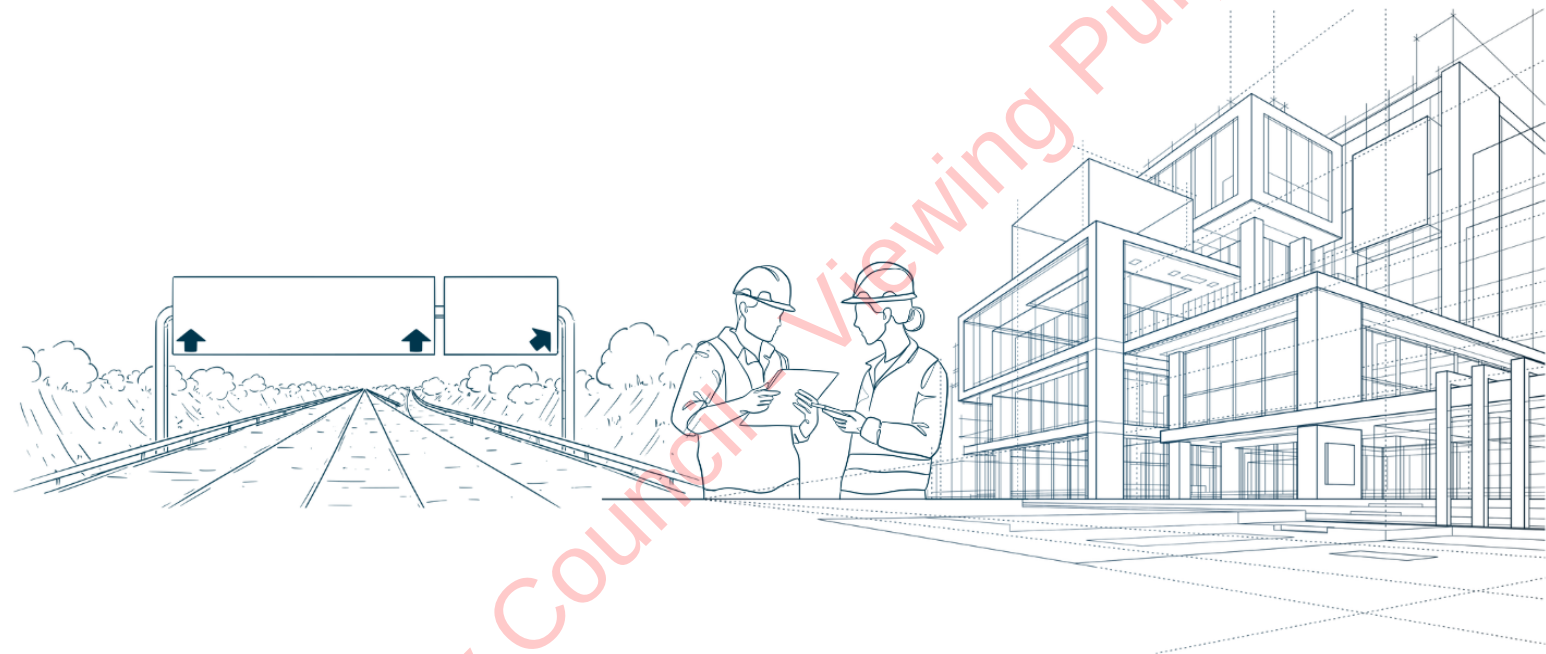
Engineering Services Report

Project

Proposed Mixed-Use Development at
The Old Mill, Julianstown, Co. Meath

Client

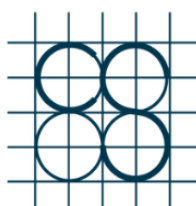
Casana Developments Limited



S085-CSC-ZZ-XX-RP-C-0001

Job No. S085

11 June 2025



CS CONSULTING

Civil, Structural & Traffic Engineering

ENGINEERING SERVICES REPORT

PROPOSED MIXED-USE DEVELOPMENT AT THE OLD MILL, JULIANSTOWN, CO. MEATH

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ENGINEERING SERVICES REPORT

PROPOSED MIXED-USE DEVELOPMENT AT THE OLD MILL, JULIANSTOWN, CO. MEATH

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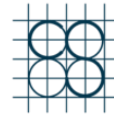
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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Casana Development Ltd to prepare an Engineering Services Report (ESR) for a proposed mixed-use development at the Old Mill site in Julianstown, Co. Meath.

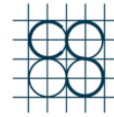
This report details the following aspects of the proposed development:

- Potable Water Infrastructure
- Foul Drainage Infrastructure
- Stormwater Drainage Infrastructure

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

- Meath County Development Plan 2021-2027
- Building Regulation 2010 (Part H)
- Greater Dublin Regional Code of Practice for Drainage Works (Version 6)
- Greater Dublin Strategic Drainage Study (GDSDS) 2005
- Uisce Éireann Code of Practice for Water Infrastructure (2020)
- Uisce Éireann Code of Practice for Wastewater Infrastructure (2020)
- Uisce Éireann Drainage and Supply Records

The Engineering Services Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting, and with the various additional information submitted by the other members of the design team as part of the planning submission.



2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development site is located along the R150 Duleek Road, Julianstown, Co. Meath. The development site is located in the jurisdiction of Meath County Council and has a total site area of approx. 2.15ha.

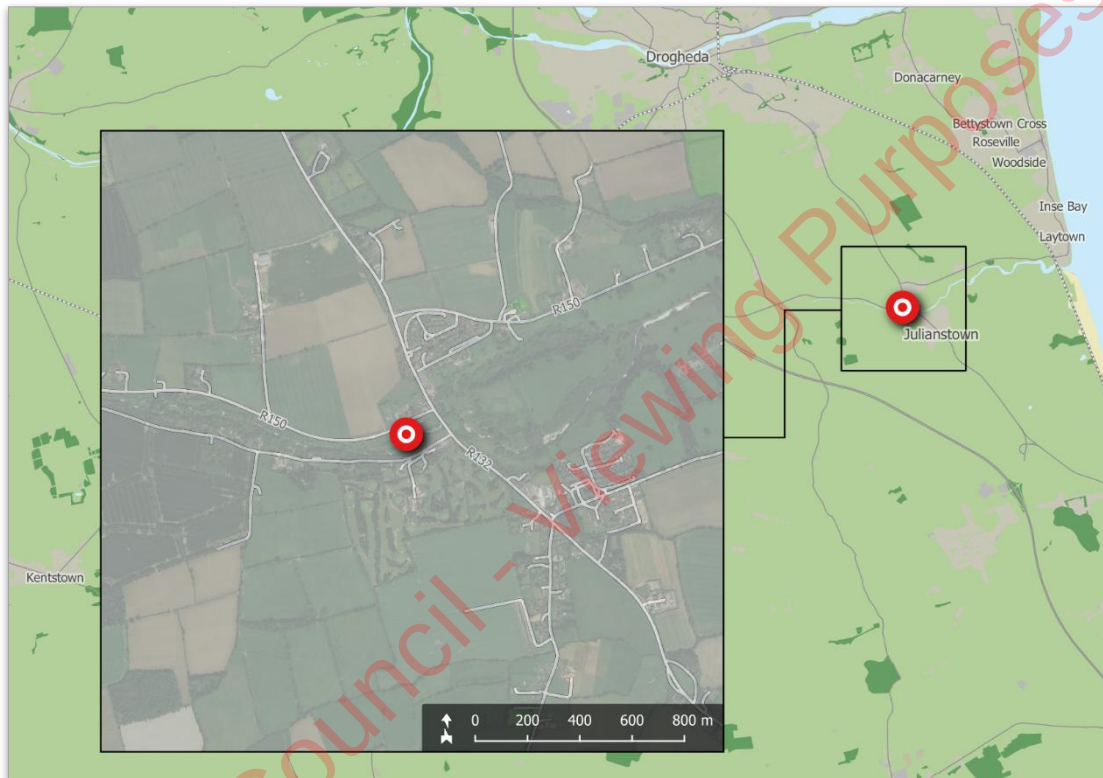


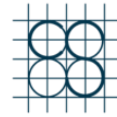
Figure 1 – Development site location
(sources: EPA, OSM Contributors, Google)

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

The site is bounded to the north by the R150 regional road (Duleek Road), to the east by Main Street (R132 regional road), to the south by the River Nanny, and to the west by greenfield lands.

2.2 Existing Land Use

The development site is brownfield but has been disused for almost 20 years, having previously accommodated a hotel and restaurant that closed following a fire in 2007. The site contains 2no. protected structures, with more recent ancillary constructions, all of which are severely dilapidated. The site benefits from 2no. existing vehicular accesses on the R150 regional road,



at its northern boundary. The site does not currently have any potable water demand or generate any foul effluent.

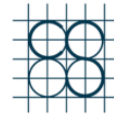


Figure 2 – Development site extents and environs
(sources: NTA, OSM Contributors, Microsoft)

2.3 Description of Proposed Development

The proposed development is for a mixed-use development consisting of residential and commercial uses. A total of 62 dwellings are proposed in a mix of houses, apartment and duplex units. The commercial element consists of typical neighbourhood centre uses that includes a convenience shop, pharmacy, café, medical/ health care centre and community space.

The development involves bringing the two no. protected structures on site back into active use. These are the Old Mill Hotel (RPS Ref No. 91054) located in the eastern part of the site and the Mill House (RPS Ref. No. 91059) located in the northeaster corner. The Old Mill House is also identified in the National Inventory for Architectural Heritage (NIAH) under ref. no. 14323001. Both structures are in a ruinous state. It is proposed to rebuild and restore each of the structures. In summary, the restoration of the structures will involve the demolition of inappropriate non-original interventions, the retention and repair of existing building fabric and the re-construction of missing and replacement of inappropriate elements on a like for like



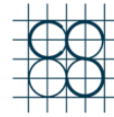
basis. In summary, it is proposed to bring the restored and adapted Miller's House back into use for medical/healthcare uses. Whilst the 'Old Mill' building will be reinstated and adapted to accommodate a mix of commercial/community uses consisting retail, café and community uses, with a small number of apartment /duplex units proposed at upper floor level.

A new landscaped civic space is proposed in the south-eastern part of the site, complemented by a secondary plaza area located to the north, directly accessible from the Duleek Road. Additionally the development includes a new riverside walkway along the northern banks of the River Nanny enhancing public access and connectivity.

Vehicular access/egress to the development will be provided via the two no. existing access points located on the northern boundary off the Duleek Road (R150). These accesses will be upgraded to accommodate the development. A new footpath, parallel car parking and a loading bay along the northern site boundary are also proposed complemented by street tree planting and public lighting in order to create a new high quality public realm.

The proposed development also encompasses the removal of a portion of the existing car park along the northern banks of the River Nanny which will be replaced with soft landscaping and a low impact pedestrian pathway. The proposal further incorporates landscape and boundary treatments; surface car parking and bicycle parking facilities; connections to existing services and infrastructure; ESB sub-station; pumping station; public lighting and all associated site development works, including alterations to ground levels across the site.

A detailed development description is provided in the public notices and Planning Statement that accompany this application under separate cover. A comprehensive schedule of areas is provided in the Architect's Schedule of Accommodation.



3.0 WATER SUPPLY

3.1 Existing Water Supply Infrastructure

Uisce Éireann records indicate that existing 200mm diameter and 150mm diameter uPVC watermains run along the Duleek Road (R150), to the north of the development site. The records also show an existing 125mm diameter asbestos watermain in the R132, to the east of the development site, and an existing 125mm diameter HDPE watermain in Sandyhall Road to the south, on the opposite side of the River Nanny.

Figure 3 shows a local extract of Uisce Éireann water supply records. Records with greater coverage are included in **Appendix A**.

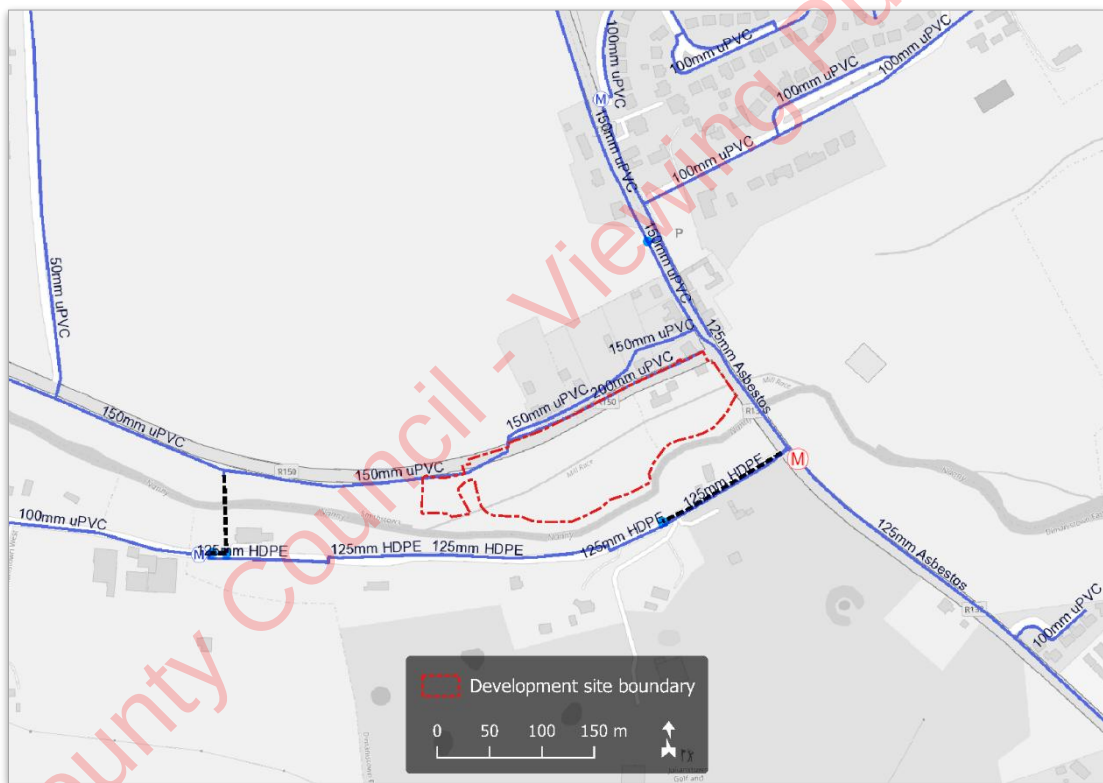
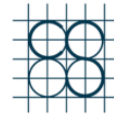


Figure 3 – Local extract of Uisce Éireann water supply records
(sources: Uisce Éireann, OSM Contributors)

3.2 Potable Water Demand

The proposed development comprises the following elements that will require potable water supply:

- 62no. residential units (a mix of houses, apartments, and duplex units).
- 3no. retail units with a combined Gross Floor Area (GFA) of 974m².
- A medical centre with a GFA of 227m², including 5no. consultation rooms.



3.2.1 Residential water demand

The Uisce Éireann Code of Practice for Water Infrastructure specifies an average potable water demand of 150 litres per person per day for domestic dwellings, and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 167 people, and the average potable water demand of the proposed development may be calculated as:

⇒ 405 l/day per residential unit (based on 2.7 persons per unit x 150l/person/day).

⇒ Average water demand:

$$405 \text{ l/day per residential unit} \times 62 \text{ no. units} = 25,110 \text{ l/day} = 0.291 \text{ l/s}$$

⇒ Average day/peak week demand:

$$0.291 \text{ l/s} \times 1.25 = 0.364 \text{ l/s}$$

⇒ Peak water demand (5 times average water demand):

$$0.364 \text{ l/s} \times 5 = 1.820 \text{ l/s}$$

3.2.2 Retail water demand

The Uisce Éireann Code of Practice for Water Infrastructure does not specify potable water consumption rates for non-domestic uses; therefore, the water demand is assumed to be 150 l/person/day. Taking into consideration the size of the retail units, it is assumed that a maximum of 50no. people (including visitors) shall be present on a daily basis. Therefore, the potable water demand for the retail units may be calculated as:

⇒ 150 l/person/day.

⇒ Average water demand

$$150 \text{ l/person/day} \times 50 \text{ people} = 7,500 \text{ l/day} = 0.086 \text{ l/sec}$$

⇒ Average day/peak week demand:

$$0.086 \text{ l/s} \times 1.25 = 0.108 \text{ l/s}$$

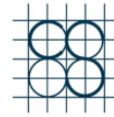
⇒ Peak water demand (5 times average water demand):

$$0.108 \text{ l/s} \times 5 = 0.540 \text{ l/s}$$

3.2.3 Medical centre water demand

The potable water demand of the development's medical centre has been determined in the same manner as that of the retail units; a water consumption rate of 150 l/person/day is assumed. The medical centre is assumed to have a maximum daily staff complement of 10no. people, and patients are allowed for by increasing the total full-day population to 20no. people. Therefore, the potable water demand for the medical centre may be calculated as:

⇒ 150 l/person/day.



⇒ Average water demand

$$150 \text{ l/person/day} \times 20 \text{ people} = 3,000 \text{ l/day} = 0.035 \text{ l/sec}$$

⇒ Average day/peak week demand:

$$0.035 \text{ l/s} \times 1.25 = 0.044 \text{ l/s}$$

⇒ Peak water demand (5 times average water demand):

$$0.044 \text{ l/s} \times 5 = 0.220 \text{ l/s}$$

3.2.4 Total potable water demand of the proposed development

➤ Average Demand = $0.291 \text{ l/s} + 0.086 \text{ l/s} + 0.035 \text{ l/s} = 0.412 \text{ l/s}$

➤ Average Demand (week) = $0.364 \text{ l/s} + 0.108 \text{ l/s} + 0.044 \text{ l/s} = 0.516 \text{ l/s}$

➤ Peak Demand = $1.820 \text{ l/s} + 0.540 \text{ l/s} + 0.220 \text{ l/s} = 2.580 \text{ l/s}$

Please refer to CS Consulting Drawing no. **S085-CSC-ZZ-XX-DR-C-0110** for the proposed watermain layout.

3.3 **Proposed Water Supply Arrangement**

It is proposed to provide a new connection to the existing 200mm uPVC watermain to the north of the development site. It is proposed to make the new connection via a 100mm diameter watermain to serve the proposed development.

To reduce both the development's demand on the public water supply network and its foul effluent generation, water conservation measures such as low water use appliances shall be incorporated into the sanitary facilities and fixtures throughout the development.

Refer to CS Consulting drawing no. **S085-CSC-ZZ-XX-DR-C-0110** for details of the potable water arrangements for the proposed development.

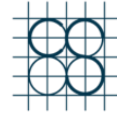
3.4 **Design Standards**

All proposed watermain infrastructure shall be designed to meet the following:

- Uisce Éireann Code of Practice for Water Infrastructure
- Building Regulations
- Uisce Éireann Water Infrastructure Standard Details

3.5 **Uisce Éireann Engagement**

A Pre-Connection Enquiry for this scheme was submitted to Uisce Éireann on the 4th of November 2024, based on the projected potable water demand of a mixed-use development comprising 85no. residential units and 3no. retail units. Uisce Éireann issued a Confirmation of Feasibility in response on the 11th of March 2025, stating that connection of such a development to the public supply network would be feasible without infrastructure



upgrade by Uisce Éireann. The Uisce Éireann Confirmation of Feasibility is attached as **Appendix B**.

4.0 FOUL DRAINAGE

4.1 Existing Foul Drainage Infrastructure

Uisce Éireann drainage records indicate that 2no. existing foul sewers traverse the development site, entering at its northern boundary and exiting at its eastern boundary. These pass under the R132 and discharge to the Julianstown Wastewater Pumping Station (WWPS), approximately 120m to the east of the development site. Existing foul sewers are also in place in the R132 itself, falling to a low point immediately north of the R150 junction and likewise discharging to the Julianstown WWPS.

Figure 4 shows a local extract of Uisce Éireann foul drainage records. Records with greater coverage are included in **Appendix A**.

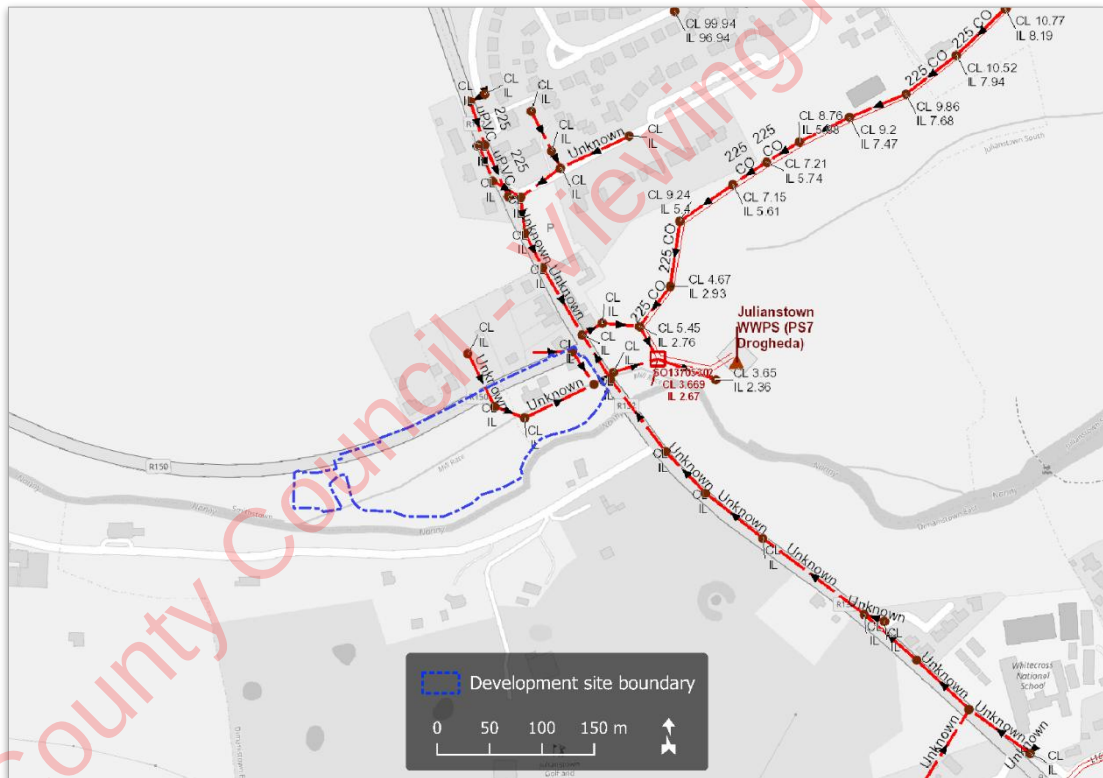
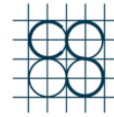


Figure 4 – Local extract of Uisce Éireann foul drainage records
(sources: Uisce Éireann, OSM Contributors)

4.2 Foul Effluent Generation

The proposed development comprises the following elements that will generate foul effluent:

- 62no. residential units (a mix of houses, apartments, and duplex units).
- 3no. retail units with a combined Gross Floor Area (GFA) of 974m².
- A medical centre with a GFA of 227m², including 5no. consultation rooms.



4.2.1 Foul effluent generated by residential units

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average foul effluent flow rate of 165 litres per person per day for domestic dwellings (150 litres per person per day, plus a 10% allowance for external infiltration) and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 167 people, and the foul effluent to be generated by the proposed residential units may be calculated as:

⇒ 165 l/person/day

⇒ Dry Weather Flow (DWF)

$$165 \text{ l/person/day} \times 167 \text{ people} = 27,555 \text{ l/day} = 0.319 \text{ l/s}$$

⇒ Peak Flow (6 times DWF)

$$6 \times 0.319 \text{ l/s} = 1.914 \text{ l/s}$$

4.2.2 Foul effluent generated by retail units

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average foul effluent flow rate of 99 litres per person per day for full shift staff (90 litres per person per day, plus a 10% allowance for external infiltration). It is also assumed that a maximum of 50no. people (including visitors) shall be utilising the facility on a daily basis. Therefore, the foul effluent generated by the development's retail units may be calculated as:

⇒ 99 l/person/day

⇒ Dry Weather Flow (DWF)

$$99 \text{ l/person/day} \times 50 \text{ people} = 4,950 \text{ l/day} = 0.057 \text{ l/s}$$

⇒ Peak Flow (6 times DWF)

$$6 \times 0.057 \text{ l/s} = 0.342 \text{ l/s}$$

4.2.3 Foul effluent generated by medical centre

The foul effluent generation of the development's medical centre has been determined in the same manner as that of the retail units; a rate of 99 l/person/day is assumed. The medical centre is assumed to have a maximum daily staff complement of 10no. people, and patients are allowed for by increasing the total full-day population to 20no. people. Therefore, the foul effluent generation of the medical centre may be calculated as:

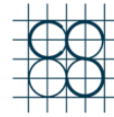
⇒ 99 l/person/day

⇒ Dry Weather Flow (DWF)

$$99 \text{ l/person/day} \times 20 \text{ people} = 1,980 \text{ l/day} = 0.023 \text{ l/s}$$

⇒ Peak Flow (6 times DWF)

$$6 \times 0.023 \text{ l/s} = 0.138 \text{ l/s}$$



4.2.4 Total foul effluent generated by the proposed development

The overall foul effluent generation of the proposed development may be calculated as the total of the foul effluent generated by the residential units, retail units and medical centre:

- Dry Weather Flow = 0.319 l/s + 0.057 l/s + 0.023 l/s = 0.399 l/s
- Peak Flow (6 times DWF) = 1.914 l/s + 0.342 l/s + 0.138 l/s = 2.394 l/s

4.3 **Proposed Foul Drainage Arrangements and Outfall**

The existing foul sewer traversing the site is proposed to be diverted as part of this application. It is also proposed to upgrade a portion of the existing foul network that crosses the site to the east.

The foul effluent generated from the proposed retail buildings at lower ground floor shall be discharged to the upgraded portion of foul sewer mentioned above by gravity.

The foul effluent generated by 9 No. residential units at the southwestern portion of the proposed development shall be discharged into a Type 1 Foul Pumping Station. From here, the foul shall be pumped via a 50mm rising main to the proposed foul network which shall ultimately discharge the foul effluent to the existing foul sewer by gravity.

The foul effluent generated by the remaining residential and retail units of the proposed development shall be discharged into the existing foul sewer entirely by gravity.

Refer to CS Consulting drawing no **S085-CSC-ZZ-XX-DR-C-0112** for further details.

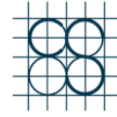
4.4 **Design Standards**

All proposed foul infrastructure shall be designed to meet the following:

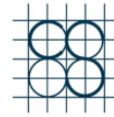
- The Regional Code of Practice Drainage Works
- The Greater Dublin Strategic Drainage Study
- Uisce Éireann Code of Practice for Wastewater Infrastructure
- Part H of the Building Regulations
- Uisce Éireann Wastewater Infrastructure Standard Details

4.5 **Uisce Éireann Engagement**

A Pre-Connection Enquiry for this scheme was submitted to Uisce Éireann on the 4th of November 2024, based on the projected foul effluent generation of a mixed-use development comprising 85no. residential units and 3no. retail units. Uisce Éireann issued a Confirmation of Feasibility in response on the 11th of March 2025, stating that connection of such a



development to the public foul drainage network would be feasible without infrastructure upgrade by Uisce Éireann. The Uisce Éireann Confirmation of Feasibility is attached as **Appendix B**.



5.0 SURFACE WATER MANAGEMENT

5.1 Existing Stormwater Infrastructure

The River Nanny, which flows eastward, forms the southern boundary of the development site. Uisce Éireann drainage records indicate that an existing stormwater sewer of unknown diameter is in place in the R132, to the north of the development site; this falls to the south and discharges to the River Nanny at the bridge immediately north-east of the development site.

Figure 4 shows a local extract of Uisce Éireann stormwater drainage records. Records with greater coverage are included in **Appendix A**. It must be noted that Uisce Éireann is not responsible for the maintenance of stormwater sewers, and that its records of such infrastructure are therefore not definitive.

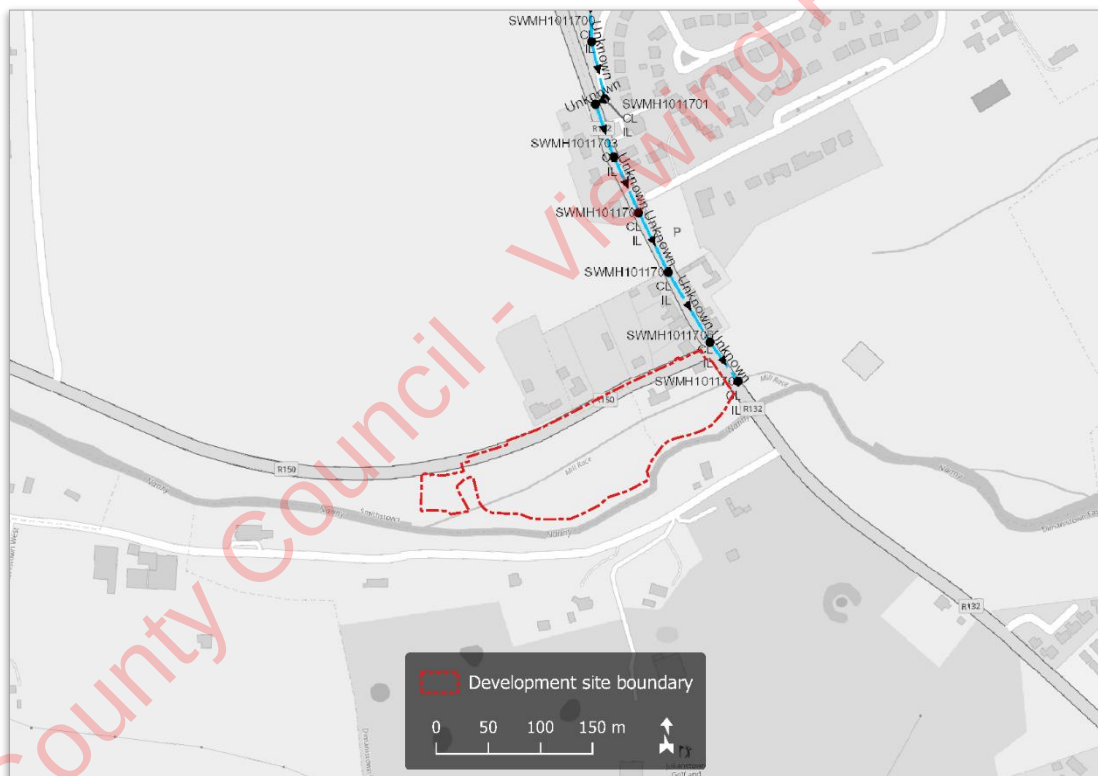
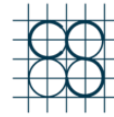


Figure 5 – Local extract of Uisce Éireann stormwater drainage records
(sources: Uisce Éireann, OSM Contributors)



5.2 Allowable discharge rate

The restriction of post development run-off to greenfield discharge rates is intended to be achieved primarily through the provision of onsite attenuation storage, which shall retain excess runoff during extreme rainfall events and allow this to be discharged at a controlled rate. It is proposed to provide attenuation storage on site through the provision of underground attenuation tanks and swales.

In accordance with Meath County Council's requirements, the subject site must retain stormwater generated on site during a 1-in-100-year storm event (increased by 20% for predicted climate change effects) and limit stormwater discharge from the site to the greenfield discharge rate, QBar, calculated as follows:

$$QBAR = 0.00108 \times AREA^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$$

Where:

- AREA = site area in km², equal to a 50-ha catchment if the site is less than 50 hectares
- SAAR = standard average annual rainfall equal to 770 mm (as per Met Éireann data)
- SOIL = soil index, with associated SPR (Standard Percentage Runoff) coefficients as shown in

Table 1:

Table 1 – SPR Values for each Soil Type

SOIL TYPE	SOIL TYPE 1	SOIL TYPE 2	SOIL TYPE 3	SOIL TYPE 4	SOIL TYPE 5
SPR	0.1	0.3	0.37	0.47	0.53

The Soil type value for the subject lands has been established as soil type 3, which equates to a SOIL value of **0.37**.

These parameters allow the Q-Bar greenfield runoff rate to be calculated:

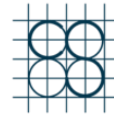
$$QBAR = 0.00108 \times AREA^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$$

$$= 0.00108 \times 50ha^{0.89} \times 770^{1.17} \times 0.37^{2.17}$$

$$= 160.58 \text{ l/sec for a 50 hectare site}$$

$$= 3.21 \text{ l/sec/ha}$$

The calculated Q-Bar rate was determined to be **3.21 l/s/ha**.



5.3 Proposed Stormwater Drainage Arrangements

The topography of the subject site indicates that the development site falls from north to south-east. The proposed development site has been divided into two principal catchments areas for the collection and disposal of stormwater runoff from impermeable areas:

5.3.1 West Catchment

The West Catchment, highlighted in orange in **Figure 6** below, has an approximate area of 0.8ha. The allowable flow rate from the west catchment shall be determined as follows:

$$3.21 \text{ l/s/ha} \times 0.80 \text{ ha} = 2.6 \text{ l/s}$$

Due to the topography of the site, all storm water from this Catchment shall be collected via two underground attenuation tanks, with swales over the tanks providing additional attenuation storage.

It is proposed to restrict the outflow from the west catchment to the above calculated **2.6 l/s** through two separate hydrobrake manholes installed downstream of the proposed attenuation tanks, with one discharging at 1.44 l/s and the other one discharging at 1.16 l/s for a combined 2.6 l/s allowable discharge rate. The proposed tanks and swales shall provide a total of 256m³ and 70m³ of attenuation storage. Stormwater from this catchment shall outfall to River Nanny at an invert level of 4.20mAOD in order for the stormwater network to be above the 2-year flood exceedance level – refer to the Site-Specific Flood Risk Assessment carried out by JBA Consulting as part of this application and submitted under separate cover.

5.3.2 East Catchment

The East Catchment, highlighted in yellow in **Figure 6** below, has an approximate area of 0.5ha.

The east catchment is almost entirely made up of hardstanding surface and the rainfall that hits this catchment flows directly to River Nanny at a rate of 65 l/s. This flow has been estimated taking the entirety of the catchment runoff area of 0.5ha flowing through 100% hardstanding surface. Therefore, it is proposed to retain the outflow from the east catchment to 65 l/s through a hydrobrake manholes which shall be installed downstream of a proposed underground attenuation tank providing 40m³ of attenuation storage.

Refer to **Figure 6** below and to CS Consulting Drawing no. **S085-CSC-ZZ-XX-DR-C-0115** for details of the proposed catchment areas.

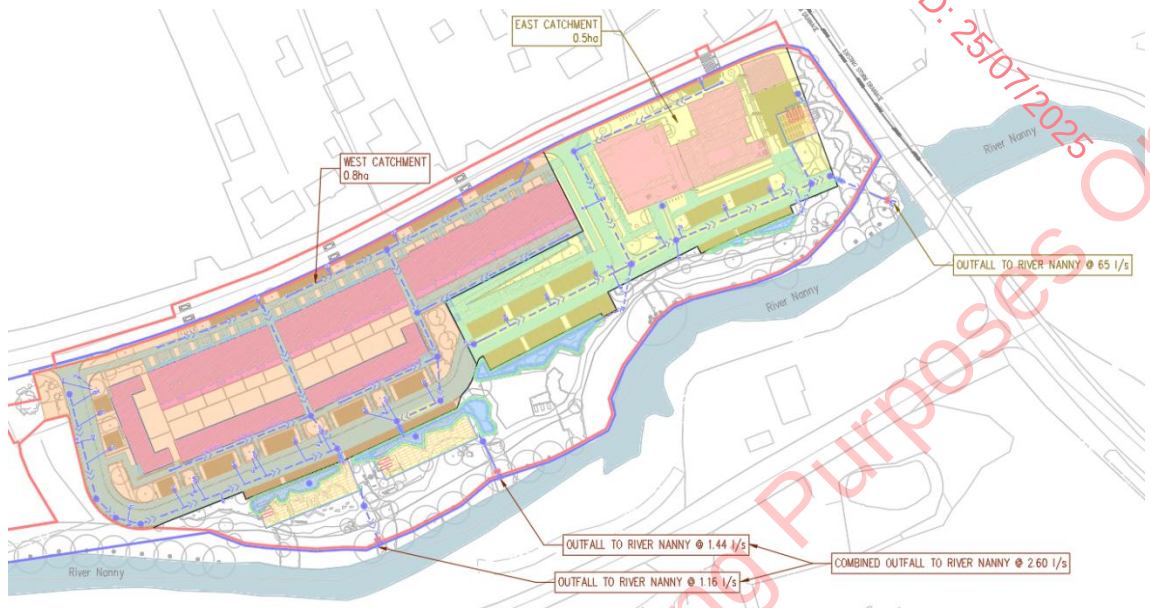
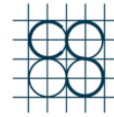


Figure 6 – Catchment Areas

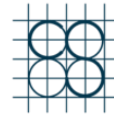
5.3.3 Stormwater Network Design

The proposed development's surface water drainage network has been designed through Info Drainage Design and Modelling Software to cater for both the 1-in-30-year and the 1-in-100-year storm events, both increased by 20% for the predicted effects of climate change. The Standard runoff coefficients (Cv) values applied to all runoff areas shall be 1.0 for both summer and winter storm events.

Refer to **Table 2** below and to CS Consulting Drawing no. **S085-CSC-ZZ-XX-DR-C-0115** for details of the runoff factors applied to each surface type and overall effective impermeable area.

Table 2 – Runoff Factors and Effective Impermeable Area

Surface Type	Area (m ²)	Runoff Factor (%)	Impermeable Area (m ²)
Roads and Footpaths	4,557	90	4,101
Roofs and Plot Curtilages	3,752	80	3,002
Permeable Pavement	1,320	50	759
Green Areas	3309	5	165
Swales	575	90	518
TOTAL	13,710	-	8,545



The storm water from the proposed development shall be collected in separate storm pipes of diameter varying between 150mm and 300mm and shall pass through oil separators before being discharged into River Nanny.

Refer to the Surface Water Analysis and Modelling Calculations in **Appendix C** and to CS Consulting Drawing no. **S085-CSC-ZZ-XX-DR-C-0113** for the surface water drainage layout.

5.3.4 Proposed SuDS Elements

Meath County Council's Drainage Division requires that all developments adhere to their policy of implementing Sustainable Urban Drainage Systems (SuDS). SuDS not only entail restricting stormwater discharge during extreme storm events but also to integrate sustainable water management solutions to create safe places. The features proposed shall reduce run-off volumes and pollution concentrations and enhance groundwater recharge and biodiversity.

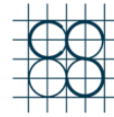
The proposed SuDS features within the subject development shall consist of:

- a. Low water usage sanitary appliances to reduce the volume of potable water required for use within buildings.
- b. Permeable paving for car-parking bays to allow rainwater to dissipate into the ground, mimicking the current natural arrangement.
- c. Tree Pits.
- d. Swales
- e. Attenuation tank.
- f. Water butts to the back of each unit, to collect stormwater runoff.

Refer to CS Consulting Drawing no. **S085-CSC-ZZ-XX-DR-C-0114** for proposed SuDS layout.

5.3.5 SuDS Outline Management Plan

For the SUDS strategy to work as designed, it is important that the entire drainage system is well maintained. It shall be the responsibility of the Meath County Council to ensure the drainage system is maintained. Maintenance and clearing of gullies drain manholes and attenuation tanks shall ensure adequate performance.



5.3.6 Summary of Compliance with Criteria 1-4 of GDSDS

The GDSDS and the Regional Code of Practice for Drainage Works require that a development's stormwater drainage arrangements satisfy four main criteria:

- Criterion 1: River Water Quality Protection – satisfied by treatment of run-off within SuDS features, e.g., Permeable paving, tree pits, detention basin, attenuation tank, etc. and hydrocarbon interceptor.
- Criterion 2: River Regime Protection - satisfied by attenuating run-off from the site.
- Criterion 3: Level of Service (flooding) for the site – satisfied by ensuring the development's floor levels are set to a minimum of the 1% Annual Exceedance Probability (AEP) of flooding, plus allowance for potential future bridge blockage, plus a freeboard of between 300-500mm¹.
- Criterion 4: River Flood Protection – attenuation and/or long-term storage provided within the SuDS features with outflow to River Nanny restricted to QBar

5.4 **Design Standards**

The proposed new stormwater drainage infrastructure has been designed and will be constructed in accordance with:

- i) The Greater Dublin Strategic Drainage Study (GDSDS), Volume 2
- ii) The Greater Dublin Regional Code of Practice for Drainage Works
- iii) British Standard BS EN 752:2008 (Drains and Sewer Systems Outside Buildings)
- iv) Part H of the Building Regulations (Building Drainage).

¹ For further information refer to the Site-Specific Flood Risk Assessment carried out by JBA Consulting as part of this application and submitted under separate cover.



5.5 Stormwater Interception

The Greater Dublin Strategic Drainage Study (GDSDS) recommends intercepting the first 5mm of rainfall on site across the proposed SuDS features. For an overall catchment area of 13,710 m², this equates to:

$$\text{Interception required} = 13,710\text{m}^2 \times 0.005 = \underline{\underline{68.55\text{m}^3}}$$

Across the site, 1,517m² of permeable paving is provided. Assuming 15mm depth of interception, this equates to a volume of $1,517 \times 0.015 = 22.78\text{m}^3$.

In addition, a combined 752m² of Stormtech System stone base layer is provided in the attenuation tanks. Assuming 150mm depth of stone below the overflow pipe with a 40% voids ratio, this equated to a storage volume of $752 \times 0.150 \times 0.4 = 45.12\text{m}^3$.

Finally, 94m² of tree pits is provided. Assuming 15mm depth of interception, this equates to a volume of $94 \times 0.015 = 1.41\text{m}^3$.

Therefore, the total volume of interception and treatment is **69.29m³** of storage which exceeds the development's required stormwater interception volume requirement of **68.55m³** as outlined above.



6.0 FLOOD RISK ASSESSMENT

A Site-Specific Flood Risk Assessment has been carried out by JBA Consulting as part of this application and is submitted under separate cover.



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APPENDIX A

UISCE ÉIREANN DRAINAGE AND WATER SUPPLY RECORDS

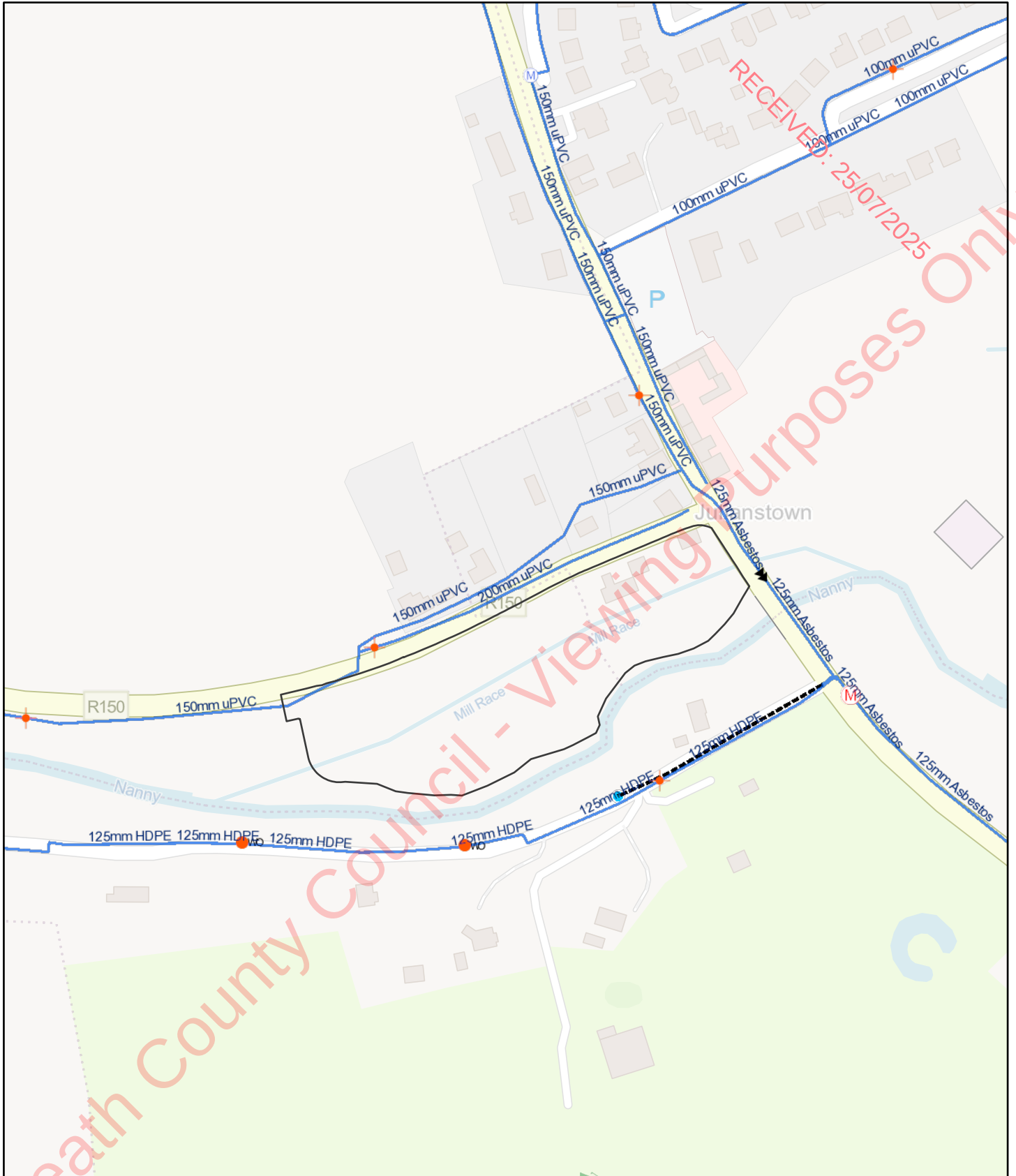
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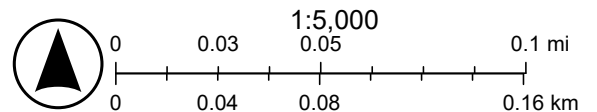
Meath County Council - Viewing Purposes Only!

UÉ Web Map - Supply Records - Old Mill, Julianstown



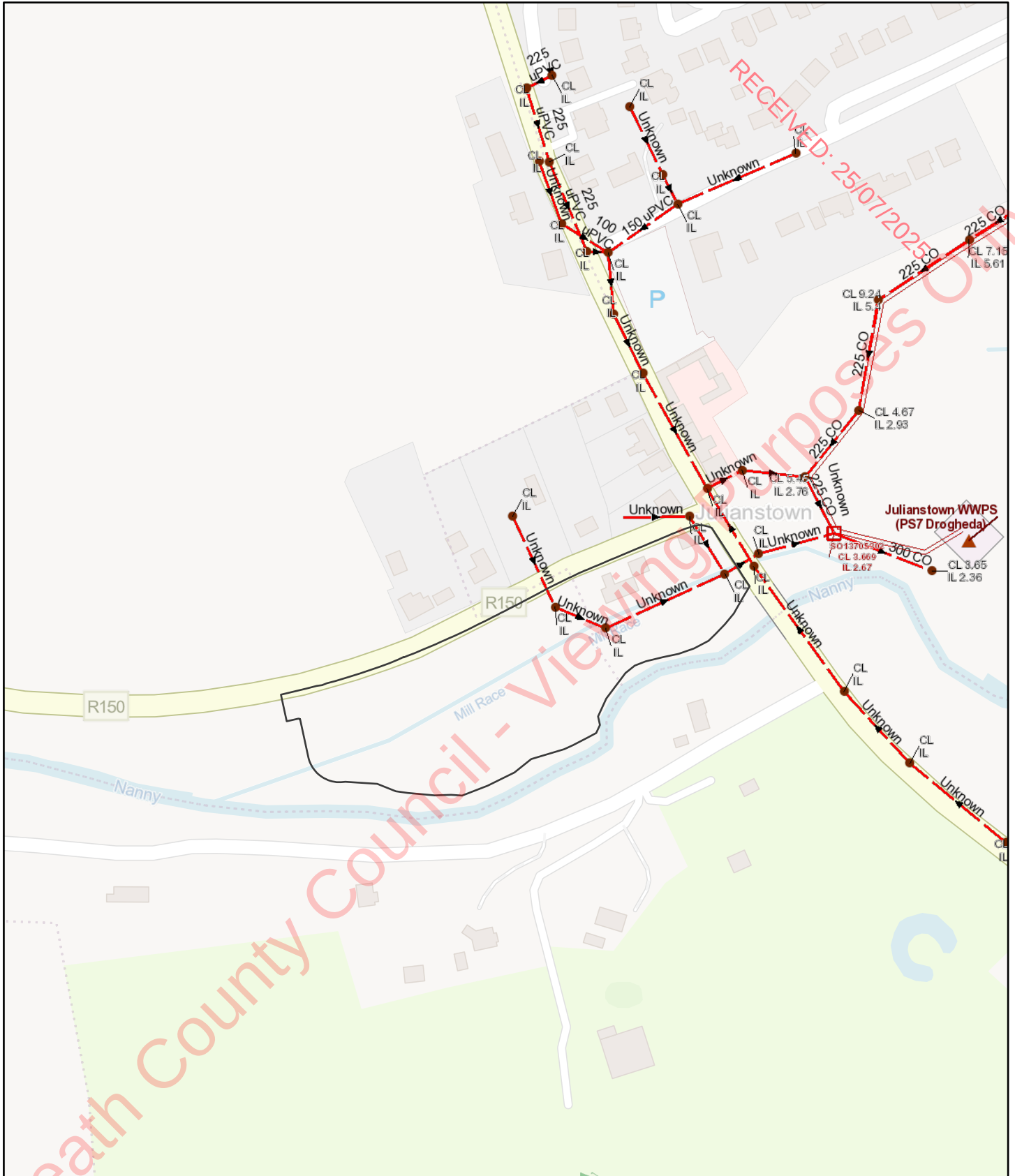
04/06/2025

Network Meters	Boundary Valves	Reservoir	Storage Tower
Boundary Meter	Sluice Valve Open	Reservoir (Potable Water)	Dosing Point
Bulk Meter	Sluice Valve Closed	Reservoir (Raw Water)	Meter Station
Check Meter	Butterfly Valve Open	Water Pump Stations	Water Pump
Group Scheme	Butterfly Valve Closed	Water Network Structures	Other; Unknown
Source Meter	Scour Valves	Storage Cell	Water Distribution Mains
Waste Meter	Water Hydrants	Storage Tower	Irish Water
Unknown Meter; Other Meter	Fire Hydrant	Dosing Point	Private
Flow Control Valves	Fire Hydrant/Washout	Meter Station	Trunk Water Mains
Non-Return	Washout	Water Pump	Irish Water
PRV	Water Treatment Plant	Other; Unknown	Private
PSV	Abstraction Point	Private Water Network Structures	Water Abandoned Lines
	Storage Cell	Storage Cell	Water Abandoned Points



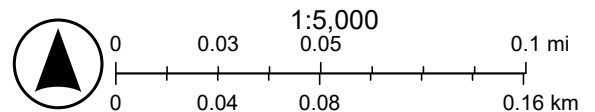
Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri
Community Maps contributors, Map layer by Esri

UÉ Web Map - Foul Drainage Records - Old Mill, Julianstown



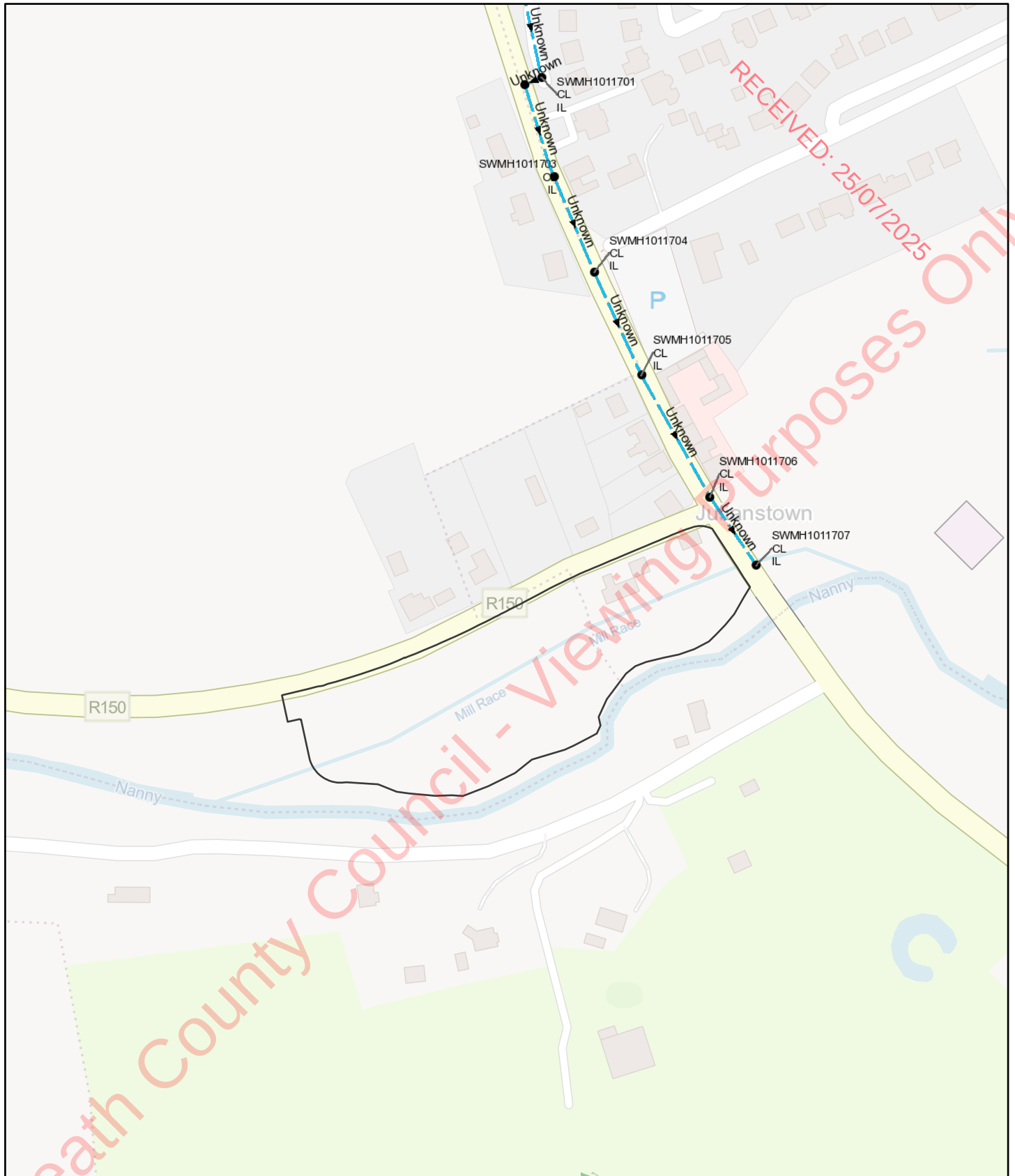
04/06/2025

Sewer Manholes	Sewer Clean Outs	Sewer Mains	Sewer Mains (Private)
Standard	Rodding Eye	Gravity - Combined	Gravity - Combined
Backdrop	Flushing Structure	Gravity - Foul	Gravity - Foul
Cascade	Other; Unknown	Gravity - Overflow	Gravity - Overflow
Catchpit	Waste Water Treatment plant	Gravity - Unknown	Gravity - Unknown
Bifurcation	Waste Water Pump station	Pumping - Combined	Pumping - Combined
Hatchbox	Sewer Inlets	Pumping - Foul	Pumping - Foul
Lamphole	Standard	Pumping - Overflow	Pumping - Overflow
Hydrobrake	Catchpit	Pumping - Unknown	Pumping - Unknown
Other; Unknown	Gully	Syphon - Combined	Syphon - Combined
Sewer Discharge Points	Other; Unknown	Syphon - Foul	Syphon - Foul
Outfall	Sewer Chambers	Syphon - Overflow	Syphon - Overflow
Overflow		Overflow	Overflow
Soakaway			



Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri
Community Maps contributors, Map layer by Esri

UÉ Web Map - Storm Drainage Records - Old Mill, Julianstown



04/06/2025

Storm Manholes

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

Storm Discharge Points

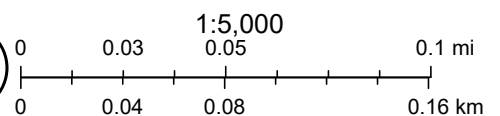
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Surface Water Mains

- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Storm Inlets

- Gully
- Standard
- Other; Unknown
- Storm Culverts
- Storm Clean Outs
- Storm Weirs
- Storm Open Drains
- Storm Detention Areas
- Storm chambers



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Community Maps contributors, Map layer by Esri



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APPENDIX B
UISCE ÉIREANN CONFIRMATION OF FEASIBILITY

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Meath County Council - Viewing Purposes Only!

CONFIRMATION OF FEASIBILITY

Gary Lindsay
CS Consulting
19-22 Dame Street
Dublin
D02E267

11 March 2025

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

Our Ref: CDS24009568 Pre-Connection Enquiry
Mixed Use Development At, Duleek Road, Julianstown, Meath

Dear Applicant/Agent,

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

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Multi/Mixed Use Development of 88 unit(s) at Mixed Use Development At, Duleek Road, Julianstown, Meath, (the **Development**).

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

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- This connection has been deemed feasible based on the existing sewer to which the site intends to connect to being a minimum size of 225mm as far as Julianstown WWPS. The applicant will be responsible for verifying the sizing of the sewer at Connection Application Stage via CCTV surveys. These are to be presented to Uisce Éireann for review.
- The proposed Development indicates that Uisce Éireann assets are present on the site. The Developer has to demonstrate that proposed structures and works will not inhibit access for maintenance or endanger structural or functional integrity of the assets during and after the works. Drawings (showing clearance distances, changing to ground levels) and Method Statements should be included in the Detailed Design of the

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.

Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

Development. A wayleave in favour of Uisce Éireann will be required over the assets that are not located within the Public Space. For design submissions and queries related to diversion/build near or over, please contact IW Diversion Team via email address diversions@water.ie

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/

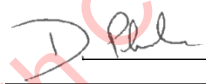
Where can you find more information?

- **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?

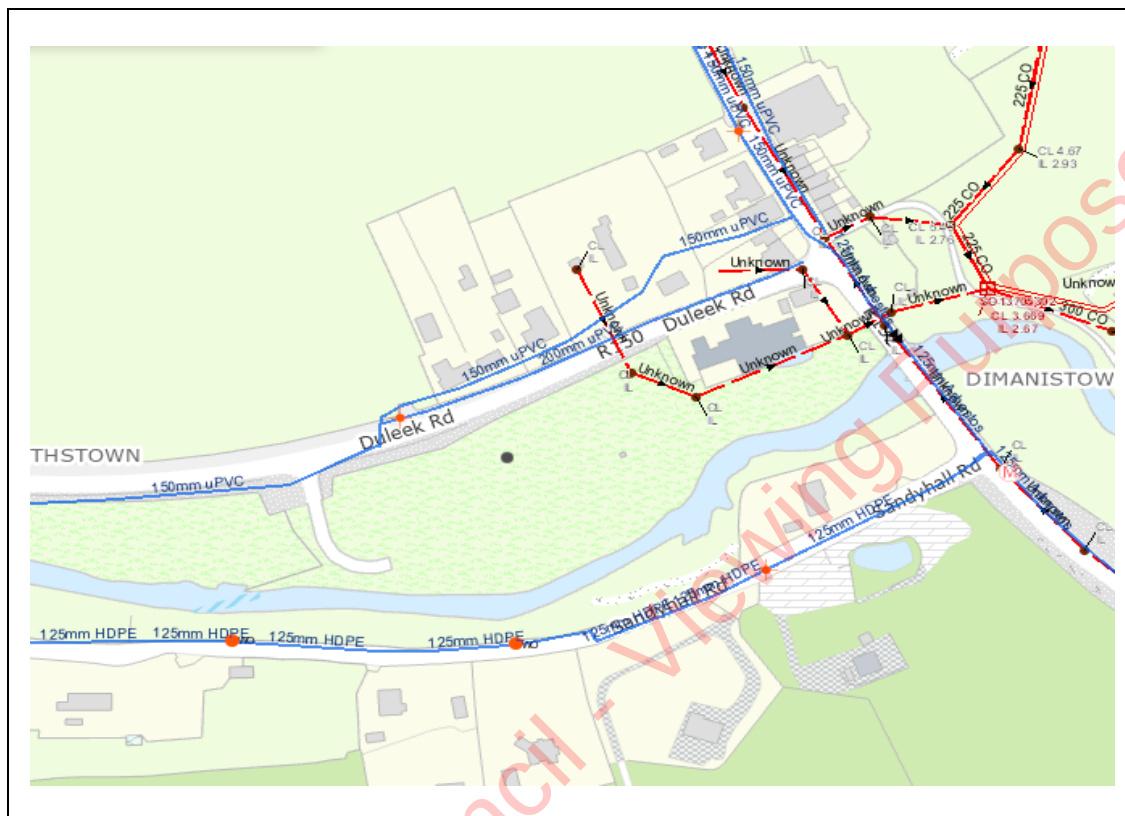
What is important to know?	Why is this important?
Do you need a contract to connect?	- Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). - Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> 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 <i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i>, 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.



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APPENDIX C
SURFACE WATER ANALYSIS AND MODELLING CALCULATIONS

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Meath County Council - Viewing Purposes Only!

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025			
Report Details: Type: Network Design Criteria Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			

Flow Options

Peak Flow Calculation	Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

FSR

Type: FSR

Return Period (years)	100
Region	Scotland and Ireland
M5-60 (mm)	16.7
Ratio R	0.327

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	500.00
Max. Slope (1:x)	20.00
Min. Backdrop (m)	0.600
Max. Backdrop (m)	2.000
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025			
Report Details: Type: Junctions Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			

Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Chamber Shape	Diameter (m)
SMH1	Manhole	713136.088	770309.301	8.324	1.424	6.900	Circular	1.200
SMH2	Manhole	713144.403	770276.954	7.500	1.425	6.075	Circular	1.050
SMH4	Manhole	713158.168	770269.087	7.125	1.425	5.700	Circular	1.050
SMH5	Manhole	713216.236	770291.228	6.200	1.640	4.560	Circular	1.050
SMH13	Manhole	713251.196	770307.309	5.300	0.925	4.375	Circular	1.200
SMH30	Manhole	713310.394	770349.650	4.200	1.060	3.140	Circular	1.200
SMH9	Manhole	713234.536	770354.043	8.375	1.812	6.563	Circular	1.200
SMH17	Manhole	713243.999	770334.563	8.300	1.950	6.350	Circular	1.200
SMH19	Manhole	713250.250	770320.934	8.300	3.500	4.800	Circular	1.200
SMH24	Manhole	713338.537	770405.856	7.200	1.350	5.850	Rectangular	
SMH25	Manhole	713292.550	770384.571	6.900	1.900	5.000	Circular	1.200
East Catchment Outfall	Manhole	713390.941	770368.829	4.000	1.300	2.700	Circular	1.200
SMH23	Manhole	713324.320	770357.107	3.960	0.900	3.060	Circular	1.050
SMH32	Manhole	713362.063	770402.364	4.400	1.400	3.000	Circular	1.200
SMH22	Manhole	713320.015	770367.661	4.400	1.200	3.200	Circular	1.050
West Catchment Outfall A	Manhole	713266.290	770282.685	6.000	1.800	4.200	Circular	1.200
SIC18	Manhole	713290.729	770358.638	8.300	1.350	6.950	Rectangular	
SIC8	Manhole	713196.207	770336.414	8.720	1.359	7.361	Rectangular	
SMH10	Manhole	713210.969	770302.673	8.300	2.633	5.667	Circular	1.200
SIC6	Manhole	713163.474	770323.842	8.720	1.050	7.670	Rectangular	
SIC7	Manhole	713178.843	770329.280	8.720	1.159	7.561	Rectangular	
SIC14	Manhole	713203.627	770339.601	8.720	1.050	7.670	Rectangular	
SIC16	Manhole	713276.046	770375.538	8.300	1.350	6.950	Rectangular	
SMH3	Manhole	713150.505	770271.034	7.350	1.425	5.925	Circular	1.050
SMH33	Manhole	713372.026	770376.937	3.550	0.750	2.800	Circular	1.200
SIC11	Manhole	713167.373	770285.687	8.300	1.350	6.950	Rectangular	
SIC12	Manhole	713219.957	770306.686	8.300	1.350	6.950	Rectangular	
SMH18	Manhole	713261.469	770324.818	4.800	1.385	3.415	Circular	1.200
SMH31	Manhole	713366.318	770374.567	3.650	0.818	2.832	Circular	1.200
SMH7	Manhole	713260.533	770294.276	5.300	1.025	4.275	Circular	1.200
SMH6	Manhole	713237.609	770301.036	5.700	1.385	4.315	Circular	1.200
SMH8	Manhole	713226.035	770272.833	5.300	1.040	4.260	Circular	1.200
West Catchment Outfall B	Manhole	713230.483	770262.761	6.000	1.800	4.200	Circular	1.200

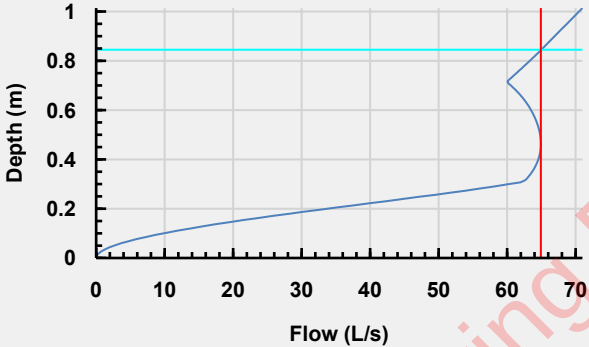
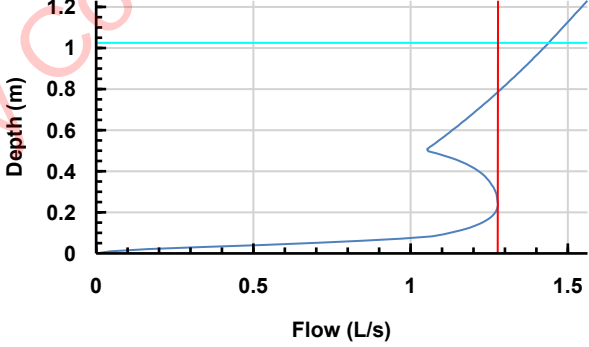
Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025			
Report Details: Type: Junctions Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			

Name	Diameter (m)	Width (m)	Lock
SMH1			None
SMH2			None
SMH4			None
SMH5			None
SMH13			None
SMH30			None
SMH9			None
SMH17			None
SMH19			None
SMH24	0.600	0.600	None
SMH25			None
East Catchment Outfall			None
SMH23			None
SMH32			None
SMH22			None
West Catchment Outfall A			All
SIC18	0.600	0.600	None
SIC8	0.600	0.600	None
SMH10			None
SIC6	0.600	0.600	None
SIC7	0.600	0.600	None
SIC14	0.600	0.600	None
SIC16	0.600	0.600	None
SMH3			None
SMH33			None
SIC11	0.600	0.600	None
SIC12	0.600	0.600	None
SMH18			None
SMH31			None
SMH7			None
SMH6			None
SMH8			None
West Catchment Outfall B			All

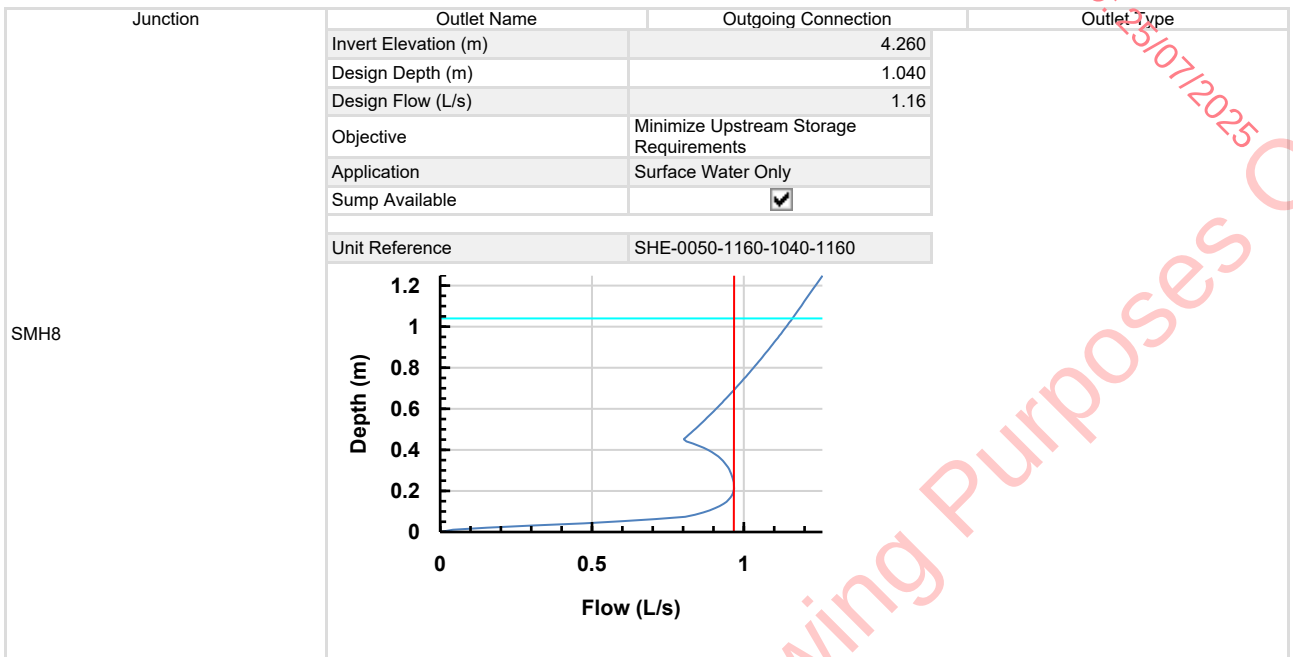
Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SMH1	Outlet	S1.000	Free Discharge
SMH2	Outlet	S1.001	Free Discharge
SMH4	Outlet	S1.003	Free Discharge
SMH5	Outlet	S1.004	Free Discharge
SMH13	Outlet	S6.004	Free Discharge
SMH30	Outlet	S7.001	Free Discharge
SMH9	Outlet	S6.001	Free Discharge
SMH17	Outlet	S6.002	Free Discharge
SMH19	Outlet	S6.003	Free Discharge
SMH24	Outlet	S8.000	Free Discharge
SMH25	Outlet	S8.001	Free Discharge
SMH23	Outlet	S7.002	Free Discharge
SMH32	Outlet	S10.000	Free Discharge
SMH22	Outlet	S9.000	Free Discharge
SIC18	Outlet	S11.000	Free Discharge
SIC8	Outlet	S2.002	Free Discharge
SMH10	Outlet	S2.003	Free Discharge
SIC6	Outlet	S2.000	Free Discharge
SIC7	Outlet	S2.001	Free Discharge
SIC14	Outlet	S6.000	Free Discharge
SIC16	Outlet	S3.000	Free Discharge
SMH3	Outlet	S1.002	Free Discharge
	Outlet (1)	S7.004	Hydro-Brake®

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Junction	Outlet Name	Outgoing Connection	Outlet Type
SMH33	Invert Elevation (m)	2.800	
	Design Depth (m)	0.845	
	Design Flow (L/s)	65.0	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0331-6500-0845-6500	
SIC11	Outlet	S4.000	Free Discharge
SIC12	Outlet	S5.000	Free Discharge
SMH18	Outlet	S7.000	Free Discharge
SMH31	Outlet	S7.003	Free Discharge
SMH7	Outlet	S6.007	Hydro-Brake®
	Invert Elevation (m)	4.275	
	Design Depth (m)	1.025	
	Design Flow (L/s)	1.44	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0056-1440-1025-1440	
SMH6	Outlet	S6.005	Free Discharge
	Outlet	S1.006	Hydro-Brake®

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Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath	Designed by: AC	Checked by: GL	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267		



East Stormtech Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	3.680
Depth (m)	0.705
Base Elevation (m)	2.975
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	54
Average Slope (1:x)	0.00
Total Volume (m³)	39.745

Depth (m)	Area (m²)	Volume (m³)
0.000	104.40	0.000
0.705	104.40	39.745

Advanced

Perimeter	Rectangular
Length (m)	10.660



West Stormtech Tank A

Type : Tank

Dimensions

Exceedance Elevation (m)	5.300
Depth (m)	1.005
Base Elevation (m)	4.295
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	55.5
Average Slope (1:x)	0.00
Total Volume (m³)	127.464

Depth (m)	Area (m²)	Volume (m³)
0.000	325.00	0.000
0.705	325.00	127.164

Advanced

Perimeter	Circular
Length (m)	32.500

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West Stormtech Tank B

Type : Tank

Dimensions

Exceedance Elevation (m)	5.300
Depth (m)	1.005
Base Elevation (m)	4.295
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	55.5
Average Slope (1:x)	0.00
Total Volume (m³)	127.464

Depth (m)	Area (m²)	Volume (m³)
0.000	325.00	0.000
0.705	325.00	127.164

Advanced

Perimeter	Circular
Length (m)	32.500



Swale A

Type : Pond

Dimensions

Exceedance Elevation (m)	5.300
Depth (m)	0.300
Base Elevation (m)	5.000
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	7.609
Total Volume (m³)	45.215

Depth (m)	Area (m²)	Volume (m³)
0.000	104.00	0.000
0.300	202.89	45.215

Advanced

Perimeter	Circular
Length (m)	45.870
Friction Scheme	Manning's n
n	0.001

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Swale B

Type : Pond

Dimensions

Exceedance Elevation (m)	5.300
Depth (m)	0.300
Base Elevation (m)	5.000
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	6.533
Total Volume (m³)	25.065

Depth (m)	Area (m²)	Volume (m³)
0.000	54.000	0.000
0.300	117.123	25.065

Advanced

Perimeter	Circular
Length (m)	30.733
Friction Scheme	Manning's n
n	0.001

Project: S085		Date: 11/06/2025			
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Report Details: Type: Connections Storm Phase: Phase		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			

Name	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)
S1.000	33.398	Pipe	40.483		0.6	225	8.324	6.900
S6.001	21.657	Pipe	101.675		0.6	225	8.375	6.563
S6.002	14.994	Pipe	60.000		0.6	225	8.300	6.350
S8.000	50.674	Pipe	144.783		0.6	150	7.200	5.850
S1.003	62.145	Pipe	54.513		0.6	225	7.125	5.700
S2.002	36.829	Pipe	51.799		0.6	225	8.720	7.361
S2.003	12.598	Pipe	18.914		0.6	225	8.300	5.667
S2.000	16.302	Pipe	149.564		0.6	150	8.720	7.670
S2.001	18.772	Pipe	150.178		0.6	150	8.720	7.561
S6.000	34.117	Pipe	33.059		0.6	150	8.720	7.670
S1.001	8.501	Pipe	56.674		0.6	225	7.500	6.075
S1.002	7.907	Pipe	35.143		0.6	225	7.350	5.925
S9.000	11.399	Pipe	175.365		0.6	225	4.400	3.200
S7.001	15.797	Pipe	197.461		0.6	300	4.200	3.140
S4.000	46.788	Pipe	38.732		0.6	150	8.300	6.950
S7.002	45.483	Pipe	199.487		0.6	300	3.960	3.060
S7.000	54.866	Pipe	199.511		0.6	225	4.800	3.415
S11.000	52.568	Pipe	100.129		0.6	150	8.300	6.950
S3.000	46.745	Pipe	150.000		0.6	150	8.300	6.950
S6.003	13.657	Pipe	32.134		0.6	300	8.300	4.800
S7.004	20.580	Pipe	205.801		0.6	225	3.550	2.800
S8.001	39.216	Pipe	21.847		0.6	225	6.900	5.000
S7.003	6.180	Pipe	193.138		0.6	300	3.650	2.832
S6.007	12.942	Pipe	172.563		0.6	225	5.300	4.275
S10.000	3.999	Pipe	159.968		0.6	225	4.400	3.000
S10.001	13.415	Pipe	197.274		0.6	225	3.680	2.975
S6.004	14.965	Pipe	249.425		0.6	300	5.300	4.375
S6.006	1.994	Pipe	99.723		0.6	300	5.300	4.295
S6.005	5.013	Pipe	250.629		0.6	300	5.700	4.315
S1.004	6.868	Pipe	25.917		0.6	225	6.200	4.560
S1.006	11.011	Pipe	182.727		0.6	225	5.300	4.260
S1.005	6.468	Pipe	186.182		0.6	225	5.300	4.295
S5.000	33.477	Pipe	39.384		0.6	150	8.300	6.950
Open Grated MH A	4.883	Pipe	6.926		0.6	300	5.300	5.000
Open Grated MH B	5.071	Pipe	7.194		0.6	300	5.300	5.000

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Name	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Part Family	Lock	Entry Loss	Exit Loss	Flow Restriction (L/s)	Culvert Type
S1.000	7.500	6.075		None	0.5	0		(None)
S6.001	8.300	6.350		Elevations	0.5	0		(None)
S6.002	8.300	6.100		Elevations	0.5	0		(None)
S8.000	6.900	5.500		Elevations	0.5	0		(None)
S1.003	6.200	4.560		Elevations	0.5	0		(None)
S2.002	8.300	6.650		Elevations	0.5	0		(None)
S2.003	6.200	5.001		Elevations	0.5	0		(None)
S2.000	8.720	7.561		None	0.5	0		(None)
S2.001	8.720	7.436		Elevations	0.5	0		(None)
S6.000	8.375	6.638		Elevations	0.5	0		(None)
S1.001	7.350	5.925		None	0.5	0		(None)
S1.002	7.125	5.700		None	0.5	0		(None)
S9.000	3.960	3.135		Elevations	0.5	0		(None)
S7.001	3.960	3.060		Elevations	0.5	0		(None)
S4.000	8.300	5.742		Elevations	0.5	0		(None)
S7.002	3.650	2.832		None	0.5	0		(None)
S7.000	4.200	3.140		Elevations	0.5	0		(None)
S11.000	8.300	6.425		Elevations	0.5	0		(None)
S3.000	8.375	6.638		Elevations	0.5	0		(None)
S6.003	5.300	4.375		Elevations	0.5	0		(None)
S7.004	4.000	2.700		None	0.5	0	65.0	(None)
S8.001	4.200	3.205		Elevations	0.5	0		(None)
S7.003	3.550	2.800		None	0.5	0		(None)
S6.007	6.000	4.200		None	0.5	0	1.4	(None)
S10.000	3.650	2.975		None	0.5	0		(None)
S10.001	3.650	2.907		Elevations	0.5	0		(None)
S6.004	5.700	4.315		None	0.5	0		(None)
S6.006	5.300	4.275		None	0.5	0		(None)
S6.005	5.300	4.295		None	0.5	0		(None)
S1.004	5.300	4.295		None	0.5	0		(None)
S1.006	6.000	4.200		None	0.5	0	1.2	(None)
S1.005	5.300	4.260		None	0.5	0		(None)
S5.000	8.300	6.100		Elevations	0.5	0		(None)
Open Grated MH A	5.300	4.295		None	0.5	0		(None)
Open Grated MH B	5.300	4.295		None	0.5	0		(None)

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Name	Culvert Entrance
S1.000	(None)
S6.001	(None)
S6.002	(None)
S8.000	(None)
S1.003	(None)
S2.002	(None)
S2.003	(None)
S2.000	(None)
S2.001	(None)
S6.000	(None)
S1.001	(None)
S1.002	(None)
S9.000	(None)
S7.001	(None)
S4.000	(None)
S7.002	(None)
S7.000	(None)
S11.000	(None)
S3.000	(None)
S6.003	(None)
S7.004	(None)
S8.001	(None)
S7.003	(None)
S6.007	(None)
S10.000	(None)
S10.001	(None)
S6.004	(None)
S6.006	(None)
S6.005	(None)
S1.004	(None)
S1.006	(None)
S1.005	(None)
S5.000	(None)
Open Grated MH A	(None)
Open Grated MH B	(None)

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Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (ha)
Footpath Runoff	SMH32		Time of Concentration	0.021	90	0	90	0.019
Footpath Runoff (1)	SMH25		Time of Concentration	0.005	90	0	90	0.005
Footpath Runoff (2)	SMH22		Time of Concentration	0.003	90	0	90	0.002
Footpath Runoff (3)	SIC16		Time of Concentration	0.008	90	0	90	0.007
Footpath Runoff (4)	SIC16		Time of Concentration	0.027	90	0	90	0.025
Footpath Runoff (5)	SIC11		Time of Concentration	0.014	90	0	90	0.013
Footpath Runoff (6)	SMH2		Time of Concentration	0.004	90	0	90	0.003
Footpath Runoff (7)	SIC12		Time of Concentration	0.010	90	0	90	0.009
Footpath Runoff (8)	SIC8		Time of Concentration	0.008	90	0	90	0.008
Footpath Runoff (9)	SMH9		Time of Concentration	0.005	90	0	90	0.005
Footpath Runoff (10)	SMH17		Time of Concentration	0.003	90	0	90	0.002
Footpath Runoff (11)	SMH10		Time of Concentration	0.002	90	0	90	0.002
Footpath Runoff (12)	SMH25		Time of Concentration	0.006	90	0	90	0.005
Footpath Runoff (13)	SMH18		Time of Concentration	0.040	90	0	90	0.036
Footpath Runoff (14)	SIC7		Time of Concentration	0.012	90	0	90	0.011
Footpath Runoff (15)	SIC6		Time of Concentration	0.017	90	0	90	0.016
Footpath Runoff (16)	SIC14		Time of Concentration	0.013	90	0	90	0.012
Footpath Runoff (17)	SIC14		Time of Concentration	0.012	90	0	90	0.011
Green Area	SIC6		Time of Concentration	0.011	5	0	5	0.001
Green Area (1)	SMH1		Time of Concentration	0.031	5	0	5	0.002
Green Area (2)	SMH2		Time of Concentration	0.007	5	0	5	0.000
Green Area (3)	SMH3		Time of Concentration	0.005	5	0	5	0.000
Green Area (4)	SIC6		Time of Concentration	0.016	5	0	5	0.001
Green Area (5)	SIC11		Time of Concentration	0.029	5	0	5	0.001
Green Area (6)	SIC8		Time of Concentration	0.001	5	0	5	0.000
Green Area (7)	SIC12		Time of Concentration	0.024	5	0	5	0.001
Green Area (8)	SIC14		Time of Concentration	0.008	5	0	5	0.000
Green Area (9)	SIC14		Time of Concentration	0.008	5	0	5	0.000
Green Area (10)	SMH18		Time of Concentration	0.008	5	0	5	0.000
Green Area (11)	SMH9		Time of Concentration	0.001	5	0	5	0.000
Green Area (12)	SIC14		Time of Concentration	0.001	5	0	5	0.000
Green Area (13)	SIC16		Time of Concentration	0.001	5	0	5	0.000
Green Area (14)	SIC16		Time of Concentration	0.002	5	0	5	0.000
Green Area (15)	SMH25		Time of Concentration	0.003	5	0	5	0.000
Green Area (16)	SMH25		Time of Concentration	0.003	5	0	5	0.000
Green Area (17)	SMH25		Time of Concentration	0.005	5	0	5	0.000
Green Area (18)	SMH13		Time of Concentration	0.016	5	0	5	0.001
Green Area (19)	SMH4		Time of Concentration	0.003	5	0	5	0.000
Green Area (20)	SMH4		Time of Concentration	0.003	5	0	5	0.000

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Green Area (21)	SMH4	Time of Concentration	0.003	5	0	5	0.000
Green Area (22)	SMH5	Time of Concentration	0.003	5	0	5	0.000
Green Area (23)	SMH5	Time of Concentration	0.004	5	0	5	0.000
Green Area (24)	SMH6	Time of Concentration	0.003	5	0	5	0.000
Green Area (25)	SMH6	Time of Concentration	0.003	5	0	5	0.000
Green Area (26)	SMH13	Time of Concentration	0.003	5	0	5	0.000
Green Area (27)	SMH25	Time of Concentration	0.007	5	0	5	0.000
Green Area (28)	SMH30	Time of Concentration	0.005	5	0	5	0.000
Green Area (29)	SMH22	Time of Concentration	0.002	5	0	5	0.000
Green Area (30)	SMH22	Time of Concentration	0.003	5	0	5	0.000
Green Area (31)	SMH32	Time of Concentration	0.058	5	0	5	0.003
Green Area (32)	SMH24	Time of Concentration	0.030	5	0	5	0.001
Green Area (33)	SMH32	Time of Concentration	0.011	5	0	5	0.001
Green Area (34)	SMH31	Time of Concentration	0.002	5	0	5	0.000
Green Area (35)	SMH23	Time of Concentration	0.001	5	0	5	0.000
Green Area (38)	SIC11	Time of Concentration	0.001	5	0	5	0.000
Permeable Paving	SMH1	Time of Concentration	0.003	50	0	50	0.001
Permeable Paving (1)	SMH1	Time of Concentration	0.003	50	0	50	0.001
Permeable Paving (2)	SMH4	Time of Concentration	0.002	50	0	50	0.001
Permeable Paving (3)	SMH4	Time of Concentration	0.005	50	0	50	0.003
Permeable Paving (4)	SMH10	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (5)	SMH6	Time of Concentration	0.005	50	0	50	0.003
Permeable Paving (6)	Swale B	Time of Concentration	0.008	50	0	50	0.004
Permeable Paving (7)	Swale A	Time of Concentration	0.009	50	0	50	0.005
Permeable Paving (8)	SMH13	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (9)	SMH18	Time of Concentration	0.008	50	0	50	0.004
Permeable Paving (10)	SMH18	Time of Concentration	0.008	50	0	50	0.004
Permeable Paving (11)	SIC16	Time of Concentration	0.006	50	0	50	0.003
Permeable Paving (12)	SIC16	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (13)	SIC14	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (14)	SIC14	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (15)	SIC7	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (16)	SMH23	Time of Concentration	0.003	50	0	50	0.002
Permeable Paving (17)	SMH23	Time of Concentration	0.005	50	0	50	0.002
Permeable Paving (18)	SMH23	Time of Concentration	0.006	50	0	50	0.003
Permeable Paving (19)	SMH23	Time of Concentration	0.006	50	0	50	0.003
Permeable Paving (20)	SMH24	Time of Concentration	0.003	50	0	50	0.002
Permeable Paving (21)	SMH32	Time of Concentration	0.025	50	0	50	0.012
Permeable Paving (22)	SMH18	Time of Concentration	0.006	50	0	50	0.003
Permeable Paving (23)	SMH18	Time of Concentration	0.006	50	0	50	0.003
Permeable Paving (24)	SMH18	Time of Concentration	0.006	50	0	50	0.003

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Permeable Paving (25)	SMH18		Time of Concentration	0.006	50	0	50	0.003
Road Runoff	SMH1		Time of Concentration	0.032	90	0	90	0.029
Road Runoff (1)	SMH4		Time of Concentration	0.023	90	0	90	0.021
Road Runoff (2)	SMH3		Time of Concentration	0.004	90	0	90	0.004
Road Runoff (3)	SMH2		Time of Concentration	0.004	90	0	90	0.004
Road Runoff (4)	Swale A		Time of Concentration	0.027	90	0	90	0.025
Road Runoff (5)	SMH18		Time of Concentration	0.014	90	0	90	0.013
Road Runoff (6)	SMH18		Time of Concentration	0.035	90	0	90	0.032
Road Runoff (7)	SMH30		Time of Concentration	0.038	90	0	90	0.034
Road Runoff (8)	SMH25		Time of Concentration	0.018	90	0	90	0.017
Road Runoff (9)	SMH30		Time of Concentration	0.007	90	0	90	0.006
Road Runoff (10)	SMH33		Time of Concentration	0.014	90	0	90	0.012
Road Runoff (11)	Swale B		Time of Concentration	0.023	90	0	90	0.021
Roof Runoff	SMH24		Time of Concentration	0.011	80	0	80	0.009
Roof Runoff (1)	SMH24		Time of Concentration	0.052	80	0	80	0.041
Roof Runoff (2)	SMH22		Time of Concentration	0.052	80	0	80	0.042
Roof Runoff (3)	SIC18		Time of Concentration	0.049	80	0	80	0.039
Roof Runoff (4)	SIC18		Time of Concentration	0.050	80	0	80	0.040
Roof Runoff (5)	SIC14		Time of Concentration	0.025	80	0	80	0.020
Roof Runoff (6)	SIC6		Time of Concentration	0.050	80	0	80	0.040
Roof Runoff (7)	SIC14		Time of Concentration	0.025	80	0	80	0.020
Roof Runoff (9)	SMH1		Time of Concentration	0.022	80	0	80	0.018
Roof Runoff (10)	SIC11		Time of Concentration	0.030	80	0	80	0.024
Roof Runoff (11)	SIC12		Time of Concentration	0.031	80	0	80	0.025
Swale A	Swale A		Time of Concentration	0.020	90	0	90	0.018
Swale B	Swale B		Time of Concentration	0.012	90	0	90	0.011
TOTAL		0.0		1.364				0.849

Project: S085	Date: 11/06/2025		
Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath	Designed by: AC	Checked by: GL	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR Type: FSR

Region	Scotland and Ireland
M5-60 (mm)	16.7
Ratio R	0.327
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	20.000
30.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025		 CS CONSULTING GROUP	
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevati on (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SMH1	FSR: 100 years: +20 %: 15 mins: Summer	8.324	6.900	6.988	0.088	27.2	0.100	0.000	26.5	11.797	OK
SMH2	FSR: 100 years: +20 %: 15 mins: Summer	7.500	6.075	6.190	0.115	30.3	0.100	0.000	29.2	13.442	OK
SMH4	FSR: 100 years: +20 %: 15 mins: Summer	7.125	5.700	5.826	0.126	44.0	0.109	0.000	42.1	20.111	OK
SMH5	FSR: 100 years: +20 %: 15 mins: Summer	6.200	4.560	4.769	0.209	94.3	0.181	0.000	89.3	48.074	OK
SMH13	FSR: 100 years: +20 %: 15 mins: Summer	5.300	4.375	4.723	0.348	93.3	0.394	0.000	88.9	52.195	Surcharged
SMH30	FSR: 100 years: +20 %: 15 mins: Summer	4.200	3.140	4.113	0.973	102.6	1.101	0.000	94.1	51.990	Flood Risk
SMH9	FSR: 100 years: +20 %: 15 mins: Summer	8.375	6.563	6.886	0.323	47.8	0.365	0.000	44.1	25.542	Surcharged
SMH17	FSR: 100 years: +20 %: 15 mins: Summer	8.300	6.350	6.702	0.352	77.1	0.398	0.000	73.8	44.514	Surcharged
SMH19	FSR: 100 years: +20 %: 15 mins: Summer	8.300	4.800	4.957	0.157	91.5	0.177	0.000	91.5	52.596	OK
SMH24	FSR: 100 years: +20 %: 15 mins: Summer	7.200	5.850	6.508	0.658	28.5	0.237	0.000	22.8	12.385	Surcharged
SMH25	FSR: 100 years: +20 %: 15 mins: Summer	6.900	5.000	5.088	0.088	37.4	0.100	0.000	36.9	18.634	OK
East Catchment Outfall	FSR: 100 years: +20 %: 60 mins: Summer	4.000	2.700	2.925	0.225	58.0	0.000	0.000	58.0	127.256	OK
SMH23	FSR: 100 years: +20 %: 15 mins: Summer	3.960	3.060	3.955	0.895	116.6	0.775	0.000	109.9	64.175	Flood Risk
SMH32	FSR: 100 years: +20 %: 15 mins: Summer	4.400	3.000	3.488	0.488	18.5	0.552	0.000	16.6	7.829	Surcharged
SMH22	FSR: 100 years: +20 %: 15 mins: Summer	4.400	3.200	3.973	0.773	23.7	0.669	0.000	16.9	10.234	Surcharged
West Catchment Outfall A	FSR: 100 years: +20 %: 960 mins: Winter	6.000	4.200	4.229	0.029	1.4	0.000	0.000	1.4	133.500	OK
SIC18	FSR: 100 years: +20 %: 15 mins: Summer	8.300	6.950	8.289	1.339	42.3	0.482	0.000	31.7	18.381	Flood Risk
SIC8	FSR: 100 years: +20 %: 15 mins: Summer	8.720	7.361	7.469	0.108	32.9	0.039	0.000	31.3	18.154	OK
SMH10	FSR: 100 years: +20 %: 15 mins: Summer	8.300	5.667	5.782	0.115	52.8	0.130	0.000	52.0	28.051	OK
SIC6	FSR: 100 years: +20 %: 15 mins: Summer	8.720	7.670	8.495	0.825	30.7	0.297	0.000	25.2	13.310	Flood Risk
SIC7	FSR: 100 years: +20 %: 15 mins: Summer	8.720	7.561	8.141	0.580	32.3	0.209	0.000	28.8	16.382	Surcharged
SIC14	FSR: 100 years: +20 %: 15 mins: Summer	8.720	7.670	7.928	0.258	36.6	0.093	0.000	30.5	15.651	Surcharged
SIC16	FSR: 100 years: +20 %: 15 mins: Summer	8.300	6.950	7.222	0.272	19.9	0.098	0.000	14.7	8.439	Surcharged
SMH3	FSR: 100 years: +20 %: 15 mins: Summer	7.350	5.925	6.029	0.104	31.3	0.090	0.000	30.7	14.337	OK
SMH33	FSR: 100 years: +20 %: 60 mins: Summer	3.550	2.800	3.511	0.711	57.5	0.804	0.000	57.8	127.272	Flood Risk
SIC11	FSR: 100 years: +20 %: 15 mins: Summer	8.300	6.950	7.043	0.093	20.4	0.033	0.000	19.1	8.866	OK
SIC12	FSR: 100 years: +20 %: 15 mins: Summer	8.300	6.950	7.040	0.090	18.6	0.032	0.000	17.8	8.081	OK
SMH18	FSR: 100 years: +20 %: 15 mins: Summer	4.800	3.415	4.522	1.107	54.5	1.252	0.000	43.8	23.486	Flood Risk
SMH31	FSR: 100 years: +20 %: 60 mins: Summer	3.650	2.832	3.541	0.709	84.5	0.802	0.000	55.8	145.154	Flood Risk
SMH7	FSR: 100 years: +20 %: 960 mins: Winter	5.300	4.275	5.272	0.997	1.4	1.128	0.000	1.4	133.531	Flood Risk
SMH6	FSR: 100 years: +20 %: 15 mins: Summer	5.700	4.315	4.626	0.311	90.3	0.352	0.000	84.1	51.739	Surcharged
SMH8	FSR: 100 years: +20 %: 960 mins: Winter	5.300	4.260	5.277	1.016	1.2	1.150	0.000	1.1	106.211	Flood Risk
West Catchment Outfall B	FSR: 100 years: +20 %: 960 mins: Winter	6.000	4.200	4.226	0.026	1.1	0.000	0.000	1.1	106.183	OK

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025			
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevatio n (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SMH1	FSR: 30 years: +20 %: 15 mins: Summer	8.324	6.900	6.976	0.076	20.9	0.086	0.000	20.4	9.079	OK
SMH2	FSR: 30 years: +20 %: 15 mins: Summer	7.500	6.075	6.173	0.098	23.3	0.085	0.000	22.4	10.344	OK
SMH4	FSR: 30 years: +20 %: 15 mins: Summer	7.125	5.700	5.807	0.107	33.8	0.093	0.000	32.3	15.475	OK
SMH5	FSR: 30 years: +20 %: 15 mins: Summer	6.200	4.560	4.727	0.167	73.1	0.144	0.000	70.2	37.121	OK
SMH13	FSR: 30 years: +20 %: 15 mins: Summer	5.300	4.375	4.656	0.281	77.7	0.318	0.000	74.9	40.325	OK
SMH30	FSR: 30 years: +20 %: 15 mins: Summer	4.200	3.140	3.626	0.486	76.7	0.549	0.000	66.1	40.044	Surcharged
SMH9	FSR: 30 years: +20 %: 15 mins: Summer	8.375	6.563	6.732	0.169	42.2	0.191	0.000	41.1	19.695	OK
SMH17	FSR: 30 years: +20 %: 15 mins: Summer	8.300	6.350	6.558	0.208	67.6	0.235	0.000	63.5	34.267	OK
SMH19	FSR: 30 years: +20 %: 15 mins: Summer	8.300	4.800	4.950	0.150	77.2	0.170	0.000	76.3	40.501	OK
SMH24	FSR: 30 years: +20 %: 15 mins: Summer	7.200	5.850	6.139	0.289	21.9	0.104	0.000	17.4	9.526	Surcharged
SMH25	FSR: 30 years: +20 %: 15 mins: Summer	6.900	5.000	5.076	0.076	28.6	0.085	0.000	28.0	14.327	OK
East Catchment Outfall	FSR: 30 years: +20 %: 30 mins: Summer	4.000	2.700	2.925	0.225	46.3	0.000	0.000	46.3	75.845	OK
SMH23	FSR: 30 years: +20 %: 15 mins: Summer	3.960	3.060	3.537	0.477	83.9	0.413	0.000	78.3	49.667	Surcharged
SMH32	FSR: 30 years: +20 %: 15 mins: Summer	4.400	3.000	3.347	0.347	14.3	0.392	0.000	13.3	6.087	Surcharged
SMH22	FSR: 30 years: +20 %: 15 mins: Winter	4.400	3.200	3.500	0.300	17.1	0.260	0.000	14.1	7.868	Surcharged
West Catchment Outfall A	FSR: 30 years: +20 %: 600 mins: Summer	6.000	4.200	4.227	0.027	1.3	0.000	0.000	1.3	74.798	OK
SIC18	FSR: 30 years: +20 %: 15 mins: Summer	8.300	6.950	7.681	0.731	32.5	0.263	0.000	25.5	14.132	Surcharged
SIC8	FSR: 30 years: +20 %: 15 mins: Summer	8.720	7.361	7.455	0.094	26.1	0.034	0.000	24.8	13.983	OK
SMH10	FSR: 30 years: +20 %: 15 mins: Summer	8.300	5.667	5.766	0.099	41.4	0.111	0.000	40.7	21.595	OK
SIC6	FSR: 30 years: +20 %: 15 mins: Summer	8.720	7.670	8.168	0.498	23.6	0.179	0.000	19.9	10.248	Surcharged
SIC7	FSR: 30 years: +20 %: 15 mins: Summer	8.720	7.561	7.936	0.375	25.4	0.135	0.000	22.9	12.613	Surcharged
SIC14	FSR: 30 years: +20 %: 15 mins: Summer	8.720	7.670	7.785	0.115	28.2	0.041	0.000	26.9	12.168	OK
SIC16	FSR: 30 years: +20 %: 15 mins: Summer	8.300	6.950	7.071	0.121	15.3	0.044	0.000	13.3	6.560	OK
SMH3	FSR: 30 years: +20 %: 15 mins: Summer	7.350	5.925	6.013	0.088	24.0	0.076	0.000	23.6	11.031	OK
SMH33	FSR: 30 years: +20 %: 30 mins: Summer	3.550	2.800	3.361	0.561	45.8	0.634	0.000	46.1	75.889	Flood Risk
SIC11	FSR: 30 years: +20 %: 15 mins: Summer	8.300	6.950	7.028	0.078	15.7	0.028	0.000	14.7	6.818	OK
SIC12	FSR: 30 years: +20 %: 15 mins: Summer	8.300	6.950	7.026	0.076	14.3	0.027	0.000	13.7	6.224	OK
SMH18	FSR: 30 years: +20 %: 15 mins: Summer	4.800	3.415	3.879	0.464	42.0	0.525	0.000	31.9	18.113	Surcharged
SMH31	FSR: 30 years: +20 %: 30 mins: Summer	3.650	2.832	3.381	0.549	72.4	0.620	0.000	44.8	90.042	Flood Risk
SMH7	FSR: 30 years: +20 %: 15 mins: Summer	5.300	4.275	4.548	0.273	1.7	0.309	0.000	1.3	1.617	Surcharged
SMH6	FSR: 30 years: +20 %: 15 mins: Summer	5.700	4.315	4.548	0.233	76.0	0.263	0.000	82.4	39.948	OK
SMH8	FSR: 30 years: +20 %: 15 mins: Summer	5.300	4.260	4.526	0.266	1.6	0.300	0.000	1.0	1.254	Surcharged
West Catchment Outfall B	FSR: 30 years: +20 %: 60 mins: Summer	6.000	4.200	4.225	0.025	1.0	0.000	0.000	1.0	5.569	OK

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025			
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
East Stormtech Tank	FSR: 100 years: +20 %: 30 mins: Summer	3.561	3.561	0.586	0.586	53.0	33.063	0.000	0.000	24.5	33.667	16.812	OK
West Stormtech Tank A	FSR: 100 years: +20 %: 960 mins: Winter	5.272	5.272	0.977	0.977	10.1	127.379	0.000	0.000	1.4	161.384	0.067	OK
West Stormtech Tank B	FSR: 100 years: +20 %: 960 mins: Winter	5.277	5.277	0.982	0.982	8.6	127.381	0.000	0.000	1.2	122.606	0.065	OK
Swale A	FSR: 100 years: +20 %: 960 mins: Winter	5.272	5.272	0.272	0.272	7.0	39.736	0.000	0.000	1.7	66.747	12.117	OK
Swale B	FSR: 100 years: +20 %: 960 mins: Winter	5.277	5.277	0.277	0.277	4.4	22.386	0.000	0.000	1.3	45.365	10.687	OK

Project: S085		Date: 11/06/2025		 CS CONSULTING GROUP	
Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Designed by: AC	Checked by: GL		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
East Stormtech Tank	FSR: 30 years: +20 %: 30 mins: Summer	3.392	3.392	0.417	0.417	39.3	23.523	0.000	0.000	20.2	23.734	40.815	OK
West Stormtech Tank A	FSR: 30 years: +20 %: 960 mins: Winter	4.997	4.997	0.702	0.702	8.1	126.615	0.000	0.000	1.3	122.960	0.666	OK
West Stormtech Tank B	FSR: 30 years: +20 %: 960 mins: Winter	4.933	4.933	0.638	0.638	6.9	115.117	0.000	0.000	1.0	95.296	9.687	OK
Swale A	FSR: 30 years: +20 %: 30 mins: Summer	5.034	5.034	0.034	0.034	13.1	3.678	0.000	0.000	13.2	10.879	91.866	OK
Swale B	FSR: 30 years: +20 %: 15 mins: Summer	5.035	5.033	0.035	0.033	14.6	1.907	0.000	0.000	10.5	6.074	92.393	OK

Project: S085		Date: 11/06/2025		 CS CONSULTING GROUP	
Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Designed by: AC	Checked by: GL		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S1.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH1	SMH2	8.324	6.988	0.102	11.797	1.5	0.32	26.5	OK
S6.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH9	SMH17	8.375	6.886	0.225	25.542	1.1	0.85	44.1	Surchar ged
S6.002	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH17	SMH19	8.300	6.702	0.225	44.514	1.9	1.1	73.8	Surchar ged
S8.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH24	SMH25	7.200	6.508	0.150	12.385	1.3	1.55	22.8	Surchar ged
S1.003	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH4	SMH5	7.125	5.826	0.167	20.111	1.3	0.6	42.1	OK
S2.002	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC8	SMH10	8.720	7.469	0.106	18.154	1.7	0.43	31.3	OK
S2.003	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH10	SMH5	8.300	5.782	0.109	28.051	2.7	0.43	52.0	OK
S2.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC6	SIC7	8.720	8.495	0.150	13.310	1.4	1.74	25.2	Flood Risk
S2.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC7	SIC8	8.720	8.141	0.150	16.382	1.6	2	28.8	Surchar ged
S6.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC14	SMH9	8.720	7.928	0.150	15.651	1.7	0.98	30.5	Surchar ged
S1.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH2	SMH3	7.500	6.190	0.110	13.442	1.5	0.42	29.2	OK
S1.002	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH3	SMH4	7.350	6.029	0.115	14.337	1.5	0.35	30.7	OK
S9.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH22	SMH23	4.400	3.973	0.225	10.234	0.7	0.43	16.9	Surchar ged
S7.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH30	SMH23	4.200	4.113	0.300	51.990	1.3	1.19	94.1	Flood Risk
S4.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC11	SMH10	8.300	7.043	0.091	8.866	1.7	0.67	19.1	OK
S7.002	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH23	SMH31	3.960	3.955	0.300	64.175	1.6	1.4	109.9	Flood Risk
S7.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH18	SMH30	4.800	4.522	0.225	23.486	1.1	1.2	43.8	Flood Risk
S11.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC18	SMH17	8.300	8.289	0.150	18.381	1.8	1.78	31.7	Flood Risk
S3.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC16	SMH9	8.300	7.222	0.150	8.439	0.8	1.02	14.7	Surchar ged
S6.003	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH19	SMH13	8.300	4.957	0.252	52.596	1.4	0.47	91.5	OK
S7.004	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	SMH33	East Catchmen t Outfall	3.550	3.511	0.225	127.256	1.5	1.61	58.0	Flood Risk
S8.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH25	SMH30	6.900	5.088	0.225	18.634	1.5	0.33	36.9	OK
S7.003	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	SMH31	SMH33	3.650	3.541	0.300	122.407	0.8	0.7	55.8	Flood Risk

Project: S085 Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Date: 11/06/2025		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: AC	Checked by: GL	Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267		



S6.007	FSR: 100 years: +20 %: 960 mins: Winter	Pipe	SMH7	West Catchmen t Outfall A	5.300	5.272	0.029	133.500	0.5	0.04	1.4	Flood Risk
S10.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH32	East Stormtech Tank	4.400	3.488	0.225	7.829	1.4	0.4	16.6	Surchar ged
S10.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	East Stormtech Tank	SMH31	3.680	3.488	0.225	0.007	0.7	0.76	27.9	Surchar ged
S6.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH13	SMH6	5.300	4.723	0.300	52.195	1.3	1.27	88.9	Surchar ged
S6.006	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	West Stormtech Tank A	SMH7	5.300	4.744	0.300	4.079	0.1	0.02	2.0	Surchar ged
S6.005	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH6	West Stormtech Tank A	5.700	4.626	0.300	51.739	2.0	1.2	84.1	Surchar ged
S1.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SMH5	West Stormtech Tank B	6.200	4.769	0.195	48.074	3.4	0.87	89.3	OK
S1.006	FSR: 100 years: +20 %: 960 mins: Winter	Pipe	SMH8	West Catchmen t Outfall B	5.300	5.277	0.027	106.183	0.4	0.03	1.1	Flood Risk
S1.005	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	West Stormtech Tank B	SMH8	5.300	4.596	0.225	1.799	0.3	0.05	2.0	Surchar ged
S5.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SIC12	SMH19	8.300	7.040	0.088	8.081	1.7	0.62	17.8	OK
Open Grated MH A	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	Swale A	West Stormtech Tank A	5.300	5.038	0.230	14.336	0.8	0.04	17.6	OK
Open Grated MH B	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	Swale B	West Stormtech Tank B	5.300	5.039	0.156	7.963	1.3	0.04	14.7	OK

Project: S085		Date: 11/06/2025			
Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Designed by: AC	Checked by: GL		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street, Dublin 2, D02 E267			



FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S1.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH1	SMH2	8.324	6.976	0.087	9.079	1.4	0.25	20.4	OK
S6.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH9	SMH17	8.375	6.732	0.189	19.695	1.2	0.8	41.1	OK
S6.002	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH17	SMH19	8.300	6.558	0.191	34.267	1.8	0.94	63.5	OK
S8.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH24	SMH25	7.200	6.139	0.150	9.526	1.0	1.18	17.4	Surchar ged
S1.003	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH4	SMH5	7.125	5.807	0.137	15.475	1.3	0.46	32.3	OK
S2.002	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC8	SMH10	8.720	7.455	0.092	13.983	1.6	0.34	24.8	OK
S2.003	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH10	SMH5	8.300	5.766	0.094	21.595	2.6	0.34	40.7	OK
S2.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC6	SIC7	8.720	8.168	0.150	10.248	1.1	1.38	19.9	Surchar ged
S2.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC7	SIC8	8.720	7.936	0.150	12.613	1.3	1.58	22.9	Surchar ged
S6.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC14	SMH9	8.720	7.785	0.111	12.168	1.9	0.87	26.9	OK
S1.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH2	SMH3	7.500	6.173	0.093	10.344	1.4	0.32	22.4	OK
S1.002	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH3	SMH4	7.350	6.013	0.098	11.031	1.4	0.27	23.6	OK
S9.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	SMH22	SMH23	4.400	3.500	0.225	7.868	0.6	0.36	14.1	Surchar ged
S7.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH30	SMH23	4.200	3.626	0.300	40.044	0.9	0.84	66.1	Surchar ged
S4.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC11	SMH10	8.300	7.028	0.077	6.818	1.6	0.51	14.7	OK
S7.002	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH23	SMH31	3.960	3.537	0.300	49.667	1.1	1	78.3	Surchar ged
S7.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH18	SMH30	4.800	3.879	0.225	18.113	0.8	0.87	31.9	Surchar ged
S11.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC18	SMH17	8.300	7.681	0.150	14.132	1.4	1.44	25.5	Surchar ged
S3.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC16	SMH9	8.300	7.071	0.114	6.560	0.9	0.92	13.3	OK
S6.003	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH19	SMH13	8.300	4.950	0.216	40.501	1.4	0.39	76.3	OK
S7.004	FSR: 30 years: +20 %: 30 mins: Summer	Pipe	SMH33	East Catchmen t Outfall	3.550	3.361	0.225	75.845	1.2	1.28	46.3	Flood Risk
S8.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH25	SMH30	6.900	5.076	0.225	14.327	1.5	0.25	28.0	OK
S7.003	FSR: 30 years: +20 %: 30 mins: Summer	Pipe	SMH31	SMH33	3.650	3.381	0.300	73.032	0.6	0.56	44.8	Flood Risk

Project: S085		Date: 11/06/2025			
Proposed Mixed-Use Development at The Old Mill, Julianstown, County Meath		Designed by: AC	Checked by: GL	Approved By:	
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S6.007	FSR: 30 years: +20 %: 600 mins: Summer	Pipe	SMH7	West Catchmen t Outfall A	5.300	4.986	0.028	74.798	0.5	0.03	1.3	Surchar ged
S10.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH32	East Stormtech Tank	4.400	3.347	0.225	6.087	1.3	0.33	13.3	Surchar ged
S10.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	East Stormtech Tank	SMH31	3.680	3.347	0.225	0.069	0.6	0.59	21.8	Surchar ged
S6.004	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH13	SMH6	5.300	4.656	0.255	40.325	1.2	1.07	74.9	OK
S6.006	FSR: 30 years: +20 %: 30 mins: Summer	Pipe	West Stormtech Tank A	SMH7	5.300	4.634	0.300	4.039	0.1	0.02	1.8	Surchar ged
S6.005	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH6	West Stormtech Tank A	5.700	4.548	0.243	39.948	2.3	1.18	82.4	OK
S1.004	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SMH5	West Stormtech Tank B	6.200	4.727	0.153	37.121	3.2	0.68	70.2	OK
S1.006	FSR: 30 years: +20 %: 60 mins: Summer	Pipe	SMH8	West Catchmen t Outfall B	5.300	4.678	0.025	5.569	0.4	0.03	1.0	Surchar ged
S1.005	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	West Stormtech Tank B	SMH8	5.300	4.526	0.225	1.702	0.3	0.04	1.6	Surchar ged
S5.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	SIC12	SMH19	8.300	7.026	0.074	6.224	1.6	0.48	13.7	OK
Open Grated MH A	FSR: 30 years: +20 %: 30 mins: Summer	Pipe	Swale A	West Stormtech Tank A	5.300	5.034	0.175	10.879	0.8	0.03	13.2	OK
Open Grated MH B	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	Swale B	West Stormtech Tank B	5.300	5.034	0.120	6.074	1.2	0.03	10.5	OK