



KILDARE COUNTY COUNCIL

MAYNOOTH FIRE STATION

ENGINEERING SERVICES REPORT



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Maynooth Fire Station

Engineering Services Report

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ASSOCIATION OF CONSULTING ENGINEERS OF IRELAND







Table of Contents

1.0	INTRODUCTION	1
1.1	APPOINTMENT	1
1.2	ADMINISTRATIVE JURISDICTION	1
1.3	PROPOSED DEVELOPMENT	1
1.4	SITE LOCATION	2
1.5	PROPOSAL	2
2.0	Site investigation	3
3.0	Roads & TRAFFIC	4
3.1	ACCESS & LAYOUT	4
3.2	TRAFFIC	4
4.0	POTABLE WATER SUPPLY	6
4.1	INTRODUCTION	6
4.2	PROPOSAL	6
5.0	WASTEWATER INFRASTRUCTURE	8
5.1	INTRODUCTION	8
5.2	PROPOSAL	8
6.0	SURFACE WATER INFRASTRUCTURE	.0
6.1	INTRODUCTION	0.
6.2	DESIGN PRINCIPLES1	0
6.3	PROPOSAL1	.1
6.3.1	Attenuation	12
6.3.2	Surface Water Storage	13
6.3.3	SuDs (Sustainable Urban Drainage Systems)	13
<i>6.3.3</i> .1	1Permeable Paving	13
	2Dry Swale/Bioretention area	
	3Petrol Interceptor	
	4Hydrobrake	
	5Attenuation Tank	
	SRainwater Harvesting	
	Treatment Train	
	FLOOD RISK ASSESMENT	
	SITE FLOOD HISTORY & FLOOD DATA	
	Sources of information	
	Historic Flooding	
<i>7.1.3</i>	CFRAMS	17





<i>7.1.4</i>	Coastal Flood Risk	<i>18</i>
<i>7.1.5</i>	Groundwater Flood Risk	<i>18</i>
<i>7.1.6</i>	Impact of Development elsewhere	20
8.0	CONCLUSION	20

Table of Figures

Figure 1-1: Site Location Drawing, 11421-2000	. 1
Figure 1-2: Proposed Site Layout Drawing, 11421-2002	. 2
Figure 4-1: Existing Watermain Infrastructure	. 6
Figure 4-2: Proposed Watermain Drawing, 11421-2020	. 7
Figure 5-1: Existing Foul Infrastructure	. 8
Figure 5-2: Proposed Foul Layout Drawing, 11421-2010	. 9
Figure 6-1: Existing Surface Water Infrastructure	10
Figure 6-2: Proposed Surface Water Layout Drawing, 11421-2010	12
Figure 6-3: Typical Cross Section of infiltration permeable paving (Extra from CIRA SuDs Manual)	nct 13
Figure 6-4: Typical Cross Section of dry swale/bioretention area (Extra from CIRA SuDs Manual)	nct 14
Figure 6-5: Typical Pumped RWH System (Extract from CIRIA Sul Manual)	
Figure 7-1: Past Flood Events within 2.5km of Site	17
Figure 7-2: Bedrock Geology in the Maynooth Area	18
Figure 7-3: Soil Mapping (Teagasc)	19
Figure 7-4: Karst Mapping (GSI)	19

Table of Tables

Table 1: Traffic Counts





Appendices

- Appendix A Source Control Results
- Appendix B MicroDrainage Simulation Results
- Appendix C Existing Service Infrastructure Maps
- Appendix D Irish Water Confirmation of Feasibility
- Appendix E Past Flood Events Report
- Appendix F Site Investigations Results





1.0 INTRODUCTION

1.1 APPOINTMENT

TOBIN Consulting Engineers have been appointed by Kildare County Council to provide Civil and Structural Consultancy Services for their proposed new Fire Station along the Mullen Park Road in Maynooth, Co Kildare.

1.2 ADMINISTRATIVE JURISDICTION

The Site is located within the administrative jurisdiction of Kildare County Council, whose offices are located in Naas, Co. Kildare.

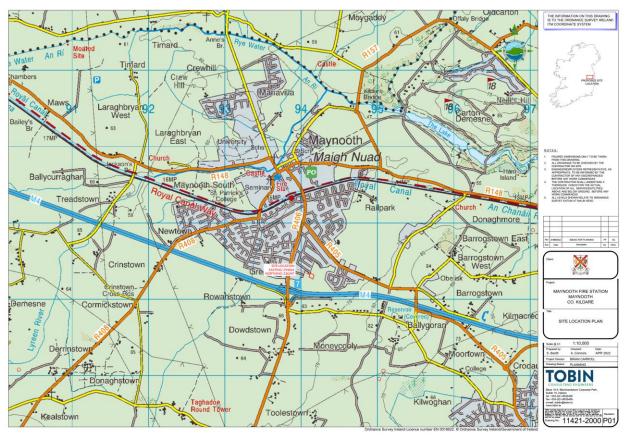


Figure 1-1: Site Location Drawing, 11421-2000

1.3 PROPOSED DEVELOPMENT

The proposed development at the site will consist of the following:

- A new one storey Fire Station with a four storey tower.
- New car parking layout with permeable surfacing to allow infiltration into the ground.
- Associated infrastructural services to service the development.
- Upgrading of the existing site entrance.





Figure 1-2: Proposed Site Layout Drawing, 11421-2002

1.4 SITE LOCATION

The Site is located in the South East of Maynooth along the Mullen Park Road. To the west of the site is a supermarket, to the east is a new residential housing estate and to the North is an existing residential estate.

1.5 PROPOSAL

The purpose of this report is to address the proposed service infrastructural requirements for the development. In the coming sections the Potable Water, Wastewater and Surface Water proposals will be detailed, and the designed layouts showcased.

The design principles adopted will be those of best engineering practices and standards used and will be from the most recent applicable publications



2.0 SITE INVESTIGATION

Site Investigation Ltd were commissioned by TOBIN Consulting Engineers on behalf of the applicant to carry out Site Investigation Works consisting of the following (refer to Appendix F for the SI results):

- 4 Mo. Cable percussive boreholes;
- 1 No. Rotary core borehole;
- 4 No. trial pits with 2 no. Soakaway tests;
- 4 no. California Bearing ration tests;
- 8 No. Dynamic probes.

The trial holes and bore holes revealed made ground across the site, to a depth between 0.60mbgl – 0.70mbgl. The made ground consisted of grey brown sandy gravelly silty clay with medium cobble content with some timber, concrete, plastic pipe and telecom cable fragments. Beneath the made ground a brown (slightly) sandy (slightly) gravelly silty CLAY.

No groundwater ingresses were recorded in any of the boreholes during the fieldworks.

The water level in both soakaway tests did not fall sufficiently enough to complete the tests.



3.0 ROADS & TRAFFIC

3.1 ACCESS & LAYOUT

The site will be accessed from Mullen Park Road with minimum work required to the existing roadway. The site will have two access points, one for general vehicular traffic and one for fire tenders. Cycle tracks and footpaths which will be interrupted at the access points will have tactile pavers and dished curbs. Safe paths from the parking area to the building will be provided and the site will also have bicycle parking areas.

A swept path analysis has been run to analyse the movements of cars and fire tenders in and out of the site. Figure 8-1 below shows the fire engine tracking



Figure 3-1: Fire Engine Swepth Path Analysis, 11421-2035

3.2 TRAFFIC

Annual average daily traffic counts have been estimated for Griffin Rath Road as part of the part 8 planning application for the Maynooth Eastern Ring Road. A snapshot of the predicted traffic volumes from the planning application is shown below.



Table 1: Traffic Counts

Road Link	Do Minimu	m 2036	Do Something 2036		
Road Link	AADT	% HGV	AADT	% HGV	
R405 (west of R405/Griffin Rath Junction)	11,637	3	9324	2	
R157 North of R148	20181	7	23616	16	
Griffin Rath Road	12400	4	16800	21	
M4 Motorway	75,000	8	75,000	8	
MERR			22775	16	

Maynooth Fire Station is crewed under the retained fire service model. This means that the crew are generally not present in the station and only respond to the station on receipt of a pager alert to attend for a fire call incident. The crew complement at Maynooth is currently 10, which means that the expected impact on the traffic count would be not greater than 10 vehicles arriving, generally across a 2 or 3 minute time window. This would shortly thereafter be followed by the departure of the fire appliance and perhaps 1 or 2 other support vehicles. The traffic movement at the end of a fire call would be these movements in reverse order.

Maynooth fire station generally services approximately 300 fire calls per annum, and an analysis of the month, day, and time of these call from 1 January 2016 to 24th June 2022 is attached for information. This data shows October as the busiest month, Friday as the busiest day, and 17:00 to 17:59 as the busiest hour.

In addition to fire calls, structured training takes place each Monday evening from 18:00 to 20:00. The traffic movements associated with these events are the 10 vehicles traveling into station beforehand and those vehicles departing afterwards. The arrival and departure of vehicles to these training nights are more casual and may not necessarily take place within the short time window as previously described for fire calls.



4.0 POTABLE WATER SUPPLY

4.1 INTRODUCTION

Irish Water's records indicate the presence of an existing 150mm uPVC watermain within the Mullen Park Road. The record map received showed the watermain stopped at a sluice valve outside the site, however during a site walk it was noticed the watermain had been extended as part of the new residential development to the East of the site.



Figure 4-1: Existing Watermain Infrastructure

For further information please see infrastructural record maps in Appendix C.

4.2 PROPOSAL

It is proposed to service the site with a new 100mm internal diameter HDPE watermain, which will connect to the existing 150mm uPVC located in the Mullen Park Road.

The new 100mm pipe will be fitted with a water meter at the entrance o the site and a Hydrant within the new car park. The design is subject to approval by Irish Water after a connection application has been made.





Figure 4-2: Proposed Watermain Drawing, 11421-2020

A Pre-Connection Application was made to Irish Water on the 04/05/2022. A Confirmation of Feasibility (COF) was received from Irish Water on the 08/06/2022 and can be seen in Appendix D. The COF confirmed the development is "*Feasible without any infrastructure upgrade*".



5.0 WASTEWATER INFRASTRUCTURE

5.1 INTRODUCTION

Irish Water's records indicate an existing 300mm diameter foul pipe located in the Mullen Park Road. There is also a rising main discharging into the 300mm diameter foul pipe just west of the proposed site.



Figure 5-1: Existing Foul Infrastructure

5.2 PROPOSAL

It is proposed to discharge waste generated from the development into the existing 300mm Diameter pipe through a 150mm diameter gravity pipe.

The wastewater layout has been designed in accordance with Irish Water's latest standard details and code of practice. The Design is subject to approval by Irish Water after a Connection Application has been made.





Figure 5-2: Proposed Foul Layout Drawing, 11421-2010

A Pre-Connection Application was made to Irish Water on the 04/05/2022. A Confirmation of Feasibility (COF) was received from Irish Water on the 08/06/2022 and can be seen in Appendix D. The COF confirmed the development is "*Feasible without any infrastructure upgrade*".



6.0 SURFACE WATER INFRASTRUCTURE

6.1 INTRODUCTION

Kildare County Councils records did not show any existing surface water infrastructure along the Mullen Park Road. However during a site walk it was noticed the Mullen Park Road has a number of Road Gullies discharging to a shallow surface water pipe. There was also a surface water manhole located outside the existing commercial premises South West of the development. This manhole had a 450mm Diameter pipe present within it and a depth of 1.5m was measured to the invert.



Figure 6-1: Existing Surface Water Infrastructure

6.2 **DESIGN PRINCIPLES**

The proposed Surface Water Drainage strategy was developed after discussions with Kildare County Council.

The design and management of the Surface Water for the proposed development will comply with the policies and guidelines outlined in the following.

- The Greater Dublin Strategic Drainage Study (GDSDS).
- Kildare County Council Development Plan



- Recommendations for Site Development Works for Housing Areas published by the Department of the Environment.
- Greater Dublin Regional Code of Practice for Drainage Works.
- The SuDs Manual (2015).

The key design principles of the Surface Water drainage are as follows.

- 1. The flow from the development to the existing Surface Water Infrastructure is designed to equal the natural greenfield runoff in accordance with the GDSDS and sustainable drainage best practice.
- 2. There are no additional or increased flows for the developed site compared to the existing greenfield condition.
- 3. The site will have an Attenuation Area designed to store volumes from the 30 year and 100-year storm events on site in accordance with SuDs best practise. (As space is limited, the volume of water from the storm events will be stored in underground tanks).
- 4. The design of the attenuation system includes an allowance for 30% climate change.

6.3 PROPOSAL

A new surface water drainage system incorporating SuDs features will collect runoff from the proposed development. Attenuated surface water will discharge to the existing 450mm Diameter pipe within Mullen Park Road. He surface water drainage has been designed in accordance with the "Greater Dublin Regional Code of Practice for Drainage Works" (Draft version 6.0) and the Kildare County Council Development Plan.

Surface water drainage for the proposed development is designed using the recommendations of the GDSDS, EN752 and BS8301:1985, with the following parameters applied:

- Return period for pipe network 2 years,
- Time of entry 4 minutes
- Pipe Friction (Ks) 0.6 mm
- Minimum Velocity 0.75 m/s
- M5 2D = 56.2
- M5-60 = 15.7 mm
- Ratio r (M5-60/M5-2D) = 0.279
- Climate Change 30% for rainfall intensities.

The surface water drainage network has been designed and simulated for a range of storm events (including 1 in 1, 1 in 30 and 1 in 100-year storm events) using the Network module of MicroDrainage. Refer to Appendix A for MicroDrainage results.





Figure 6-2: Proposed Surface Water Layout Drawing, 11421-2010

It is proposed to collect surface runoff through the use of rainwater harvesting, swales, permeable paving and tree pits. Runoff will be directed to the swales, permeable paving and tree pits through the use of gravity falls on the finished surface. Once collected within the swales, permeable paving and tree pits the water will be allowed to infiltrate in the ground. When the rate of rainfall is greater than the rate of infiltration the excess water will be directed towards the underground pipe network through perforated pipes and gullies.

Runoff from the proposed building will be directed towards a rainwater 10,000l underground harvesting tank. The tank will be fitted with an overflow pipe to discharge any excess water collected to the underground pipe network.

6.3.1 Attenuation

It is proposed to attenuate runoff from the proposed development to Greenfield Runoff or Q_{bar} as per the recommendations of the GDSDS. Q_{bar} is estimated at 0.74I/s using the *Institute of Hydrology* equation.

 $Q_{bar[rural]} = 0.00108 \ x \ AREA^{0.89} x SAAR^{1.17} x \ SPR^{2.17}$

Were.

 $Q_{bar[rural]}$ = is the mean annual flood flow from a rural catchment

AREA = the area of the catchment in ha. = 50ha

SAAR = is the standard average annual rainfall = 900



SPR = Standard Percentage Runoff coefficient for the soil category, where SPR values for the 5 soil types are as follows; Soil 1 = 0.1; Soil 2 = 0.3; Soil 3 = 0.37; Soil 4 = 0.47; Soil 5 = 0.53

A SPR value of 0.30 (Soil Type 2) has been applied for the subject site.

 $Q_{bar[rural]} = 0.00108 \, x \, 50^{0.89} x 722^{1.17} x \, 0.30^{2.17}$

 $Q_{bar[rural]} = 122.27 l/s$ for 50ha or 0.74/s for an area of 0.301ha

As per the Greater Dublin Regional Code of Practice the minimum discharge rate which can be achieved is 2.0l/s. As 0.90l/s is less than 2.0l/s, the discharge from the site will be set at 2/0l/s.

6.3.2 Surface Water Storage

Surface water storage volumes have been calculated using the *Source Control* module of the *Microdrainage* software. The total volume of storage required to store runoff from a 1%AEP storm event has been calculated as 82cu.m, refer to Appendix A for Source Control results.

6.3.3 SuDs (Sustainable Urban Drainage Systems)

A number of SuDs features have been proposed into the surface water drainage system in accordance with the GDSDs. SuDs are incorporated to attenuate runoff and volumes; reduce pollutant concentrations in surface water and to replicate the natural characteristics of surface water run off for the site in its pre-developed state.

The following SuDs features are proposed:

6.3.3.1 Permeable Paving

It is proposed to install permeable paving within the car parking areas of the site. The water once permeated into the pavement will be allowed to infiltrate into the ground, when the rate of rainfall surpasses the infiltration rate into the ground the excess water will be directed through falls into the underground pipe network. The inclusion of the permeable paving will slow the surface water run off at source, treat the surface water runoff and provide storage. Refer to figure 4-3 below.

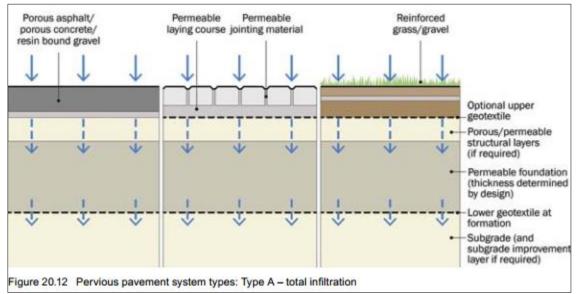


Figure 6-3: Typical Cross Section of infiltration permeable paving (Extract from CIRA SuDs Manual)



6.3.3.2 Dry Swale/Bioretention area

The dry swale is a vegetated conveyance channel, designed to include a filter bed of prepared soil that overlays an underdrain system. This underdrain provides additional treatment and conveyance capacity beneath the base of the swale/bioretention and prevents water logging. Refer to figure 4-4 below. Surface Water will be directed to the dry sale from the car parking and footways through falls and an opening in the kerb line.

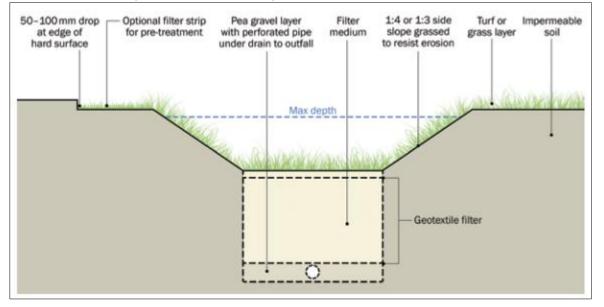


Figure 6-4: Typical Cross Section of dry swale/bioretention area (Extract from CIRA SuDs Manual)

6.3.3.3 <u>Petrol Interceptor</u>

It is proposed to flow all the surface water collected through a petrol interceptor before discharging to the existing surface water infrastructure, to ensure a certain level of treatment is provided to the surface water.

6.3.3.4 <u>Hydrobrake</u>

The rate of discharge from the proposed development will be controlled using a Hydrobrake. The total rate of discharged was determined using the QBAR greenfield run off method. The total rate of discharge was calculated at 0.74l/s but as per the Greater Dublin Regional Code of Practice the discharge rate will be limited to 2.0l/s.

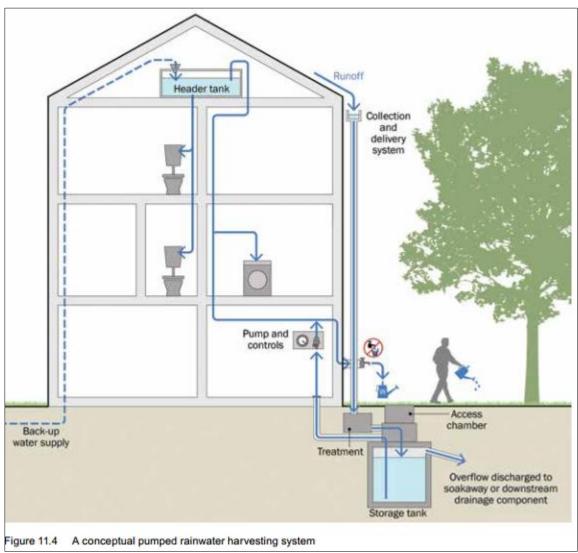
6.3.3.5 Attenuation Tank

Surface water runoff from the site will be collected and directed towards the Hydrobrake in manhole S04, once the flow entering the infrastructure exceeds the Hydrobrake Flow Capacity, water will begin to flood the infrastructure and begin to fill the Attenuation Tank located at the north of the site. The surface water infrastructure will cater for the storage of a 1 in 100-year storm event and has been sized to store the required volume if the infiltration SuDs measures were to fail.

6.3.3.6 Rainwater Harvesting

It is proposed to collect the runoff from roof area and to discharge it into a separate 10,000 underground tank. This water will then be used for greywater purposes within the building and for training practices. The collection of this runoff will reduce the developments demand on treated water and reduce the required underground attenuation tank. A leaf filter and non





return valve will be provided to prevent blockages within the pipe work and backflow. An overflow pipe will also be provided discharging the water into the attenuation tank.

Figure 6-5: Typical Pumped RWH System (Extract from CIRIA SuDs Manual)

6.3.4 Treatment Train

Through the SuDs measures described above, the surface water management (treatment train) approach has been incorporated into the development in accordance with the GDSDS. This will assure the surface water runoff quantity and quality issues are addressed.

In accordance with the GDSDS, the following four objectives of the treatment train provide an integrated and balanced approach to help mitigate the changes in surface water runoff flows that occur as land is urbanised and to help mitigate the impacts of surface water quality on receiving systems:

- 1. **Pollution Prevention**: spill prevention (protection provided by Petrol Interceptor), recycling, public awareness, and participation.
- 2. Source Control: conveyance and infiltration of runoff (provided by the proposed surface water network, Attenuation Tank, Dry Swale, Hydrobrake, Petrol Interceptor, tree pits and Permeable Paving).



- 3. **Site Control:** reduction in volume and rate of surface water runoff, with some additional treatment provided (provided by Attenuation Tank, Dry Swale, Hydrobrake, Rainwater Harvesting, Petrol Interceptor, tree pits and Permeable Paving).
- 4. **Regional Control:** Interception of runoff downstream of all source and on-site controls to provide follow-up flow management and water quality treatment (provided by the Existing Surface Water infrastructure).

The above measures ensure a suitable treatment train is provided in accordance with GDSDS.



7.0 FLOOD RISK ASSESMENT

To establish if there is a risk of flooding to the proposed development and its location a desktopbased Flood Risk study was carried out. As part of the flood risk assessment, several informative reports, studies, and records were researched to determine the risk of flooding to the site.

7.1 SITE FLOOD HISTORY & FLOOD DATA

7.1.1 Sources of information

TOBIN Consulting Engineers reviewed information collected from the below sources to identify any existing flood risk to the site and proposed development.

- Historic flood maps and reports from the OPW <u>www.floodinfo.ie</u>
- CFRAMS Study
- Maynooth Local Area Plan 2013-2019 (updated LAP could not be found)

7.1.2 Historic Flooding

A past flood summary can be viewed in Appendix E. This was generated on the website <u>www.floodinfo.ie</u> and lists out the flood events which happened within 2.5km of our proposed site.

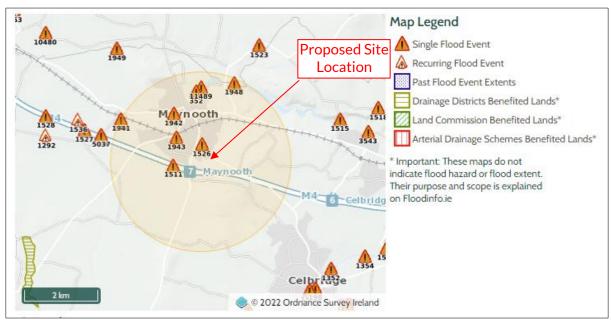


Figure 7-1: Past Flood Events within 2.5km of Site

All of the events mentioned in the report were determined to be a sufficient distance away they would not affect the proposed site.

7.1.3 CFRAMS

The proposed site was located outside the flood risk area in the national Catchment Flood Risk Assessment and Management (CFRAM) study.



7.1.4 Coastal Flood Risk

The subject site is approximately 24km inland, on existing ground at an elevation of approximately 63.25mOD. On this basis, it is estimated that the risk of coastal flooding to the proposed development is minimal.

7.1.5 Groundwater Flood Risk

Based on the map by the Geological Survey Ireland (GSI), see figure 5-2 below, the bedrock in the area consists of limestone and shale.

The makeup of soil in the Maynooth Area is shown in figure 5-3. The town area itself is shown as urban/ made ground, with the subject site located where the soil changes from urban/ made ground to Mineral Poorly Drained.

With reference to figure 5-4, there are no recorded karst features in the Maynooth Area.

Based on the mapping by the GSI there is not evidence to suggest there is any groundwater flooding issues at the proposed site.

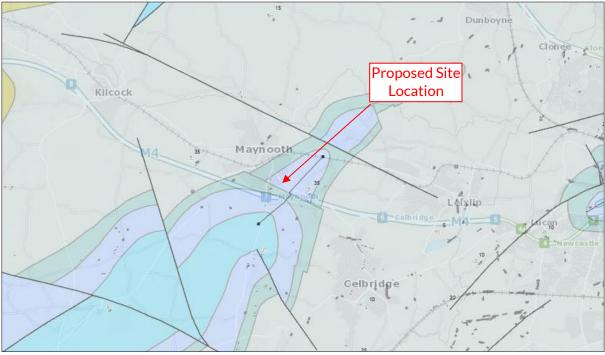


Figure 7-2: Bedrock Geology in the Maynooth Area



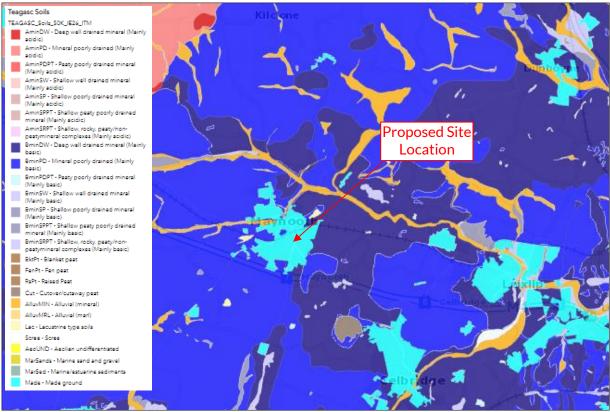


Figure 7-3: Soil Mapping (Teagasc)

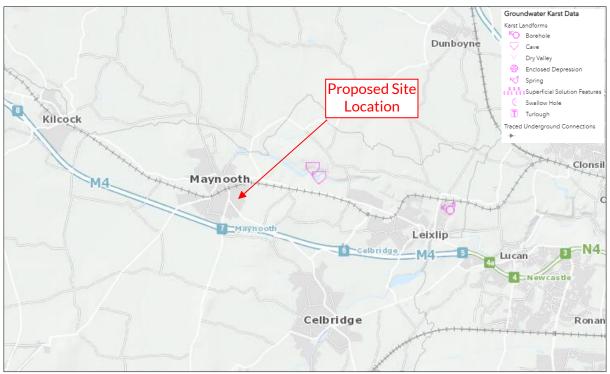


Figure 7-4: Karst Mapping (GSI)



7.1.6 Impact of Development elsewhere

It is predicted that the proposed development is not at risk from flooding during the 1,000 year mid range future scenario. Therefore, the development will not affect floodplain storage or obstruct the flow path of any existing watercourses.

Surface water arising onsite will be managed by an onsite surface water drainage system and onsite storage. On this basis, it is predicted that the proposed development will not contribute towards flood risk elsewhere in the area.

8.0 CONCLUSION

There is sufficient capacity within the Potable Water infrastructure.

There is sufficient capacity within the Wastewater infrastructure.

The Surface Water collection will be slowed at source through SuDS features, with all the surface water being directed into a piped system before being discharged to the existing Surface Water Infrastructure via a Hydrobrake.

Appendix A – Source Control Results

5 Year Storm

30 year Storm

100 year Storm

TOBIN Consulting	g Engi	Inee	rs					
lock 10-3								
Blanchardstown (Corpoi	rate	Park					
Dublin 15								
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		Even				Control		000000
				(m)	- (m)	(1/s)	(m³)	
				61.875		1.0	0.0	ОК
				61.875		1.4	0.0	
				61.875		1.8	0.0	
				61.899 61.944		1.9 1.9	1.9 5.5	
				61.944 61.972		1.9	5.5 7.7	
				62.014		1.9	11.1	
				62.014		1.9	12.2	
				62.050		1.9	14.0	
				62.076		1.9	16.1	
				62.079		1.9	16.4	
	1440	min	Summer	62.033	0.158	1.9	12.7	ОК
	2160	min	Summer	61.984	0.109	1.9	8.7	ΟK
	2880	min	Summer	61.920	0.045	1.9	3.6	O K
				61.875		1.9	0.0	ΟK
				61.875		1.7	0.0	
				61.875		1.5	0.0	ОК
				61.875		1.4	0.0	
				61.875		1.3	0.0	
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				31.864			27.4	0
	00		Summer	20.904			38.2	0
		min			•••			100
	60		Summer	13.447		0	48.8	122
	60 120	min	Summer Summer	13.447 10.333	0.		48.8 56.3	122
	60 120 180	min min			0. 0.	0		
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	60 120 180 240 360 480	min min min min min	Summer Summer Summer Summer	10.333 8.559 6.553 5.418	0. 0. 0. 0.	0 · · · · · · · · · · · · · · · · · · ·	56.3 61.7 71.0 77.0	174 274 386 478
	60 120 180 240 360 480 600	min min min min min min	Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673	0. 0. 0. 0. 0.	0	56.3 61.7 71.0 77.0 83.6	174 274 386 478 562
	60 120 180 240 360 480 600 720	min min min min min min min	Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141	0. 0. 0. 0. 0. 0.	0 . 0 . 0 . 0 . 0 .	56.3 61.7 71.0 77.0 83.6 89.9	174 274 386 478 562 652
	60 120 180 240 360 480 600 720 960	min min min min min min min	Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420	0. 0. 0. 0. 0. 0. 0.	0	56.3 61.7 71.0 77.0 83.6 89.9 99.1	174 274 386 478 562 652 794
	60 120 180 240 360 480 600 720 960 1440	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611	0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7	174 274 386 478 562 652 794 1030
	60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611 1.993	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 0 0 0 0 0 0 0 0 1 0 1	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7 32.6	174 274 386 478 562 652 794 1030 1412
	60 120 240 360 480 600 720 960 1440 2160 2880	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611 1.993 1.645	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7 32.6 46.1	174 274 386 478 562 652 794 1030 1412 1764
	60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611 1.993 1.645 1.255	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7 32.6 46.1 66.8	174 274 386 478 562 652 794 1030 1412 1764 0
	60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611 1.993 1.645 1.255 1.036	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 1 0 1	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7 32.6 46.1 66.8 84.9	174 274 386 478 562 652 794 1030 1412 1764 0 0
	60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	10.333 8.559 6.553 5.418 4.673 4.141 3.420 2.611 1.993 1.645 1.255 1.036 0.893	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 1	56.3 61.7 71.0 77.0 83.6 89.9 99.1 12.7 32.6 46.1 66.8 84.9 99.0	174 274 386 478 562 652 794 1030 1412 1764 0 0 0
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TOBIN Consulting Engineers		Page 2
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Mirro
Date 24/08/2022 11:08	Designed by patrick.fanning	Drainage
File 11421_MAYNOOTH_QBAR.SRCX	Checked by	Diamage
Micro Drainage	Source Control 2018.1.1	·
Storm	for 5 year Return Period (+30%) Max Max Max Max Status	

	Even	t	Level (m)	Depth (m)	Control (1/s)	Volume (m³)	
60	min	Winter	61.875	0.000	1.9	0.0	ОК
120	min	Winter	61.969	0.094	1.9	7.6	ΟK
180	min	Winter	62.014	0.139	1.9	11.1	ΟK
240	min	Winter	62.065	0.190	1.9	15.2	ΟK
360	min	Winter	62.098	0.223	1.9	17.9	ΟK
480	min	Winter	62.134	0.259	1.9	20.7	ΟK
600	min	Winter	62.149	0.274	1.9	22.0	ΟK
720	min	Winter	62.164	0.289	1.9	23.1	ΟK
960	min	Winter	62.158	0.283	1.9	22.7	ΟK
1440	min	Winter	62.082	0.207	1.9	16.6	ΟK
2160	min	Winter	61.946	0.071	1.9	5.7	ΟK
2880	min	Winter	61.877	0.002	1.9	0.2	ΟK
4320	min	Winter	61.875	0.000	1.7	0.0	ΟK
5760	min	Winter	61.875	0.000	1.4	0.0	ΟK
7200	min	Winter	61.875	0.000	1.2	0.0	ΟK
8640	min	Winter	61.875	0.000	1.1	0.0	ΟK
10080	min	Winter	61.875	0.000	1.0	0.0	ΟK

	Storm Event			Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60	min	Winter	20.904	0.0	42.8	84
120	min	Winter	13.447	0.0	15.2	122
180	min	Winter	10.333	0.0	61.9	230
240	min	Winter	8.559	0.0	69.1	304
360	min	Winter	6.553	0.0	77.8	428
480	min	Winter	5.418	0.0	86.5	522
600	min	Winter	4.673	0.0	93.9	616
720	min	Winter	4.141	0.0	101.0	706
960	min	Winter	3.420	0.0	111.8	856
1440	min	Winter	2.611	0.0	127.4	1152
2160	min	Winter	1.993	0.0	148.6	1344
2880	min	Winter	1.645	0.0	164.0	1772
4320	min	Winter	1.255	0.0	187.0	0
5760	min	Winter	1.036	0.0	207.1	0
7200	min	Winter	0.893	0.0	222.9	0
8640	min	Winter	0.790	0.0	236.7	0
10080	min	Winter	0.713	0.0	248.6	0

Block 10-3 Blanchardstown Corporate Park Jublin 15 Designed by patrick.fanning Checked by Image: Checked by Sile 11421_MAYNOOTH_QBAR.SRCX Checked by Source Control 2018.1.1 Model Details Source Control 2018.1.1 Model Details Source Control 2018.1.1 Model Details Storage is Online Cover Level (m) 63.300 Tank or Pond Structure Invert Level (m) 63.300 Depth (m) Area (m') 0.00 80.00 Model Details Storage Bay Model Details Storage Bay Model Details Model Details Model Details Storage Bay Model Details Storage Bay Model Details	TOBIN Consulting Engineers					Page 3
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	1.000 2.0 2.600	3.1	6.300	4./		
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TOBIN Consulting Engineers						Page 1
Block 10-3						
Blanchardstown Corporate Park						
Dublin 15						_ Micro
Date 24/08/2022 11:08		igned by	y patri	ick.f	anning	Drainac
File 11421_MAYNOOTH_QBAR.SRCX	Cheo	cked by				Diamac
Micro Drainage	Soui	rce Cont	trol 20	018.1	.1	
Summary of Results	s for 3	30 year	Return	n Per	iod (+30%)	
		-				
Storm	Max	Max	Max	Max	Status	
Event	Level	Depth Co	ontrol V	7olume	I	
	(m)	(m)	(1/s)	(m³)		
15 min Summer	61 875	0 000	1.6	0.0	ΟK	
30 min Summer			1.0	1.5		
60 min Summer			1.9	9.8		
120 min Summer			1.9	24.1		
180 min Summer			1.9	29.7		
240 min Summer			1.9	31.3		
360 min Summer	62.343	0.468	1.9	37.4	ОК	
480 min Summer	62.364	0.489	1.9	39.1	O K	
600 min Summer				41.9		
720 min Summer			1.9	38.7		
960 min Summer				42.7		
1440 min Summer			1.9	40.6		
2160 min Summer			1.9	34.6		
2880 min Summer			1.9	31.8 20.8		
4320 min Summer 5760 min Summer			1.9 1.9	20.8		
7200 min Summer			1.9	0.1		
8640 min Summer			1.8	0.0		
10080 min Summer			1.7	0.0		
15 min Winter			1.8	0.0		
30 min Winter	61.944	0.069	1.9	5.5	O K	
Storm	Rain	Flooded	Discha	rge T	ime-Peak	
Event	(mm/hr)	Volume	Volum		(mins)	
		(m³)	(m³)			
15 min Summer	68.911	0.0	2	9.8	0	
30 min Summer	47.332			1.3	61	
60 min Summer	30.924	0.0	1	4.2	68	
120 min Summer	19.669			1.9	126	
180 min Summer	14.988			1.7	184	
240 min Summer	12.334			6.4	298	
360 min Summer	9.351			1.3	398	
480 min Summer 600 min Summer	7.674			0.2	496	
600 min Summer 720 min Summer	6.580 5.801			0.1 2.6	558 644	
960 min Summer	4.754			2.6 8.5	644 750	
1440 min Summer	3.590			6.0	1042	
2160 min Summer	2.710			8.0	1344	
2880 min Summer	2.218			6.3	1908	
4320 min Summer	1.672			1.2	2756	
5760 min Summer	1.367			3.5	3352	
7200 min Summer	1.169	0.0	26	0.7	3904	
8640 min Summer	1.029	0.0		5.1	0	
10080 min Summer	0.923			7.4	0	
1 E min Minter	68.911	0.0	3	3.5	0	
15 min Winter						
30 min Winter	47.332	0.0	4	5.3	69	

TOBIN Consultin	g Engineers					
lock 10-3						
lanchardstown	Corporate Park					
Dublin 15	1					
Date 24/08/2022	11.00	Dee	fanod	arr matu	dal f	anning
				oy patr	ICK.I	anning
File 11421_MAYN	OOTH_QBAR.SRCX	Cheo	cked b	У		
Micro Drainage		Sou	rce Co	ntrol 2	018.1	.1
Sum	<u>mary of Result</u>	s for 3	30 year	Retur	n Per	iod (+30
	Storm	Max	Max	Max	Max	Status
	Event	Level	Depth	Control	Volume	
		(m)	- (m)	(l/s)	(m³)	
	60 min Winter	62.097	0.222	1.9	17.8	ΟK
	120 min Winter	62.256	0.381	1.9	30.4	0 K
	180 min Winter	62.331	0.456	1.9	36.4	0 K
	240 min Winter	62.388	0.513	1.9	41.1	O K
	360 min Winter	62.449	0.574	1.9	45.9	ΟK
	480 min Winter			2.0	47.8	0 K
	600 min Winter	62.518	0.643	2.0	51.4	O K
	720 min Winter	62.505	0.630	2.0	50.4	ΟK
	960 min Winter	62.494	0.619	2.0	49.5	ΟK
	1440 min Winter	62.451	0.576	2.0	46.1	ΟK
	2160 min Winter	62.358	0.483	1.9	38.7	ΟK
	2880 min Winter	62.273	0.398	1.9	31.9	ΟK
	4320 min Winter	61.959	0.084	1.9	6.8	O K
	5760 min Winter	61.875	0.000	1.9	0.0	0 K
	7200 min Winter	61.875	0.000	1.6	0.0	ΟK
	8640 min Winter	61.875	0.000	1.5	0.0	ΟK
	10080 min Winter	61.875	0.000	1.3	0.0	ΟK
	Storm Event	Rain (mm/hr)	Floode Volum	ed Discha a Volu	-	ime-Peak (mins)
	2,6110	((m ³)	e voru (m ³	-	(
			((,	
	60 min Winter	30.924	0.	0 2	22.0	68
	120 min Winter	19.669	0.	0 3	38.7	124
	180 min Winter	14.988	0.	0 4	49.1	180
	240 min Winter				97.4	272
	360 min Winter				L1.5	346
	480 min Winter				22.5	432
	600 min Winter				34.1	472
	720 min Winter				10.2	552
	960 min Winter				53.1	708
	1440 min Winter				74.2	1012
	2160 min Winter				0.3	1584
	2880 min Winter	2 218	0	0 22	20 9	2048

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1.169

2880 min Winter 2.218

4320 min Winter 1.672

8640 min Winter 1.029 0.0

5760 min Winter 1.367

10080 min Winter 0.923

7200 min Winter

2048

2760

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0 0

0

220.9

249.1

273.3 292.1

308.2

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Block 10-3 Blanchardstown Corporate Park Jublin 15 Designed by patrick.fanning Checked by Image: Checked by Sile 11421_MAYNOOTH_QBAR.SRCX Checked by Source Control 2018.1.1 Model Details Source Control 2018.1.1 Model Details Source Control 2018.1.1 Model Details Storage is Online Cover Level (m) 63.300 Tank or Pond Structure Invert Level (m) 63.300 Depth (m) Area (m') 0.00 80.00 Model Details Storage Bay Model Details Storage Bay Model Details Model Details Model Details Storage Bay Model Details Storage Bay Model Details	TOBIN Consulting Engineers					Page 3
Dublin 15 Designed by patrick.fanning Checked by Source Control 2018.1.1 Nodel Details Storage is Online Cover Level (m) 63.300 Tank or Pond Structure Invert Level (m) 61.875 Depth (m) Area (m²) Pepth (m) Area (m²) Pepth (m) Area (m²) 0.000 80.0 1.000 0.0 Hydro-Brake@ Optimum Outflow Control 0.000 1.000 0.0 Design Read (m) 1.000 0.00 2.0 Design Read (m) 1.000 0.0 1.000 Design Read (m) 1.000 0.00 2.0 Design Read (m) 1.000 2.0 Flush-Flow Calculated Objective Minimise upstream storage Sump Available Yes Diameter (mm) 100 1.000 2.0 Suggested Manhole Diameter (mm) 100 2.0 Suggested Manhole Diameter (mm) 1.000 2.0 Mean Flow over Head Ran	3lock 10-3					
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	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d Disch Volu (m ²))))))))))))))))))))	arge T 1.5 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d Disch Volu (m ²))))))))))))))))))))	arge T : 1.5 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027 1.647	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d Disch Volu (m ²)))))))))))))))))))	arge T : 1.5 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6 92.6	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720 3536	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027 1.647 1.402	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d Disch Volu (m ²)))))))))))))))))))	arge T : 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6 92.6 11.8	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720 3536 4352	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027 1.647 1.402 1.228	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	I Disch Volu (m ²)	arge T : 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6 92.6 11.8 28.3	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720 3536 4352 4600	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027 1.647 1.402 1.228 1.099	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d Disch Volu (m ²))))))))))))))))))))	arge T : arge T : 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6 92.6 11.8 28.3 42.1	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720 3536 4352 4600 5344	
	15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15	Stor Even min min min min min min min min min mi	m t Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.222 61.749 40.231 25.397 19.243 15.766 11.874 9.696 8.281 7.277 5.932 4.445 3.331 2.712 2.027 1.647 1.402 1.228 1.099	Flooded Volume (m ³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	I Disch Volu (m ²)	arge T : 1.5 13.9 26.1 88.3 54.8 72.1 30.3 39.7 51.0 55.5 72.3 92.2 21.0 38.2 69.6 92.6 11.8 28.3	ime-Peak (mins) 25 40 70 160 186 242 348 404 458 532 666 938 1360 1764 2720 3536 4352 4600	

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le 11421_MAYNOOTH_QBAR.SRC	CX Chec	cked b	У		
cro Drainage	Sour	cce Co	ntrol 2	018.1	.1
<u>Summary of Resul</u>	ts for 10	00 yea	r Retur	n Pei	ciod (+3
		-			
Storm	Max	Max	Max	Max	Status
Event	Level	Depth	Control	Volume	1
	(m)	(m)	(l/s)	(m³)	
60 min Wint			1.9	34.6	
120 min Wint				53.8	
180 min Wint				61.1	
240 min Wint			2.2	64.5	
360 min Wint			2.2	71.8	
480 min Wint			2.3	75.6	
600 min Wint			2.2	73.9	
720 min Wint			2.3	77.0	
960 min Wint			2.3	75.9	
1440 min Wint			2.2	74.0	
2160 min Wint			2.1	64.2	
2880 min Wint			2.0	53.7	
4320 min Wint			1.9	36.2	
5760 min Wint			1.9	11.4 0.0	ОК
7200 min Wint 8640 min Wint			1.9 1.7	0.0	
10080 min Wint			1.7	0.0	
10000 mill wind	er 01.075	0.000	1.0	0.0	0 K
Storm	Rain	Floode	d Disch	arge T	ime-Peak
Event			u Dische	rege r	
	(mm/hr)			-	(mins)
	(mm/hr)			me	
		Volum (m³)	e Volu (m³	me)	(mins)
60 min Wint	er 40.231	Volum (m ³) 0.	e Volu (m ³	me) 78.2	(mins) 112
60 min Wint 120 min Wint	er 40.231 er 25.397	Volumo (m ³) 0. 0.	e Volu (m ³ 0 6	me) 78.2 53.4	(mins) 112 124
60 min Wint 120 min Wint 180 min Wint	er 40.231 er 25.397 er 19.243	Volum (m ³) 0. 0.	e Volu (m ³ 0 - 0 - 0 -	me) 78.2 53.4 L4.8	(mins) 112 124 180
60 min Wint 120 min Wint 180 min Wint 240 min Wint	er 40.231 er 25.397 er 19.243 er 15.766	Volum (m ³) 0. 0. 0.	e Volu (m ³) 0 6 0 12 0 8	me) 78.2 53.4 14.8 34.1	(mins) 112 124 180 238
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874	Volum (m ³) 0. 0. 0. 0.	e Volu (m ³) 0 6 0 12 0 8 0 14	me) 78.2 53.4 14.8 34.1 41.4	(mins) 112 124 180 238 350
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696	Volum (m ³) 0. 0. 0. 0. 0. 0.	volu (m³ 0 1 0 1 0 1 0 1 0 1 0 1 0 1	me) 78.2 53.4 L4.8 34.1 41.4 L6.9	(mins) 112 124 180 238 350 450
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281	Volum (m ³) 0. 0. 0. 0. 0. 0. 0. 0.	volu (m³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	me) 78.2 53.4 14.8 34.1 41.4 16.9 53.6	(mins) 112 124 180 238 350 450 490
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277	Volum (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m ³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5	(mins) 112 124 180 238 350 450 490 558
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m ³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	me) 78.2 53.4 14.8 834.1 41.4 16.9 53.6 75.5 90.3	(mins) 112 124 180 238 350 450 490 558 718
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m ³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 2	me) 78.2 53.4 14.8 834.1 41.4 16.9 53.6 75.5 90.3 16.9	(mins) 112 124 180 238 350 450 490 558 718 1024
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445 er 3.331	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m ³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 2 0 2 0 2	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5 90.3 16.9 44.6	(mins) 112 124 180 238 350 450 490 558 718 1024 1460
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint 2160 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445 er 3.331 er 2.712	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m ³) 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 2 0 2 0 2 0 2	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5 90.3 16.9 44.6 58.0	(mins) 112 124 180 238 350 450 490 558 718 1024 1460 1880
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint 2160 min Wint 280 min Wint 4320 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445 er 3.331 er 2.712 er 2.027	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m³) 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 22 0 24 0 26 0 30	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5 90.3 16.9 46.6 58.0 01.5	(mins) 112 124 180 238 350 450 490 558 718 1024 1460 1880 2928
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint 2160 min Wint 2880 min Wint 4320 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445 er 3.331 er 2.712 er 2.027 er 1.647	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m³) 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 22 0 24 0 30 0 32	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5 90.3 16.9 46.6 58.0 01.5 28.2	(mins) 112 124 180 238 350 450 490 558 718 1024 1460 1880 2928 3720
60 min Wint 120 min Wint 180 min Wint 240 min Wint 360 min Wint 480 min Wint 600 min Wint 720 min Wint 960 min Wint 1440 min Wint 2160 min Wint 280 min Wint 4320 min Wint	er 40.231 er 25.397 er 19.243 er 15.766 er 11.874 er 9.696 er 8.281 er 7.277 er 5.932 er 4.445 er 3.331 er 2.712 er 2.027 er 1.647 er 1.402	Volume (m ³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	volu (m³) 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 22 0 24 0 32 0 32 0 32	78.2 53.4 14.8 34.1 41.4 16.9 53.6 75.5 90.3 16.9 46.6 58.0 01.5	(mins) 112 124 180 238 350 450 490 558 718 1024 1460 1880 2928

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COBIN Consulti	ng Engin	eers					Page 3
Block 10-3							
lanchardstown	Corpora	te Park					
ublin 15	1						Misso
ate 24/08/202	2 11.07		Designer	h bu nat	trick.fan	ning	Micro
		ND CDCV			CIICK.Ian	IIIIIg	Drainaq
ile 11421_MAY		AR.SRUA	Checked	-	0010 1 1		
icro Drainage			Source	Control	2018.1.1		
			<u>Model Det</u>	ails			
	S	torage is	Online Cove	Level (m) 63.300		
		<u>Tan</u> ł	<u>k or Pond</u>	Structu	re		
		Inv	vert Level (m) 61.87	5		
De	epth (m) A	rea (m²) [)epth (m) Ar	ea (m²)	Depth (m)	Area (m²)	
	0.000	80.0	1.000	80.0	1.001	0.0	
	Hy	dro-Brake	e® Optimum	Outflo	w Control	_	
			it Reference		0067-2000-	1000-2000	
			ign Head (m)			1.000	
		Desig	n Flow (l/s) Flush-Flo™		C	2.0 alculated	
					.se upstrea		
			Application		apporta	Surface	
		Su	mp Available	9		Yes	
		D	iameter (mm)			67	
			rt Level (m)			61.500	
Mi		-	iameter (mm)			100	
	Suggestea	Mannole D	iameter (mm)			1200	
		Control) Flow (1/:	5)	
	Desi	.gn Point ((Calculated)				
			Flush-Flo™			.9	
	Moar	Flow over	Kick-Flo®	0.599		.6	
	Mean	I FIOW OVER	Head Range	-	- 1	.7	
The hydrologica Hydro-Brake® Op Hydro-Brake Opt invalidated	otimum as	specified.	Should and	other typ	e of contr	ol device d	other than a
Depth (m) Flow	/ (1/s) De	pth (m) Fl	low (l/s) De	pth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.6	1.200	2.2	3.000	3.3		4.9
0.200	1.9	1.400	2.3	3.500	3.5		5.1
0.300	1.9	1.600	2.5	4.000	3.8		5.2
0.400	1.9	1.800	2.6	4.500	4.0		5.4
0.500 0.600	1.8	2.000 2.200	2.7	5.000 5.500	4.2 4.4		5.5 5.7
0.800	1.8	2.200	3.0	6.000	4.4		5.7
1.000	2.0	2.600	3.1	6.500	4.7		
	I		I				
		©1	982-2018 I	innovyze	2		

Appendix B – MicroDrainage Simulation Results

TOBIN Consulting Engineers		Page 1
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	Drainage
File 11421_DRAINAGEMODEL.MDX	Checked by	Diamage
Micro Drainage	Network 2018.1.1	
	IGN by the Modified Rational Method	
Des	ign Criteria for Storm	
Pipe Siz	es GDSDS Manhole Sizes IW Foul	
Ratio R 0.279 Maximum Rainfall (mm/hr) 50 Add Fl Maximum Time of Concentration (mins) 30 Minin De	Foul Sewage (l/s/ha) 0.000 Maximum Backdrop Heid olumetric Runoff Coeff. 0.750 Min Design Depth for Optimisat: PIMP (%) 100 Min Vel for Auto Design only ow / Climate Change (%) 30 Min Slope for Optimisation num Backdrop Height (m) 0.200 signed with Level Soffits <u>Area Diagram for Storm</u>	ion (m) 1.200 y (m/s) 1.00
	Time Area Time Area Time Area nins) (ha) (mins) (ha) (mins) (ha)	
0-4 0.098	4-8 0.119 8-12 0.014 12-16 0.016	
Total A	area Contributing (ha) = 0.247	
	$1 \text{ Dime } (m^3) = 26.022$	
10ta	l Pipe Volume (m³) = 26.032	
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TOBIN Consulting Engineers		Page 2
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	
File 11421_DRAINAGEMODEL.MDX	Checked by	Drainage
Micro Drainage	Network 2018.1.1	1

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
1	63.300	1.125	Open Manhole	1200	1.000	62.175	225				
2	63.400	0.200	Junction		2.000	63.200	150				
3	63.400	0.304	Junction		2.001	63.096	150	2.000	63.096	150	
4	63.400	0.200	Junction		3.000	63.200	150				
5	63.400	0.591	Junction		2.002	62.809	225	2.001	62.984	150	
								3.000	63.137	150	153
6	63.300	1.151	Open Manhole	1200	1.001	62.149	225	1.000	62.149	225	
								2.002	62.769	225	620
7	63.300	1.209	Open Manhole	1200	1.002	62.091	225	1.001	62.091	225	
8	63.300	1.331	Open Manhole	1200	1.003	61.969	225	1.002	61.969	225	
9	63.300	1.500	Open Manhole	1200	1.004	61.800	300	1.003	61.875	225	
10	63.300	1.549	Open Manhole	1200	1.005	61.751	300	1.004	61.751	300	
11	63.300	1.640	Open Manhole	1200	1.006	61.660	300	1.005	61.660	300	
	63.300	1.668	Open Manhole	450		OUTFALL		1.006	61.632	300	

TOBIN Consulting Engineers		Page 3
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	
File 11421_DRAINAGEMODEL.MDX	Checked by	Drainage
Micro Drainage	Network 2018.1.1	1

PIPELINE SCHEDULES for Storm

<u>Upstream Manhole</u>

PN		Hyd Sect		MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.00	00	0	225	1	63.300	62.175	0.900	Open Manhole	1200
		3 \=/ 3 \=/		2 3	63.400 63.400	63.200 63.096	0.150 0.254	Junction Junction	
3.00	00	3 \=/	150	4	63.400	63.200	0.150	Junction	
2.00)2	0	225	5	63.400	62.809	0.366	Junction	

Downstream Manhole

PN	Length (m)	Slope (1:X)		C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	7.725	300.0	6	63.300	62.149	0.926	Open Manhole	1200
2.000	31.284	300.8	3	63.400	63.096	0.254	Junction	
2.001	33.643	300.4	5	63.400	62.984	0.366	Junction	
3.000	18.982	301.3	5	63.400	63.137	0.213	Junction	
2.002	11.939	298.5	6	63.300	62.769	0.306	Open Manhole	1200

TOBIN Consulting Engineers		Page 4
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	
File 11421_DRAINAGEMODEL.MDX	Checked by	Drainage
Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for Storm

<u>Upstream Manhole</u>

PN	Hyd	Diam	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	Sect	(mm)	Name	(m)	(m)	(m)	Connection	(mm)
1.001	0	225	6	63.300	62.149	0.926	Open Manhole	1200
1.002	0	225	7	63.300	62.091	0.984	Open Manhole	1200
1.003	0	225	8	63.300	61.969	1.106	Open Manhole	1200
1.004	0	300	9	63.300	61.800	1.200	Open Manhole	1200
1.005	0	300	10	63.300	61.751	1.249	Open Manhole	1200
1.006	0	300	11	63.300	61.660	1.340	Open Manhole	1200

Downstream Manhole

PN	Length	Slope	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	(m)	(1:X)	Name	(m)	(m)	(m)	Connection	(mm)
1 0 0 1	1		_	<u> </u>	co 001			1000
1.001	17.560	300.0	/	63.300	62.091	0.984	Open Manhole	1200
1.002	36.622	300.0	8	63.300	61.969	1.106	Open Manhole	1200
1.003	27.956	300.0	9	63.300	61.875	1.200	Open Manhole	1200
1.004	14.845	300.0	10	63.300	61.751	1.249	Open Manhole	1200
1.005	27.268	300.0	11	63.300	61.660	1.340	Open Manhole	1200
1.006	8.570	300.0		63.300	61.632	1.368	Open Manhole	450

TOBIN Consulting Engineers		Page 5
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	
File 11421_DRAINAGEMODEL.MDX	Checked by	Drainage
Micro Drainage	Network 2018.1.1	
	<u>Ing Outfall Details for Storm</u> 11 C. Level I. Level Min D,L W (m) (m) (mm) 63.300 61.632 61.410 450 0	
	ation Criteria for Storm	
Hot Start (mins) 0 Additional Flow	oss Coeff (Global) 0.500 Inlet Coefficcien per hectare (l/s) 0.000 Flow per Person per Day (l/per/day r - % of Total Flow 30.000 Run Time (mins r * 10m ³ /ha Storage 2.000 Output Interval (mins) 0.000) 60
	mber of Offline Controls 0 Number of Time/Area Diagrams 0 er of Storage Structures 1 Number of Real Time Controls 0	

Synthetic Rainfall Details

Rainfall Model		FSR	M5-60 (n	mm) 1	5.200	Cv	(Summer)	0.750
Return Period (years)		5	Ratio	οR	0.279	Cv	(Winter)	0.840
Region	Scotland and	Ireland	Profile Ty	ype S	Summer S	Storm Duratio	n (mins)	30

TOBIN Consulting H	Engineers								Pa	.ge 6
Block 10-3										
Blanchardstown Com	rporate Park									
Dublin 15										Micro
Date 24/08/2022 15	5:49			Designed	by patrick	k.fanning				
File 11421_DRAINAG	GEMODEL.MDX			Checked 1	by					Drainage
Micro Drainage				Network	2018.1.1					
			Onl	ine Contro	ols for Sto	orm				
	Hyd	dro-Brake® C)ptimum M	anhole: 9	, DS/PN: 1.	.004, Volu	me (m³):	2.8		
		Reference MD-: Head (m)	SHE-0067-20	1.00-1000-200 1.0			mp Availab Diameter (m			
	-	low (l/s)			.0		ert Level (i	,		
		lush-Flo™			ed Minimum Ou		,	,		
		Objective Min	nimise upst							
		plication	÷	Surfa	5 55					
	Contro	l Points	Head (m)	Flow (l/s)	Contro	l Points	Head (m) Flow (l	/s)	
	Design Point	t (Calculated)	1.000	2.0		Kick-Fl	.o® 0.59	Q	1.6	
	Design foin	Flush-Flo™			Mean Flow ov				1.7	
					1					
The hydrological ca				-	-	-		-	-	
another type of cor	ntrol device ot	ner than a Hyd	lro-Brake O	ptimum® be	utilised the	n these sto	rage routin	g calcula	tions will	l be invalidated
Depth (m) Flow	(1/s) Depth (m	n) Flow (l/s)	Depth (m)	Flow (1/s)	Depth (m) F	low $(1/s)$ D	epth (m) Fl	low (1/s)	Depth (m)	Flow (1/s)
-			-				-		-	
0.100	1.6 0.60		1.600		2.600	3.1	5.000		7.500	
0.200	1.9 0.80		1.800	2.6		3.3	5.500	4.4	8.000	

1.9 1.9 1.8 2.6 2.7 3.3 3.5 2.000 3.500 6.000 4.6 1.000 1.9 1.200 2.2 2.200 2.9 4.000 3.8 6.500 4.7 1.8 3.0 1.400 2.3 2.400 4.500 4.0 7.000 4.9

8.500

9.000

9.500

5.4

5.5

5.7

0.300

0.400

0.500

TOBIN Consulting Engineers									P	age 7
Block 10-3										
Blanchardstown Corporate Park										
Dublin 15										Micro
Date 24/08/2022 15:49		Designe	d by p	atri	ck.fa	nnin	ıg			Micro Drainage
File 11421_DRAINAGEMODEL.MDX		Checked	by							Digitige
Micro Drainage		Network	2018.	1.1					I	
	<u>Stora</u>	ge Struc	tures	for	Storm	<u>n</u>				
	Tank or Pc	nd Manho	ole: 1	, DS	/PN: 2	1.00	0			
	I	nvert Lev	el (m)	62.17	75					
Depth (m) Area (m²)	Depth (m) Area	(m²)	Depth	(m)	Area	(m²)		
0.00	0 80.0	1.00	0	80.0	1.	.001		0.0		
	C	1982-203	18 Inno	ovyz	e					

TOBIN Consulting Engineers		Page 8
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		— Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	Drainage
File 11421_DRAINAGEMODEL.MDX	Checked by	Diamage
Micro Drainage	Network 2018.1.1	
Summary of Critical R	esults by Maximum Level (Rank 1) for Storm	
	Simulation Criteria	
Areal Reduction Factor 1.000 Manhole Head Hot Start (mins) 0 Foul Sewag	loss Coeff (Global) 0.500 MADD Factor * 10m³/ha Stora e per hectare (l/s) 0.000 Inlet Coeffiecie	5
	w - % of Total Flow 30.000 Flow per Person per Day (1/per/da	
		. .
	umber of Offline Controls 0 Number of Time/Area Diagrams 0 ber of Storage Structures 1 Number of Real Time Controls 0	
	Synthetic Rainfall Details	
Rainfall Model Region Scotland	FSR M5-60 (mm) 15.200 Cv (Summer) 0.750 and Ireland Ratio R 0.279 Cv (Winter) 0.840	
Margin for Flood Risk Warning		
Analysis Time DTS St	step 2.5 Second Increment (Extended) Inertia Status OFF atus ON	
Profile(s)	Summer and Winter	<u>c</u>
Duration(s) (mins) 15, 30, 6	0, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880,	,
	4320, 5760, 7200, 8640, 10080	
Return Period(s) (years) Climate Change (%)	1, 30, 100 0, 0, 0	
	, , , , , , , , , , , , , , , , , , ,	
	Water Surcharged Flooded	Pipe
US/MH Return Climate First (X) First	(Y) First (Z) Overflow Level Depth Volume Flow / Over	-
PN Name Storm Period Change Surcharge Floo	d Overflow Act. (m) (m) (m ³) Cap. ((l/s) (l/s) Status
1.000 1 360 Winter 100 +0% 1/120 Winter	63.224 0.824 0.000 0.15	3.7 FLOOD RISK
	©1982-2018 Innovyze	

TOBIN Consulting Engineers		Page 9
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	Micro Drainage
File 11421_DRAINAGEMODEL.MDX	Checked by	Diamaye
Micro Drainage	Network 2018.1.1	
<u>Summary or C</u>	ritical Results by Maximum Level (Rank 1) for Stor US/MH Level	
	PN Name Exceeded	
	1.000 1	

TOBIN Consulting Engineers		Page 10
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	Drainage
File 11421_DRAINAGEMODEL.MDX	Checked by	Dialitage
Micro Drainage	Network 2018.1.1	L

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	S	torm		Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.		Surcharged Depth (m)		Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)
2.000	2	15	Winter	100	+0%					63.295	-0.105	0.000	0.17		7.3
2.001	3	360	Winter	100	+0%					63.223	-0.177	0.000	0.02		2.0
3.000	4	15	Winter	100	+0%					63.260	-0.140	0.000	0.07		2.9
2.002	5	360	Winter	100	+0%	100/120 Winte	er			63.223	0.189	0.000	0.08		2.5
1.001	6	360	Winter	100	+0%	1/15 Summe	er			63.223	0.849	0.000	0.13		3.5
1.002	7	360	Winter	100	+0%	1/15 Summe	er			63.223	0.907	0.000	0.11		3.2
1.003	8	15	Summer	100	+0%	1/15 Summe	er			63.231	1.037	0.000	0.25		7.1
1.004	9	15	Summer	100	+0%	1/15 Summe	er			63.278	1.177	0.000	0.04		2.3
1.005	10	600	Winter	100	+0%					61.790	-0.261	0.000	0.04		2.3
1.006	11	480	Winter	100	+0%					61.702	-0.258	0.000	0.05		2.3

	US/MH		Level
PN	Name	Status	Exceeded
2.000) 2	FLOOD RISK*	
2.001	L 3	FLOOD RISK*	
3.000) 4	FLOOD RISK*	
2.002	2 5	FLOOD RISK*	
1.001	L 6	FLOOD RISK	
1.002	2 7	FLOOD RISK	
1.003	3 8	FLOOD RISK	
1.004	1 9	FLOOD RISK	
1.005	5 10	OK	
	©1982-	-2018 Innov	yze

TOBIN Consulting Engineers		Page 11
Block 10-3		
Blanchardstown Corporate Park		
Dublin 15		Micro
Date 24/08/2022 15:49	Designed by patrick.fanning	Micro Drainage
File 11421_DRAINAGEMODEL.MDX	Checked by	Diamage
Micro Drainage	Network 2018.1.1	
<u>Summary of Criti</u>	cal Results by Maximum Level (Rank 1) for Storr	<u>n</u>
	US/MH Level	
	PN Name Status Exceeded	
	1.006 11 OK	

Appendix C – Existing Service Infrastructure Maps

Foul Map

Surface Water Map

Potable Water Map

11429 - Toppins Field- Sewer.Water Overlay

SewerStormWaterNetwork Sewer Manholes Standard O Backdrop E Cascade 🖁 Catchpit 0 Bifurcation 🗄 Hatchbox LH • Lamphole 🔺 Hydrobrake • Other; Unknown Sewer Discharge Points I Outfall 哠 Overflow SA • Soakaway 0 Other; Unknown Sewer Clean Outs Rodding Eye O Flushing Structure Other; Unknown 0 Sewer Network Structures Waste Water Treatment

plant 👚



40m

Maxar, Microsoft | OS, Esri, HERE, Garmin, GeoTechnologies, Inc.

11429 - Toppins Field- Sewer.Water Overlay

StormWaterNetwork Storm Manholes Standard • Backdrop E Cascade 🖁 Catchpit 0 Bifurcation Hatchbox LH • Lamphole Ł Hydrobrake 0 Other; Unknown Storm Discharge Points I Outfall ec Overflow SA • Soakaway Other; Unknown 0 Surface Water Mains Surface Gravity Mains Surface Gravity -Mains Private 📭 Surface Water Pressurised Mains

Surface Water
 Pressurised Mains
 Private

Storm Inlets



40m

Maxar, Microsoft | OS, Esri, HERE, Garmin, GeoTechnologies, Inc.

11429 - Toppins Field- Sewer.Water Overlay

WaterDistributionNetwork

Network Meters

- M Boundary Meter
- M Bulk Meter
- $\overline{\mathbb{M}}$ Check Meter
- (M)Group Scheme
- M Source Meter
- M Waste Meter
- Unknown Meter ; M Other Meter

Valves

Flow Control Valves

- ► Non-Return
- 📂 PRV
- 🖂 PSV

System Valves

Line Valves

- Sluice Valve Open Sluice Valve Part
- Open Sluice Valve
- Closed ■ Butterfly Valve Open
- L Butterfly Valve Part Open



40m

Maxar, Microsoft | OS, Esri, HERE, Garmin, GeoTechnologies, Inc.

Appendix D – Irish Water Confirmation of Feasibility



Aoife O'Sullivan

Block 10-4 Blanchardstown Corporate Park Dublin D15X98N

8 June 2022

Uisce Éireann Bosca OP 448 Oifig Sheachadta na Cathrach Theas Cathair Chorcaí

Irish Water PO Box 448, South City Delivery Office, Cork City.

www.water.ie

Re: CDS22003271 pre-connection enquiry - Subject to contract | Contract denied Connection for Business Connection of 1 unit(s) at Straffan Road, Greenfield, Maynooth, Kildare

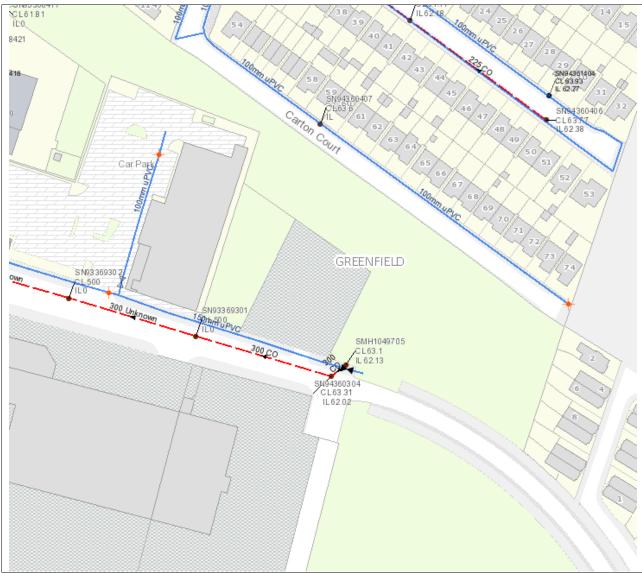
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Straffan Road, Greenfield, Maynooth, Kildare (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY <u>THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A</u> <u>CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH</u> <u>TO PROCEED.</u>					
Water Connection	Feasible without infrastructure upgrade by Irish Water					
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water					
SITE SPECIFIC COMMENTS						

The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.

Stlürthóirí / Directors: Cathal Marley (Chairman), Niall Gleeson, Eamon Gallen, Yvonne Harris, Brendan Murphy, Dawn O'Driscoll, Maria O'Dwyer Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin 1 D01 NP86 Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Irish Water is a designated activity company, limited by shares. Uimhir Chláraithe in Éirinn / Registered in Ireland No.: 530363



The map included below outlines the current Irish Water infrastructure adjacent to your site:

Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network 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.

General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. The availability of capacity may change at any date after this assessment.

- This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
- 3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
- 4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
- 5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
- 6) Irish Water Connection Policy/ Charges can be found at hips://www.water.ie/connections/information/connection-charges/
- 7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
- 8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
- 9) To access Irish Water Maps email <u>datarequests@water.ie</u>
- 10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Tinus van der Walt from the design team at twalt@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,

Monne Maeeis

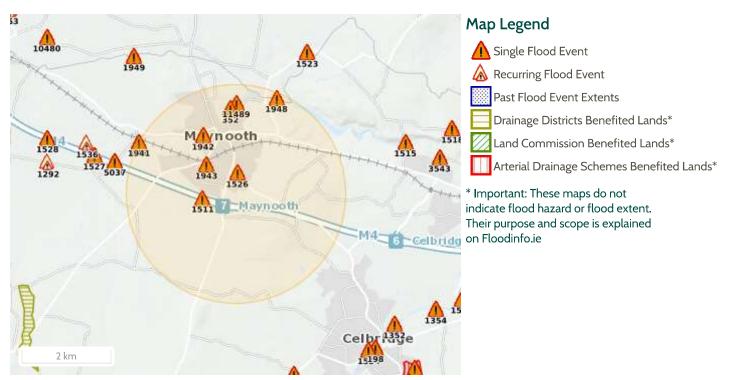
Yvonne Harris Head of Customer Operations Appendix E – Past Flood Events Report



Report Produced: 30/8/2022 10:03

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "Website"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.



10 Results

Name (Flood_ID)	Start Date	Event Location
1. 🛕 Lyreen Maynooth Canal Culvert Nov 2000 (ID-1941)	05/11/2000	Exact Point
Additional Information: <u>Reports (3)</u> Press Archive (0)		
2. 🛕 Lyreen Maynooth College Nov 2000 (ID-1942)	05/11/2000	Approximate Point
Additional Information: <u>Reports (1)</u> Press Archive (5)		
3. <u> M</u> eadowbrook Estate Parson St Maynooth Nov 2000 (ID-1943)	05/11/2000	Approximate Point
Additional Information: <u>Reports (4)</u> Press Archive (0)		
4. <u> </u> Ryewater Maynooth Carton Nov 2000 (ID-1948)	05/11/2000	Approximate Point
Additional Information: <u>Reports (2)</u> Press Archive (6)		
5. <u> </u> Lyreen Maynooth Jackson's Bridge area June 1993 (ID-476)	09/06/1993	Approximate Point
Additional Information: <u>Reports (3)</u> Press Archive (0)		
6. <u> </u> Lyreen Maynooth University June 1993 (ID-3539)	31/05/1993	Approximate Point
Additional Information: <u>Reports (1)</u> Press Archive (0)		

Name (Flood_ID)	Start Date	Event Location
7. 🛕 Lyreen River 24th Oct 2011 Maynooth (ID-11489)	23/10/2011	Approximate Point
Additional Information: <u>Reports (1)</u> Press Archive (0)		
8. 🛕 Lyreen Maynooth Nov 2002 (ID-352)	15/11/2002	Approximate Point
Additional Information: <u>Reports (6)</u> Press Archive (5)		
9. 🛕 Meadowbrook Greenfield M4 Nov 2000 (ID-1511)	05/11/2000	Approximate Point
Additional Information: <u>Reports (5)</u> Press Archive (2)		
10. 🛕 Laurence Avenue, Maynooth Nov 2002 (ID-1526)	14/11/2002	Approximate Point
Additional Information: <u>Reports (2)</u> Press Archive (0)		

Appendix F – Site Investigations Results

S.I. Ltd Contract No: 5994

Client: Engineer: Contractor: Kildare County Council Tobin Consulting Engineers Site Investigations Ltd

Maynooth Fire Station, Maynooth, Co. Kildare Site Investigation Report

Prepared by:

Sata

Stephen Letch

Issue Date:	24/06/2022
Status	Final
Revision	1

Appendix 1 Cable Percussive Borehole Logs

Contra 59		Cable Percussion	n Bo	ore	nole	Lo	g		Вс	BH0	
Contra	ct:	Maynooth Fire Station	Easting	:	693991	.954		Date Started:	31/05	/2022	
ocatio	n:	Maynooth, Co. Kildare	Northin	g:	736387	7.194		Date Completed:	02/03	/2021	
lient:		Kildare County Council	Elevatio	on:	63.34			Drilled By:	J. O'T	oole	
ingine	er:	Tobin Consulting Engineers	Boreho Diamet		200mm	l		Status:	FINA	_	
Deptl Scale	n (m) Depth	Stratum Description	Legend	Level Scale	(mOD) Depth	Sar Depth	nples Type	and Insitu Tes Result		Water Strike	Back
	0.20 0.70 1.25 1.35	TOPSOIL. MADE GROUND: grey brown sandy gravelly silty clay with medium cobble content and some plastic, timber and concrete fragments. Brown slightly sandy slightly gravelly silty CLAY with low cobble content. Obstruction - possible boulders. End of Borehole at 1.35m		63.0	63.14 62.64 62.09 61.99	0.50 1.00 1.00	B B C	JOT02 50 (3,18/50 105mm 50 (25 fc 5mm/50 for s) or		
4.5				- - - 58.5 -	- - - -						
		Chiselling:Water Strikes:Water Details:From:To:Time:Strike:Rose:Depth SealedDate:Hole Depth:Water Depth:Mater Depth:1.251.3501:3031/051.35Dry	Install		e: From:	Backfill: To: Typ .35 Arisi		Remarks: orehole terminated obstruction.		Legend: B: Bulk D: Disturb U: Undistr ES: Envir W: Water C: Cone S S: Split sp	urbed onment SPT

Contra 59		Cable Percussion	n Bo	oreł	nole	Lo		Borehole No: BH02			
Contrac	ct:	Maynooth Fire Station	Easting	:	693986.702			Date Started:	31/05/2022		
ocatio	n:	Maynooth, Co. Kildare	Northin	g:	736374	1.180		Date Completed:	03/03/2021		
Client:		Kildare County Council	Elevation:		63.38			Drilled By:	J. O'Toole		
Ingine	er:	Tobin Consulting Engineers	Borehole Diameter:		200mm			Status:	FINAL		
Dept		Stratum Description	Legend		(mOD)			and Insitu Tes			
Scale	Depth	TOPSOIL.		Scale	Depth	Depth	Туре	Result		Ounce	
- - 0.5 -	0.20	MADE GROUND: grey brown sandy gravelly silty clay with medium cobble content and some plastic, timber and concrete fragments.		- 63.0 — -	63.18	0.50	В	JOT04			
	0.60	Brown slightly sandy gravelly silty CLAY with low cobble content.	[월, 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	- 62.5 — -	02.70	1.00	В	JOT05			
-	1.25			-	62.13	1.00	С	50 (9,15/50 90mm)			
- - 1.5 -	1.35	Obstruction - boulders. End of Borehole at 1.35m		- 62.0 — -	62.03	1.35	С	50 (25 fo 5mm/50 for			
				- - 61.5 - -							
- - 2.5 - -				- - 61.0 — -	-						
				- - 60.5 — - -	-						
- - 3.5 — -											
- - 4.0				- 59.5 — -	-						
4.5 -				 59.0 — 							
-				- 58.5 — -	-						
		Chiselling: Water Strikes: Water Details: From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Water Fill 1.25 1.35 01:30 31/05 1.35 Dry		Installation: From: To: Pipe				Remarks: Borehole terminated due to obstruction.		Legend: B: Bulk D: Disturbed U: Undisturb ES: Environn W: Water C: Cone SP	

Contra 59		Cable Percussion	n Bo	oreh	nole	Lo	Bor				
Contra	ct:	Maynooth Fire Station	Easting	J:	694017.345			Date Started:	30/05/2022		
Locatio	n:	Maynooth, Co. Kildare	Northin	g:	736374.408			Date Completed:	04/03/2021		
Client:		Kildare County Council			63.33			Drilled By:	J. O'Toole		
Engine	er:	Tobin Consulting Engineers	Borehole Diameter:		200mm	า		Status:	FINAL		
Dept Scale	h (m) Depth	Stratum Description	Legend	Level Scale	(mOD) Depth	Sa Depth	mples Type	and Insitu Tes		Vater Strike	Backfi
	0.20	TOPSOIL. MADE GROUND: grey brown sandy gravelly silty clay with medium cobble content and some plastic, timber and concrete fragments. Brown slightly sandy gravelly silty CLAY with low cobble content. Obstruction - possible boulders. End of Borehole at 0.90m			63.13 62.73 62.53 62.43	0.70	B C	JOT01 50 (25 fc 5mm/50 10mm)	or for		
		Chicelling: Mator Strikes: Mator Dateile:	Install	ation		Backfill		Remarks:		edenq.	
		Chiselling: Water Strikes: Water Details: From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Mater Mater 0.80 0.90 01:30 Image: Strike in the sealed 30/05 0.90 Dry Image: Strike in the sealed	Install From: To		_	Backfill: To: Tyţ 0.90 Arisi		Remarks: orehole terminated o obstruction.	d due D U E W C	egend: : Bulk : Disturb : Undistu S: Enviro /: Water : Cone S : Split sp	urbed onmental PT

Contra 59		Cable Percussion	n Bo	oreł	nole	Log		Borehole No: BH04			
Contra	ot:	Maynooth Fire Station	Easting	1:	694008	3.037		Date Started:	01/06	/2022	
ocatio	n:	Maynooth, Co. Kildare	Northin	g:	736356	6.332		Date Completed:	01/06)1/06/2022	
Client:		Kildare County Council	Elevatio	on:	63.44			Drilled By:	J. O'Toole		
Engineer:		Tobin Consulting Engineers	Boreho Diamet		200mm	ו		Status:	FINAL		
Dept		Stratum Description	Legend		(mOD)		-	and Insitu Tes		Water Strike	Back
Scale	Depth	DPSOIL.		Scale	Depth	Depth	Туре	Result		Suike	
0.5 _	0.20	MADE GROUND: grey brown sandy gravelly silty clay with medium cobble content and some plastic, timber and concrete fragments. Brown slightly sandy gravelly silty CLAY with low cobble content.	4-1-1-20 	- - 63.0 — - -	63.24 62.84	0.50	В	JOT06)6		
- - 1.0 -	1.20 1.30	Obstruction - possible boulders.		- 62.5 — - -	62.24	1.00 1.00 1.30	B C C	JOT07 50 (6,14/5) 40mm) 50 (25 fe) for		
- 1.5 — - -	1.00	End of Borehole at 1.30m		- 62.0 — - -		1.00	0	5mm/50 for			
2.0				61.5 — - -	-						
- 2.5 — - -					-						
- 3.0 — -				- 60.5 — - -	-						
- 3.5 — -				 60.0 	-						
- 4.0 -				 59.5 	-						
- 4.5 — -				_ 59.0 — _ _	-						
- 				- 58.5 —							
		Chiselling:Water Strikes:Water Details:From:To:Time:Strike:Rose:Depth SealedDate:Hole Depth:Water Depth:Hole Depth:Water Depth:From:1.201.3001:30Image: Strike in the sealed01/061.30Dry	Install From: To		e: From:	Backfill: To: Typ 30 Arisir		Remarks: orehole terminate obstruction.	d due	Legend: B: Bulk D: Disturb U: Undist ES: Envir W: Water C: Cone S S: Split sp	urbed onmenta SPT

Appendix 2 Rotary Corehole Log and Photograph

Contract No: 5994	Rotary Cor	ehc	ole I	LC	og					ehole RCO	
Contract:	Maynooth Fire Station	Easti	ng:	6	693986.702	Date Started:		ed:	08/06/2022		
_ocation:	Maynooth, Co. Kildare	North	ing:	7	736374.180		Date Completed:		08/06/2022		
Client:	Kildare County Council	Eleva	tion:	6	3.38	Drilled By:			MEDL		
Engineer:	Tobin Consulting Engineers	Rig T	ype:	s	Sondeq		Status:		FINAL		
Depth (m)	Stratum Description	Level		D)	Samples	Rocl			Indices	Back	
Scale Depth _ C 0.5 - - - - - - - - - - - - - -	able percussive borehole completed - see CP log.		Scale [Jepi			TCR/%	SCR	% RQD/%	FI/m	
1.0	pen hole drilling - driller reports returns of sandy gravelly	-6:20	- 62.5 — - - - 62.0 —	62.0	3						
1.5 - C - C - 2.0	LAY with cobbles and boulders.	· <u>1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 </u>	61.5 — - - - - - -								
2.5 - 0	loderately strong light grey massive LIMESTONE with ccasional calcite veins. Fresh to slightly weathered. Discontinuïties - rough, undulating, tight to open, sub-horizontal, occasionally sub-vertical dip, clean with occasional brown staining.		- 61.0 - - - 60.5 - - -	61.0	2.30 - 3.30		96	82	51	7	-
- - - - - - - - - - - - - - - - - - -			- 60.0 — - - - 59.5 — - - - -		3.30 - 4.30		95	77	46	11	
- - - - 5.0			59.0 — - - - 58.5 — -		4.30 - 5.30		93	84	32		
5.5 -	End of Corehole at 5.30m			58.0	8						
	Installation: Backfill: From: To: Pipe Type: From: To: Type: 0.00 5.30 Bentonite	Remar Cable Coreho	oercuss	sive	e borehole previousl ted adjacent to bore	y cor ehole	mplete	ed.			

RC02 Box 1 of 1



Appendix 3 Trial Pit Logs and Photographs

	act No: 994		-	Trial Pit	Log						T	rial Pit TP0	
Contr	act:	Maynooth Fire Stati	ion	E	asting:	693983	3.942		Date:	Date:		25/05/2022	
Locat	ion:	Maynooth, Co. Kilda	are	N	lorthing:	736366	736366.956 E>				JCB 3CX		
Client:		Kildare County Cou	incil	E	Elevation:	63.29		Logged By:		M. Kaliski			
Engineer:		Tobin Consulting Er	ngineers		Dimensions LxWxD) (m):	6.50 x	0.60 x 1.70		Status:		FINA		
	(mbgl)		Stratum Descripti			Legend	Level				Field Tests		Wate Strike
Scale:		TOPSOIL.					Scale:	Depth	n: Depth	Тур	be I	Result	Strike
		MADE GROUND: gre		- 63.0 — -	63.19	0.50	E		MK05				
-		Stiff brown slightly sandy gravelly silty CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular of limestone. Cobbles are angular to subangular of limestone.					- - 62.5 –	62.69					
1.0 - -							- - 62.0 —	-	1.00	В	3	MK06	
- 1.5 — - -	1.70	Obstruction - possible	e boulders. Pit terminated at 1.70	0m			- - - 61.5 –	- - 61.59)				
_ 2.0 — _ _							- - 61.0 —	-					
- 2.5 — - - -							- - - 60.5	-					
		1	T	1				_					<u> </u>
(Termination: Obstruction - possible boulders.	Pit Wall Stability: Pit walls stable.	Groundwater F Dry	Rate: Rema -	rks:			Key: B = D = CBR = ES =	Sma Und =		urbed ed CBR	

	act No: 994		-	Trial Pit	Log						Trial Pit TP0		
Contr	act:	Maynooth Fire Stati	on	E	Easting:	694007	. 291		Date:		25/05/2022		
_ocat	ion:	Maynooth, Co. Kilda	are	1	Northing:	736395	5.659		Excavato	r:	ЈСВ ЗСХ		
Client	t:	Kildare County Cou	ncil	E	Elevation:	63.24			Logged By:		M. Kaliski		
Engin	eer:	Tobin Consulting En	ngineers		Dimensions LxWxD) (m):	5.10 x	0.60 x	1.80	Status:		FINAL		
∟evel	(mbgl)	1	Stratum Descripti	I		Legend	d Level (mOD)) Samples		Field Tests	Wate	
Scale:		TOPSOIL.					Scale:	Depth	n: Depth	Тур	e Result	Strike	
-	0.10	MADE GROUND: grey brown sandy gravelly silty clay with medium cobble content and some plastic fragments.					- 63.0 —	63.14	4				
- 0.5	0.70				-		0.50	ES	6 МК03				
-		Stiff brown slightly sa cobble content. Sand angular to subangula subangular of limesto	is fine to coarse. Gr r of limestone. Cobb	oarse,		62.5 -	62.54						
1.0							- 62.0 —	-	1.00	B	MK04		
- 1.5 — -							- - 61.5 —	-					
- - 2.0 —	1.80	Obstruction - possible	e boulders. Pit terminated at 1.80	0m	/		-	61.44	4				
							- 61.0 —	-					
- 2.5 — -							-						
_							60.5 — -	-					
		Termination:	Pit Wall Stability:	Groundwater	Rate [:] Rema	rks [.]			Key:				
(Obstruction - possible boulders.	Pit walls stable.	Dry	-				B = D = CBR	Sma Und =	disturbed Il disturbed listurbed CBF onmental	2	

	act No: 994		-	Trial Pit	Log						Trial Pit TPC		
Contr	act:	Maynooth Fire Stati	on	E	asting:	694032	2.944		Date:		25/05/2022		
_ocat	ion:	Maynooth, Co. Kilda	are	N	lorthing:	736371	.616		Excavator	:	ЈСВ ЗСХ		
Client:		Kildare County Cou	ncil	E	levation:	63.34			Logged By:		M. Kaliski		
Engineer:		Tobin Consulting Er	igineers) xWxD) (m):	4.40 x	0.60 ×	1.50	Status:		FINAL		
	(mbgl)		Stratum Descripti	[·		Legend	Level				Field Tests	Wate Strike	
Scale:		TOPSOIL.					Scale:	Depth	: Depth	Тур	be Result	Ourik	
-	0.10	MADE GROUND: gre cobble content and so	ey brown sandy grav ome concrete fragme	elly silty clay wit ents.	h medium		- 63.0 —	63.24	ŀ				
0.5		Stiff brown slightly sa ow boulder content. angular to subangula angular to subangula	Sand is fine to coars r of limestone. Cobb	제 : 성제 : 성제 : 상제 : 상 년 : 년 : 년 : 년 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 :	- - 62.5 –	- 62.74 -	0.50	E	5 MK01				
1.0 — - -							- - - 62.0 —	-	1.00	В	мко2		
1.5 — - -	1.50	Qbstruction - possible	e boulders. Pit terminated at 1.50	Om			- - - 61.5 —	61.84	ŀ				
- 2.0 — - -							- - - 61.0 —	-					
- 2.5 — - -							- - - 60.5 –	-					
							-						
/		Termination:	Pit Wall Stability:	Groundwater F	Rate: Rema	rks:			Key:				
		Obstruction - possible boulders.	Pit walls stable.	Dry	-					Sma Unc =	adisturbed all disturbed disturbed CBI onmental	२	

	act No: 994		-	Trial Pit	Log							al Pit No: F P04	
Contr	act:	Maynooth Fire Station	on	E	Easting:	694021	.704		Date:		25/05/2	022	
_ocat	ion:	Maynooth, Co. Kilda	are	1	Northing:	736347	.331		Excavator	:	JCB 3CX		
Client	t:	Kildare County Cou	ncil	E	Elevation:	63.27			Logged B	y:	M. Kalis	M. Kaliski	
Engin	ieer:	Tobin Consulting En	gineers		Dimensions LxWxD) (m):	4.50 x	0.60 ×	: 1.20	Status:		FINAL		
	(mbgl)	1	Stratum Descript			Legend	Level					ield Tests Wat	
Scale:		TOPSOIL.	-			-	Scale:	Depth	n: Depth	Тур	be Re	sult	
-		MADE GROUND: gre					- 63.0 — -	63.17	7				
0.5 — — —		Stiff brown slightly sa content. Sand is fine f subangular of limesto imestone.	to coarse. Gravel is t	fine to coarse, a	angular to 🛛 🖞		- - 62.5 –	62.57	0.50	ES	5 Mł	<07	
1.0 —	1.20	Obstruction - possible	boulders. Pit terminated at 1.2	0m			- - 62.0 —	62.07	1.00	В	Mł	<08	
- 1.5 — - -							- - - 61.5 -	-					
- 2.0 — - -							- - 61.0 —	-					
- 2.5 — - - -							- - - 60.5 - -	-					
			1				-						
		Termination: Obstruction - possible boulders.	Pit Wall Stability: Pit walls stable.	Groundwater Dry	Rate: Remar	rks:				Sma Unc =	disturbe III disturb listurbed onmenta	ed CBR	

Appendix 4 Soakaway Test Results

		SOAKAWAY TES	<u>ST</u>	4.								
Project Referer	nce:	5994										
Contract name		Maynooth Fire Station										
Location:		Maynooth, Co. Kildare										
Test No:		TP02										
Date:		25/05/2022										
Ground Condit	ions											
From	То											
0.00	0.10	TOPSOIL.										
0.10	0.70	MADE GROUND: grey brown sandy		th medium cobble								
		content and some plastic fragments.										
0.70	1.80	Firm brown slightly sandy slightly gra	avelly silty CLAY with	n medium cobble								
Remarks:												
	.80mbgl - pit	terminated and test completed.										
Elapsed Time												
(mins)	(m)	Length (m)	5.10 m	1								
0	1.00	Width (m)	0.60 m	1								
0.5	1.00	Depth	1.80 m	1								
1	1.00	Water		-1								
1.5	1.00	Start Depth of Water	1.00 m	-1								
2	1.00	Depth of Water	0.80 m	1								
2.5	1.01	75% Full	1.20 m	-								
3	1.01	25% Full	1.60 m	-								
3.5	1.01	75%-25%	0.40 m	-								
4	1.01	Volume of water (75%-25%)	1.22 m3	1								
4.5	1.01	Area of Drainage	20.52 m2	-								
5	1.01	Area of Drainage (75%-25%)	7.62 m2	1								
6	1.01	Time		1								
7	1.01	75% Full	N/A min	-								
8	1.01	25% Full	N/A min	1								
9	1.01	Time 75% to 25%	N/A min	1								
10	1.01	Time 75% to 25% (sec)	N/A sec	7								
12	1.01] [
14	1.01	0.00										
16	1.02	0.10										
18	1.02	0.30										
20	1.02	0.40										
25	1.02	0.60										
30	1.02	0.70										
40	1.02	0.80										
50	1.02	1.00										
60	1.03	1.10										
75 90	<u>1.03</u> 1.03	1.30										
120	1.03	1.40										
120	1.03	1.50										
		1.70										
		1.80	60 80	100 120								
f =	<u>Fail</u>	or <u>Fail</u>										
	m/min	m/s										

		SOAKAWAY TES	<u>ST</u>	1
Project Referen	nce:	5994		
Contract name	:	Maynooth Fire Station		
Location:		Maynooth, Co. Kildare		
Test No:		TP04		
Date:		25/05/2022		
Ground Condit	tions			
	То			
0.00	0.10	TOPSOIL.		
0.10	0.70	MADE GROUND: grey brown sandy	oravelly silty clay w	ith medium cobble
0.10	0.70			
0.70	1.20	content and some plastic pipe and to Firm brown slightly sandy slightly gr	avelly silty CLAY wit	th medium cobble
0.70	1.20	content.		
Remarks:				
	20mbal - pit t	erminated and test completed.		
Elapsed Time			I I	
			1 50 m	
(mins)	(m)	Length (m)	4.50 m	
0	0.70	Width (m)	0.60 m	
0.5	0.70	Depth	1.20 m	
1	0.70	Water		_
1.5	0.70	Start Depth of Water	0.70 m	
2	0.70	Depth of Water	0.50 m	
2.5	0.70	75% Full	0.83 m	_
3	0.71	25% Full	1.08 m	
3.5	0.71	75%-25%	0.25 m	
4	0.71	Volume of water (75%-25%)	0.68 m3	
4.5	0.71	Area of Drainage	12.24 m2	
5	0.71	Area of Drainage (75%-25%)	5.25 m2	_
6	0.71	Time		
7	0.71	75% Full	N/A min	-
8	0.71	25% Full	N/A min	-
9	0.71	Time 75% to 25%	N/A min	-
10	0.71	Time 75% to 25% (sec)	N/A sec	-
12	0.72			
14	0.72	0.00		
16	0.72	0.10		
18	0.72			
20	0.72	0.20		
25	0.72	0.30		
30	0.72	0.40		
40	0.73	0.50		
50	0.73	0.60		
<u> </u>	0.73	0.70		
60 75	0.73	0.80		
90	0.73	0.90		
120	0.73			
120	0.73	1.00		
		1.10		
		1.20		
		0 20 40	60 80	100 120
f =	<u>Fail</u> m/min	or <u>Fail</u> m/s		
		11/3		

Appendix 5 California Bearing Ratio Tests

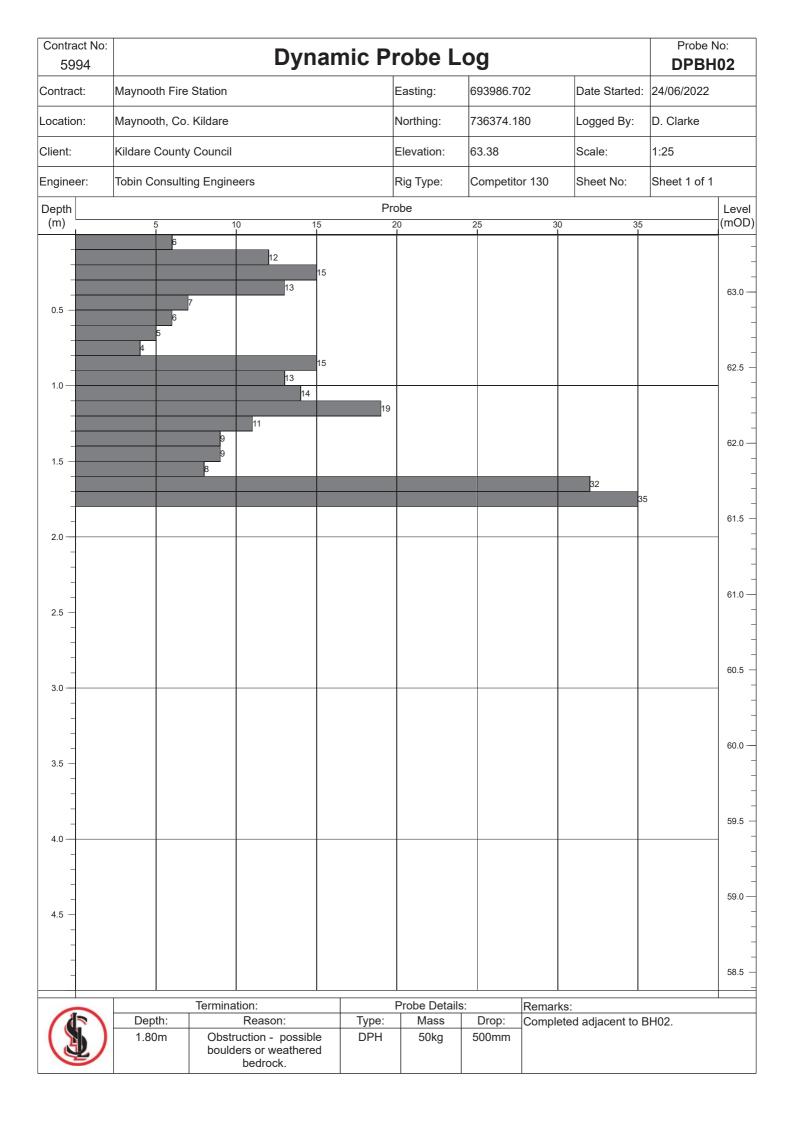
California Bearing Ratio (CBR) In accordance with BS1377: Part 4: Method 7

Client	Kildare County Council
Site	Maynooth Fire Station
S.I. File No	5994 / 22
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email info@siteinvestigations.ie
Report Date	17th June 2022

CBR No	Depth (mBGL)	Sample No	Sample Type	Lab Ref	Moisture Content (%)	CBR Value (%)	Location / Remarks
CBR01	0.50	MK20	CBR	22/784	12.3	7.7	
CBR02	0.50	MK21	CBR	22/785	14.1	6.3	
CBR03	0.50	MK22	CBR	22/786	13.6	5.5	
CBR04	0.50	MK23	CBR	22/787	16.0	4.8	

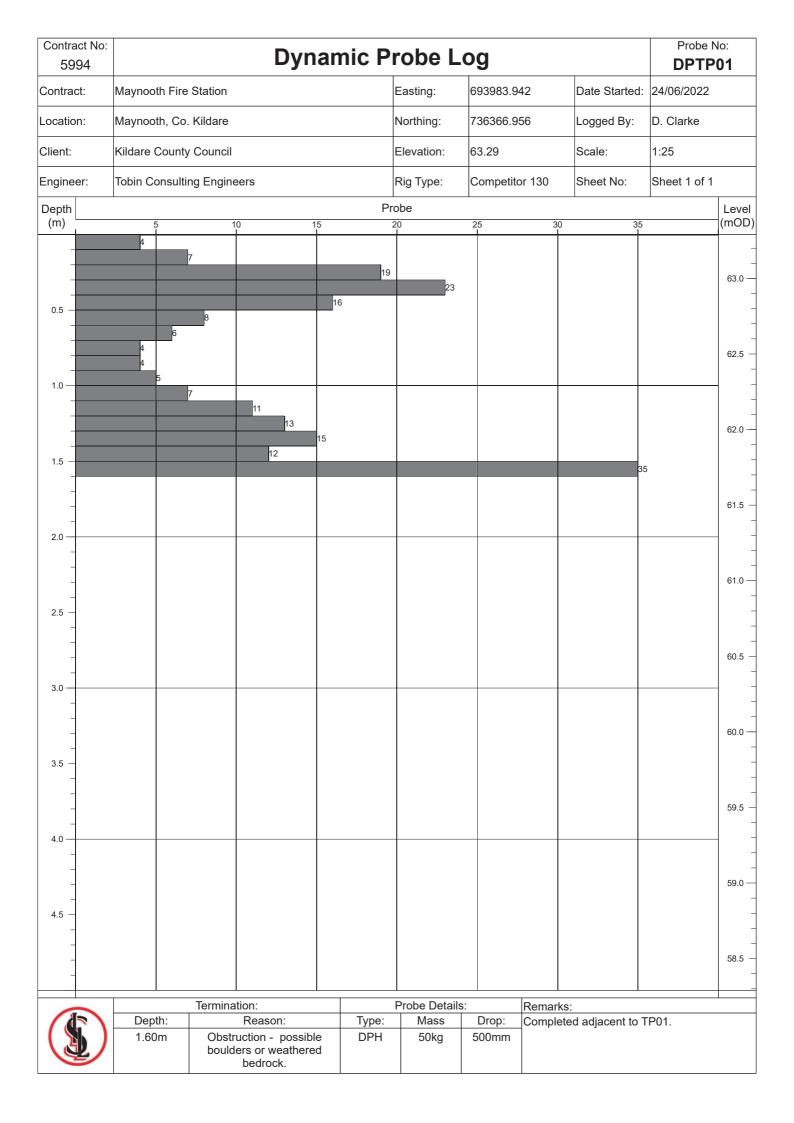
Appendix 6 Dynamic Probe Logs

Contract No: 5994		D	ynan	nic Pı	obe L	.og			Probe N DPBH	
Contract:	Maynooth Fire	e Station			Easting:	693991.9	54	Date Started:	24/06/2022	
Location:	Maynooth, Co	. Kildare		I	Northing:	736387.1	94	Logged By:	D. Clarke	
Client:	Kildare Count	y Council			Elevation:	63.34		Scale:	1:25	
Engineer:	Tobin Consult	ing Engineers			Rig Type:	Competite	or 130	Sheet No:	Sheet 1 of 1	
Depth					be				1	Level
(m)	3	10	15	2	0	25	30	35		(mOD
0.5	5 	10 12 9 7								63.0
1.0	6 5 6	9								62.5 -
1.5		9	13 15					35		62.0
2.0										61.5
 2.5 —										61.0 -
3.0										60.5
- - 3.5 -										60.0 -
4.0										59.5
- - 4.5 — -										59.0 -
										58.5
	Depth:	Termination: Reason:		Туре:	Probe Detail Mass	s: Drop:	Remarks:	d adjacent to B	H01	
	1.50m	Obstruction - po boulders or wea bedrock.	ossible ithered	DPH	50kg	500mm		a aujacent to B	ини I.	



Contract No: 5994			Dynar	nic Pr	obe L	og			Probe N	
Contract:	Maynooth Fir	e Station		I	Easting:	694017.3	45	Date Started:	24/06/2022	
Location:	Maynooth, C	o. Kildare		1	Northing:	736374.4	08	Logged By:	D. Clarke	
Client:	Kildare Coun	ty Council		ł	Elevation:	63.33		Scale:	1:25	
Engineer:	Tobin Consul	ting Engineers	3	ł	Rig Type:	Competite	or 130	Sheet No:	Sheet 1 of 1	
Depth				Pro				1	1	Leve
(m)	2 5	10	15	2	0	25	30	35		(mOE
0.5		9 10 9	11							63.0 ⁻
								35		62.5
_ _ 1.5 _										62.0 -
2.0										61.5
										61.0
3.0										60.5
3.5 -										60.0
4.0										59.5
- - 4.5 -										59.0
-										58.5
	Depth:	Terminatior R	n: eason:	Туре:	Probe Detail Mass	s: Drop:	Remarks: Complete	d adjacent to B	H03.	
	0.70m	Obstruct boulders	on - possible or weathered edrock.	DPH	50kg	500mm	1	,		

Contract No: 5994			Dyna	mic Pi	obe L	.og			Probe N DPBH	
Contract:	Maynooth Fire	e Station			Easting:	694008.0	37	Date Started:	24/06/2022	
Location:	Maynooth, Co	o. Kildare			Northing:	736356.3	32	Logged By:	D. Clarke	
Client:	Kildare Count	y Council			Elevation:	63.44	63.44 Scale:			
Engineer:	Tobin Consult	ing Engineers	i		Rig Type:	Competite	or 130	Sheet No:	Sheet 1 of 1	
Depth	-	10	15		be			1	1	Level
(m)		10 8 8 8 10 10 10 10 10 10 10 10 10 10	15 12 14 13 12 14		0	25	30	35	· · · · · · · · · · · · · · · · · · ·	63.0 - 62.5 - 62.0 - 61.5 -
2.5										61.0 -
- - 3.5 - - - -										60.0 -
4.0										59.5
-										58.5
	Depth: 1.30m	Obstructi boulders	: eason: on - possible or weathered drock.	Type: DPH	Probe Detail Mass 50kg	s: Drop: 500mm	Remarks: Complete	d adjacent to B	3H04.	1



Contract No: 5994			Dynai	mic Pi	robe L	og			Probe N DPTP	
Contract:	Maynooth Fir	e Station			Easting:	694007.2	91	Date Started:	24/06/2022	
Location:	Maynooth, Co	o. Kildare			Northing:	736395.6	59	Logged By:	D. Clarke	
Client:	Kildare Coun	ty Council			Elevation:	63.24		Scale:	1:25	
Engineer:	Tobin Consul	ting Engineers			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	- 	10	45		obe	0.5	00		1	Leve (mOD
	4	10	15	2	0	25	30	35		
	4 4									63.0 -
		7 7								
0.5	5	-								
		10	12							62.5
1.0			14		22					-
			14				28			
_								35	5	62.0 -
1.5 —										
-										61.5
-										
2.0										
-										61.0 -
_ 2.5 —										
_										60.5
_										00.5
3.0										
-										60.0 -
-										
3.5 — —										
_										59.5
4.0										-
_										50.0
-										59.0 -
4.5 —										
-										58.5
1										
		Termination:	I		Probe Detail		Remarks			<u> </u>
	Depth: 1.30m	Reas Obstruction		Type: DPH	Mass 50kg	Drop: 500mm	Complete	d adjacent to T	P02.	
		boulders or bedro	weathered							

Contract No: 5994		D	ynar	nic Pı	obe L	.og			Probe N DPTP	
Contract:	Maynooth Fir	e Station			Easting:	694032.9	44	Date Started:	24/06/2022	
Location:	Maynooth, Co	o. Kildare			Northing:	736371.6	16	Logged By:	D. Clarke	
Client:	Kildare Count	ty Council		1	Elevation:	63.34		Scale:	1:25	
Engineer:	Tobin Consult	ting Engineers			Rig Type:	Competite	or 130	Sheet No:	Sheet 1 of 1	
Depth				Pro						Level
(m)	4	10	15	2	0	25	30	35		(mOD
0.5	5 	7 10								63.0 -
1.0		9 11 11 10								62.5
								35		62.0 -
2.0										61.5
- - 2.5 — -										61.0 -
3.0										60.5
- - 3.5 — -										60.0
4.0										59.5
- - 4.5 — -										59.0 -
-										58.5
	Depth: 1.20m	Termination: Reason: Obstruction - po boulders or weat bedrock.	ssible hered	Type: DPH	Probe Detail Mass 50kg	s: Drop: 500mm	Remarks: Complete	d adjacent to T	P03.	·

Contract N 5994	lo:				Dy	nar	nic P	robe L	.og			Probe DPTF	
Contract:		Maynoo	th Fire	Station				Easting:	694021.7	704	Date Started:	24/06/2022	
Location:		Maynoo	th, Co.	Kildare				Northing:	736347.3	331	Logged By:	D. Clarke	
Client:		Kildare (County	Council				Elevation:	63.27	63.27 Scale:		1:25	
Engineer:		Tobin Co	onsultin	g Engine	eers			Rig Type:	Competit	or 130	Sheet No:	Sheet 1 of 1	
Depth								robe			I		Leve
(m)		3	5	1	0	15		20	25	30	35		(mOD
0.5		3	6 5	8									63.0 -
1.0 —					11 13 11	1	6						62.5
							19	22	26		35	5	62.0 -
1.5 — - - - -													61.5
2.0													61.0 -
2.5 - - -													60.5
3.0													60.0 -
3.5 - - -													59.5
4.0													59.0 -
4.5													58.5
				Termina	l			Probe Detail	s:	Remarks	I		
)	Dept 1.40		Obstr	Reason: uction - post ers or weath bedrock.	sible ered	Type: DPH	Mass 50kg	Drop: 500mm		ed adjacent to T	P04.	

Appendix 7 Geotechnical Laboratory Test Results

Classification Tests In accordance with BS 1377: Part 2

Client	Kildare County Council
Site	Maynooth Fire Station
S.I. File No	5994 / 22
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	17th June 2022

Hole ID	Depth	Sample	Lab Ref	Sample	Natural	Liquid	Plastic	Plastic	Min. Dry	Bulk	%	Comments	Remarks C=Clay; M=Silt
		No	No.	Туре	Moisture	Limit	Limit	Index	Density	Density	passing		Plasticity: L=Low;
					Content	%	%	%	Mg/m ³	Mg/m ³	425um		I=Intermediate; H=High;
					%					_			V=Very High; E=Extremely
													High
BH01	1.00	JOT03	22/776	В	16.2	36	20	16			50.0		CL
BH02	1.00	JOT05	22/777	В	17.1	32	18	14			27.1		CL
BH03	0.70	JOT01	22/778	В	18.6	38	20	18			44.5		CI
BH04	1.00	JOT07	22/779	В	11.9	36	20	16			48.7		CI
TP01	1.00	MK06	22/780	В	16.5	33	18	15			45.3		CL
TP02	1.00	MK04	22/781	В	16.1	37	21	16			63.8		CI
TP03	1.00	MK02	22/782	В	9.7	34	19	15			56.5		CL
TP04	1.00	MK08	22/783	В	11.3	37	21	16			46.0		CL

BS Sieve	Percent	Hydrometer	analysis																			
size, mm	passing	Diameter, mm	% passing		100 —	_											T		_			
100	100	0.0630																				
90	100	0.0200			90 -			+							_					\square		
75	100	0.0060																	\land			
63	100	0.0020			80 -														´			
50	100				00													11				
37.5	100																1					
28	94.5				70											\times			_			++++
20	89.7			g											X							
14	86.3			Percentage Passing	60 —	-		+							-			+++	_		+-+-	
10	81.8			Pa																		
6.3	76			age	50 -	_	_	+						1	\rightarrow					 		
5.0	74.2			enta																		
2.36	67.5			erce	40																	
2.00	65.6			•	-10																	
1.18	60.6																					
0.600	54.2				30 —																	
0.425	50																					
0.300	46.3				20 —										-				_		++	++++
0.212	43.2																					
0.150	39.2				10	-	_	+							\rightarrow		+	+++-			+-+-	
0.063	32																					
		_			0													Щ.				
Cobbles, %	0				0.00	1		C	0.01		(D.1		1				10				100
Gravel, %	34																					
Sand, %	34					Fine	e	Mediu	um	Coarse	Fine	Μ	ledium	Coarse		Fine	M	ediur	n	Coar	se	ble
Clay / Silt, %	32				CLAY			S	SILT				SAND				GRAVEL				Cobble	
						•																
Client :		Kilda	are County Co	ouncil					Г		Lab	. No :	22/	776	ור		ł	Hole	ID :	<u> </u>	BH	01
Project :			nooth Fire Sta								Sample			Г03	1			epth,		1	1.(

Material description :	slightly sandy slightly gravelly silty CLAY
Demortra	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis																					
size, mm	passing	Diameter, mm	% passing	100 -	T																		П	
100	100	0.0630																						
90	100	0.0200		90 -	_																+		#	<u></u>
75	100	0.0060																						
63	100	0.0020		80 -																				
50	100			00																				
37.5	73.2																							
28	70.5			70 -	1																1			
20	70.5			b															\mathbb{H}	Π				
14	70			Percentage Passing								╏┼┼┼			+			\mathcal{A}			+			++++
10	66			Ра														1						
6.3	62.7			b 50 -	-												\mathbf{P}				+			++++
5.0	60.7			ent																				
2.36	50.7			2 40 -	_																			
2.00	49.4																							
1.18	41.5																							
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0.425	27.1																							
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0.212	22.5											T												
0.150	20.3			10 -	-													++	╉┼┼		+			+++
0.063	16																							
				0 -																				ШЦ
Cobbles, %	0			0.0	.001			0	0.01			0	1			1				10				100
Gravel, %	51																				-			_
Sand, %	33				CLAY	Fine	Μ	lediu	um C	Coarse		Fine	М	ledium		Coarse	Fine		Med	lium	0	Coarse		Cobble
Clay / Silt, %	16			ŧ	Ъ			S	SILT					SAND					G	RAVE	L			Cob
Client :		Kilda	are County Co	ouncil				Lab.	No :	2	2/7	77			Но	ole ID):		BH	02				
Project :			mooth Fire Sta					Sa	mple	No ·	I	OT(05			Don	th, m			1.0	0			

Material description :	slightly sandy gravelly silty CLAY
Domorka	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

size, mm 100 90 75 63 50 37.5	passing 100 100 100 100 100	Diameter, mm 0.0630 0.0200 0.0060 0.0020	% passing		100									-							
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75 63 50 37.5	100 100 100	0.0060																			
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28	79.4				70												\mathbb{Z}	1			
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14	74.8			Issi	60 —																
10	71.5			Percentage Passing											\land						
6.3	67			age	50 —														+		
5.0	65.2			Sent										1							
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0.425	44.5				00																
0.300	42.2				20 —																
0.212	40																				
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0.063	31																				
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Gravel, %	43				0.001			0.0			,			'				10			100
Sand, %	26					Fine	1	Medium	1 Coar	-50	Fine	M	ledium	Coarse		Fine	Ma	dium	C	arse	
Clay / Silt, %	31				CLAY	Time		SIL		30	rine	11/1	SAND	Cuarse	-+'	L'IIIC		RAVE		al 50	Cobble
								511	/1				SAND				6	IXA VE			
Client :		Kilde	are County Co	uncil							Lab	. No :	221	778	7 Г		Н	ole ID) · [RI	H 03
Project :			nooth Fire Sta							S		e No :		T01	┥┝			oth, m			.70

Material description :	slightly sandy gravelly silty CLAY
Domorka :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis														-		
size, mm	passing	Diameter, mm	% passing	100)												-		
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90	100	0.0200		90) 🗕												┶	$\downarrow \downarrow$	
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63	100	0.0020		80													V		
50	100			00	, T												1		
37.5	100															\mathbb{H}			
28	85.4			70) +												-		
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14	76.7			00 SSI)								\nearrow				╋	+++	
10	74			Percentage Passing															
6.3	70.5			b 50)							┟╟					+	++	
5.0	69			enta															
2.36	62.5			2 4(, <u> </u>						1						┶		
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1.18	57.6			30															
0.600	50.7			30	,														
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0.300	45.8			20)					+				++-			+	+++	
0.212	43																		
0.150	40.6			10)												╋	+++	
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				() 🗕											Ц	┸		
Cobbles, %	0				0.001		0.0	1		0.1		1				10			100
Gravel, %	40																		
Sand, %	26				CLAY	Fine Me	dium	Coarse	Fin	e	Medium	Coarse	F	line	Me	dium	Co	oarse	ble
Clay / Silt, %	34				CL		SIL	T			SAND				G	RAVE	L		Cobble
Client :		Kilda	are County Co	ouncil			1		La	b. No :	22/	779	7 Г		Н	ole ID	:	В	H 04
Project :		May		1			le No :		T07	1			oth, m			1.00			

Material description :	slightly sandy gravelly silty CLAY
	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis											
size, mm	passing	Diameter, mm	% passing		100									
100	100	0.0630												
90	100	0.0200			90									
75	100	0.0060												
63	100	0.0020			80									
50	100				00								1	
37.5	86.4													
28	81.8			1	70									
20	80			b										
14	74.1			Percentage Passing	60 —						H			
10	71			Pa										
6.3	67.6			age	50									
5.0	65.8			ent										
2.36	60.1			erc	40									
2.00	58.9								Λ					
1.18	54.7				30									
0.600	49.2				30 -									
0.425	45.3													
0.300	42.8				20 —									++++
0.212	39.7													
0.150	35.5				10									
0.063	27													
		l			0 +									
Cobbles, %	0				0.001	0	0.01	0.1		1		10		100
Gravel, %	41				_							1		
						Fine Mediu	ım Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	e
Sand, %	32					File		Time			1	Wieululli	Coarse	ldo
	32 27				CLAY		ILT	Time	SAND			GRAVEL		Cobble
Sand, %					CLAY			The				1		Cobbl
Sand, %		Kilda	are County Co	ouncil	CLAY			Lab. No	SAND			1		

Material description	slightly sandy gravelly silty CLAY
Remarks	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Kennarks	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis														
size, mm	passing	Diameter, mm	% passing		100 —												
100	100	0.0630															
90	100	0.0200			90 -		+++									┦ ├ ├	
75	100	0.0060															
63	100	0.0020			80 -												
50	100													$X \sqcup$			
37.5	100				70												
28	96.4				70												
20	91.2			bu									1				
14	90.5			ssi	60 —												
10	87.5			Ъа													
6.3	84.5			age	50 -												
5.0	83.4			ent													
2.36	78.1			Percentage Passing	40 -							_		_			
2.00	76.7																
1.18	73.3				30 -												
0.600	67.9				30												
0.425	63.8																
0.300	60.6				20 —												
0.212	57.9																
0.150	54.2				10 -												
0.063	46]													
					0 -												
Cobbles, %	0				0.00	1			0.01		0.1		1		10		100
Gravel, %	23				_												—
Sand, %	31				CLAY	Fine	1	Med	ium Coarse	e	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobble
Clay / Silt, %	46				C J				SILT			SAND			GRAVEI		Cot
Client :		V:11.	are County C	ouncil				_			Lab. N	<u></u>	2/781		Hole ID	·	P 02
			nooth Fire St					_		C.			///81 //K04				02
Project :		Мау	nooth Fire S	tation					<u> </u>	5	ample N		/11/104		Depth, m	. 1.	.00

Material description :	slightly sandy slightly gravelly silty CLAY
Domorka	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis														
size, mm	passing	Diameter, mm	% passing	100 —													
100	100	0.0630															
90	100	0.0200		90 —													
75	100	0.0060															
63	100	0.0020		80 —									\boldsymbol{X}				
50	100			00													
37.5	100																
28	89.2			70 —													
20	82.3			b								1					
14	77			- 00 - Ssir													
10	72.9			Bercentage Passing							1						
6.3	66.9			b 50 -													
5.0	64.7			ente						1							
2.36	58			2 40 -													
2.00	56.5			L 40					1								
1.18	52.5																
0.600	48.2			30 —													
0.425	45.8																
0.300	43			20 —		┼┼╏┼┼┼											
0.212	40.4																
0.150	38.6			10 —													
0.063	34																
				0 -													
Cobbles, %	0			0.00	1	0.	.01	0.1		1		10		100			
Gravel, %	44																
Sand, %	23			4Y	Fine	Mediu	m Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	ble			
Clay / Silt, %	34			CLAY		SI	LT		SAND			GRAVE		Cobble			
Client :		Kilda	are County Co	ouncil				Lab. No	o: 22/	782		Hole ID	: TP	03			
Project :			nooth Fire Sta					Sample No		K02		Depth, m	_	1.00			

Material description :	slightly sandy gravelly silty CLAY
	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis																	
size, mm	passing	Diameter, mm	% passing	100 -												П	_			m
100	100	0.0630																		
90	100	0.0200		90 -										_				/		H
75	100	0.0060																		
63	100	0.0020		80 -																
50	100			00													Λ			
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28	81.8			70 -												X				
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14	74.6			- 00 <mark>ssi</mark> t																1
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6.3	64.7			be 50 -													-			H
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2.00	55.6			-							\square									
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0.600	49.1			00																
0.425	46			20 -																
0.300	44.2			20 -																
0.212	42.6																			
0.150	40.2			10 -																
0.063	34																			
Cobbles, %	0	1		0 -	+											10				Щ 100
Gravel, %	44			0.0	JU I			0.0	I		0.1		1			10				100
Sand, %	22					T.*		1.	C			M P	G	Г.		1.		7		
Clay / Silt, %	34					Fine	Mee	dium		Fi	ne	Medium	Coarse	Fine		edium		Coarse		Cobble
City / One, //	Эт	1			~			SIL	л Т			SAND				GRAV	EL			5
Client :			are County Co								ab. N		783		H	Hole II	D :	,	TP 04	ŀ
Project :		May	ation			Sample No : MK08 Depth, m							n : [

Material description :	slightly sandy gravelly silty CLAY
Domarka :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

Chemical Testing In accordance with BS 1377: Part 3

Client	Kildare County Council
Site	Maynooth Fire Station
S.I. File No	5994 / 22
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	17th June 2022

Hole Id	Depth	Sample	Lab Ref	pН	Water Soluble	Water Soluble	Loss on	Chloride	% passing	Remarks
	(mBGL)	No		Value	Sulphate Content	Sulphate Content	Ignition	ion	2mm	
					(2:1 Water-soil	(2:1 Water-soil	(Organic	Content		
					extract) (SO ₃)	extract) (SO ₃)	Content)	(water:soil		
					g/L	%	%	ratio 2:1)		
								%		
BH01	1.00	JOT03	22/776	8.23	0.122	0.080			65.6	
BH02	1.00	JOT05	22/777	8.11	0.119	0.059			49.4	
BH03	0.70	JOT01	22/778	8.22	0.122	0.069			57.1	
BH04	1.00	JOT07	22/779	8.19	0.122	0.073			60.4	

www.tobin.ie



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Castlebar Market Square, Castlebar, Mayo, F23 Y427, Ireland. Tel: +353 (0)94 902 1401

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Limerick

Ducart Suite Castletroy Commercial Campus Limerick V94 Y6FD Ireland Tel: +353 (0)61 574 413