L/K DESIGN
Moneystown,
Roundwood,
Co. Wicklow
E-mail: liam@kse.ie
Mob: 0879636167

06.06.22

**RE: Soak away tests for Colin and Aoife Durkin, 9 Knocklyon Avenue, Templeogue, Co. Dublin**

To Whom it May Concern,

We have been instructed to carry out Soil infiltration Rate tests as per BRE365 standards to show that the site at 9 Knocklyon Avenue, Templeogue, Co. Dublin is appropriate for soak ways for the proposed.

I hope you find this satisfactory and look forward to hearing form you.

Kind Regards

Signed: Liam Kenna

Liam Kenna

## Test Hole. -

Date of Test 02.06.22

Test Hole size = 1.1m Long X 1.1m Wide X 1.4m Deep

Soil Infiltration Rate:

$$F = \frac{Vp75\text{-}25}{Ap50 \times Tp75\text{-}25}$$

F = Soil Infiltration Rate
Vp75-25 = the effective storage volume of water in trial pit between 75% and 25% effective depth
Ap50 = the internal surface area of the trial pit to 50% effective depth and including the base area
Tp75-25 = the time for the water level to fall from 75% to 25% effective depth.

Vp75-25 = 0.9 m3

Ap50 = ( 1.1 X 0.7 X 2 ) + ( 1.1 X 0.7 X 2 ) + ( 1.1 X 1.1 ) = 4.6 M2

**Test 1** - Tp75-25 = 400 min

$$F = \frac{0.9}{4.6X400X60}$$

**F = 0.81 X 10-5**

**Test 2** - Tp75-25 = 560 min

$$F = \frac{0.9}{4.6X560X60}$$

**F = 0.58 X 10-5**

**Test 3** - Tp75-25 = 740 min

$$F = \frac{0.9}{4.6X740X60}$$

**F = 0.44 X 10-5**

**Conclusion:**

With a Soil infiltration rate of 0.44 X 10-5 it would only require a couple of hours for any proposed soak pit to half empty once proposed is designed in accordance with BRE 365 standards and regulations. Therefore the proposed sites Soil infiltration rate is deemed suitable.

**Design of proposed soak away Pit -**
**Areas - Dwelling = 183 sqm**
**Gym / Storage = 23 sqm**
**Total = 206 sqm**

**Total area 206 sqm**

**I - O = S**
I = The inflow from the impermeable area drained to the soak away
O = The outflow infiltrating into the soil during rainfall
s= The required Storage in the soak away to balance temporarily inflow and outflow

**Inflow to the Soak away**
I = A X R
I = The inflow from the impermeable area drained to the soak away
A = The impermeable area drained to the soak away = **206 m2**
R = The total rainfall in a design storm

| | R - Total Rainfall in design storm | I - Inflow to The Soak Pit | 20 % for climate change |
|---|---|---|---|
| 10 min Rainfall | 0.0133 m3/sec | 2.7398 m3/sec | 3.28776 m3/sec |
| 15 min Rainfall | 0.017 m3/sec | 3.502 m3/sec | 4.2024 m3/sec |
| 30 min Rainfall | 0.0223 m3/sec | 4.5938 m3/sec | 5.51256 m3/sec |
| 60 min Rainfall | 0.0281 m3/sec | 5.7886 m3/sec | 6.94632 m3/sec |
| 120 min Rainfall | 0.0347 m3/sec | 7.1482 m3/sec | 8.57784 m3/sec |
| 240 min Rainfall | 0.0431 m3/sec | 8.8786 m3/sec | 10.65432 m3/sec |
| 360 min Rainfall | 0.0506 m3/sec | 10.4236 m3/sec | 12.50832 m3/sec |
| 600 min Rainfall | 0.0627 m3/sec | 12.9162 m3/sec | 15.49944 m3/sec |

Outflow from soak away - O
O = as50 x f x D
= internal surface area of soak away pit to 50 % storage depth ( excluding base area ) x soil percolation Rate x storm duration

**Calculations based on proposal of a soak away pit of effective size of 1.8m deep x 2.6m wide x 3.6m long, using aqua cells with a 90 percent volume storage.**

As50 = 2 x ( 3.6 + 2.6 ) x ( 1.8 / 2 )
= 11.16 m2

= O = 11.16 X 0.0000044 X 10 X 60 = 0.02946 m3/sec
11.16 X 0.0000044 X 15 X 60 = 0.04419 m3/sec
11.16 X 0.0000044 X 30 X 60 = 0.08838 m3/sec
11.16 X 0.0000044 X 60 X 60 = 0.17676 m3/sec
11.16 X 0.0000044 X 120 X 60 = 0.35352 m3/sec
11.16 X 0.0000044 X 240 X 60 = 0.70704 m3/sec
11.16 X 0.0000044 X 360 X 60 = 1.06056 m3/sec
11.16 X 0.0000044 X 600 X 60 = 1.7676 m3/sec

| Duration - min | Inflow | Outflow | Capacity | Excess Capacity |
|---|---|---|---|---|
| 10 | 3.28776 m3/sec | 0.02946 m3/sec | 15.1632 m3 | 11.9049 m3 |
| 15 | 4.2024 m3/sec | 0.04419 m3/sec | 15.1632 m3 | 11.00499 m3 |
| 30 | 5.51256 m3/sec | 0.08838 m3/sec | 15.1632 m3 | 9.73902 m3 |
| 60 | 6.94632 m3/sec | 0.17676 m3/sec | 15.1632 m3 | 8.39364 m3 |
| 120 | 8.57784 m3/sec | 0.35352 m3/sec | 15.1632 m3 | 6.93888 m3 |
| 240 | 10.65432 m3/sec | 0.70704 m3/sec | 15.1632 m3 | 3.71544 m3 |
| 360 | 12.50832 m3/sec | 1.06056 m3/sec | 15.1632 m3 | 2.22444 m3 |
| 600 | 15.49944 m3/sec | 1.7676 m3/sec | 15.1632 m3 | 1.43136 m3 |

**Conclusion:**

With a Soak away Pit design of effective size of 1.8m deep x 2.6m wide x 3.6m long using Aqua Cells it is shown in the above calculations that the proposed would be acceptable In accordance with BRE 365 regulations.

**Wavin Limited**
Edlington Lane
Edlington
Doncaster
South Yorkshire DN12 1BY
Tel: 01709 856300 Fax: 01709 856301
e-mail: info@wavin.co.uk
website: www.wavin.com

BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

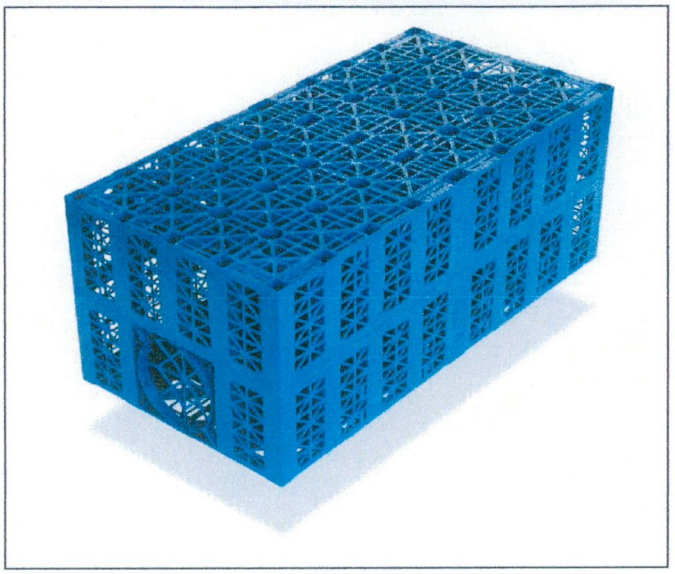
Agrément Certificate
**03/4018**
**Product Sheet 1**

# WAVIN AQUACELL ATTENUATION AND INFILTRATION SYSTEMS

## AQUACELL CORE

This Agrément Certificate Product Sheet[1] relates to AquaCell Core, comprising blue polypropylene modular units for use either as below-ground storage tanks or as a soakaway to manage run-off from impermeable surfaces.

(1) Hereinafter referred to as 'Certificate'.



### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

### KEY FACTORS ASSESSED

**Hydraulic design** — data is provided in this Certificate to assist in the design of a below-ground water management system incorporating AquaCell Core (see section 6).

**Structural design** — the system has adequate strength and stiffness to resist short- and long-term loading when designed in accordance with this Certificate (see section 7).

**Maintenance** — data is provided in this Certificate to assist in planning the maintenance of a completed system (see section 11).

**Durability** — the system will have a service life in excess of 50 years when installed in accordance with this Certificate (see section 12).

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 2 November 2016

Originally certificated on 28 March 2003

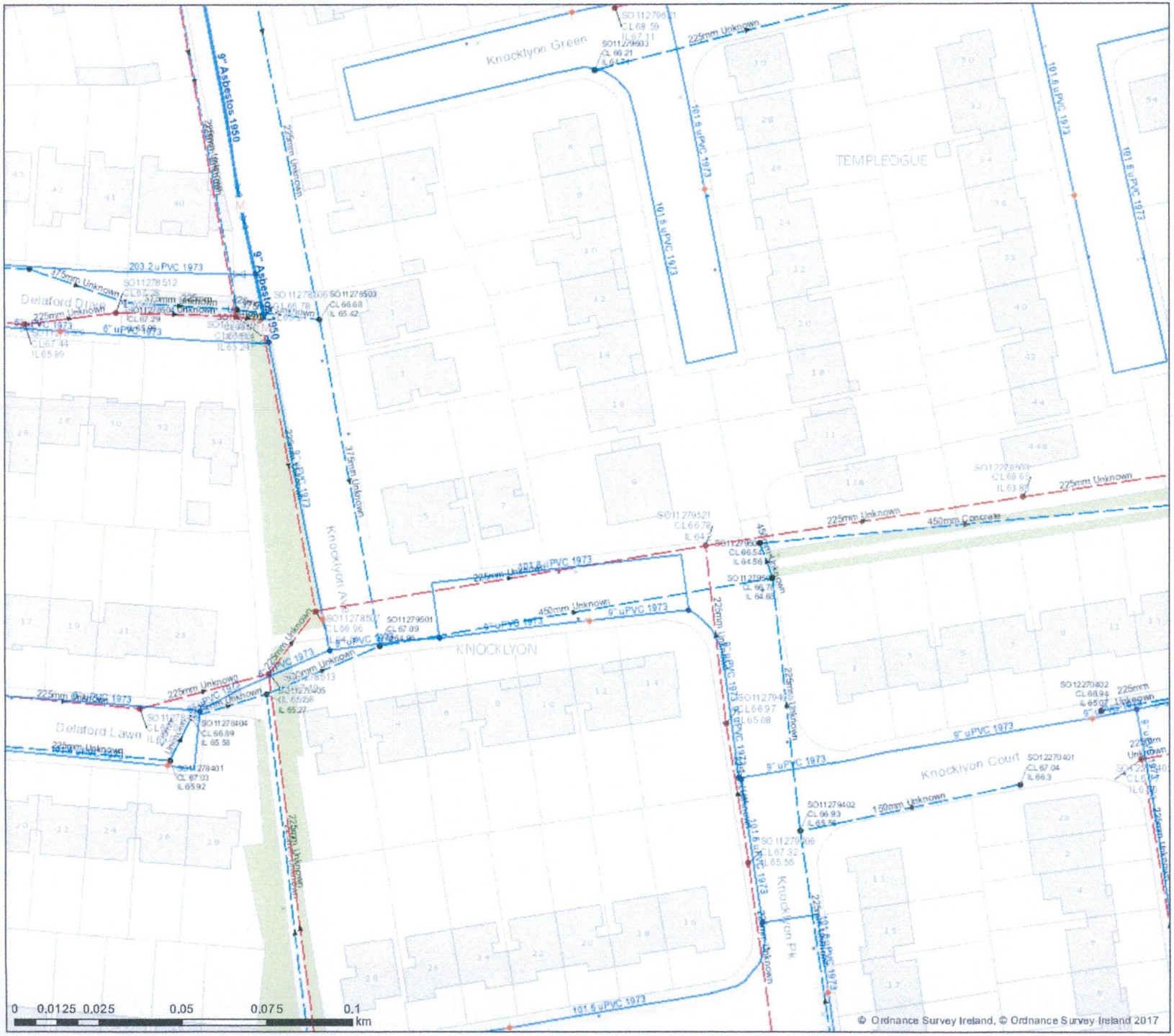
Brian Chamberlain
Head of Technical Excellence

Claire Curtis-Thomas
Chief Executive

*The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk*

*Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

# Irish Water Web Map




UISCE ÉIREANN : IRISH WATER

Print Date: 26/04/2022

Printed by:Irish Water



**Water Distribution Network**
- Water Treatment Plant
- Water Pump Station
- Storage Cell/Tower
- Dosing Point
- Meter Station
- Abstraction Point
- Telemetry Kiosk

**Reservoir**
- Potable
- Raw Water

**Water Distribution Mains**
- Irish Water
- Private

**Trunk Water Mains**
- Irish Water
- Private

**Water Lateral Lines**
- Irish Water
- Non IW
- Water Casings
- Water Abandoned Lines
- Boundary Meter
- Bulk/Check Meter
- Group Scheme
- Source Meter
- Waste Meter
- Unknown Meter ; Other Meter
- Non-Return
- PRV
- PSV
- Sluice Line Valve Open/Closed
- Butterfly Line Valve Open/Closed
- Sluice Boundary Valve Open/Closed
- Butterfly Boundary Valve Open/Closed
- Scour Valves
- Single Air Control Valve
- Double Air Control Valve
- Water Stop Valves
- Water Service Connections
- Water Distribution Chambers
- Water Network Junctions
- Pressure Monitoring Point
- Fire Hydrant
- Fire Hydrant/Washout

**Water Fittings**
- Cap
- Reducer
- Tap
- Other Fittings

**Sewer Foul Combined Network**
- Waste Water Treatment Plant
- Waste Water Pump station

**Sewer Mains Irish Water**
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow

**Sewer Mains Private**
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

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

**Discharge Type**
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

**Cleanout Type**
- Rodding Eye
- Flushing Structure
- Other; Unknown

**Sewer Inlets**
- Catchpit
- Gully
- Standard
- Other; Unknown

**Sewer Fittings**
- Vent/Col
- Other; Unknown

**Storm Water Network**

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

**Inlet Type**
- Gully
- Standard
- Other; Unknown

**Storm Manholes**
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown
- Storm Culverts
- Storm Clean Outs
- Stormwater Chambers

**Discharge Type**
- Outfall
- Overflow
- Soakaway
- Other; Unknown

**Gas Networks Ireland**
- Transmission High Pressure Gasline
- Distribution Medium Pressure Gasline
- Distribution Low Pressure Gasline

**ESB Networks**

**ESB HV Lines**
- HV Underground
- HV Overhead
- HV Abandoned

**ESB MVLV Lines**
- MV Overhead Three Phase
- MV Overhead Single Phase
- LV Overhead Three Phase
- LV Overhead Single Phase
- MVLV Underground
- Abandoned

**Non Service Categories**
- Proposed
- Under Construction
- Out of Service
- Decommissioned

**Water Non Service Assets**
- Water Point Feature
- Water Pipe
- Water Structure

**Waste Non Service Assets**
- Waste Point Feature
- Sewer
- Waste Structure

ARACHAS
The Irish for Insurance

**Broker Reference:** **DELK03PI01**
**Date:** **20/08/2021**

**TO WHOM IT MAY CONCERN**

**Liam Kenna T/A L/K Design**
**C/O Travers & Co Insurance Ltd 7 Upper Main Street Arklow Co Wicklow**

We act as insurance broker for the above client and as such can confirm the following cover

**Business Description**

Architect

**Professional Indemnity Insurance**

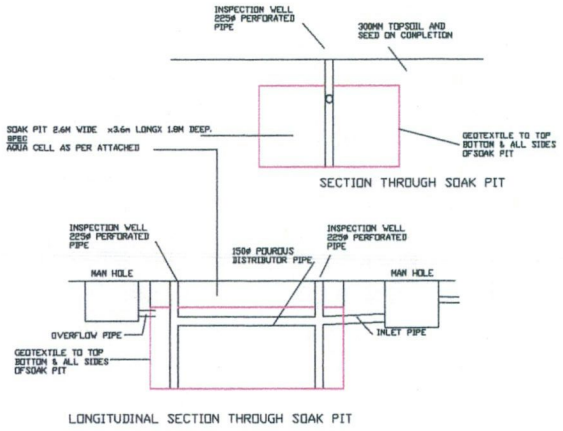
| | | |
|---|---|---|
| Limit of Indemnity | : | € 800,000, any one claim |
| Policy Excess | : | € 500 each and every claim |
| Period of Cover | : | 02/09/2021 to 01/09/2022 |
| | | Both days inclusive local standard time at above address |
| Insurers | : | Lloyds -Professional Indemnity |
| Policy No | : | API0001766 |
| Note | : | Policy extends to include PSDP cover |

The cover provided contains no unusual terms or conditions and is fully applicable to any work which the Insured Practice may be appointed in connection with his business description.

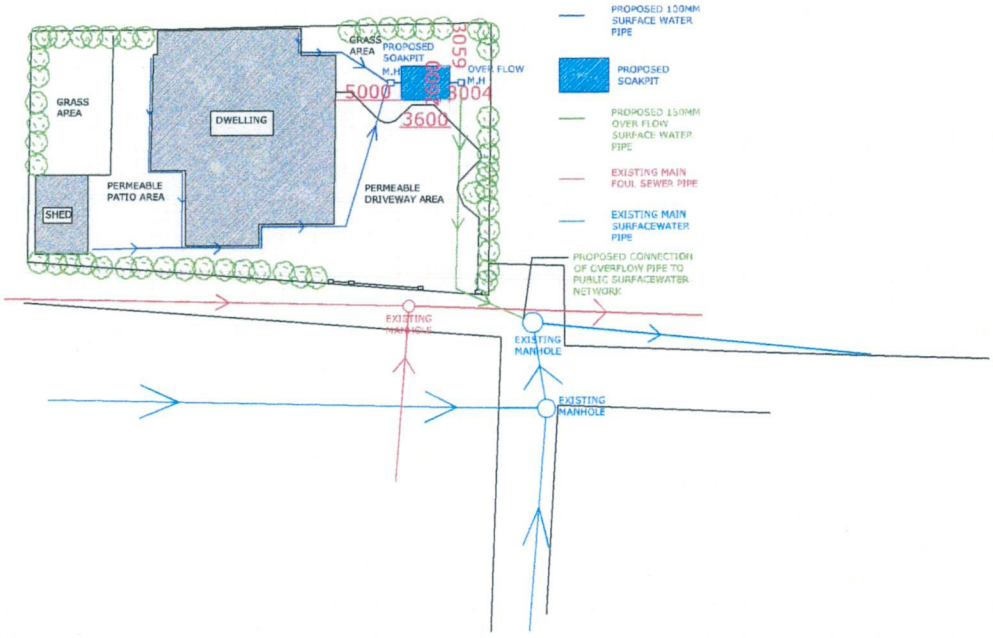
Conor Brennan
Arachas Corporate Brokers Limited

NOTE : FIGURED DIMENSIONS ONLY.
DO NOT SCALE DRAWING.
CONTRACTOR TO CHECK DIMENSIONS ON SITE BEFORE CONSTRUCTION.
DISCREPENCES ARE TO BE BROUGHT TO ATTENTION OF THE SURVYORS PIOR TO THE COMMENCEMENT OF WORK.

DRAWING IS INTENDED SOLEY FOR PURPOSE NOTED. ONLY DRAWINGS MARKED CONTRACT ARE TO BE USED FOR CONSTRUCTION.




# SOAKPIT SECTIONS
# SCALE 1:50




# SITE PLAN
# SCALE 1:200

| | DRAWING BY: | DATE: | DRAWING: | PROJECT: | DRAWING NO. | SHEET NO. |
|---|---|---|---|---|---|---|
| | LIAM KENNA | 03.06.22 | PROPOSED SURFACE WATER DETAILS SCALE 1: 250, 100 | COLIN AND AOIFE DURKIN, 9 KNOCKLYON AVENUE, DUBLIN | 001 | 1 |