



**Planning Department,
Fingal County Council,
County Hall,
MainSt,
Swords,
Co. Dublin**

Our Ref: 2015

Date: 27/04/2020

Re: Application for Planning Permission for Main Drainage for the Proposed Development at Barrack Lane, Lusk, Co. Dublin.

Dear Sir/Madam,

In relation to the above project, please find the enclosed drawings and calculations detailing the proposed drainage arrangements, a summary of which are outlined below.

General

The existing site is a brownfield site, there is an existing garage on the current site which is to be demolished. The proposed development consist of 10 No. dwellings including live-in artists studio with gallery and associated site works

Foul Sewer:

Refer to drawing No. 2015_C01. The foul sewage generated from the new apartments will flow via gravity to and discharge to the public sewer on Barrack Lane. Foul sewerage to flow via 100mm FW pipe at a fall of 1 in 60 & 150mm FW pipe at a fall of 1 in 100 to new outfall manhole. New 150mm service connection pipe from outfall manhole to fall at 1 in 100 saddle connect to public sewer on Barrack Lane. Existing outfall manhole and 100mm service connection pipe to be demolished and grubbed up.

The proposed development will generate a DWF (Dry Weather Flow) of 0.0625 l/s with a 6DWF of 0.375 l/s. A 100mm pipe at a fall of 1 in 60 has a flow capacity of 7.2 l/ and a flow velocity of 0.92 m/s. A 150mm pipe at a fall of 1 in 100 has a flow capacity of 16.5 l/s and a flow velocity of 0.93 m/s. Therefore the pipes sizes are satisfactory in both flow capacity and flow velocity.

Surface Water Sewer:

Refer to drawing No. 2015_C01. Surface water from proposed roof areas and from the proposed rear & front entrance courts is to flow via gravity to a soakaway in the communal lawn. Soakaway to be stone fill with 30% void ratio. Rear entrance court to be permeable pod paving. Soakaway is sized for the 1 in 100 year storm event and a 20% increase in storage volume to allow for climate change. Soakaway calculations are attached.

Car park and driveway surface to be permeable asphalt. Refer to drawing No. 2015_C03 for permeable asphalt construction.

Water:

Refer to drawing No. 2015_C02. New 100mm HDPE watermain to serve the proposed development. Watermain layout designed to Irish Water Code of practice. Existing hydrant within a 46m radius of all dwellings.

Irish Water:

Irish Water Pre-Connection Enquiry feedback is attached. Irish Water state that subject to a valid connection agreement being put in place, the proposed connection to the Irish Water network(s) can be facilitated.

Yours sincerely,



Peter O Connor B.ENG

for Lohan & Donnelly Consulting Engineers

Encl. Issue Sheet_14-04-2020
Site Plan – Drainage Plan [Dwg No. 2015-C01_Rev.P1]
Site Plan – Watermain Plan [Dwg No. 2015-C02_Rev.P1]
SuDs Details [Dwg No. 2015-C03_Rev.P1]
Manhole & Watermain Details [Dwg No. 2015-C04_Rev.P1]
Traffic Management & Sight Lines [Dwg No. 2015-C05_Rev.P1]
2015 _FRA_Rev.P1 (Flood Risk Assessment)
Design Calculations (Soakaway Calculations)
Irish Water Pre-Connection Enquiry Feedback



Project No.
Calculation
Location
Date
Revision

2015
Soakaway
Barrack Lane
22/04/2020
P1

Soakaway Type

Stone Fill

Void ratio

30%

Using Stone Fill with 30% Voids

Critical Storm Return Period

100 Year

Area Drained

846 m²

Climate Change Factor

1.2

Soakaway Dimension

length **17** m

Width **7.5** m

height **0.80** m

Permeability **9.87E-06** m/s

Safety Factor

1

permeability with SF

9.87E-06 m/s

Infiltration Area - 50% effective height

20 m²

Infiltration Area - Base

128 m²

Total Infiltration Area (as⁵⁰);

147.1 m²

Outflow (m³/hr)

5.23

Time

Rain Fall Depth (mm)

60 min

34.5

120 min

42.0

240 min

50.5

360 min

59.5

720 min

72.0

1440 min

87.0

2880 min

101.0

4320 min

111.0

Storm (mins)

Inflow (m3)

Outflow (m3)

Volume (m3)

60

29.19

5.23

23.96

120

35.53

10.45

25.08

240

42.72

20.90

21.82

360

50.34

31.35

18.99

720

60.91

62.70

0.00

1440

73.60

125.41

0.00

2880

85.45

250.81

0.00

4320

93.91

376.22

0.00

Volume Required (m3)

30.10

Volume Provided (m3)

30.60

SOAKAWAY LARGE ENOUGH

Check 24 hr half drain down

Soakaway should discharge from full to half volume in 24 hrs

Storm (mins)	Volume (m3)	Drain down time (hr)
60	23.96	2.29 OK
120	25.08	2.40 OK
240	21.82	2.09 OK
360	18.99	1.82 OK
720	0.00	0.00 OK
1440	0.00	0.00 OK
2880	0.00	0.00 OK
4320	0.00	0.00 OK

Soakaway Design f -value from field tests

(F2C) IGSL

Contract: Barrack Lane
 Test No. SA 01
 Client POGA
 Date: 23/03/2020

Contract No. 22482

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	Tarmacadam	None observed
0.30	0.50	Firm to stiff, black, slightly sandy slightly gravelly silty CLAY	
0.50	1.60	Firm to stiff, brown, mottled yellowish brown, sandy gravelly silty CLAY.	

Notes:

Sample taken at 1m AA129785

Field Data

Depth to Water (m)	Elapsed Time (min)
1.00	0.00
1.02	1.00
1.04	2.00
1.06	3.00
1.08	4.00
1.10	5.00
1.15	10.00
1.17	15.00
1.18	20.00
1.20	30.00
1.22	60.00
1.25	120.00

Field Test

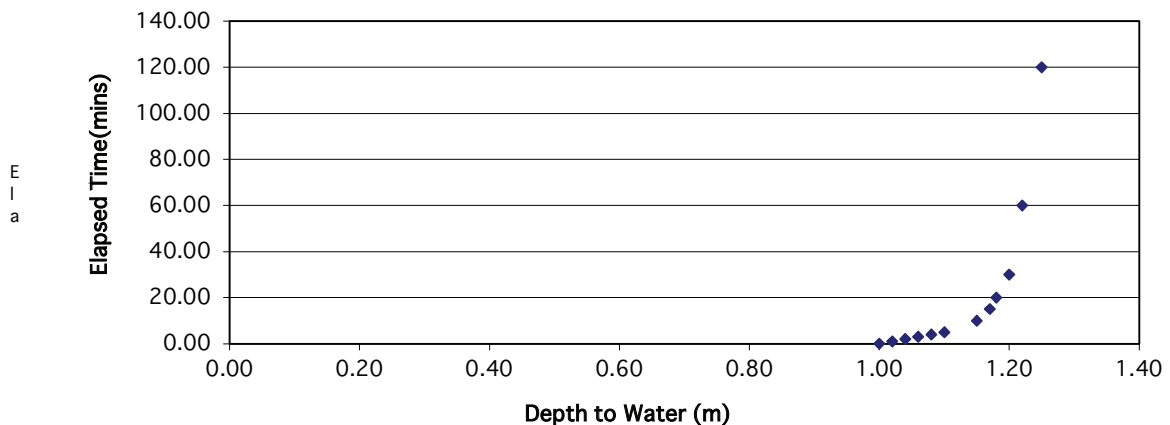
Depth of Pit (D)	1.60	m
Width of Pit (B)	0.55	m
Length of Pit (L)	1.20	m
Initial depth to Water =	1.00	m
Final depth to water =	1.25	m
Elapsed time (mins)=	120.00	
Top of permeable soil		m
Base of permeable soil		m

Base area=	0.66	m ²
*Av. side area of permeable stratum over test period=	1.6625	m ²
Total Exposed area =	2.3225	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00059 m/min or 9.86724E-06 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests

(F2C) IGSL

Contract: Barrack Lane
 Test No. SA 02
 Client POGA
 Date: 23/03/2020

Contract No. 22482

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	Tarmacadam	None observed
0.30	0.40	Firm to stiff, black, slightly samdy slightly gravelly silty CLAY	
0.50	1.70	Firm to stiff, brown, mottled yellowish brown, sandy gravelly silty CLAY.	

Notes:
 Sample taken at 1m AA129785

Field Data

Field Test

Depth to Water (m)	Elapsed Time (min)
0.90	0.00
0.92	1.00
0.94	2.00
0.96	3.00
0.98	4.00
1.00	5.00
1.05	10.00
1.08	15.00
1.10	20.00
1.14	30.00
1.22	60.00
1.30	120.00

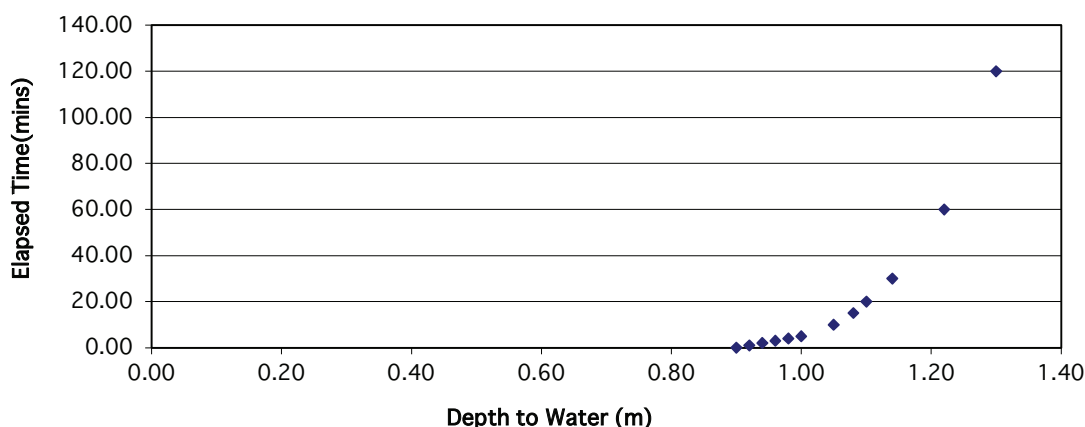
Depth of Pit (D)	1.70	m
Width of Pit (B)	0.64	m
Length of Pit (L)	1.40	m
Initial depth to Water =	0.90	m
Final depth to water =	1.30	m
Elapsed time (mins)=	120.00	
Top of permeable soil		m
Base of permeable soil		m

Base area=	0.896	m ²
*Av. side area of permeable stratum over test period=	2.448	m ²
Total Exposed area =	3.344	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00089 m/min or 1.48857E-05 m/sec

Depth of water vs Elapsed Time (mins)





Peter O'Connor
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Co. Dublin
D01U0T8

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

3 March 2020

Dear Peter O'Connor,

**Re: Connection Reference No CDS20001493 pre-connection enquiry -
Subject to contract | Contract denied**

Connection for Multi/Mixed Use Development of 10 unit(s) at Barrack Lane, Lusk, Co. Dublin.

Irish Water has reviewed your pre-connection enquiry in relation to a water connection at Barrack Lane, Lusk, Co. Dublin. Based upon the details you have provided with your pre-connection enquiry and on the capacity currently available as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network can be facilitated.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact us on **1850 278 278** or **+353 1 707 2828, 8.00am-4.30pm, Mon-Fri** or email **newconnections@water.ie**. For further information, visit **www.water.ie/connections**.

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services