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Planning Assessments & Land Surveys

Tel: 087 6636 757 Email: percolationtests@gmail.com Web: www.percolationtests.ie

BRE Digest 365 Report.

Prepared on behalf of:

J & L Munnelly

At:

**Mount Carmel,
Old Lucan Road,
Lucan,
Co. Dublin.**



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Scope of Report.

The findings of this report are the result of an on-site infiltration test. Interpretations and conclusions included in the report are based on knowledge of the ground conditions following detailed investigations, as well as the regional soils, subsoils and bedrock geology, and the experience of the author. David Ryan has prepared this report in line with the best current practice and with all reasonable skill, care and diligence in consideration of the limits imposed by the survey techniques used and resources devoted to it by agreement with the client.

David Ryan accepts no responsibility for any matters arising if any recommendations contained in this document are not carried out, or are partially carried out, without further advice being obtained from David Ryan.

Cillron Limited
 Newtownmoyaghy, Kilcock, Co Kildare
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BRE Digest 365 Test

Revision: **1.00**

Job No: **Soakpit 1** Page: **C/01**

Section: **Mount Carmel, Old Lucan Road, Lucan, Co. Dublin** Prepared By: **DR** Date: **23/02/2022**

ALTERNATIVE SOAKAWAY SIZES			
	trench soakaways		
	450	600	800
width of trench [mm]			
required trench length [m]	57.21	45.90	33.01
ring soakaways			
diameter of ring [mm]	1500	2100	2400
required pit diameter [m]:	2.64	2.64	2.63

* Based on effective depth and number of pits as in Soakaway Data table

SUMMARY OF CALCULATIONS	
critical design rainfall duration 't _{crit} ' =	600 min
required storage volume 'V _{req} ' =	13.31 m ³
provided storage volume 'V _{prov} ' =	13.68 m ³
utilisation factor =	0.97 .OK
required time to discharge 50% 't ₅₀ ' =	14.92 hours
utilisation factor =	0.62 .OK

GENERAL DATA	
site location	██████████ Ireland
soakaway type	infilled pit or trench
impermeable area drained to soakaway 'A' [m ²] =	300
60 min rainfall depth of 5 year return period 'R' [mm] =	16
M5-60 to M5-2d rainfall ratio 'r' =	0.28
allowance for climate change	20%

SOAKAWAY DATA	
soakaway width 'W' [m] =	6.00
soakaway length 'L' [m] =	6.00
total depth from ground level 'D _b ' [m] =	0.80
depth to drain invert level 'D _d ' [m] =	0.40
soakaway effective depth 'D _{eff} ' [m] =	0.40
free volume in infill aggregate [%] =	95

SOIL INFILTRATION DATA	
allowance for infiltration through soakaway base	30%
available on-site infiltration test results	<input checked="" type="radio"/> Yes <input type="radio"/> No
use soakage trial pit table below	
internal surface area of trial pit 'a _{p50} ' [m ²] =	1.75
storage volume between 75-25% 'V _p ' [m ³] =	0.08
time for water to fall from 75-25% 't _p ' [min] =	87.50
soil infiltration rate 'f' [m/s] =	8.16E-06

SOAKAGE TRIAL PIT DATA	
soakage trial pit width 'W _t ' [m] =	1.00
soakage trial pit length 'L _t ' [m] =	1.50
total depth from ground level 'D _{tb} ' [m] =	0.80
depth to pipe invert level 'D _{ip} ' [m] =	0.70
soakage trial pit effective depth 'D _{teff} ' [m] =	0.10
free volume in infill aggregate [%] =	100

NOTE: faces of excavation assumed to be vertical

Winter high watertable noted at 1.0m below ground level.

REQUIRED STORAGE CAPACITY PER RAINFALL DURATION													
rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M30-D			Ignore			Ignore			outflow from soakaway [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.33	5.21	1.44	9.02	2.71						0.04	2.67	
10	0.48	7.57	1.47	13.31	3.99						0.08	3.92	
15	0.58	9.14	1.48	16.24	4.87						0.11	4.76	
30	0.76	11.56	1.49	21.41	6.42						0.23	6.19	
60	1.00	15.70	1.49	28.08	8.42						0.46	7.97	
120	1.27	19.88	1.47	35.15	10.55						0.92	9.63	
240	1.63	25.53	1.46	44.67	13.40						1.83	11.57	
360	1.86	29.20	1.45	50.67	15.20						2.75	12.45	
600	2.22	34.79	1.43	59.66	17.90						4.58	13.31	
1440	3.05	47.85	1.38	79.36	23.81						11.00	12.80	

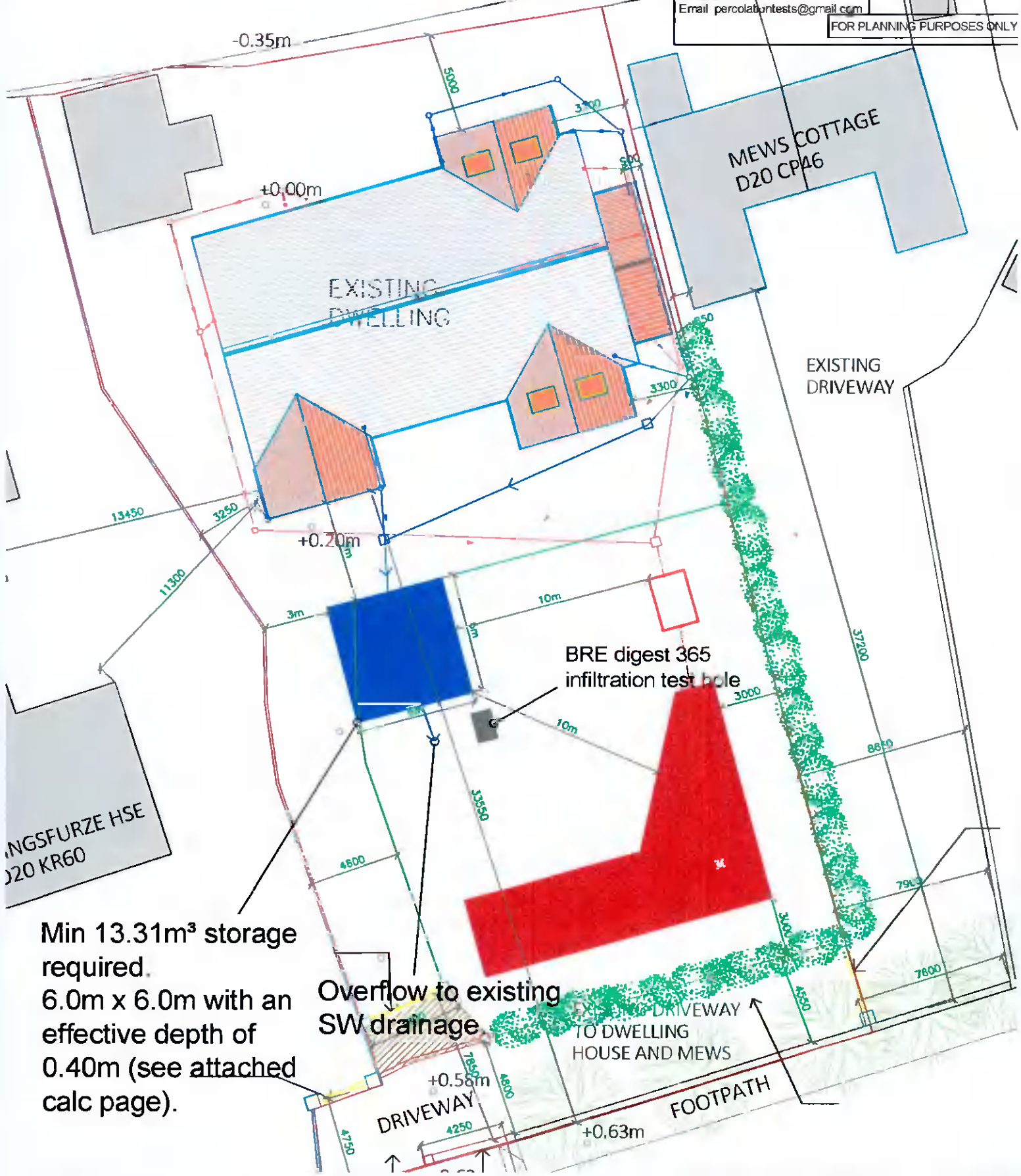
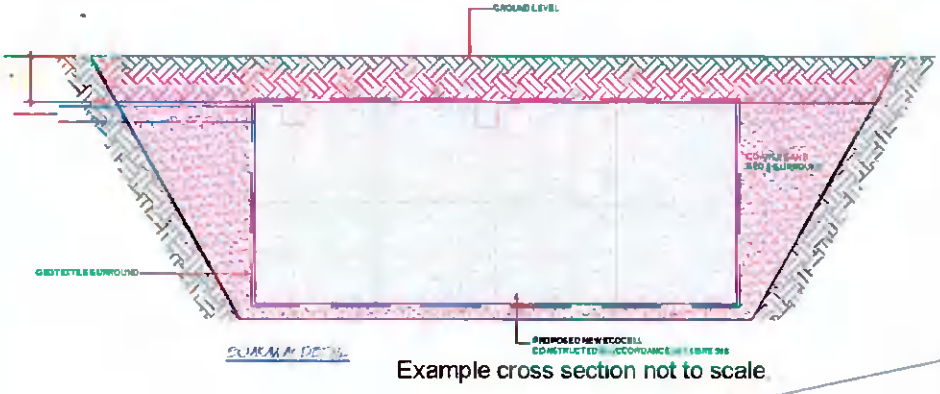
* Z2 is a growth factor from M5 rainfalls

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS																				
water level measurement N ^o :		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Soakage Trial 1	time [min] =	0	145																	
	depth to water [m] =	0.70	0.80																	
Soakage Trial 2	time [min] =	0	159																	
	depth to water [m] =	0.70	0.80																	
Soakage Trial 3	time [min] =	0	175																	
	depth to water [m] =	0.70	0.80																	

USE OF THIS DOCUMENT IS LIMITED TO THE SPECIFIC BUILDING FROM WHICH ALL MEASUREMENTS, HEIGHTS, AREAS, LEVELS AND CONSTRUCTION DETAILS TO BE CHECKED AND VERIFIED BY THE BUILDING CONTRACTOR SUB-CONTRACTOR OR DIRECT LABOUR CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORKS OR AGREEMENTS.

ELEV		J&L Munnelly	
PROJECT		Mount Carmel, Old Lucan Road, Lucan Co. Dublin	
CLIENT		Cillron Limited	
SERVICE		Site Suitability Assessments & Land Surveys	
ADDRESS		Newtownmoyaghy Kilcock Co Meath Ireland	
CONTACT		Mobile: 0876656757 Email: percolationtests@gmail.com	
DATE		23/02/2022	
SCALE		1:250	
DRAWN		[Signature]	
CHECKED		[Signature]	

FOR PLANNING PURPOSES ONLY



Min 13.31m³ storage required.
6.0m x 6.0m with an effective depth of 0.40m (see attached calc page).

Overflow to existing SW drainage

EXISTING DRIVEWAY TO DWELLING HOUSE AND MEWS

FOOTPATH

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 308477, Northing: 234756,

DURATION	Interval		Years													
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.4,	3.5,	4.1,	5.1,	5.7,	6.2,	7.9,	9.9,	11.2,	13.1,	14.9,	16.2,	18.3,	20.0,	21.3,	N/A
10 mins	3.3,	4.9,	5.7,	7.0,	7.9,	8.7,	11.0,	13.8,	15.6,	18.3,	20.7,	22.6,	25.5,	27.8,	29.7,	N/A
15 mins	3.9,	5.7,	6.7,	8.3,	9.3,	10.2,	13.0,	16.2,	18.4,	21.5,	24.3,	26.6,	30.0,	32.7,	35.0,	N/A
30 mins	5.1,	7.5,	8.7,	10.7,	12.0,	13.0,	16.4,	20.4,	23.0,	26.8,	30.2,	32.8,	36.9,	40.2,	42.8,	N/A
1 hours	6.8,	9.7,	11.3,	13.7,	15.4,	16.6,	20.9,	25.7,	28.9,	33.4,	37.4,	40.6,	45.5,	49.3,	52.5,	N/A
2 hours	9.0,	12.7,	14.7,	17.7,	19.7,	21.3,	26.4,	32.3,	36.1,	41.6,	46.4,	50.2,	56.0,	60.5,	64.2,	N/A
3 hours	10.6,	14.8,	17.1,	20.5,	22.8,	24.6,	30.4,	36.9,	41.2,	47.3,	52.7,	56.8,	63.2,	68.2,	72.3,	N/A
4 hours	11.9,	16.6,	19.0,	22.8,	25.3,	27.2,	33.5,	40.6,	45.3,	51.8,	57.6,	62.1,	68.9,	74.3,	78.7,	N/A
6 hours	14.0,	19.3,	22.2,	26.4,	29.2,	31.4,	38.5,	46.4,	51.6,	58.9,	65.3,	70.3,	77.9,	83.7,	88.6,	N/A
9 hours	16.5,	22.6,	25.8,	30.6,	33.8,	36.2,	44.2,	53.1,	58.9,	67.0,	74.1,	79.5,	87.9,	94.4,	99.7,	N/A
12 hours	18.5,	25.2,	28.7,	34.0,	37.4,	40.1,	48.8,	58.4,	64.6,	73.3,	81.0,	86.9,	95.8,	102.8,	108.4,	N/A
18 hours	21.8,	29.5,	33.5,	39.4,	43.3,	46.3,	56.0,	66.8,	73.7,	83.4,	91.9,	98.3,	108.2,	115.8,	122.1,	N/A
24 hours	24.4,	32.9,	37.3,	43.7,	48.0,	51.3,	61.8,	73.4,	80.9,	91.3,	100.4,	107.4,	118.0,	126.1,	132.8,	155.9,
2 days	30.3,	39.9,	44.7,	51.9,	56.5,	60.1,	71.4,	83.7,	91.6,	102.4,	111.7,	118.9,	129.7,	137.9,	144.6,	167.7,
3 days	35.0,	45.5,	50.8,	58.4,	63.4,	67.2,	79.2,	92.1,	100.3,	111.6,	121.3,	128.6,	139.7,	148.2,	155.0,	178.5,
4 days	39.2,	50.4,	56.0,	64.1,	69.4,	73.4,	86.0,	99.5,	108.0,	119.7,	129.7,	137.3,	148.6,	157.3,	164.3,	188.2,
6 days	46.4,	58.9,	65.1,	74.0,	79.8,	84.2,	97.8,	112.2,	121.3,	133.7,	144.3,	152.2,	164.2,	173.2,	180.5,	205.3,
8 days	52.8,	66.4,	73.2,	82.7,	88.9,	93.5,	108.0,	123.3,	132.9,	145.9,	157.0,	165.3,	177.7,	187.1,	194.7,	220.2,
10 days	58.7,	73.2,	80.4,	90.6,	97.1,	102.1,	117.3,	133.4,	143.4,	156.9,	168.4,	177.1,	189.9,	199.6,	207.5,	233.8,
12 days	64.2,	79.6,	87.2,	97.9,	104.8,	109.9,	125.9,	142.6,	153.1,	167.1,	179.0,	187.9,	201.2,	211.2,	219.2,	246.2,
16 days	74.3,	91.3,	99.6,	111.3,	118.8,	124.3,	141.5,	159.5,	170.6,	185.6,	198.2,	207.6,	221.6,	232.1,	240.6,	268.9,
20 days	83.7,	102.1,	111.0,	123.6,	131.5,	137.5,	155.8,	174.8,	186.6,	202.3,	215.6,	225.5,	240.1,	251.1,	259.9,	289.3,
25 days	94.7,	114.6,	124.3,	137.8,	146.3,	152.7,	172.2,	192.4,	204.9,	221.5,	235.5,	245.9,	261.3,	272.7,	282.0,	312.6,

NOTES:

N/A Data not available

These values are derived from a Depth Duration Frequency (DDF) Model

For details refer to:

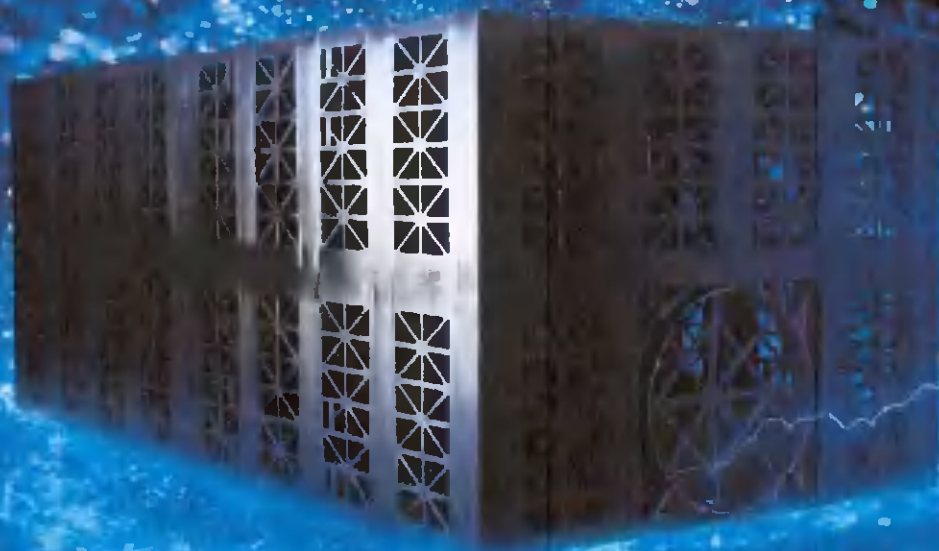
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',

Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

AquaCell

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supreme for years to come

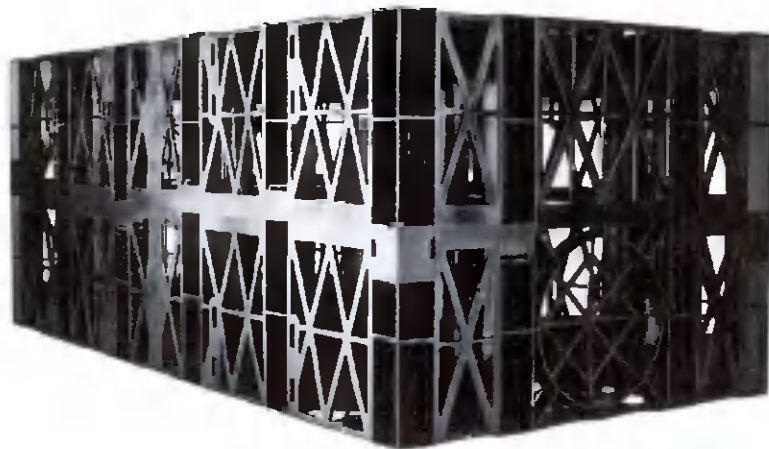
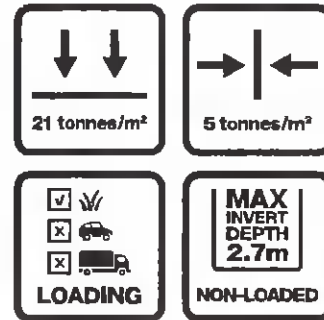
The new AquaCell range engineered
from reformulated, recycled material.



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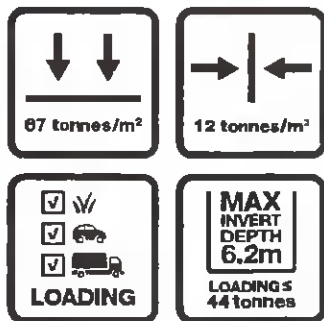
AquaCell ECO

ECO is manufactured from specially reformulated, recycled material and has been designed for shallow, non-trafficked, landscaped applications.



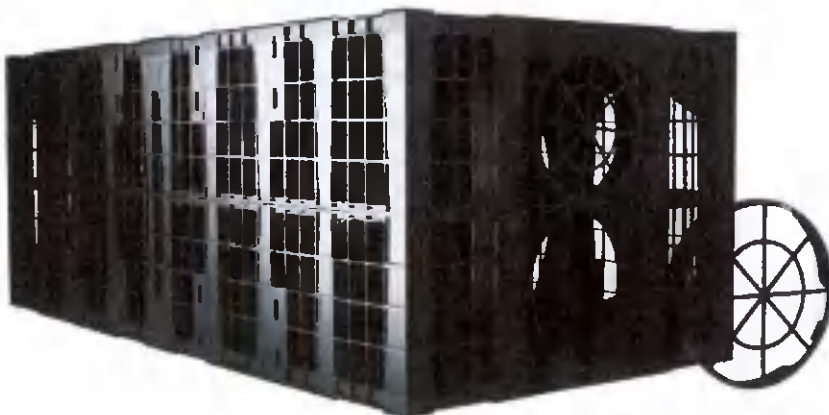
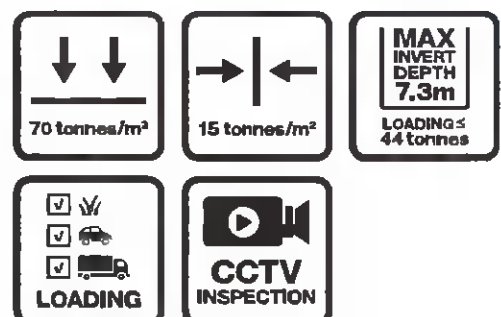
AquaCell CORE-R

CORE-R has been designed for use in deep applications, subject to both regular and heavy traffic loadings, such as cars and HGV's.



AquaCell PLUS-R

PLUS-R has been designed primarily for use in applications where inspection is required, and is suitable for use in all applications from landscaped areas to heavily trafficked areas.

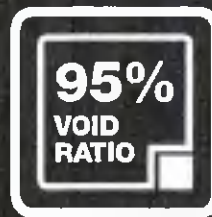


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Site during testing
13/07/2021



Test hole 13/07/2021



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sound.ie

You're safe with *Sound*.

David Ryan
Newtownmoyaghy
Kilcock
Co Meath

Date: 06/04/2021
Reference: RYDA01001

INSURANCE CERTIFICATE

To Whom It May Concern

We confirm we act as Insurance Brokers to the above and set out below a summary of cover we have arranged:

Business Description: *Soil Engineer (Percolation Testing)*

PROFESSIONAL INDEMNITY

Policy No:	PID00024862
Provider:	Optio Europe Ltd
Insurer:	Accredited Insurance (Europe) Ltd
Period of Insurance:	04/03/2021 to 03/03/2022
Limit of Indemnity:	€1,000,000

Subject always to Insurers policy wording, warranties, conditions, restrictions & exclusions a copy of which is available on request.

We trust this is in order but if you have any queries, please do not hesitate to contact us.

Yours sincerely,

Gary Kinsella
Commercial Broker
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E: Gary@sound.ie