



PercolationTests.ie

Planning Assessments & Land Surveys

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

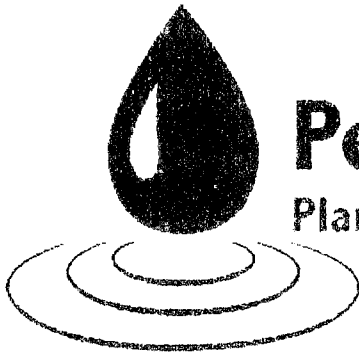
BRE Digest 365 Report.

Prepared on behalf of:

Imelda & Donal Hickey

At:

**1 Killkee Park,
Firhouse,
Dublin 24**



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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.
 www.percolationtests.ie
 Tel: 087 6636757

BRE Digest 365 Test

Revision	1.00
Job No:	Soakpit 1
Page:	C/01
Prepared By:	DR
Date:	17/08/2022

Section: **1 Killakee Park, Firhouse, Dublin 24**

ALTERNATIVE SOAKAWAY SIZES			
trench soakaways			
width of trench [mm]:	450	600	900
required trench length [m]:	15.11	12.17	8.80
ring soakaways			
diameter of ring [mm]:	1500	2100	2400
required pit diameter [m]:	2.36	2.36	2.36

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

SUMMARY OF CALCULATIONS	
critical design rainfall duration 't _{crit} ' =	360 min
required storage volume 'V _{req} ' =	6.62 m ³
provided storage volume 'V _{prov} ' =	6.84 m ³
utilisation factor =	0.97 .OK
required time to discharge 50% 't ₅₀ ' =	8.20 hours
utilisation factor =	0.34 .OK

GENERAL DATA	
site location:	██████████ Ireland
soakaway type:	infilled pit or trench
impermeable area drained to soakaway 'A' [m ²] =	180
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] =	2.00
soakaway length 'L' [m] =	4.50
total depth from ground level 'D ₀ ' [m] =	1.20
depth to drain invert level 'D _d ' [m] =	0.40
soakaway effective depth 'D _{eff} ' [m] =	0.80
free volume in infill aggregate [%] =	95

SOIL INFILTRATION DATA	
allowance for infiltration through soakaway base:	40%
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 _{ps0} ' [m ²] =	1.25
storage volume between 75-25% 'V _p ' [m ³] =	0.13
time for water to fall from 75-25% 't _p ' [min] =	126.67
soil infiltration rate 'f' [m/s] =	1.32E-05

SOAKAGE TRIAL PIT DATA	
soakage trial pit width 'W _i ' [m] =	0.50
soakage trial pit length 'L _i ' [m] =	1.00
total depth from ground level 'D ₀ ' [m] =	1.20
depth to pipe invert level 'D _{ip} ' [m] =	0.70
soakage trial pit effective depth 'D _{eff} ' [m] =	0.50
free volume in infill aggregate [%] =	100

NOTE: faces of excavation assumed to be vertical

Infiltration rate: Good – No mottling noted above 1.2m BGL.

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	1.62						0.03	1.59	
10	0.48	7.57	1.47	13.31	2.40						0.07	2.33	
15	0.58	9.14	1.48	16.24	2.92						0.10	2.82	
30	0.76	11.96	1.49	21.41	3.85						0.21	3.65	
60	1.00	15.70	1.49	28.08	5.05						0.42	4.64	
120	1.27	19.88	1.47	35.15	6.33						0.83	5.49	
240	1.63	25.53	1.46	44.67	8.04						1.67	6.37	
360	1.86	29.20	1.45	50.67	9.12						2.50	6.62	
600	2.22	34.79	1.43	59.66	10.74						4.17	6.57	
1440	3.05	47.85	1.38	79.36	14.28						10.00	4.28	

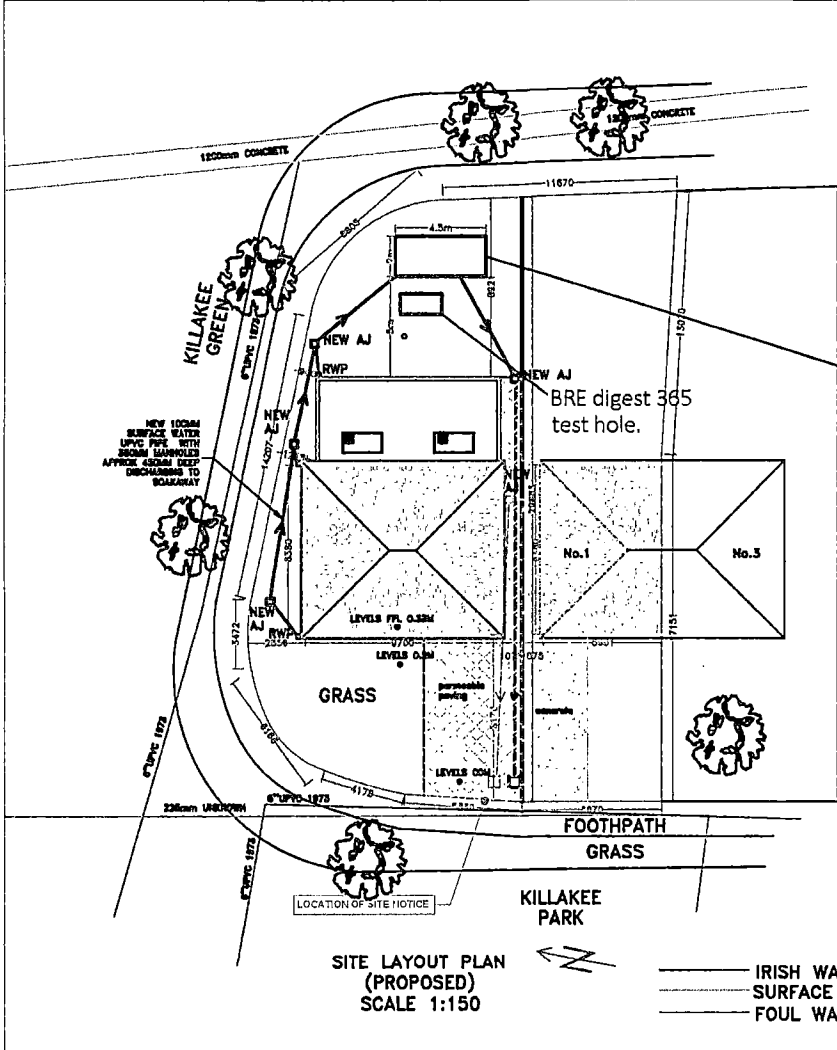
* Z2 is a growth factor from M5 rainfalls

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

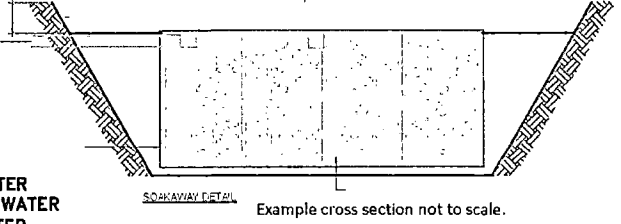
water level measurement N°:		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Soakage Trial 1	time [min] =	0	123																	
	depth to water [m] =	0.80	1.10																	
Soakage Trial 2	time [min] =	0	130																	
	depth to water [m] =	0.80	1.10																	
Soakage Trial 3	time [min] =	0	152																	
	depth to water [m] =	0.80	1.10																	

USE PRINTED DRAWINGS IN PREFERENCE TO SCANNED/REPRODUCED
 ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED
 DETAILS TO BE CHECKED AND APPROVED BY THE SUPPLIER/CONTRACTOR
 SUB CONTRACTOR OR DIRECT LABOUR CONTRACTOR PRIOR TO THE
 COMMENCEMENT OF ANY WORK OR AGREEMENTS

DESIGN: Imelda & Donal Hickey	
PROJECT: 1 Killakee Park, Firhouse, Dublin 24.	
Cillron Limited Site Suitability Assessments & Land Surveys Newtownmoyaghy Kildcock Co. Meath Ireland Mobile: 0876636757 Email: percolatoritests@gmail.com	
SCALE: 1:250	DATE: 17/08/2022
FOR PLANNING PURPOSES ONLY	

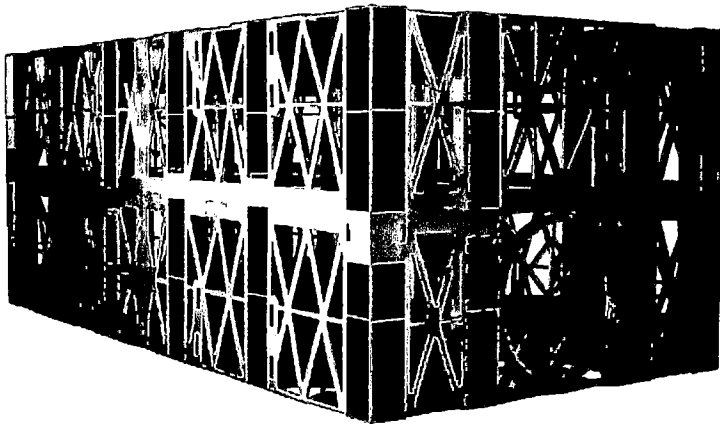


Min 6.62m³ storage required.
 4.5m x 2.0m with an effective depth of 0.80m (see attached calc page).
 Soakpit to be located min 5m from any dwelling & ,if possible, 3m from any boundary.
 The soakpit shall include an overflow to the existing SW drainage.



SITE LAYOUT PLAN (PROPOSED)
 SCALE 1:150

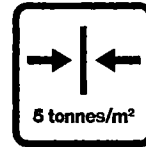
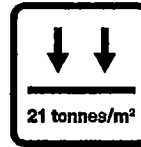
- IRISH WATER
- SURFACE WATER
- FOUL WATER



AquaCell

ECO

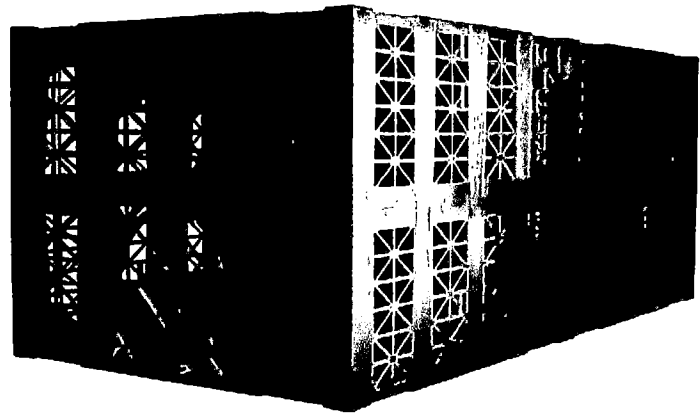
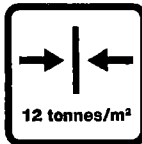
ECO is manufactured from specially reformulated, recycled material and has been designed for shallow, non-trafficked, landscaped applications.



AquaCell

CORE-R

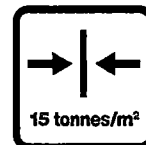
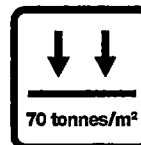
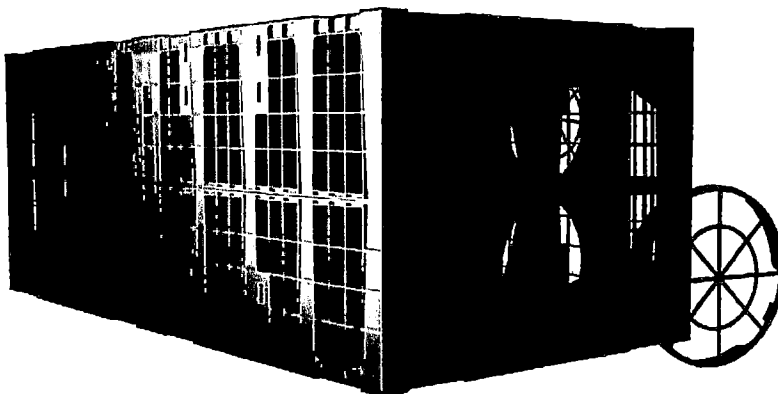
CORE-R has been designed for use in deep applications, subject to both regular and heavy traffic loadings, such as cars and HGV's.

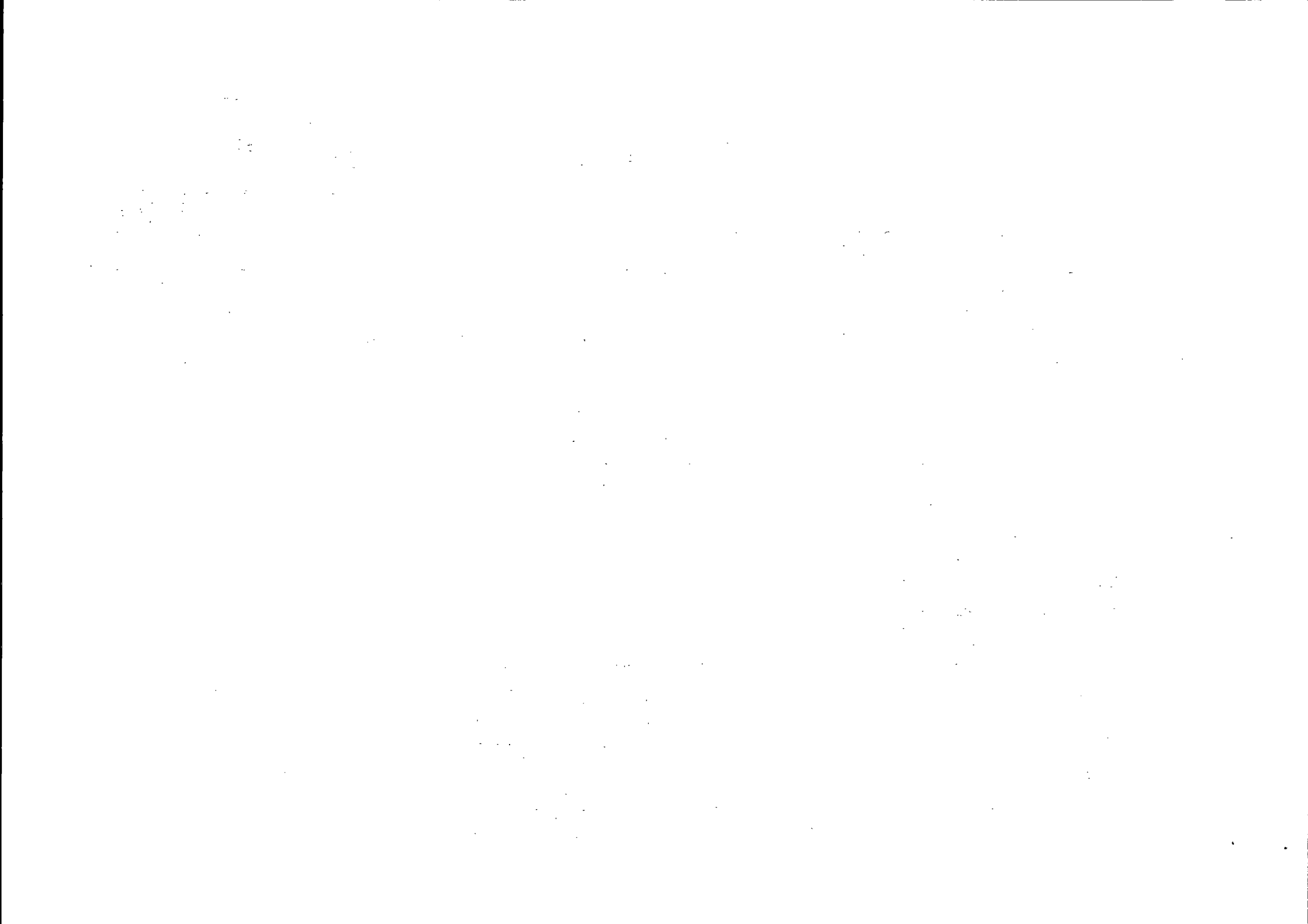


AquaCell

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.





Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 319075, Northing: 232626,

DURATION	Interval		Years														
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,	
5 mins	2.6,	3.7,	4.2,	5.1,	5.7,	6.2,	7.8,	9.6,	10.7,	12.4,	13.9,	15.1,	16.8,	18.2,	19.4,	N/A,	
10 mins	3.6,	5.1,	5.9,	7.2,	8.0,	8.7,	10.8,	13.3,	15.0,	17.3,	19.4,	21.0,	23.5,	25.4,	27.0,	N/A,	
15 mins	4.2,	6.0,	7.0,	8.4,	9.4,	10.2,	12.7,	15.7,	17.6,	20.3,	22.8,	24.7,	27.6,	29.9,	31.8,	N/A,	
30 mins	5.6,	7.8,	9.0,	10.8,	12.1,	13.0,	16.2,	19.7,	22.0,	25.3,	28.2,	30.5,	34.0,	36.7,	38.9,	N/A,	
1 hours	7.3,	10.2,	11.7,	14.0,	15.5,	16.7,	20.5,	24.8,	27.6,	31.5,	35.0,	37.7,	41.8,	45.0,	47.7,	N/A,	
2 hours	9.7,	13.3,	15.2,	18.0,	19.9,	21.3,	26.0,	31.2,	34.5,	39.3,	43.4,	46.6,	51.5,	55.3,	58.4,	N/A,	
3 hours	11.4,	15.5,	17.7,	20.8,	23.0,	24.6,	29.8,	35.6,	39.4,	44.6,	49.3,	52.8,	58.2,	62.3,	65.7,	N/A,	
4 hours	12.8,	17.3,	19.7,	23.2,	25.5,	27.2,	32.9,	39.2,	43.3,	48.9,	53.9,	57.6,	63.4,	67.9,	71.5,	N/A,	
6 hours	15.1,	20.2,	22.9,	26.8,	29.4,	31.4,	37.8,	44.8,	49.3,	55.6,	61.1,	65.3,	71.6,	76.5,	80.5,	N/A,	
9 hours	17.8,	23.7,	26.7,	31.1,	34.0,	36.3,	43.4,	51.2,	56.3,	63.2,	69.3,	73.9,	80.9,	86.2,	90.6,	N/A,	
12 hours	20.0,	26.4,	29.7,	34.6,	37.7,	40.2,	47.9,	56.4,	61.8,	69.3,	75.7,	80.7,	88.2,	93.9,	98.6,	N/A,	
18 hours	23.5,	30.8,	34.6,	40.1,	43.6,	46.4,	55.0,	64.5,	70.5,	78.7,	85.9,	91.3,	99.6,	105.9,	111.0,	N/A,	
24 hours	26.4,	34.4,	38.5,	44.5,	48.4,	51.4,	60.7,	70.9,	77.4,	86.2,	93.9,	99.8,	108.6,	115.3,	120.7,	139.4,	
2 days	32.1,	41.1,	45.6,	52.1,	56.3,	59.5,	69.5,	80.2,	87.0,	96.2,	104.2,	110.1,	119.1,	125.9,	131.5,	150.2,	
3 days	36.7,	46.4,	51.3,	58.3,	62.8,	66.2,	76.7,	88.0,	95.1,	104.7,	112.9,	119.1,	128.3,	135.3,	141.0,	160.2,	
4 days	40.7,	51.1,	56.3,	63.7,	68.4,	72.0,	83.1,	94.8,	102.2,	112.1,	120.6,	127.0,	136.5,	143.7,	149.5,	169.1,	
6 days	47.8,	59.3,	65.0,	73.0,	78.2,	82.1,	94.1,	106.7,	114.5,	125.1,	134.1,	140.8,	150.8,	158.4,	164.5,	184.9,	
8 days	54.0,	66.5,	72.6,	81.2,	86.8,	90.9,	103.7,	117.0,	125.3,	136.4,	145.8,	152.9,	163.4,	171.2,	177.5,	198.7,	
10 days	59.6,	73.0,	79.5,	88.7,	94.5,	98.9,	112.4,	126.4,	135.0,	146.7,	156.5,	163.8,	174.7,	182.8,	189.4,	211.2,	
12 days	64.9,	79.1,	86.0,	95.6,	101.7,	106.3,	120.4,	135.0,	144.0,	156.1,	166.3,	173.9,	185.1,	193.5,	200.3,	222.8,	
16 days	74.7,	90.2,	97.8,	108.3,	114.9,	119.9,	135.1,	150.8,	160.4,	173.3,	184.2,	192.2,	204.1,	213.0,	220.1,	243.8,	
20 days	83.7,	100.5,	108.6,	119.9,	127.0,	132.3,	148.5,	165.1,	175.3,	188.9,	200.3,	208.8,	221.3,	230.6,	238.1,	262.9,	
25 days	94.2,	112.4,	121.2,	133.3,	140.9,	146.6,	163.9,	181.6,	192.5,	206.9,	218.9,	227.9,	241.1,	250.8,	258.7,	284.6,	

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',

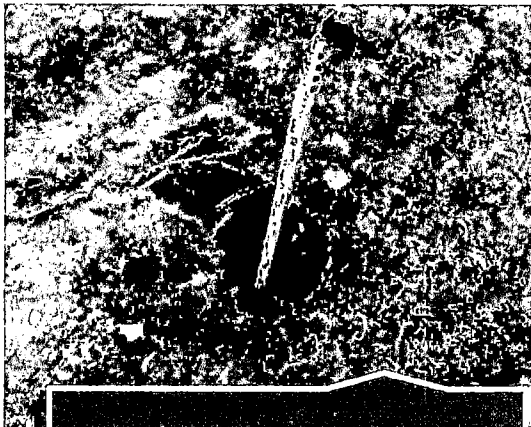
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf



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17/08/2022



1 Killakee Park



Site during testing



You're safe with *Sound*.

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T: +353 1 524 2800

sound.ie

Date: 22/03/2022
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
Insurer:	Accredited Insurance (Europe) Ltd
Period of Insurance:	04/03/2022 to 03/03/2023
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
P: (01) 524 1415
E: Gary@sound.ie