

PROJECT
Civic OfficesSUBJECT
Surface Water Calculations - Soil Characteristics from FSR - Catchment 1BDrawing ref.
220084-RY-05-Z00-XXX-SK-DBFL-CE-1001Calculations by Checked by
KMM JPCJOB REF.
220084Calc. Sheet No.
1.2Date
08/02/2023

Estimation of flood peaks from catchment characteristics

Table 4.4 Classification of soil factors.

Property	Classes
A Drainage group	1 Rarely waterlogged within 60 cm at any time (well and moderately well drained) 2 Commonly waterlogged within 60 cm during winter (imperfect and poor) 3 Commonly waterlogged within 60 cm during winter and summer (very poorly drained)
B Depth to 'impermeable' layers	1 >80 cm 2 80-40 cm 3 <40 cm
C Permeability group (above 'impermeable' layers or to 80 cm)	1 Rapid 2 Medium 3 Slow
D Slope	1 0-2° 2 2-8° 3 >8°

Table 4.5 The classification of soils by winter rain acceptance rate from soil survey data.

Having decided all four parameters, Table 4.5 was used to reach the index of 'winter rain acceptance'.

Drainage class Group	Depth to impermeable layer (cm)	Slope classes								
		0 - 2°			2 - 8°			>8°		
		Permeability rates above impermeable layers								
		Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)
1	>80	1			1	2		1	2	3
	40 - 80	1			2		3		4	
	<40	—	—	—	—	—	—	—	—	—
2	>80	2			3		4		—	
	40 - 80	2			3		4		—	
	<40	3			4		—		—	
3	>80	—			5		—		—	
	40 - 80	—			5		—		—	
	<40	—			5		—		—	

Winter rain acceptance indices: 1, very high; 2, high; 3, moderate; 4, low; 5, very low. Upland peat and peaty soils are in Class 5. Urban areas are unclassified.

1. Soil index (SPR) value calculated from Flood Studies Report - The Classification of Soils from Winter Rainfall Acceptance Rate (Table 4.5).

PROJECT
Civic OfficesSUBJECT
Surface Water Calculations - Soil Characteristics from FSR - Catchment 1CDrawing ref.
220084-RY-05-Z00-XXX-SK-DBFL-CE-1301Calculations by Checked by
KMM JPCJOB REF.
220084Calc. Sheet No.
3.2Date
08/02/2023

Estimation of flood peaks from catchment characteristics

Table 4.4 Classification of soil factors.

Property	Classes
A Drainage group	1 Rarely waterlogged within 60 cm at any time (well and moderately well drained) 2 Commonly waterlogged within 60 cm during winter (imperfect and poor) 3 Commonly waterlogged within 60 cm during winter and summer (very poorly drained)
B Depth to 'impermeable' layers	1 > 80 cm 2 80-40 cm 3 < 40 cm
C Permeability group (above 'impermeable' layers or to 80 cm)	1 Rapid 2 Medium 3 Slow
D Slope	1 0-2° 2 2-8° 3 > 8°

Table 4.5 The classification of soils by winter rain acceptance rate from soil survey data.

Having decided all four parameters, Table 4.5 was used to reach the index of 'winter rain acceptance'.

Drainage class Group	Depth to impermeable layer (cm)	Slope classes									
		0 - 2°			2 - 8°			> 8°			
		Permeability rates above impermeable layers									
		Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)	
1	>80	1			1	2			1	2	3
	40 - 80	1			2			3			4
	<40	—	—	—	—	—	—	—	—	—	
2	>80	2			3			4			5
	40 - 80	2			3			4			5
	<40	3			4			5			6
3	>80	3			4			5			6
	40 - 80	3			4			5			6
	<40	3			4			5			6

Winter rain acceptance indices: 1, very high; 2, high; 3, moderate; 4, low; 5, very low. Upland peat and peaty soils are in Class 5. Urban areas are unclassified.

1. Soil index (SPR) value calculated from Flood Studies Report - The Classification of Soils from Winter Rainfall Acceptance Rate (Table 4.5).

PROJECT
Civic OfficesSUBJECT
Surface Water Calculations - Soil Characteristics from FSR - Catchment 2Drawing ref.
220084-RY-05-Z00-XXX-SK-DBFL-CE-1301Calculations by Checked by
KMM JPCJOB REF.
220084Calc. Sheet No.
3.2Date
08/02/2023

Estimation of flood peaks from catchment characteristics

Table 4.4 Classification of soil factors.

Property	Classes
A Drainage group	1 Rarely waterlogged within 60 cm at any time (well and moderately well drained) 2 Commonly waterlogged within 60 cm during winter (imperfect and poor) 3 Commonly waterlogged within 60 cm during winter and summer (very poorly drained)
B Depth to 'impermeable' layers	1 >80 cm 2 80-40 cm 3 <40 cm
C Permeability group (above 'impermeable' layers or to 80 cm)	1 Rapid 2 Medium 3 Slow
D Slope	1 0-2° 2 2-8° 3 >8°

Table 4.5 The classification of soils by winter rain acceptance rate from soil survey data.

Having decided all four parameters, Table 4.5 was used to reach the index of 'winter rain acceptance'.

Drainage class Group	Depth to impermeable layer (cm)	Slope classes									
		0 - 2°			2 - 8°			>8°			
		Permeability rates above impermeable layers									
		Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)	Rapid (1)	Medium (2)	Slow (3)	
1	>80	1			1	2			1	2	3
	40 - 80	1			2			3			4
	<40	—	—	—	—	—	—	—	—	—	
2	>80	2			3			4			5
	40 - 80	2			3			4			5
	<40	3			4			5			6
3	>80	3			4			5			6
	40 - 80	3			4			5			6
	<40	3			4			5			6

Winter rain acceptance indices: 1, very high; 2, high; 3, moderate; 4, low; 5, very low. Upland peat and peaty soils are in Class 5. Urban areas are unclassified.

1. Soil index (SPR) value calculated from Flood Studies Report - The Classification of Soils from Winter Rainfall Acceptance Rate (Table 4.5).

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 267523, Northing: 333787,

DURATION	Interval		Years														
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,	
5 mins	2.5,	3.6,	4.1,	5.0,	5.6,	6.0,	7.5,	9.2,	10.4,	12.0,	13.4,	14.5,	16.2,	17.6,	18.7,	N/A ,	
10 mins	3.5,	4.9,	5.7,	6.9,	7.8,	8.4,	10.5,	12.9,	14.4,	16.7,	18.7,	20.2,	22.6,	24.5,	26.0,	N/A ,	
15 mins	4.1,	5.8,	6.8,	8.2,	9.1,	9.9,	12.3,	15.1,	17.0,	19.6,	22.0,	23.8,	26.6,	28.8,	30.6,	N/A ,	
30 mins	5.4,	7.6,	8.8,	10.5,	11.7,	12.6,	15.6,	19.0,	21.3,	24.4,	27.2,	29.4,	32.7,	35.3,	37.5,	N/A ,	
1 hours	7.2,	9.9,	11.4,	13.5,	15.0,	16.1,	19.8,	23.9,	26.6,	30.4,	33.8,	36.4,	40.3,	43.4,	45.9,	N/A ,	
2 hours	9.5,	12.9,	14.7,	17.4,	19.2,	20.6,	25.1,	30.1,	33.4,	37.9,	41.9,	44.9,	49.6,	53.2,	56.2,	N/A ,	
3 hours	11.1,	15.1,	17.2,	20.2,	22.3,	23.8,	28.9,	34.4,	38.1,	43.1,	47.5,	50.9,	56.0,	60.0,	63.3,	N/A ,	
4 hours	12.5,	16.8,	19.1,	22.5,	24.7,	26.4,	31.8,	37.9,	41.8,	47.2,	51.9,	55.6,	61.1,	65.3,	68.8,	N/A ,	
6 hours	14.7,	19.7,	22.3,	26.0,	28.5,	30.5,	36.6,	43.3,	47.7,	53.7,	58.9,	62.9,	69.0,	73.7,	77.5,	N/A ,	
9 hours	17.3,	23.0,	25.9,	30.2,	33.0,	35.2,	42.0,	49.5,	54.4,	61.0,	66.8,	71.2,	77.9,	83.0,	87.2,	N/A ,	
12 hours	19.4,	25.7,	28.9,	33.5,	36.6,	38.9,	46.4,	54.5,	59.7,	66.8,	73.0,	77.8,	84.9,	90.4,	94.9,	N/A ,	
18 hours	22.9,	30.0,	33.6,	38.9,	42.3,	44.9,	53.3,	62.3,	68.1,	76.0,	82.8,	88.0,	95.9,	101.9,	106.8,	N/A ,	
24 hours	25.7,	33.5,	37.4,	43.2,	46.9,	49.8,	58.8,	68.5,	74.7,	83.2,	90.6,	96.2,	104.6,	111.0,	116.2,	134.0,	
2 days	33.2,	41.9,	46.3,	52.5,	56.5,	59.5,	68.9,	78.9,	85.2,	93.7,	101.0,	106.4,	114.6,	120.8,	125.8,	142.7,	
3 days	39.6,	49.1,	53.8,	60.4,	64.6,	67.8,	77.6,	87.9,	94.3,	103.0,	110.3,	115.8,	124.0,	130.1,	135.1,	151.7,	
4 days	45.3,	55.5,	60.4,	67.4,	71.8,	75.1,	85.3,	95.9,	102.5,	111.3,	118.8,	124.3,	132.6,	138.7,	143.7,	160.3,	
6 days	55.7,	67.0,	72.4,	79.9,	84.7,	88.2,	99.1,	110.3,	117.1,	126.2,	133.9,	139.6,	148.0,	154.2,	159.3,	175.9,	
8 days	65.2,	77.4,	83.2,	91.2,	96.3,	100.0,	111.4,	123.1,	130.2,	139.6,	147.4,	153.2,	161.8,	168.1,	173.2,	190.0,	
10 days	74.2,	87.2,	93.3,	101.8,	107.0,	111.0,	122.8,	134.9,	142.2,	151.8,	159.9,	165.8,	174.5,	180.9,	186.1,	203.0,	
12 days	82.7,	96.4,	102.9,	111.7,	117.2,	121.3,	133.5,	145.9,	153.4,	163.3,	171.5,	177.5,	186.4,	192.9,	198.1,	215.1,	
16 days	99.1,	114.0,	120.9,	130.4,	136.2,	140.6,	153.5,	166.5,	174.4,	184.6,	193.1,	199.3,	208.3,	215.0,	220.3,	237.6,	
20 days	114.6,	130.5,	137.9,	147.9,	154.1,	158.6,	172.2,	185.7,	193.8,	204.3,	213.0,	219.4,	228.6,	235.4,	240.8,	258.3,	
25 days	133.4,	150.4,	158.2,	168.8,	175.3,	180.0,	194.2,	208.2,	216.5,	227.4,	236.3,	242.8,	252.2,	259.1,	264.6,	282.3,	

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



Appendix D : FLOOD RISK SUPPORTING DATA