

Subsurface Drainage Lateral Spacing Analysis

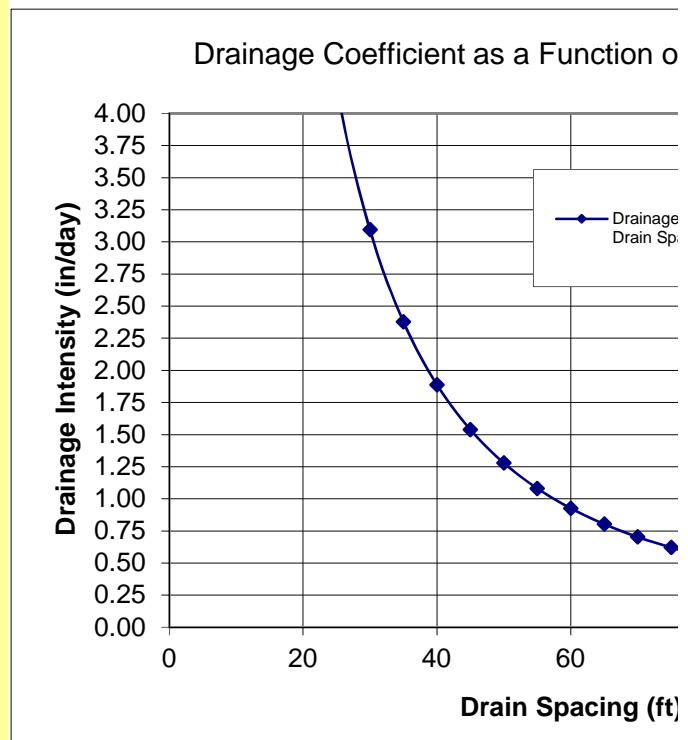
Hooghoudt Equation - Steady Flow Drain Spacing Formula

Input

Depth to Drains [d] (ft)	4
Depth to Impervious Layer [D] (ft)	8
Depth to Water Table Midway between Laterals after Drawdown [d_m] (ft)	1
Effective Radius of Drain Lines [r_e] (in)	0.59
Soil Profile Saturated Hydraulic Conductivity above Drain (in/hr)	1.4
Soil Profile Saturated Hydraulic Conductivity below Drain (in/hr)	1.4
Drainable Porosity [f]	0.04
Depth from Impermeable Layer to Drain (ft)	4

Results for Hooghoudt Equation

Drain Spacing (ft)	d_e (ft)	Drainage Coefficient (in/day)
5	0.57	66.626
10	0.94	19.699
15	1.27	9.935
20	1.54	6.137
25	1.77	4.216
30	1.95	3.094
35	2.11	2.377
40	2.25	1.888
45	2.36	1.539
50	2.47	1.279
55	2.56	1.081
60	2.64	0.927
65	2.71	0.803
70	2.77	0.703
75	2.83	0.621
80	2.88	0.553
85	2.93	0.495
90	2.98	0.446
95	3.02	0.404
100	3.06	0.367
105	3.09	0.336
110	3.12	0.308
115	3.15	0.284
120	3.18	0.262



Effective Radius of Corrugated Plastic Tubing
(ASAE Standard EP480)

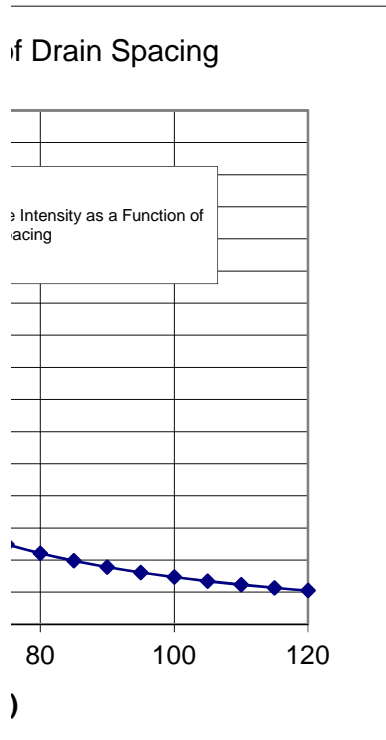
Drain	Outside diameter (in)	Effective radius (in)
Corrugated	3.5	0.39
Corrugated	4.5	0.59
Corrugated with synthetic envelope/filter	4.5	1.57
Corrugated	5.5	0.4
Corrugated	6.5	0.58
Clay 0.06 in between Joints	5	0.12
Clay 0.13 in between Joints	5	0.19

Subsurface Drainage Lateral Spacing A
Non-Steady Flow to Drains (van Schilgaarde, J.
 Time to Drain from Surface to Required Depth

Input

Depth to Initial Water Table (ft)

Depth to Water Table Midway between Laterals af



Drain Spacing (ft)	d_e (ft)	Time (hours)
5	0.57	0.9
10	0.94	2.7
15	1.27	5.2
20	1.54	8.2
25	1.77	11.8
30	1.95	16.0
35	2.11	20.6
40	2.25	25.8
45	2.36	31.5
50	2.47	37.7
55	2.56	44.5
60	2.64	51.8
65	2.71	59.6
70	2.77	67.9
75	2.83	76.8
80	2.88	86.2
85	2.93	96.1
90	2.98	106.5
95	3.02	117.4
100	3.06	128.9
105	3.09	140.9
110	3.12	153.4
115	3.15	166.5
120	3.18	180.1

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