



Grosvenor Road, Wrexham

Test Date: 02/02/2018

27856

BRE 365 SOIL INFILTRATION TEST "Soakaway Test"

SA1 - Fill 1

Pit Dimensions:

Depth	2.40
Width	1.70
Length	2.20

Volume Outflowing between 75% and 25% of effective depth:

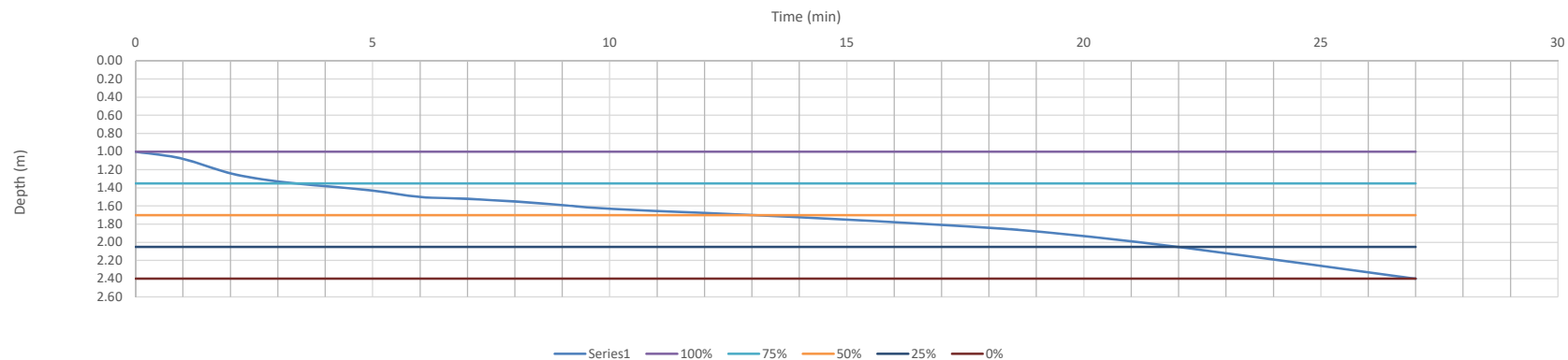
V_{p75-25}	=	L	x	B	x	D_{75-25}
	=	2.20	x	1.70	x	1.20
	=	4.49	m ³			

Mean surface area through which outflow occurs, taken to be pit sides to 50% effective depth and including the base of the pit:

a_{p50}	=	L_{side} Area	+	B_{side} Area	+	Base Area
	=	5.28	+	4.08	+	3.74
	=	13.10	m ²			

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	15	20	27
Depth (m)	1.00	1.08	1.24	1.33	1.38	1.43	1.50	1.52	1.55	1.59	1.63	1.75	1.93	2.40

Soil Infiltration Rate: SA1 Fill 1



$$t_{p75-25} = 22.00 - 3.33 = 18.67$$

$$\text{Soil infiltration rate} = \frac{V_{p75-25}}{a_{p50} \cdot t_{p75-25} \cdot 60} = \frac{4.49}{13.10 \cdot 18.67 \cdot 60} = 3.06E-04 \text{ m/s} = 1101 \text{ mm/hr}$$



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SA1 - Fill 2

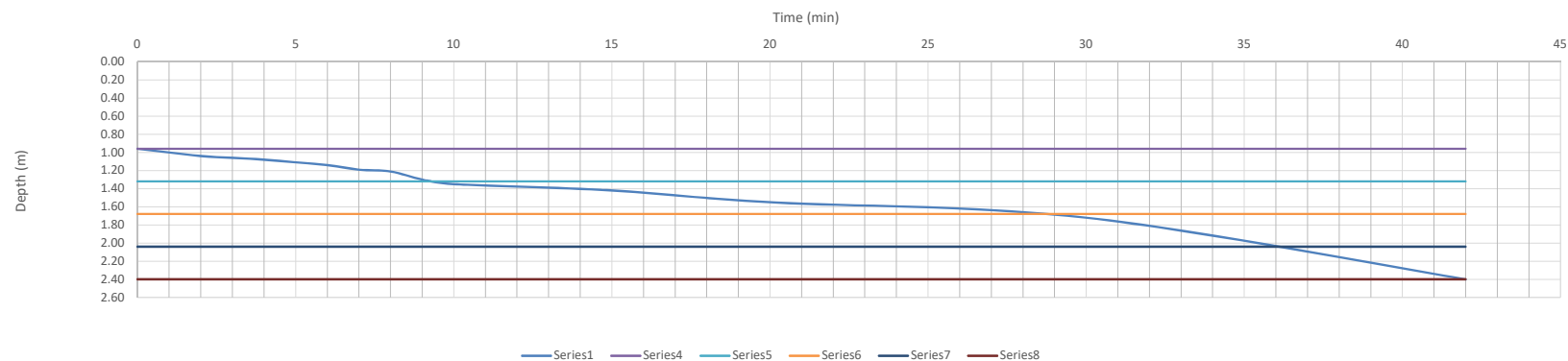
Pit Dimensions:	
Depth	2.40
Width	2.10
Length	2.20

Volume Outflowing between 75% and 25% of effective depth:					
V_{p75-25}	=	L	x	B	x D_{75-25}
	=	2.20	x	2.10	x 1.20
	=	5.54 m ³			

Mean surface area through which outflow occurs, taken to be pit sides to 50% effective depth and including the base of the pit:						
a _{p50}	=	L _{side} Area	+	B _{side} Area	+	Base Area
	=	5.28	+	5.04	+	4.62
	=	14.94 m ²				

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	15	20	30	42
Depth (m)	0.96	1.00	1.04	1.06	1.08	1.11	1.14	1.19	1.21	1.30	1.35	1.42	1.55	1.72	2.40

Soil Infiltration Rate: SA1 Fill 2



$$t_{p75-25} = 36.50 - 9.5 = 27$$

$$\text{Soil infiltration rate} = \frac{V_{p75-25}}{(a_{p50} \cdot t_{p75-25} \cdot 60)} = \frac{5.54}{(14.94 \cdot 27 \cdot 60)} = 2.29E-04 \text{ m/s} = 825 \text{ mm/hr}$$



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BRE 365 SOIL INFILTRATION TEST "Soakaway Test"
SA1 - Fill 3

Test Date: 02/02/2018

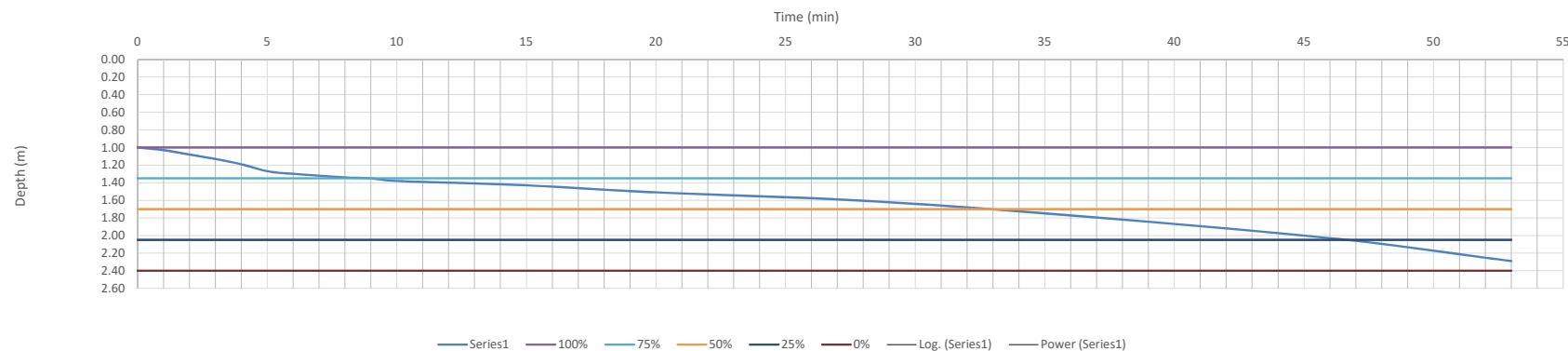
Pit Dimensions:	
Depth	2.40
Width	2.10
Length	2.20

Volume Outflowing between 75% and 25% of effective depth:					
V_{p75-25}	=	L	x	B	x D_{75-25}
	=	2.20	x	2.10	x 1.20
	=	5.54 m ³			

Mean surface area through which outflow occurs, taken to be pit sides to 50% effective depth and including the base of the pit:								
a _{p50}	=	L _{side}	Area	+	B _{side}	Area	+	Base Area
	=		5.28	+		5.04	+	4.62
	=		14.94	m ²				

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	15	20	30	45	53
Depth (m)	1.00	1.03	1.08	1.13	1.19	1.27	1.30	1.32	1.34	1.35	1.38	1.43	1.51	1.64	2.00	2.29

Soil Infiltration Rate: SA2 Fill 1



t_{p75-25} = 47.00 - 9 = 38

Soil infiltration rate = $V_{p75-25} / (a_{p50} * t_{p75-25} * 60)$
= $1.63E-04$ m/s = 586 mm/hr