												Enq No		sheet 1	
Client		Mr & Mrs Shelbourne													
Address		5 Frickley Bridge Lane, Brierley, Barnsley, South Yorks													
Capacity calculations for traditional soakaways (crate system)															
Design criteria		Design to the Building Regulations 2002 Approved Document H part H2													
Trial pit	Day	Recorded position			Samle pit size in mm		Invert depth	Date		Time	Time in secs				
		rear of dwelling plan 24/012											24hr		
T3	1				300 x 300 x 300		400	24/6/2024		9:30 am	72000				
T3	2				300 x 300 x 300		400	25/6/2024		9.30 AM	43200				
T3	3				300 x 300 x 300		400	26/6/2024		9.30 AM	50400				
											55200		Average		
Volume equation		I - O = S	Where	I =	Inflow from the impermiable area drained to the soakaway										
				O =	The outflow infiltrating into the soil during rainfall										
				S =	The required storage in the soakaway to balance a temporalry outflow										
Inflow to soakaway		I = A x R		A =	Impermiable area drained into the soakaway										
				R =	Total rainfall from approved document H (building regulations)										
Outflow of soakaw		O = a x s x 50 x f x D		O =	The outflow infiltrating into the soil during rainfall										
				as50 =	The internal surface of the soakaway to 50% effective depth excluding base										
				f =	Soil infiltration rate										
				D =	Storm duration										
Total impermiable area to be drained				r1 =	Roof area in sq metres							89	sq metres		
				c1 =	roof constant	@ 1.15 for 30 degree pitch						1.15	c1		
							Effective roof area drained					102.35	sq metres		
Total time taken for water dispersal through ground from average recorded times taken in field test (Trial pit T1) where the dispersal rate is calculated based on an dispersion of 75% to 25% of the water within test pit. IE 150mm run off															
										Dispersion rate		55200	sec	average	
										run off in mm		150	mm	half depth	
Water dispersion vp required therefore												368	vp		
Filtration rate		f = 0.01/2vp			0.01	2	I37					736	f		
												0	outflow vol		
Outflow Volume		O = a x s x 50 x f x D			2	0	5					0	O=outflow vol		
Area drained x rainfall of 10mm					102.35	10	1023.5	/1000		storage capacity		1.0235	cubic metres		
Therefore storage capacity minus the outflow volume =					1.0235	0						1.0235	storage volume 1		
Soakaway dimensions in metres taken below invert					2.5	metres	Length								
					1	metres	Width								
					1.2	metres	Depth								
										Soakaway volume		3	cubic metres		
Therefore consider fill material containing 75% voids therefore soakaway volume x 75%							3	75		100		2.25	storage volume 2		
Therefore using a reserve factor of 1.5 : 1 storage volume 2 to be increased							2.25	1.5				3.375	cubic metres		
Therefore storage volume 2		3.375	is greater than storage volume 1				1.0235	Therefore designed soakaway is ok					cubic metres		
Therfore by calculation 1 No soakaway			2.5	metres long by	1	metre wide by		1.2	metre deep is ok for the area drained						
Note under the building regulations the maximum area drained should be no more than 25square metres . Per soakaway pit however by calculation the designed enlarged pit dimensions demonstrates the capacity of the soakaway to meet the current building regulations.															
Typical 1m3 ploypipe interlocking crate system will drain an approximate area of 50m2. Individual crates 1000 Long 500 Wide x 400 Deep.															
												Sheet	3		