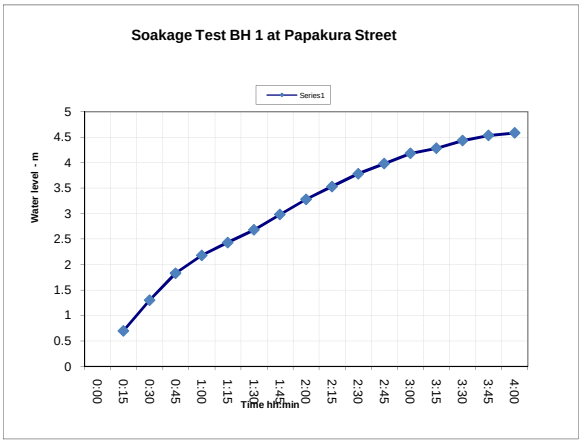
Soakage Pit Design

Refer Section 4.7 Stormwater Soakage

Note: Soakage Pit Design is to be carried out in accordance with the methodology used in the below example

Soakage Test Result at BH 1

Time	Depth to Water	Total depth of water drop
0:00	0	
0:15	0.7	0.7
0:30	0.6	1.3
0:45	0.53	1.83
1:00	0.35	2.18
1:15	0.25	2.43
1:30	0.25	2.68
1:45	0.3	2.98
2:00	0.3	3.28
2:15	0.25	3.53
2:30	0.25	3.78
2:45	0.2	3.98
3:00	0.2	4.18
3:15	0.1	4.28
3:30	0.15	4.43
3:45	0.1	4.53
4:00	0.05	4.58



Borehole details

Diameter of Hole (D)	m	0.1
Depth of Hole (H)	m	1.5
Average depth of water	m	0.928
Average Soakage Rate	mm/min	19.08
Area of Hole	m^2	0.299
Volume of Hole	m^3	0.15

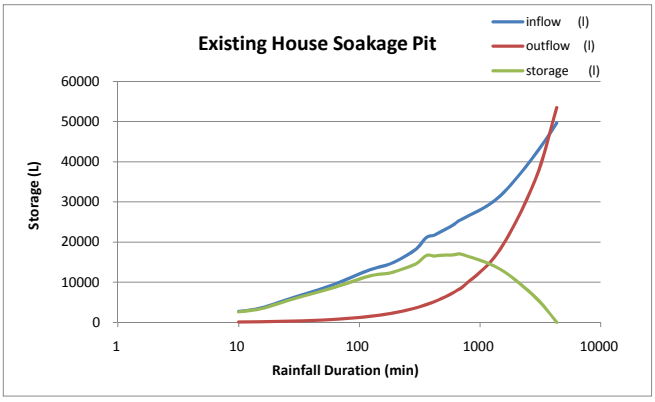
Soakage Pit Design Parameters - Existing House Site

Roof Area	m^2	100
Run off coefficient	C	**0.95**
Paved Area	m^2	50
Run off coefficient	C	**0.9**
Pervious Area	m^2	180
Run off coefficient	C	**0.3**
Total CA	**m^2**	**194**
Percolation Rate (Pa)	$L/m^2/min$	0.50
Pit Depth	m	1.5
Pit Width	m	3
Pit Length	m	6
Void Ratio		60%
Pit Volume	m^3	16.2
Pit Surface Area (As)	m^2	24.75

Existing House Soakage Pit - Onehunga Type

STORAGE (10 year)				
time	depth	inflow	outflow	storage
(min)	(mm)	(l)	(l)	(l)
10	14.0	2716	124	2592
15	18.0	3492	186	3306
20	24.0	4656	248	4408
30	33.0	6402	372	6030
60	48.0	9312	743	8569
120	67.0	12998	1486	11512
180	75.0	14550	2229	12321
240	85.0	16490	2972	13518
300	95.0	18430	3715	14715
360	109.0	21146	4458	16688
420	112.0	21728	5201	16527
480	117.0	22698	5944	16754
540	121.0	23474	6687	16787
600	125.0	24250	7430	16820
660	130.0	25220	8173	17047
720	133.0	25802	8917	16885
1440	161.0	31234	17833	13401
2880	216.0	41900	35666	6234
4320	256.0	49664	53499	0

*inflow=`CA'dev*depth*
*outflow=As*Pa*time*
storage=inflow-outflow



Emptying Time = 23 hrs