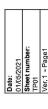
APPENDIX B

Infiltration test results (storm water drainage assessment)

Report Reference: 4196R1 Report Status: Final Report



,	1/05/2021		
Date:	Choot pum	TDO	2

Completed by: AJS

lpdm 87.0

Design effective depth (Y)
Gravel porosity:
Depth to Groundwater:
Design effective depth volume:

1.2 (1) 0.65 (W) 2 (D)

Parameters:
Trial pit length (m):
Trial pit width (m):
Trial pit depth (m):

0.5

0.7

- 6.0

11

1.3

Depth (mbgl)

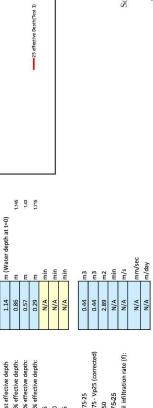
1.5

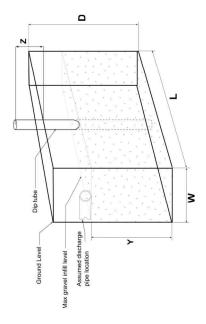
1.7

1.9

4	Depth of water in pit (m)*	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.13	1.13	1.13	1.12	1.12	1.10	1.10	1.07	1.07		
(Z)	Water dip (mbGL)	0.860	0.860	0.860	0.860	0.860	0.865	0.865	0.870	0.870	0.875	6/8/0	0.885	0.898	0.905	0:630	0.935		
TP01 4196 28/04/2021 BRE365 0	Elapsed (min)	0.0	1.0	2.0	3.0	5.0	10.0	15.0	25.0	35.0	40.0	60.0	95.0	145.0	170.0	370.0	455.0		
Pit reference: Project: Date of infiltration test: Method: Datum (mbgl):	TEST 1 Time	09:15:00																	

Test effective depth	1.14	m (Water depth at t=0
75% effective depth:	0.86	ε
50% effective depth:	0.57	Ε
25% effective depth:	0.29	Ε
175	N/A	min
t50	N/A	min
t25	N/A	min
Vp75-25	0.44	m3
Vp75 - Vp25 (corrected)	0.44	m3
ap50	2.89	m2
tp75-25	N/A	min
Soil infiltration rate (f):	N/A	m/s





V p75-25	$a_{\rm pso}\times t_{\rm prs-2s}$
1	ĺ
4	5
Potes	late,
infiltration	IIIIIIII arioii
17	

--- Linear (TEST 1)

75 effective Depth(Test 1)

Time elapsed from start of test (mins)

where: $V_{ps_{-2s}}$ = the effective storage volume of water in the $V_{ps_{-2s}}$ = trial pit between 75% and 25% effective depth; a_{ps} = the internal surface area of the trial pit up to 50% effective depth and including the base

 $t_{ps_{-2s}}$ = the time for the water level to fall from 75% to 25% effective depth.

From	To	Description
00.00	1.60	Grey-brown slightly gravelly clay. Gravel is fine to coarse and predominantly sub angular.
1.60	2.00	Weathered mudstone (recovered as angular gravel and cobbles).



Design effective depth (Y)	1.00	m	Completed by
Gravel porosity:	1		
Depth to Groundwater:		lbqu	
Design effective depth voume:	5.05	m3	

Parameters:
Trial pit length (m):
Trial pit width (m):
Trial pit depth (m):

(Z)

TP02 4196 28/04/2021 BRE365 0

Pit reference: Project: Date of infiltration test: Method: Datum (mbgl):

Depth of water in pit (m)*

0.80 0.80 0.80 0.80 0.80

(min) 0.0 1.0 2.0 3.0 5.0 10.0

10:20:00 Time

TEST1

0.80 0.80 0.80 0.80 0.80 0.80

30.0 30.0 100.0 120.0 240.0 300.0

1.210 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200 1.200

15.0

0.80 0.80

n effective depth (Y	1.00	w	Comp
el porosity:	1		
to Groundwater:		mbgl	
n effective depth voume:	2.09 m3	m3	

								98		
								300		——Linear (TEST1)
AJS								20		
Completed by:								180	Time elapsed from start of test (mins)	
1.000 m 1 mbg/ 2.09 m3								120 18	Time elapsed fro	-75 effective Depth(Test 1)
Design effective depth (Y. Gravel porosity: Depth to Groundwater: Design effective depth voume:								. 09		25 effective Depin(Test 1)
1.9 (t) 1.1 (W) 2 (D)	50	60	1	pth (mbgl)	13 Pa	1.5	à	1.9		

V prs-25	$\times t_{\text{prs-2s}}$
j	a _{p50}
- 4	į.
4	>
roto	late,
incitentiai	IIIIIIII arioii

mm/sec m/day

m m m 3 m/s

0.83 0.83 N/A N/A N/A N/A

Vp75 - Vp25 (corrected) ap50 tp75-25 Soil infiltration rate (f):

Vp75-25

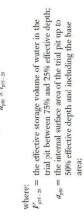
1,4075

0.59 0.40 0.20 N/A N/A

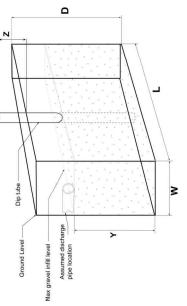
Test effective depth.
75% effective depth:
25% effective depth:
175
150
150
151

m (Water depth at t=0)

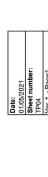
0.79



area; $t_{ps-2s} = \text{the time for the water level to fall from}$ 75% to 25% effective depth.



Soil Log:		
From	υ	Description
00.0	02'0	Grey-brown gravelly silty clay. Gravel is fine to coarse and predominantly sub angular.
02.0	2,00	Weathered mudstone (recovered as angular gravel and cobbles).



Completed by:	
1.00 m 1 mbg/ 1.04 m3	
Design effective depth (Y) Gravel porosity: Depth to Groundwater: Design effective depth volume:	
(a) 9.7 (w) 59.7 (v) 1.7	
ength (m): 1	L

AJS

Pit reference:	TP04			Parameters:
Project:	4196			Trial pit leng
Date of infiltration test:	28/04/2021			Trial pit widt
Method:	BRE365			Trial pit dept
Datum (mbgl):	0	(Z)		
TEST 1				
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*	
14:15:00	0.0	0.470	1.13	
	1.0	0.470	1.13	
	2.0	0.470	1.13	
	3.0	0.470	1.13	
	5.0	0.470	1.13	
	10.0	0.470	1.13	
	16.0	0.470	1.13	
	20.0	0.470	1.13	
	20.0	0.475	1.13	
	90.0	0.475	1.13	
	120.0	0.475	1.13	
	150.0	0.475	1.13	
	180.0	0.475	1.13	

0.4

9.0

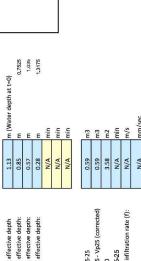
0.8

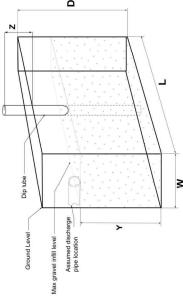
Depth (mbgl)

1.2

0.2

Test effective depth	1.13	m (Water depth at t=0)
75% effective depth:	0.85	Ε
50% effective depth:	0.57	Ε
25% effective depth:	0.28	E
t75	N/A	min
t50	N/A	min
t25	N/A	min
Vp75-25	0.59	m3
Vp75 - Vp25 (corrected)	0.59	m3
ap50	3.58	m2
tp75-25	N/A	min
Soil infiltration rate (f):	N/A	m/s
		a





V 175-25	$a_{pso} \times t_{prs-2s}$
1	ĺ
4	5
rafe	, and
Linfiltration	To a second
5	3

-Linear (TEST 1)

---75 effective Depth(Test 1)

25 effective Depth(Test 1)

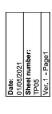
Time elapsed from start of test (mins)

|--|

area:
$$t_{n^{5}-25}$$
 = the time for the water level to fall from 75% to 25% effective depth.

	Δ
N	
Dip tube	O
Ground Level	Max gravel infil level Assumed discharge pipe location

To Description 0.20 Brown slift day with roots (TOPSOIL). 0.45 Firm to slift grey-brown clay. Firm to slift frown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Occasional rounded cobbles and boulders.	Soil Log: From 0.00 0.20 0.45
	_
	0.45
	00.00
	From
	Soil Log:



Parameters:

(Z)

TP05 4196 28/04/2021 BRE365 0

Pit reference: Project: Date of infiltration test: Method: Datum (mbgl):

						6															120	
AJS																					12	
Completed by:																					- 06	Time elapsed from s:art of test (mins)
1.00 m 1 mbg/ 1.09 m3																					. 09	Time elaps
Design effective depth (Y) Gravel porosity: Depth to Groundwater: Design effective depth volume:																					30	
(a) (b)		0.2			0.4				4				8.0			1			1.2		1.4	
1.55 0.7 1.6		0			0					5		(12) ŲĮd	Del						1	
Trial pit length (m): Trial pit width (m): Trial pit depth (m):																						at t=0)
		Depth of water	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.13	1.13	1.13	1.13	1.13							m (Water depth at t=0)
	1			ı	ıl		1	ıl		1 1	1 1			1	ı 1			1		ı		I I

0.465 0.470 0.470 0.470 0.470

20.0 40.0 80.0 120.0 140.0

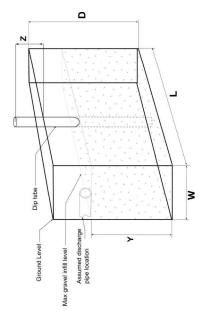
0.460 0.460 0.460 0.460 0.465 0.465

10.0

(min) 0.0 1.0 2.0 3.0 5.0

14:20:00 Time

TEST1



V p75-25	$a_{pso} \times t_{prs-2s}$
1	I
4	5
o to to	late,
infiltration	mining and
i.o.	100

--- Linear (TEST 1)

75 effective Depth(Test 1)

-25 effective Depth(Test 1)

1.03

E E E

0.86 0.57 0.29 N/A N/A

Test effective depth
75% effective depth:
50% effective depth:
75% effective depth:
150
150
150
150
150

1.14

 P_{pst-xs} = the effective storage volume of water in the trial pit between 75% and 25% effective depth; a_{pso} = the internal surface area of the trial pit up to 50% effective depth and including the base where:

area; $f_{ps-2s} = \text{the time for the water level to fall from} \\ 75\% \text{ to } 25\% \text{ effective depth.}$

m3	m3	m2	min	m/s	mm/se	m/day
0.62	0.62	3.65	N/A	N/A	N/A	N/A
Vp75-25	Vp75 - Vp25 (corrected)	ap50	tp75-25	Soil infiltration rate (f):		

From	٥	Description
0.00	0.15	Brown silty day with roots (TOPSOIL).
0.15	95.0	Firm to stiff grey-brown clay.
0.55	1.60	Firm to stiff brown gravelly clay, Gravel is fine to coarse and sub rounded to angular, Occasional rounded cobbles and boulders.

From To Description 0.00 0.15 Brown silty day with roals (TOPSOIL). 0.15 Firm to stiff grey-brown day. 1.60 Firm to stiff brown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Occasional rounded coarse and be obtained by the coarse and sub rounded to angular. Occasional rounded to angular.
Soil From 0.00 0.15 0.55

APPENDIX C

Percolation test results (foul drainage assessment)

Report Reference: 4196R1 Report Status: Final Report Pit reference: HP01 4196 Project: 28/04/2021 Date of infiltration test:

BS6297:2007+A1:2008 Method:

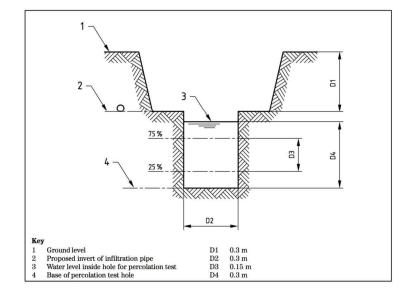
AJS Completed by:

TEST 1			
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
11:24:00	0.0	0.000	0.300
	1.0	0.000	0.300
	2.0	0.000	0.300
	3.0	0.000	0.300
	4.0	0.000	0.300
	5.0	0.000	0.300
	10.0	0.000	0.300
	15.0	0.000	0.300
	45.0	-0.005	0.305
	90.0	-0.007	0.307
	250.0	-0.030	0.330
	330.0	-0.035	0.335

P	a	ra	ım	e	te	rs	:
	î.						

Upper excavation depth (m):	0.3
Hand pit depth below D1 (m)	0.3
Width of hand pit (m)	0.3
Starting water level below D1 (m)	0

Date:	
01/05/2021	
Sheet number:	
HP01	
Ver 1 - Page1	



(D1)

(D4)

(D2)

0.3

Test effective depth 0.30 75% effective depth: 0.23 25% effective depth: 0.08 t75 N/A t25 N/A N/A

Soil percolation value (Vp):

Test failed: insufficient percolation

N/A

m

m

secs

secs

secs

secs

BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within $10\ \text{minutes}$) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

341.106.				
From	om To Description			
0.00	0.60	Firm to stiff brown to dark grey gravelly silty clay. Gravel is fine to coarse and predominantly sub angular to angular. Some sub rounded cobbles		
Comments		Gradual water seepage observed into hand pit prior to percolation test; c. 5 cm of water recorded in base of pit 20 mins after excavation (prior to testing). Following the flooding of the hand pit for testing purposes the water level gradually rose above the top of the hand pit level (3.5 cm above the starting level 5 hours after the start of the percolation test).		

 Pit reference:
 HP02

 Project:
 4196

 Date of infiltration test:
 28/04/2021

Method: BS6297:2007+A1:2008

Completed by: AJS

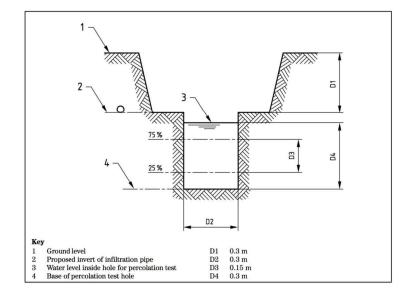
TEST 1			
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
11:28:00	0.0	0.000	0.250
	1.0	0.000	0.250
	2.0	0.000	0.250
	3.0	0.000	0.250
	4.0	0.000	0.250
	5.0	0.000	0.250
	10.0	0.000	0.250
	45.0	0.001	0.249
	80.0	0.002	0.248
	100.0	0.003	0.247
	245.0	0.006	0.244
	330.0	0.007	0.243

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

0.35	(D1)
0.25	(D4)
0.3	(D2)
0	

Date:	
01/05/2021	
Sheet number:	
HP02	
Ver. 1 - Page1	



Test effective depth 75% effective depth: 25% effective depth: t75 t25



Soil percolation value (Vp):



Test failed: insufficient percolation

BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable.
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

From	То	Description	
0.00	0.08	Grey-brown slightly gravelly clay with roots. Gravel is fine to coarse and predominantly sub angular.	
0.08	.08 0.60 Firm to stiff brown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Some sub rounded cobbles.		
Comments		Very stiff clay at base of hand pit. No water seepages observed prior to testing.	

Pit reference: HP03 4196 Project: 28/04/2021 Date of infiltration test:

BS6297:2007+A1:2008 Method:

AJS Completed by:

TEST 1				
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)	
11:48:00	0.0	0.000	0.250	
	1.0	0.010	0.240	
	2.0	0.020	0.230	
	3.0	0.020	0.230	
	4.0	0.025	0.225	
	5.0	0.025	0.225	
	10.0	0.030	0.220	
	15.0	0.031	0.219	
	30.0	0.040	0.210	
	50.0	0.055	0.195	
	70.0	0.068	0.182	
	215.0	0.105	0.145	
	300.0	0.115	0.135	

0.010	0.240
0.020	0.230
0.020	0.230
0.025	0.225
0.025	0.225
0.030	0.220
0.031	0.219
0.040	0.210
0.055	0.195
0.068	0.182
0.105	0.145
0.115	0.135

0.25	m
0.19	m
0.06	m
3600	secs
N/A	secs

N/A

Test failed: insufficient percolation

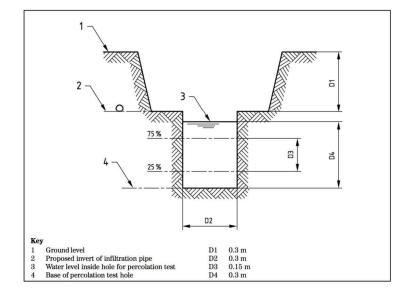
secs

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

(D1)
(D4)
(D2)

Date:	
01/05/2021	
Sheet number:	
HP03	
Ver. 1 - Page1	



BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within $10\ \text{minutes}$) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

Soil Log:

Test effective depth

75% effective depth:

25% effective depth:

Soil percolation value (Vp):

t75

From	То	Description
0.00 0.40 Mid brown slightly gravelly clayey silt (SOIL).		Mid brown slightly gravelly clayey silt (SOIL).
0.40 0.55 Firm to stiff brown gravelly clay. Gravel is fine to coarse		Firm to stiff brown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Some sub rounded cobbles.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

Pit reference: HP04
Project: 4196
Date of infiltration test: 28/04/2021

Method: BS6297:2007+A1:2008

Completed by: AJS

TEST 1			
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
12:00:00	0.0	0.000	0.250
	1.0	0.000	0.250
	2.0	0.000	0.250
	3.0	0.000	0.250
	4.0	0.000	0.250
	5.0	0.000	0.250
	10.0	0.000	0.250
	35.0	0.000	0.250
	55.0	0.000	0.250
	120.0	0.001	0.249
	200.0	0.002	0.248
	290.0	0.002	0.248

0.25	m
0.19	m
0.06	m
N/A	secs
N/A	secs

N/A

N/A

Test failed : insufficient percolation

secs

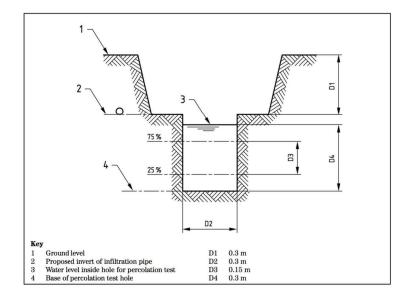
secs

Parameters:

Upper excavation depth (m):
Hand pit depth below D1 (m)
Width of hand pit (m)
Starting water level below D1 (m)

0.35	(D1)
0.25	(D4)
0.3	(D2)
0	

Date:	
01/05/2021	
Sheet number:	
HP04	
Ver. 1 - Page1	



BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable.
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

Soil Log:

Test effective depth

75% effective depth:

25% effective depth:

Soil percolation value (Vp):

t75

From	То	Description
From	10	Description .
0.00	0.15	Mid brown slightly gravelly clayey silt (SOIL).
0.15 0.60		Firm to stiff brown to grey clay.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

 Pit reference:
 HP05

 Project:
 4196

 Date of infiltration test:
 28/04/2021

Method: BS6297:2007+A1:2008

Completed by: AJS

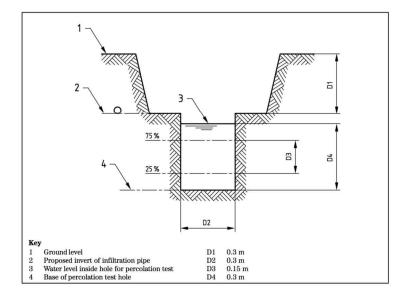
TEST 1			
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
12:30:00	0.0	0.000	0.300
	1.0	0.010	0.290
	2.0	0.020	0.280
	3.0	0.020	0.280
	4.0	0.025	0.275
	6.0	0.030	0.270
	10.0	0.040	0.260
	16.0	0.050	0.250
	22.0	0.058	0.242
	55.0	0.075	0.225
	120.0	0.100	0.200
	170.0	0.130	0.170
	260.0	0.155	0.145

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

	ŭ	(01)
	0.3	(D4)
	0.3	(D2)
n۱	n	7

Date:	
01/05/2021	
Sheet number:	
HP05	
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Test effective depth 75% effective depth: 25% effective depth: t75 t25

0.30	m
0.23	m
0.08	m
3600	sec
N/A	sec

tp75-25 Soil percolation value (Vp):

7		
	N/A	secs
	N/A	secs

Test failed: insufficient percolation

BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

From	То	Description	
0.00	0.30	Mid brown slightly gravelly clayey silt. Gravel is fine to coarse and sub rounded to angular. Occassional sub rounded cobbles (SOIL).	
Comments		Hand pit excavated from ground level within soil horizon above still clays. No water seepages observed prior to testing. Improved drainage compared to pits excavated into underlying firm to stiff clay.	

Pit reference: HP06 4196 Project: 28/04/2021 Date of infiltration test:

BS6297:2007+A1:2008 Method:

AJS Completed by:

Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
13:10:00	0.0	0.000	0.300
	1.0	0.000	0.300
	2.0	0.001	0.299
	3.0	0.001	0.299
	4.0	0.002	0.298
	5.0	0.007	0.293
	10.0	0.015	0.285
	20.0	0.020	0.280
	30.0	0.025	0.275
	45.0	0.032	0.268
	55.0	0.038	0.262
	95.0	0.045	0.255
	130.0	0.051	0.249
	180.0	0.061	0.239
	215.0	0.065	0.235

-		
	0.30	m
	0.23	m
	0.08	m
	N/A	secs
	N/A	secs

N/A Soil percolation value (Vp): N/A secs $Test\ failed: insufficient\ percolation$

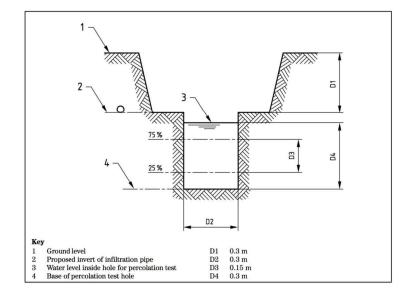
secs

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

0.2	(D1)
0.3	(D4)
0.3	(D2)
0	

Date:	
01/05/2021	
Sheet number:	
HP06	
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BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

Soil Log

Test effective depth

75% effective depth:

25% effective depth:

Soil Log:	Soil Log:		
From	From To Description		
0.00	0.05	Mid brown slightly gravelly clayey silt (SOIL).	
0.05	0.50	Firm to stiff brown to grey clay.	
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.	

 Pit reference:
 HP07

 Project:
 4196

 Date of infiltration test:
 28/04/2021

Method: BS6297:2007+A1:2008

Completed by: AJS

TEST 1				
Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)	
13:35:00	0.0	0.000	0.300	
	1.0	0.000	0.300	
	2.0	0.000	0.300	
	3.0	0.001	0.299	
	4.0	0.003	0.297	
	5.0	0.006	0.294	
	14.0	0.009	0.291	
	25.0	0.011	0.289	
	50.0	0.011	0.289	
	90.0	0.015	0.285	
	120.0	0.020	0.280	
	170.0	0.021	0.279	
	205.0	0.021	0.279	

0.30	m
0.23	m
0.08	m
N/A	secs
N/A	secs

N/A

N/A

Test failed : insufficient percolation

secs

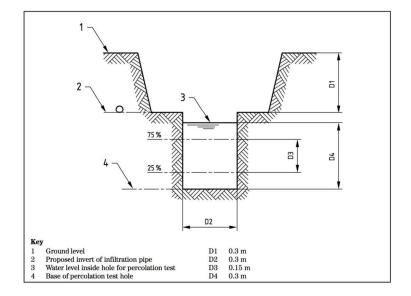
secs

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

0.3	(D1)
0.3	(D4)
0.3	(D2)
0	

Date:	
01/05/2021	
Sheet number:	
HP07	
Ver. 1 - Page1	



BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable.
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

Soil Log:

Test effective depth

75% effective depth:

25% effective depth:

Soil percolation value (Vp):

From	To Description	
0.00	0.20	Mid brown slightly gravelly clayey silt (SOIL).
0.20	0.60	Firm to stiff brown to blue-grey clay.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

Pit reference: HP08
Project: 4196
Date of infiltration test: 28/04/2021

Method: BS6297:2007+A1:2008

Completed by: AJS

Time	Elapsed (min)	Water dip (mbd)	Depth of water in hand pit (m)
13:40:00	0.0	0.000	0.300
	1.0	0.000	0.300
	2.0	0.000	0.300
	3.0	0.000	0.300
	4.0	0.000	0.300
	5.0	0.000	0.300
	10.0	0.001	0.299
	15.0	0.002	0.298
	35.0	0.004	0.296
	80.0	0.009	0.291
	110.0	0.010	0.290
	170.0	0.012	0.288
	200.0	0.012	0.288
		1	

0.30	m
0.23	m
0.08	m
N/A	secs
N/A	secs

N/A

N/A

Soil percolation value (Vp):

Test effective depth

75% effective depth:

25% effective depth:

t25

Test failed : insufficient percolation

secs

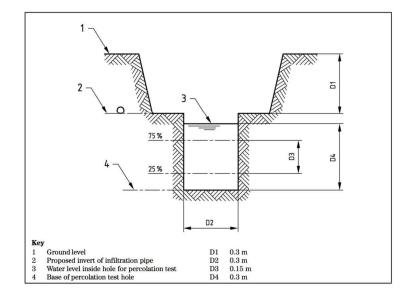
secs

Parameters:

Upper excavation depth (m): Hand pit depth below D1 (m) Width of hand pit (m) Starting water level below D1 (m)

0.25	(D1)
0.3	(D4)
0.3	(D2)
0	

Date:	
01/05/2021	
Sheet number:	
HP08	
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BS6297:2007+A1:2008 methodology:

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow this to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to a maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable.
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- Divide this time in seconds by 150. This gives the average time in seconds required for the water to drop 1 mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value Vp (in seconds).

From	То	Description
0.00	0.15	Mid brown slightly gravelly clayey silt (SOIL).
0.15	0.55	Firm to stiff brown to grey clay.
Comm	ents	Stiff clay at base of hand pit. No water seepages observed prior to testing.

Appendix D

Foul Calculations

Foul Water Drainage Strategy Ref: 73797R6_Foul

File: 73797 MOTOX AREA A FO

Network: Foul Network 1

Michelle Gregg 30/01/2022 Page 1

Design Settings

Frequency of use (kDU)	1.00
	EA 1999/200 1993
Flow per dwelling per day (I/day)	4000
Domestic Flow (I/s/ha)	0.0
Industrial Flow (I/s/ha)	0.0
Additional Flow (%)	0

Minimum Velocity (m/s) 0.75
Connection Type Level Soffits
Minimum Backdrop Height (m) 0.200
Preferred Cover Depth (m) 1.200
Include Intermediate Ground ✓

Nodes

Name	Dwellings	Units	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
1	0	20.0	215.100	Adoptable	305600.462	256178.501	0.275
2	0		215.100		305571.394	256178.501	0.525
3	0		215.100		305571.568	256185.999	0.575
4	0		215.100		305562.836	256188.840	0.700
5	0		215.100		305553.968	256202.158	1.400
6			214.684		305550.907	256208.342	1.034

<u>Links</u>

Name	US	DS	Length	ks (mm) /	US IL	DS IL	Fall	Slope	Dia
	Node	Node	(m)	n	(m)	(m)	(m)	(1:X)	(mm)
1.000	1	2	29.068	1.500	214.825	214.625	0.200	145.3	150
1.001	2	3	7.500	1.500	214.575	214.525	0.050	150.0	150
1.002	3	4	9.183	1.500	214.525	214.450	0.075	122.4	150
1.003	4	5	16.000	1.500	214.400	213.700	0.700	22.9	150
1.004	5	6	6.900	1.500	213.700	213.650	0.050	138.0	150

Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (I/s)	Flow (I/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)	
	(111/3)				(111)	11117				(IIIa)	(mmi)	(111/3)	
1.000	0.482	0.725	12.8	4.5	0.125	0.325	0.000	0	20.0	0.0	61	0.660	
1.001	0.475	0.714	12.6	4.5	0.375	0.425	0.000	0	20.0	0.0	62	0.653	
1.002	0.510	0.791	14.0	4.5	0.425	0.500	0.000	0	20.0	0.0	58	0.702	
1.003	0.915	1.837	32.5	4.5	0.550	1.250	0.000	0	20.0	0.0	38	1.284	
1.004	0.490	0.745	13.2	4.5	1.250	0.884	0.000	0	20.0	0.0	60	0.671	

Network: Foul Network 1

Michelle Gregg 29/01/2022 Page 1

Design Settings

Frequency of use (kDU) 0.50
Flow per dwelling per day (I/day) 4000
Domestic Flow (I/s/ha) 0.0
Industrial Flow (I/s/ha) 0.0
Additional Flow (%) 0

Minimum Velocity (m/s) 0.75
Connection Type Level Soffits
Minimum Backdrop Height (m) 0.200
Preferred Cover Depth (m) 1.200
Include Intermediate Ground √

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	1	240.000	Adoptable	600	305458.400	255846.000	1.300
2	1	233.500	Adoptable	600	305412.009	255845.842	1.300
3	0	233.500	Adoptable	600	305412.952	255836.238	1.425
4	1	233.200	Adoptable	600	305409.290	255825.886	1.275
5	1	234.200	Adoptable	600	305411.793	255807.639	2.575
6	1	233.700	Adoptable	600	305411.102	255787.344	2.225
7	1	234.000	Adoptable	600	305413.562	255770.624	2.650
8	1	233.400	Adoptable	600	305410.919	255753.426	2.175
9	0	233.200	Adoptable	600	305410.363	255742.738	2.050
10	0	232.868			305418.437	255725.318	1.918
11	0	232.418			305415.762	255722.211	1.518
12	0	231.643			305405.959	255729.258	0.843
13	0	231.605			305402.873	255737.499	1.480
14		230.320			305393.547	255737.642	0.945

<u>Links</u>

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
1.000	1	2	46.391	1.500	238.700	232.200	6.500	7.1	100
1.001	2	3	9.650	1.500	232.200	232.075	0.125	77.2	100
1.002	3	4	10.981	1.500	232.075	231.925	0.150	73.2	100
1.003	4	5	18.418	1.500	231.925	231.675	0.250	73.7	100
1.004	5	6	20.307	1.500	231.625	231.475	0.150	135.4	150
1.005	6	7	16.900	1.500	231.475	231.350	0.125	135.2	150
1.006	7	8	17.400	1.500	231.350	231.225	0.125	139.2	150
1.007	8	9	10.702	1.500	231.225	231.150	0.075	142.7	150
1.008	9	10	19.200	1.500	231.150	231.000	0.150	128.0	150
1.009	10	11	4.100	1.500	230.950	230.900	0.050	82.0	150

Name	Pro Vel	Vel	Cap	Flow	US	DS	Σ Area	Σ Dwellings	Σ Units	Σ Add	Pro	Pro
	@ 1/3 Q	(m/s)	(I/s)	(I/s)	Depth	Depth	(ha)	(ha)	(ha)	Inflow	Depth	Velocity
	(m/s)				(m)	(m)				(ha)	(mm)	(m/s)
1.000	0.346	2.503	19.7	0.0	1.200	1.200	0.000	1	0.0	0.0	4	0.427
1.001	0.190	0.757	5.9	0.1	1.200	1.325	0.000	2	0.0	0.0	9	0.262
1.002	0.175	0.778	6.1	0.1	1.325	1.175	0.000	2	0.0	0.0	9	0.270
1.003	0.215	0.775	6.1	0.1	1.175	2.425	0.000	3	0.0	0.0	11	0.302
1.004	0.181	0.752	13.3	0.2	2.425	2.075	0.000	4	0.0	0.0	13	0.255
1.005	0.191	0.752	13.3	0.2	2.075	2.500	0.000	5	0.0	0.0	14	0.280
1.006	0.198	0.741	13.1	0.3	2.500	2.025	0.000	6	0.0	0.0	16	0.291
1.007	0.214	0.732	12.9	0.3	2.025	1.900	0.000	7	0.0	0.0	17	0.302
1.008	0.216	0.773	13.7	0.3	1.900	1.718	0.000	7	0.0	0.0	16	0.311
1.009	0.259	0.968	17.1	0.3	1.768	1.368	0.000	7	0.0	0.0	14	0.360



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File: 73797 MOTOX AREA B FO

Network: Foul Network 1

Michelle Gregg 29/01/2022 Page 2

Links

Name	US	DS	Length	ks (mm) /	US IL	DS IL	Fall	Slope	Dia
	Node	Node	(m)	n	(m)	(m)	(m)	(1:X)	(mm)
1.010	11	12	12.073	1.500	230.900	230.800	0.100	120.7	150
1.011	12	13	8.800	1.500	230.800	230.125	0.675	13.0	150
1.012	13	14	9.327	1.500	230.125	229.375	0.750	12.4	150

Name	Pro Vel @ 1/3 Q	Vel (m/s)	Cap (I/s)	Flow (I/s)	US Depth	DS Depth	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow	Pro Depth	Pro Velocity
	(m/s)				(m)	(m)				(ha)	(mm)	(m/s)
1.010	0.223	0.797	14.1	0.3	1.368	0.693	0.000	7	0.0	0.0	16	0.321
1.011	0.456	2.435	43.0	0.3	0.693	1.330	0.000	7	0.0	0.0	10	0.689
1.012	0.467	2.493	44.1	0.3	1.330	0.795	0.000	7	0.0	0.0	10	0.706

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Tel: 01743 298 100

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