



Photograph 41

Description: Trial pit TP04 (start of test)

Date: 28/04/2021

Location: Western-central part of Site B



Photograph 42

Description: Trial pit TP04 (end of test)

Date: 28/04/2021

Location: Western-central part of Site B



Photograph 43

Description: Trial pit TP05 (start of test)

Date: 28/04/2021

Location: South-western part of Site B



Photograph 44

Description: Trial pit TP05 (end of test)

Date: 28/04/2021

Location: South-western part of Site B



Photograph 45

Description: Hand pit HP06

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 46

Description: Hand pit HP06 (start of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B

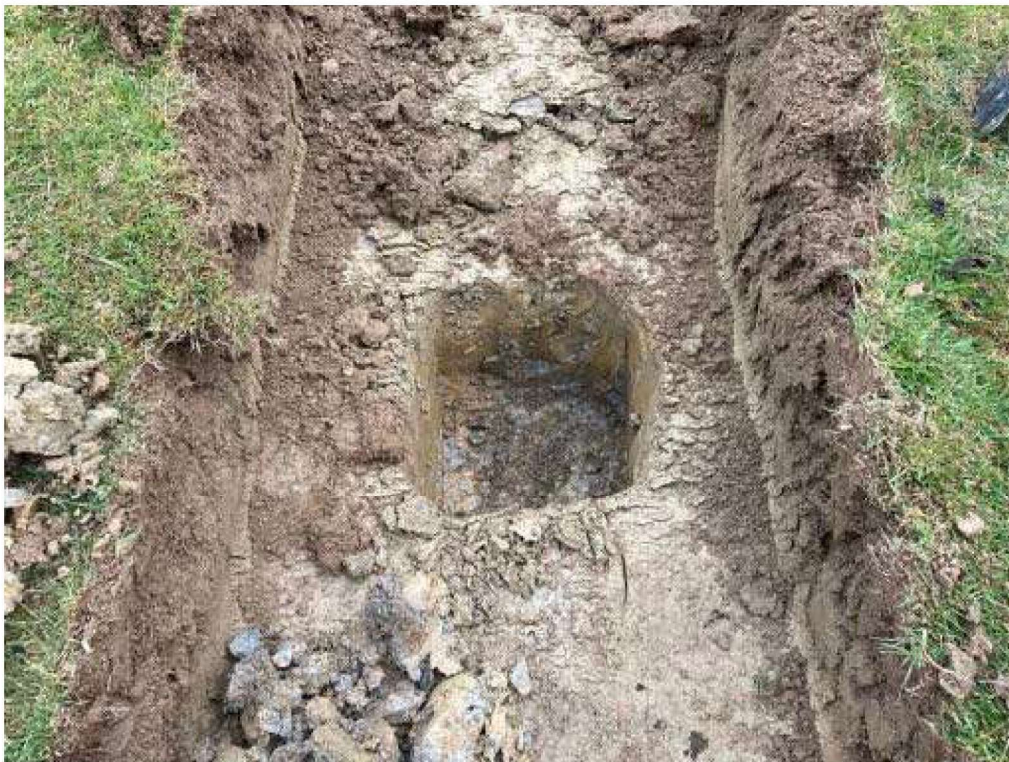


Photograph 47

Description: Hand pit HP06 (end of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 48

Description: Hand pit HP07

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 49

Description: Hand pit HP07 (start of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 50

Description: Hand pit HP07 (end of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 51

Description: Hand pit HP08

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 52

Description: Hand pit HP08 (start of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B



Photograph 53

Description: Hand pit HP08 (end of test)

Date: 28/04/2021

Location: Land directly to the north-west of Site B

APPENDIX B

Infiltration test results (storm water drainage assessment)

1.00	m
1	
0.78	m ³

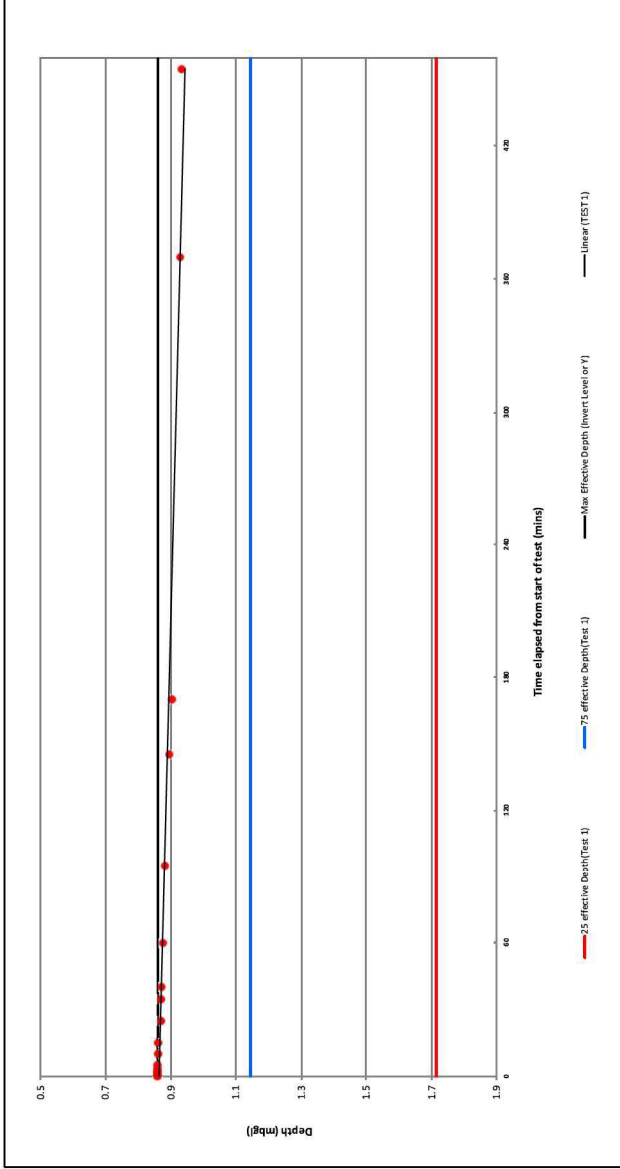
Design effective depth (%):
 Gravel porosity:
 Depth to Groundwater:
 Design effective depth volume:

1.2	(L)
0.65	(W)
2	(D)

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

Pit reference: TP01
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BRE365
 Datum (mbgl): 0 (Z)

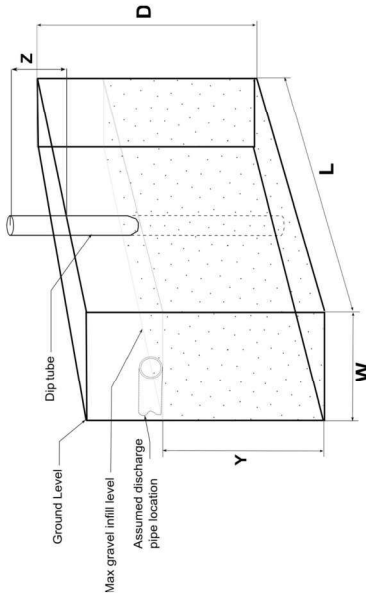
TEST1	Time	Elapsed (min)	Water dip (mbgl)	Depth of water in pit (m)*
	09:15:00	0.0	0.860	1.14
		1.0	0.860	1.14
		2.0	0.860	1.14
		3.0	0.860	1.14
		5.0	0.860	1.14
		10.0	0.865	1.14
		15.0	0.865	1.14
		25.0	0.870	1.13
		35.0	0.870	1.13
		40.0	0.875	1.13
		60.0	0.879	1.12
		95.0	0.885	1.12
		145.0	0.898	1.10
		170.0	0.905	1.10
		370.0	0.930	1.07
		455.0	0.935	1.07



Test effective depth	1.14	m (Water depth at t=0)	1.46
75% effective depth:	0.86	m	1.48
50% effective depth:	0.57	m	1.75
25% effective depth:	0.29	m	
t75	N/A	min	
t50	N/A	min	
t25	N/A	min	

Vp75-25	0.44	m ³
Vp75 - Vp25 (corrected)	0.44	m ³
ap50	2.89	m ²
Ip75-25	N/A	min
Soil infiltration rate (f):	N/A	m/s
	N/A	mm/sec
	N/A	m/day

From	To	Description
0.00	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).



Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
 V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
 a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
 t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.

1.00	m
1	
2.00	m ³

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

1.9	(L)
1.1	(W)
2	(D)

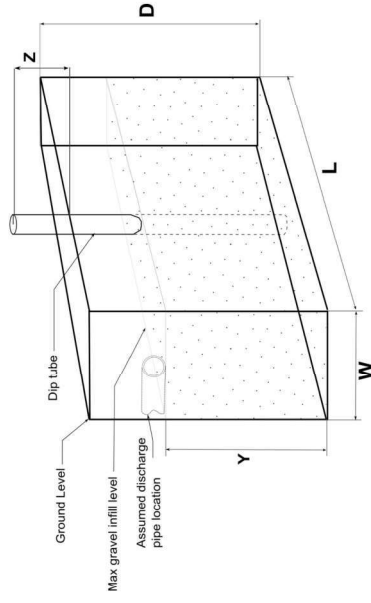
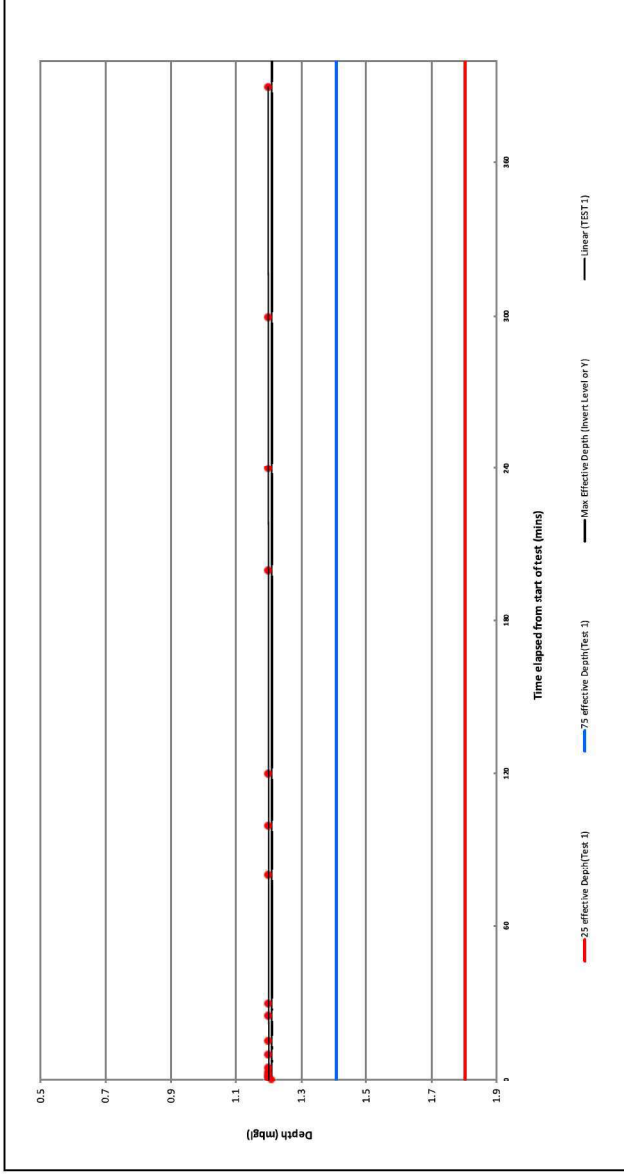
Parameters:
 Trial pit length (m):
 Trial pit width (m):
 Trial pit depth (m):

Pit reference: TPO2
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BRE365
 Datum (mbgl): 0 (Z)

TEST1	Time	Elapsed (min)	Water dip (mbgl)	Depth of water in pit (m)*
	10:20:00	0.0	1.210	0.79
		1.0	1.200	0.80
		2.0	1.200	0.80
		3.0	1.200	0.80
		5.0	1.200	0.80
		10.0	1.200	0.80
		15.0	1.200	0.80
		25.0	1.200	0.80
		30.0	1.200	0.80
		80.0	1.200	0.80
		100.0	1.200	0.80
		120.0	1.200	0.80
		200.0	1.200	0.80
		240.0	1.200	0.80
		300.0	1.200	0.80
		390.0	1.200	0.80

Test effective depth	0.79	m	(Water depth at t=0)
75% effective depth:	0.59	m	1.4805
50% effective depth:	0.40	m	1.866
25% effective depth:	0.20	m	1.8605
t75	N/A	min	
t50	N/A	min	
t25	N/A	min	

Vp75-25	0.83	m ³
Vp75 - Vp25 (corrected)	0.83	m ³
ap50	4.46	m ²
Ip75-25	N/A	min
Soil infiltration rate (f):	N/A	m/s
	N/A	mm/sec
	N/A	m/day



Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
 V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
 a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
 t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.

From	To	Description
0.00	0.70	Grey-brown gravelly silty clay. Gravel is fine to coarse and predominantly sub angular.
0.70	2.00	Weathered mudstone (recovered as angular gravel and cobbles).

Pit reference: TP04
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BRE365
 Datum (mbgl): 0 (Z)

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

1.6	(L)
0.65	(W)
1.6	(D)

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

1.00	m
1	
1.04	m ³

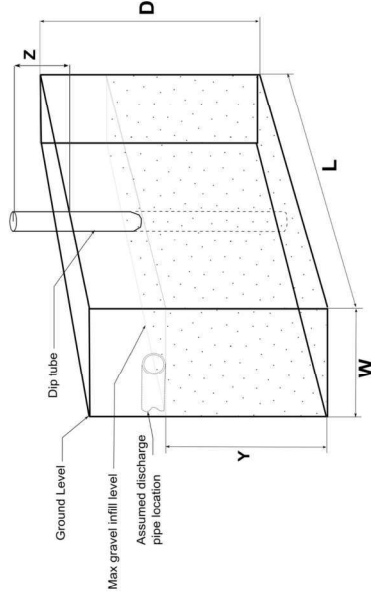
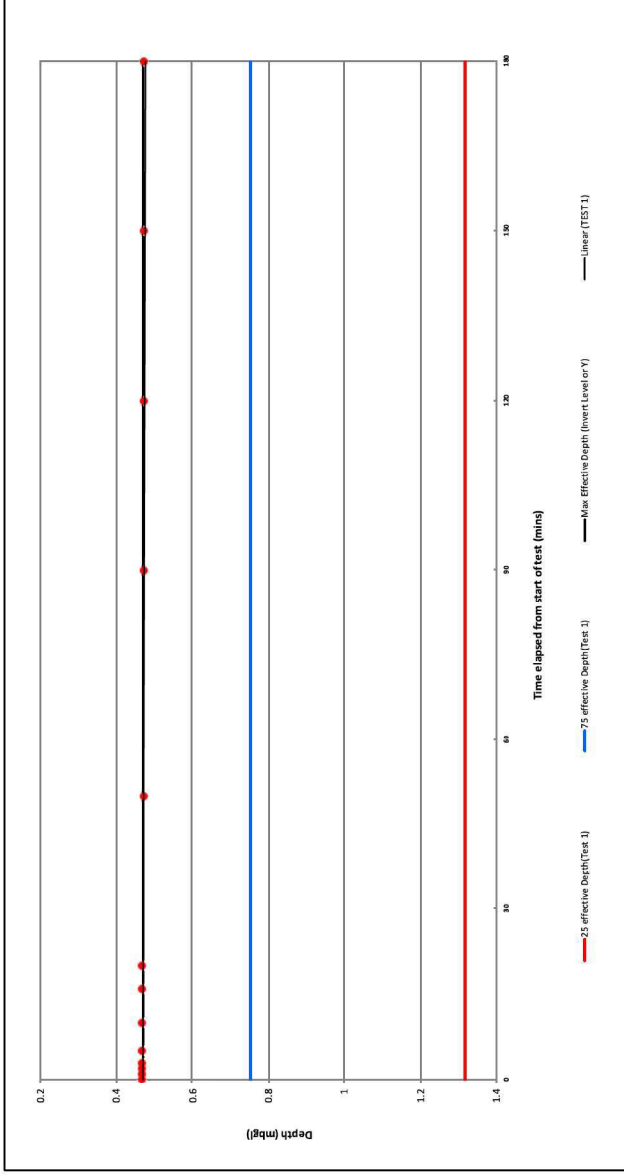
Completed by: AJS

Date: 07/05/2021
 Sheet number: TP04
 Ver.1 - Page1

TEST1	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
		50.0	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

TEST1	Time	Elapsed (min)	Water dip (mbgl)	Depth of water in pit (m)*
			1.13	m (Water depth at t=0)
			0.85	m
			0.57	m
			0.28	m
			N/A	min
			N/A	min
			N/A	min

Vp75-25	m ³	0.59
Vp75 - Vp25 (corrected)	m ³	0.59
ap50	m ²	3.58
Ip75-25	m ³	N/A
Soil infiltration rate (f):	m/s	N/A
	mm/sec	N/A
	m/day	N/A



$$\text{Soil infiltration rate, } f = \frac{V}{a_{p50} \times t_{p50-25}}$$

where:
 V_{p50-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
 a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
 t_{p50-25} = the time for the water level to fall from 75% to 25% effective depth.

From	To	Description
0.00	0.20	Brown silty clay with roots (TOPSOIL).
0.20	0.45	Firm to stiff grey-brown clay.
0.45	1.60	Firm to stiff brown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Occasional rounded cobbles and boulders.

Pit reference: TP05
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BRE365
 Datum (mbgl): 0 (Z)

Parameters:
 Trial pit length (m): 1.55 (L)
 Trial pit width (m): 0.7 (W)
 Trial pit depth (m): 1.6 (D)

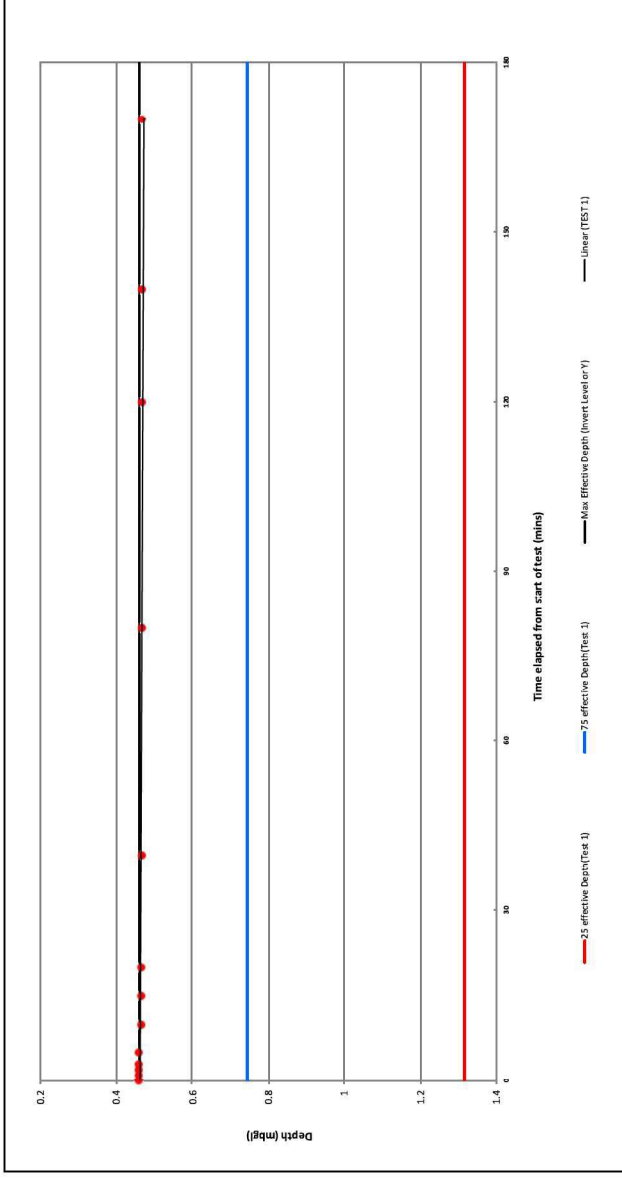
Design effective depth (Y)
 Gravel porosity:
 Depth to Groundwater:
 Design effective depth volume:

1.00 m
 1
 1.09 m³

Completed by: AUS

Date: 07/05/2021
 Sheet number: TP05
 Ver. 1 – Page 1

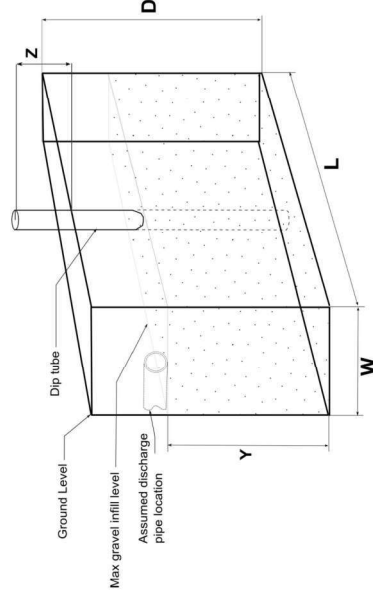
TEST1	Time	Elapsed (min)	Water dip (mbgl)	Depth of water in pit (m)*
	11:20:00	0.0	0.460	1.14
		1.0	0.460	1.14
		2.0	0.460	1.14
		3.0	0.460	1.14
		5.0	0.460	1.14
		10.0	0.465	1.14
		15.0	0.465	1.14
		20.0	0.465	1.14
		40.0	0.470	1.13
		80.0	0.470	1.13
		120.0	0.470	1.13
		140.0	0.470	1.13
		170.0	0.470	1.13



Test effective depth: 1.14 m (Water depth at t=0)
 75% effective depth: 0.86 m (0.745)
 50% effective depth: 0.57 m (1.03)
 25% effective depth: 0.29 m (1.315)
 t75: N/A min
 t50: N/A min
 t25: N/A min

Vp75-25: 0.62 m³
 Vp75 - vp25 (corrected): 0.62 m³
 ap50: 3.65 m²
 Ip75-25: N/A min
 Soil infiltration rate (f): N/A m/s
 mm/sec: N/A
 m/day: N/A

Soil Log:	From	To	Description
	0.00	0.15	Brown silty clay with roots (TOPSOIL).
	0.15	0.55	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.



where:
 V_{pit-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
 a_{pit} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
 t_{pit-25} = the time for the water level to fall from 75% to 25% effective depth.

$$\text{Soil infiltration rate, } f = \frac{V_{pit-25}}{a_{pit} \times t_{pit-25}}$$

APPENDIX C

Percolation test results (foul drainage assessment)

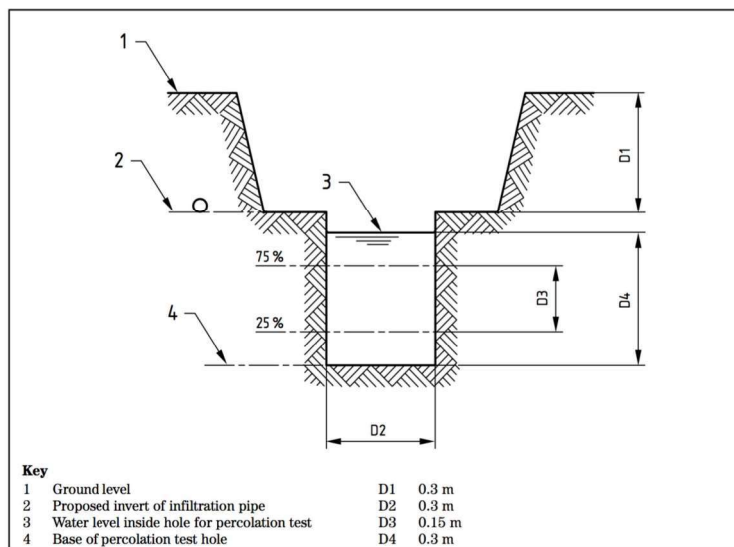
Pit reference: HP01
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BS6297:2007+A1:2008
 Completed by: AJS

Parameters:

Upper excavation depth (m):	0.3	(D1)
Hand pit depth below D1 (m):	0.3	(D4)
Width of hand pit (m):	0.3	(D2)
Starting water level below D1 (m):	0	

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

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



Test effective depth	0.30	m
75% effective depth:	0.23	m
25% effective depth:	0.08	m
t75	N/A	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

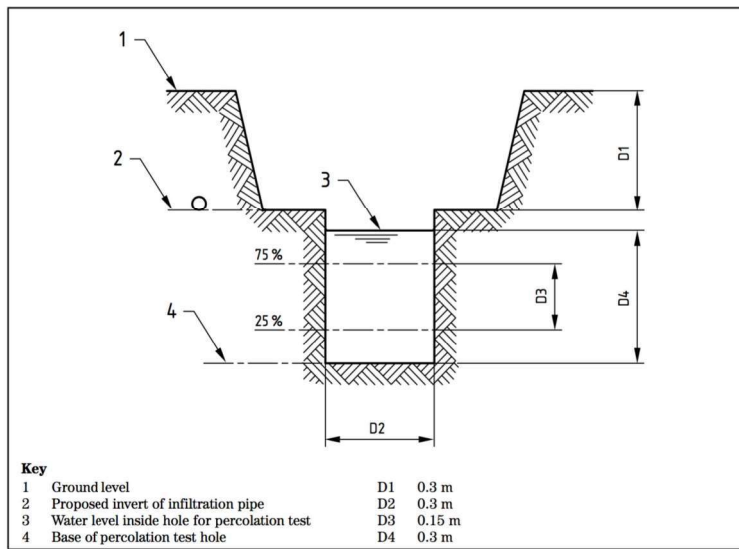
From	To	Description
0.00	0.60	Firm to stiff brown to dark grey gravelly silty clay. Gravel is fine to coarse and predominantly sub angular to angular. Some sub rounded cobbles.
Comments		Gradual water seepage observed into hand pit prior to percolation test; c. 5 cm of water recorded in base of pit 20 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

Parameters:
 Upper excavation depth (m): 0.35 (D1)
 Hand pit depth below D1 (m): 0.25 (D4)
 Width of hand pit (m): 0.3 (D2)
 Starting water level below D1 (m): 0

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

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



Test effective depth	0.25	m
75% effective depth:	0.19	m
25% effective depth:	0.06	m
t75	N/A	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

From	To	Description
0.00	0.08	Grey-brown slightly gravelly clay with roots. Gravel is fine to coarse and predominantly sub angular.
0.08	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.

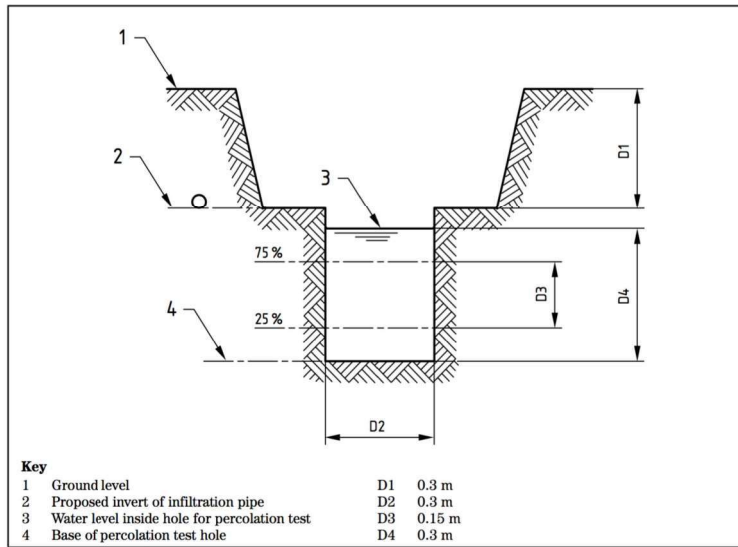
Pit reference: HP03
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BS6297:2007+A1:2008
 Completed by: AJS

Parameters:

Upper excavation depth (m):	0.3	(D1)
Hand pit depth below D1 (m):	0.25	(D4)
Width of hand pit (m):	0.3	(D2)
Starting water level below D1 (m):	0	

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

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



Test effective depth	0.25	m
75% effective depth:	0.19	m
25% effective depth:	0.06	m
t75	3600	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

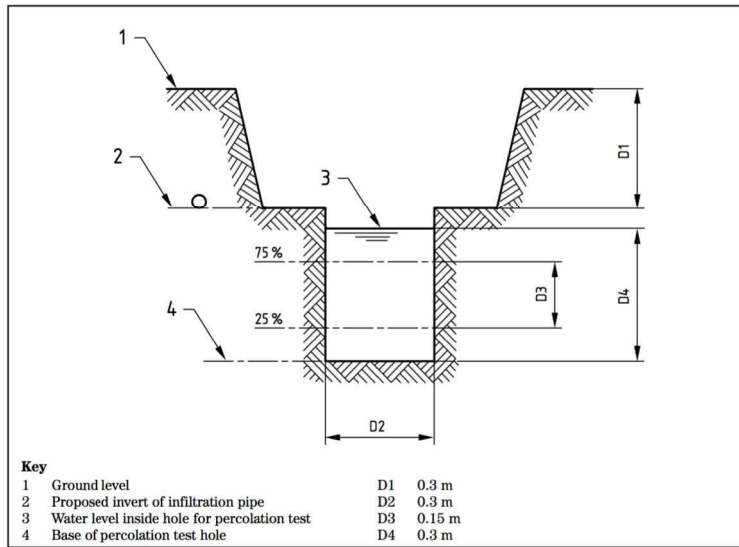
From	To	Description
0.00	0.40	Mid brown slightly gravelly clayey silt (SOIL).
0.40	0.55	Firm to stiff brown gravelly clay. Gravel is fine to coarse and sub rounded to angular. Some sub rounded cobbles.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

Pit reference: HP05
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BS6297:2007+A1:2008
 Completed by: AJS

Parameters:
 Upper excavation depth (m): 0 (D1)
 Hand pit depth below D1 (m): 0.3 (D4)
 Width of hand pit (m): 0.3 (D2)
 Starting water level below D1 (m): 0

Date: 01/05/2021
Sheet number: HP05
Ver. 1 - Page1

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



Test effective depth	0.30	m
75% effective depth:	0.23	m
25% effective depth:	0.08	m
t75	3600	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

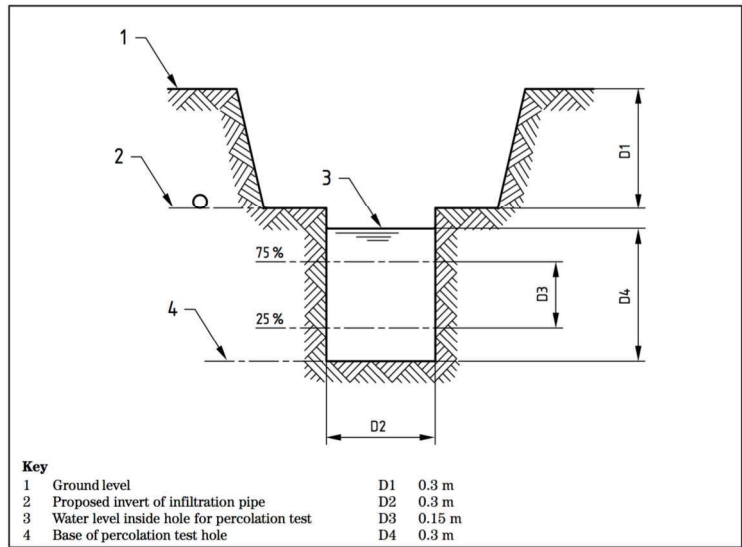
From	To	Description
0.00	0.30	Mid brown slightly gravelly clayey silt. Gravel is fine to coarse and sub rounded to angular. Occasional sub rounded cobbles (SOIL).
Comments		Hand pit excavated from ground level within soil horizon above still clays. No water seepages observed prior to testing. Improved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

Pit reference: HP06
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BS6297:2007+A1:2008
 Completed by: AJS

Parameters:
 Upper excavation depth (m): 0.2 (D1)
 Hand pit depth below D1 (m): 0.3 (D4)
 Width of hand pit (m): 0.3 (D2)
 Starting water level below D1 (m): 0

Date: 01/05/2021
 Sheet number: HP06
 Ver. 1 - Page1

TEST 1			
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



Test effective depth	0.30	m
75% effective depth:	0.23	m
25% effective depth:	0.08	m
t75	N/A	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

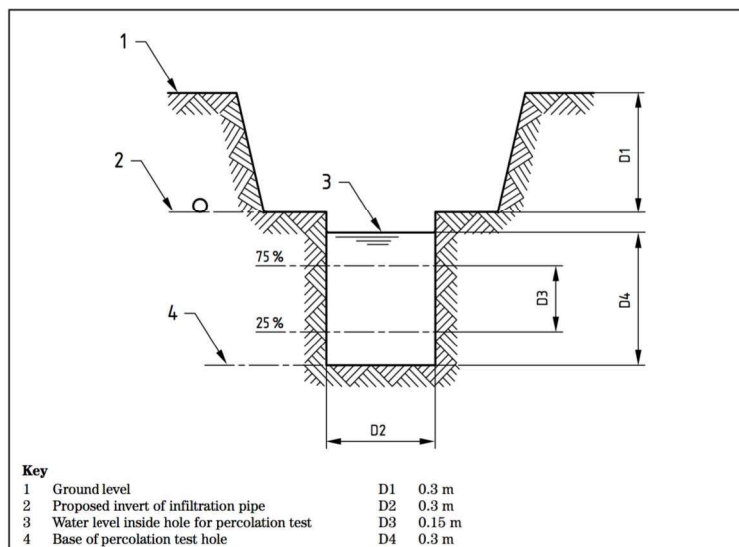
From	To	Description
0.00	0.05	Mid brown slightly gravelly clayey silt (SOIL).
0.05	0.50	Firm to stiff brown to grey clay.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

Pit reference: HP07
Project: 4196
Date of infiltration test: 28/04/2021
Method: BS6297:2007+A1:2008
Completed by: AJS

Parameters:
 Upper excavation depth (m): 0.3 (D1)
 Hand pit depth below D1 (m): 0.3 (D4)
 Width of hand pit (m): 0.3 (D2)
 Starting water level below D1 (m): 0

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

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



Test effective depth	0.30	m
75% effective depth:	0.23	m
25% effective depth:	0.08	m
t75	N/A	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

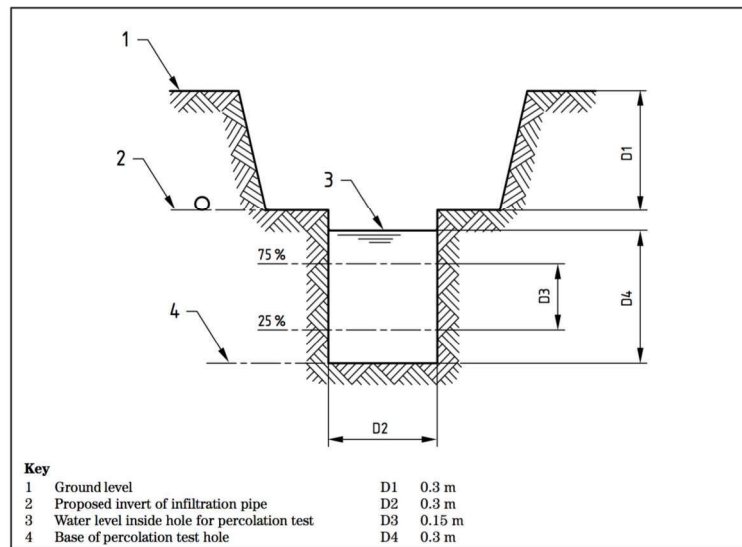
From	To	Description
0.00	0.20	Mid brown slightly gravelly clayey silt (SOIL).
0.20	0.60	Firm to stiff brown to blue-grey clay.
Comments		Stiff clay at base of hand pit. No water seepages observed prior to testing.

Pit reference: HP08
 Project: 4196
 Date of infiltration test: 28/04/2021
 Method: BS6297:2007+A1:2008
 Completed by: AJS

Parameters:
 Upper excavation depth (m): 0.25 (D1)
 Hand pit depth below D1 (m): 0.3 (D4)
 Width of hand pit (m): 0.3 (D2)
 Starting water level below D1 (m): 0

Date: 01/05/2021
 Sheet number: HP08
 Ver. 1 - Page1

TEST 1			
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



Test effective depth	0.30	m
75% effective depth:	0.23	m
25% effective depth:	0.08	m
t75	N/A	secs
t25	N/A	secs
tp75-25	N/A	secs
Soil percolation value (Vp):	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).

Soil Log:

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

Appendix D

Foul Calculations

Design Settings

Frequency of use (kDU)	1.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	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

Links

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	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 (l/s)	Flow (l/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)
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

Design Settings

Frequency of use (kDU)	0.50	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	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

Links

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 @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/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)
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

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (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 (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/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)
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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