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Trialpit No
TP1
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
Client: Gleeson Developments Ltd		Depth 1.70m	Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.50	D					Brown fine to coarse very clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.60			
			1.70			Light brown coarse subangular clayey very sandy GRAVEL and COBBLES of moderately strong sandstone
						Trialpit Complete at 1.70 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP2
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.75m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.40	D					Firm brown very sandy friable CLAY
0.45	D		0.50			
						Light brown fine clayey slightly gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.60			
						Light brown coarse subangular clayey sandy GRAVEL and COBBLES of moderately strong sandstone
			1.75			
						Trialpit Complete at 1.75 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP3
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.80m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.50	D					Brown fine to coarse clayey SAND
			0.70			
						Light brown fine to coarse slightly gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.70			
			1.80			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
						Trialpit Complete at 1.80 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP4
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.95m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.50	D					Brown fine to coarse very gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.80			Brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.95			Trialpit Complete at 1.95 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP5
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.70m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.50	D					Brown fine to coarse clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
0.70	D					
			0.90			Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.55			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.70			Trialpit Complete at 1.70 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP6
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.75m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
0.50	D					Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.60			
			1.75			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
						Trialpit Complete at 1.75 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP7
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.80m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.70			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.80			Trialpit Complete at 1.80 m

Remarks:

Groundwater: None encountered

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HoleBASE 3.1 (Bld 426.48) Standard Trialpit Log v2 dated 27th Nov 03

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Trialpit No
TP8
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.80m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
						Brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone. Frequent cobbles of sandstone.
0.60	D					
			1.65			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.80			Trialpit Complete at 1.80 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP9
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.90m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.35			
0.60	D					Light brown fine to coarse gravelly cobbly SAND. Gravel is fine to coarse subangular of sandstone.
			1.75			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.90			Trialpit Complete at 1.90 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP10
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.85m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
						Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone. Rare cobbles of sandstone.
0.60	D					
			1.70			Brown sandy gravelly COBBLES of moderately strong sandstone
			1.85			Trialpit Complete at 1.85 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP11
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.50m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone. Frequent cobbles of sandstone.
0.50	D		0.50			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.35			Trialpit Complete at 1.50 m

Remarks:

Groundwater: None encountered

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HoleBASE 3.1 (Bld 426.48) Standard Trialpit Log v2 dated 27th Nov 03

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Trialpit No
TP12
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.90m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					TOPSOIL
			0.30			Brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
0.50	D		0.50			Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.85			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.90			Trialpit Complete at 1.90 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP13
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 2.35m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			0.50			Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			2.20			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			2.35			Trialpit Complete at 2.35 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP14
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.70m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.20			Brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone. Occasional cobbles of sandstone with depth.
			1.65			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
			1.70			Trialpit Complete at 1.70 m

Remarks:

Groundwater: None encountered

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Trialpit No
TP15
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	08/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.80m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			
						Light brown fine to coarse gravelly SAND. Gravel is fine to coarse subangular of sandstone.
0.70	D					
						Becomes cobbly from 1.2 m bgl
			1.70			
			1.80			Light brown coarse subangular very sandy GRAVEL and COBBLES of moderately strong sandstone
						Trialpit Complete at 1.80 m

Remarks:

Groundwater: None encountered

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Trialpit No
SA1
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
Client: Gleeson Developments Ltd		Depth 1.70m	Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			0.50			Light brown coarse subangular sandy GRAVEL and COBBLES of moderately strong sandstone
			1.65			Trialpit Complete at 1.70 m

Remarks:

Groundwater: None encountered

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Trialpit No
SA2
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
Client: Gleeson Developments Ltd		Depth 1.62m	Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
			1.60			Light brown coarse subangular sandy GRAVEL and COBBLES of moderately strong sandstone
			1.62			Trialpit Complete at 1.62 m

Remarks:

Groundwater: None encountered

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Trialpit No
SA3
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.54m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone. occasional cobbles of sandstone.
			1.54			Trialpit Complete at 1.54 m

Remarks:

Groundwater: None encountered

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Trialpit No
SA4
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Lowfield Road, Bolton on Dearne	37666	Level: -	09/10/2014
Location: Bolton on Dearne		Dimensions: -	Scale 1:25
		Depth 1.58m	
Client: Gleeson Developments Ltd			Logged By MM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Dark brown clayey sandy TOPSOIL with fragments of vegetation
			0.30			Brown fine gravelly SAND. Gravel is fine to coarse subangular of sandstone. Frequent cobbles of sandstone.
			1.58			Trialpit Complete at 1.58 m

Remarks:

Groundwater: None encountered

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HoleBASE 3.1 (Bld 426.48) Standard Trialpit Log v2 dated 27th Nov 03

Appendix 4

Infiltration Test Results

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA1 test 1**

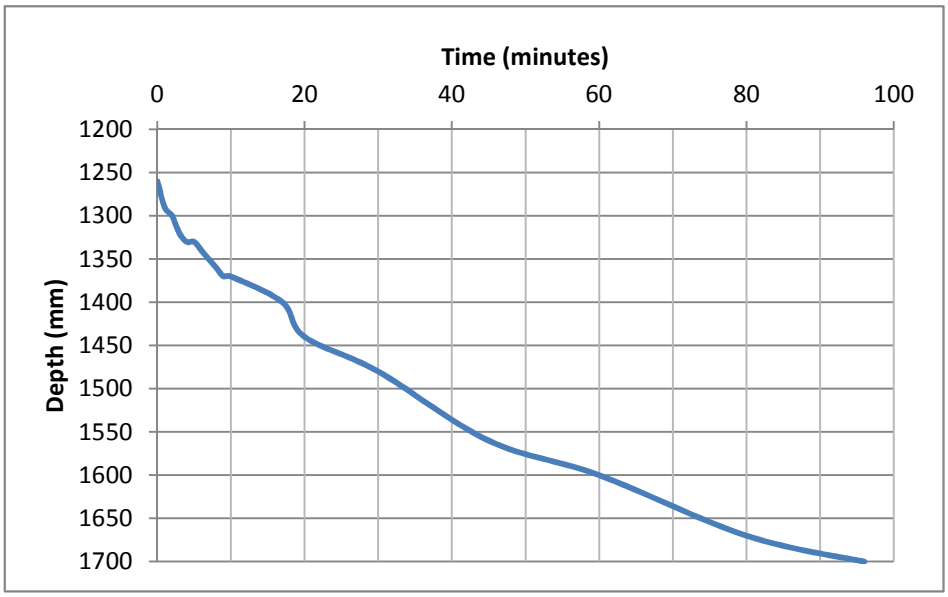
Test Pit Dimensions

Length = **1350** mm
Width = **650** mm
Depth = **1700** mm (Total depth)

Plan area = **0.8775** m²

Approximate time to discharge water into the hole: **20** Seconds
Depth to water after completion of pumping: **1260** mm

Time (min)	Depth (mm)
0	**1260**
1	**1290**
2	**1300**
3	**1320**
4	**1330**
5	**1330**
6	**1340**
7	**1350**
8	**1360**
9	**1370**
10	**1370**
17	**1400**
20	**1440**
30	**1480**
45	**1560**
60	**1600**
80	**1670**
96	**1700**



PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA1 test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1340** mm
Start time = **6** min

Average water depth: **180** mm

Change in water depth: **360** mm

Final parameters

Depth to water = **1700** mm
End time = **96** min

Time interval: **90** min

Effective Storage Volume of Water in the Trial Pit	=	**0.3861**	m³
75% Effective Depth	=	**1370**	mm from ground level
25% Effective Depth	=	**1590**	mm from ground level
Time at 75% Effective Depth	=	**9**	minutes
Time at 25% Effective Depth	=	**56**	minutes

V_{p75-25}	=	**0.19**	m³
a_{p50}	=	**1.95**	m²
t_{p75-25}	=	**2820**	sec
f	=	**3.5E-05**	**m/sec**

Average Soakaway Rate = **5.9E-05** m³/sec
Average soakaway area = **1.60** m² (sides + base)

BR365 Soil Infiltration Rate = 3.5E-05 m/sec
Average Infiltration Rate = 3.7E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA1 test 2**

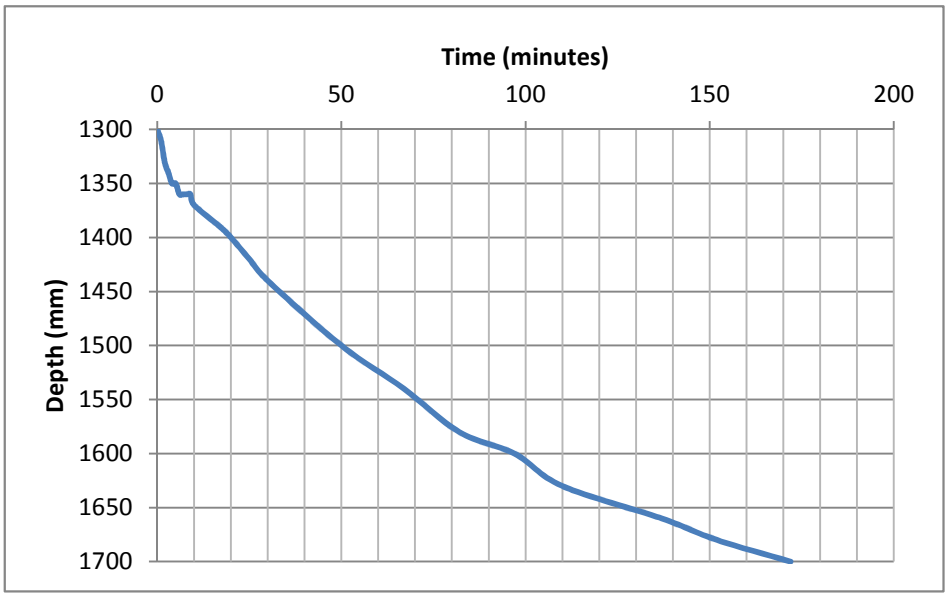
Test Pit Dimensions

Length = **1350** mm
Width = **650** mm
Depth = **1700** mm (Total depth)

Plan area = **0.8775** m²

Approximate time to discharge water into the hole: **20** Seconds
Depth to water after completion of pumping: **1300** mm

Time (min)	Depth (mm)
0	1300
1	1310
2	1330
3	1340
4	1350
5	1350
6	1360
7	1360
8	1360
9	1360
10	1370
17	1390
20	1400
25	1420
30	1440
50	1500
67	1540
82	1580
97	1600
110	1630
137	1660
152	1680
172	1700



PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA1 test 2

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1370** mm
Start time = **10** min

Average water depth: **165** mm

Change in water depth: **330** mm

Final parameters

Depth to water = **1700** mm
End time = **172** min

Time interval: **162** min

Effective Storage Volume of Water in the Trial Pit	=	**0.351** m³
75% Effective Depth	=	**1400** mm from ground level
25% Effective Depth	=	**1600** mm from ground level
Time at 75% Effective Depth	=	**20** minutes
Time at 25% Effective Depth	=	**97** minutes

V_{p75-25} = **0.18** m³

a_{p50} = **1.88** m²

t_{p75-25} = **4620** sec

f = **2.0E-05 m/sec**

Average Soakaway Rate = **3.0E-05** m³/sec
Average soakaway area = **1.54** m² (sides + base)

BR365 Soil Infiltration Rate = 2.0E-05 m/sec
Average Infiltration Rate = 1.9E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA1 test 3**

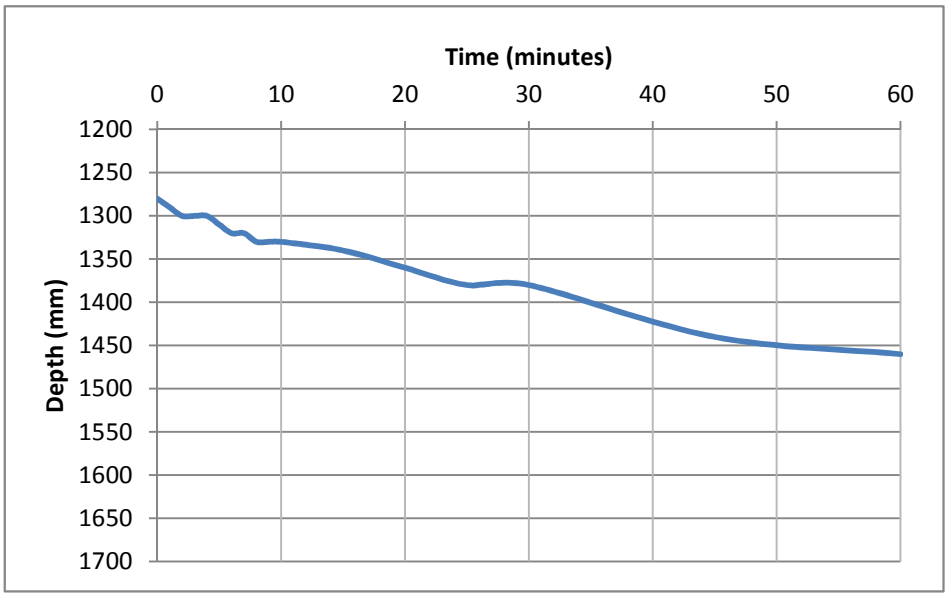
Test Pit Dimensions

Length = **1350** mm
Width = **650** mm
Depth = **1700** mm (Total depth)

Plan area = **0.8775** m²

Approximate time to discharge water into the hole: **20** Seconds
Depth to water after completion of pumping: **1280** mm

Time (min)	Depth (mm)
0	**1280**
1	**1290**
2	**1300**
3	**1300**
4	**1300**
5	**1310**
6	**1320**
7	**1320**
8	**1330**
9	**1330**
10	**1330**
15	**1340**
20	**1360**
25	**1380**
30	**1380**
45	**1440**
60	**1460**



Test terminated due to time constraints

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA1 test 3

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1300** mm
Start time = **4** min

Average water depth: **320** mm

Change in water depth: **160** mm

Final parameters

Depth to water = **1460** mm
End time = **60** min

Time interval: **56** min

Effective Storage Volume of Water in the Trial Pit = **0.36855** m³
75% Effective Depth = **1385** mm from ground level
25% Effective Depth = **1595** mm from ground level
Time at 75% Effective Depth = **35** minutes
Time at 25% Effective Depth = **N/A** minutes Test terminated before reaching 25% e.d.

V_{p75-25} = **0.18** m³

a_{p50} = **1.48** m²

t_{p75-25} = **N/A** sec

f = **N/A** **m/sec**

Average Soakaway Rate = **4.2E-05** m³/sec
Average soakaway area = **2.16** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 1.9E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA2 test 1**

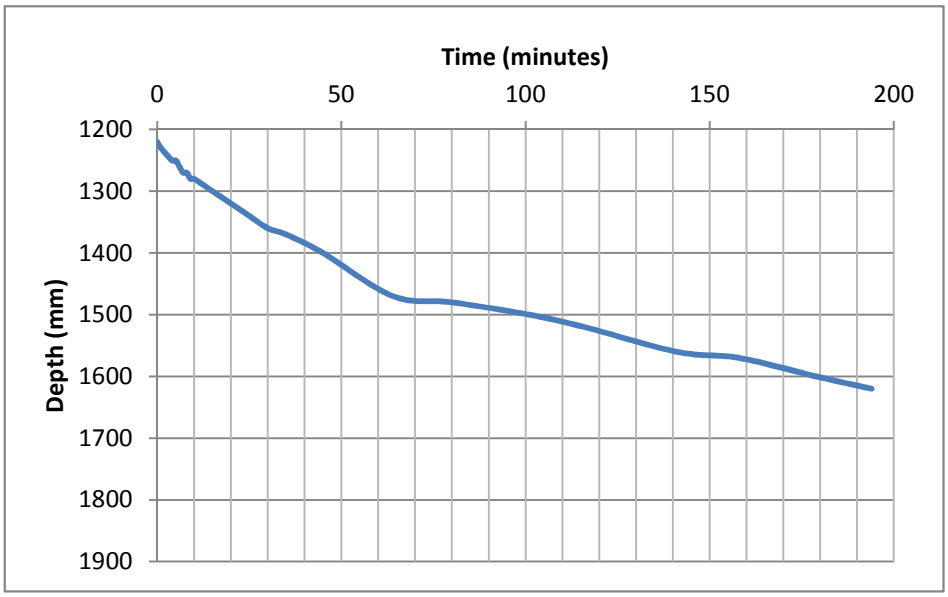
Test Pit Dimensions

Length = **1700** mm
Width = **600** mm
Depth = **1620** mm (Total depth)

Plan area = **1.02** m²

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **1220** mm

Time (min)	Depth (mm)
0	**1220**
1	**1230**
4	**1250**
5	**1250**
6	**1260**
7	**1270**
8	**1270**
9	**1280**
10	**1280**
15	**1300**
20	**1320**
25	**1340**
30	**1360**
35	**1370**
45	**1400**
64	**1470**
80	**1480**
101	**1500**
116	**1520**
141	**1560**
158	**1570**
179	**1600**
194	**1620**



PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA2 test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1250** mm
Start time = **5** min

Average water depth: **185** mm

Change in water depth: **370** mm

Final parameters

Depth to water = **1620** mm
End time = **194** min

Time interval: **189** min

Effective Storage Volume of Water in the Trial Pit = **0.408** m³
75% Effective Depth = **1320** mm from ground level
25% Effective Depth = **1520** mm from ground level
Time at 75% Effective Depth = **20** minutes
Time at 25% Effective Depth = **116** minutes

V_{p75-25} = **0.20** m³

a_{p50} = **1.79** m²

t_{p75-25} = **5760** sec

f = **2.0E-05 m/sec**

Average Soakaway Rate = **3.3E-05** m³/sec
Average soakaway area = **1.87** m² (sides + base)

BR365 Soil Infiltration Rate = 2.0E-05 m/sec
Average Infiltration Rate = 1.8E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA2 test 2**

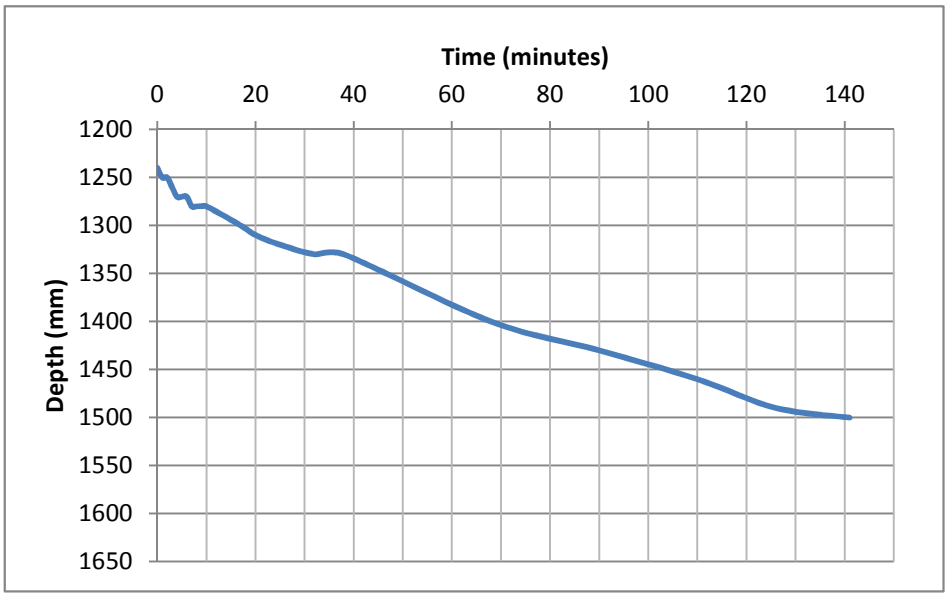
Test Pit Dimensions

Length = **1700** mm
Width = **600** mm
Depth = **1620** mm (Total depth)

Plan area = **1.02** m²

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **1240** mm

Time (min)	Depth (mm)
0	**1240**
1	**1250**
2	**1250**
3	**1260**
4	**1270**
5	**1270**
6	**1270**
7	**1280**
8	**1280**
9	**1280**
10	**1280**
17	**1300**
20	**1310**
25	**1320**
32	**1330**
38	**1330**
68	**1400**
90	**1430**
110	**1460**
126	**1490**
141	**1500**



Test terminated due to time constraints

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA2 test 2

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1280** mm
Start time = **10** min

Average water depth: **230** mm

Change in water depth: **220** mm

Final parameters

Depth to water = **1500** mm
End time = **141** min

Time interval: **131** min

Effective Storage Volume of Water in the Trial Pit = **0.3876** m³
75% Effective Depth = **1335** mm from ground level
25% Effective Depth = **1525** mm from ground level
Time at 75% Effective Depth = **40** minutes
Time at 25% Effective Depth = **N/A** minutes Test terminated before reaching 25% e.d.

V_{p75-25} = **0.19** m³

a_{p50} = **1.46** m²

t_{p75-25} = **N/A** sec

f = **N/A m/sec**

Average Soakaway Rate = **2.9E-05** m³/sec
Average soakaway area = **2.08** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 1.4E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA3 test 1**

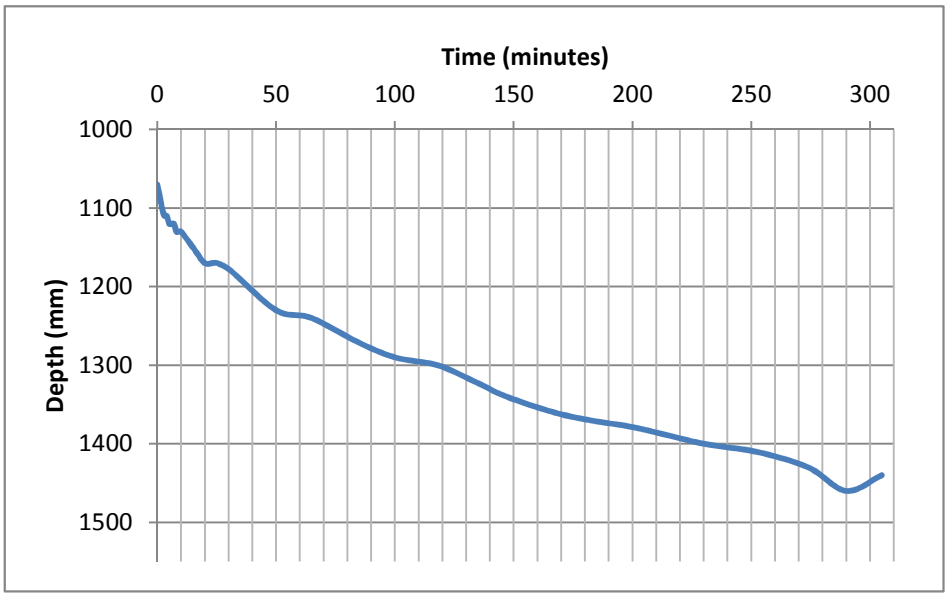
Test Pit Dimensions

Length = **1650** mm
Width = **600** mm
Depth = **1540** mm (Total depth)

Plan area = **0.99** m²

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **1070** mm

Time (min)	Depth (mm)
0	**1070**
2	**1100**
3	**1110**
4	**1110**
5	**1120**
6	**1120**
7	**1120**
8	**1130**
9	**1130**
10	**1130**
15	**1150**
20	**1170**
25	**1170**
31	**1180**
50	**1230**
65	**1240**
84	**1270**
100	**1290**
118	**1300**
133	**1320**
147	**1340**
167	**1360**
182	**1370**
202	**1380**
230	**1400**
252	**1410**
274	**1430**
290	**1460**
305	**1440**



Collapse of pit sides between 290 and 305 minutes.

Test terminated due to time constraints

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA3 test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1130** mm
Start time = **8** min

Average water depth: **245** mm

Change in water depth: **330** mm

Final parameters

Depth to water = **1460** mm
End time = **290** min

Time interval: **282** min

Effective Storage Volume of Water in the Trial Pit = **0.4653** m³
75% Effective Depth = **1188** mm from ground level
25% Effective Depth = **1423** mm from ground level
Time at 75% Effective Depth = **34** minutes
Time at 25% Effective Depth = **270** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **1.63** m²

t_{p75-25} = **14160** sec

f = **1.0E-05 m/sec**

Average Soakaway Rate = **1.9E-05** m³/sec
Average soakaway area = **2.09** m² (sides + base)

BR365 Soil Infiltration Rate = 1.0E-05 m/sec
Average Infiltration Rate = 9.2E-06 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA4 test 1**

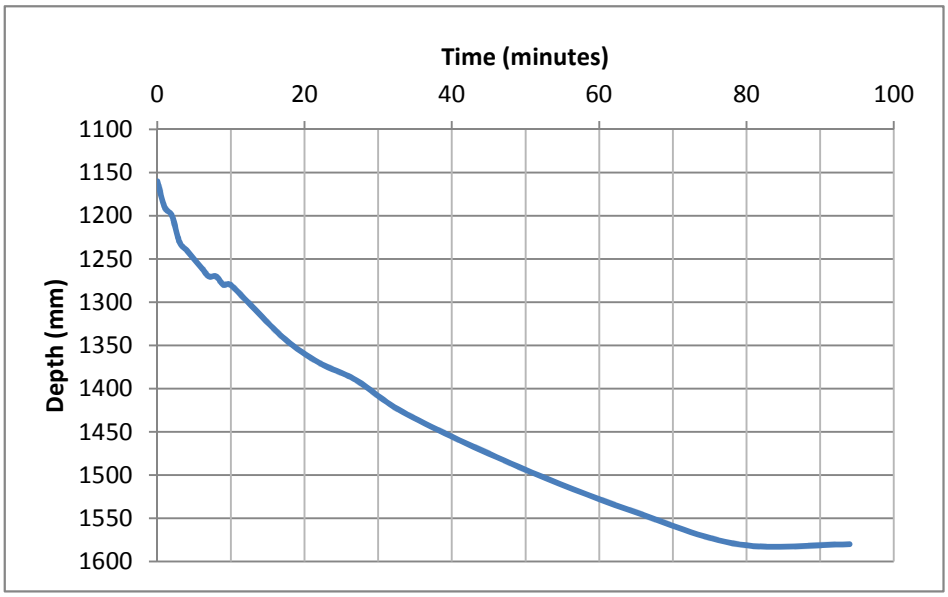
Test Pit Dimensions

Length = **1700** mm
Width = **600** mm
Depth = **1580** mm (Total depth)

Plan area = **1.02** m²

Approximate time to discharge water into the hole: **20** Seconds
Depth to water after completion of pumping: **1160** mm

Time (min)	Depth (mm)
0	**1160**
1	**1190**
2	**1200**
3	**1230**
4	**1240**
5	**1250**
6	**1260**
7	**1270**
8	**1270**
9	**1280**
10	**1280**
17	**1340**
22	**1370**
27	**1390**
34	**1430**
49	**1490**
64	**1540**
79	**1580**
94	**1580**



Small puddle remiaining at 79 minutes.

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA4 test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1250** mm
Start time = **5** min

Average water depth: **165** mm

Change in water depth: **330** mm

Final parameters

Depth to water = **1580** mm
End time = **79** min

Time interval: **74** min

Effective Storage Volume of Water in the Trial Pit = **0.4284** m³
75% Effective Depth = **1265** mm from ground level
25% Effective Depth = **1475** mm from ground level
Time at 75% Effective Depth = **7** minutes
Time at 25% Effective Depth = **44** minutes

V_{p75-25} = **0.21** m³

a_{p50} = **1.67** m²

t_{p75-25} = **2250** sec

f = **5.7E-05 m/sec**

Average Soakaway Rate = **7.6E-05** m³/sec
Average soakaway area = **1.78** m² (sides + base)

BR365 Soil Infiltration Rate = 5.7E-05 m/sec
Average Infiltration Rate = 4.3E-05 m/sec

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. **SA4 test 2**

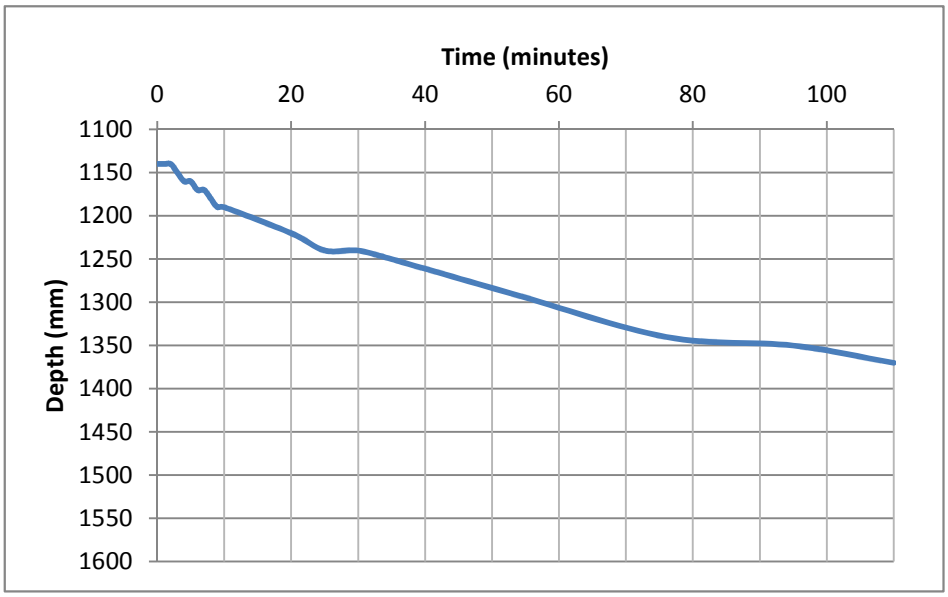
Test Pit Dimensions

Length = **1700** mm
Width = **600** mm
Depth = **1580** mm (Total depth)

Plan area = **1.02** m²

Approximate time to discharge water into the hole: **20** Seconds
Depth to water after completion of pumping: **1140** mm

Time (min)	Depth (mm)
0	**1140**
1	**1140**
2	**1140**
3	**1150**
4	**1160**
5	**1160**
6	**1170**
7	**1170**
8	**1180**
9	**1190**
10	**1190**
20	**1220**
25	**1240**
30	**1240**
35	**1250**
53	**1290**
76	**1340**
95	**1350**
110	**1370**



Test terminated due to time constraints

PROJECT:	Lowfield Road Phase 3, Bolton on Dearne	Job No. 37666	Date 09/10/2014
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LED	Checked LEM

Test No. SA4 test 2

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} x t_{p75-25}}$$

Where:

V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **1170** mm
Start time = **7** min

Average water depth: **310** mm

Change in water depth: **200** mm

Final parameters

Depth to water = **1370** mm
End time = **110** min

Time interval: **103** min

Effective Storage Volume of Water in the Trial Pit = **0.4488** m³
75% Effective Depth = **1250** mm from ground level
25% Effective Depth = **1470** mm from ground level
Time at 75% Effective Depth = **35** minutes
Time at 25% Effective Depth = **N/A** minutes Test terminated before reaching 25% e.d.

V_{p75-25} = **0.22** m³

a_{p50} = **1.38** m²

t_{p75-25} = **N/A** sec

f = **N/A m/sec**

Average Soakaway Rate = **3.3E-05** m³/sec
Average soakaway area = **2.45** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 1.3E-05 m/sec

Appendix 5

Chemical Testing Results, Chemtech Report 53074(1)

Table of Assessment Values

2531

ANALYTICAL TEST REPORT

Contract no: 53074(1)

Contract name: Bolton on Dearne Phase 3

Client reference: 37666

Clients name: Eastwood & Partners Limited

Clients address: St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

Samples received: 14 October 2014

Analysis started: 14 October 2014

Analysis completed 30 October 2014

Report issued: 30 October 2014

This is a supplementary report to report number 53074 issued 20 October 2014.

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, withour prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

Karan Campbell Director	John Campbell Director	Dave Bowerbank Customer Services Co-ordinator

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
53074-1	TP 2	0.10	Loam	-	-	11.6
53074-2	TP 3	0.10	Loam	-	-	11.6
53074-3	TP 3	0.50	Sand with Stones	-	-	9.6
53074-4	TP 4	0.10	Sandy Loam	-	-	10.9
53074-5	TP 6	0.10	Loam	-	-	8.4
53074-6	TP 7	0.10	Loam	-	-	8.9
53074-7	TP 7	0.50	Loam Sand	-	-	9.4
53074-8	TP 8	0.10	Loam	-	-	9.2
53074-9	TP 10	0.60	Sand with Stones	-	-	9.3
53074-10	TP 11	0.10	Loam	-	-	10.0
53074-11	TP 12	0.10	Loam	-	-	10.6
53074-12	TP 13	0.10	Loam	-	-	14.1
53074-13	TP 15	0.10	Loam	-	-	14.6

Chemtech Environmental Limited

SOILS

Lab number			53074-1	53074-2	53074-3	53074-4	53074-5	53074-6
Sample id			TP 2	TP 3	TP 3	TP 4	TP 6	TP 7
Depth (m)			0.10	0.10	0.50	0.10	0.10	0.10
Date sampled			08/10/2014	08/10/2014	08/10/2014	08/10/2014	08/10/2014	08/10/2014
Test	**Method**	**Units**						
Arsenic (total)	CE127 M	mg/kg As	11	11	5.5	11	9.2	9.8
Cadmium (total)	CE127 M	mg/kg Cd	0.3	0.3	<0.2	0.3	0.2	0.3
Chromium (total)	CE127 M	mg/kg Cr	74	79	71	75	78	56
Chromium (VI)	CE050	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 M	mg/kg Cu	21	20	8.2	20	17	18
Lead (total)	CE127 M	mg/kg Pb	46	41	18	49	43	43
Mercury (total)	CE127 M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 M	mg/kg Ni	18	17	21	15	16	16
Selenium (total)	CE127 M	mg/kg Se	0.8	0.9	0.6	0.8	0.8	0.9
Zinc (total)	CE127 M	mg/kg Zn	71	61	34	72	68	70
pH	CE004 M	units	7.1	7.1	7.4	7.0	6.9	6.9
Sulphate (2:1 water soluble)	CE061 M	mg/l SO_4	-	-	<10	-	-	-
Sulphate (total)	CE062 M	mg/kg SO_4	-	-	324	-	-	-
Sulphur (total)	CE127	% w/w S	-	-	<0.01	-	-	-
PAH								
Naphthalene	CE087	mg/kg	0.07	0.05	<0.01	0.08	0.05	0.08
Acenaphthylene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	CE087	mg/kg	0.16	0.11	<0.01	0.12	0.10	0.12
Anthracene	CE087	mg/kg	0.03	0.02	<0.01	0.02	0.11	0.02
Fluoranthene	CE087	mg/kg	0.25	0.17	<0.01	0.22	0.13	0.18
Pyrene	CE087	mg/kg	0.23	0.15	<0.01	0.19	0.11	0.16
Benzo(a)anthracene	CE087	mg/kg	0.15	0.10	0.01	0.12	0.09	0.11
Chrysene	CE087	mg/kg	0.19	0.12	<0.01	0.14	0.09	0.12
Benzo(b)fluoranthene	CE087	mg/kg	0.23	0.17	<0.01	0.19	0.13	0.19
Benzo(k)fluoranthene	CE087	mg/kg	0.09	0.06	<0.01	0.06	0.05	0.07
Benzo(a)pyrene	CE087	mg/kg	0.14	0.10	<0.01	0.11	0.07	0.12
Indeno(123cd)pyrene	CE087	mg/kg	0.12	0.08	<0.01	0.10	0.06	0.09
Dibenz(ah)anthracene	CE087	mg/kg	0.02	0.02	<0.01	0.01	0.02	0.02
Benzo(ghi)perylene	CE087	mg/kg	0.10	0.08	<0.01	0.09	0.04	0.07
PAH (total of USEPA 16)	CE087	mg/kg	1.78	1.23	<0.16	1.46	1.05	1.33

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SOILS

Lab number			53074-7	53074-8	53074-9	53074-10	53074-11	53074-12
Sample id			TP 7	TP 8	TP 10	TP 11	TP 12	TP 13
Depth (m)			0.50	0.10	0.60	0.10	0.10	0.10
Date sampled			08/10/2014	08/10/2014	08/10/2014	08/10/2014	08/10/2014	08/10/2014
Test	**Method**	**Units**						
Arsenic (total)	CE127 M	mg/kg As	6.3	9.3	2.3	9.3	11	13
Cadmium (total)	CE127 M	mg/kg Cd	0.3	0.3	<0.2	0.3	0.3	0.4
Chromium (total)	CE127 M	mg/kg Cr	61	72	67	73	71	73
Chromium (VI)	CE050	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 M	mg/kg Cu	9.9	19	4.2	19	26	29
Lead (total)	CE127 M	mg/kg Pb	13	51	8.2	39	50	56
Mercury (total)	CE127 M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 M	mg/kg Ni	28	16	12	17	17	18
Selenium (total)	CE127 M	mg/kg Se	0.9	0.8	0.6	0.7	0.8	0.9
Zinc (total)	CE127 M	mg/kg Zn	47	80	20	61	85	106
pH	CE004 M	units	7.2	7.2	7.4	7.4	7.3	7.3
Sulphate (2:1 water soluble)	CE061 M	mg/l SO_4	<10	-	<10	-	-	-
Sulphate (total)	CE062 M	mg/kg SO_4	169	-	73	-	-	-
Sulphur (total)	CE127	% w/w S	<0.01	-	<0.01	-	-	-
PAH								
Naphthalene	CE087	mg/kg	<0.01	0.07	<0.01	0.06	0.07	0.09
Acenaphthylene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	CE087	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	CE087	mg/kg	0.01	0.12	<0.01	0.11	0.12	0.11
Anthracene	CE087	mg/kg	<0.01	0.03	<0.01	0.02	0.01	0.02
Fluoranthene	CE087	mg/kg	0.01	0.18	<0.01	0.19	0.16	0.17
Pyrene	CE087	mg/kg	<0.01	0.17	<0.01	0.16	0.15	0.13
Benzo(a)anthracene	CE087	mg/kg	0.01	0.11	<0.01	0.10	0.10	0.09
Chrysene	CE087	mg/kg	0.02	0.11	<0.01	0.11	0.13	0.09
Benzo(b)fluoranthene	CE087	mg/kg	0.02	0.20	<0.01	0.17	0.17	0.16
Benzo(k)fluoranthene	CE087	mg/kg	<0.01	0.07	<0.01	0.07	0.06	0.06
Benzo(a)pyrene	CE087	mg/kg	0.01	0.12	<0.01	0.10	0.11	0.10
Indeno(123cd)pyrene	CE087	mg/kg	<0.01	0.09	<0.01	0.08	0.08	0.08
Dibenz(ah)anthracene	CE087	mg/kg	<0.01	0.02	<0.01	0.02	0.01	0.02
Benzo(ghi)perylene	CE087	mg/kg	<0.01	0.07	<0.01	0.06	0.06	0.05
PAH (total of USEPA 16)	CE087	mg/kg	<0.16	1.37	<0.16	1.25	1.24	1.16

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SOILS

Lab number			53074-13
Sample id			TP 15
Depth (m)			0.10
Date sampled			08/10/2014
Test	**Method**	**Units**	
Arsenic (total)	CE127 M	mg/kg As	12
Cadmium (total)	CE127 M	mg/kg Cd	0.4
Chromium (total)	CE127 M	mg/kg Cr	73
Chromium (VI)	CE050	mg/kg CrVI	<1
Copper (total)	CE127 M	mg/kg Cu	26
Lead (total)	CE127 M	mg/kg Pb	68
Mercury (total)	CE127 M	mg/kg Hg	<0.5
Nickel (total)	CE127 M	mg/kg Ni	17
Selenium (total)	CE127 M	mg/kg Se	0.9
Zinc (total)	CE127 M	mg/kg Zn	106
pH	CE004 M	units	7.2
Sulphate (2:1 water soluble)	CE061 M	mg/l SO_4	-
Sulphate (total)	CE062 M	mg/kg SO_4	-
Sulphur (total)	CE127	% w/w S	-
PAH			
Naphthalene	CE087	mg/kg	0.07
Acenaphthylene	CE087	mg/kg	<0.01
Acenaphthene	CE087	mg/kg	<0.01
Fluorene	CE087	mg/kg	<0.01
Phenanthrene	CE087	mg/kg	0.11
Anthracene	CE087	mg/kg	0.01
Fluoranthene	CE087	mg/kg	0.18
Pyrene	CE087	mg/kg	0.15
Benzo(a)anthracene	CE087	mg/kg	0.11
Chrysene	CE087	mg/kg	0.13
Benzo(b)fluoranthene	CE087	mg/kg	0.18
Benzo(k)fluoranthene	CE087	mg/kg	0.07
Benzo(a)pyrene	CE087	mg/kg	0.11
Indeno(123cd)pyrene	CE087	mg/kg	0.09
Dibenz(ah)anthracene	CE087	mg/kg	0.02
Benzo(ghi)perylene	CE087	mg/kg	0.07
PAH (total of USEPA 16)	CE087	mg/kg	1.29

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE050	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO_4
CE127	Sulphur (total)	Acid extraction, ICP-MS	Dry		0.01	% w/w S
CE087	PAH (speciated)	Solvent extraction, GC-MS	Wet		0.01	mg/kg

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DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
A	Sampling date not provided
B	Sampling time not provided (waters only)
C	Sample exceeded holding time(s)
D	Sample not received in appropriate containers
E	Headspace present in sample container
F	Sample not chemically fixed (where appropriate)
G	Sample not cooled
H	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
53074-1	TP 2	0.10	N	
53074-2	TP 3	0.10	N	
53074-3	TP 3	0.50	N	
53074-4	TP 4	0.10	N	
53074-5	TP 6	0.10	N	
53074-6	TP 7	0.10	N	
53074-7	TP 7	0.50	N	
53074-8	TP 8	0.10	N	
53074-9	TP 10	0.60	N	
53074-10	TP 11	0.10	N	
53074-11	TP 12	0.10	N	
53074-12	TP 13	0.10	N	
53074-13	TP 15	0.10	N	

Inorganics	Intended Land Use
	Residential (mg/kg)
Arsenic	32
Cadmium	10
Chromium (III)	627
Chromium (VI)	4.3
Lead	200
Mercury	1
Nickel	130
Selenium	350
Copper	80 *1 (200 above pH7)
Zinc	200 *1 (300 above pH7)

Notes:

*1 - These are pH dependent; the most conservative value is given in this case.

The assessment values for the first seven metals or metalloids (arsenic to selenium) are the Soil Guideline Values (SGVs) derived by DEFRA and Environment Agency using the 'Contaminated Land Exposure Assessment' model. The assessment concentrations for arsenic, cadmium, nickel, mercury and selenium are outlined in the Environment Agency's Science Report series SC050021. These are based on a sandy loam soil and 6% soil organic matter. The assessment concentrations for the remaining metals/metalloids are described in the Contaminated Land Report Series (CLR), which have now been withdrawn.

The SGV threshold value is not intended to be applied to individual sample results where materials are similar, as the levels of contaminants will have a natural variability across the site. The modified mean value should instead be compared with the SGV.

The assessment values for the metals copper and zinc are levels at which plant growth is thought to be affected. The assessment values for copper and zinc are taken from the maximum permissible and advisable concentrations in soil after application of soil sludge given in the 'The Code of Good Agricultural Practice for the Protection of Soil', MAFF, 1998.

The assessment of sulphate, water soluble sulphate, elemental sulphur and sulphide is to determine the aggressive nature of the ground with respect to concrete and consequently the results are compared with BRE Special Digest 1:2005 'Concrete in Aggressive Ground'.

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GENERIC ASSESSMENT CRITERIA - RESIDENTIAL

Organic Compounds	Intended Land Use Residential (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Naphthalene	1.5	3.7	8.7
Acenaphthene	210	480	1000
Acenaphthylene	170	400	850
Fluorene	160	380	780
Phenanthrene	92	200	380
Anthracene	2,300	4,900	9,200
Fluoranthene	260	460	670
Pyrene	560	1,000	1,600
Benzo(a)anthracene	3.1	4.7	5.9
Chrysene	6.0	8.0	9.3
Benzo(b)fluoranthene	5.6	6.5	7.0
Benzo(k)fluoranthene	8.5	9.6	10
Benzo(a)pyrene	0.83	0.94	1.0
Dibenz(a,h)anthracene	0.76	0.86	0.90
Indeno(1,2,3-cd)pyrene	3.2	3.9	4.2
Benzo(g,h,i)perylene	44	46	47

The assessment criteria for chromium VI and the sixteen polycyclic aromatic hydrocarbon (PAH) species covered under the USEPA test have been taken from Nathanail, C. P., McCaffrey, C., Ashmore, M. H., Cheng, Y. Y., Gillett, A., Ogden, R. & Scott, D., 2009 'The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment 2nd Edition', Land Quality Press, Nottingham. These are also all based on a sandy loam soil. The assessment criteria for chromium III is taken from the March 2011 erratum to this publication.

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GENERIC ASSESSMENT CRITERIA - RESIDENTIAL