

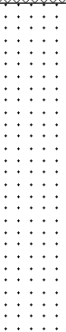
Appendix 3

Trial Pit Logs, TP101 to TP121

Photographs of Site and Trial Pits

Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP101 Sheet 1 of 1		
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:			Date 22/08/2018	
Location: Wombwell						Dimensions: m			Scale 1:25	
Client: Strategic Team Group						Depth: 2.60m			Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description				
Depth (m)	Type	Results								
0.20	D					TOPSOIL/MADE GROUND: Brown sandy gravelly CLAY with low cobble content. Gravel and cobbles of brick fragments, sandstone, concrete, rare slag, scrap metal, mortar, glass. Occasional plastic, tarmac chippings.				
			1.00			MADE GROUND: Very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to rounded of sandstone and brick fragments.				
			1.20			Very weak brown weathered SANDSTONE recovered as very silty/sandy gravel and cobbles. Becoming medium strong at base.				
1.50	D									
			2.60			Trialpit Complete at 2.600m				
Remarks: 1. Slow progression at base. Excavation terminated. 2. No groundwater encountered.										
Stability:										

Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP102 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 22/08/2018	
Location: Wombwell						Dimensions: m		Scale 1:25	
Client: Strategic Team Group						Depth: 3.00m		Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.30	D		0.60			MADE GROUND: Brown very sandy GRAVEL with low cobble content. Gravel of sandstone, brick fragments/bricks, occasional macadam fragments, concrete, chalk, plastic, rare scrap metal, glass.			
0.80	D					MADE GROUND: Stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular of brick fragments, glass, sandstone, clinker, grey stone.			
			1.10			Very weak brown weathered SANDSTONE recovered as very silty/sandy gravel and cobbles. Becoming medium weak/strong at base.			
			3.00			Trialpit Complete at 3.000m			
Remarks: 1. No groundwater encountered.									
Stability:									

Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP103 Sheet 1 of 1		
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:			Date 22/08/2018	
Location: Wombwell						Dimensions: m			Scale 1:25	
Client: Strategic Team Group						Depth: 1.40m			Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description				
Depth (m)	Type	Results								
0.20	D		0.30			TOPSOIL/MADE GROUND: Brown sandy gravelly CLAY. Gravel is fine to coarse angular of sandstone, brick fragments, grey stone, rare ceramic, glass.				
						Medium strong light brown weathered SANDSTONE recovered as sandy gravel and cobbles.				
			1.40		Trialpit Complete at 1.400m					
Remarks: 1. Slow progression at base. Excavation terminated. 2. No groundwater encountered.										
Stability:										

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP104 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 22/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 2.30m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.20	D		0.50			TOPSOIL/MADE GROUND: Brown silty sandy gravelly CLAY. Gravel is fine to coarse angular of sandstone, occasional glass, brick fragments, polystyrene.		
						Medium weak light brown weathered SANDSTONE recorded as slightly silty sandy gravel and cobbles. Medium strong at base.		
2.30					Trialpit Complete at 2.300m			
Remarks: 1. Slow progression at base. Excavation terminated. 2. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP105 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 22/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 1.40m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
			0.50			MADE GROUND: Brown sandy GRAVEL with low cobble content. Gravel and cobbles of sandstone, macadam fragments, brick fragments.		
			1.40			Medium strong light brown weathered SANDSTONE recorded as slightly sandy gravel and cobbles.		
						Trialpit Complete at 1.400m		
Remarks: 1. Slow progression at base. Excavation terminated. 2. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS						TrialPit No TP106 Sheet 1 of 1	
Project Name Bondfield Court			Project No. 42937		Co-ords: - Level:		Date 22/08/2018
Location: Wombwell					Dimensions: m		Scale 1:25
Client: Strategic Team Group					Depth: 1.90m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D		0.15			TOPSOIL/MADE GROUND: Grey sandy gravelly CLAY. Gravel is fine to coarse angular of sandstone, brick fragments.	
0.30	D					MADE GROUND: Beige sandy GRAVEL of Type 1.	
0.50	D					MADE GROUND: Brown occasionally dark grey sandy slightly gravelly CLAY. Gravel of sandstone. Cobbles of brick fragments, macadam.	
			0.60			Slight hydrocarbon/tar odour. Medium weak brown/grey weathered SANDSTONE recovered as slightly sandy gravel and cobbles. Medium strong at base.	
			1.90			Trialpit Complete at 1.900m	
Remarks: 1. Ashy ground present at surface around trial pit. 2. Slight hydrocarbon/tar odour noted from 0.45 to 0.6 m bgl. 3. Slow progression at base. Excavation terminated. 4. No groundwater encountered.							
Stability:							

Eastwood&Partners CONSULTING ENGINEERS						TrialPit No TP107 Sheet 1 of 1	
Project Name Bondfield Court			Project No. 42937		Co-ords: - Level:		Date 22/08/2018
Location: Wombwell					Dimensions: m		Scale 1:25
Client: Strategic Team Group					Depth: 2.80m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		1.20 1.30			MADE GROUND: Brown silty sandy gravelly CLAY. Gravel of sandstone, occasional concrete, possible coal, glass, plastic, scrap metal, possible asbestos sheet fragments (50-100 mm diameter). Cobble of sandstone. Below W end of pit: multiple fragments of old concrete beams (up to 1 m long), rebar, old plastic service duct, wood plank fragments (up to 300 mm long).	1
1.50	D					MADE GROUND: Stiff brown/grey CLAY.	
						Very weak orangish brown weathered SANDSTONE recovered as gravelly silt with occasional cobbles. Medium weak at base.	
						Light brown from 1.7 m bgl recovered as silty gravel and cobbles.	2
			2.80			Trialpit Complete at 2.800m	3
							4
Remarks: 1. No groundwater encountered.							
Stability:							

Project Name	Project No.	Co-ords: -	Date
Bondfield Court	42937	Level:	22/08/2018
Location: Wombwell		Dimensions:	Scale
Client: Strategic Team Group		Depth: E m	1:25
		2.70m	Logged DN

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.50			MADE GROUND: Greyish brown very gravelly SAND with medium cobble content. Gravel and cobbles of sandstone, occasional coal fragments, brick fragments, pot, clinker. Possible asbestos fragments.	
						MADE GROUND: Very stiff brown slightly gravelly CLAY. Gravel is fine to medium of sandstone and brick fragments.	
						MADE GROUND: Brown very sandy CLAY.	
1.40	D		1.30			MADE GROUND: Dark grey ashy GRAVEL of coal, clinker, glass.	1
						MADE GROUND: Brown very sandy slightly gravelly CLAY. Gravel of sandstone, occasional brick fragments.	
1.60	D		1.80			Medium weak brown weathered SANDSTONE recovered as silty gravel and cobbles. Medium strong at base.	2
						<i>Drain at 2.3 m bgl below centre of pit, overlain by brown sandy clay. Pea gravel below drain to 2.5 m bgl.</i> 	
			2.70			Trialpit Complete at 2.700m	3
							4

Remarks:	1. Slow progression at base. Excavation terminated.	2. No groundwater encountered.
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Stability:

Eastwood&Partners CONSULTING ENGINEERS						TrialPit No TP109 Sheet 1 of 1		
Project Name Bondfield Court			Project No. 42937		Co-ords: - Level:		Date 22/08/2018	
Location: Wombwell					Dimensions: m		Scale 1:25	
Client: Strategic Team Group					Depth: 3.55m		Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
1.00	D		0.30			MADE GROUND: Brown clayey silty gravelly SAND. Gravel of sandstone, brick fragments, rare glass.	1	
						MADE GROUND: Brown silty very gravelly SAND with high cobble content and occasional clay pockets. Gravel of sandstone, rare brick fragments, clinker, scrap metal, glass. Cobbles of concrete, macadam. Numerous concrete flags with rubber covers (600 mm x 600 mm x 100 mm). Old log.		
1.90	D		1.70			MADE GROUND: Brown silty gravelly SAND with pockets of stiff grey clay. Gravel of sandstone, brick waste, clinker.	2	
			2.50			MADE GROUND: Dark grey ashy GRAVEL of coal, clinker, glass.		
			2.80			MADE GROUND: Firm brown occasionally dark grey silty sandy CLAY with occasional ashy pockets.		
			3.50			Orangish brown SANDSTONE recovered as gravel.	3	
			3.55			Trialpit Complete at 3.550m		
								4
Remarks: 1. Excavated within earth bund. 2. No groundwater encountered.								
Stability:								

Project Name Bondfield Court	Project No. 42937	Co-ords: - Level:	Date 22/08/2018
Location: Wombwell	Dimensions: m		Scale 1:25
Client: Strategic Team Group	Depth: 3.30m	€	Logged DN

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D		0.05			MADE GROUND: MACADAM. MADE GROUND: Light grey sandy GRAVEL of Type 1.	
			0.30			MADE GROUND: Brown silty sandy gravelly CLAY. Gravel is fine to coarse angular of sandstone, rare brick fragments.	
			1.00			MADE GROUND: Dark grey ashy GRAVEL. Gravel is fine to coarse angular of coal, clinker, macadam/tar, glass, mudstone. Rare scrap metal, ceramic, pot.	
1.30	D		1.60			MADE GROUND: Soft to firm brown silty clay. Slightly damp.	1
2.20	D		2.00			Light brown very silty sandy gravelly CLAY. Gravel is fine to coarse angular of sandstone. Slightly damp.	2
			2.50			Medium weak light brown weathered SANDSTONE recovered as sandy gravel and cobbles.	
			3.30			Trialpit Complete at 3.300m	

Remarks: 1. Slightly damp strata encountered from 1.6 m bgl.	
Stability:	

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP111 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 22/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 2.00m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
			0.30			Grass over MADE GROUND: Brownish pink sandy GRAVEL of Type 1.		
						Medium weak orangish brown weathered SANDSTONE recovered as silty sandy gravel and cobbles. Orangish brown from 0.6 m bgl. Medium strong at base.		
			2.00			Trialpit Complete at 2.000m		
Remarks: 1. Slow progression at base. Excavation terminated. No groundwater encountered. Stability:								

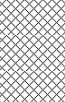
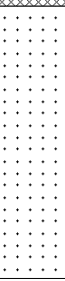
Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP112 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 22/08/2018	
Location: Wombwell						Dimensions: m		Scale 1:25	
Client: Strategic Team Group						Depth: 2.30m		Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.30	D		0.50 0.60			TOPSOIL/MADE GROUND: Brown clayey silty gravelly SAND. Gravel is fine to coarse angular of sandstone, occasional concrete, brick fragments.			
						MADE GROUND: Light grey sandy GRAVEL of Type 1.			
						Medium weak brown weathered SANDSTONE recovered as silty sandy gravel and cobbles. Medium strong at base.			
2.30						Trialpit Complete at 2.300m			
Remarks: 1. Slow progression at base. Excavation terminated. 2. No groundwater encountered.									
Stability:									

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP113 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 2.30m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.30	D		0.50			TOPSOIL/MADE GROUND: Brown silty sandy slightly gravelly CLAY. Gravel of sandstone, occasional brick fragments, glass, rare glass.		
0.70	D					MADE GROUND: Brown clayey silty gravelly SAND with high cobble content. Gravel of brick fragments, whole bricks, concrete, ceramic, scrap metal, glass, clinker, wood fragments, slate.		
			1.00			Medium weak light brown weathered SANDSTONE recorded as slightly silty sandy gravel and cobbles. <u>Concrete slab at 1.0 m bgl.</u>		
			2.30			Trialpit Complete at 2.300m		
Remarks: 1. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP114 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 2.20m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.30	D		0.50			TOPSOIL/MADE GROUND: Brown silty sandy slightly gravelly CLAY. Gravel is fine to coarse angular of sandstone, Type 1, occasional brick fragments, glass.		
0.80	D					Very weak light brown weathered SANDSTONE recovered as silty sandy gravel and cobbles.		
						Trialpit Complete at 2.200m		
Remarks: 1. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP115 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018	
Location: Wombwell						Dimensions: m		Scale 1:25	
Client: Strategic Team Group						Depth: 2.40m		Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
1.20	D		0.35			Grass over MADE GROUND: Brown very sandy GRAVEL of sandstone and Type 1. Occasional brick fragments.			
			0.45			MADE GROUND: Light beige sandy GRAVEL of Type 1.			
						Medium weak light brown weathered SANDSTONE recovered as silty sandy gravel and cobbles.			
			1.00			Very weak brown weathered SANDSTONE recovered as slightly clayey very sandy gravel and cobbles. Occasional pockets of light grey mottled orange silty clay.			
									
			1.60			Medium strong brown grey weathered SANDSTONE recovered as slightly sandy gravel and cobbles.			
			1.80			Stiff grey brown gravelly CLAY tending towards mudstone with occasional weak sandstone gravel inclusions.			
2.00	D PP	275							
2.00									
			2.40			Dark grey brown from 2.3 m bgl.			
						Trialpit Complete at 2.400m			
Remarks: 1. PP = Penetrometer reading given as unconfined compressive strength in kN/m2. 2. Slight groundwater seepage at base.									
Stability:									

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP116 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 2.55m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.30	D		0.70			Grass over MADE GROUND: Grey slightly clayey silty sandy GRAVEL with medium cobble content. Gravel and cobbles of limestone, sandstone, Type 1, brick fragments, concrete, macadam, pot, scrap metal, plastic, cement bound asbestos fragments (<100 mm diameter). Cobbles of sandstone, concrete, macadam. Occasional wood fragments.		1
1.00	D					Light brown gravelly silty SAND. Gravel is fine to coarse angular of sandstone.		
					1.50		Medium weak light brown weathered SANDSTONE recovered as silty sandy gravel and cobbles. Medium strong at base. <i>Drain at 1.7 m bgl with pea gravel encountered from 1.5 to 1.9 m bgl below centre of pit.</i>	
			2.55		Trialpit Complete at 2.550m		3	
								4
Remarks: 1. Drain at 1.7 m bgl below centre of pit. 2. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS						TrialPit No TP117 Sheet 1 of 1	
Project Name Bondfield Court			Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell					Dimensions: m		Scale 1:25
Client: Strategic Team Group					Depth: 2.00m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.20	D		0.35			MADE GROUND: Brown clayey silty sandy GRAVEL and COBBLES. Gravel and cobbles of bricks/brick fragments, brick waste, occasional concrete, sandstone, limestone, rare plastic, coal.	
			0.50			MADE GROUND: Brown silty sandy GRAVEL and COBBLES of sandstone (reworked natural).	
0.70	D					MADE GROUND: Grey brown sandy GRAVEL of clinker, occasional glass, brick fragments.	
			1.10			Medium weak brown weathered SANDSTONE recovered as silty sandy gravel and cobbles. Medium strong at base.	
			2.00			Trialpit Complete at 2.000m	
Remarks: 1. Slow progression at base. Excavation terminated. . No groundwater encountered.							
Stability:							

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP118 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 1.90m £		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.30	D		0.30			Grass over MADE GROUND: Sandy GRAVEL of Type 1. <i>Variable depth - material thins out in centre of trial pit from either end.</i>		
			0.40			MADE GROUND: Very stiff dark grey brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular of sandstone. Rare gravel of coal and brick fragments. Medium weak light brown weathered SANDSTONE recovered as slightly silty sandy gravel and cobbles.		
			1.90			Trialpit Complete at 1.900m		
Remarks: 1. No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS							TrialPit No TP119 Sheet 1 of 1	
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell						Dimensions: m		Scale 1:25
Client: Strategic Team Group						Depth: 1.70m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
0.30	D		0.25			Grass over MADE GROUND: Beige sandy GRAVEL of Type 1.		
			0.45			MADE GROUND: Brown very stiff sandy slightly gravelly CLAY. Gravel is fine to coarse angular of sandstone, rare brick fragments.		
			1.70			Medium weak brown weathered SANDSTONE recovered as slightly silty sandy gravel and cobbles. Medium strong at base.		
						Trialpit Complete at 1.700m		
Remarks: 1. Slow progression at base. Excavation terminated. . No groundwater encountered.								
Stability:								

Eastwood&Partners CONSULTING ENGINEERS						TrialPit No TP120 Sheet 1 of 1	
Project Name Bondfield Court			Project No. 42937		Co-ords: - Level:		Date 23/08/2018
Location: Wombwell					Dimensions: m		Scale 1:25
Client: Strategic Team Group					Depth: 1.30m		Logged DN
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
			0.15 0.20			Grass over MADE GROUND: Light grey sandy GRAVEL of Type 1.	
						MADE GROUND: Stiff brown CLAY.	
						Medium strong light brown weathered SANDSTONE recovered as slightly silty sandy gravel and cobbles.	
			1.30			Trialpit Complete at 1.300m	
1 2 3 4							
Remarks: 1. Slow progression at base. Excavation terminated. . No groundwater encountered.							
Stability:							

Eastwood&Partners CONSULTING ENGINEERS								TrialPit No TP121 Sheet 1 of 1		
Project Name Bondfield Court				Project No. 42937		Co-ords: - Level:			Date 23/08/2018	
Location: Wombwell						Dimensions: m			Scale 1:25	
Client: Strategic Team Group						Depth: 2.10m			Logged DN	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description				
Depth (m)	Type	Results								
0.20	D		0.30			TOPSOIL/MADE GROUND: Greyish brown slightly sandy slightly gravelly CLAY. Gravel of sandstone, rare ceramic, asbestos sheet fragment (~50 mm diameter), glass, brick fragments.				
0.50	D					MADE GROUND: Brown silty slightly sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse angular of sandstone, brick fragments, slate, clinker, coal, glass, reinforced concrete.				
						Very stiff brown silty CLAY.				
			1.10							
1.50	D		2.10			Weak light brown weathered SANDSTONE recovered as silty sandy gravel and cobbles.				
						Trialpit Complete at 2.100m				
Remarks: 1. No groundwater encountered.										
Stability:										



View south along the access road from Bondfield Close

Grassed clearance located in the north of the site

Prepared	DN	Checked	KE	Date	22-23.08.18	Photograph No	1/2
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BONDFIELD COURT, WOMBWELL

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SITE PHOTOGRAPHS



Embankment located between the access road and the western site boundary



Access road in the south west of the site

Prepared	DN	Checked	KE	Date	22-23.08.18	Photograph No	3/4
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SITE PHOTOGRAPHS



Roundabout present in the south west corner of the site, with Kings Oak Primary Learning Centre located beyond

Dense trees with occasional pathways located in the southern half of the site

Prepared	DN	Checked	KE	Date	22-23.08.18	Photograph No	5/6
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SITE PHOTOGRAPHS



Clearance comprising overgrown vegetation present in the east of the site

Bund located in the south east corner of the site

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SITE PHOTOGRAPHS



Photograph of TP113 in the north of the site



Photograph of TP117 in the south east of the site

Prepared	DN	Checked	KE	Date	22-23.08.18	Photograph No	9/10
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SITE PHOTOGRAPHS



Photograph of TP120 in the centre of the site



Photograph of TP115 in the south west of the site

Prepared	DN	Checked	KE	Date	22-23.08.18	Photograph No	11/12
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BONDFIELD COURT, WOMBWELL

STRATEGIC TEAM GROUP LIMITED

SITE PHOTOGRAPHS

Appendix 4

Geotechnical Test Results, PSL18/4298

Infiltration Test Results



LABORATORY REPORT REPORT



4043

Contract Number: PSL18/4298

Report Date: 31 August 2018

Client's Reference:

Client Name: Eastwood & Partners
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

For the attention of: D Nowell

Contract Title: Bondfield Court, Wombwell

Date Received: 29/8/2018

Date Commenced: 29/8/2018

Date Completed: 31/8/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:


R Gunson
(Director)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Bondfield Court, Wombwell

Contract No:

PSL18/4298

Client Ref:

42937

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



4043

PSL

Professional Soils Laboratory

Bondfield Court, Wombwell

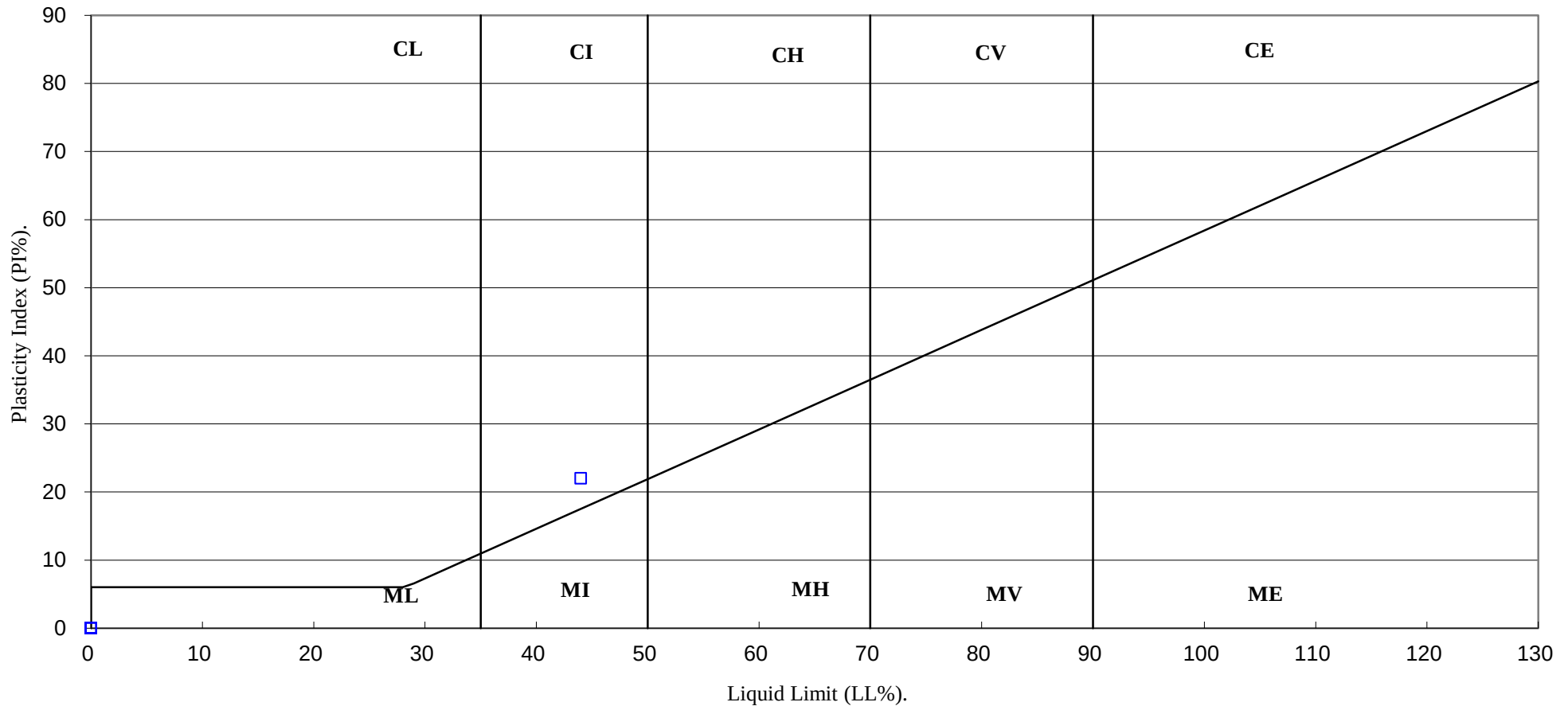
Contract No:

PSL18/4298

Client Ref:

42937

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL

Professional Soils Laboratory

Bondfield Court, Wombwell

Contract No:

PSL18/4298

Client Ref:

42937

(Consulting Engineers) Ltd

PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

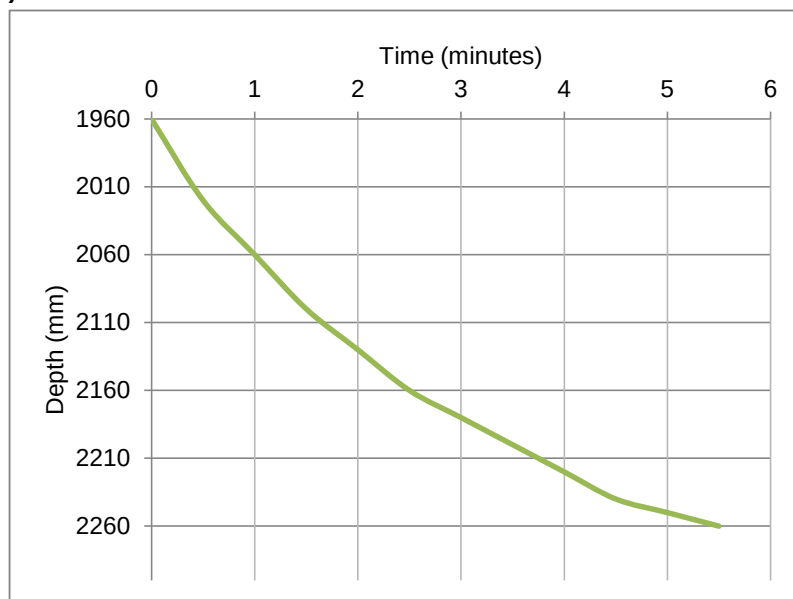
Test No. SA01/TP113 (Test 1)**Test Pit Dimensions**

Length = **2000** mm Plan area = **1.4** m²
 Width = **700** mm
 Depth = **2300** mm (Total depth)

Approximate time to discharge water into the hole: **75** Seconds
 Depth to water after completion of pumping: **1960** mm

Time (min) Depth (mm)

0	1960
0.5	2020
1	2060
1.5	2100
2	2130
2.5	2160
3	2180
3.5	2200
4	2220
4.5	2240
5	2250
5.5	2260

**Test Pit Log**

Depth (m)	Description
0.0 - 0.5	TOPSOIL/MADE GROUND: Brown silt sandy slightly gravelly CLAY.
0.5 - 1.0	MADE GROUND: Brown clayey silty gravelly SAND.
1.0 - 2.3	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA01/TP113 (Test 1)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1960** mm Average water depth: **190** mm

Start time = **0** min

Change in water depth: **300** mm

Final parameters

Depth to water = **2260** mm Time interval: **5.5** min

End time = **6** min

Effective Storage Volume of Water in the Trial Pit = **0.476** m³
 75% Effective Depth = **2045** mm from ground level
 25% Effective Depth = **2215** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **3.9** minutes

V_{p75-25} = **0.24** m³

a_{p50} = **2.32** m²

t_{p75-25} = **186** sec

f = **5.5E-04** m/sec

Average Soakaway Rate = **1.3E-03** m³/sec

Average soakaway area = **2.43** m² (sides + base)

BR365 Soil Infiltration Rate = 5.5E-04 m/sec

Average Infiltration Rate = 5.2E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

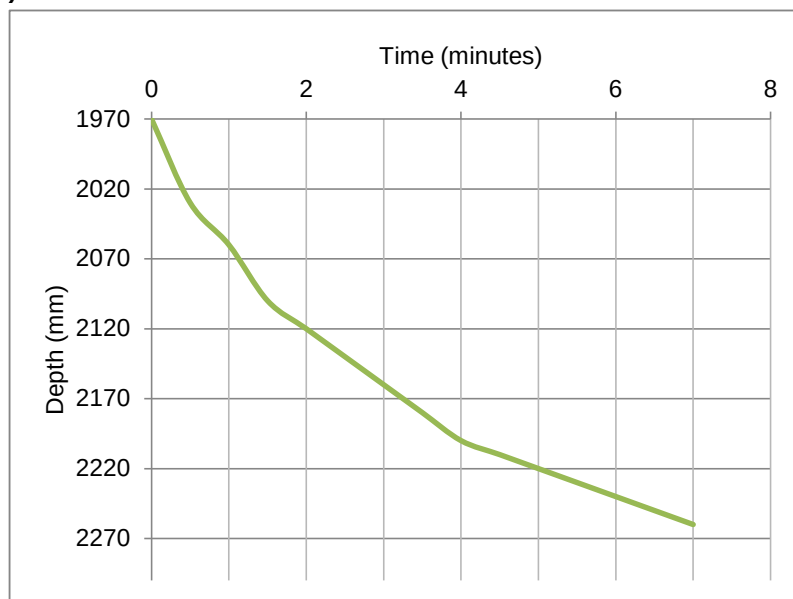
Test No. SA01/TP113 (Test 2)**Test Pit Dimensions**

Length = **2000** mm Plan area = **1.4** m²
 Width = **700** mm
 Depth = **2300** mm (Total depth)

Approximate time to discharge water into the hole: **60** Seconds
 Depth to water after completion of pumping: **1970** mm

Time (min) Depth (mm)

0	1970
0.5	2030
1	2060
1.5	2100
2	2120
2.5	2140
3	2160
3.5	2180
4	2200
4.5	2210
5	2220
5.5	2230
6	2240
7	2260

**Test Pit Log**

Depth (m)	Description
0.0 - 0.5	TOPSOIL/MADE GROUND: Brown silt sandy slightly gravelly CLAY.
0.5 - 1.0	MADE GROUND: Brown clayey silty gravelly SAND.
1.0 - 2.3	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA01/TP113 (Test 2)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1970** mm Average water depth: **185** mm

Start time = **0** min

Change in water depth: **290** mm

Final parameters

Depth to water = **2260** mm Time interval: **7** min

End time = **7** min

Effective Storage Volume of Water in the Trial Pit = **0.462** m³
 75% Effective Depth = **2053** mm from ground level
 25% Effective Depth = **2218** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **4.9** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **2.29** m²

t_{p75-25} = **240** sec

f = **4.2E-04** m/sec

Average Soakaway Rate = **9.7E-04** m³/sec

Average soakaway area = **2.40** m² (sides + base)

BR365 Soil Infiltration Rate = 4.2E-04 m/sec

Average Infiltration Rate = 4.0E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

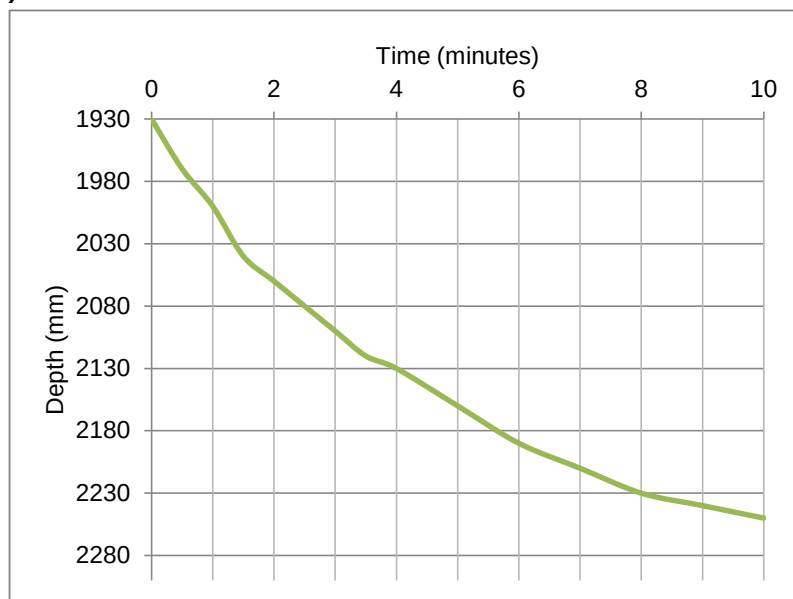
Test No. SA01/TP113 (Test 3)**Test Pit Dimensions**

Length = **2000** mm Plan area = **1.4** m²
 Width = **700** mm
 Depth = **2300** mm (Total depth)

Approximate time to discharge water into the hole: **60** Seconds
 Depth to water after completion of pumping: **1930** mm

Time (min) Depth (mm)

0	1930
0.5	1970
1	2000
1.5	2040
2	2060
2.5	2080
3	2100
3.5	2120
4	2130
5	2160
6	2190
7	2210
8	2230
9	2240
10	2250

**Test Pit Log**

Depth (m)	Description
0.0 - 0.5	TOPSOIL/MADE GROUND: Brown silt sandy slightly gravelly CLAY.
0.5 - 1.0	MADE GROUND: Brown clayey silty gravelly SAND.
1.0 - 2.3	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA01/TP113 (Test 3)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1930** mm Average water depth: **210** mm

Start time = **0** min

Change in water depth: **320** mm

Final parameters

Depth to water = **2250** mm Time interval: **10** min

End time = **10** min

Effective Storage Volume of Water in the Trial Pit = **0.518** m³
 75% Effective Depth = **2023** mm from ground level
 25% Effective Depth = **2208** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **6.5** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.40** m²

t_{p75-25} = **312** sec

f = **3.5E-04** m/sec

Average Soakaway Rate = **7.5E-04** m³/sec

Average soakaway area = **2.53** m² (sides + base)

BR365 Soil Infiltration Rate = 3.5E-04 m/sec

Average Infiltration Rate = 2.9E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA02/TP114 (Test 1)**Test Pit Dimensions**Length = **2500** mmPlan area = **1.5** m²Width = **600** mmDepth = **2200** mm (Total depth)

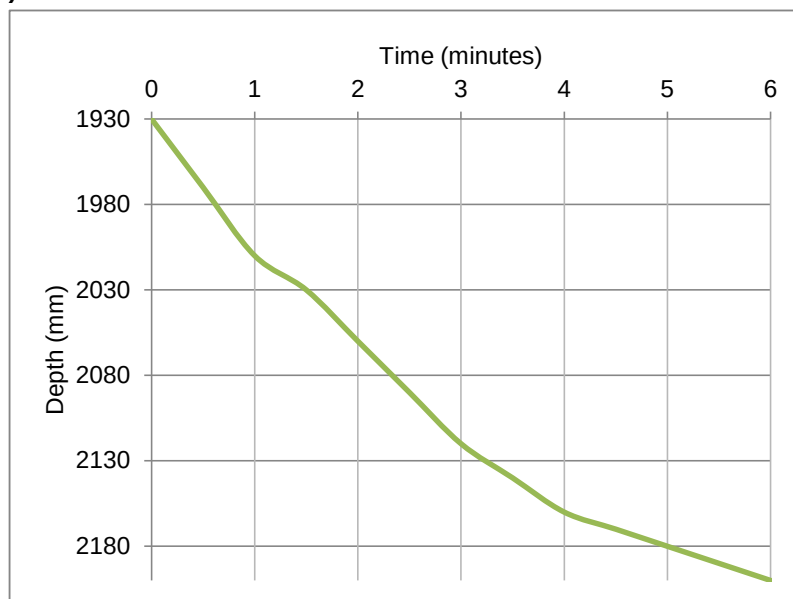
Approximate time to discharge water into the hole:

75 Seconds

Depth to water after completion of pumping:

1930 mm**Time (min)****Depth (mm)**

0	1930
0.5	1970
1	2010
1.5	2030
2	2060
2.5	2090
3	2120
3.5	2140
4	2160
4.5	2170
5	2180
6	2200

**Test Pit Log****Depth (m)****Description**

0.0 - 0.5

TOPSOIL/MADE GROUND: Brown silty sandy slightly gravelly CLAY.

0.5 - 2.2

Very weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA02/TP114 (Test 1)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1930** mm Average water depth: **135** mm

Start time = **0** min

Change in water depth: **270** mm

Final parameters

Depth to water = **2200** mm Time interval: **6** min

End time = **6** min

Effective Storage Volume of Water in the Trial Pit = **0.405** m³
 75% Effective Depth = **1998** mm from ground level
 25% Effective Depth = **2133** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **3.3** minutes

V_{p75-25} = **0.20** m³

a_{p50} = **2.34** m²

t_{p75-25} = **144** sec

f = **6.0E-04** m/sec

Average Soakaway Rate = **1.1E-03** m³/sec

Average soakaway area = **2.34** m² (sides + base)

BR365 Soil Infiltration Rate = 6.0E-04 m/sec

Average Infiltration Rate = 4.8E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

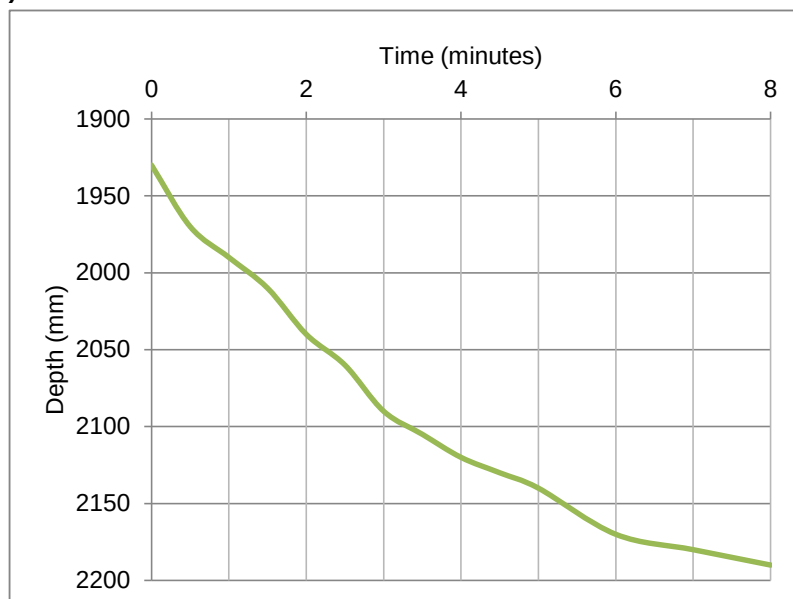
Test No. SA02/TP114 (Test 2)**Test Pit Dimensions**

Length = **2500** mm Plan area = **1.5** m²
 Width = **600** mm
 Depth = **2200** mm (Total depth)

Approximate time to discharge water into the hole: **70** Seconds
 Depth to water after completion of pumping: **1930** mm

Time (min) Depth (mm)

0	1930
0.5	1970
1	1990
1.5	2010
2	2040
2.5	2060
3	2090
3.5	2105
4	2120
4.5	2130
5	2140
6	2170
7	2180
8	2190

**Test Pit Log**

Depth (m)	Description
0.0 - 0.5	TOPSOIL/MADE GROUND: Brown silty sandy slightly gravelly CLAY.
0.5 - 2.2	Very weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA02/TP114 (Test 2)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1930** mm Average water depth: **140** mm

Start time = **0** min

Change in water depth: **260** mm

Final parameters

Depth to water = **2190** mm Time interval: **8** min

End time = **8** min

Effective Storage Volume of Water in the Trial Pit = **0.405** m³
 75% Effective Depth = **1998** mm from ground level
 25% Effective Depth = **2133** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **4.7** minutes

V_{p75-25} = **0.20** m³

a_{p50} = **2.34** m²

t_{p75-25} = **207** sec

f = **4.2E-04** m/sec

Average Soakaway Rate = **8.1E-04** m³/sec

Average soakaway area = **2.37** m² (sides + base)

BR365 Soil Infiltration Rate = 4.2E-04 m/sec

Average Infiltration Rate = 3.4E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

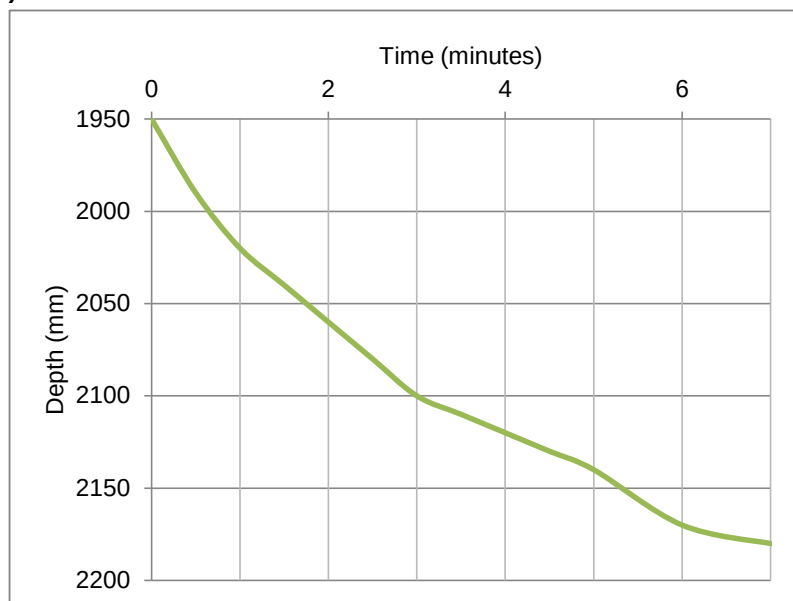
Test No. SA02/TP114 (Test 3)**Test Pit Dimensions**

Length = **2500** mm Plan area = **1.5** m²
 Width = **600** mm
 Depth = **2200** mm (Total depth)

Approximate time to discharge water into the hole: **60** Seconds
 Depth to water after completion of pumping: **1950** mm

Time (min) Depth (mm)

0	1950
0.5	1990
1	2020
1.5	2040
2	2060
2.5	2080
3	2100
3.5	2110
4	2120
4.5	2130
5	2140
6	2170
7	2180

**Test Pit Log**

Depth (m)	Description
0.0 - 0.5	TOPSOIL/MADE GROUND: Brown silty sandy slightly gravelly CLAY.
0.5 - 2.2	Very weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA02/TP114 (Test 3)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1950** mm Average water depth: **135** mm

Start time = **0** min

Change in water depth: **230** mm

Final parameters

Depth to water = **2180** mm Time interval: **7** min

End time = **7** min

Effective Storage Volume of Water in the Trial Pit = **0.375** m³
 75% Effective Depth = **2013** mm from ground level
 25% Effective Depth = **2138** mm from ground level
 Time at 75% Effective Depth = **1** minutes
 Time at 25% Effective Depth = **4.9** minutes

V_{p75-25} = **0.19** m³

a_{p50} = **2.28** m²

t_{p75-25} = **249** sec

f = **3.3E-04** m/sec

Average Soakaway Rate = **8.2E-04** m³/sec

Average soakaway area = **2.34** m² (sides + base)

BR365 Soil Infiltration Rate = 3.3E-04 m/sec

Average Infiltration Rate = 3.5E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA03/TP115

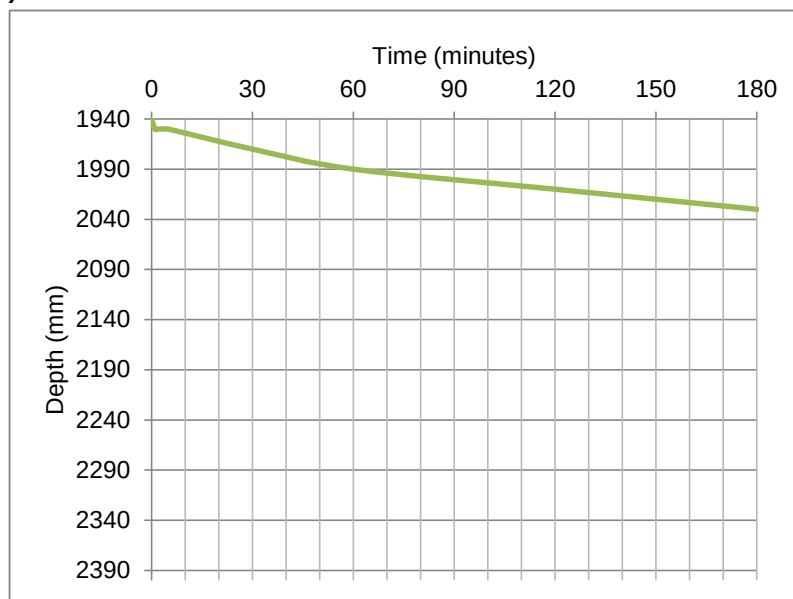
Test Pit Dimensions

Length = 1700 mm Plan area = 1.02 m²
 Width = 600 mm
 Depth = 2400 mm (Total depth)

Approximate time to discharge water into the hole: 30 Seconds
 Depth to water after completion of pumping: 1940 mm

Time (min) Depth (mm)

0	1940
1	1950
2	1950
3	1950
4	1950
5	1950
30	1970
60	1990
120	2010
180	2030

**Test Pit Log**

Depth (m)	Description
0.0 - 0.35	Grass over MADE GROUND: Brown very sandy GRAVEL of sandstone and Type 1.
0.35 - 0.45	MADE GROUND: Light beige sandy GRAVEL of Type 1.
0.45 - 1.8	Very weak to medium strong light brown weathered SANDSTONE.
1.8 - 2.4	Stiff grey brown gravelly CLAY tending towards mudstone. Slight groundwater seepage at base

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA03/TP115

Soil Infiltration Rate in Accordance with BR365

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

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 = **1950** mm Average water depth: **410** mm

Start time = **5** min Change in water depth: **80** mm

Final parameters

Depth to water = **2030** mm Time interval: **175** min

End time = **180** min

Effective Storage Volume of Water in the Trial Pit = **0.4692** m³
 75% Effective Depth = **2055** mm from ground level
 25% Effective Depth = **2285** mm from ground level
 Time at 75% Effective Depth = **n/a** minutes
 Time at 25% Effective Depth = **n/a** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **2.08** m²

t_{p75-25} = **0** sec

f = **#DIV/0!** m/sec

Average Soakaway Rate = **7.8E-06** m³/sec

Average soakaway area = **2.91** m² (sides + base)

BR365 Soil Infiltration Rate = #DIV/0! m/sec

Average Infiltration Rate = 2.7E-06 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

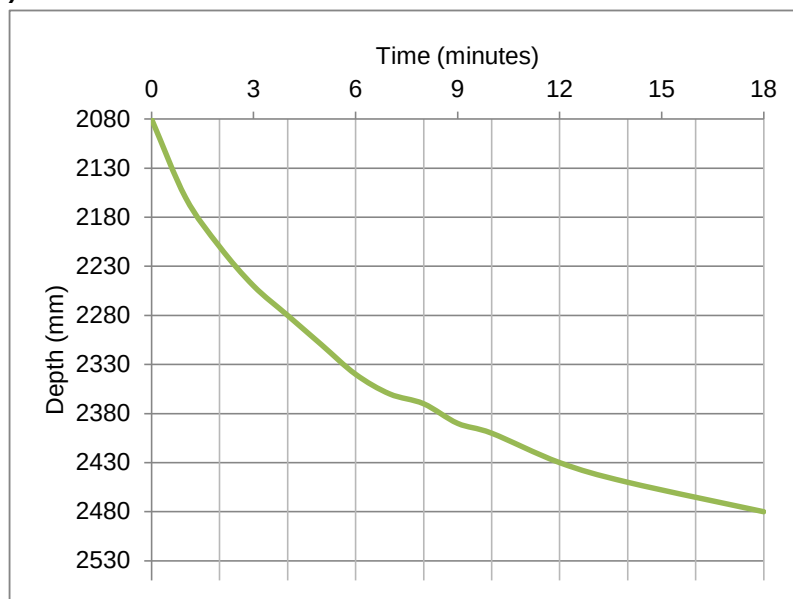
Test No. SA04/TP116 (Test 1)**Test Pit Dimensions**

Length = **1600** mm Plan area = **0.96** m²
 Width = **600** mm
 Depth = **2550** mm (Total depth)

Approximate time to discharge water into the hole: **60** Seconds
 Depth to water after completion of pumping: **2080** mm

Time (min) Depth (mm)

0	2080
1	2160
2	2210
3	2250
4	2280
5	2310
6	2340
7	2360
8	2370
9	2390
10	2400
12	2430
14	2450
18	2480

**Test Pit Log**

Depth (m)	Description
0.0 - 0.7	Grass over MADE GROUND: Grey slightly clayey silty sandy GRAVEL with medium cobble content.
0.7 - 1.5	Light brown gravelly silty SAND.
1.5 - 2.55	Medium weak light brown weathered SANDSTONE.

(Consulting Engineers) Ltd

PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA04/TP116 (Test 1)

Soil Infiltration Rate in Accordance with BR365

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

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 = **2250** mm Average water depth: **185** mm

Start time = **3** min

Change in water depth: **230** mm

Final parameters

Depth to water = **2480** mm Time interval: **15** min

End time = **18** min

Effective Storage Volume of Water in the Trial Pit = **0.4512** m³
 75% Effective Depth = **2198** mm from ground level
 25% Effective Depth = **2433** mm from ground level
 Time at 75% Effective Depth = **2** minutes
 Time at 25% Effective Depth = **12.1** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **1.99** m²

t_{p75-25} = **618** sec

f = **1.8E-04** m/sec

Average Soakaway Rate = **2.5E-04** m³/sec

Average soakaway area = **1.77** m² (sides + base)

BR365 Soil Infiltration Rate = 1.8E-04 m/sec

Average Infiltration Rate = 1.4E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA04/TP116 (Test 2)

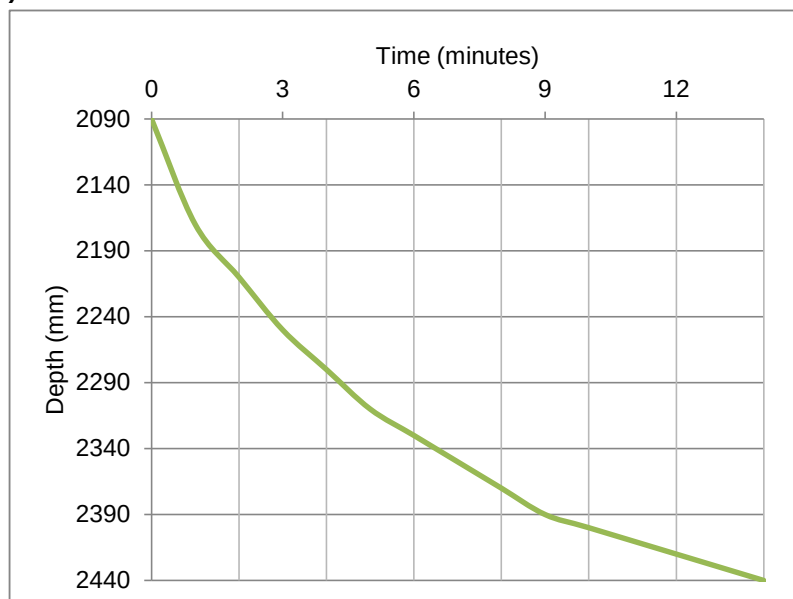
Test Pit Dimensions

Length = 1600 mm Plan area = 0.96 m²
 Width = 600 mm
 Depth = 2550 mm (Total depth)

Approximate time to discharge water into the hole: 60 Seconds
 Depth to water after completion of pumping: 2090 mm

Time (min) Depth (mm)

0	2090
1	2170
2	2210
3	2250
4	2280
5	2310
6	2330
7	2350
8	2370
9	2390
10	2400
12	2420
14	2440

**Test Pit Log**

Depth (m)	Description
0.0 - 0.7	Grass over MADE GROUND: Grey slightly clayey silty sandy GRAVEL with medium cobble content.
0.7 - 1.5	Light brown gravelly silty SAND.
1.5 - 2.55	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA04/TP116 (Test 2)

Soil Infiltration Rate in Accordance with BR365

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

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 = **2210** mm Average water depth: **225** mm

Start time = **2** min

Change in water depth: **230** mm

Final parameters

Depth to water = **2440** mm Time interval: **12** min

End time = **14** min

Effective Storage Volume of Water in the Trial Pit = **0.4416** m³
 75% Effective Depth = **2205** mm from ground level
 25% Effective Depth = **2435** mm from ground level
 Time at 75% Effective Depth = **2** minutes
 Time at 25% Effective Depth = **13.5** minutes

V_{p75-25} = **0.22** m³

a_{p50} = **1.97** m²

t_{p75-25} = **696** sec

f = **1.6E-04** m/sec

Average Soakaway Rate = **3.1E-04** m³/sec

Average soakaway area = **1.95** m² (sides + base)

BR365 Soil Infiltration Rate = 1.6E-04 m/sec

Average Infiltration Rate = 1.6E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

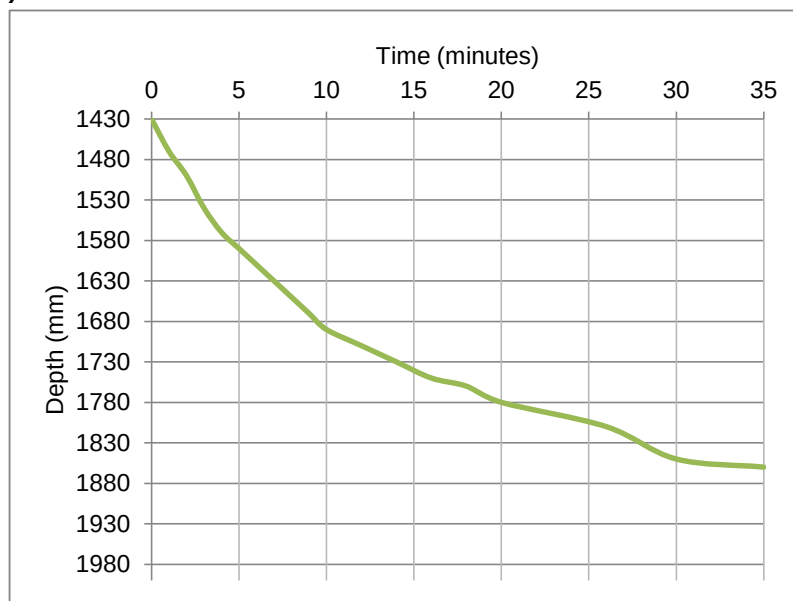
Test No. SA05/TP117 (Test 1)**Test Pit Dimensions**

Length = **1800** mm Plan area = **1.26** m²
 Width = **700** mm
 Depth = **2000** mm (Total depth)

Approximate time to discharge water into the hole: **60** Seconds
 Depth to water after completion of pumping: **1430** mm

Time (min) Depth (mm)

0	1430
1	1470
2	1500
3	1540
4	1570
5	1590
6	1610
7	1630
8	1650
9	1670
10	1690
12	1710
14	1730
16	1750
18	1760
20	1780
26	1810
30	1850
35	1860

**Test Pit Log**

Depth (m)	Description
0.0 - 0.35	MADE GROUND: Brown clayey silty sandy GRAVEL and COBBLES.
0.35 - 0.5	MADE GROUND: Brown silty sandy GRAVEL and COBBLES (reworked sandstone).
0.5 - 1.1	MADE GROUND: Grey brown sandy GRAVEL.
1.1 - 2.0	Medium weak brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA05/TP117 (Test 1)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1570** mm Average water depth: **285** mm

Start time = **4** min

Change in water depth: **290** mm

Final parameters

Depth to water = **1860** mm Time interval: **31** min

End time = **35** min

Effective Storage Volume of Water in the Trial Pit = **0.7182** m³
 75% Effective Depth = **1573** mm from ground level
 25% Effective Depth = **1858** mm from ground level
 Time at 75% Effective Depth = **4** minutes
 Time at 25% Effective Depth = **33** minutes

V_{p75-25} = **0.36** m³

a_{p50} = **2.69** m²

t_{p75-25} = **1728** sec

f = **7.7E-05** m/sec

Average Soakaway Rate = **2.0E-04** m³/sec

Average soakaway area = **2.69** m² (sides + base)

BR365 Soil Infiltration Rate = 7.7E-05 m/sec

Average Infiltration Rate = 7.3E-05 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

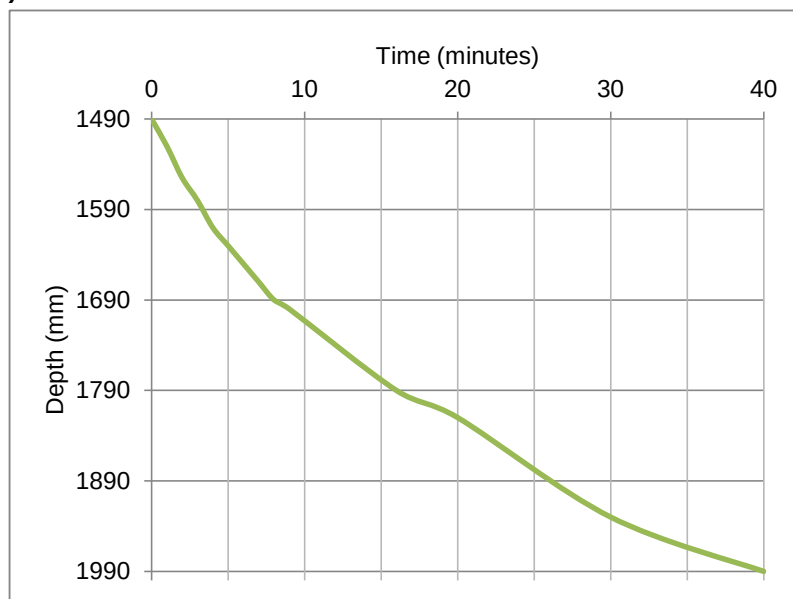
Test No. SA05/TP117 (Test 2)**Test Pit Dimensions**

Length = **1800** mm Plan area = **1.26** m²
 Width = **700** mm
 Depth = **2000** mm (Total depth)

Approximate time to discharge water into the hole: **50** Seconds
 Depth to water after completion of pumping: **1490** mm

Time (min) Depth (mm)

0	1490
1	1520
2	1555
3	1580
4	1610
5	1630
6	1650
7	1670
8	1690
9	1700
16	1790
20	1820
30	1930
40	1990

**Test Pit Log**

Depth (m)	Description
0.0 - 0.35	MADE GROUND: Brown clayey silty sandy GRAVEL and COBBLES.
0.35 - 0.5	MADE GROUND: Brown silty sandy GRAVEL and COBBLES (reworked sandstone).
0.5 - 1.1	MADE GROUND: Grey brown sandy GRAVEL.
1.1 - 2.0	Medium weak brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA05/TP117 (Test 2)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1490** mm Average water depth: **260** mm

Start time = **0** min

Change in water depth: **500** mm

Final parameters

Depth to water = **1990** mm Time interval: **40** min

End time = **40** min

Effective Storage Volume of Water in the Trial Pit = **0.6426** m³
 75% Effective Depth = **1618** mm from ground level
 25% Effective Depth = **1873** mm from ground level
 Time at 75% Effective Depth = **5** minutes
 Time at 25% Effective Depth = **25** minutes

V_{p75-25} = **0.32** m³

a_{p50} = **2.54** m²

t_{p75-25} = **1230** sec

f = **1.0E-04** m/sec

Average Soakaway Rate = **2.6E-04** m³/sec

Average soakaway area = **2.56** m² (sides + base)

BR365 Soil Infiltration Rate = 1.0E-04 m/sec

Average Infiltration Rate = 1.0E-04 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked KE

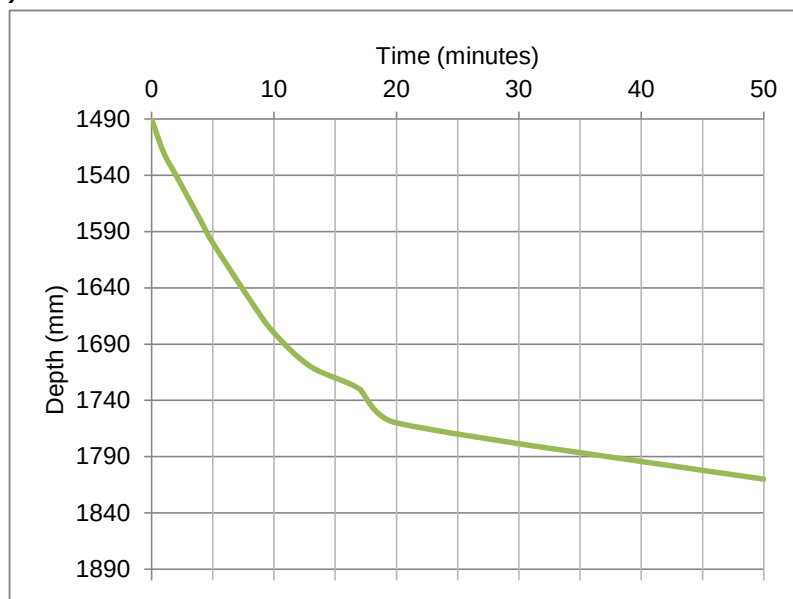
Test No. SA06/TP118 (Test 1)**Test Pit Dimensions**

Length = **1800** mm Plan area = **1.26** m²
 Width = **700** mm
 Depth = **1900** mm (Total depth)

Approximate time to discharge water into the hole: **40** Seconds
 Depth to water after completion of pumping: **1490** mm

Time (min) Depth (mm)

0	1490
1	1520
2	1540
3	1560
4	1580
5	1600
8	1650
10	1680
13	1710
17	1730
20	1760
50	1810

**Test Pit Log**

Depth (m)	Description
0.0 - 0.3	Grass over MADE GROUND: Sandy GRAVEL of Type 1.
0.3 - 0.4	MADE GROUND: Very stiff dark grey brown slightly sandy slightly gravelly CLAY.
0.4 - 1.9	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked KE

Test No. SA06/TP118 (Test 1)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1680** mm Average water depth: **155** mm

Start time = **10** min

Change in water depth: **130** mm

Final parameters

Depth to water = **1810** mm Time interval: **40** min

End time = **50** min

Effective Storage Volume of Water in the Trial Pit = **0.5166** m³
 75% Effective Depth = **1593** mm from ground level
 25% Effective Depth = **1798** mm from ground level
 Time at 75% Effective Depth = **5** minutes
 Time at 25% Effective Depth = **41** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.29** m²

t_{p75-25} = **2178** sec

f = **5.2E-05** m/sec

Average Soakaway Rate = **6.8E-05** m³/sec

Average soakaway area = **2.04** m² (sides + base)

BR365 Soil Infiltration Rate = 5.2E-05 m/sec

Average Infiltration Rate = 3.4E-05 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA06/TP118 (Test 2)**Test Pit Dimensions**Length = **1800 mm**Plan area = **1.26 m²**Width = **700 mm**Depth = **1900 mm (Total depth)**

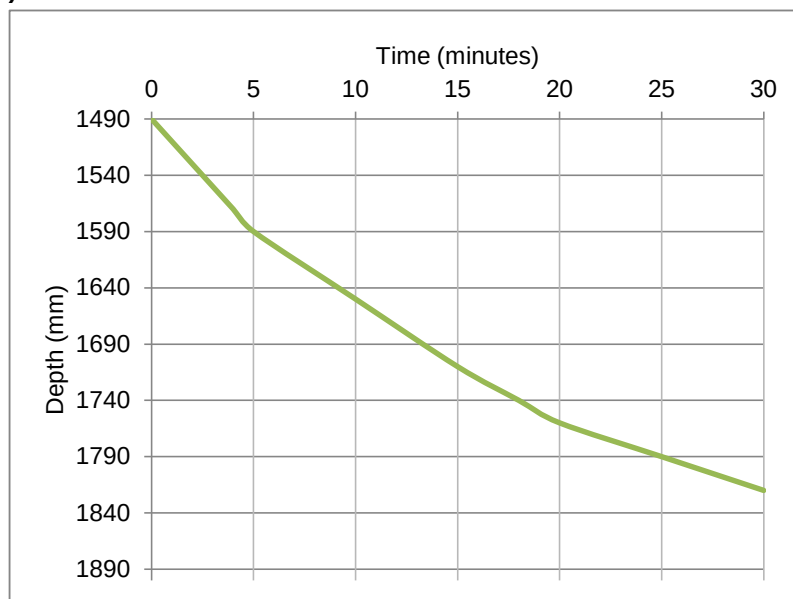
Approximate time to discharge water into the hole:

45 Seconds

Depth to water after completion of pumping:

1490 mm**Time (min) Depth (mm)**

0	1490
1	1510
2	1530
3	1550
4	1570
5	1590
10	1650
15	1710
18	1740
20	1760
25	1790
30	1820

**Test Pit Log**

Depth (m)	Description
0.0 - 0.3	Grass over MADE GROUND: Sandy GRAVEL of Type 1.
0.3 - 0.4	MADE GROUND: Very stiff dark grey brown slightly sandy slightly gravelly CLAY.
0.4 - 1.9	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA06/TP118 (Test 2)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1490** mm Average water depth: **245** mm

Start time = **0** min

Change in water depth: **330** mm

Final parameters

Depth to water = **1820** mm Time interval: **30** min

End time = **30** min

Effective Storage Volume of Water in the Trial Pit = **0.5166** m³
 75% Effective Depth = **1593** mm from ground level
 25% Effective Depth = **1798** mm from ground level
 Time at 75% Effective Depth = **5** minutes
 Time at 25% Effective Depth = **27** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.29** m²

t_{p75-25} = **1314** sec

f = **8.6E-05** m/sec

Average Soakaway Rate = **2.3E-04** m³/sec

Average soakaway area = **2.49** m² (sides + base)

BR365 Soil Infiltration Rate = 8.6E-05 m/sec

Average Infiltration Rate = 9.3E-05 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA06/TP118 (Test 3)**Test Pit Dimensions**Length = **1800** mmPlan area = **1.26** m²Width = **700** mmDepth = **1900** mm (Total depth)

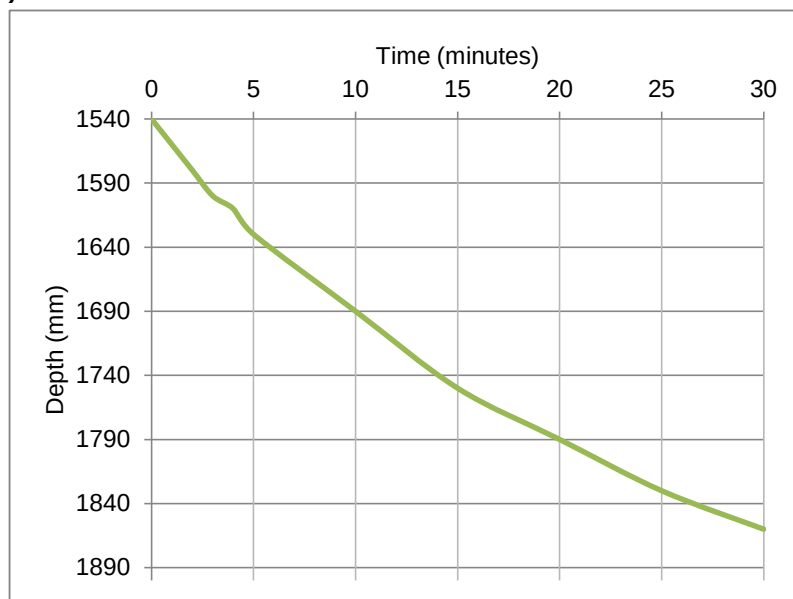
Approximate time to discharge water into the hole:

40 Seconds

Depth to water after completion of pumping:

1540 mm**Time (min)****Depth (mm)**

0	1540
1	1560
2	1580
3	1600
4	1610
5	1630
10	1690
15	1750
20	1790
25	1830
30	1860

**Test Pit Log****Depth (m)****Description**

0.0 - 0.3	Grass over MADE GROUND: Sandy GRAVEL of Type 1.
0.3 - 0.4	MADE GROUND: Very stiff dark grey brown slightly sandy slightly gravelly CLAY.
0.4 - 1.9	Medium weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared LCN	Checked DN

Test No. SA06/TP118 (Test 3)

Soil Infiltration Rate in Accordance with BR365

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

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 = **1540** mm Average water depth: **200** mm

Start time = **0** min

Change in water depth: **320** mm

Final parameters

Depth to water = **1860** mm Time interval: **30** min

End time = **30** min

Effective Storage Volume of Water in the Trial Pit = **0.4536** m³
 75% Effective Depth = **1630** mm from ground level
 25% Effective Depth = **1810** mm from ground level
 Time at 75% Effective Depth = **5** minutes
 Time at 25% Effective Depth = **22.5** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **2.16** m²

t_{p75-25} = **1050** sec

f = **1.0E-04** m/sec

Average Soakaway Rate = **2.2E-04** m³/sec

Average soakaway area = **2.26** m² (sides + base)

BR365 Soil Infiltration Rate = 1.0E-04 m/sec

Average Infiltration Rate = 9.9E-05 m/sec

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked

Test No. SA07/TP121

Test Pit Dimensions

Length = 1800 mm

Plan area = 1.08 m²

Width = 600 mm

Depth = 2100 mm (Total depth)

Approximate time to discharge water into the hole:

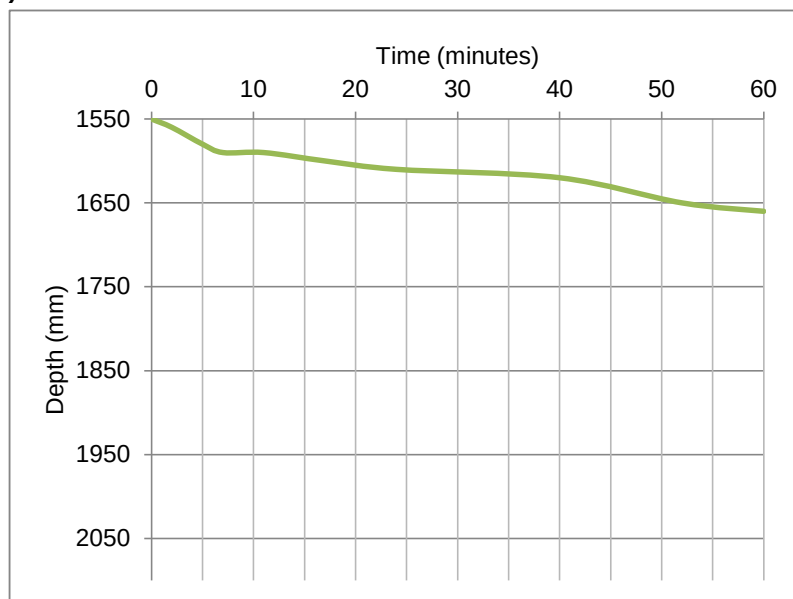
180 Seconds

Depth to water after completion of pumping:

1550 mm

Time (min) Depth (mm)

0	1550
2	1560
5	1580
7	1590
11	1590
17	1600
24	1610
40	1620
52	1650
60	1660

**Test Pit Log**

Depth (m)	Description
0.0 - 0.3	TOPSOIL/MADE GROUND: Greyish brown slightly sandy slightly gravelly CLAY.
0.3 - 0.9	MADE GROUND: Brown silty slightly sandy slightly gravelly CLAY with low cobble content.
0.9 - 1.1	Very stiff brown silty CLAY.
1.1 - 2.1	Weak light brown weathered SANDSTONE.

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PROJECT:	BONDFIELD CRESENT, WOMBWELL	Job No. 42937	Date 23.08.18
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked GCB

Test No. SA07/TP121

Soil Infiltration Rate in Accordance with BR365

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

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 = **1590** mm Average water depth: **475** mm

Start time = **7** min Change in water depth: **70** mm

Final parameters

Depth to water = **1660** mm Time interval: **53** min

End time = **60** min

Effective Storage Volume of Water in the Trial Pit = **0.594** m³
 75% Effective Depth = **1688** mm from ground level
 25% Effective Depth = **1963** mm from ground level
 Time at 75% Effective Depth = **N/A** minutes
 Time at 25% Effective Depth = **N/A** minutes

V_{p75-25} = **0.30** m³

a_{p50} = **2.40** m²

t_{p75-25} = **0** sec

f = **#DIV/0!** m/sec

Average Soakaway Rate = **2.4E-05** m³/sec

Average soakaway area = **3.36** m² (sides + base)

BR365 Soil Infiltration Rate = #DIV/0! m/sec

Average Infiltration Rate = 7.1E-06 m/sec

Appendix 5

Chemical Test Results (Chemtest report 18-25941-2)

Table of Assessment Values – Residential with Home-grown Produce

Modified Mean Calculations for Topsoil/Made Ground – Benzo(a)anthracene, Chrysene,
Benzo(b)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene

Corrected Mean Calculation for Made Ground – Lead

Modified Mean Calculations for Made Ground – Arsenic, Naphthalene, Benzo(b)fluoranthene, Benzo(a)pyrene,
Dibenzo(a,h)anthracene



Amended Report

Report No.: 18-25941-2

Initial Date of Issue: 05-Sep-2018 **Date of Re-Issue:** 12-Sep-2018

Client: Eastwood & Partners

Client Address: St. Andrews House
23 Kingfield Road
Sheffield
South Yorkshire
S11 9AS

Contact(s): Geo
Daniel Nowell

Project: 42937 Bondfield Court, Wombwell.

Quotation No.: **Date Received:** 28-Aug-2018

Order No.: KE/DN/42937 **Date Instructed:** 28-Aug-2018

No. of Samples: 19

Turnaround (Wkdays): 12 **Results Due:** 12-Sep-2018

Date Approved: 12-Sep-2018

Approved By:

Details: Martin Dyer, Laboratory Manager
Robert Monk, Technical Manager

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678799	678800	678801	678802	678803	678804	678805	678806
	Sample Location:				TP101	TP102	TP103	TP106	TP106	TP107	TP108	TP108
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.2	0.8	0.2	0.1	0.5	0.3	0.3	1.4
	Date Sampled:				22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	N	2192	%	0.001								
Moisture	N	2030	%	0.020	5.1	9.8	5.3	6.3	10	7.1	5.5	21
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Black
Other Material	N	2040		N/A	Stones	Stones	Stones, Roots	Roots, Stones	Stones	Stones	Stones	Stones, Ash
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		N/A	8.2	7.6	7.5	7.3	7.8	8.1	8.1	7.4
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010		0.034			0.021	< 0.010	< 0.010	0.033
Calorific Value	N	2140	MJ/kg	0.10								10
Total Sulphur	M	2175	%	0.010		0.066			0.024	0.036	0.038	0.29
Sulphate (Acid Soluble)	M	2430	%	0.010		0.055			0.017	0.044	0.030	0.10
Arsenic	M	2450	mg/kg	1.0	25	30	18	20	8.9	14	14	110
Cadmium	M	2450	mg/kg	0.10	0.77	0.34	0.30	0.22	0.16	0.28	0.22	0.19
Chromium	M	2450	mg/kg	1.0	62	16	13	16	13	15	15	22
Copper	M	2450	mg/kg	0.50	32	53	31	43	17	27	23	160
Mercury	M	2450	mg/kg	0.10	0.24	0.23	0.13	0.16	< 0.10	0.13	0.42	0.19
Nickel	M	2450	mg/kg	0.50	26	26	22	20	20	25	22	59
Lead	M	2450	mg/kg	0.50	79	99	100	77	30	57	84	360
Selenium	M	2450	mg/kg	0.20	0.70	0.79	0.72	0.94	0.46	0.75	0.56	1.7
Zinc	M	2450	mg/kg	0.50	130	190	130	93	67	110	110	180
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20					1.2			
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0					18			
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0					38			
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0					290			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0					350			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0			

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678799	678800	678801	678802	678803	678804	678805	678806
	Sample Location:				TP101	TP102	TP103	TP106	TP106	TP107	TP108	TP108
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.2	0.8	0.2	0.1	0.5	0.3	0.3	1.4
	Date Sampled:				22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0					3.0			
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0					29			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0					32			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0					380			
Naphthalene	M	2800	mg/kg	0.10	0.48	0.51	0.32	0.64	0.24	0.42	0.51	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	0.63	0.46	0.15	0.13	< 0.10	0.44	0.13	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	3.3	< 0.10	< 0.10	< 0.10	< 0.10	0.34	1.1	< 0.10
Fluorene	M	2800	mg/kg	0.10	2.2	0.15	< 0.10	< 0.10	< 0.10	0.49	0.91	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	31	3.8	1.6	2.0	0.66	5.8	9.7	1.6
Anthracene	M	2800	mg/kg	0.10	6.6	0.65	0.19	0.46	< 0.10	1.7	2.3	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	41	5.6	3.5	4.1	0.15	9.9	12	0.90
Pyrene	M	2800	mg/kg	0.10	35	4.6	2.7	3.1	0.13	8.1	9.1	0.66
Benzo[a]anthracene	M	2800	mg/kg	0.10	17	1.9	0.79	1.1	< 0.10	3.7	3.4	0.12
Chrysene	M	2800	mg/kg	0.10	18	2.2	0.97	1.1	< 0.10	3.5	3.5	0.17
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	20	2.3	0.71	0.86	< 0.10	4.1	3.1	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	8.3	0.53	0.13	0.18	< 0.10	1.5	1.0	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	21	2.2	0.49	0.86	< 0.10	4.7	3.2	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	15	1.5	0.27	0.39	< 0.10	2.6	1.8	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	2.3	< 0.10	< 0.10	< 0.10	< 0.10	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	12	1.2	0.34	0.39	< 0.10	2.4	1.5	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	230	28	12	15	< 2.0	50	53	3.5

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678807	678808	678809	678810	678811	678812	678813	678814
	Sample Location:				TP109	TP110	TP113	TP114	TP115	TP116	TP116	TP117
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				1.0	1.3	0.7	0.8	2.0	0.3	1.0	0.7
	Date Sampled:				22-Aug-2018	22-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY			COVENTRY		COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-			-		-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected			No Asbestos Detected		No Asbestos Detected
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	N	2192	%	0.001								
Moisture	N	2030	%	0.020	9.0	23	11	4.6	14	5.0	8.6	7.3
Soil Colour	N	2040		N/A	Brown	Black	Brown	Yellow	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones, Ash	Stones, Roots	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Clay	Sand	Sand	Sand
pH	M	2010		N/A	8.2	5.6	7.5	7.6	7.0	8.5	6.3	7.5
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.14	0.065	< 0.010	< 0.010	0.036	0.042	0.026
Calorific Value	N	2140	MJ/kg	0.10		15						
Total Sulphur	M	2175	%	0.010	0.015	0.41	0.27	< 0.010	< 0.010	0.042	0.017	0.25
Sulphate (Acid Soluble)	M	2430	%	0.010	0.028	0.24	0.28	< 0.010	< 0.010	0.058	0.024	0.13
Arsenic	M	2450	mg/kg	1.0	11	59	110	6.1	9.3	18	6.2	53
Cadmium	M	2450	mg/kg	0.10	0.20	0.23	1.2	0.14	0.11	0.38	0.20	0.30
Chromium	M	2450	mg/kg	1.0	14	27	39	13	28	17	13	22
Copper	M	2450	mg/kg	0.50	22	220	190	9.6	30	28	9.1	130
Mercury	M	2450	mg/kg	0.10	0.12	0.16	0.32	< 0.10	< 0.10	0.14	< 0.10	1.0
Nickel	M	2450	mg/kg	0.50	25	53	73	33	47	19	26	43
Lead	M	2450	mg/kg	0.50	37	150	510	88	19	120	9.8	230
Selenium	M	2450	mg/kg	0.20	0.48	1.7	1.5	0.48	0.39	0.52	0.50	1.2
Zinc	M	2450	mg/kg	0.50	82	240	640	40	100	120	54	180
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20			14					
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0								
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0								
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0								
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0								
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0								
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0								
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0								
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0								
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0								
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0								
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0								
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0								
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0								

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678807	678808	678809	678810	678811	678812	678813	678814
	Sample Location:				TP109	TP110	TP113	TP114	TP115	TP116	TP116	TP117
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				1.0	1.3	0.7	0.8	2.0	0.3	1.0	0.7
	Date Sampled:				22-Aug-2018	22-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY			COVENTRY		COVENTRY
Determinand	Accred.	SOP	Units	LOD								
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0								
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0								
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0								
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0								
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0								
Naphthalene	M	2800	mg/kg	0.10	0.19	< 0.10	2.4	< 0.10	< 0.10	0.13	< 0.10	2.1
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	1.7	< 0.10	< 0.10	0.37	< 0.10	0.49
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	0.24
Phenanthrene	M	2800	mg/kg	0.10	0.43	1.8	4.4	< 0.10	< 0.10	3.3	< 0.10	5.3
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	1.4	< 0.10	< 0.10	0.26	< 0.10	1.5
Fluoranthene	M	2800	mg/kg	0.10	0.86	0.48	9.7	< 0.10	< 0.10	4.1	< 0.10	8.8
Pyrene	M	2800	mg/kg	0.10	0.80	0.47	9.4	< 0.10	< 0.10	3.4	< 0.10	7.0
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	5.6	< 0.10	< 0.10	0.98	< 0.10	3.3
Chrysene	M	2800	mg/kg	0.10	0.10	< 0.10	5.8	< 0.10	< 0.10	1.2	< 0.10	3.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	6.5	< 0.10	< 0.10	1.3	< 0.10	3.6
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	2.4	< 0.10	< 0.10	0.32	< 0.10	1.2
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	6.9	< 0.10	< 0.10	1.2	< 0.10	3.4
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	3.7	< 0.10	< 0.10	0.71	< 0.10	1.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	0.27	< 0.10	< 0.10	< 0.10	< 0.10	0.11
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	3.5	< 0.10	< 0.10	0.75	< 0.10	1.8
Total Of 16 PAH's	N	2800	mg/kg	2.0	2.4	2.8	64	< 2.0	< 2.0	18	< 2.0	44

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678815	678816	678817
	Sample Location:				TP118	TP121	TP121
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0.3	0.2	1.5
	Date Sampled:				23-Aug-2018	23-Aug-2018	23-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	Cement	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	Chrysotile	
Asbestos by Gravimetry	U	2192	%	0.001		0.39	
Total Asbestos	N	2192	%	0.001		0.39	
Moisture	N	2030	%	0.020	8.3	8.4	6.4
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Roots, Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand
pH	M	2010		N/A	6.0	6.1	7.2
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	< 0.010		< 0.010
Calorific Value	N	2140	MJ/kg	0.10			
Total Sulphur	M	2175	%	0.010	0.034		< 0.010
Sulphate (Acid Soluble)	M	2430	%	0.010	0.031		< 0.010
Arsenic	M	2450	mg/kg	1.0	14	17	4.0
Cadmium	M	2450	mg/kg	0.10	0.17	0.37	< 0.10
Chromium	M	2450	mg/kg	1.0	13	16	14
Copper	M	2450	mg/kg	0.50	24	37	11
Mercury	M	2450	mg/kg	0.10	0.17	0.19	< 0.10
Nickel	M	2450	mg/kg	0.50	17	22	25
Lead	M	2450	mg/kg	0.50	75	100	14
Selenium	M	2450	mg/kg	0.20	0.55	0.93	0.37
Zinc	M	2450	mg/kg	0.50	63	160	36
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20			
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0			
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0			
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0			
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0			
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0			

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				18-25941	18-25941	18-25941
Quotation No.:	Chemtest Sample ID.:				678815	678816	678817
	Sample Location:				TP118	TP121	TP121
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0.3	0.2	1.5
	Date Sampled:				23-Aug-2018	23-Aug-2018	23-Aug-2018
	Asbestos Lab:				COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			
Naphthalene	M	2800	mg/kg	0.10	< 0.10	0.26	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	0.30	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	1.3	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	0.15	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.16	2.6	< 0.10
Pyrene	M	2800	mg/kg	0.10	0.10	2.2	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	0.72	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	0.92	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.77	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.17	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	0.62	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	0.27	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	0.29	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	11	< 2.0

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2140	Calorific Value	Calorific Value	Bomb Calorimeter
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Inorganic Compounds	Human Health - Residential with Homegrown Produce (mg/kg)
Arsenic	37
Cadmium	11
Chromium (III)	910
Chromium (VI)	6
Lead	200
Mercury	1.2
Nickel	180
Selenium	250
Copper	2400
Zinc	3700

Organic Compounds	Human Health - Residential with Homegrown Produce (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13
Acenaphthene	210	510	1100
Acenaphthylene	170	420	920
Fluorene	170	400	860
Phenanthrene	95	220	440
Anthracene	2400	5400	11000
Fluoranthene	280	560	890
Pyrene	620	1200	2000
Benzo(a)anthracene	7.2	11	13
Chrysene	15	22	27
Benzo(b)fluoranthene	2.6	3.3	3.7
Benzo(k)fluoranthene	77	93	100
Benzo(a)pyrene	2.2	2.7	3.0
Dibenz(a,h)anthracene	0.24	0.28	0.3
Indeno(1,2,3-cd)pyrene	27	36	41
Benzo(g,h,i)perylene	320	340	350
Benzene	0.087	0.17	0.37
Toluene	130	290	660
Ethylbenzene	47	110	260
o-Xylene	60	140	330
m-Xylene	59	140	320
p-Xylene	56	130	310

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Prepared	JA	Checked	KE	Date	28.09.18	Job No	42937
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 Eastwood & Partners CONSULTING ENGINEERS St Andrew's House 23 Kingfield Road Sheffield S11 9AS Tel: (0114) 255 4554 Fax: (0114) 255 4330	STRATEGIC TEAM GROUP LIMITED BONDFIELD COURT, WOMBWELL ASSESSMENT CRITERIA – RESIDENTIAL WITH HOMEGROWN PRODUCE
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Contaminant	Phytotoxicity			
	pH 5.0 to 5.5	pH 5.5 to 6.0	pH 6.0 to 6.5	pH >7.0
Arsenic	50			
Cadmium	3			
Chromium	400			
Lead	300			
Mercury	1			
Nickel	50	60	75	110
Copper	80	100	135	200
Zinc	200	200	200	300

The assessment concentration for lead is the Category 4 Screening Level produced by Contaminated Land: Applications in Real Environments (CL:AIRE) and outlined in Appendix H of their report SP1010. The others have been taken from Nathanail, C. P., McCaffrey, C., Gillett, A., Ogden, R., and Nathanail, J., 2015, *'The LQM/CIEH S4ULs for Human Health Risk Assessment'*, Land Quality Press, Nottingham. The metals/metalloids are based on a sandy loam soil and 6% soil organic matter. The assessment values are 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. Instead, the modified mean value should be compared with the assessment concentration.

The assessment values for phytotoxicity are the levels at which plant growth is thought to be affected. They 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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SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Benzo[a]anthracene in Topsoil/Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y		
17.00	TP101 0.2	1.230	Number of results : n =	4
0.79	TP103 0.2	-0.102	Mean : X =	4.90
1.10	TP106 0.1	0.041	Standard deviation : s =	8.07
0.72	TP121 0.2	-0.143	T value : t =	2.353

Corrected mean (95% confidence)

$$= X + t * s / n^{0.5} = 14.39$$

$$\text{Max value} = 17.00$$

$$\log x_m = y_m = 1.230$$

$$\text{Number of results : } N = 4$$

$$\text{Mean } y = 0.257$$

$$\text{Standard deviation of } y : S = 0.654$$

$$T = (y_m - y_a) / S = 1.489$$

$$T_{\text{crit}} (\text{from table A1.3}) = 1.42$$

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Chrysene in Topsoil/Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y		
18.00	TP101 0.2	1.255	Number of results : n =	4
0.97	TP103 0.2	-0.013	Mean : X =	5.25
1.10	TP106 0.1	0.041	Standard deviation : s =	8.50
0.92	TP121 0.2	-0.036	T value : t =	2.353

Corrected mean (95% confidence)

$$= X + t * s / n^{0.5} = 15.25$$

$$\text{Max value} = 18.00$$

$$\log x_m = y_m = 1.255$$

$$\text{Number of results : } N = 4$$

$$\text{Mean } y = 0.312$$

$$\text{Standard deviation of } y : S = 0.630$$

$$T = (y_m - y_a) / S = 1.498$$

$$T_{\text{crit}} (\text{from table A1.3}) = 1.42$$

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Benzo[b]fluoranthene in Topsoil/Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y		
20.00	TP101 0.2	1.301	Number of results : n =	4
0.71	TP103 0.2	-0.149	Mean : X =	5.59
0.86	TP106 0.1	-0.066	Standard deviation : s =	9.61
0.77	TP121 0.2	-0.114	T value : t =	2.353

Corrected mean (95% confidence)

$$= X + t * s / n^{0.5} = 16.89$$

$$\text{Max value} = 20.00$$

$$\log x_m = y_m = 1.301$$

$$\text{Number of results : } N = 4$$

$$\text{Mean } y = 0.243$$

$$\text{Standard deviation of } y : S = 0.706$$

$$T = (y_m - y_a) / S = 1.498$$

$$T_{\text{crit}} (\text{from table A1.3}) = 1.42$$

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Benzo(a)pyrene in Topsoil/Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y		
21.00	TP101 0.2	1.322	Number of results : n =	4
0.49	TP103 0.2	-0.310	Mean : X =	5.74
0.86	TP106 0.1	-0.066	Standard deviation : s =	10.17
0.62	TP121 0.2	-0.208	T value : t =	2.353

Corrected mean (95% confidence)

$$= X + t * s / n^{0.5} = 17.71$$

$$\text{Max value} = 21.00$$

$$\log x_m = y_m = 1.322$$

$$\text{Number of results : } N = 4$$

$$\text{Mean } y = 0.185$$

$$\text{Standard deviation of } y : S = 0.765$$

$$T = (y_m - y_a) / S = 1.487$$

$$T_{\text{crit}} (\text{from table A1.3}) = 1.42$$

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Dibenz(a,h)Anthracene in Topsoil/Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y		
2.30	TP101 0.2	0.362	Number of results : n =	4
0.10	TP103 0.2	-1.000	Mean : X =	0.65
0.10	TP106 0.1	-1.000	Standard deviation : s =	1.10
0.10	TP121 0.2	-1.000	T value : t =	2.353

Corrected mean (95% confidence)

$$= X + t * s / n^{0.5} = 1.94$$

$$\text{Max value} = 2.30$$

$$\log x_m = y_m = 0.362$$

$$\text{Number of results : } N = 4$$

$$\text{Mean } y = -0.660$$

$$\text{Standard deviation of } y : S = 0.681$$

$$T = (y_m - y_a) / S = 1.500$$

$$T_{\text{crit}} (\text{from table A1.3}) = 1.42$$

Result probably an outlier

end

#REF!

PROJECT: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean Value Test for Lead in Made Ground	Prepared DN	Checked NG

In accordance with appendix A, CLR 7 "Assessment of risk to human health from land contamination : an overview of the development of soil guideline values and related research" produced by the Environment Agency. This method uses the geometric mean rather than the arithmetic mean which is used for other contaminants.

Sample results mg/kg		Log sample results
99	TP102 0.8	1.996
30	TP106 0.5	1.477
57	TP107 0.3	1.756
84	TP108 0.3	1.924
37	TP109 1.0	1.568
510	TP113 0.7	2.708
120	TP116 0.3	2.079
75	TP118 0.3	1.875

Calculations based on log results

Number of results : n = 8
Mean : $\bar{X} = 1.923$
Standard deviation : s = 0.378
T value : t = 1.895
Corrected mean (95% confidence) =
 $= \bar{X} + t * s / n^{0.5} = 2.176$

Final results

Mean : $\bar{X} = 84 \text{ mg/kg}$

Corrected mean (95% confidence) = 150 mg/kg

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Arsenic in Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y	
30.00	TP102 0.8	1.477	Number of results : n = 8
8.90	TP106 0.5	0.949	Mean : X = 27.49
14.00	TP107 0.3	1.146	Standard deviation : s = 33.95
14.00	TP108 0.3	1.146	T value : t = 1.895
11.00	TP109 1.0	1.041	
110.00	TP113 0.7	2.041	
18.00	TP116 0.3	1.255	Corrected mean (95% confidence)
14.00	TP118 0.3	1.146	= X + t * s / n^0.5 = 50.23

Max value = 110.00

log xm = ym = 2.041

Number of results : N = 8

Mean y = 1.275

Standard deviation of y : S = 0.346

T = (ym-ya) / S = 2.213

Tcrit (fom table A1.3) = 1.91

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Naphthalene in Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y	
0.51	TP102 0.8	-0.292	Number of results : n = 8
0.24	TP106 0.5	-0.620	Mean : X = 0.56
0.42	TP107 0.3	-0.377	Standard deviation : s = 0.76
0.51	TP108 0.3	-0.292	T value : t = 1.895
0.19	TP109 1.0	-0.721	
2.40	TP113 0.7	0.380	
0.13	TP116 0.3	-0.886	Corrected mean (95% confidence)
0.10	TP118 0.3	-1.000	<u>= X + t * s / n^0.5 = 1.07</u>

Max value = 2.40

log xm = ym = 0.380

Number of results : N = 8

Mean y = -0.476

Standard deviation of y : S = 0.437

T = (ym-ya) / S = 1.962

Tcrit (fom table A1.3) = 1.91

Result probably an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Benzo[b]fluoranthene in Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y	
2.30	TP102 0.8	0.362	Number of results : n = 8
0.10	TP106 0.5	-1.000	Mean : X = 2.20
4.10	TP107 0.3	0.613	Standard deviation : s = 2.30
3.10	TP108 0.3	0.491	T value : t = 1.895
0.10	TP109 1.0	-1.000	
6.50	TP113 0.7	0.813	
1.30	TP116 0.3	0.114	Corrected mean (95% confidence)
0.10	TP118 0.3	-1.000	<u>= X + t * s / n^0.5 = 3.74</u>

Max value = 6.50

log xm = ym = 0.813

Number of results : N = 8

Mean y = -0.076

Standard deviation of y : S = 0.791

T = (ym-ya) / S = 1.124

Tcrit (fom table A1.3) = 1.91

Result probably not an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Benzo[a]pyrene in Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y	
2.20	TP102 0.8	0.342	Number of results : n = 8
0.10	TP106 0.5	-1.000	Mean : X = 2.31
4.70	TP107 0.3	0.672	Standard deviation : s = 2.49
3.20	TP108 0.3	0.505	T value : t = 1.895
0.10	TP109 1.0	-1.000	
6.90	TP113 0.7	0.839	
1.20	TP116 0.3	0.079	Corrected mean (95% confidence)
0.10	TP118 0.3	-1.000	<u>= X + t * s / n^0.5 = 3.98</u>

Max value = 6.90

log xm = ym = 0.839

Number of results : N = 8

Mean y = -0.070

Standard deviation of y : S = 0.801

T = (ym-ya) / S = 1.135

Tcrit (fom table A1.3) = 1.91

Result probably not an outlier

end

#REF!

SITE: Bondfield Court, Wombwell	Job No. 42937	Date 06.09.18
SUBJECT: Mean and Maximum Value Test for Dibenz(a,h)Anthracene in Made Ground	Prepared DN	Checked NG

Results	Sample	Log x = y	
0.10	TP102 0.8	-1.000	Number of results : n = 8
0.10	TP106 0.5	-1.000	Mean : X = 0.12
0.10	TP107 0.3	-1.000	Standard deviation : s = 0.06
0.10	TP108 0.3	-1.000	T value : t = 1.895
0.10	TP109 1.0	-1.000	
0.27	TP113 0.7	-0.569	
0.10	TP116 0.3	-1.000	Corrected mean (95% confidence)
0.10	TP118 0.3	-1.000	<u>= X + t * s / n^0.5 = 0.16</u>

Max value = 0.27

log xm = ym = -0.569

Number of results : N = 8

Mean y = -0.946

Standard deviation of y : S = 0.153

T = (ym-ya) / S = 2.475

Tcrit (fom table A1.3) = 1.91

Result probably an outlier

end

#REF!