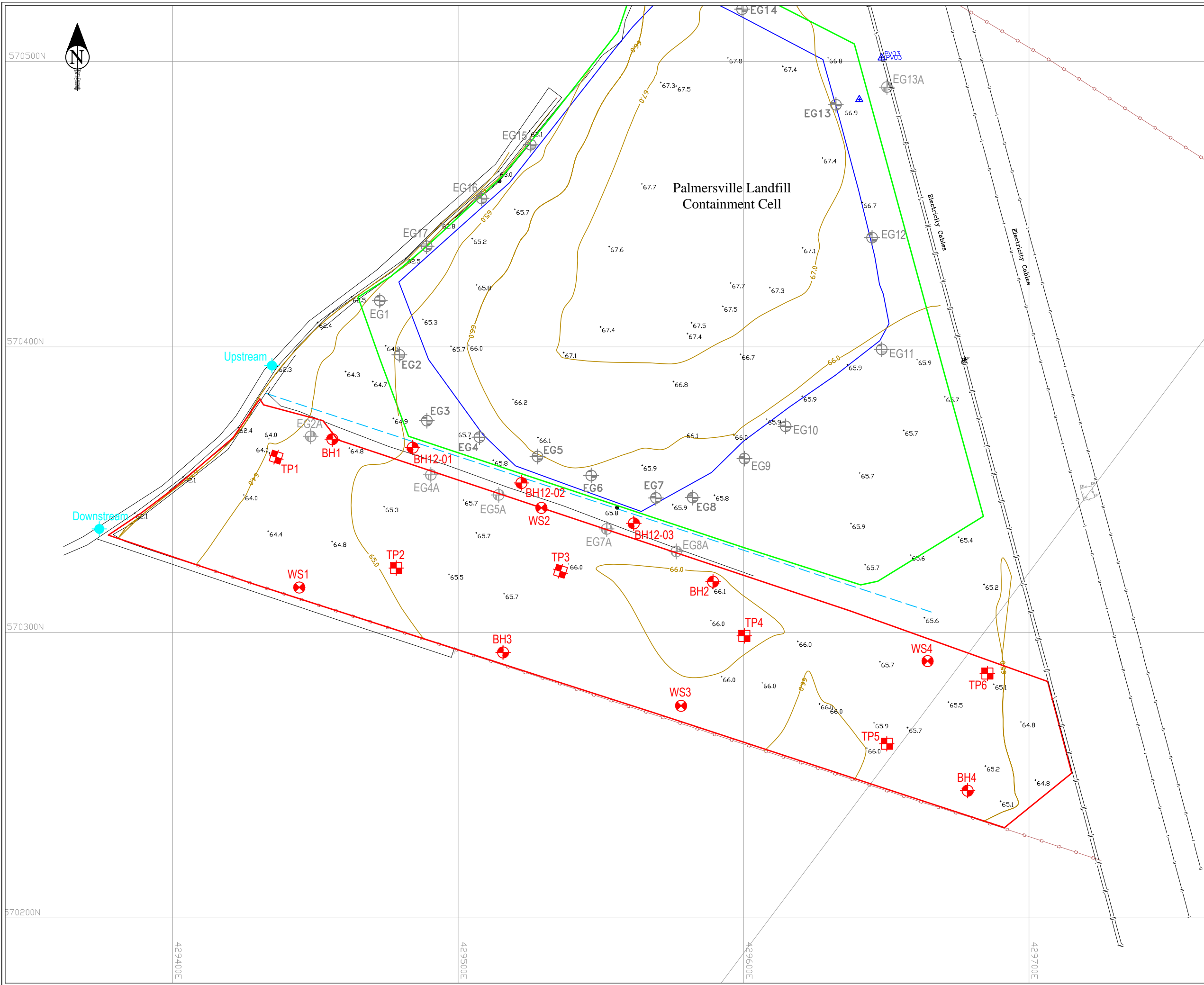


Appendix E Terraconsult Borehole Logs



Key

- Landfill Permit boundary
- Development Site boundary
- Contours (mOD)
- Limit of clay liner
- EG13 EG monitoring boreholes
- EG14A EG*A monitoring boreholes
- BH1 TerraConsult cable percussive borehole
- WS2 TerraConsult window sample
- TP3 TerraConsult trial pit
- Upstream Surface water monitoring point
- BH12-01 Replacement boreholes
- - - Indicative line of drainage ditch



Bold Business Centre, Bold Lane,
Sutton, St Helens WA9 4TX



Site
**Palmersville
Extension**

Title
**Monitoring Well
Location Plan**

Scale		1:1,250	@ A3
Drawing No.		1664/3/001	
Rev	Date	Description	
File 16643001monboreholelocs.dwg			
Date	12/12	Engineer	NF
Drawn	SK	Checked	FINAL

Project Name: Palmersville Extension			Project No. 1664		Co-ords: - Ground Level: 64.60 m OD		Hole Type CP	
Location:			Final depth (m) 6.82		Logged: EM Checked: NHF Drilled: JB		Scale 1:40	
Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description		Water Strikes
Depth (m)	Type, No	Results						Well
0.10	D1		0.25	<0.25> 64.35		MADE GROUND: Grassed dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone		
0.35	D2		0.60	<0.35> 64.00		MADE GROUND: Dark grey sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone. Subangular to subrounded, fine to coarse gravel of coal		
0.60 0.70	D3 B4		1			Stiff brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of mudstone and sandstone		
1.40 1.20-1.62	D6 U5	100 blows	2	<1.60>				
2.20	D7		2.20	62.40		Stiff grey slightly sandy slightly gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone		
2.50-2.95 2.50-2.95	SPT D8	N=23 (3,4/6,5,6,6)	3					
3.00-3.50	B9		4					
4.00 4.00-4.30	D11 U10	100 blows	5	<4.20>				
5.50-5.92 5.50-5.90	SPT D12	50 (7,10/11,13,13,13 for 40mm)	6					
6.40-6.50 6.40 6.40-6.50 6.20-6.82 6.70-6.84	SPT D13 D14 D15 SPT	50 (25 for 45mm/50 for 50mm) 50 (21,4 for 5mm/50 for 60mm)	6.40 6.82	58.20 57.78		Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel		
						End of Borehole at 6.82 m		
Type			Results					

Remarks:
 Hand pit excavated to 1.20m. Groundwater encountered at 6.65m bgl.

Project Name: Palmersville Extension			Project No. 1664		Co-ords: - Ground Level: 66.00 m OD		Hole Type CP	
Location:			Final depth (m) 7.20		Logged: EM Checked: NHF Drilled: JB		Scale 1:40	
Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
0.10	D1			<0.40>	[Cross-hatched pattern]	MADE GROUND: Grassed dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone		
0.50	D2		0.40	65.60		MADE GROUND: Dark grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks, occasional coal and sandstone. Gravel is subangular to subrounded and fine to coarse		
			0.90	65.10	[Stippled pattern]	Stiff brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone		
1.50-1.95	U3	68 blows		<1.60>				
			2.50	63.50		Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone		
3.00-3.45	SPT	N=16 (3,3/3,4,4,5)		<3.90>	[Stippled pattern]			
3.00-3.50	D4							
4.00	D5							
4.50-4.95	SPT	N=20 (3,3/4,5,5,6)						
4.50-5.00	D6				[Stippled pattern]			
6.00-6.45	SPT	N=46 (2,4/8,8,10,20)						
6.00-6.50	D7							
6.50-6.62	SPT	50 (25/50 for 40mm)		6.40	59.60	[Dotted pattern]	Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel	
6.70-6.81	SPT	50 (25/50 for 35mm)						
6.50-7.00	D8							
6.70-7.20	D9							
			7.20	58.80				
End of Borehole at 7.20 m								
Type	Results							

Remarks:

Hand pit excavated to 1.20m. No groundwater encountered. Chiselling for 30 minutes between 7.00 and 7.20m bgl

Project Name: Palmersville Extension			Project No. 1664		Co-ords: - Ground Level: 65.60 m OD		Hole Type CP	
Location:			Final depth (m) 6.50		Logged: EM Checked: NHF Drilled: JB		Scale 1:40	
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		Water Strikes
Depth (m)	Type, No	Results		<Thickness>				Well
0.10 0.20	D1 D2		0.15	<0.15> 65.45		MADE GROUND: Grassed dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone		
0.20-0.75 0.50	B3 D4		0.75	<0.60>		MADE GROUND: Dark grey clayey slightly sandy gravel. Sand is fine to coarse of ash, gravel is angular to subrounded fine to coarse of mixed lithologies consisting of limestone, sandstone, clinker and mudstone		
0.75	D5		0.75	64.85				
0.75-1.20	B6		1	<0.45>		Stiff brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone		
1.20	D7		1.20	64.40				
1.30-1.75	U8	49 blows						
1.80	D9							
1.80-2.10	B10		2					
2.10	D11							
2.20-2.65	SPT	N=30 (4,5,7,7,8,8)						
2.20-2.65 2.20-2.70	D12 B13							
			3					
3.20-3.65 3.55	D14 D15			<4.60>				
			4					
4.20-4.63	SPT	50 (5,8,9,14,16,11 for 50mm)						
4.20-4.60	D16							
			5					
5.20-5.42 5.20-5.42	SPT D17	50 (10,13/50 for 70mm)						
5.42-5.60	B18							
5.80-6.07 5.80	SPT D19	50 (7,14/20,30 for 40mm)	5.80	59.80		Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel		
5.80-6.15	D20		6	<0.70>				
6.40-6.50	SPT	50 (25 for 60mm/50 for 40mm)	6.50	59.10		End of Borehole at 6.50 m		
			7					
Type	Results							

Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered

Project Name: Palmersville Extension			Project No. 1664		Co-ords: - Ground Level: 65.85 m OD		Hole Type CP	
Location:			Final depth (m) 3.70		Logged: EM Checked: NHF Drilled: JB		Scale 1:40	
Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
0.10	D1			<0.30>		MADE GROUND: Grassed dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone		
			0.30	65.55				
				<0.30>		MADE GROUND: Dark grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone. Gravel is subangular to subrounded, fine to coarse		
			0.60	65.25				
1.00	D2		1			Stiff brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone		
				<2.30>				
2.00	D3		2					
3.00-3.20	SPT	50 (3,8/50 for 45mm)	2.90	62.95		Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel		
3.00-3.50	D4			<0.80>				
3.50-3.60	SPT	50 (25/50 for 25mm)						
3.50-3.70	D5		3.70	62.15				
						End of Borehole at 3.70 m		
			4					
			5					
			6					
			7					
Type	Results							

Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered. Chiselling for 30 minutes between 3.50 and 3.70m bgl.

Project Name:
Palmer'sville Extension

Project No.
1664

Co-ords: -
 Ground Level: **64.90 m OD**

Hole Type
WS

Location:

Final depth (m)
5.00

Logged: **EM** Checked: **NHF** Drilled: **JB**

Scale
1:40

Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
0.20			<0.20> 64.70	[Cross-hatch pattern]	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.			
0.50			<0.30> 64.40	[Dotted pattern]	MADE GROUND: Dark grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone			
1.00	ES1		<1.00>	[Dotted pattern]	Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone and			
1.20-1.65	SPT	N=10 (1,2/2,3,3,2)						
1.20-2.00	B2		1.50 63.40		Stiff brownish grey slightly sandy gravelly CLAY. Gravel is angular to subrounded, fine to coarse of sandstone and occasional coal			
2.00-2.45	SPT	N=12 (2,2/2,3,3,4)	2					
3.00-3.45	SPT	N=13 (2,2/3,3,4,3)	3					
4.00-4.45 4.00	SPT D3	N=17 (2,3/4,4,4,5)	4					
5.00-5.24	SPT	50 (4,3/25,25 for 15mm)	4.90 60.00 <0.00>		Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel			
End of Borehole at 5.00 m								
			6					
			7					

Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered.

Project Name:
Palmersville Extension

Project No.
1664

Co-ords: -
 Ground Level: **65.70 m OD**

Hole Type
WS

Location:

Final depth (m)
3.45

Logged: **EM** Checked: **NHF** Drilled: **JB**

Scale
1:40

Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
1.00	ES1		0.30	<0.30> 65.40		MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.		
1.20-1.65	SPT	N=12 (2,2/2,3,3,4)	0.70	<0.40> 65.00		MADE GRUND: Dark grey slightly sandy gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone.		
1.20-2.00	B2		1			Firm brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone		
2.00-2.45	SPT	N=16 (3,4/3,3,5,5)	2.00	2 63.70		Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobble of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone		
3.00-3.42	SPT	50 (6,9/12,14,14,10 for 40mm)	3	<1.45>				
			3.45	62.25		End of Borehole at 3.45 m		
			4					
			5					
			6					
			7					

Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered.

Project Name:
Palmersville Extension

Project No.
1664

Co-ords: -
 Ground Level: **65.80 m OD**

Hole Type
WS

Location:

Final depth (m)
5.45

Logged: **EM** Checked: **NHF** Drilled: **JB**

Scale
1:40

Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
0.50	ES1		0.30	<0.30>		MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone		
			0.60	<0.30>		MADE GROUND: Dark grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone		
1.20-1.65	SPT	N=11 (1,2/2,3,3,3)	1	<1.10>		Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone.		
1.20-2.00	B2		1.70	64.10				
2.00-2.45	SPT	N=10 (2,2/3,2,3,2)	2	<0.50>		Stiff brownish grey slightly sandy gravelly CLAY. Gravel is angular to subrounded, fine to coarse of sandstone, mudstone and occasional coal		
2.00-3.00	B3		2.20	63.60				
3.00-3.45	SPT	N=14 (2,2/3,3,4,4)	3					
4.00-4.45	SPT ES4	N=20 (4,4/4,5,5,6)	4	<3.25>		Stiff grey slightly sandy slightly gravelly CLAY with occasional subrounded cobble of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone.		
5.00-5.45	SPT	N=36 (4,6/7,9,9,11)	5					
			5.45	60.35		End of Borehole at 5.45 m		
			6					
			7					

Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered.

Project Name:
Palmer'sville Extension

Project No.
1664

Co-ords: -
 Ground Level: **65.60 m OD**

Hole Type
WS

Location:

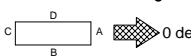
Final depth (m)
5.45

Logged: **EM** Checked: **NHF** Drilled: **JB**

Scale
1:40


Samples & In Situ Testing			Depth (m)	Level (m AOD) <Thickness>	Legend	Stratum Description	Water Strikes	Well
Depth (m)	Type, No	Results						
0.10	ES1		0.10	<0.10> 65.50		MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.		
			0.60	<0.50> 65.00		MADE GROUND: Dark grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of bricks and sandstone.		
			1.20	<0.60> 64.40		Firm brownish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone		
1.20-1.65	SPT	N=11 (1,2,3,2,3,3)	1.20	64.40		Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobble of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone		
1.20-2.00	B2							
2.00-2.45	SPT	N=21 (5,6/7,5,5,4)	2					
3.00-3.45	SPT	N=31 (2,3/4,6,9,12)	3	<3.60>				
4.00-4.45 4.00	SPT ES3	N=20 (3,3/4,4,5,7)	4					
5.00-5.45	SPT	N=38 (10,11/9,10,9,10)	5	60.80 <0.65> 60.15		Grey SANDSTONE recovered as subangular to subrounded, fine to coarse gravel.		
End of Borehole at 5.45 m								
			6					
			7					
Type	Results							

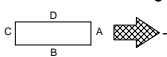
Remarks:
 Hand pit excavated to 1.20m. No groundwater encountered.





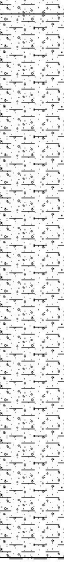
Personnel: Logged by: EM Date: 20/09/2012 Checked by: NHF		Equipment & methods: Method: JCB 3CX Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.70m Length: 2.80m 		Coordinates & level: UK National Grid 0.00mE 0.00mN 63.600m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			0.30	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.			
			63.30 0.30	MADE GROUND: Firm brown mottled grey slightly sandy gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone. Few gravel sized fragment of coal and gravel encountered.	0.30	ES 001	
			0.70				
			62.60 1.00	Stiff brownish grey slightly sandy gravelly CLAY with few subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of sandstone and mudstone	1.00	D 002	
			0.50				
			62.10 1.50	Stiff dark brown and grey slightly sandy slightly gravelly CLAY with occasional subrounded cobbles and boulders of sandstone. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone	1.50	ES 003	
			1.30				
			60.8(0.00)2.80	Stiff grey slightly sandy slightly gravelly CLAY with occasional cobbles of sandstone. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone	3.00	ES 004	
				Exploratory hole ends at 4.30 m			


Groundwater entries: Struck: Rose to: Rate of inflow: No Groundwater Encountered	Depth related remarks: From: To:	General remarks: Weather: Stability: Stable Remarks:
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 Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres. Log issue: Scale: 1:25	Project: Palmerstonville Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP1
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Personnel: Logged by: EM Date: 20/09/2012 Checked by: NHF		Equipment & methods: Method: JCB 3CX Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.50m Length: 3.30m 		Coordinates & level: UK National Grid 64.800m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			64.60 0.20	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.	0.20	ES 001	
			64.00 0.80	MADE GROUND: Firm brown mottled grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone. Few gravel sized fragment of coal	1.00	D 002	
			63.10 1.70	Stiff brown mottled grey slightly sandy slightly gravelly CLAY with few subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of sandstone and mudstone.	2.00	ES 003	
			62.10 2.70	Stiff dark brown and grey slightly sandy slightly gravelly CLAY with occasional subrounded cobbles and boulders of sandstone. Gravel is subangular to subrounded, fine to coarse of sandstone	3.00	ES 004	
			60.30 4.50	Exploratory hole ends at 4.50 m	4.50	D 005	

Groundwater entries: Struck: Rose to: Rate of inflow: No Groundwater Encountered	Depth related remarks: From: To:	General remarks: Weather: Stability: Stable Remarks:
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 Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres. Log issue: Scale: 1:25	Project: Palmerstonville Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP2
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Personnel: Logged by: EM Date: 20/09/2012 Checked by: NHF		Equipment & methods: Method: JCB 3CX Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.50m Length: 3.30m 		Coordinates & level: UK National Grid - - 65.700m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			65.40	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.	0.30	ES 001	
			64.90	MADE GROUND: Firm brownish grey slightly sandy slightly gravelly clay. Gravel is angular to rounded, fine to coarse of sandstone and mudstone. Few gravel sized fragment of coal encountered	1.00	ES 002	
			63.80	Stiff dark brown and grey slightly sandy slightly gravelly CLAY with occasional subrounded cobbles and boulders of sandstone. Gravel is subangular to rounded, fine to coarse of sandstone	3.00	D 003	
			61.70	Exploratory hole ends at 4.00 m			


Groundwater entries: Struck: Rose to: Rate of inflow: No Groundwater Encountered	Depth related remarks: From: To:	General remarks: Weather: Stability: Stable Remarks:
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 <small>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres.</small> Log issue: Scale: 1:25	Project: Palmersville Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP3
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Personnel: Logged by: EM Date: 20/09/2012 Checked by: NHF		Equipment & methods: Method: JCB 3CX Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.50m Length: 3.20m 		Coordinates & level: UK National Grid - - 65.800m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			65.50	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.	0.30	ES 001	
			64.60	MADE GROUND: Firm brown mottled grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone. Few gravel sized fragment of coal encountered.	1.20	ES 002	
			63.40	Stiff grey mottled brown slightly sandy gravelly CLAY with few subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of sandstone.	2.40	ES 003	
			61.30	Stiff grey slightly sandy slightly gravelly CLAY with occasional cobbles of sandstone. Gravel is subangular to subrounded, fine to coarse of sandstone.	4.50		
Exploratory hole ends at 4.50 m							


Groundwater entries: Struck: Rose to: Rate of inflow: No Groundwater Encountered	Depth related remarks: From: To: 1.60 1.60 Becoming clayey SAND 3.40 4.00 Occasional subrounded cobbles and boulders of sandstone	General remarks: Weather: Stability: Stable Remarks:
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 <small>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres.</small> Log issue: Scale: 1:25	Project: Palmerstonville Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP4
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Personnel: Logged by: EM Date: 20/09/2012 Checked by: NHF		Equipment & methods: Method: JCB 3CX Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.50m Length: 3.30m 		Coordinates & level: UK National Grid 66.000m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			(0.20)	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.			
			65.80 0.20	MADE GROUND: Firm yellowish brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded, fine to coarse of sandstone. Few gravel sized fragment of coal encountered.	0.50	ES 001	
			(1.00)				
			64.80 1.20	Stiff greyish brown slightly sandy slightly gravelly CLAY with few subrounded cobbles of sandstone. Gravel is angular to rounded, fine to coarse of sandstone and mudstone			
			(2.10)				
			62.70 3.30	Stiff grey slightly sandy slightly gravelly CLAY with occasional cobbles of sandstone. Gravel is subangular to subrounded, fine to coarse of sandstone	3.50	ES 003	
			(0.70)				
			62.00 4.00	Exploratory hole ends at 4.00 m			

Groundwater entries: Struck: Rose to: Rate of inflow: 4.00 -	Depth related remarks: From: To: 3.10 - Occasional subrounded cobbles and boulders of sandstone	General remarks: Weather: Stability: Stable Remarks: Groundwater encountered at 4.00m as a slight seepage. A hydrocarbon odour and sheen was noted on the water.
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 <small>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres.</small> Log issue: Scale: 1:25	Project: Palmerston Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP5
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Personnel: Logged by: - Date: - Checked by: -		Equipment & methods: Method: - Plant: JCB 3CX Shoring: None		Dimensions & orientation: Width: 0.50m Length: 3.50m 		Coordinates & level: UK National Grid - - 65.600m		Dates: Start: 20/09/2012 End: 20/09/2012 Backfilled: 20/09/2012	
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Backfill/ Inst.	Water- strikes	Legend	Level Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth (m)	Type & No.	Results
			0.30	MADE GROUND: Topsoil over dark brown slightly gravelly sandy clay. Gravel is angular to subrounded, fine to coarse of sandstone.			
			65.30 0.30	MADE GROUND: Firm brownish grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and quartz.	0.50	D 001	
			(1.40)				
			63.90 1.70	Stiff greyish brown slightly sandy slightly gravelly CLAY with few subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of sandstone	2.00	D 002	
			(0.90)				
			63.00 2.60	Stiff grey slightly sandy slightly gravelly CLAY with occasional cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of sandstone and mudstone	3.50	D 003	
			(1.40)				
			61.60 4.00	Exploratory hole ends at 4.00 m			


Groundwater entries: Struck: Rose to: Rate of inflow: No Groundwater Encountered	Depth related remarks: From: To:	General remarks: Weather: Stability: Stable Remarks:
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 <small>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres.</small> Log issue: Scale: 1:25	Project: Palmerstonville Extension Project No: 1664 Client: Banks Group Engineer: NHF / EE	Trial pit no: TP6
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Personnel: Drilled by: JB Logged by: NHF Checked by: CSE		Equipment & methods: Plant: Dando 2000 Method: Dando 2000 Flush: SPT Hammer details:		Hole diameter & casing depths: Dia (mm): to: Casing depth:		Coordinates & level: UK National Grid - 64.120m		Dates: Start: 13/12/2012 End: 13/12/2012 Backfilled: -	
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Backfill/Inst.	Water-strikes	Legend	Level (Thickness)	Depth	Stratum Description	Progress, Casing & Water Data		Samples & In Situ Testing		
						Date Casing	Time Water	Depth	Type & No.	Results
			(1.50)	62.62	1.50	MADE GROUND: Stiff brownish grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone				
			(5.50)			Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone				
			(0.80)	57.12	7.00	Grey fine to coarse subangular SAND and firm to coarse subangular GRAVEL				
			(0.20)	56.32	7.80	Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone				
				56.12	8.00	Exploratory hole ends at 8.00 m				

Instrumentation details: ID: 1 Type: SP Diam: 0 Remarks:		Depth related remarks: From: to:		Groundwater entries: Struck: 5.50 Rose to: - Rate of (20 mins) inflow: - Depth sealed: -		Chiselling: From: 6.10 to: 6.30 Duration (hhmm): 30 m Tool:	
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 <p>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres. Log issue: Scale: 1:50</p>	<p>Project: Palmerstonville Extension Project No: 1664 Client: Banks Group</p>	<p>Borehole no: BH12-1</p>
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Personnel: Drilled by: JB Logged by: NHF Checked by: CSE		Equipment & methods: Plant: Dando 2000 Method: Dando 2000 Flush: SPT Hammer details:		Hole diameter & casing depths: Dia (mm): to: Casing depth:		Coordinates & level: UK National Grid - 64.940m		Dates: Start: 13/12/2012 End: 14/12/2012 Backfilled: -	
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Backfill/Inst.	Water-strikes	Legend	Level (Thickness)	Depth	Stratum Description	Progress, Casing & Water Data		Samples & In Situ Testing	
						Date Casing	Time Water	Depth	Type & No.
			(1.30)	63.64	1.30	MADE GROUND: Stiff brownish grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone			
			(4.70)			Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone			
			(0.40)	58.94	6.00	Grey fine to coarse subangular SAND and firm to coarse subangular GRAVEL			
			(0.60)	58.54	6.40	Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone			
				57.94	7.00	Exploratory hole ends at 7.00 m			

Instrumentation details: ID: 1 Type: SP Diam: - Remarks: -		Depth related remarks: From: to:		Groundwater entries: Struck: 5.70 Rose to: - Rate of (20 mins) inflow: - Depth sealed: -		Chiselling: From: 5.80 to: 5.90 Duration (hhmm): 30 m 6.50 - 6.60 30 m 6.80 - 7.00 45m	
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 <p>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres. Log issue: Scale: 1:50</p>	<p>Project: Palmerstonville Extension Project No: 1664 Client: Banks Group</p>	<p>Borehole no: BH12-2</p>
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Personnel: Drilled by: JB Logged by: NHF Checked by: CSE		Equipment & methods: Plant: Dando 2000 Method: Dando 2000 Flush: SPT Hammer details:		Hole diameter & casing depths: Dia (mm): to: Casing depth: 65.140m		Coordinates & level: UK National Grid - - 65.140m		Dates: Start: 14/12/2012 End: 14/12/2012 Backfilled: -	
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Backfill/Inst.	Water-strikes	Legend	Level (Thickness)	Depth	Stratum Description	Progress, Casing & Water Data		Samples & In Situ Testing		
						Date Casing	Time Water	Depth	Type & No.	Results
			(1.40)	63.74	1.40	MADE GROUND: Stiff brownish grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded, fine to coarse of sandstone and mudstone				
			(6.40)	57.34	7.80	Stiff grey slightly sandy gravelly CLAY with occasional subrounded cobbles of sandstone. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone				
						Exploratory hole ends at 7.80 m				

Instrumentation details: ID: 1 Type: SP Diam: - Remarks: -	Depth related remarks: From: - to: -	Groundwater entries: Struck: No Rose to: No Rate of (20 mins) inflow: No Depth sealed: No Encountered: No	Chiselling: From: 5.50 - 5.80 to: 6.00 - 6.20 Duration (hhmm): 25 m 30 m 45 m Tool: -
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 <p>Notes: For explanation of symbols and abbreviations see key sheet. All depths are reduced levels in metres. Log issue: Scale: 1:50</p>	<p>Project: Palmerston Extension Project No: 1664 Client: Banks Group</p>	<p>Borehole no: BH12-3</p>
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