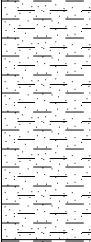
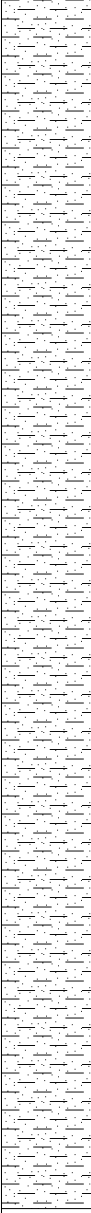
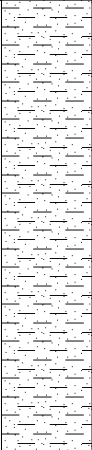


APPENDIX V

E3P LOGS

					Borehole Log			Borehole No. RB101 Sheet 1 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Brown clayey fine to medium SAND (TOPSOIL).	1
								Brown sandy CLAY.	
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	
					2.00				2
									3
									4
									5
									6
									7
									8
9									
								10	
Remarks Complete									

					Borehole Log			Borehole No. RB101 Sheet 2 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	11
									12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks Complete									

					Borehole Log			Borehole No. RB101 Sheet 3 of 5										
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH									
Location: Manchester					Level:		Scale 1:50		Logged By									
Client: Engie					Dates:													
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description										
		Depth (m)	Type	Results														
					23.00			Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	21									
									22									
									23									
									24									
									25									
									26									
									27									
									28									
									29									
									30									
					28.00			Dark grey MUDSTONE.	23									
									24									
									25									
									26									
									27									
									28									
									29									
									30									
														30.00			Black MUDSTONE.	28
																		29
30																		
Remarks Complete																		

					Borehole Log			Borehole No. RB101 Sheet 4 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Light grey MUDSTONE.	31
									32
									33
									34
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
									35
37									
38									
39									
									40
Remarks Complete									

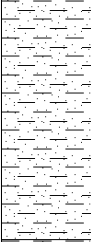
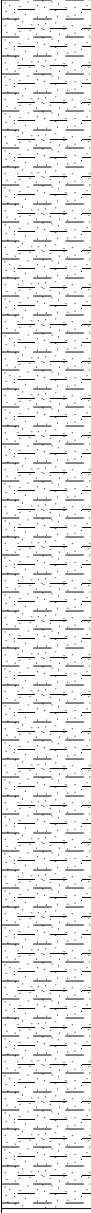
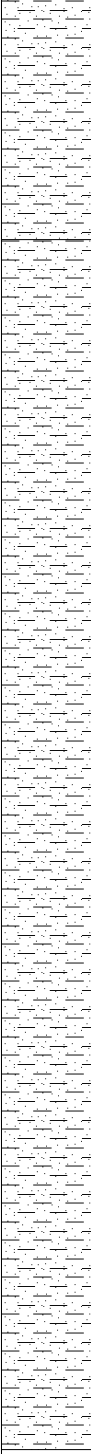


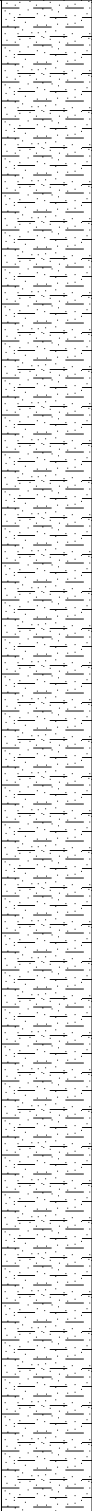
Sheet 5 of 5

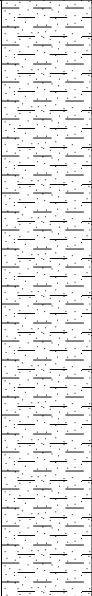
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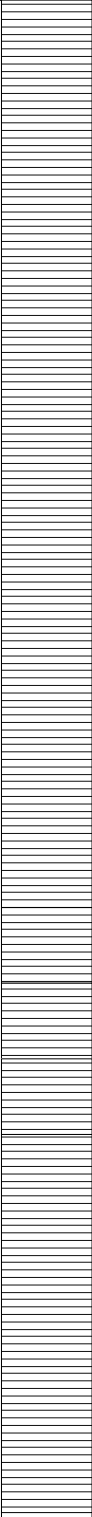
Remarks
Complete



					Borehole Log			Borehole No. RB102 Sheet 1 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Brown clayey fine to medium SAND (TOPSOIL).	1
								Brown sandy CLAY.	
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	
					2.00				2
									3
									4
									5
									6
									7
									8
									9
									10
Remarks Complete									

					<h1>Borehole Log</h1>			Borehole No. RB102	
								Sheet 2 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		
Client: Engie					Dates:		Logged By		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									Remarks Complete

					Borehole Log			Borehole No. RB102 Sheet 3 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					24.00			Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	21
									22
									23
									24
									25
									26
									27
									28
									29
									30
									Remarks Complete

					Borehole Log			Borehole No. RB102	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE.	31
									32
									33
									34
									35
									36
									37
									38
									39
									40
									Remarks Complete



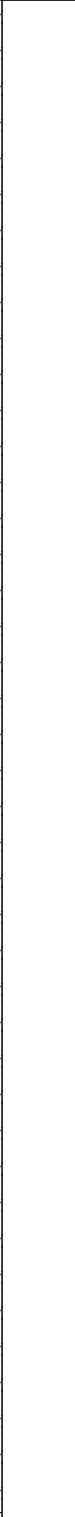
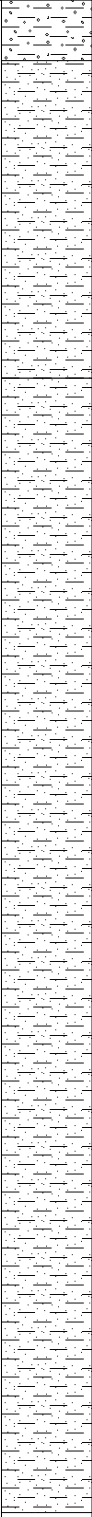
RB102

Hole Type
BH

Logged By

Remarks
Complete



					Borehole Log			Borehole No. RB103 Sheet 1 of 5		
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester					Level:		Scale 1:50		Logged By	
Client: Engie					Dates:					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.40			MADE GROUND: Brown slightly sandy gravelly clay. Gravel is fine to medium subangular to subrounded of brick and concrete. Brown sandy CLAY.	1	
					2.50				Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	2
										3
										4
										5
										6
										7
										8
										9
										10
Remarks Complete										

					<h1>Borehole Log</h1>			Borehole No. RB103 Sheet 2 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks Complete									

				<h1>Borehole Log</h1>				Borehole No. RB103 Sheet 3 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By	
Client: Engie				Dates:					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					23.00		Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	21	
								22	
								23	
								24	
								25	
								26	
								27	
								28	
								29	
								30	

Remarks
 Complete



				Borehole Log				Borehole No. RB103 Sheet 4 of 5				
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH				
Location: Manchester				Level:		Scale 1:50		Logged By				
Client: Engie				Dates:								
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
								Dark grey MUDSTONE.	31			
									32			
									33			
									34			
									35			
									36			
									37			
									38			
									39			
									40			
									33.00		COAL.	33
									33.50		Grey MUDSTONE.	
									34.00		Light grey MUDSTONE.	34
									34.50		Grey MUDSTONE.	
												35
												36
												37
			38									
			39									
			40									
Remarks Complete												

					Borehole Log			Borehole No. RB103 Sheet 5 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE.	41
									42
									43
									44
									45
									46
									47
									48
									49
									50
									51
									52
									53
									54
									55
									56
									57
									58
									59
									60
				50.00				End of Borehole at 50.00m	61
Remarks Complete									



Sheet 1 of 6

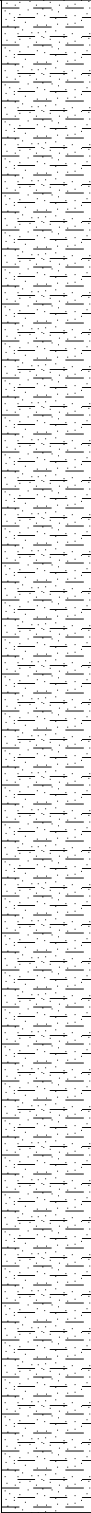
Hole Type
BH

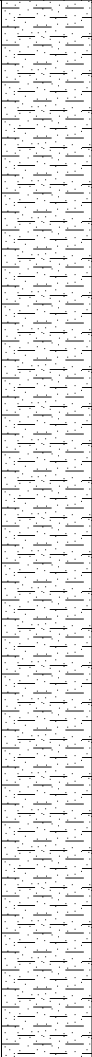
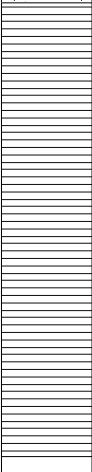
Scale
1:50

Logged By

Remarks	
Complete	



					<h1>Borehole Log</h1>			Borehole No. RB104	
					Sheet 2 of 6				
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		
Client: Engie					Dates:		Logged By		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									Remarks Complete

					Borehole Log			Borehole No. RB104 Sheet 3 of 6										
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH									
Location: Manchester					Level:		Scale 1:50		Logged By									
Client: Engie					Dates:													
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description										
		Depth (m)	Type	Results														
					27.00			Brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	21									
									22									
									23									
									24									
									25									
									26									
									27									
									28									
									29									
									30									
														30.00			Brownish grey MUDSTONE.	
									Remarks Complete									

					Borehole Log			Borehole No. RB104 Sheet 5 of 6									
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH								
Location: Manchester					Level:			Scale 1:50									
Client: Engie					Dates:			Logged By									
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
								Grey MUDSTONE.	41								
									42								
									43								
									44								
									45								
									46								
									47								
									48								
									49								
									50								
									Remarks Complete								

					Borehole Log			Borehole No. RB104 Sheet 6 of 6	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					50.20			COAL.	51
									52
									53
									54
									55
					55.00			End of Borehole at 55.00m	56
									57
									58
									59
									60
Remarks Complete									



Borehole Log

Borehole No.

RB105

Sheet 1 of 6

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

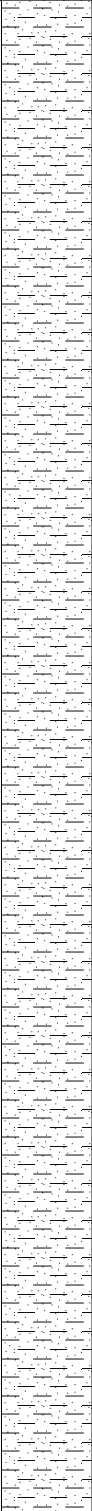
Client: Engie

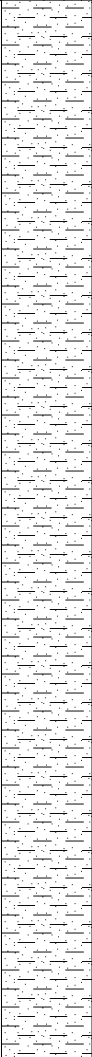
Dates:

Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Very gravelly fine to medium sand. Gravel is fine to coarse, angular to subangular of brick, concrete, wire, plastic and metal. MADE GROUND: Concrete.	
					1.00				1
								MADE GROUND: Brown sandy gravel. Gravel is fine to coarse, angular to subangular of mudstone, concrete and brick.	2
									3
									4
									5
					5.00			Brown slightly gravelly very sandy CLAY. Gravel is fine to medium, subangular of mustone.	6
									7
									8
									9
									10

Remarks
Complete

					Borehole Log			Borehole No. RB105 Sheet 2 of 6	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown slightly gravelly very sandy CLAY. Gravel is fine to medium, subangular of mustone.	11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									Remarks Complete

					Borehole Log			Borehole No. RB105 Sheet 3 of 6									
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH								
Location: Manchester					Level:		Scale 1:50		Logged By								
Client: Engie					Dates:												
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
					27.00			Brown slightly gravelly very sandy CLAY. Gravel is fine to medium, subangular of mustone.	21								
									22								
									23								
									24								
									25								
									26								
									27								
									28								
									29								
									30								
									Remarks Complete								



Sheet 4 of 6

Hole Type
BH

Scale
1:50

Logged By

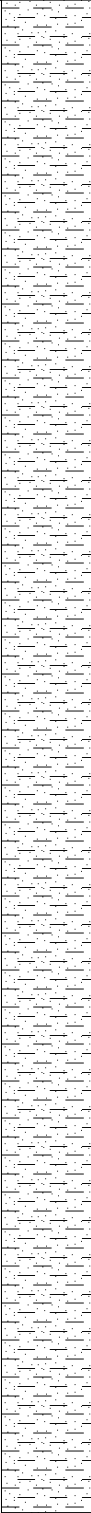
Remarks
Complete

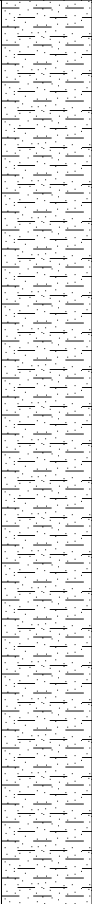


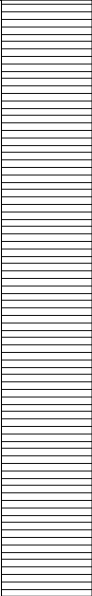
					Borehole Log			Borehole No. RB105 Sheet 5 of 6									
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH								
Location: Manchester					Level:			Scale 1:50									
Client: Engie					Dates:			Logged By									
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
								Grey MUDSTONE.	41								
									42								
									43								
									44								
									45								
									46								
									47								
									48								
									49								
									50								
									Remarks Complete								

					Borehole Log			Borehole No. RB105 Sheet 6 of 6									
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH								
Location: Manchester					Level:			Scale 1:50									
Client: Engie					Dates:			Logged By									
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
<div></div>	<div></div>				55.00		<div></div>	Grey MUDSTONE.	51								
									52								
									53								
									54								
									55								
									56								
									57								
									58								
									59								
									60								
									End of Borehole at 55.00m								
									Remarks Complete								
																	

					Borehole Log			Borehole No. RB106 Sheet 1 of 6	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By
Client: Engie					Dates:				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			MADE GROUND: Concrete.	1
								MADE GROUND: Black sandy gravel. Gravel is fine to coarse, angular of brick and concrete.	2
									3
									4
									5
									6
									7
									8
									9
Remarks Complete									

					Borehole Log			Borehole No. RB106 Sheet 2 of 6	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular of mudstone.	11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									Remarks Complete

					Borehole Log			Borehole No. RB106 Sheet 3 of 6									
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH								
Location: Manchester					Level:			Scale 1:50									
Client: Engie					Dates:			Logged By									
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
					26.00			Brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular of mudstone.	21								
									22								
									23								
									24								
									25								
									26								
									27								
									28								
									29								
									30								
									Remarks Complete								

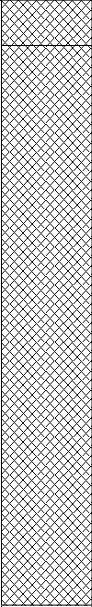
					Borehole Log			Borehole No. RB106 Sheet 4 of 6			
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH		
Location: Manchester					Level:			Scale 1:50			
Client: Engie					Dates:			Logged By			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					34.00			Grey MUDSTONE.	31		
									32		
									33		
										COAL.	34
											35
											36
											37
											38
											39
											40

Remarks
Complete



					Borehole Log			Borehole No. RB106 Sheet 5 of 6										
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH									
Location: Manchester					Level:			Scale 1:50										
Client: Engie					Dates:			Logged By										
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description										
		Depth (m)	Type	Results														
								Grey MUDSTONE.	41									
									42									
									43									
									44									
									45									
									46									
									47									
									48									
									49									
									50									
									Remarks Complete									

					Borehole Log			Borehole No. RB106 Sheet 6 of 6	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		
Client: Engie					Dates:		Logged By		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					51.30			COAL.	51
					55.00			Grey MUDSTONE.	52
									53
									54
									55
								End of Borehole at 55.00m	56
									57
									58
									59
									60
Remarks Complete									

					<h1>Borehole Log</h1>			Borehole No. RB107	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			MADE GROUND: Asphalt	
					4.00				
Remarks Terminated									

					Borehole Log			Borehole No. RB107 Sheet 2 of 2	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:			Scale 1:50	
Client: Engie					Dates:			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
									11
									12
									13
									14
								End of Borehole at 14.00m	15
									16
									17
									18
									19
									20
Remarks Terminated									



Borehole Log

Borehole No.

RB107a

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

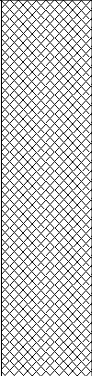
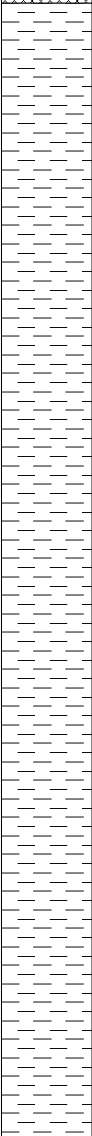
Level:

Scale
1:50

Client: Engie

Dates: 22/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.50			MADE GROUND: Concrete.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB107a Sheet 2 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By M&J Drilling	
Client: Engie				Dates: 22/10/2020					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.50		<div style="background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); height: 60px; width: 100%;"></div> Firm brown CLAY.	11	
							<div style="background: radial-gradient(circle, black 1px, transparent 1px); background-size: 4px 4px; height: 100px; width: 100%;"></div> Soft brown SAND.	12	
					18.20		<div style="background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); height: 60px; width: 100%;"></div> Firm brown CLAY with bands of GRAVEL.	13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	

Remarks
 Complete.





RB107a

Hole Type
BH

Logged By
M&J Drilling

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[illegible][illegible]

21

[illegible]

22

[illegible][illegible]

23

[illegible]

24

[illegible][illegible]

25

[illegible]

26

[illegible][illegible]

27

[illegible]

28

|

[illegible]

29

[illegible]

	30
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				<h1>Borehole Log</h1>				Borehole No. RB107a Sheet 4 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By M&J Drilling	
Client: Engie				Dates: 22/10/2020					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					30.80		Firm brown CLAY with bands of GRAVEL.		
							Black SHALE.	31	
					31.90		Grey SANDSTONE.	32	
								33	
								34	
								35	
								36	
								37	
								38	
								39	
								40	

Remarks
 Complete.





Borehole Log

Borehole No.

RB107a

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

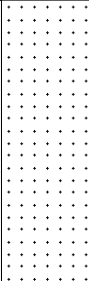
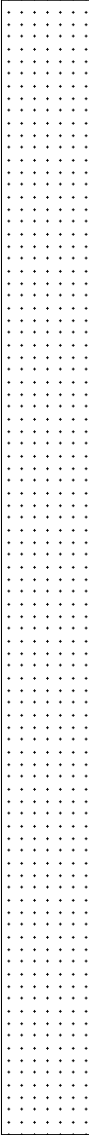
Level:

Scale
1:50

Client: Engie

Dates: 22/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					41.90			Grey SANDSTONE.	41
					42.50			COAL (Intact).	42
								Grey SANDSTONE.	43
									44
									45
									46
									47
									48
									49
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.



Borehole Log

Borehole No.

RB108

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

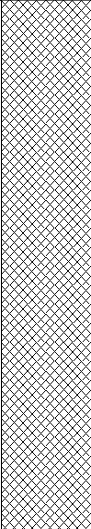
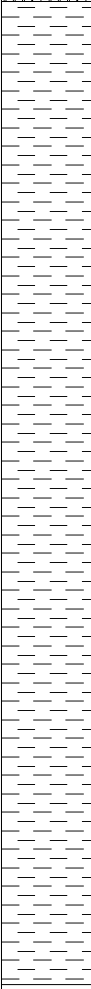
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					3.50			MADE GROUND: Concrete.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB108

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

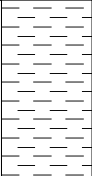
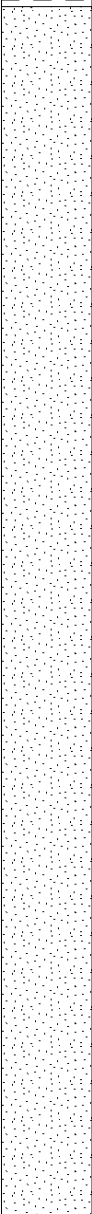
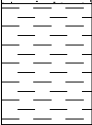
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					11.20			Firm brown CLAY.	11
								Soft brown SAND.	12
									13
									14
									15
									16
									17
									18
					19.20			Firm brown CLAY.	19
									20

Remarks
Complete.



Borehole Log

Borehole No.

RB108

Sheet 3 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

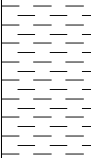
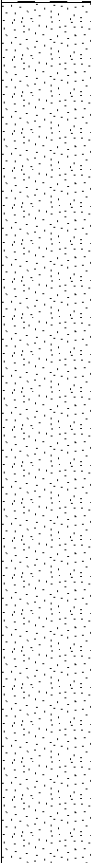
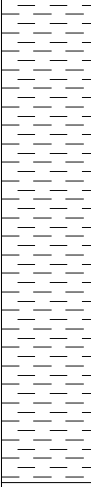
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					21.10			Firm brown CLAY.	21
								Brown SAND and GRAVEL.	22
									23
									24
									25
					26.80			Brown CLAY with bands of GRAVEL.	27
									28
									29
									30

Remarks
Complete.



Borehole Log

Borehole No.

RB108

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

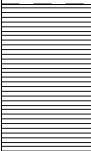
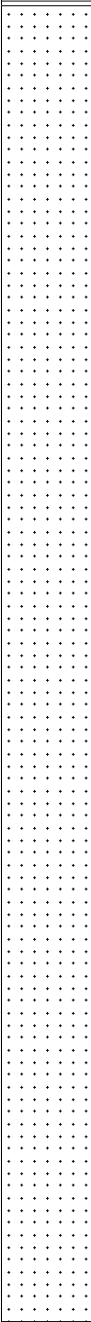
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					30.30			Brown CLAY with bands of GRAVEL.	
								Black SHALE.	31
					31.30			Grey SANDSTONE.	32
									33
									34
									35
									36
									37
									38
									39
									40

Remarks
Complete.



Borehole Log

Borehole No.

RB108

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.20			Grey SANDSTONE.	
								Black SHALE.	
									41
									42
									43
									44
					44.90			Grey SANDSTONE.	45
									46
									47
									48
									49
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.



Borehole Log

Borehole No.

RB109

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

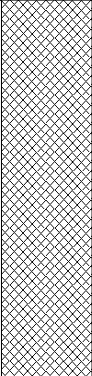
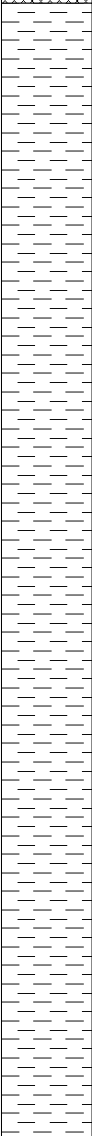
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.50			MADE GROUND: Concrete.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB109

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

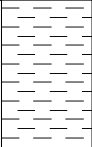
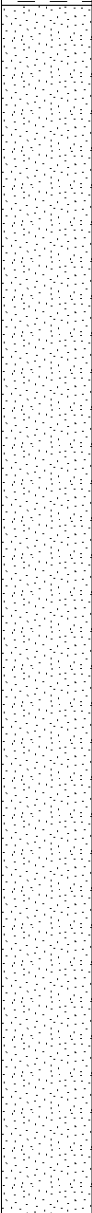
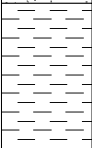
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					11.00			Firm brown CLAY.	
								Soft brown SAND.	11
									12
									13
									14
									15
									16
									17
									18
					19.00			Firm brown CLAY.	19
									20

Remarks
Complete.

					<h1>Borehole Log</h1>			Borehole No. RB109 Sheet 3 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By M&J Drilling
Client: Engie					Dates: 23/10/2020				

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					21.00		Firm brown CLAY.		
								Brown SAND and GRAVEL.	21
									22
					25.70			23	
									24
									25
					30.00		Brown CLAY.	26	
									27
									28
								29	
								30	

Remarks
 Complete.





Borehole Log

Borehole No.

RB109

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE.	31
									32
									33
									34
									35
									36
									37
									38
									39
									40

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB109 Sheet 5 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By M&J Drilling	
Client: Engie				Dates: 23/10/2020					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.10		Grey MUDSTONE. Black SHALE with traces of COAL.		
					43.60		Grey SANDSTONE.		
					50.00		End of Borehole at 50.00m		

Remarks
 Complete.





Borehole Log

Borehole No.

RB110

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

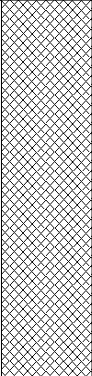
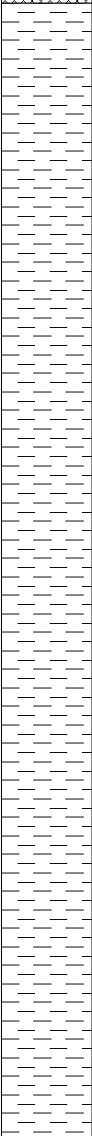
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.50			MADE GROUND: Concrete.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB110

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

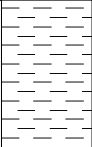
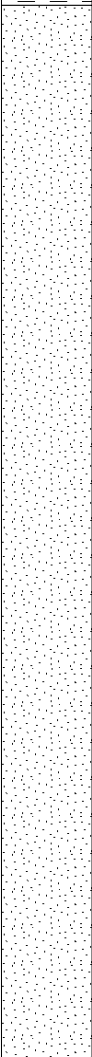
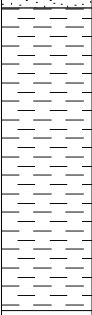
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					11.00			Firm brown CLAY.	
								Soft brown SAND.	11
									12
									13
									14
									15
									16
									17
					18.00			Firm brown CLAY.	18
									19
									20

Remarks
Complete.

Borehole Log

Borehole No.

RB110

Sheet 3 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

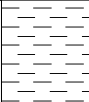
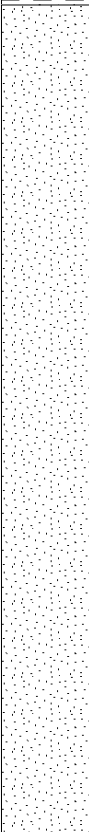
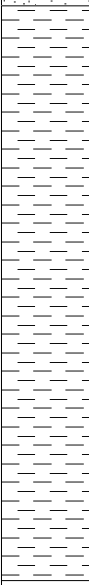
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					20.70			Firm brown CLAY.	
								Brown SAND and GRAVEL.	21
									22
									23
									24
									25
					26.20			Brown CLAY with bands of GRAVEL.	26
									27
									28
									29
									30

Remarks
Complete.

Borehole Log

Borehole No.

RB110

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

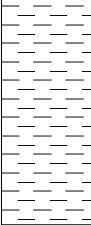
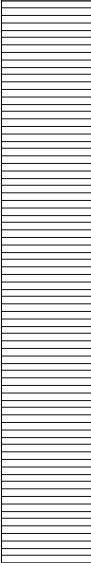
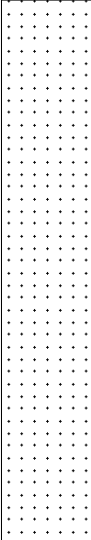
Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					31.50			Brown CLAY with bands of GRAVEL.	31
								Grey MUDSTONE.	32
									33
									34
					35.30			COAL (Intact).	35
					35.90			Black SHALE.	36
					36.40			Grey SANDSTONE.	37
									38
									39
									40

Remarks
Complete.



Borehole Log

Borehole No.

RB110

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 23/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey SANDSTONE.	
									41
									42
									43
									44
					45.00				45
					45.30			COAL (Intact).	
								Black SHALE.	
									46
					46.30			Grey SANDSTONE.	
									47
									48
									49
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.



Borehole Log

Borehole No.

RB111

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					4.00			Yellow CLAY.	1
									2
									3
									4
								Firm brown CLAY.	5
									6
									7
									8
									9
					10.00				10

Remarks
Complete.



Borehole Log

Borehole No.

RB111

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Soft brown SAND.	
									11
									12
									13
									14
									15
					16.10			Firm brown CLAY.	16
									17
									18
									19
									20

Remarks
Complete.



Borehole Log

Borehole No.

RB111

Sheet 3 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

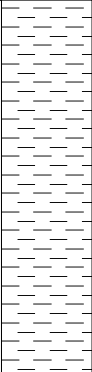
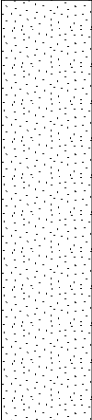
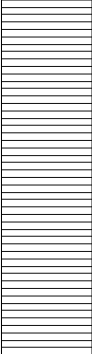
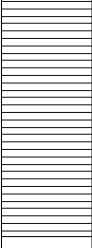
Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					22.50			Firm brown CLAY.	21
									22
								Brown SAND and GRAVEL.	23
									24
					25.30			Grey MUDSTONE.	25
									26
									27
					27.70			COAL (Intact).	28
					28.40			Grey MUDSTONE.	29
									30

Remarks
Complete.





Borehole Log

Borehole No.

RB111

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

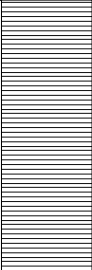
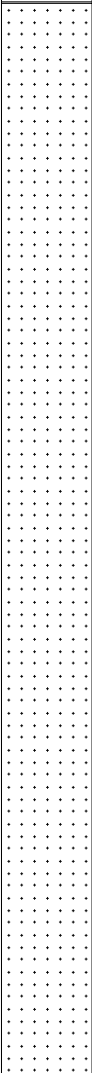
Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					41.80			Black SHALE.	41
								Grey SANDSTONE.	42
									43
									44
									45
									46
									47
									48
					48.90			Black SHALE.	49
					49.50			Grey SANDSTONE.	
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.



Borehole Log

Borehole No.

RB112

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

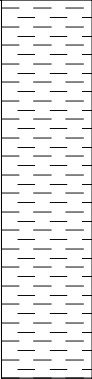
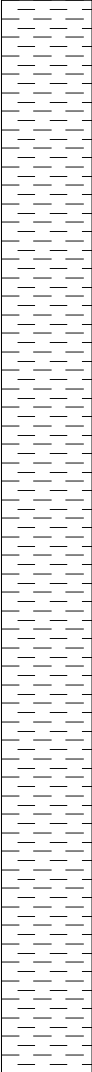
Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.50			Yellow CLAY.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
					9.60			Soft brown SAND.	10

Remarks
Complete.



Borehole Log

Borehole No.

RB112

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Soft brown SAND.	
									11
									12
									13
									14
									15
					16.40				16
								Firm brown CLAY.	
									17
					18.10				18
								Brown SAND and GRAVEL.	
									19
					19.50				20
								Brown CLAY.	

Remarks
Complete.



Borehole Log

Borehole No.

RB112

Sheet 3 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

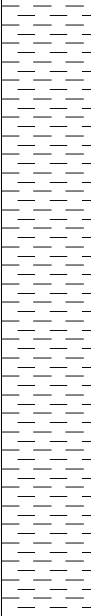
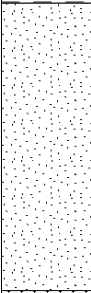
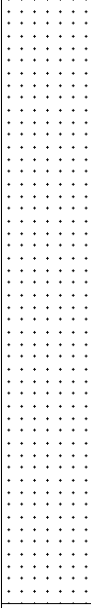
Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					24.10			Brown CLAY.	21
									22
									23
									24
					26.00			Brown SAND and GRAVEL.	25
									26
								Grey SANDSTONE.	27
									28
									29
									30

Remarks
Complete.



Borehole Log

Borehole No.

RB112

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 26/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey SANDSTONE.	
									31
									32
									33
									34
									35
									36
					36.80				
								Black SHALE.	37
					37.90				
								Grey SANDSTONE.	38
									39
									40

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB112 Sheet 5 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By M&J Drilling	
Client: Engie				Dates: 26/10/2020					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					41.50		<div style="background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); height: 20px; width: 100%;"></div> Grey SANDSTONE.	41	
					44.60		<div style="background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); height: 20px; width: 100%;"></div> Black SHALE with traces of COAL.	42	
					50.00		<div style="background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); height: 20px; width: 100%;"></div> Grey SANDSTONE.	43	
								44	
								45	
								46	
								47	
								48	
								49	
								50	
End of Borehole at 50.00m									

Remarks
 Complete.





Borehole Log

Borehole No.

RB113

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

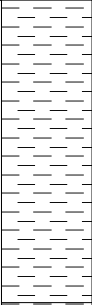
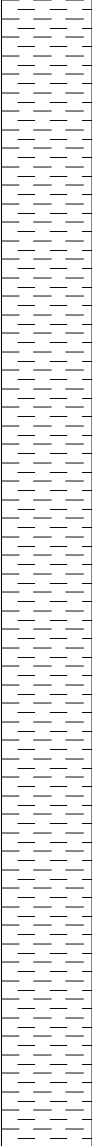
Level:

Scale
1:50

Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.00			Yellow CLAY.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
					9.60			Soft brown SAND.	9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB113

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

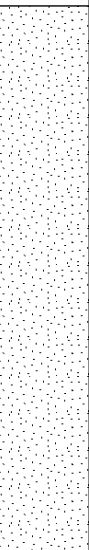
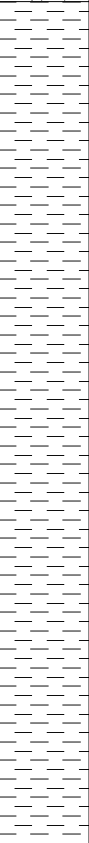
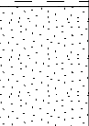
Level:

Scale
1:50

Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					13.60			Soft brown SAND.	11
								Firm brown CLAY.	12
									13
									14
									15
									16
									17
									18
									19
					19.20			Soft brown SAND.	20

Remarks
Complete.



Borehole Log

Borehole No.

RB113

Sheet 3 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

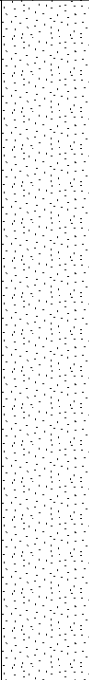
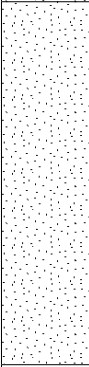
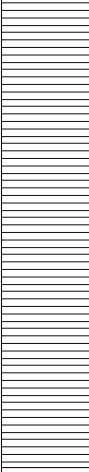
Level:

Scale
1:50

Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					24.50			Soft brown SAND.	21
					26.90			Brown SAND and GRAVEL.	22
								Grey MUDSTONE.	23
									24
									25
									26
									27
									28
									29
									30

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB113 Sheet 4 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50			
Client: Engie				Dates: 27/10/2020		Logged By M&J Drilling			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE.	
									31
									32
									33
									34
					34.70			Black SHALE with traces of COAL.	
									35
									36
					36.00			Grey MUDSTONE.	
									37
									38
									39
									40
Remarks Complete.									



Borehole Log

Borehole No.

RB113

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

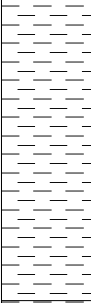
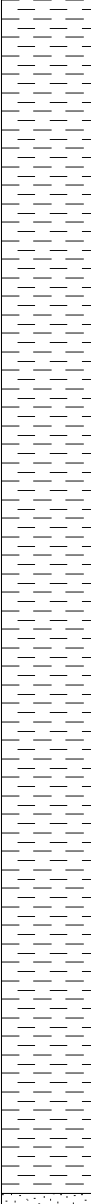
Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.20			Grey MUDSTONE.	
								Black SHALE.	
					41.30				41
								COAL (Intact).	
					41.80			Black SHALE with traces of COAL.	
									42
									43
					44.00			Grey SANDSTONE.	44
									45
									46
									47
									48
									49
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB114 Sheet 1 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50			
Client: Engie				Dates: 27/10/2020		Logged By M&J Drilling			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.00			Yellow CLAY.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
									9
					9.90				10
Remarks Complete.									



Borehole Log

Borehole No.

RB114

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

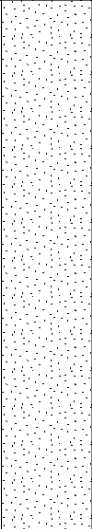
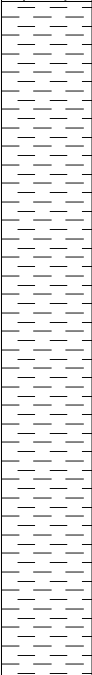
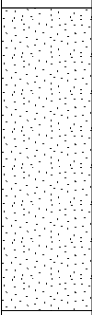
Level:

Scale
1:50

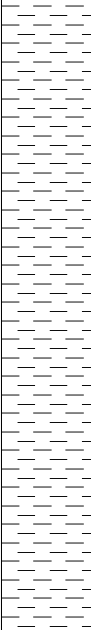
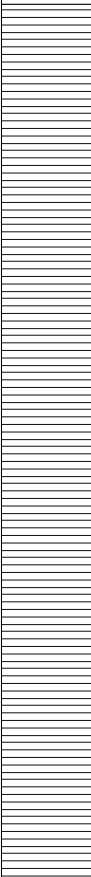
Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					13.50			Soft brown SAND.	11
								Firm brown CLAY.	12
					18.00				13
								Brown SAND and GRAVEL.	14
					20.00				15
									16
									17
									18
									19
									20

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB114 Sheet 3 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50		Logged By M&J Drilling	
Client: Engie				Dates: 27/10/2020					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					24.20			Brown CLAY with bands of GRAVEL.	<div>21</div> <div>22</div> <div>23</div> <div>24</div>
								Grey MUDSTONE.	<div>25</div> <div>26</div> <div>27</div> <div>28</div> <div>29</div> <div>30</div>
Remarks Complete.									



Borehole Log

Borehole No.

RB114

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE.	
									31
									32
									33
									34
									35
									36
									37
									38
									39
									40

Remarks
Complete.



Borehole Log

Borehole No.

RB114

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 27/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.10			Grey MUDSTONE. COAL (Intact).	
					40.70			Black SHALE with traces of COAL.	41
									42
									43
									44
					45.10			COAL (Intact).	45
					45.70			Grey SANDSTONE.	46
									47
									48
									49
					50.00			End of Borehole at 50.00m	50

Remarks
Complete.



Borehole Log

Borehole No.

RB115

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

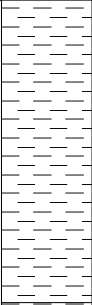
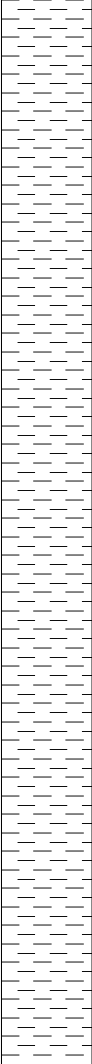
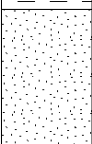
Level:

Scale
1:50

Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.00			Yellow CLAY.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
									8
					9.10			Soft brown SAND.	9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB115

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

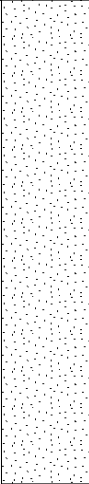
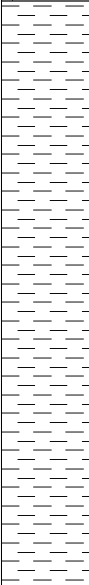
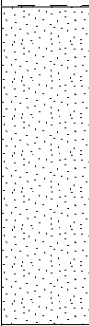
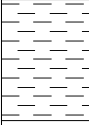
Level:

Scale
1:50

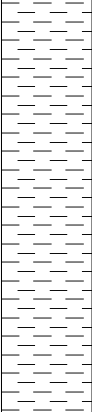
Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					13.20			Soft brown SAND.	11
								Firm brown CLAY.	12
					17.10			Brown SAND and GRAVEL.	13
					19.20			Bown CLAY with bands of GRAVEL.	14
									15
									16
									17
									18
									19
									20

Remarks
Complete.

					<h1>Borehole Log</h1>			Borehole No. RB115 Sheet 3 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By M&J Drilling
Client: Engie					Dates: 28/10/2020				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					22.80			Bown CLAY with bands of GRAVEL.	21
								Grey MUDSTONE.	23
									24
									25
									26
									27
									28
									29
									30
Remarks Complete.									



Sheet 4 of 5

Hole Type	BH
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Scale
1:50

Logged By
M&J Drilling

Remarks	
Complete.	



					<h1>Borehole Log</h1>			Borehole No. RB115 Sheet 5 of 5	
Project Name: Miles Platting					Project No. 13887		Co-ords:		Hole Type BH
Location: Manchester					Level:		Scale 1:50		Logged By M&J Drilling
Client: Engie					Dates: 28/10/2020				

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.50		COAL (Intact).		
							Black SHALE with traces of COAL.	41	
								42	
					43.20		Grey SANDSTONE.	43	
								44	
								45	
								46	
								47	
								48	
								49	
					50.00		End of Borehole at 50.00m	50	

Remarks
 Complete.





Borehole Log

Borehole No.

RB116

Sheet 1 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

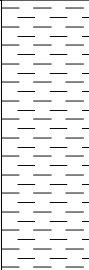
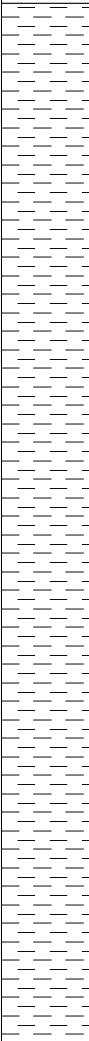
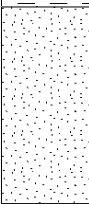
Level:

Scale
1:50

Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.80			Yellow CLAY.	1
								Firm brown CLAY.	2
									3
									4
									5
									6
									7
					8.70			Soft brown SAND.	9
									10

Remarks
Complete.



Borehole Log

Borehole No.

RB116

Sheet 2 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

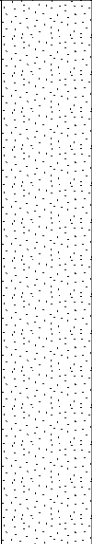
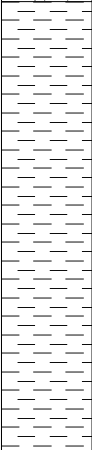
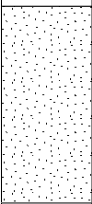
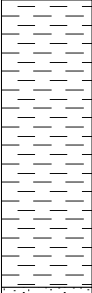
Level:

Scale
1:50

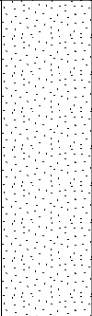
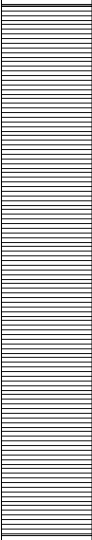
Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					13.60			Soft brown SAND.	11
					16.60			Firm brown CLAY.	14
					17.90			Brown SAND and GRAVEL.	17
					19.80			Brown CLAY.	18
								Brown SAND and GRAVEL.	20

Remarks
Complete.

				<h1>Borehole Log</h1>				Borehole No. RB116 Sheet 3 of 5	
Project Name: Miles Platting				Project No. 13887		Co-ords:		Hole Type BH	
Location: Manchester				Level:		Scale 1:50			
Client: Engie				Dates: 28/10/2020		Logged By M&J Drilling			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					22.10			Brown SAND and GRAVEL.	21
								Grey MUDSTONE.	22
									23
									24
									25
					26.50			Black SHALE with traces of COAL.	26
									27
									28
									29
									30
Remarks Complete.									



Borehole Log

Borehole No.

RB116

Sheet 4 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

Level:

Scale
1:50

Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					30.50			Black SHALE with traces of COAL.	
								Grey MUDSTONE.	31
									32
									33
									34
					34.20			Red SANDSTONE.	
									35
									36
					36.10			Grey SANDSTONE.	
									37
									38
									39
									40

Remarks
Complete.



Borehole Log

Borehole No.

RB116

Sheet 5 of 5

Project Name: Miles Platting

Project No.
13887

Co-ords:

Hole Type
BH

Location: Manchester

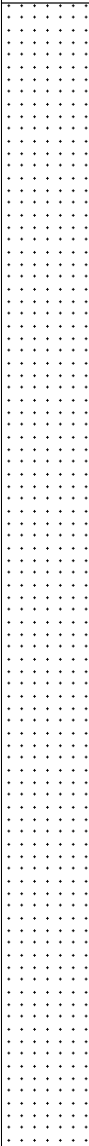
Level:

Scale
1:50

Client: Engie

Dates: 28/10/2020

Logged By
M&J Drilling

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					40.40			Grey SANDSTONE.	
								Black SHALE.	41
					42.40				42
								Grey SANDSTONE.	43
									44
									45
									46
									47
									48
									49
					50.00				50
								End of Borehole at 50.00m	

Remarks
Complete.

APPENDIX VI

E3P SHAFT REPORT



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Manchester | London | Edinburgh

Ref: 13-887-L2
Date: 1st June 2020

Engie
The Lighthouse,
The Quays,
Salford Quays
Manchester
M50 3BF - UK

BY Email

Dear

FORMER MANOX SITE – MILES PLATTING ASSESSMENT OF ABANDONED MINE ENTRY

1. BACKGROUND

E3P are appointed as Geotechnical Engineer by Engie to provide professional consultancy services as part of the regeneration of a the subject site for a low rise residential end use.

In the Manchester Core Strategy 2012 – 2027, Miles Platting and the Manox site is allocated as one of Manchester's strategic housing locations. According to the core strategy the Manox site has the potential to accommodate regeneration objectives and create sustainable communities by delivering increased housing numbers to underpin local services and facilities. The Manox site plays a key role in the regeneration aspirations for the wider Miles Platting area, accordingly the site is already designated for 'higher density residential including family housing' in MCC's Eastland's Regeneration Planning Framework.

Engie intend to construct a residential development comprising 4100 low rise residential dwellings with associated gardens, public open space, estate roads and infrastructure. An extract of the proposed development layout is indicated in Figure 1.1 (overleaf) and enclosed as Drawing 13-882-002.



FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT

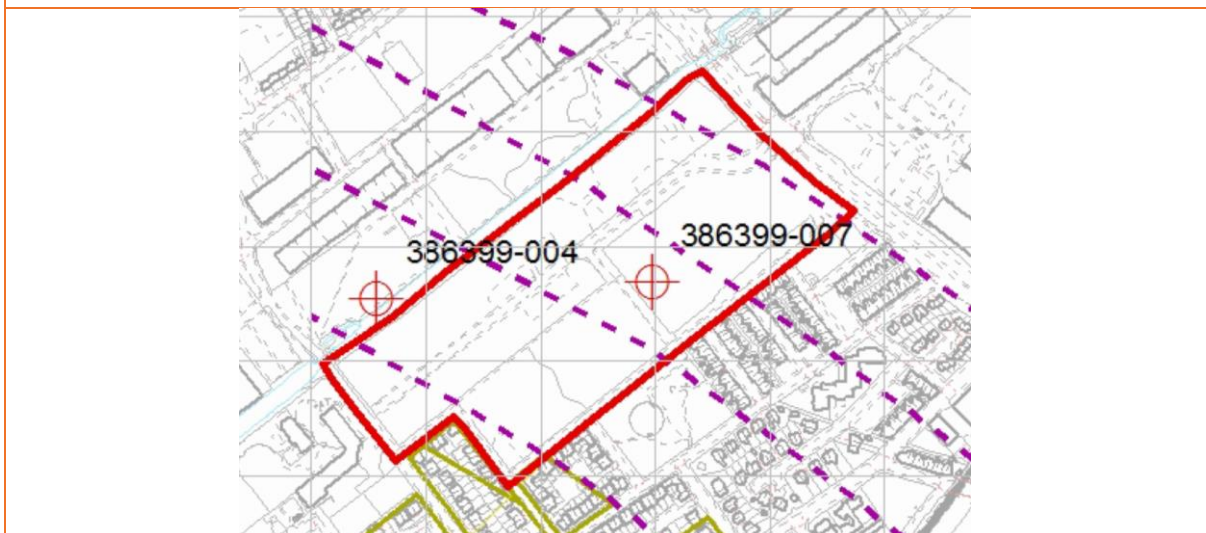


The purpose of this letter report is to document the historical desk based research in relation to the presence of an abandoned mine entry located on-site, subsequent investigations completed in accordance with the relevant Coal Authority Permit. This letter also includes the subsequent assessment of design risk and stabilisation requirements for the abandoned mine entry.

2. SYNOPSIS OF DESK BASED INFORMATION

The Coal Authority record one mine entry on-site, this could potentially have been used to access shallow workings in the Arley, Bradford Four Feet & Bradford Three Quarter Coal seams that are present beneath the site. A second mine entry is located to the west of the site. An extract of the Coal Authority search (ref: 51002224407001) dated January 2020 detailing the recorded position of abandoned mine entries is included in Figure 2.1 below.

FIGURE 1.1 EXTRACT OF COAL AUTHORITY SEARCH RECORDS



The on-site recorded mine entry 386399-007 is located in the central sector of the site with a reported maximum extent of radial departure of 8m (mispositioning from CA co-ordinates).



As part of a previous phase of intrusive Ground Investigation completed by RSK, an attempt to locate the shaft was made by a process of near surface trial trench excavations, however due to the presence of stockpiled material and the presence of deep Made Ground, it was not possible to locate the shaft.

It was therefore determined that it would be necessary to locate the shaft by a process of probe drilling to confirm its exact position, diameter and depth to inform a suitably robust geotechnical assessment of the shaft condition, likely potential for collapse and calculate the maximum radial zone of instability at the surface.

The off-site recorded mine entry 386399-004 could potentially be mispositioned, however as this is recorded on the 1950 Ordnance Survey map as being to the north of the canal, it is not possible that it could be mispositioned southwards as the canal forms a physical barrier. It is therefore considered that the CA recorded location is reasonably accurate, there is no realistic probability of the shaft being located closer to the subject site than recorded. Using a 60 degree angle of repose the shaft would pose no risk of subsidence influence in the event of a future collapse, therefore when considering the location of the canal as a physical barrier this risk to any on-site structures from instability at this feature should be discounted.

3. INTRUSIVE GROUND INVESTIGATION WORKS

3.1. SCOPE OF INTRUSIVE GROUND INVESTIGATION

A Ground Investigation has been designed based on the findings of a desk top Coal Mining Risk Assessment with exploratory probe holes advanced to confirm the presence of the CA recorded mine entry (Ref:386399-007).

3.2. SUMMARY OF GROUND INVESTIGATION WORKS

A series of rotary probe holes were advanced in a spiral at 1.0m spacings advancing from the CA recorded position 386298 399369 (NGR) for the mine entry 386399-007 in the central sector of site.

The works were completed by M&J Drilling in accordance with Coal Authority Permit 19640 (attached).

Probe drilling commenced on Monday 11th May under the supervision of an engineering geologist from E3P.

147 Probeholes were drilled in a spiral formation at 1.0m centres moving in a clockwise direction from the CA recorded shaft position using a 70mm drill bit and water flush.

The M&J drilling logs are attached to this letter.

Ground conditions are confirmed within the probeholes as superficial drift comprising glacial till which is predominantly cohesive clay soils with interbedded granular horizons with cobbles and boulders to a recorded depth of 25m below current ground level.

Previous cable percussion boreholes drilling the vicinity by RSK confirmed stiff high strength clay (glacial till) to a depth in excess of 13.0m.

At probehole position 147 made ground with very soft drilling was identified, this was interpreted by the experienced drilling team from M&J as a shaft extending through the superficial drift to ~26m.

An additional 6 probeholes were advanced through the shaft to confirm its location, diameter and depth.



The shaft was confirmed to be ~5.0m north of the CA recorded position and 1.5m west as indicated on the attached drawing (ref: 13-887-006) at surveyed position 386296 399376.

Probeholes drilled through the shaft extended to 31m where hard drilling in natural rock was confirmed. The exploratory investigations by M&J confirm the presence of a vertical shaft ~2.0m in diameter within the conjectured extent of radial departure which accords with the Coal Authority records for the site.

The shaft is terminated ~1.5m into the bedrock, it is therefore possible that the mine entry leads to shallow workings in the Bradford Four Feet sub-crop that is ~30m northeast of the proven shaft location. Equally, it may have been the case that the shaft was terminated due to a multitude of circumstances that are unknown.

3.2.1. SUMMARY OF MINE ENTRY INSTABILITY RISK

E3P has prepared a geotechnical risk assessment to determine the likely mode of failure, likely instability and possible extent of surface subsidence in the event of partial and total collapse.

The shaft condition has been appraised in accordance with the broad principals as outlined within CIRIA 758 Chapter 14 (Treatment of abandoned mine entries).

Given the shaft extends through 25m of glacial till, it is almost certain that this is a lined feature, which given the age is likely to be constructed from brick.

The exploratory drilling confirmed that the shaft is filled with unknown material to its base with no staging or voids identified.

Considering the site history, the shaft must have been infilled in the early 20th century, therefore any consolidation and settlement of the backfill would have been expected to occur, there is no surface distortion indicating consolidation of subsidence of the backfill.

Within Table 14.3 (CIRIA 758 Chapter 14), the minimum requirement for treatment related to situational risk for located features, the shaft will be located within an area deemed to be 'High Risk'. A high situational risk is deemed to be urban spaces, major roads, railway infrastructure, multiple dwellings and areas of high concentrations of people directly affected by the mine entry. The proposed development will include highways and dwellings with a high concentration of people.

The shaft is classified as 'filled with no evidence of movement'. The risk-based assessment therefore determined that the following action is required:

- 1) Investigate to assess condition;
- 2) Drill and grout and consider installation of reinforced concrete cap.
- 3) Install reinforced concrete cap at rockhead or piled reinforced concrete cap.

Shaft 386399-007 has been successfully located with its base proven and will be subject to pressure grouting in accordance with the requirements of CIRIA 758 and a pertinent Coal Authority Permission.

It will not be possible to construct a reinforced concrete cap at bedrock due to the depth of superficial drift deposits extending to ~25m.

The shaft is believed to have possibly been used to access workings in the Bradford Four Feet Coal, this is a thick viable seam which may have been worked in the past, therefore the transferal of structural loads to rockhead is not considered a technically viable solution given the potential for the collapse of workings to instigate pile failure.



In light of the above, it is suggested that a Grout Plug capping solution is utilised by drilling and injecting concrete at close centred positions to form an solidified block over the shaft and this mitigate any risk in the highly unlikely event of a future failure in the pressure grouted shaft of shaft lining.

The maximum radial zone of influence is calculated in accordance with the guidance and principals as set out within CIRIA 758. If a conservative angle of repose at 45° is applied the maximum radial extent of influence in the highly unlikely event of total collapse would be 26m from the centre of the proven shaft position.

The detailed geotechnical investigations confirm stiff high strength clay to >13m with a $C_u > 100$ KPa, within the deeper stratum granular horizons are recorded intermittently, with further glacial till overlying the weathered bedrock.

In due consideration of the proven ground conditions, it has been determined that a 60° safe angle of repose can applied in this situation, therefore in the event of total shaft collapse the maximum extent of radial influence would be 15.4m.

In due consideration of the shallow depth of the shaft, proven competent backfill and absence of staging of voiding in the feature and propose to pressure grout the shaft and construct a grout plug, it is considered that the post treated state of the shaft will pose little or no viable potential for future collapse that would result in distortion or subsidence to the surface.

3.2.2. SUMMARY OF PRELIMINARY SETTLEMENT ANALYSIS

The post consolidated and stabilised state of the mine entry when pressure grouted to ensure no residual void and the construction of a grout plug cap will reduce the risk of any future consolidation of this feature.

To further inform our initial understanding of the worst case scenario in terms of residual risk, E3P has undertake a preliminary settlement analysis.

Background

As part of the enabling work for the proposed development at the former Manox site at Manchester, treatment works of the mine shaft (386399-007) at the site will be required.

In order to prevent future collapse, eliminate the ground settlement, shaft remediation works are to be undertaken including pressure grout of the shaft. Details are indicated in the earlier section of this E3P report (ref 13-887-L1, 01/06/2020).

Propose of primary geotechnical assessment

Unlike an active shaft (i.e. inside is empty/void), the current GI confirms that the shaft has been backfilled with soft cohesive materials. In addition, pressurised grout solution will be adopted to prevent any voids and future collapse in accordance with the essential requirements of CIRIA 758 and the Coal Authority site specific permit.

After the agreed treatment work, the potential for any significant ground movement in relation to the collapse consolidation or self-weight consolidation or shaft instability is considered low to negligible.

Accordingly, the primary geotechnical assessment is to initial estimate the approximate settlement directly associated with the applied load of the proposed residential property supported by reinforced concrete raft foundation.



Limitations and Assumptions

Based on the recent investigation, the inner diameter of the shaft is around 2.0m and is suspected to be supported by a perimeter brick wall. The surveyed position at the centre of the shaft is 386296E, 399376N.

The investigation also indicates that the shaft extends through 25m of Glacial Till and is terminated at around 1.5m into the bedrock. The shaft was original filled with soft cohesive materials and no evidence of collapse or depression at the surface level observed during the investigation.

Grout and plug

It is understood that the design and construction of grout inside the existing shafts and grout plug across the maximum radial extent of theoretical influence in a total collapse situation will be undertaken by specialist grouting contractor.

The shaft (below the bedrock) will be treated by pressure grouting. It is assumed that the pressure grout will fill in any voids or existing collapses (if any). Based on above treatment works, it is assumed that no future collapse will occur.

The strength property of the original infill is unknown. In addition, the strength property of pressure grout treated fill within the shaft is also unknown.

It is assumed that the pressured grout treated fill to be firm cohesive material within minimum undrained shear strength, C_u , of 50kPa.

The coefficient of volumetric compressibility, m_v , is assumed to be $0.2 \text{ m}^2/\text{MN}$ ($= 10/C_u$). This is generally agreed with soil stiffness E_s of 5 MN/m^2 suggested in BRE Building in Fill: Geotechnical Aspects ($m_v = 1/E_s = 1/5 = 0.2 \text{ m}^2/\text{MN}$).

Applied loading

A uniform vertical applied pressure of 30kPa is assumed at the underside of the raft footing.

Geometry constrains

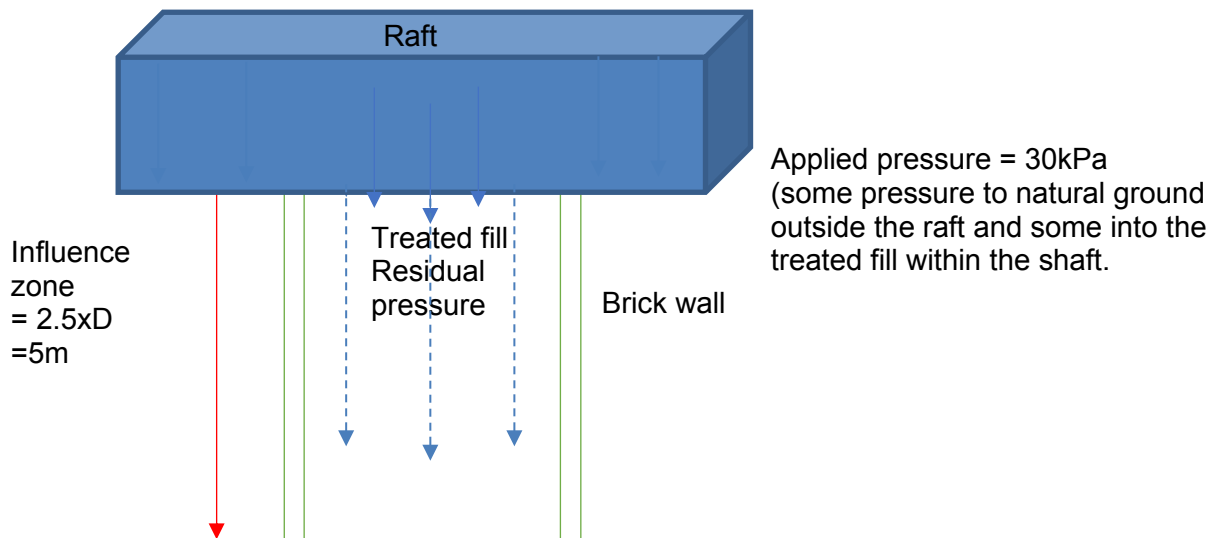
Model 1

Although the entire raft over the natural ground, as well as the shaft is a 3D situation, in order to simplify the assessment, a 2D representative cross section has been adopted.

In addition, a highly conservative view is taken assuming the treated shaft is immediately below the footing, the residual force in the treated fill will be confined within the shaft surrounded within the perimeter wall.

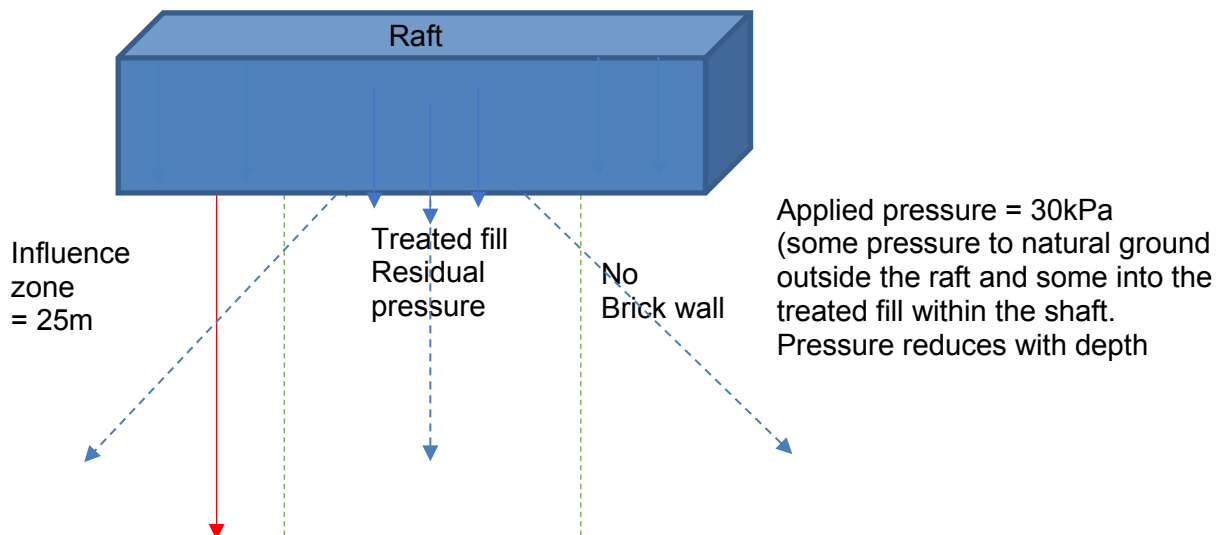
Accordingly, the pressure will be in line with one dimensional consolidation extended to an influence zone of $2.5 \times$ shaft diameter (see sketch below). The contribution from the perimeter brick wall and its shaft resistance is ignored.





Model 2

This model is adopted for sensitivity check. Unlike Model 1, the perimeter brick wall is being ignored based on the worst case assumption of severe damage of the perimeter brick wall. Based on the above scenario, the applied pressure will be able to transfer deeper into the treated fill. If based on a 15m x 15m raft (assumed), the stress influence zone will be anticipated to be the full depth of superficial deposits above the bedrock (i.e. $2.5 \times B = 2.5 \times 15 = 37.5 > 25\text{m}$).



Settlement due to Structural Loading

Based on Model 1 – brick lining in function

In this case, the residual load can only be transfer to around 2.5 x shaft wall diameter inside the treated fill.

The settlement of the treated fill within the shaft under the structural loading is estimated using the one-dimensional consolidation approach:

$$S = dP \times mv \times dH$$

where

dP = 30kPa (uniform pressure from the underside of the raft footing (refer to Section 2.3)

mv = 0.2 m²/MN (refer to Section 2.2)

dH = 5.0m (refer to Section 2.4)

$$S = dP \times mv \times dH = 30 \times 0.2 \times 5 = 30\text{mm (total settlement)}$$

It is anticipated 30% to be immediately and 70% to be long term settlement over the design life.

Note: Outside the raft, the total settlement is anticipated to be up to 25mm in accordance with the normal design allowance of the residential housings.

Based on Model 2 – assuming no brick lining

In this case, the residual load can be transmitted deeper and the value reduces with depth.

The settlement of the treated fill within the shaft under the structural loading is estimated using the one-dimensional consolidation approach:

$$S = dP \times mv \times dH$$

where

mv = 0.2 m²/MN (refer to Section 2.2)

dP = residual pressure decreases with depth, determine from the total pressure of 30kPa and ratio of depth to footing (refer to Tomlinson 2001 Figure 2.24).

Ground strata	Top of layer (m FDL)	Centre of layer (m FDL)	Layer thickness (m)	dH (m)	z/B	L/B	Ratio of σ_z/p Note 1	dp (kPa)	mv (m ² /MN)	S _{oed} (mm)
Fill	0	2.5	5	2.5	0.17	1.0	0.80	24.0	0.20	24.00
Fill	5	10	10	10	0.67	1.0	0.40	12.0	0.20	24.00
Fill	15	20	10	20	1.33	1.0	0.20	6.0	0.20	12.00
									Sum	60.00

Note 1: refer to Tomlinson 2001 Fig 2.24

The calculation indicates the settlement in the fill is likely to be around 60mm. It should be note that this is based on the footing is a rigid footing.

If the footing is considered a flexible footing and the pressure is unable to dissipate horizontally, the settlement will be more than above figure.

Following the above, if the average residual pressure is 50% the entire treated fill, the settlement of treated fill is to be

$$S = dP \times mv \times dH = (30 \times 0.5) \times 0.2 \times 25 = 75\text{mm (total settlement)}$$



Conclusion

Based on the preliminary assessment, it is anticipated the settlement of treated fill within the shaft to be around 30mm under the applied pressure of 30kPa from the raft. Based on the assumption of shaft has been adequately treated, and perimeter brick lining is stable, the risk of collapse settlement, self weight settlement are considered negligible.

A sensitivity check has also been undertaken based on the assumption of the existing lining brick wall being severe damage. In this case, the residual pressure will be extended deeper into the treated fill. The calculation (refer to Section 3.0 Model 2) indicates the settlement in the fill can be 60mm and 75mm for a rigid and a flexible footing respectively.

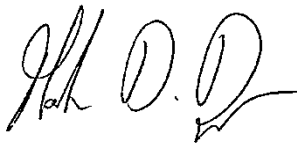
In order to prevent excessive differential settlement inside and outside the shaft, geogrid should be utilised. In addition, the footing should be arranged to prevent one corner being immediately above the shaft.

The soil properties in above calculation should be verified prior to the construction by further investigation. It is suggested hand shear vane test and plate bearing load test as minimum to be undertaken to verify and validate the properties of the treated fill.

I trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,

For and on behalf of E3P Ltd



Maritn Dyer
Director

Enc:

E3P Drawings
M&J Drilling Logs
Coal Authority Permit

