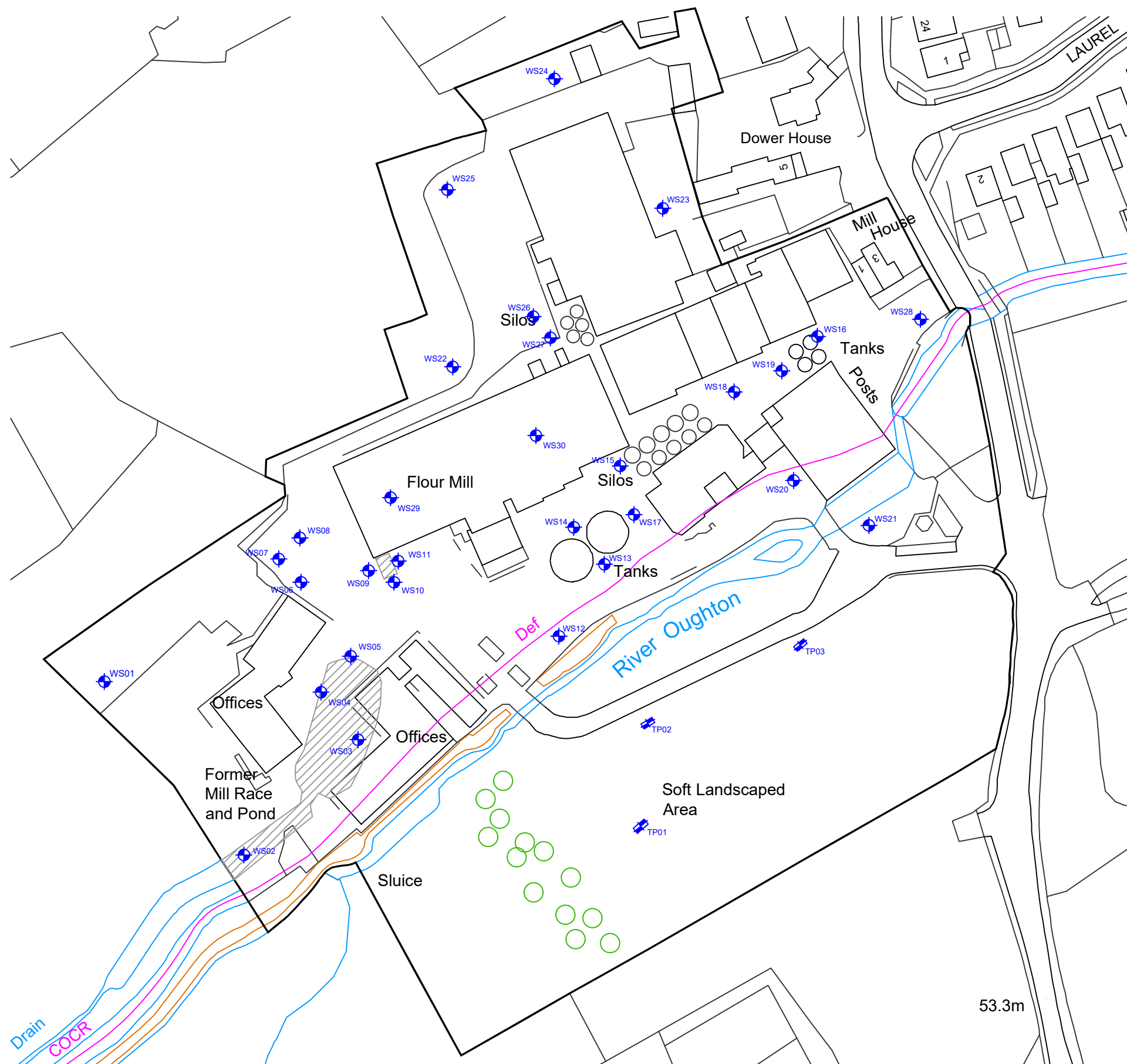
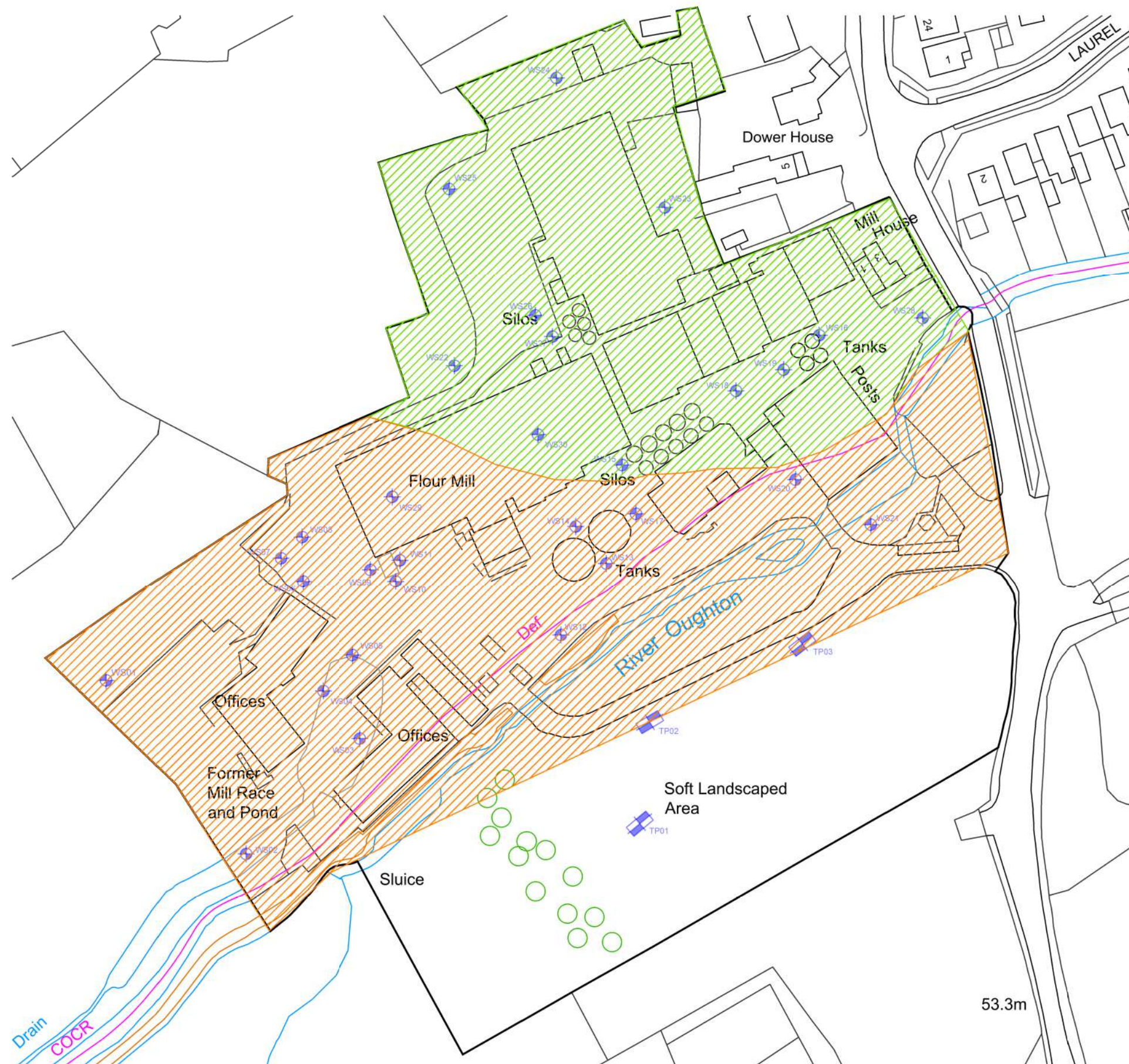
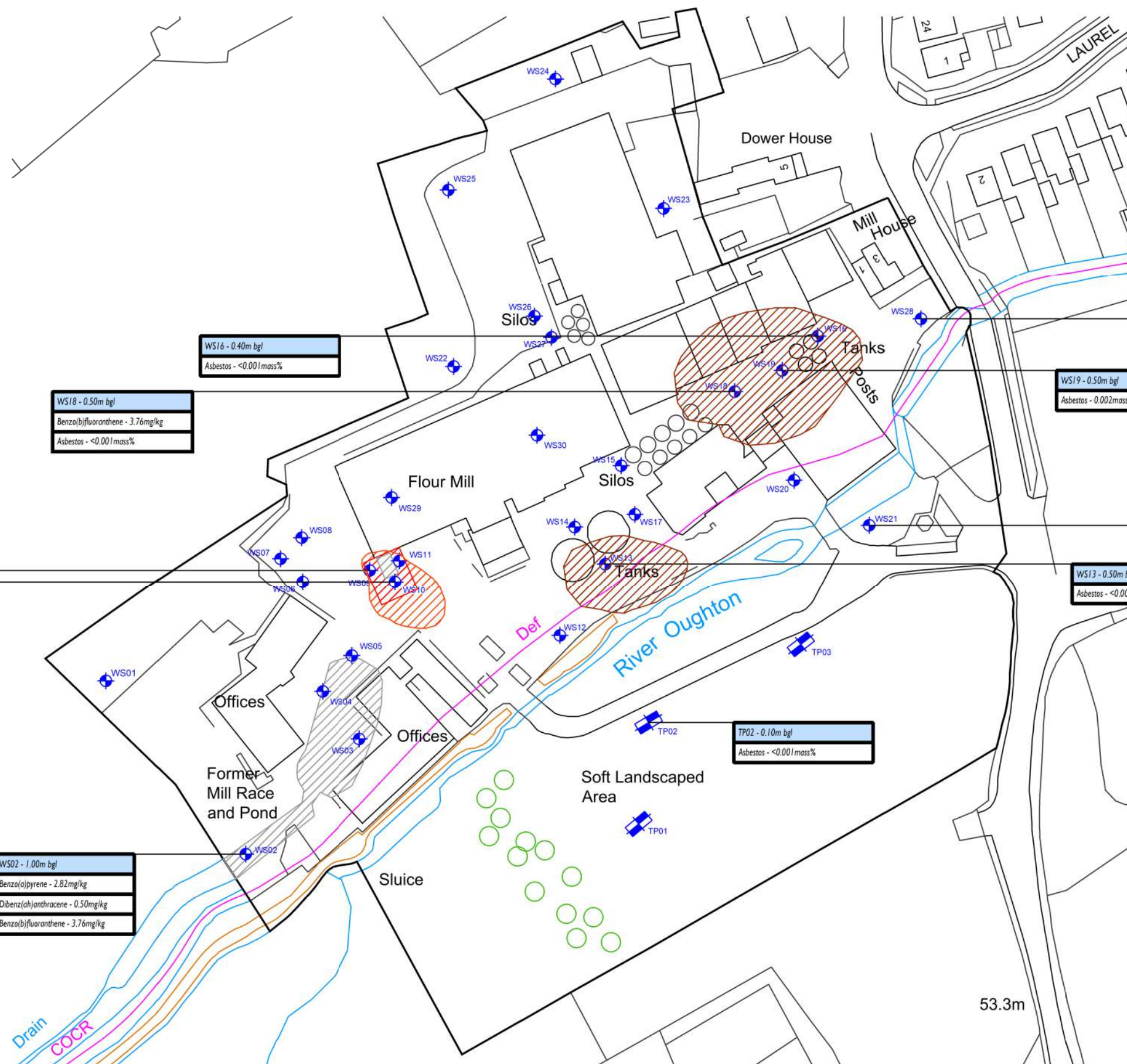




	CLIENT	DATE			Status		Notes • Window Sample Borehole Locations • Trial Pit Locations
	BOWMAN'S INGREDIENTS LTD	JANUARY 2020			Preliminary		
	PROJECT TITLE	SCALE			Draft		
	BOWMAN'S MILL, ICKLEFORD	NTS			Issued	●	
	PLAN TITLE	PLAN NUMBER			For Comment		
	EXPLORATORY HOLE LOCATION PLAN	19271 03	Rev.	Details	Date	Approved	



CLIENT	DATE				Status		Notes Zone 1 - Traditional Shallow Foundations Acceptable Zone 2 - Deep Foundations may be Required, Design Subject to Further Investigation
BOWMAN'S INGREDIENTS LTD	JANUARY 2020				Preliminary		
PROJECT TITLE	SCALE				Draft		
BOWMAN'S MILL, ICKLEFORD	NTS				Issued		
PLAN TITLE	PLAN NUMBER				For Comment		
FOUNDATION ZONE PLAN	19271 04	Rev.	Details	Date	Approved		



WS09 - 0.50m bgl
Aliphatic C10 to C12 - 327.9mg/kg
Aromatic EC10 to EC12 - 130.6mg/kg
Aromatic EC12 to EC16 - 579mg/kg
Aromatic EC16 to EC21 - 619mg/kg
WS09 - 1.00m bgl
Aromatic EC10 to EC12 - 65.7mg/kg
Aromatic EC12 to EC16 - 250mg/kg
Aromatic EC16 to EC21 - 289mg/kg

WS11 - 1.00m bgl
Aliphatic C10 to C12 - 294mg/kg
Aromatic EC10 to EC12 - 110mg/kg
Aromatic EC12 to EC16 - 543mg/kg
Aromatic EC16 to EC21 - 594mg/kg
WS11 - 1.50m bgl
Aliphatic C10 to C12 - 901.4mg/kg
Aliphatic C12 to C16 - 2519g/kg
Aromatic EC10 to EC12 - 390.7mg/kg
Aromatic EC12 to EC16 - 1687mg/kg
Aromatic EC16 to EC21 - 1776mg/kg

WS02 - 1.00m bgl
Benzo(a)pyrene - 2.82mg/kg
Dibenz(ah)anthracene - 0.50mg/kg
Benzo(b)fluoranthene - 3.76mg/kg

WS16 - 0.40m bgl
Asbestos - <0.001mass%

WS18 - 0.50m bgl
Benzo(b)fluoranthene - 3.76mg/kg
Asbestos - <0.001mass%

TP02 - 0.10m bgl
Asbestos - <0.001mass%

WS13 - 0.50m bgl
Asbestos - <0.001mass%

WS28 - 0.50m bgl
Benzo(b)fluoranthene - 2.62mg/kg

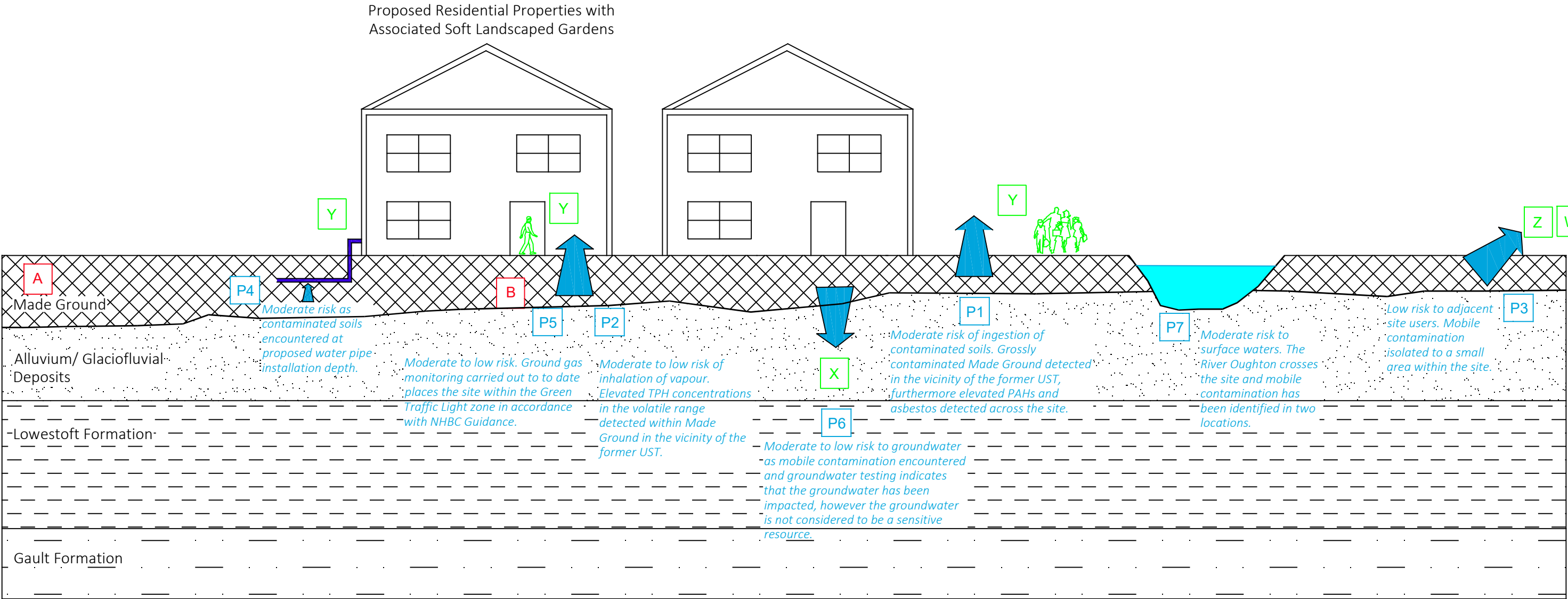
WS19 - 0.50m bgl
Asbestos - 0.002mass%

WS21 - 0.40m bgl
Benzo(a)pyrene - 2.34mg/kg
Dibenz(ah)anthracene - 0.29mg/kg
Benzo(b)fluoranthene - 3.22mg/kg



CLIENT	DATE	Status	Notes
BOWMAN'S INGREDIENTS LTD	JANUARY 2020	Preliminary	Areas requiring 500mm cover layer with 100mm hard dig
PROJECT TITLE	SCALE	Draft	Hydrocarbon impacted soils
BOWMAN'S MILL, ICKLEFORD	NTS	Issued	Indicative hydrocarbon groundwater plume
PLAN TITLE	PLAN NUMBER	For Comment	
CONTAMINATION PLAN	19271 05	Approved	
Rev.	Details	Date	

SOURCES	POLLUTION LINKAGES	RECEPTORS
A. Contaminated soils / Made Ground. B. Ground gas.	P1. Ingestion of soil and dust. P2. Inhalation of vapour. P3. Inhalation of soil dust by adjacent site users. P4. Attacking of potable water supply pipe. P5. Migration and accumulation of ground gas in internal places. P6. Impaction of groundwater from soil contamination. P7. Migration of soil and groundwater contamination impacting surface waters.	W. River Oughton On Site. X. Groundwater within the Secondary A Aquifer. Y. Site end users. Z. Adjacent site users.



	CLIENT	DATE				Status		Notes
	BOWMAN'S INGREDIENTS LTD	JANUARY 2020				Preliminary		
	PROJECT TITLE	SCALE				Draft		
	BOWMAN'S MILL, ICKLEFORD	NTS				Issued	●	
	PLAN TITLE	PLAN NUMBER				For Comment		
	ILLUSTRATIVE REVISED CSM	19271 06	Rev.	Details	Date	Approved		

APPENDIX 2 – Site Photographs



1. Site entrance.



2. Office near site entrance (right), disused mill buildings (left).



3. River Oughton.



4. Area of soft landscaping to remain and access road through the site.



5. Derelict mill buildings.



6. Disused Silos.



7. Vicinity of former diesel UST.



8. Office buildings.

APPENDIX 3 – Exploratory Hole Logs

					Borehole Log			Borehole No. WS01 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.90			MADE GROUND: Brown slightly sandy slightly gravelly clayey topsoil. Gravel is angular to subrounded fine to medium of mixed lithology including brick and rare ash.	1
		1.00	ES					Medium dense grey slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium of mixed lithology including chert.	
		1.20		N=17 (4,4/5,4,4,4)					
		2.00		N=2 (3,2/1,0,0,1)	1.50		Loose yellow brown slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium of mixed lithology including chert.	2	
		3.00		N=6 (1,1/1,1,2,2)	2.30		Firm grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine of mixed lithology.	3	
		4.00		N=14 (1,2/3,3,3,5)	3.70		Dark brown slightly sandy SILT.	4	
					4.45		----- End of borehole at 4.45 m	5	
Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. Groundwater encountered at 2.45m bgl. 3. Hole collapsed to 2.10m. 4. No standpipe installed.									

					Borehole Log			Borehole No. WS02 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.50	ES		0.23		MADE GROUND: Grey reinforced concrete.	1		
						MADE GROUND: Red brown slightly sandy angular fine to coarse gravel of quartzite.				
						MADE GROUND: Dark brown slightly sandy angular fine to coarse gravel of mixed lithology including ash.				
		1.00	ES	N=37 (6,9/9,8,10,10)	0.55		MADE GROUND: Dark brown slightly gravelly fine to coarse sand. Gravel is angular fine to coarse of mixed lithology including ash.			
					0.75					
1.20							2			
1.50	ES									
1.70		50 (25 for 0mm/50 for 5mm)	1.70			End of borehole at 1.70 m				
									3	
									4	
									5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Obstruction encountered at 1.50m bgl. 5. Standpipe installed to 1.50m bgl: 1.00m plain pipe, 0.50m slotted pipe.										

					Borehole Log			Borehole No. WS03 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	ES		0.18			MADE GROUND: Grey reinforced concrete.	1	
		0.50	ES		0.50			MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
		1.10	ES D		1.00			MADE GROUND: Soft grey slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
		1.20					Very soft dark brown slightly sandy silty CLAY.			
		1.20		1.50		Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	2			
		2.00	D	1.90		Soft to firm light brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to medium of mixed lithology including chert.				
		2.50			Gravel band encountered at 2.30m to 2.35m bgl. Becoming firm to stiff at 2.50m bgl.					
		3.00			Very Soft at 3.00m bgl.	3				
		4.00							4	
						4.45			End of borehole at 4.45 m	5
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.00m bgl. 4. Hole collapsed to 2.00m. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS04 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.26			MADE GROUND: Grey reinforced concrete.	1	
		0.50	ES		0.65			MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
					0.80			Soft grey brown silty CLAY.		
		1.00	ES					Firm light brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of mixed lithology including chert.		
		1.20		N=7 (1,1/1,1,2,3)						
		1.50	D							
		2.00								
		2.00	D	N=4 (0,0/0,1,1,2)	2.00			Soft grey brown silty CLAY.		
		3.00	D	N=1 (1,0/0,1,0,0)	3.00		Soft grey clayey SILT.	3		
		3.00								
							End of borehole at 3.45 m			
		4.00		N=0 (0,0/0,0,0,0)				4		
					4.45					
								5		
Remarks										
1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.70m bgl. 4. Hole collapsed to 2.80m. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS05 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25			MADE GROUND: Grey reinforced concrete.	1
		0.50	ES		0.60			MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.	
		1.00	ES		1.10			MADE GROUND: Soft grey slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithology including brick and ash.	
		1.20	D	N=27 (2,3/6,11,7,3)	1.40			Soft grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to medium of mixed lithology including chert.	
		1.20			1.60			Medium dense yellow brown fine to coarse SAND and angular to rounded fine to coarse GRAVEL of mixed lithology including chert.	
								Very soft dark brown slightly sandy silty CLAY.	
		2.00	D	N=0 (0,0/0,0,0,0)					2
		2.00							
		3.00		N=7 (2,1/2,2,1,2)					
				3.45			Soft to firm at 3.00m bgl.	3	
							End of borehole at 3.45 m	4	
								5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.40m bgl. 4. Hole collapsed to 1.50m. 5. No standpipe installed.									

					Borehole Log			Borehole No. WS06 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 09/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20			MADE GROUND: Grey reinforced concrete.		
		0.50	ES					MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
		1.00	ES							
		1.20		N=1 (1,2/1,0,0,0)	1.20					
		1.50	D					Very loose to loose orange brown slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of mixed lithology including chert.		
		2.00		N=4 (1,1/1,1,1,1)						
					2.50					Soft dark brown clayey SILT.
		3.00		N=9 (1,1/2,2,2,3)	3.00					Soft to firm lightly grey sandy SILT.
		3.10	D							
		3.60	D		3.50			Firm dark brown silty CLAY.		
4.00		N=14 (2,2/2,3,4,5)								
					4.45			End of borehole at 4.45 m		
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 3.45m bgl. 4. Hole collapsed to 3.00m. 5. Standpipe installed to 4.00m bgl: 1.00m plain pipe, 3.00m slotted pipe.										

					Borehole Log			Borehole No. WS07 Sheet 1 of 2	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Grey reinforced concrete.	1
		0.50	ES				MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
		0.80	ES						
		1.00	D		0.90		Firm grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.		
		1.20		N=11 (1,2/2,3,3,3)		Becoming stiff at 1.50m bgl.			
		2.00							
		2.00	D	N=7 (2,2/2,1,2,2)					
		2.50 - 2.95	U			Very high strength at 2.50m bgl.			
		3.00		N=23 (2,3/4,6,6,7)		Stiff at 3.00m bgl.			
		4.00		N=21 (2,3/4,4,6,7)					
		5.00		N=23 (3,3/4,6,6,7)			Continued on next sheet	5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. No standpipe installed.									

					Borehole Log			Borehole No. WS07 Sheet 2 of 2		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					5.45			End of borehole at 5.45 m		
									6	
									7	
									8	
									9	
									10	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. No standpipe installed.										

					Borehole Log			Borehole No. WS08 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.15			MADE GROUND: Grey reinforced concrete.		
								MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
		0.50	ES		0.60			Firm light brown mottled grey slightly gravelly sandy CLAY. Gravel is subangular to rounded fine of mixed lithology.		
		1.00	ES		1.00			Soft yellow sandy SILT.		
		1.20		N=0 (0,0/0,0,0,0)						
		1.50	D		1.40			Loose light yellow silty fine SAND.		
		2.00		N=6 (0,1/1,2,1,2)						
		2.50	D		2.20			Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.		
		3.00		N=9 (1,2/2,3,2,2)						
		4.00		N=14 (3,2/3,3,4,4)						
				4.45			End of borehole at 4.45 m			
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.50m bgl. 4. Hole collapsed to 2.00m. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS09 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20			MADE GROUND: Grey reinforced concrete.		
		0.50	ES					MADE GROUND: Soft grey slightly sandy slightly gravelly clay with moderate hydrocarbon odour. Gravel is angular to subangular fine to coarse of mixed lithology.		
		1.00	ES							
		1.20		N=9 (8,4/1,3,3,2)						
		1.50	ES			1.40		Loose yellow brown silty fine SAND with moderate hydrocarbon odour.		
		2.00		N=3 (0,0/0,1,1,1)						
		2.50	ES		2.30			Firm to stiff grey slightly sandy slightly gravelly CLAY with slight hydrocarbon odour. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.		
					3.45			End of borehole at 3.45 m		
Remarks										
1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.00m bgl. 4. Hole collapsed to 1.30m. 5. Standpipe installed to 3.00m bgl: 1.00m plain pipe, 2.00m slotted pipe.										

					Borehole Log			Borehole No. WS10 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25			MADE GROUND: Grey reinforced concrete.	1
		0.50	ES		0.65			MADE GROUND: Light brown gravelly fine to coarse sand with slight hydrocarbon odour. Gravel is angular to subangular fine to coarse of mixed lithology including brick.	
		1.00	D		1.10			Firm yellow brown slightly gravelly sandy CLAY with sli hydrocarbon odour. Gravel is angular subrounded fine to medium of mixed lithology including chert.	
		1.00	ES						
		1.20		N=50 (6,11/50 for 230mm)				Very ense yellow brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of mixed lithology including chert.	
					1.65			End of borehole at 1.65 m	2
									3
									4
									5
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.10m bgl. 4. Hole terminated at 1.65m bgl due to SPT refusal. 5. No standpipe installed.									

					Borehole Log			Borehole No. WS11 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.18			MADE GROUND: Grey reinforced concrete.	
		0.50	ES					MADE GROUND: Black gravelly fine to coarse sand with moderate hydrocarbon odour. Gravel is angular to subangular fine to coarse of mixed lithology including brick.	1
		1.00	ES						
		1.20		N=50 (8,12/50 for 225mm)					
		1.50	ES						
		1.65		50 (12,13/50 for 170mm)				2	
					2.10			End of borehole at 2.10 m	
									3
									4
									5
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.20m bgl. 4. Obstruction encountered at 2.10m bgl. 5. No standpipe installed.									

					Borehole Log			Borehole No. WS12 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Grey reinforced concrete.	
		0.30	ES		0.20			MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.	
		0.50	ES		0.40			Soft grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.	
		1.00	D						1
		1.20		N=0 (0,0/0,0,0,0)					
		2.00	D						2
		2.00		N=4 (1,0/0,1,1,2)					
		3.00		N=2 (1,0/0,1,0,1)					3
		4.00		N=6 (4,2/1,1,2,2)					4
					4.45			End of borehole at 4.45 m	5
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.30m bgl. 4. Hole collapsed to 2.50m. 5. Standpipe installed to 4.00m bgl: 1.00m plain, 3.00m slotted.									

					Borehole Log			Borehole No. WS13 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:		Scale 1:25		Logged By SF	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.50	ES	N=0 (0,0/0,0,0,0)	0.23			MADE GROUND: Grey reinforced concrete.	1	
					0.60			MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithology including brick.		
								Soft grey silty CLAY.		
		1.00	D ES	N=3 (0,0/0,1,1,1)						2
		1.00								
		1.20								
		2.00	D	N=9 (0,1/2,2,3,2)	2.30			Firm grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.		3
		2.50								
		3.00								
		4.00		N=6 (1,2/1,1,2,2)						4
				4.45			End of borehole at 4.45 m	5		
Remarks										
1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.00m bgl. 4. Hole collapsed to 2.20m. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS14 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:		Scale 1:25		Logged By SF	
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.23			MADE GROUND: Grey reinforced concrete.	1	
		0.30	ES		0.40			MADE GROUND: Soft to firm orange brown slightly sandy gravelly clay. Gravel is angular fine to coarse of mixed lithology including brick.		
		0.50	ES					MADE GROUND: Yellow brown gravelly fine to coarse sand. Gravel is angular fine to coarse of mixed lithology including brick and chert.		
					0.90			Soft grey silty CLAY.		
		1.20		N=1 (0,0/0,0,0,1)						
		1.50	D							
		2.00		N=8 (0,1/2,1,2,3)						
					2.30			2		
		2.50 - 2.95	U				Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.	3		
		3.00		N=15 (3,3/4,4,3,4)						
					3.45			End of borehole at 3.45 m	4	
									5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.00m bgl. 4. Hole collapsed to 1.50m. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS15 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 10/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.17			MADE GROUND: Grey reinforced concrete.	1
		0.30	ES		0.40			MADE GROUND: Orange brown gravelly fine to coarse sand. Gravel is angular fine to coarse of mixed lithology including brick.	
								Dark brown slightly organic silty fine SAND.	
					0.80			Soft grey brown sandy CLAY.	2
		1.00	D						
		1.00	ES						
		1.20		N=25 (3,5/6,6,7,6)	1.50			Gravel band encountered at 1.40m to 1.45m bgl.	3
								Firm to stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mixed lithology including chert.	
		2.00	D	N=9 (1,2/2,3,2,2)					
		2.00							4
		3.00		N=11 (1,2/3,3,2,3)				5	
					3.45				
End of borehole at 3.45 m									
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.10m bgl. 4. Hole collapsed to 2.00m. 5. No standpipe installed.									

					Borehole Log			Borehole No. WS16 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.10			MADE GROUND: Black tarmac.		
					0.20			MADE GROUND: Grey reinforced concrete.		
		0.40	ES					MADE GROUND: Black sandy angular fine to coarse gravel of mixed lithology including brick and bitumous gravel.		
					0.50					
								Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chert.		
		1.00	ES		1.00					
		1.20		N=33 (8,14/14,9,7,3)				Dense orange brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL of mixed lithology including chert.	1	
		1.50 - 1.95	U		1.50					
		2.00						Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chert.		
		2.00	D	N=19 (2,2/4,4,5,6)					2	
			2.60							
		3.00		N=24 (6,6/5,6,6,7)			Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.	3		
			3.45				End of borehole at 3.45 m			
									4	
									5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.00m bgl. 4. Hole collapsed to 1.00m bgl. 5. No standpipe installed.										

					Borehole Log			Borehole No. WS17 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Grey reinforced concrete.	
		0.60	ES		0.56		Soft grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	1	
		1.00	ES						
		1.20		N=0 (0,0/0,0,0,0)	1.30				
		1.50 1.50 - 1.95	D U				Soft grey slightly sandy silty CLAY. Low strength at 1.50m bgl.	2	
		2.00		N=3 (0,0/0,0,1,2)	2.10				
		2.50 2.50 - 2.95	D U				Firm grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chalk.	3	
		3.00		N=10 (1,2/2,3,2,3)					
		4.00		N=12 (3,3/3,2,4,3)					
					4.45		End of borehole at 4.45 m	4	
								5	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Soils saturated from 1.50m bgl. 4. Hole collapsed to 3.00m bgl. 5. Standpipe installed to 4.00m bgl: 1.00m plain pipe, 3.00m slotted pipe.									

					Borehole Log			Borehole No. WS18 Sheet 1 of 2														
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS													
Location: ICKLEFORD					Level:			Scale 1:25														
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF														
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description														
		Depth (m)	Type	Results																		
		0.30 - 3.00	ES		0.17			MADE GROUND: Grey reinforced concrete.														
								0.40		MADE GROUND: Red brown slightly sandy angular fine to coarse gravel of quartzite.												
										0.50	MADE GROUND: Black slightly sandy angular fine to coarse gravel of mixed lithology including ash.											
											0.70	Firm grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.										
												1.00	N=1 (1,0/0,1,0,0)	Becoming soft between 1.20m and 1.50m bgl.								
															1.20							
													1.50 - 1.95	U		1.50		Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk.				
																			2.00	D	N=10 (1,1/1,3,3,3)	
																						2.00
3.00	N=12 (1,2/2,3,3,4)																					
		4.00	N=10 (1,1/1,2,3,4)																			
				5.00	D																	
						Continued on next sheet																

Remarks

1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.40m bgl. 4. Standpipe installed to 5.00m bgl: 1.00m plain pipe, 4.00m slotted pipe.

					Borehole Log			Borehole No. WS19 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			MADE GROUND: Grey reinforced concrete.	1
		0.50	ES		0.60			MADE GROUND: Red brown slightly sandy angular fine to coarse gravel of quartzite.	
		1.00	D		1.10			Firm brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	
		1.00	ES						
		1.20		N=22 (1,3/5,6,6,5)	1.50			Medium dense yellow slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium of mixed lithology including chert.	
		1.60	D					Firm brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	
		2.00		N=11 (1,1/2,2,3,4)				<u>Sand and gravel band at 1.80m bgl.</u>	
		2.50 - 2.95	U						
		3.00		N=19 (2,3/4,4,5,6)					
		3.45							
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.10m bgl. 4. Hole collapsed to 1.50m bgl. 5. No standpipe installed.									5

					Borehole Log			Borehole No. WS20 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.26			MADE GROUND: Grey reinforced concrete.	1 2 3 4 5
		0.50	ES		0.60			MADE GROUND: Yellow gravelly fine to coarse sand. Gravel is angular fine to coarse of mixed lithology including brick.	
		1.00	ES					Firm grey silty CLAY.	
		1.20		N=0 (0,0/0,0,0,0)			Becoming soft from 1.00m bgl.		
		1.50	D		1.90				
		2.00		N=3 (0,0/0,1,1,1)			Soft grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chalk.		
		3.00	D						
		3.00		N=18 (2,2/3,4,5,6)			Firm to stiff from 3.00m bgl.		
		4.00		N=24 (5,4/5,6,6,7)					
					4.45			End of borehole at 4.45 m	
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 1.65m bgl. 4. Hole collapsed to 3.00m bgl. 5. No standpipe installed.									

					Borehole Log			Borehole No. WS21 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 11/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES	N=18 (0,0/2,3,6,7)	0.50			MADE GROUND: Brown slightly gravelly slightly sandy clayey topsoil. Gravel is angular to rounded fine to coarse of mixed lithology including brick.	1
		1.00	D					Soft grey brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of mixed lithology including chert.	
		1.00	ES						
		1.20		U	Low strength at 1.50m				
		1.50 - 1.95							
		2.00		N=24 (2,2/4,7,6,7)	2.30		Yellow fine to coarse SAND and subangular to subrounded fine to medium GRAVEL of mixed lithology including chert.	2	
				N=24 (4,5/5,6,6,7)	2.70		Firm to stiff grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	3	
		3.00							
					3.45		End of borehole at 3.45 m	4	
								5	
Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. Groundwater encountered at 2.00m bgl. 3. Hole collapsed to 2.00m bgl. 4. No standpipe installed.									

					Borehole Log			Borehole No. WS22 Sheet 1 of 1				
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS			
Location: ICKLEFORD					Level:			Scale 1:25				
Client: BOWMAN'S INGREDIENTS					Dates: 12/12/2019 -			Logged By SF				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.30	ES	N=16 (2,2/3,4,4,5)	0.35			MADE GROUND: Grey sandy angular fine to coarse gravel of limestone.	1			
		1.00	D					Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chalk and chert.				
		1.00	ES									
		1.20						<u>Becoming stiff from 1.00m bgl.</u>				
		1.50 - 1.95	U									
		2.00	D	N=18 (3,2/3,5,5,5)			<u>Becoming grey from 2.10m bgl.</u>	2				
2.00												
		3.00		N=26 (3,5/5,6,7,8)								3
		4.00		N=50 (5,7/9,14,13,14)								
								5				
End of borehole at 4.45 m												
4.45												
Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. No groundwater encountered. 3. No standpipe installed.												

					Borehole Log			Borehole No. WS23 Sheet 1 of 1				
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS			
Location: ICKLEFORD					Level:		Scale 1:25		Logged By SF			
Client: BOWMAN'S INGREDIENTS					Dates: 12/12/2019 -							
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.10	ES		0.20		MADE GROUND: Brown slightly gravelly slightly sandy clayey topsoil. Gravel is angular to rounded fine to coarse of mixed lithology including brick. MADE GROUND: Firm light brown slightly gravelly sandy clay. Gravel is angular to subrounded fine to medium of mixed lithology including brick. Loose orange brown fine to coarse SAND and subangular to subrounded fine to medium GRAVEL of mixed lithology including chert.	1				
		0.40	ES		0.50							
		1.20	D		N=8 (2,2/2,2,2,2)				1.50			
		1.60		2.00	Firm orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert.	2						
		2.00		N=20 (4,4/3,4,5,8)	2.50		Medium dense yellow slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium of mixed lithology including chert.					
		3.00		N=32 (5,6/8,7,8,9)	3.45	Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chalk.	3					
		End of borehole at 3.45 m								4		
										5		
		Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. Groundwater encountered at 2.00m bgl. 3. Hole collapsed to 2.00m bgl. 4. Standpipe installed to 3.00m bgl: 1.00m plain pipe, 2.00m slotted pipe.										

					Borehole Log			Borehole No. WS24 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 12/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40 - 4.00	ES	N=35 (5,6/8,8,9,10)	0.50		MADE GROUND: Brown slightly gravelly slightly sandy clayey topsoil. Gravel is angular to rounded fine to coarse of mixed lithology including brick.	1	
		0.90	D		Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithology including chert.				
		1.20			Dense yellow fine to coarse SAND and subangular to subrounded fine to medium GRAVEL of mixed lithology including chert.				
		1.50	D	N=50 (6,9/50 for 230mm)	2.45		Very dense at 2.00m	2	
		2.00					End of borehole at 2.45 m		
								3	
								4	
								5	
Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. No groundwater encountered. 3. No standpipe installed.									

					Borehole Log			Borehole No. WS25 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 12/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.20			MADE GROUND: Grey reinforced concrete.	
					0.50			MADE GROUND: Red brown slightly sandy angular fine to coarse gravel of quartzite.	
		1.00	D ES	N=19 (2,3/4,5,5,5)				Stiff brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chalk.	1
		1.00							
		1.20	U					Becoming grey from 1.20m bgl.	
		1.50 - 1.95							
		2.00	D	N=21 (3,3/4,5,6,6)				Gravel becoming fine to coarse from 2.00m bgl.	2
		2.00							
		3.00		N=50 (9,11/50 for 245mm)					3
					3.45			End of borehole at 3.45 m	4
									5
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Standpipe installed to 3.00m bgl: 1.00m plain pipe, 2.00m slotted pipe.									

					Borehole Log			Borehole No. WS28 Sheet 1 of 1	
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS
Location: ICKLEFORD					Level:			Scale 1:25	
Client: BOWMAN'S INGREDIENTS					Dates: 12/12/2019 -			Logged By SF	
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Black tarmac.	
		0.50	ES		0.60			MADE GROUND: Orange brown sandy angular fine to coarse gravel of mixed lithology including brick.	
								Yellow fine to coarse SAND and subangular to subrounded fine to medium GRAVEL of mixed lithology including chert.	
		1.00	ES						
		1.20		N=13 (5,7/5,3,3,2)	1.20				
		1.50 - 1.95	U					Firm to stiff brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chert. Low strength at 1.50m Becoming stiff from 1.70m bgl.	
		2.00		N=13 (3,2/3,3,4,3)					
					2.45			End of borehole at 2.45 m	
Remarks 1. Hand dug inspection pit to 1.20m bgl. 2. Groundwater encountered at 1.00m bgl. 3. Hole collapsed to 1.20m bgl. 4. Standpipe installed to 2.00m bgl: 1.00m plain pipe, 1.00m slotted pipe.									

					Borehole Log			Borehole No. WS29 Sheet 1 of 1		
Project Name: BOWMAN'S MILL					Project No. 19271		Co-ords: -		Hole Type WS	
Location: ICKLEFORD					Level:			Scale 1:25		
Client: BOWMAN'S INGREDIENTS					Dates: 13/12/2019 -			Logged By SF		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.16			MADE GROUND: Grey reinforced concrete.		
								MADE GROUND: Red brown slightly sandy angular fine to coarse gravel of quartzite.		
		0.50	ES			0.60		Yellow fine to coarse SAND and subangular to subrounded fine to medium GRAVEL of mixed lithology including chert.		
		1.00	ES		1.00		Soft yellow brown clayey SILT.			
		1.20		N=1 (0,0/0,0,0,1)						
		1.50	D							
		2.00	D	N=2 (0,0/0,0,1,1)	2.20		Firm grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology including chalk.			
		2.00								
		2.50 - 2.95	U							
		3.00		N=8 (1,2/2,2,2,2)	3.45		End of borehole at 3.45 m			
Remarks 1. Concrete surfacing cored out. 2. Hand dug inspection pit to 2.20m bgl. 3. Groundwater encountered at 2.00m bgl. 4. Hole collapsed to 2.00m bgl. 5. Standpipe installed to 3.00m bgl: 1.00m plain pipe, 2.00m slotted pipe.										

				Trial Pit Log			Trialpit No TP01 Sheet 1 of 1		
Project Name: BOWMAN'S MILL				Project No. 19271		Co-ords: - Level:		Date 12/12/2019	
Location: ICKLEFORD				Dimensions (m): Depth 3.90				Scale 1:25	
Client: BOWMAN'S INGREDIENTS								Logged SM	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.05	ES	HVP=100	0.86			MADE GROUND: Brown slightly clayey slightly gravelly sandy topsoil. Gravel is angular to subrounded fine to medium of mixed lithology including brick.		
	0.40 0.50	D ES					Soft to firm dark brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mixed lithology.		
				1.60			Light brown slightly clayey fine SAND. <u>Becoming gravelly from 1.70m bgl.</u>		
				3.40			Stiff high strength grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithology.		
				3.90			End of pit at 3.90 m		
Remarks: 1. No groundwater encountered.									
Stability: 1. Pit sides stable.									

				Trial Pit Log			Trialpit No TP02 Sheet 1 of 1		
Project Name: BOWMAN'S MILL				Project No. 19271		Co-ords: - Level:		Date 12/12/2019	
Location: ICKLEFORD				Client: BOWMAN'S INGREDIENTS		Dimensions (m): Depth 4.00		Scale 1:25	
		Logged SM							
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES	HVP=90				MADE GROUND: Brown slightly clayey slightly gravelly sandy topsoil. Gravel is angular to subrounded fine to medium of mixed lithology including brick.		
	0.50	ES					Soft to firm dark brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mixed lithology.		
	2.00	D					Light brown slightly clayey fine SAND.		
Soft to firm grey slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mixed lithology.									
			Becoming stiff and high strength from 2.40m bgl.						
			End of pit at 4.00 m						
Remarks: 1. No groundwater encountered.									
Stability: 1. Pit sides stable.									

				Trial Pit Log			Trialpit No TP03 Sheet 1 of 1		
Project Name: BOWMAN'S MILL				Project No. 19271		Co-ords: - Level:		Date 12/12/2019	
Location: ICKLEFORD				Client: BOWMAN'S INGREDIENTS		Dimensions (m): Depth 0.50		Scale 1:25	
		Logged SM							
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.20			MADE GROUND: Brown slightly clayey slightly gravelly sandy topsoil. Gravel is angular to subrounded fine to medium of mixed lithology including brick.		
				0.50			MADE GROUND: Yellow brown fine to coarse sand.		
							----- End of pit at 0.50 m		
							1		
							2		
							3		
							4		
							5		
Remarks: 1. No groundwater encountered. 2. Gas main encountered at 0.50m bgl.									
Stability:									

APPENDIX 4 – Geo-Environmental Testing

Groundtech Consulting Limited

PO Box 499

Manchester

M28 8EE



Attention :	Sam Flaherty
Date :	24th December, 2019
Your reference :	19271
Our reference :	Test Report 19/20485 Batch 1
Location :	Bowman's Mill, Ickleford
Date samples received :	13th December, 2019
Status :	Final report
Issue :	1

Forty seven samples were received for analysis on 13th December, 2019 of which twenty six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. □
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

EMT Sample No.	1-2	3-4	8-10	17-19	20-22	32-34	35-37	47-49	53-55	56-58	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS01	WS02	WS03	WS03	WS05	WS06	WS08	WS09	WS09			
Depth	0.50	1.00	1.00	0.50	1.10	1.00	0.50	0.50	0.50	1.00			
COC No / misc													
Containers	J T	J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	10/12/2019	10/12/2019	10/12/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019			
Arsenic #	17.1	-	6.9	8.4	-	21.5	8.9	11.6	12.7	-	<0.5	mg/kg	TM30/PM11
Cadmium #	0.2	-	<0.1	<0.1	-	<0.1	0.1	<0.1	<0.1	-	<0.1	mg/kg	TM30/PM11
Chromium #	58.4	-	53.2	43.2	-	78.0	40.4	67.3	54.6	-	<0.5	mg/kg	TM30/PM11
Copper #	39	-	12	13	-	21	14	20	17	-	<1	mg/kg	TM30/PM11
Lead #	77	-	10	52	-	50	8	9	33	-	<5	mg/kg	TM30/PM11
Mercury #	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	mg/kg	TM30/PM11
Nickel #	24.3	-	8.8	18.2	-	21.0	21.7	23.0	23.8	-	<0.7	mg/kg	TM30/PM11
Selenium #	<1	-	<1	<1	-	<1	<1	<1	<1	-	<1	mg/kg	TM30/PM11
Zinc #	109	-	46	79	-	67	60	82	65	-	<5	mg/kg	TM30/PM11
Arsenic	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM6
Cadmium	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM6
Chromium	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM6
Copper	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM6
Lead	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM6
Mercury	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM6
Nickel	-	-	-	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM6
Selenium	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM6
Zinc	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM6
PAH MS													
Naphthalene #	<0.04	-	0.44 ^{AA}	<0.04	-	<0.04	<0.04	<0.04	0.26	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.07	-	<0.30 ^{AA}	0.04	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.50 ^{AA}	0.11	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	<0.40 ^{AA}	0.08	-	<0.04	<0.04	<0.04	0.23	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.26	-	3.62 ^{AA}	1.19	-	<0.03	<0.03	<0.03	0.39	-	<0.03	mg/kg	TM4/PM8
Anthracene #	0.06	-	0.97 ^{AA}	0.22	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.45	-	4.79 ^{AA}	1.70	-	0.09	<0.03	<0.03	0.06	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.39	-	4.29 ^{AA}	1.49	-	0.07	<0.03	<0.03	0.09	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.29	-	3.35 ^{AA}	0.72	-	<0.06	<0.06	<0.06	<0.06	-	<0.06	mg/kg	TM4/PM8
Chrysene #	0.25	-	2.81 ^{AA}	0.73	-	0.06	<0.02	<0.02	0.04	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.44	-	5.22 ^{AA}	1.31	-	0.10	<0.07	<0.07	<0.07	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.22	-	2.82 ^{AA}	0.72	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene	0.18	-	1.82 ^{AA}	0.49	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	0.50 ^{AA}	0.10	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.21	-	2.27 ^{AA}	0.52	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	2.8	-	32.9 ^{AA}	9.4	-	<0.6	<0.6	<0.6	1.1	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.32	-	3.76 ^{AA}	0.94	-	0.07	<0.05	<0.05	<0.05	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.12	-	1.46 ^{AA}	0.37	-	0.03	<0.02	<0.02	<0.02	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	104	-	81 ^{AA}	99	-	102	100	97	99	-	<0	%	TM4/PM8

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	8-10	17-19	20-22	32-34	35-37	47-49	53-55	56-58	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS01	WS02	WS03	WS03	WS05	WS06	WS08	WS09	WS09			
Depth	0.50	1.00	1.00	0.50	1.10	1.00	0.50	0.50	0.50	1.00			
COC No / misc													
Containers	J T	J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	10/12/2019	10/12/2019	10/12/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	-	-	-	-	<0.1	-	<0.1	<0.1	0.4	<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	-	-	<0.1	-	<0.1	4.6	9.2	<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	-	-	-	-	<0.2	-	<0.2	116.0	327.9	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	-	-	-	-	-	<4	-	<4	346	905	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	-	-	-	-	-	<7	-	<7	440	1044	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	-	-	-	-	-	<7	-	23	200	345	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	-	-	-	-	-	<19	-	23	1107	2632	<19	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	-	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	-	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	-	-	-	-	<0.1	-	<0.1	0.1	0.3	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	-	-	-	-	-	<0.2	-	<0.2	65.7	130.6	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	-	-	-	-	-	<4	-	<4	250	579	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	-	-	-	-	-	<7	-	<7	289	619	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	-	-	-	-	-	<7	-	<7	128	210	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	-	-	-	-	-	<19	-	<19	733	1539	<19	mg/kg	TM5/PM8/PM16
Total aliphatics and aromatics(C5-35)	-	-	-	-	-	<38	-	<38	1840	4171	<38	mg/kg	TM5/PM8/PM16
MTBE #	-	-	-	-	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	-	-	-	-	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	-	-	-	-	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	-	-	<5	-	<5	49	102	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	-	-	<5	-	<5	82	192	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	-	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8
Natural Moisture Content	37.8	-	10.6	20.4	-	23.6	26.4	19.9	28.8	27.8	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0087	0.0189	0.1479	0.3403	0.0476	0.0762	1.4869	0.2765	0.0800	-	<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	-	-	-	-	-	-	-	<0.0015	g/l	TM38/PM60
Organic Matter	7.1	-	3.3	0.8	-	2.5	0.7	0.2	1.5	-	<0.2	%	TM21/PM24

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

EMT Sample No.	59-61	65-67	68-70	74-76	77-79	80-82	83-85	86-88	95-97	104-106	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS09	WS10	WS10	WS11	WS11	WS12	WS12	WS13	WS14	WS16			
Depth	1.50	0.50	1.00	1.00	1.50	0.30	0.50	0.50	0.50	0.40			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	11/12/2019	11/12/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019			
Arsenic #	-	12.8	-	12.5	-	7.3	-	-	14.2	-	<0.5	mg/kg	TM30/PM15
Cadmium #	-	<0.1	-	<0.1	-	<0.1	-	-	<0.1	-	<0.1	mg/kg	TM30/PM15
Chromium #	-	73.5	-	58.8	-	109.4	-	-	67.9	-	<0.5	mg/kg	TM30/PM15
Copper #	-	15	-	9	-	8	-	-	9	-	<1	mg/kg	TM30/PM15
Lead #	-	9	-	31	-	7	-	-	30	-	<5	mg/kg	TM30/PM15
Mercury #	-	<0.1	-	<0.1	-	<0.1	-	-	<0.1	-	<0.1	mg/kg	TM30/PM15
Nickel #	-	21.4	-	17.3	-	9.8	-	-	16.1	-	<0.7	mg/kg	TM30/PM15
Selenium #	-	<1	-	<1	-	<1	-	-	<1	-	<1	mg/kg	TM30/PM15
Zinc #	-	44	-	42	-	21	-	-	40	-	<5	mg/kg	TM30/PM15
Arsenic	-	-	-	-	-	-	-	35.5	-	28.2	<0.5	mg/kg	TM30/PM62
Cadmium	-	-	-	-	-	-	-	0.1	-	0.2	<0.1	mg/kg	TM30/PM62
Chromium	-	-	-	-	-	-	-	23.8	-	23.8	<0.5	mg/kg	TM30/PM62
Copper	-	-	-	-	-	-	-	21	-	<1	<1	mg/kg	TM30/PM62
Lead	-	-	-	-	-	-	-	155	-	31	<5	mg/kg	TM30/PM62
Mercury	-	-	-	-	-	-	-	<0.1	-	<0.1	<0.1	mg/kg	TM30/PM62
Nickel	-	-	-	-	-	-	-	25.0	-	54.8	<0.7	mg/kg	TM30/PM62
Selenium	-	-	-	-	-	-	-	<1	-	<1	<1	mg/kg	TM30/PM62
Zinc	-	-	-	-	-	-	-	149	-	135	<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	-	<0.04	-	0.14	-	<0.04	-	<0.04	<0.04	0.22	<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	-	0.30	-	<0.03	-	<0.03	<0.03	0.11	<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	-	0.25	-	<0.05	-	<0.05	<0.05	0.10	<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	-	2.38	-	<0.04	-	<0.04	<0.04	0.18	<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	<0.03	-	2.95	-	<0.03	-	0.05	<0.03	0.88	<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	-	<0.04	-	<0.04	-	<0.04	<0.04	0.23	<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	<0.03	-	0.18	-	<0.03	-	0.19	0.05	2.26	<0.03	mg/kg	TM4/PM8
Pyrene #	-	<0.03	-	0.42	-	<0.03	-	0.18	0.05	2.12	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	-	<0.06	-	<0.06	-	0.16	<0.06	0.87	<0.06	mg/kg	TM4/PM8
Chrysene #	-	<0.02	-	0.14	-	<0.02	-	0.18	0.04	1.06	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	-	<0.07	-	<0.07	-	0.35	<0.07	1.88	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	-	<0.04	-	<0.04	-	0.16	<0.04	0.96	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene	-	<0.04	-	<0.04	-	<0.04	-	0.13	<0.04	0.74	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	-	<0.04	-	<0.04	-	<0.04	<0.04	0.12	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	-	<0.04	-	<0.04	-	0.14	<0.04	0.84	<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	<0.6	-	6.8	-	<0.6	-	1.5	<0.6	12.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	-	<0.05	-	<0.05	-	0.25	<0.05	1.35	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	-	<0.02	-	<0.02	-	0.10	<0.02	0.53	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	102	-	100	-	103	-	99	100	100	<0	%	TM4/PM8

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	59-61	65-67	68-70	74-76	77-79	80-82	83-85	86-88	95-97	104-106	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS09	WS10	WS10	WS11	WS11	WS12	WS12	WS13	WS14	WS16			
Depth	1.50	0.50	1.00	1.00	1.50	0.30	0.50	0.50	0.50	0.40			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	10/12/2019	11/12/2019	11/12/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1 ^{sv}	<0.1	mg/kg	TM36/PM12
>C6-C8 #	0.1	<0.1	<0.1	0.2	0.9	-	-	-	-	<0.1 ^{sv}	<0.1	mg/kg	TM36/PM12
>C8-C10	0.6	0.1	<0.1	11.1	14.0	-	-	-	-	0.3 ^{sv}	<0.1	mg/kg	TM36/PM12
>C10-C12 #	12.2	11.1	<0.2	294.0	901.4	-	-	-	-	46.8	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	43	50	<4	877	2519	-	-	-	-	300	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	55	68	<7	966	2853	-	-	-	-	503	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	14	32	<7	319	866	-	-	-	-	265	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	125	161	<19	2467	7154	-	-	-	-	1115	<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1 ^{sv}	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1 ^{sv}	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	0.4	0.5	-	-	-	-	<0.1 ^{sv}	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	23.8	7.3	<0.2	110.0	390.7	-	-	-	-	16.9	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	52	26	<4	543	1687	-	-	-	-	115	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	50	47	<7	594	1776	-	-	-	-	302	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	14	27	<7	211	552	-	-	-	-	300	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	140	107	<19	1458	4406	-	-	-	-	734	<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	265	268	<38	3925	11560	-	-	-	-	1849	<38	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE #	<5	<5	<5	<5	<5	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	141	170	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	198	331	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	-	-	-	-	<5 ^{sv}	<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8
Natural Moisture Content	43.6	27.8	18.4	20.7	17.8	18.6	-	26.4	24.9	13.2	<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	-	<0.3	-	<0.3	-	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.1465	-	0.0509	-	0.0903	1.3976	-	0.0873	-	<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	-	-	-	-	0.0166	-	0.0164	<0.0015	g/l	TM38/PM60
Organic Matter	-	0.2	-	1.2	-	<0.2	-	NDP	<0.2	NDP	<0.2	%	TM21/PM24

Element Materials Technology

Client Name:	Groundtech Consulting Limited
Reference:	19271
Location:	Bowman's Mill, Ickleford
Contact:	Sam Flaherty
EMT Job No:	19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	110-112	113-115	119-121	122-123	124-125	130-131					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS17	WS17	WS18	WS19	WS19	WS21							
Depth	0.60	1.00	0.50	0.50	1.00	0.40							
COC No / misc													
Containers	V J T	V J T	V J T	V J	V J	V J							
Sample Date	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method No.
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019							
Arsenic #	12.4	-	-	11.4	-	8.7					<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	-	0.2	-	0.2					<0.1	mg/kg	TM30/PM15
Chromium #	66.7	-	-	52.1	-	61.4					<0.5	mg/kg	TM30/PM15
Copper #	20	-	-	43	-	24					<1	mg/kg	TM30/PM15
Lead #	26	-	-	39	-	54					<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	-	<0.1	-	<0.1					<0.1	mg/kg	TM30/PM15
Nickel #	20.8	-	-	28.1	-	19.5					<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	-	<1	-	<1					<1	mg/kg	TM30/PM15
Zinc #	81	-	-	106	-	108					<5	mg/kg	TM30/PM15
Arsenic	-	-	19.9	-	-	-					<0.5	mg/kg	TM30/PM62
Cadmium	-	-	0.9	-	-	-					<0.1	mg/kg	TM30/PM62
Chromium	-	-	24.3	-	-	-					<0.5	mg/kg	TM30/PM62
Copper	-	-	56	-	-	-					<1	mg/kg	TM30/PM62
Lead	-	-	967	-	-	-					<5	mg/kg	TM30/PM62
Mercury	-	-	<0.1	-	-	-					<0.1	mg/kg	TM30/PM62
Nickel	-	-	43.3	-	-	-					<0.7	mg/kg	TM30/PM62
Selenium	-	-	2	-	-	-					<1	mg/kg	TM30/PM62
Zinc	-	-	351	-	-	-					<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	<0.04	-	0.32	0.22	-	0.11					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	0.09	0.05	-	0.45					<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	1.00	<0.05	-	<0.05					<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	0.94	<0.04	-	<0.04					<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	-	4.57	0.32	-	1.07					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-	1.48	0.07	-	0.35					<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.07	-	6.93	0.60	-	3.57					<0.03	mg/kg	TM4/PM8
Pyrene #	0.07	-	5.24	0.57	-	2.86					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	2.61	0.43	-	2.13					<0.06	mg/kg	TM4/PM8
Chrysene #	0.05	-	2.32	0.53	-	2.16					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.10	-	3.66	1.01	-	4.47					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	1.79	0.45	-	2.34					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene	<0.04	-	1.12	0.35	-	1.73					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	0.17	0.08	-	0.29					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-	1.09	0.37	-	1.74					<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	33.3	5.1	-	23.3					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.07	-	2.64	0.73	-	3.22					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.03	-	1.02	0.28	-	1.25					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	103	-	100	101	-	94					<0	%	TM4/PM8

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	110-112	113-115	119-121	122-123	124-125	130-131					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS17	WS17	WS18	WS19	WS19	WS21							
Depth	0.60	1.00	0.50	0.50	1.00	0.40							
COC No / misc													
Containers	V J T	V J T	V J T	V J	V J	V J							
Sample Date	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	-	-	-	-	-					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	-	-	-	-	-	-					<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	-	-	-	-	-	-					<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	-	-	-	-	-	-					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	-	-	-	-	-	-					<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	-	-	-	-	-					<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	-	-	-	-	-	-					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	-	-	-	-	-	-					<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	-	-	-	-	-	-					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	-	-	-	-	-	-					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	-	-	-	-	-	-					<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	-	-	-	-	-	-					<38	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
Benzene #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
Toluene #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	-	-	-					<5	ug/kg	TM31/PM12
PCB 28 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 52 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 101 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 118 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 138 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 153 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
PCB 180 #	-	-	<5	<5	-	-					<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	<35	<35	-	-					<35	ug/kg	TM17/PM8
Natural Moisture Content	22.9	-	23.5	19.7	-	39.4					<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	-	<0.3					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.1446	0.0587	-	1.6222	0.1800	0.0152					<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	0.4976	-	-	-					<0.0015	g/l	TM38/PM60
Organic Matter	1.8	-	NDP	4.5	-	2.9					<0.2	%	TM21/PM24

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Matrix : Solid

11 of 19

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
19/20485	1	WS01	0.50	2	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS02	1.00	10	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS05	1.00	34	18/12/2019	General Description (Bulk Analysis)	soil/stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS08	0.50	49	18/12/2019	General Description (Bulk Analysis)	soil/stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS10	0.50	67	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS12	0.30	82	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS13	0.50	88	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	Fibre Bundles
					18/12/2019	Asbestos ACM	NAD

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
19/20485	1	WS13	0.50	88	18/12/2019	Asbestos Type	Chrysotile
					18/12/2019	Asbestos Level Screen	less than 0.1%
					19/12/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					19/12/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					19/12/2019	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
19/20485	1	WS14	0.50	97	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS16	0.40	106	18/12/2019	General Description (Bulk Analysis)	Soil/Stone
					18/12/2019	Asbestos Fibres	Fibre Bundles
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	Chrysotile
					18/12/2019	Asbestos Level Screen	less than 0.1%
					19/12/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					19/12/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					19/12/2019	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
19/20485	1	WS17	0.60	112	18/12/2019	General Description (Bulk Analysis)	Soil/Stone
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	1	WS18	0.50	121	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	Free Fibres
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	Amosite
					18/12/2019	Asbestos Level Screen	less than 0.1%
					19/12/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					19/12/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					19/12/2019	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)

Matrix : Solid

[illegible]

Client Name: Groundtech Consulting Limited

Reference: 19271

Location: Bowman's Mill, Ickleford

Contact: Sam Flaherty

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/20485

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution

EMT Job No: 19/20485

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes

EMT Job No: 19/20485

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GC/MS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GC/MS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM131	Quantification of Asbestos Fibres and ACM, based on HSG248 and SCA method.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes

Groundtech Consulting Limited

PO Box 499

Manchester

M28 8EE



Attention : Sam Flaherty
Date : 23rd December, 2019
Your reference : 19271
Our reference : Test Report 19/20485 Batch 2
Location : Bowman's Mill, Ickleford
Date samples received : 14th December, 2019
Status : Final report
Issue : 1

Twenty six samples were received for analysis on 14th December, 2019 of which thirteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. □
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	134-136	140-142	152-154	155-157	158-160	164-166	167-169	170-172	181-183	184-186	Please see attached notes for all abbreviations and acronyms		
Sample ID	TP01	TP02	WS22	WS22	WS23	WS24	WS25	WS25	WS28	WS28			
Depth	0.05	0.10	0.30	1.00	0.10	0.40	0.40	1.00	0.50	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019	LOD/LOR	Units	Method No.
Arsenic #	23.7	-	2.5	-	19.4	15.2	8.0	-	10.7	-	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	<0.1	-	0.2	0.1	<0.1	-	<0.1	-	<0.1	mg/kg	TM30/PM15
Chromium #	54.6	-	44.4	-	80.9	49.9	47.6	-	91.4	-	<0.5	mg/kg	TM30/PM15
Copper #	28	-	19	-	28	14	16	-	9	-	<1	mg/kg	TM30/PM15
Lead #	61	-	6	-	62	28	11	-	16	-	<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	mg/kg	TM30/PM15
Nickel #	28.8	-	12.9	-	37.9	23.9	15.5	-	14.4	-	<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	<1	-	<1	<1	<1	-	<1	-	<1	mg/kg	TM30/PM15
Zinc #	128	-	53	-	271	95	45	-	32	-	<5	mg/kg	TM30/PM15
Arsenic	-	16.6	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Cadmium	-	0.2	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Chromium	-	24.1	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Copper	-	<1	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM62
Lead	-	66	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM62
Mercury	-	0.2	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Nickel	-	22.2	-	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM62
Selenium	-	<1	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM62
Zinc	-	124	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	0.06	<0.03	-	0.14	<0.03	<0.03	-	0.07	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	0.27	-	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	0.16	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.08	0.24	<0.03	-	0.60	<0.03	<0.03	-	0.89	-	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	0.06	<0.04	-	0.18	<0.04	<0.04	-	0.21	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.32	0.60	<0.03	-	1.61	<0.03	<0.03	-	3.67	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.26	0.56	<0.03	-	1.31	<0.03	<0.03	-	2.87	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.23	0.35	<0.06	-	0.83	<0.06	<0.06	-	1.69	-	<0.06	mg/kg	TM4/PM8
Chrysene #	0.20	0.42	<0.02	-	0.93	<0.02	<0.02	-	1.79	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.42	0.77	<0.07	-	1.81	<0.07	<0.07	-	3.64	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.19	0.39	<0.04	-	0.90	<0.04	<0.04	-	2.00	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene	0.14	0.30	<0.04	-	0.62	<0.04	<0.04	-	1.29	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	0.06	<0.04	-	0.12	<0.04	<0.04	-	0.23	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.14	0.29	<0.04	-	0.64	<0.04	<0.04	-	1.20	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	2.0	4.1	<0.6	-	9.7	<0.6	<0.6	-	20.0	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.30	0.55	<0.05	-	1.30	<0.05	<0.05	-	2.62	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.12	0.22	<0.02	-	0.51	<0.02	<0.02	-	1.02	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97	102	103	-	100	100	89	-	103	-	<0	%	TM4/PM8
Natural Moisture Content	27.9	24.9	7.7	-	36.8	23.0	17.9	-	9.7	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	-	<0.3	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0064	-	0.0171	0.1158	0.0048	<0.0015	1.0987	0.1700	0.0472	1.5766	<0.0015	g/l	TM38/PM20

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	187-189										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS29												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	13/12/2019												
Sample Type	Soil												
Batch Number	2												
Date of Receipt	14/12/2019												
Arsenic #	18.1										<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1										<0.1	mg/kg	TM30/PM15
Chromium #	53.2										<0.5	mg/kg	TM30/PM15
Copper #	13										<1	mg/kg	TM30/PM15
Lead #	11										<5	mg/kg	TM30/PM15
Mercury #	<0.1										<0.1	mg/kg	TM30/PM15
Nickel #	25.3										<0.7	mg/kg	TM30/PM15
Selenium #	<1										<1	mg/kg	TM30/PM15
Zinc #	85										<5	mg/kg	TM30/PM15
Arsenic	-										<0.5	mg/kg	TM30/PM62
Cadmium	-										<0.1	mg/kg	TM30/PM62
Chromium	-										<0.5	mg/kg	TM30/PM62
Copper	-										<1	mg/kg	TM30/PM62
Lead	-										<5	mg/kg	TM30/PM62
Mercury	-										<0.1	mg/kg	TM30/PM62
Nickel	-										<0.7	mg/kg	TM30/PM62
Selenium	-										<1	mg/kg	TM30/PM62
Zinc	-										<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	<0.04										<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03										<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05										<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04										<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03										<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03										<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06										<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene	<0.04										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04										<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	96										<0	%	TM4/PM8
Natural Moisture Content	31.3										<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3										<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	1.0361										<0.0015	g/l	TM38/PM20

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
19/20485	2	TP01	0.05	136	18/12/2019	General Description (Bulk Analysis)	soil/stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	TP02	0.10	142	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	Fibre Bundles
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	Chrysotile
					18/12/2019	Asbestos Level Screen	less than 0.1%
					19/12/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					19/12/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					19/12/2019	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
19/20485	2	WS19	0.50	146	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	Fibre Bundles
					18/12/2019	Asbestos Fibres (2)	Fibre Bundles
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos ACM (2)	NAD
					18/12/2019	Asbestos Type	Amosite
					18/12/2019	Asbestos Type (2)	Chrysotile
					19/12/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					19/12/2019	Total Detailed Gravimetric Quantification (% Asb)	0.002 (mass %)
					19/12/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.002 (mass %)
					19/12/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					19/12/2019	Asbestos Gravimetric & PCOM Total	0.002 (mass %)
19/20485	2	WS21	0.40	150	18/12/2019	General Description (Bulk Analysis)	soil-stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	WS22	0.30	154	18/12/2019	General Description (Bulk Analysis)	Soil/Stones
					18/12/2019	Asbestos Fibres	NAD

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
19/20485	2	WS22	0.30	154	18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	WS23	0.10	160	18/12/2019	General Description (Bulk Analysis)	Soil/Stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	WS24	0.40	166	18/12/2019	General Description (Bulk Analysis)	Soil/Stone
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	WS25	0.40	169	18/12/2019	General Description (Bulk Analysis)	soil.stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD
19/20485	2	WS29	0.50	189	18/12/2019	General Description (Bulk Analysis)	soil.stones
					18/12/2019	Asbestos Fibres	NAD
					18/12/2019	Asbestos ACM	NAD
					18/12/2019	Asbestos Type	NAD
					18/12/2019	Asbestos Level Screen	NAD

Matrix : Solid

[illegible]

Client Name: Groundtech Consulting Limited

Reference: 19271

Location: Bowman's Mill, Ickleford

Contact: Sam Flaherty

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/20485

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/20485

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH ₄ ⁺) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH ₄ ⁺) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH ₄ ⁺) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

EMT Job No: 19/20485

[illegible]

Groundtech Consulting Limited

PO Box 499

Manchester

M28 8EE



Attention :	Sam Flaherty
Date :	27th December, 2019
Your reference :	19271
Our reference :	Test Report 19/20485 Batch 3
Location :	Bowman's Mill, Ickleford
Date samples received :	20th December, 2019
Status :	Final report
Issue :	1

Two samples were received for analysis on 20th December, 2019 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. □
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

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Element Materials Technology

Client Name:	Groundtech Consulting Limited
Reference:	19271
Location:	Bowman's Mill, Ickleford
Contact:	Sam Flaherty
EMT Job No:	19/20485

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Client Name: Groundtech Consulting Limited

Reference: 19271

Location: Bowman's Mill, Ickleford

Contact: Sam Flaherty

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/20485

SOILS

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It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

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As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/20485

[illegible]

Groundtech Consulting Limited
PO Box 499
Manchester
M28 8EE

Attention : Sam Flaherty
Date : 6th January, 2020
Your reference : 19271
Our reference : Test Report 19/20485 Batch 4
Location : Bowman's Mill, Ickleford
Date samples received : 24th December, 2019
Status : Final report
Issue : 1

Eight samples were received for analysis on 24th December, 2019 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. □
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN0₃

EMT Sample No.	201-205	206-210	216-220	221-225	226-230	236-239					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS06	WS09	WS17	WS18	WS25	WS29							
Depth													
COC No / misc													
Containers	V H N P G	V H N P G	V H N P G	V H N P G	V H N P G	V H N P G							
Sample Date	23/12/2019	23/12/2019	23/12/2019	23/12/2019	23/12/2019	23/12/2019							
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid							
Batch Number	4	4	4	4	4	4							
Date of Receipt	24/12/2019	24/12/2019	24/12/2019	24/12/2019	24/12/2019	24/12/2019					LOD/LOR	Units	Method No.
Dissolved Arsenic	<2.5	<2.5	5.5	<2.5	<2.5	<2.5					<2.5	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5					<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	<7	<7					<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5	<5					<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1	<1	<1					<1	ug/l	TM30/PM14
Dissolved Nickel	3	3	8	<2	9	7					<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3	<3	<3					<3	ug/l	TM30/PM14
Dissolved Zinc	<3	<3	5	<3	<3	<3					<3	ug/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	5.1 ^{AA}	<0.1	0.5	<0.1	<0.1					<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.013	6.076 ^{AA}	0.090	0.026	<0.013	<0.013					<0.013	ug/l	TM4/PM30
Acenaphthene	<0.013	8.178 ^{AA}	0.160	1.456	0.025	<0.013					<0.013	ug/l	TM4/PM30
Fluorene	<0.014	40.382 ^{SV AA}	0.657	0.372	0.085	0.020					<0.014	ug/l	TM4/PM30
Phenanthrene	0.017	37.353 ^{SV AA}	0.524	0.038	0.127	0.013					<0.011	ug/l	TM4/PM30
Anthracene	<0.013	0.723 ^{AA}	0.036	0.110	<0.013	<0.013					<0.013	ug/l	TM4/PM30
Fluoranthene	<0.012	1.840 ^{AA}	0.165	0.194	<0.012	<0.012					<0.012	ug/l	TM4/PM30
Pyrene	<0.013	7.692 ^{AA}	0.229	0.113	0.032	<0.013					<0.013	ug/l	TM4/PM30
Benzo(a)anthracene	<0.015	0.255 ^{AA}	0.091	0.016	<0.015	<0.015					<0.015	ug/l	TM4/PM30
Chrysene	<0.011	1.305 ^{AA}	0.106	0.013	<0.011	<0.011					<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.018	0.277 ^{AA}	0.260	<0.018	<0.018	<0.018					<0.018	ug/l	TM4/PM30
Benzo(a)pyrene	<0.016	<0.080 ^{AA}	0.170	<0.016	<0.016	<0.016					<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.011	<0.055 ^{AA}	0.103	<0.011	<0.011	<0.011					<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.05 ^{AA}	0.02	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.011	<0.055 ^{AA}	0.078	<0.011	<0.011	<0.011					<0.011	ug/l	TM4/PM30
PAH 16 Total	<0.195	109.181 ^{AA}	2.689	2.838	0.269	<0.195					<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	0.20 ^{AA}	0.19	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	0.08 ^{AA}	0.07	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	79	73 ^{AA}	73	82	85	84					<0	%	TM4/PM30
MTBE	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Benzene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Toluene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Ethylbenzene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
m/p-Xylene	<5	8	<5	<5	<5	<5					<5	ug/l	TM31/PM12
o-Xylene	<5	12	<5	<5	<5	<5					<5	ug/l	TM31/PM12

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty
EMT Job No: 19/20485

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN0₃

EMT Sample No.	201-205	206-210	216-220	221-225	226-230	236-239					Please see attached notes for all abbreviations and acronyms		
Sample ID	WS06	WS09	WS17	WS18	WS25	WS29							
Depth													
COC No / misc													
Containers	V H N P G	V H N P G	V H N P G	V H N P G	V H N P G	V H N P G							
Sample Date	23/12/2019	23/12/2019	23/12/2019	23/12/2019	23/12/2019	23/12/2019							
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid							
Batch Number	4	4	4	4	4	4							
Date of Receipt	24/12/2019	24/12/2019	24/12/2019	24/12/2019	24/12/2019	24/12/2019					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C6-C8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C8-C10	<10	601	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C10-C12	<5	10678	57	<5	<5	<5					<5	ug/l	TM5/PM16/PM30
>C12-C16	<10	36770	360	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
>C16-C21	<10	46940	600	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
>C21-C35	<10	15200	330	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35	<10	110189	1347	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10	<10	20	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12	<5	4716	70	<5	<5	<5					<5	ug/l	TM5/PM16/PM30
>EC12-EC16	<10	25510	290	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
>EC16-EC21	<10	30860	390	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
>EC21-EC35	<10	10200	110	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35	<10	71306	860	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35)	<10	181495	2207	<10	<10	<10					<10	ug/l	TM5/PM16/PM30
PCB 28	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 52	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 101	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 118	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 138	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 153	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
PCB 180	<0.1	<1.5 _{AB}	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM17/PM30
Total 7 PCBs	<0.7	<10.5 _{AB}	<0.7	<0.7	<0.7	<0.7					<0.7	ug/l	TM17/PM30
Sulphate as SO4	241.3	14.0	18.3	611.6	24.7	1359.7					<0.5	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006					<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3	1602	840	944	2592	14860	664					<1	mg/l	TM75/PM0
Dissolved Organic Carbon	<2	30	18	8	13	3					<2	mg/l	TM60/PM0
pH	7.83	7.49	8.32	7.29	7.01	7.47					<0.01	pH units	TM73/PM0
Total Organic Carbon	<2	42	16	5	6	<2					<2	mg/l	TM60/PM0

Matrix : Liquid

[illegible]

Client Name: Groundtech Consulting Limited
Reference: 19271
Location: Bowman's Mill, Ickleford
Contact: Sam Flaherty

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/20485

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

AB	x15 Dilution
----	--------------

EMT Job No: 19/20485

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				

EMT Job No: 19/20485

[illegible]

APPENDIX 5 – Geotechnical Testing



LABORATORY REPORT



4043

Contract Number: PSL19/7807

Report Date: 10 January 2020
Client's Reference: 19271/941
Client Name: Groundtech Consulting
PO Box 499
Manchester
M28 4EE

For the attention of: Sam Flaherty

Contract Title: Bowmans Mill, Ickleford
Date Received: 20/12/2019
Date Commenced: 20/12/2019
Date Completed: 10/1/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)



L Knight
(Senior Technician)

S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
WS03		D	1.20		Brown slightly gravelly slightly sandy CLAY.
WS04		D	1.50		Brown gravelly very sandy CLAY.
WS07		D	1.00		Brown slightly gravelly slightly sandy CLAY.
WS29		U	2.50	2.95	Brown mottled grey slightly gravelly sandy CLAY.
WS12		D	1.00		Brown slightly gravelly slightly sandy CLAY.
WS14		D	1.50		Brown slightly sandy very silty CLAY.
WS16		D	2.00		Brown mottled grey slightly gravelly very sandy CLAY.
WS18		D	1.00		Brown slightly gravelly slightly sandy CLAY.
WS20		D	1.50		Brown gravelly CLAY.
WS22		D	1.00		Brown mottled grey slightly gravelly very sandy CLAY.
WS23		D	1.60		Brown slightly gravelly very sandy CLAY.
WS24		D	0.90		Brown gravelly sandy CLAY.
WS25		D	1.00		Brown slightly gravelly sandy CLAY.
WS28		U	1.50	1.95	Brown slightly gravelly sandy CLAY.
WS17		D	1.50		Brown mottled grey CLAY with some organic material.
WS07		U	2.50	2.95	Very stiff brown mottled grey gravelly sandy CLAY.
WS17		U	1.50	1.95	Soft brown mottled grey CLAY with some organic material.
WS28		U	1.50	1.95	Soft brown mottled grey slightly gravelly sandy CLAY.
WS21		U	1.50	1.95	Soft brown mottled grey gravelly very sandy CLAY.



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Bowman's Mill, Ickleford

Contract No:

PSL19/7807

Client Ref:

19271

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Bowman's Mill, Ickleford

Contract No:**PSL19/7807****Client Ref:**

19271

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
WS03		D	1.20		28			75	32	43	95	Very high plasticity CV.
WS04		D	1.50		18			35	18	17	86	Intermediate plasticity CI.
WS07		D	1.00		35			65	27	38	93	High plasticity CH.
WS29		U	2.50	2.95	18			41	19	22	96	Intermediate plasticity CI.
WS12		D	1.00		31			57	25	32	97	High plasticity CH.
WS14		D	1.50		39			64	31	33	100	High plasticity CH.
WS16		D	2.00		16			33	16	17	94	Low plasticity CL.
WS18		D	1.00		38			73	31	42	95	Very high plasticity CV.
WS20		D	1.50		40			79	33	46	87	Very high plasticity CV.
WS22		D	1.00		16			36	17	19	95	Intermediate plasticity CI.
WS23		D	1.60		11			29	14	15	92	Low plasticity CL.
WS24		D	0.90		19			39	19	20	87	Intermediate plasticity CI.
WS25		D	1.00		18			42	20	22	95	Intermediate plasticity CI.
WS28		U	1.50	1.95	21			51	23	28	93	High plasticity CH.
WS17		D	1.50		53			85	34	51	100	Very high plasticity CV.

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



4043

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Professional Soils Laboratory

Bowman's Mill, Ickleford

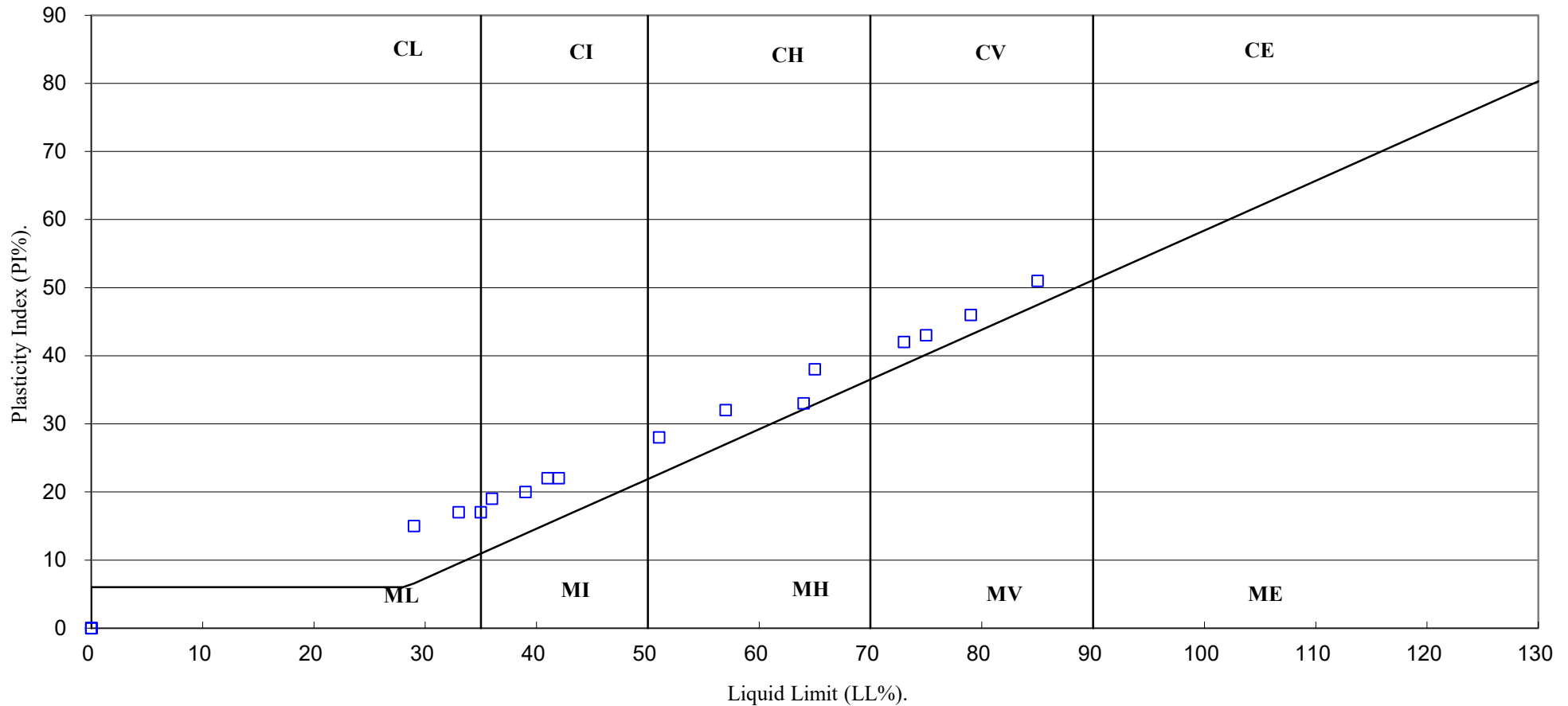
Contract No:

PSL19/7807

Client Ref:

19271

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

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Contract No:

PSL19/7807

Client Ref:

19271