

APPENDIX 1

Arcadis Borehole Logs

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379425.97

Ground Level (mAOD)
70.71
Northing (OS mN)
409096.45

Start Date
18/01/2023
End Date
19/01/2023

Scale
1:50
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/18 08:50 - / -	(B3) 0.30-0.50 (D4) 0.50 (ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		(0.30)	70.41	
	(B5) 0.90-1.20 (D6) 0.90 (ES2) 1.00 (D7) 1.20	PID 1.00m <1ppm SPT(C) 1.20m N=34 (4,7,7,8,9,10) Depth water:0.80m			MADE GROUND: Firm light brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone, brick and concrete. [MADE GROUND]		(0.50)	69.91	
	(B8) 1.50-2.00	PID 1.50m <1ppm			PFAS Shake test - no foam recorded 0.4m bgl Loose brown slightly silty fine to coarse SAND with rare subangular cobbles of sandstone. [RIVER TERRACE DEPOSITS]		(0.80)	69.41	
	(D9) 2.20	PID 2.00m <1ppm SPT(C) 2.00m N=36 (5,7,7,9,9,11) Depth water:0.70m			PFAS shake test - no foam recorded 1m bgl Dense dark brown very gravelly fine to coarse SAND of sandstone, quartz and coal. Gravel is fine to coarse subrounded to subangular of sandstone, quartzite and other natural lithologies. [RIVER TERRACE DEPOSITS]		(1.30)		
	(D10) 3.10	PID 2.50m <1ppm SPT(C) 3.00m N=42 (4,5,7,10,12,13) Depth water:1.50m					(2.20)		
	(B12) 3.50-4.00 (D11) 3.50	PID 3.50m <1ppm			Dense dark brown very clayey fine SAND. [RIVER TERRACE DEPOSITS]		(3.50)	67.21	
2023/01/18 15:49 4.00 / 3.00 2023/01/19 08:27 4.00 / -	(SPTLS13) 4.00-4.45	SPT(S) 4.00m N=19 (2,4/4,4,5,6) Depth water:3.00m					(0.80)		
	(SPTLS14) 5.00-5.45	PID 5.00m <1ppm SPT(S) 5.00m N=19 (3,3/4,4,5,6)			Stiff dark brown slightly sandy silty CLAY. Sand is fine. [GLACIAL TILL]		(4.30)	66.41	
	(D15) 6.00								
	(D16) 6.60	SPT(S) 6.50m N=18 (4,4/4,5,4,5) Depth water:5.00m			Softening slightly 6.4m bgl		(4.90)		
	(D17) 7.50								
	(SPTLS18) 8.00-8.45	SPT(S) 8.00m N=17 (1,1/2,3,4,8) Depth water:6.00m							
	(D19) 9.20								
	(B20) 9.50-10.50	SPT(C) 9.50m N=42 (3,8/10,12,10,10) Depth water:4.50m			Very stiff to hard brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded to subangular of mudstone and sandstone. [GLACIAL TILL]		(9.20)	61.51	
							(1.80)		

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit Cable Percussion	200	4.00	200	4.00				18/01/2023 00:00	6.00											
1.20	11.00		150	11.00	150	10.00				18/01/2023 09:47	1.00	0.80										

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS														
Name	Type	m AGL	Well Name	From	To	Dia.															
CP101_S	Standpipe	0.000	CP101_S	1.50	3.50	50															
CP101_D	Standpipe	0.000	CP101_D	5.00	10.00	50															

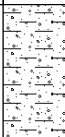
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379425.97

Ground Level (mAOD)
70.71
Northing (OS mN)
409096.45

Start Date
18/01/2023
End Date
19/01/2023

Scale
1:50
Sheet 2 of 2

Progress			Samples		Tests and Measurements					Strata							Depth (Thickness)			Level		Install/ Backfill					
Date / Time Casing / DTW			Type - Depth (m)		Type - Depth (m) - Result			Fracture Details		TCR SCR ROD		Description					Legend										
2023/01/19 14:51 8.00 / 3.00 2023/01/19 15:12 8.00 / 3.00					SPT(C) 11.00m N>50 (25,0 for 0mm/50,0 for 0mm) Depth water:5.00m									Very stiff to hard brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded to subangular of mudstone and sandstone. [GLACIAL TILL]							11.00			59.71			

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379506.45

Ground Level (mAOD)
71.62
Northing (OS mN)
409075.15

Start Date
16/01/2023
End Date
17/01/2023

Scale
1:50
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/16 12:44 - / -	(ES15) 0.70	PID 0.70m 940ppm			MADE GROUND: CONCRETE. Two layers, top layer 0.1m, second layer 0.3m. [MADE GROUND]		(0.40)	71.22	
	(ES1) 1.00				MADE GROUND: Medium dense grey slightly clayey gravelly fine to coarse SAND with occasional subrounded cobbles of brick. Gravel is fine to medium, subrounded to subangular of brick, concrete, metal and sandstone. [MADE GROUND]		(0.60)	70.62	
	(B3) 1.20-2.00 (D2) 1.20	SPT(C) 1.20m N=8 (1,1/1,2,3,2)			Loose dark grey slightly gravelly silty fine to medium SAND. Gravel is fine to coarse subrounded of sandstone. Strong solvent odour. [ALLUVIUM]		(0.80)		
	(B4) 2.10	SPT(C) 2.00m N=6 (1,1/2,1,2,1)			Soft to firm dark grey very sandy SILT. Sand is fine to medium. Unit is wet with a solvent odour. [ALLUVIUM]		1.80	69.82	
	(D5) 3.40	SPT(C) 3.00m N=14 (3,4/3,5,4,2) Depth water:2.00m					(1.80)		
	(D12) 4.40	SPT(C) 4.00m N=33 (8,9/7,8,7,11) Depth water:2.00m			Dense dark grey sandy fine to coarse subrounded GRAVEL of sandstone. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]		3.60	68.02	
					Medium dense brown silty fine SAND. [RIVER TERRACE DEPOSITS]		4.40	67.22	
					Stiff light brown slightly gravelly sandy CLAY with occasional subrounded cobbles of grey sandstone. Gravel is fine to coarse subrounded of sandstone. [GLACIAL TILL]		4.80	66.82	
2023/01/16 16:03 5.00 / - 2023/01/17 08:23 5.00 / -	(B8) 5.00-6.00 (SPTLS7) 5.00-5.45	SPT(S) 5.00m N=19 (4,4/4,4,5,6)					(1.40)		
	(D9) 6.20	SPT(C) 6.50m N=40 (6,6/7,7,12,14)			Very stiff to hard dark brown slightly gravelly sandy CLAY. Sand is fine to coarse subangular to subrounded of sandstone and coal. Gravel is fine subrounded of sandstone. [GLACIAL TILL]		6.20	65.42	
	(B11) 7.00-8.00								
	(SPTLS10) 8.00-8.45	SPT(S) 8.00m N=27 (3,3/5,7,7,8)					(4.92)		
	(D13) 9.00								
	(SPTLS14) 9.50-9.95	SPT(S) 9.50m N=50 (5,5/10,11,14,15)							
	(B) 10.00-11.00								

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	200	4.50	200	4.50				16/01/2023 00:00	2.10											
1.20	11.13	Cable Percussion	150	11.13	150	8.00																

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
CP102_S	Standpipe	0.000	CP102_S	1.50	4.00	50																
CP102_D	Standpipe	0.000	CP102_D	7.00	10.00	50																

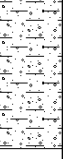
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379506.45

Ground Level (mAOD)
71.62
Northing (OS mN)
409075.15

Start Date
16/01/2023
End Date
17/01/2023

Scale
1:50
Sheet 2 of 2

Progress		Samples		Tests and Measurements			Strata										Depth (Thickness)		Level		Install/Backfill	
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description										Legend							
2023/01/17 15:06 8.00 / - 2023/01/17 15:08 8.00 / -		SPT(S) 11.00m N>50 (25 for 50mm/50.0 for 0mm)			Very stiff to hard dark brown slightly gravelly sandy CLAY. Sand is fine to coarse subangular to subrounded of sandstone and coal. Gravel is fine subrounded of sandstone. [GLACIAL TILL]											11.13	60.49					

DRILLING TECHNIQUE			HOLE / CASING DIAMETER			CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED				
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres	
0.00	1.20	Inspection Pit	200	4.50	200	4.50				16/01/2023 00:00	2.10												
1.20	11.13	Cable Percussion	150	11.13	150	8.00																	

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS															
Name	Type	m AGL	Well Name	From	To	Dia.															
CP102_S	Standpipe	0.000	CP102_S	1.50	4.00	50															
CP102_D	Standpipe	0.000	CP102_D	7.00	10.00	50															

Scale
1:50

Sheet 1 of 1

 AGS ANALYTICAL GEOTECHNICAL SERVICES	Unless otherwise stated:	Equipment Used	Termination Depth	Logged By	Checked By
	Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)	Hand Tools	0.60m	RL	EY

Sheet 1 of 1

Progress		Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW		Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/27 10:47 - / -						MADE GROUND: Dark greyish brown slightly clayey sandy fine to coarse subangular to angular GRAVEL of glass, brick fragments, concrete, sandstone and rebar. Frequent subangular cobbles of brick, sandstone and concrete.		(0.50)		
2023/01/27 11:39 - / -						[MADE GROUND]		0.50	71.68	

Drilling Technique			Hole / Casing Diameter				Chiselling			Water Observations							Flush Details				Water Added		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres	
0.00	0.50	Inspection Pit																					

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
							Location abandoned due to obstruction in handpit. Vac-Ex unable to advance pit further due to presence of concrete. Coordinates and level approximate from topographical survey.



Checked By
EY

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379566.00

Ground Level (mAOD)
71.29
Northing (OS mN)
409077.00

Start Date
27/01/2023
End Date
30/01/2023

Scale
1:50
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/27 11:01 - / -	(ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		(0.15) (0.15) (0.30)	71.14 70.99	
	(ES2) 1.00	PID 1.00m <1ppm			MADE GROUND: Loose dark brown slightly clayey fine to medium SAND. [MADE GROUND]		(1.00)		
	(B) 1.30-2.00	SPT(C) 1.20m N=3 (1,0/1,0,1,1)			MADE GROUND: Loose black slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium subangular to angular of brick and rare coal. Strong solvent odour. [MADE GROUND]		1.30	69.99	
		PID 1.70m 3855ppm			PFAS Shake test - no foam 0.5m bgl PFAS Shake test - slight foam disappeared quickly (1) 1m bgl				
	(B) 2.30-3.00 (D) 2.30	SPT(C) 2.00m N=13 (1,1/2,3,4,4)			MADE GROUND: Soft dark grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine angular of porcelain. [MADE GROUND]		(1.00)		
		PID 2.50m 1989ppm					2.30	68.99	
	(D) 3.20	SPT(C) 3.00m N=27 (3,4/5,7,7,8) Depth water:1.50m			Medium dense greyish brown sandy fine to coarse subangular to subrounded GRAVEL of sandstone and mudstone. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]		(2.30)		
	(D) 4.30	PID 3.50m 168.8ppm							
	(D) 4.60	SPT(C) 4.00m N=20 (2,3/4,5,6,5) Depth water:1.50m							
	(B) 5.00-6.00 (SPTLS) 5.00-5.45	SPT(S) 5.00m N=20 (3,4/5,5,5,5)			Stiff brown very silty CLAY. [GLACIAL TILL]		4.60	66.69	
2023/01/27 15:28 5.00 / - 2023/01/30 08:29 5.00 / -	(D) 6.00						(2.90)		
	(SPTLS) 6.50-6.95	SPT(S) 6.50m N=15 (1,2/3,3,4,5)							
	(D) 7.50						7.50	63.79	
	(B) 8.00-9.00 (SPTLS) 8.00-8.45	SPT(S) 8.00m N=35 (5,10/8,10,9,8)			Very stiff to hard brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone. [GLACIAL TILL]		(3.00)		
	(SPTLS) 9.50-9.95	SPT(S) 9.50m N=24 (5,5/5,5,6,8)							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	200	5.00	200	5.00				27/01/2023 00:00	1.10											
1.20	10.50	Cable Percussion	150	10.50	150	8.00																

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS		
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.	
CP103C_S	Standpipe	0.000	CP103C_S	1.00	2.00	50		
CP103C_D	Standpipe	0.000	CP103C_D	3.00	4.50	50		

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379566.00

Ground Level (mAOD)
71.29
Northing (OS mN)
409077.00

Start Date
27/01/2023
End Date
30/01/2023

Scale
1:50
Sheet 2 of 2

Progress		Samples		Tests and Measurements			Strata		Depth (Thickness)		Level		Install/Backfill	
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend								
2023/01/30 11:25 8.00 / -	(D) 10.50	SPT(C) 10.50m N>50 (10,15 for 70mm/27,23 for 30mm)			Very stiff to hard brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone. [GLACIAL TILL]			10.50	60.79					
DRILLING TECHNIQUE From To Type HOLE / CASING DIAMETER Hole Dia. Depth Casing Dia. Depth CHISELLING From To Duration WATER OBSERVATIONS Date/Time Strike Rest Mins Casing Sealed FLUSH DETAILS From To Rtn% Type WATER ADDED From To Litres														
INSTRUMENTS Name Type m AGL WELL SCREEN DESIGN Well Name From To Dia. REMARKS														
CP103C_S Standpipe 0.000 CP103C_D Standpipe 0.000 CP103C_S 1.00 2.00 50 CP103C_D 3.00 4.50 50 Coordinates and level approximate from topographical survey.														

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379684.00

Ground Level (mAOD)
70.00
Northing (OS mN)
409068.00

Start Date
24/01/2023
End Date
25/01/2023

Scale
1:50
Sheet 1 of 1

Progress		Samples		Tests and Measurements				Strata							Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW		Type - Depth (m)		Type - Depth (m) - Result		Fracture Details	TCR SCR RGD	Description	Legend								
2023/01/24 15:22 - / -		(ES1) 0.50		PID 0.50m <1ppm				MADE GROUND: MACADAM [MADE GROUND] MADE GROUND: Dense greyish brown sandy fine to medium subrounded to subangular GRAVEL of brick and sandstone. [MADE GROUND] MADE GROUND: Medium dense dark brown slightly gravelly clayey fine to coarse subangular to angular SAND. Gravel is fine to medium subrounded to angular of brick, concrete, slate, glass, and porcelain. [MADE GROUND] Loose orangish brown slightly gravelly clayey fine SAND. Gravel is fine to medium subrounded of sandstone. [RIVER TERRACE DEPOSITS]							0.10 0.20	69.90 69.80	
		(ES2) 1.20 (SPTLS3) 1.20-1.65 (B5) 1.30-2.00		PID 1.00m <1ppm SPT(S) 1.20m N=4 (1,1/1,1,1,1)											(1.10)		
		(B6) 2.00-3.00 (SPTLS4) 2.00-2.45		PID 2.00m 15.8ppm SPT(S) 2.00m N=34 (7,9/8,9,8,9)				Medium dense orangish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. [RIVER TERRACE DEPOSITS]							1.30 (0.70)	68.70	
															2.00 (1.40)	68.00	
2023/01/24 16:55 3.00 / 1.70 2023/01/25 08:26 3.00 / 2.70		(D7) 3.40 (B8) 3.50-4.00		SPT(C) 3.00m N=28 (4,5/6,7,7,8) Depth water:2.80m PID 3.50m <1ppm				Stiff dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. [GLACIAL TILL]							3.40	66.60	
		(SPTLS9) 4.00-4.45 (D10) 4.20		SPT(S) 4.00m N=36 (7,6/7,8,9,12) PID 4.50m <1ppm													
		(D11) 5.00-5.45		SPT(S) 5.00m N=37 (6,6/6,9,10,12)													
		(D) 6.00						Inclusions of coal and grey mudstone 6-8m bgl							(4.60)		
		(SPTLS) 6.50-6.95 (B) 7.00-8.00		SPT(S) 6.50m N>50 (7,8/14,4,12,10 for 70mm)													
		(SPTLS) 8.00-8.35		SPT(S) 8.00m N>50 (9,13/15,20,15 for 50mm)				Very dense reddish brown fine to medium SAND. [PENNINE LOWER COAL MEASURES]							8.00 (0.35)	62.00	
2023/01/25 13:10 5.00 / -															8.35	61.65	
DRILLING TECHNIQUE		HOLE / CASING DIAMETER			CHISELLING			WATER OBSERVATIONS					FLUSH DETAILS			WATER ADDED	
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To
0.00	1.20	Inspection Pit Cable Percussion	200 150	4.00 8.35	200 150	4.00 5.00											
INSTRUMENTS			WELL SCREEN DESIGN				REMARKS										
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.										
CP104_S CP104_D	Standpipe Standpipe	0.000 0.000	CP104_S CP104_D	1.50 4.00	3.00 8.00	50 50											

Project
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Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379558.96

Ground Level (mAOD)
71.18
Northing (OS mN)
409143.73

Start Date
19/01/2023
End Date
23/01/2023

Scale
1:50
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/19 15:48 - / -	(B4) 0.20-1.20 (ES1) 0.25	PID 0.25m <1ppm			MADE GROUND: MACADAM [MADE GROUND] MADE GROUND: Loose brownish grey slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to angular of brick, concrete, porcelain. slight hydrocarbon odour. [MADE GROUND] PFAS shake test - no foam recorded 0.25m bgl		0.10 (0.20) 0.30 (0.20) 0.50	71.08 70.88 70.68	
2023/01/19 16:49 - / -	(ES2) 1.00	PID 1.00m 13.5ppm			MADE GROUND: CONCRETE [MADE GROUND] MADE GROUND: Medium dense dark reddish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to angular of brick, slate, sandstone, metal and wood. occasional angular cobbles of brick. Slight solvent odour. [MADE GROUND] PFAS Shake test - no foam recorded 1m bgl		(1.30)		
2023/01/20 08:27 - / -	(D5) 1.30	SPT(C) 1.20m N=6 (5,3/2,1,2,1)							
		PID 1.50m 2.2ppm							
	(B7) 2.00-3.00 (ES3) 2.00 (SPTLS6) 2.00-2.45	PID 2.00m 1.1ppm SPT(S) 2.00m N=31 (2,3/1,9,10,11)							
		PID 2.50m 65.8ppm							
	(B8) 3.00-4.00	PID 3.00m 36ppm SPT(C) 3.00m N=35 (4,6/7,7,11,10) Depth water:2.00m							
		PID 3.50m 76.5ppm							
	(D9) 4.20	PID 4.00m 4.5ppm SPT(C) 4.00m N=9 (3,2/2,1,2,4) Depth water:2.00m							
		PID 4.50m 3.8ppm							
	(B11) 5.50-6.50 (D10) 5.50	PID 5.50m <1ppm							
		PID 6.50m <1ppm SPT(C) 6.50m N=42 (6,5/7,10,12,13) Depth water:6.00m							
2023/01/20 12:42 6.50 / 3.00 2023/01/23 08:44 6.50 / 3.00	(D12) 7.50								
	(B18) 8.00-8.50 (SPTLS13) 8.00-8.45	SPT(S) 8.00m N>50 (1,1/2,5,9,5 for 0mm) Depth water:5.50m							
	(B17) 8.60-9.50 (D14) 8.60								
	(SPTLS15) 9.50-9.95	SPT(S) 9.50m N>50 (4,4/5,7,9,10 for 0mm) Depth water:7.00m							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	200	6.50	200	6.50				20/01/2023 10:54	2.20			2.00								
1.20	11.00	Cable Percussion	150	11.00	150	9.00																

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
CP105_S	Standpipe	0.000	CP105_S	3.00	4.50	50																
CP105_D	Standpipe	0.000	CP105_D	7.00	10.00	50																

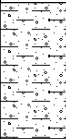
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379558.96

Ground Level (mAOD)
71.18
Northing (OS mN)
409143.73

Start Date
19/01/2023
End Date
23/01/2023

Scale
1:50
Sheet 2 of 2

Progress			Samples		Tests and Measurements						Strata							Depth (Thickness)		Level		Install/ Backfill			
Date / Time Casing / DTW			Type - Depth (m)		Type - Depth (m) - Result			Fracture Details			TCR SCR ROD		Description					Legend							
2023/01/23 15:56 8.00 / 8.00 2023/01/23 15:57 8.00 / 8.00			(D16) 10.50		SPT(C) 11.00m N>50 (25,0 for 0mm/50,0 for 0mm) Depth water:7.00m						Very stiff to hard dark greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium subangular to subrounded of mudstone and sandstone. [GLACIAL TILL] <i>Sand becomes coarse and angular 10.1-11m bgl</i>							11.00		60.18					
DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED					
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres			
0.00	1.20	11.00	Inspection Pit	200	6.50	200	6.50				20/01/2023 10:54	2.20			2.00										
INSTRUMENTS			WELL SCREEN DESIGN						REMARKS																
Name		Type	m AGL	Well Name			From	To	Dia.																
CP105_S		Standpipe	0.000	CP105_S			3.00	4.50	50																
CP105_D		Standpipe	0.000	CP105_D			7.00	10.00	50																

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379532.34

Ground Level (mAOD)
70.49
Northing (OS mN)
409261.43

Start Date
25/01/2023
End Date
26/01/2023

Scale
1:50
Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/25 16:02 - / -	(B) 0.50-1.20 (ES1) 0.80	PID 0.50m <1ppm PID 0.60m 3.3ppm PID 1.00m <1ppm SPT(C) 1.20m N=23 (4,5/7,8,4,4)			MADE GROUND: CONCRETE [MADE GROUND] Medium dense orangish brown slightly clayey gravelly fine to medium SAND with occasional cobbles of subrounded sandstone. Gravel is fine to coarse subrounded to subangular of quartz, sandstone, and mudstone. [RIVER TERRACE DEPOSITS]	 	(0.35) 0.35	70.14	
	(B) 1.50-2.00	PID 1.50m <1ppm					(2.25)		
2023/01/26 08:17 2.00 / 1.00	(D) 2.10 (D) 2.60	SPT(C) 2.00m N=15 (5,6/5,4,4,2) Depth water:1.00m PID 2.20m <1ppm PID 2.70m <1ppm			Stained black from groundwater. No obvious odour 2.1-2.6m bgl				
	(B) 3.00-4.00 (SPTLS) 3.00-3.45	SPT(S) 3.00m N=4 (1,1/1,1,1,1) Depth water:2.90m			Brownish grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to medium subrounded of sandstone. [RIVER TERRACE DEPOSITS] Firm brownish grey slightly sandy SILT. Sand is fine. [RIVER TERRACE DEPOSITS]	 	2.60 (0.40) 3.00	67.89 67.49	
	(SPTLS) 4.00-4.45 (B) 4.30-5.00	SPT(S) 4.00m N=16 (2,3/4,4,4,4) Depth water:3.00m PID 4.20m <1ppm					(1.30) 4.30		
	(SPTLS) 5.00-5.45 (D) 6.00	SPT(S) 5.00m N=15 (2,3/3,3,4,5) PID 5.20m <1ppm PID 6.00m <1ppm			Firm greyish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subangular to subrounded of mudstone and sandstone. [GLACIAL TILL]		(2.20) 6.50	66.19	
	(SPTLS) 6.50-6.95 (B) 7.00-8.00	SPT(S) 6.50m N=24 (6,6/6,5,6,7) SPT(S) 8.00m N=21 (2,2/4,5,5,7) Depth water:7.50m PID 8.20m <1ppm			Stiff orangish brown slightly sandy silty CLAY. Sand is fine. [GLACIAL TILL]		(2.30) 8.80	63.99	
2023/01/26 16:35 8.80 / 7.00		SPT(C) 8.80m N>50 (10,15 for 70mm/50 for 70mm) Depth water:7.00m						61.69	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit Cable Percussion	200	5.00	200	5.00				25/01/2023 16:31	1.00			7.00								
1.20	8.80		150	8.80	150	8.80				26/01/2023 00:00	7.00											

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
CP106_S	Standpipe	0.000	CP106_S	1.00	4.00	50																
CP106_D	Standpipe	0.000	CP106_D	5.00	8.00	50																

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379738.00

Ground Level (mAOD)
69.94
Northing (OS mN)
409180.00

Start Date
23/01/2023
End Date
24/01/2023

Scale
1:50
Sheet 1 of 1

Progress	Samples	Tests and Measurements				Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend				
2023/01/23 12:35 - / -		PID 0.25m <1ppm			MADE GROUND: MACADAM			0.10 (0.20)	69.84	
	(ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: Medium dense dark grey slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse subrounded to angular of limestone, concrete, brick.			0.30 (0.60)	69.64	
	(ES2) 0.80				MADE GROUND: Soft greyish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded to angular of sandstone, brick, quartz and rare coal.			0.90	69.04	
	(B4) 1.20-2.00	SPT(C) 1.20m N=26 (5,5/6,7,6,7)			MADE GROUND: Medium dense to dense orangish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium subrounded to subangular of sandstone and mudstone.					
		PID 1.50m <1ppm			[RIVER TERRACE DEPOSITS]					
	(D3) 2.20	PID 2.00m <1ppm SPT(C) 2.00m N=32 (5,6/7,8,8,9)						(3.00)		
2023/01/23 16:15 3.00 / 2.80 2023/01/24 08:31 3.00 / -		SPT(C) 3.00m N=30 (4,5/6,7,8,9) Depth water:2.80m								
		PID 3.50m <1ppm								
	(D11) 3.90 (B13) 4.00-5.00 (SPTLS12) 4.00-4.45	SPT(S) 4.00m N=10 (1,1/2,2,3,3)			Firm greyish brown very sandy CLAY. [GLACIAL TILL]			3.90 (1.55)	66.04	
		PID 4.50m <1ppm								
	(SPTLS5) 5.00-5.45	SPT(S) 5.00m N=11 (1,1/1,2,3,5)								
	(B14) 5.50-6.50 (D6) 5.50	PID 5.50m <1ppm			Stiff to hard brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subrounded to well rounded of sandstone, mudstone and rare coal. [GLACIAL TILL]			5.45 (4.05)	64.49	
	(SPTLS7) 6.50-6.95	SPT(S) 6.50m N=25 (4,4/5,6,7,7)								
	(D8) 7.50	PID 7.50m <1ppm								
	(SPTLS9) 8.00-8.45	SPT(S) 8.00m N=33 (5,6/8,8,8,9)								
	(B15) 8.50-9.50									
	(SPTLS10) 9.50-9.80	PID 9.50m <1ppm SPT(S) 9.50m N=50 (10,15/25,25,0 for 0mm)			Extremely weak thinly bedded light grey MUDSTONE. [PENNINE LOWER COAL MEASURES]			9.50 (0.30)	60.44	
								9.80	60.14	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	200	6.50	200	6.50				24/01/2023 12:19	2.60			6.00	6.00							
1.20	9.80	Cable Percussion	150	9.80	150	7.00																

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS			
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.			
CP107_S	Standpipe	0.000	CP107_S	1.00	3.50	50				
CP107_D	Standpipe	0.000	CP107_D	7.00	9.00	50				

Project
Warth Road
Client
St. Modwen

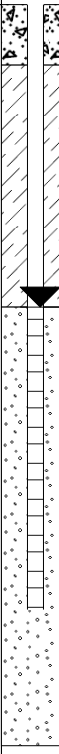
Project No.
10058956
Easting (OS mE)
379429.20

Ground Level (mAOD)
70.64
Northing (OS mN)
409119.51

Start Date
27/01/2023
End Date
27/01/2023

Scale
1:25

Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/27 11:15 - / -	(ES1) 0.80	PID 0.15m <1ppm			MADE GROUND: CONCRETE [MADE GROUND] MADE GROUND: Loose light brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium subangular of sandstone. [MADE GROUND] PFAS Shake test- no foam recorded 0.15m bgl	 	0.10 0.20	70.54 70.44	
		PID 0.50m <1ppm			Medium dense brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium subrounded to subangular of sandstone, mudstone and rare quartz. [RIVER TERRACE DEPOSITS] PFAS Shake test- no foam recorded 0.5m bgl		(0.80)		
		PID 1.00m <1ppm			Dense brown slightly clayey sandy fine to coarse subangular to subrounded GRAVEL of sandstone. Frequent cobbles of subrounded sandstone. [RIVER TERRACE DEPOSITS]		1.00	69.64	
		SPT(S) 1.20m N=38 (8, 6/6, 12, 10, 10)							
		PID 1.50m 1.0ppm					(1.45)		
2023/01/27 12:17 - / 0.90		PID 2.00m <1ppm SPT(S) 2.00m N=36 (6, 9/10, 9, 9, 8)							
2023/01/27 12:49 - / -							2.45	68.19	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit Dynamic Sample	90	2.45						27/01/2023 12:38	1.00											
1.20	2.45																					

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
WS101	Standpipe	0.000	WS101	1.00	2.00	50	Borehole collapse at 2m, unable to install casing due to coarse gravel.

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379457.83

Ground Level (mAOD)
70.59
Northing (OS mN)
409096.15

Start Date
27/01/2023
End Date
27/01/2023

Scale
1:25
Sheet 1 of 1

Progress		Samples		Tests and Measurements					Strata							Depth (Thickness)		Level		Install/Backfill				
Date / Time Casing / DTW		Type - Depth (m)		Type - Depth (m) - Result			Fracture Details		TCR SCR ROD		Description					Legend								
2023/01/27 08:11 - / -		(ES1) 0.80		PID 0.20m 2822ppm							MADE GROUND: CONCRETE [MADE GROUND]							(0.15)		70.44				
											MADE GROUND: Loose dark grey slightly gravelly fine to coarse SAND. Gravel is fine to medium subrounded to subangular of brick, sandstone and rare concrete. Slight solvent odour. [MADE GROUND]							0.15						
				Medium dense greyish brown slightly clayey sandy fine to coarse subrounded to subangular GRAVEL of sandstone and mudstone with occasional cobbles of subrounded sandstone. Sand is fine to coarse. Solvent odour noted. [RIVER TERRACE DEPOSITS]							0.30		70.29											
				PFAS Shake test - no foam recorded 0.8m bgl																				
				PID 0.80m 212.2ppm														(1.50)						
				SPT(S) 1.20m N=34 (6,8/8,9,9,8)																				
				PID 1.50m 372ppm																				
PID 2.00m 27.3ppm SPT(S) 2.00m N=31 (8,8/10,8,6,7)														1.80		68.79								
PID 3.00m 2.9ppm SPT(S) 3.00m N=21 (5,5/5,5,5,6)														(1.70)										
PID 3.60m <1ppm														3.50		67.09								
PID 4.00m <1ppm SPT(S) 4.00m N=36 (16,9 for 70mm/9,9,9,9)														(0.94)										
2023/01/27 10:13 3.00 / 1.00																		4.45		66.14				
DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED				
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres		
0.00	1.20	Inspection Pit	115	3.00	115	3.00				27/01/2023 09:28	1.00													
1.20	4.45	Dynamic Sample	90	4.45																				
INSTRUMENTS			WELL SCREEN DESIGN						REMARKS															
Name		Type	m AGL		Well Name		From	To	Dia.	Collapse at 4m.														
WS102		Standpipe	0.000		WS102		0.50	3.00	50															



Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm),
Thickness (m), Level (mAOD),
Height Above Ground Level (m AGL)

Equipment Used
Hand Tools, Terrier

Termination Depth
4.44m

Logged By
RL

Checked By
EY

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379478.00

Ground Level (mAOD)
70.64
Northing (OS mN)
409136.00

Start Date
27/01/2023
End Date
27/01/2023

Scale
1:25
Sheet 1 of 2

Progress		Samples		Tests and Measurements						Strata							Depth (Thickness)		Level		Install/ Backfill										
Date / Time Casing / DTW		Type - Depth (m)		Type - Depth (m) - Result				Fracture Details		TCR SCR ROD		Description					Legend														
2023/01/27 12:17 - / -		(ES1) 0.50		PID 0.50m 2111ppm								MADE GROUND: CONCRETE [MADE GROUND]							(0.20)		70.44										
												MADE GROUND: Medium dense cream clayey sandy angular to subangular fine to coarse GRAVEL of limestone. [MADE GROUND]							0.20												
												Loose dark grey silty fine SAND. Strong solvent odour noted. [RIVER TERRACE DEPOSITS]							0.30												
												PFAS Shake test- no foam recorded 0.5m bgl																			
												SPT(S) 1.20m N=7 (0,0/0,2,2,3)					PID 1.50m 58.0ppm		Medium dense greyish brown slightly silty fine to medium SAND. [RIVER TERRACE DEPOSITS]							1.50		69.14			
																			Medium dense grey slightly clayey sandy fine to coarse subangular to subrounded GRAVEL of sandstone and rare quartz. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]							1.80		68.84			
																								Colour change from grey to orangish brown 2.9-3.9m bgl							(2.10)
																			PID 3.00m 4.2ppm SPT(S) 3.00m N=12 (3,2/3,3,3,3)										PID 2.50m 11.2ppm		
												PID 4.00m 2.4ppm SPT(S) 4.00m N=32 (6,5/6,6,10,10)					PID 4.50m 3.8ppm														
																			PID 5.00m 3.4ppm												
DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED											
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres									
0.00	1.20	Inspection Pit Dynamic Sample	115 90	4.00 5.45	115	4.00				27/01/2023 14:25	1.20																				
INSTRUMENTS				WELL SCREEN DESIGN						REMARKS																					
Name		Type	m AGL	Well Name			From	To	Dia.	Vacuum excavation to 1.2m. Coordinates and level approximate from topographical survey.																					
WS103		Standpipe	0.000	WS103			0.50	3.50	50																						

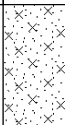
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379478.00

Ground Level (mAOD)
70.64
Northing (OS mN)
409136.00

Start Date
27/01/2023
End Date
27/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata			Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR ROD	Description	Legend				
2023/01/27 14:25 4.00 / 1.00		SPT(S) 5.00m N=28 (6,5/6,8,8,6)			Dense orangish brown slightly silty fine SAND. [RIVER TERRACE DEPOSITS]		5.45	65.19		

DRILLING TECHNIQUE			HOLE / CASING DIAMETER			CHISELLING			WATER OBSERVATIONS							FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				27/01/2023 14:25	1.20											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS														
Name	Type	m AGL	Well Name	From	To	Dia.															
WS103	Standpipe	0.000	WS103	0.50	3.50	50	Vacuum excavation to 1.2m. Coordinates and level approximate from topographical survey.														

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379446.00

Ground Level (mAOD)
70.65
Northing (OS mN)
409174.00

Start Date
27/01/2023
End Date
30/01/2023

Scale
1:25
Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/30 08:16 - / -	(ES1) 1.20-1.30				MADE GROUND: CONCRETE [MADE GROUND]		(0.20)		
					MADE GROUND: Medium dense orangish brown slightly clayey sandy fine to medium subangular GRAVEL of sandstone. Sand is fine to medium.		0.20	70.45	
					MADE GROUND: Firm dark grey slightly sandy CLAY. Sand is fine to medium. Solvent odour noted		0.40	70.25	
					[RIVER TERRACE DEPOSITS] PFAS Shake test - no foam recorded 0.5m bgl		(0.40)		
					Medium dense brown very clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.		0.80	69.85	
					[RIVER TERRACE DEPOSITS] Black staining and solvent odour 0.8-1.7m bgl				
		SPT(S) 1.20m N=19 (0,4/5,6,5,3)							
		PID 1.50m 140.8ppm							
		PID 2.00m 3.1ppm SPT(S) 2.00m N=27 (5,6/7,7,7,6)					(2.80)		
		PID 3.00m <1ppm SPT(S) 3.00m N=22 (4,3/4,6,6,6)							
		PID 3.50m <1ppm							
		PID 4.00m 2.0ppm SPT(S) 4.00m N=46 (6,6/10,12,12,12)			Stiff brown slightly sandy CLAY with rare subrounded fine gravel of sandstone. Sand is fine to medium subangular of sandstone and coal.		3.60	67.05	
					[RIVER TERRACE DEPOSITS]		(0.85)		
							4.45	66.20	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	3.00	115	3.00				30/01/2023 09:02	1.00											
1.20	4.45	Dynamic Sample	90	4.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS		
Name	Type	m AGL	Well Name	From	To	Dia.		
WS104	Standpipe	0.000	WS104	0.50	3.00	50	Vacuum excavation to 1.2. Hole collapse at 4m. Coordinates and level approximate from topographical survey.	

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379499.65

Ground Level (mAOD)
71.15
Northing (OS mN)
409111.55

Start Date
26/01/2023
End Date
26/01/2023

Scale
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Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/26 14:02 - / -	(ES1) 0.60	PID 0.50m 23.0ppm			MADE GROUND: CONCRETE [MADE GROUND]		0.15	71.00	
					MADE GROUND: Medium dense greyish brown slightly sandy clayey fine to coarse subangular to angular GRAVEL of sandstone and limestone. Sand is fine to coarse and subangular.		0.25	70.90	
					[MADE GROUND] MADE GROUND: Loose black slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse subrounded to subangular of brick, metal, concrete and sandstone. Slight solvent odour.		(0.55)		
					[MADE GROUND] PFAS Shake test - some sign of foam which rapidly disappears (1) 0.6m bgl		0.80	70.35	
		PID 1.00m 1282ppm			Loose dark grey silty fine SAND. Strong solvent odour throughout.				
		SPT(S) 1.20m N=0 (0,0/0,0,0,0)			[RIVER TERRACE DEPOSITS]		(1.30)		
		PID 1.50m <1ppm							
		PID 2.00m <1ppm SPT(S) 2.00m N=14 (2,5/4,3,4,3)			Medium dense dark grey slightly clayey gravelly fine to medium SAND. Gravel is fine to medium subrounded to subangular of sandstone and mudstone. Solvent odour throughout.		2.10	69.05	
					[RIVER TERRACE DEPOSITS]		(2.10)		
		PID 3.00m 103.5ppm SPT(S) 3.00m N=11 (5,5/3,3,3,2)							
		PID 3.50m 151ppm							
		PID 4.00m 89ppm SPT(S) 4.00m N=36 (6,6/6,10,10,10)			Stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone [GLACIAL TILL]		4.20	66.95	
							(1.25)		
		PID 4.50m 145.2ppm							
		PID 5.00m 15.3ppm							

DRILLING TECHNIQUE		HOLE / CASING DIAMETER			CHISELLING			WATER OBSERVATIONS					FLUSH DETAILS			WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Litres
0.00	1.20	Dynamic Sample	115	90	115	4.00				26/01/2023 16:04	0.80							

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS		
Name	Type	m AGL	Well Name	From	To	Dia.	High PID readings, shake test possible indication of PFAS.	
WS105	Standpipe	0.000	WS105	0.50	4.00	50		

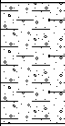
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379499.65

Ground Level (mAOD)
71.15
Northing (OS mN)
409111.55

Start Date
26/01/2023
End Date
26/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/26 16:32 4.00 / 1.00		SPT(S) 5.00m N=46 (12,9/10,13,12,11)			Stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone [GLACIAL TILL]		5.45	65.70	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				26/01/2023 16:04	0.80											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS					
Name	Type	m AGL	Well Name	From	To	Dia.	High PID readings, shake test possible indication of PFAS.				
WS105	Standpipe	0.000	WS105	0.50	4.00	50					

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379553.28

Ground Level (mAOD)
71.59
Northing (OS mN)
409068.10

Start Date
26/01/2023
End Date
26/01/2023

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Sheet 1 of 1

Progress		Samples		Tests and Measurements			Strata			Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend						
2023/01/26 13:45 - / -					MADE GROUND: CONCRETE [MADE GROUND]				(0.15)			
					MADE GROUND: Dense orangish brown sandy fine to coarse subangular to angular GRAVEL of sandstone with rare brick and slate. Frequent cobbles of subangular sandstone.				0.15	71.44		
					MADE GROUND: Dense orangish brown sandy fine to coarse subangular to angular GRAVEL of sandstone with rare brick and slate. Frequent cobbles of subangular sandstone.				(0.25)			
2023/01/26 14:03 - / -		PID 0.35m <1ppm			MADE GROUND: Dense orangish brown sandy fine to coarse subangular to angular GRAVEL of sandstone with rare brick and slate. Frequent cobbles of subangular sandstone.				0.40	71.18		
2023/01/26 14:10 - / -					PFAS Shake test - no foam recorded 0.35m bgl							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	0.40	Inspection Pit																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Refusal on secondary concrete slab at 0.4m.				

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379548.53

Ground Level (mAOD)
71.29
Northing (OS mN)
409108.48

Start Date
27/01/2023
End Date
27/01/2023

Scale
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Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR ROD	Description	Legend			
2023/01/27 12:05 - / -					MADE GROUND: MACADAM [MADE GROUND]		(0.20)	71.09	
					MADE GROUND: Loose dark grey slightly sandy fine to medium subangular GRAVEL of concrete, metal and bituminous materials. [MADE GROUND]		0.20 (0.20)		
					MADE GROUND: Medium dense reddish brown slightly clayey gravelly fine to coarse SAND with rare subrounded cobbles of sandstone and concrete. Gravel is fine to coarse subrounded to angular of brick, sandstone, concrete, glass and metal. [MADE GROUND]		0.40 (0.25)		
						0.65			
2023/01/27 12:45 - / -								70.64	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	0.65	Inspection Pit								27/01/2023 00:00	0.40											

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS														
Name	Type	m AGL	Well Name	From	To	Dia.	Vac-Ex used due to shallow water strike. Refusal on concrete slab obstruction.														

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379476.66

Ground Level (mAOD)
70.60
Northing (OS mN)
409253.89

Start Date
25/01/2023
End Date
25/01/2023

Scale
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Sheet 1 of 1

Progress	Samples	Tests and Measurements				Strata		Depth (Thickness)	Level	Install/ Backfill
		Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/25 16:01 - / - 2023/01/25 16:15 - / -						MADE GROUND: CONCRETE [MADE GROUND]		(0.20)	70.40	
						MADE GROUND: Light grey slightly sandy fine to medium subangular GRAVEL of concrete and limestone. [MADE GROUND]		(0.20)		
								0.40	70.20	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	0.40	Inspection Pit																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Hole refused due to concrete obstruction at 0.4m bgl. Coordinates and level approximate from topographical survey.				

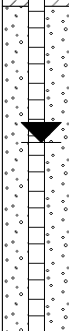
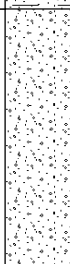
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379598.90

Ground Level (mAOD)
70.29
Northing (OS mN)
409128.79

Start Date
24/01/2023
End Date
24/01/2023

Scale
1:25
Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/24 14:09 - / -	(ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: MACADAM [MADE GROUND] MADE GROUND: Medium dense reddish brown gravelly fine to coarse SAND with frequent subangular cobbles of brick. Gravel is fine to medium subrounded to angular of brick fragments, concrete fragments, glass, ceramic and rare clinker. [MADE GROUND] Ground predominantly brick - possibly historic foundation 0.3-1.5m bgl PFAS Shake test - no foam recorded 0.5m bgl		0.10	70.19	
	(ES2) 1.00	PID 1.00m <1ppm SPT(S) 1.20m N=43 (18,7 for 40mm/15,12,8,8)			PFAS Shake test - no foam recorded 1m bgl		(1.40)		
	(ES3) 1.55-1.75	PID 1.80m <1ppm PID 2.00m 34.6ppm SPT(S) 2.00m N=18 (2,2/2,3,6,7)			Medium dense orangish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone. [RIVER TERRACE DEPOSITS] Medium dense orangish brown slightly clayey fine to medium SAND. [RIVER TERRACE DEPOSITS] Black staining and strong solvent odour 1.95-2.6m bgl		1.50 (0.30) 1.80 (0.80)	68.79 68.49	
		PID 2.50m 220.7ppm PID 3.00m 92.8ppm SPT(S) 3.00m N=13 (5,5/3,3,3,4)			Medium dense stained black gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone. Strong solvent odour noted. [RIVER TERRACE DEPOSITS]		2.60 (0.85)	67.69	
2023/01/24 16:16 0.00 / 1.80							3.45	66.84	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	90	3.45						24/01/2023 16:01	1.95											
1.20	3.45	Dynamic Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Terminated due to significant oily staining in groundwater.				
WS109	Standpipe	0.000	WS109	1.50	3.00	50					

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379511.00

Ground Level (mAOD)
70.62
Northing (OS mN)
409219.00

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/25 11:13 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.20)		
	(ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: Medium dense brown slightly clayey gravelly fine to coarse SAND with rare subrounded cobbles of sandstone. Gravel is fine to coarse subrounded to angular of brick, sandstone and ceramic. [MADE GROUND]		0.20	70.42	
2023/01/25 11:21 - / -	(D3) 0.60 (ES2) 0.60				PFAS Shake test - no foam recorded 0.5m bgl Two pieces of suspected ACM cement. Bulk and soil sample taken 0.6m bgl		(0.50)		
					Medium dense orangish brown slightly clayey sandy fine to coarse subangular to subrounded GRAVEL of sandstone and mudstone. Occasional subrounded cobbles of sandstone. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]		0.70	69.92	
2023/01/30 09:55 - / -		PID 1.20m <1ppm SPT(S) 1.20m N=11 (3,3/2,3,4,2)					(1.00)		
					Medium dense dark grey slightly gravelly very clayey fine to coarse SAND. Gravel is fine to medium and subrounded of sandstone. Organic odour noted. [RIVER TERRACE DEPOSITS]		1.70	68.92	
		PID 2.00m <1ppm SPT(S) 2.00m N=16 (7,5/5,5,3,3)					(1.15)		
		PID 2.50m <1ppm							
					Stiff brown very clayey SILT. [RIVER TERRACE DEPOSITS]		2.85	67.77	
		PID 3.00m <1ppm SPT(S) 3.00m N=14 (3,3/3,3,4,4)					(1.05)		
		PID 3.50m <1ppm							
					Medium dense greyish brown very clayey fine to coarse SAND. [RIVER TERRACE DEPOSITS]		3.90	66.72	
		PID 4.00m <1ppm SPT(S) 4.00m N=32 (10,7/8,8,8,8)					(0.80)		
		PID 4.50m <1ppm							
					Stiff brown slightly sandy CLAY. Sand is fine to medium. [GLACIAL TILL]		4.70	65.92	
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				30/01/2023 10:25	1.00											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Vacuum excavation to 1.2m. Coordinates and level approximate from topographical survey.
WS110	Standpipe	0.000	WS110	1.00	2.80	50	

Scale
1:25

Sheet 2 of 2

2023/01/30 10:54
4.00 / -

From
0.00
1.20

Name	Type	m AGL
WS110	Standpipe	0.000

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379622.00

Ground Level (mAOD)
70.00
Northing (OS mN)
409122.00

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements					Strata										Depth (Thickness)	Level	Install/Backfill				
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result				Fracture Details	TCR SCR RQD	Description						Legend									
2023/01/25 08:31 - / -	(ES1) 0.45								MADE GROUND: CONCRETE [MADE GROUND]							(0.20)							
		PID	0.25m	<1ppm					MADE GROUND: Medium dense yellowish cream slightly sandy clayey fine to coarse subangular GRAVEL of limestone. Sand is fine to medium.							0.20	69.80						
		PID	0.35m	1.6ppm					[MADE GROUND]							0.30	69.70						
		PID	0.45m	26.1ppm					Medium dense dark orangish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subrounded to subangular of sandstone.							0.40	69.60						
		PID	0.55m	58.9ppm					[RIVER TERRACE DEPOSITS]							0.50	69.50						
								Medium dense orangish brown slightly clayey fine to medium SAND.							0.60	69.40							
								[RIVER TERRACE DEPOSITS]															
		PID	1.00m	49.5ppm					Medium dense grey clayey fine SAND. Slight solvent odour noted.														
								[RIVER TERRACE DEPOSITS]															
		SPT(S)	1.20m	N=27 (5,6/7,7,7,6)					Medium dense brown very gravelly fine to coarse SAND with occasional subrounded cobbles of sandstone. Gravel is fine to coarse subrounded to subangular of sandstone. Slight Solvent odour noted.							(1.15)							
	PID	1.50m	151.7ppm					[RIVER TERRACE DEPOSITS] PFAS Shake test - no foam recorded 1m bgl															
	(ES2) 1.60							Medium dense orangish grey stained slightly clayey sandy fine to coarse subrounded to subangular GRAVEL of sandstone. Sand is fine to coarse. Solvent odour noted.							1.75	68.25							
								[RIVER TERRACE DEPOSITS] Dark grey staining and solvent odour 1.8-4m bgl															
		PID	2.00m	260.4ppm																			
		SPT(S)	2.00m	N=12 (3,3/3,3,3,3)																			
PID		2.50m	58.9ppm												(2.25)								
		PID	3.00m	2.7ppm																			
		SPT(S)	3.00m	N=18 (9,7/4,6,4,4)																			
		PID	3.50m	33.4ppm																			
		PID	4.00m	5.6ppm																			
		SPT(S)	4.00m	N=17 (5,4/4,4,4,5)					Stiff greyish brown sandy CLAY. Sand is fine. [GLACIAL TILL]							4.00	66.00						
		PID	4.50m	1.9ppm												(1.45)							
		SPT(S)	5.00m	N=24 (6,10/8,8,4,4)																			
DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS			WATER ADDED				
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres	
0.00	1.20	Inspection Pit	115	4.00	115	4.00				25/01/2023 09:31	1.75												
1.20	5.45	Dynamic Sample	90	5.45																			
INSTRUMENTS			WELL SCREEN DESIGN						REMARKS														
Name		Type	m AGL	Well Name		From	To	Dia.	Coordinates and level approximate from topographical survey.														
WS111		Standpipe	0.000	WS111		0.50	4.00	50															

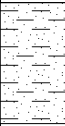
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379622.00

Ground Level (mAOD)
70.00
Northing (OS mN)
409122.00

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/25 10:26 4.00 / 1.90					Stiff greyish brown sandy CLAY. Sand is fine. [GLACIAL TILL]		5.45	64.55	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				25/01/2023 09:31	1.75											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS					
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				
WS111	Standpipe	0.000	WS111	0.50	4.00	50					

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379593.45

Ground Level (mAOD)
70.36
Northing (OS mN)
409161.84

Start Date
26/01/2023
End Date
26/01/2023

Scale
1:25
Sheet 1 of 1

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill			
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend						
2023/01/26 10:31 - / -	(ES1) 0.40	PID 0.40m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		(0.20)	70.16 70.11				
					MADE GROUND: Dense greyish cream clayey fine to coarse subangular GRAVEL of limestone. [MADE GROUND]		0.20 0.25					
					MADE GROUND: Medium dense brown slightly clayey gravelly fine to coarse SAND with occasional subangular cobbles of sandstone. Gravel is fine to coarse subrounded to subangular of sandstone, brick, concrete and rare glass. [MADE GROUND]		(0.25)					
					MADE GROUND: Medium dense orangish brown sandy fine to coarse subrounded to subangular GRAVEL of sandstone with occasional cobbles of subangular sandstone. [MADE GROUND]		0.50					
					PFAS Shake test - no foam recorded 0.5m bgl							(1.50)
					(ES2) 1.90							PFAS Shake test - no foam recorded 1.9m bgl
SPT(S) 2.00m N=26 (2,3/6,6,8,6)	MADE GROUND: Medium dense red sandy fine to coarse subangular to angular GRAVEL of brick with rare plastic and wood. Sand is fine to coarse of brick fragments. [MADE GROUND]	2.00										
PID 2.50m <1ppm			(1.15)									
SPT(S) 2.70m N=24 (3,2/7,7,3,7)												
2023/01/26 12:21 2.00 / 2.00												
2023/01/26 12:26 2.00 / 2.00							3.15	67.21				

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	2.00	115	2.00				26/01/2023 12:06	1.90			2.00								
1.20	3.15	Dynamic Sample	90	3.15																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Poor recovery from drill location. Hole too off centre to proceed further.				
WS112	Standpipe	0.000	WS112	0.50	2.00	50					

Scale
1:25

Sheet 1 of 2

Date / Time Casing / DTW
2023/01/26 08:12 - / -

From
0.00
1.20

Name
WS113

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379569.15

Ground Level (mAOD)
70.57
Northing (OS mN)
409189.94

Start Date
26/01/2023
End Date
26/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/26 10:06 4.00 / -		SPT(S) 5.00m N=18 (3,3/3,4,5,6)			Stiff orangish brown slightly silty CLAY. [GLACIAL TILL]		5.45	65.12	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				26/01/2023 09:18	1.65											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
WS113	Standpipe	0.000	WS113	0.50	2.00	50	

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379660.00

Ground Level (mAOD)
69.71
Northing (OS mN)
409059.00

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/23 10:44 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.15)	69.56	
	(ES3) 0.50	PID 0.50m <1ppm			MADE GROUND: Loose grey slightly clayey gravelly fine to coarse SAND with occasional cobbles of brick. Gravel is fine to coarse subrounded to subangular of brick, concrete, plastic and sandstone. [MADE GROUND]		0.15		
					PFAS Shake test - no foam recorded 0.5m bgl				
	(ES2) 0.90	PID 1.00m <1ppm			Suspected ACM 0.9-0.94m bgl		(1.65)		
		SPT(S) 1.20m N=3 (1,0/1,1,1,0)			PFAS Shake test - no foam recorded 1m bgl				
		PID 1.50m <1ppm							
					MADE GROUND: Loose dark grey slightly clayey sandy fine to medium subrounded to subangular GRAVEL of brick and coal. Sand is fine to coarse. [MADE GROUND]		1.80	67.91	
		PID 2.00m <1ppm SPT(S) 2.00m N=5 (2,1/2,1,1,1)					(0.90)		
	(ES1) 2.40-2.70	PID 2.50m 5ppm							
					MADE GROUND: Firm cream slightly silty CLAY with rootlets. [MADE GROUND]		2.70	67.01	
					MADE GROUND: Loose dark grey very clayey medium to coarse SAND. Unit is wet. [MADE GROUND]		2.80	66.91	
		PID 3.00m <1ppm SPT(S) 3.00m N=5 (2,2/1,2,1,1)					(0.90)		
		PID 3.50m 20.4ppm							
					MADE GROUND: Soft dark grey slightly gravelly silty CLAY. Gravel is fine to medium angular of porcelain. [MADE GROUND]		3.70	66.01	
		PID 4.00m <1ppm SPT(S) 4.00m N=7 (0,1/2,1,2,2)			Hydrocarbon odour 3.7-3.9m bgl		(0.50)		
					Firm dark grey slightly sandy SILT. [ALLUVIUM]		4.20	65.51	
		PID 4.50m <1ppm					(0.50)		
					Stiff orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone and mudstone. [GLACIAL TILL]		4.70	65.01	
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 12:11	3.00			4.00	4.00							
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				

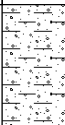
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379660.00

Ground Level (mAOD)
69.71
Northing (OS mN)
409059.00

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/23 12:10 4.00 / 4.00 2023/01/23 12:23 4.00 / 3.00		SPT(S) 5.00m N=29 (5,4/6,6,9,8)			Stiff orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium subrounded of sandstone and mudstone. [GLACIAL TILL]		(0.75)		
							5.45	64.26	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 12:11	3.00			4.00	4.00							
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379693.00

Ground Level (mAOD)
69.88
Northing (OS mN)
409140.00

Start Date
24/01/2023
End Date
24/01/2023

Scale
1:25
Sheet 1 of 1

Progress		Samples		Tests and Measurements			Strata			Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend						
2023/01/24 09:52 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.40)					
2023/01/24 10:14 - / -		PID 0.50m <1ppm			MADE GROUND: Dense greyish brown gravelly fine to coarse subangular to angular SAND with frequent cobbles of brick and concrete fragments. Gravel is fine to medium of brick and concrete. [MADE GROUND] <i>PFAS Shake test - no foam recorded 0.5m bgl</i>		0.40 (0.20) 0.60		69.48 69.28			

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	0.60	Inspection Pit																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS				
Name	Type	m AGL	Well Name	From	To	Dia.	Terminated at 0.6m bgl due to second below ground concrete slab. Insufficient material for ES sample. Coordinates and level approximate from topographical survey.				

Scale
1:25

Sheet 1 of 1

Backfill

To	Litres

es and leve

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379702.00

Ground Level (mAOD)
70.04
Northing (OS mN)
409098.00

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/23 09:02 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.30)		
					MADE GROUND: Light orangish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone. [MADE GROUND] <i>PFAS Shake test - no foam recorded 0.5m bgl</i>		0.30 (0.40)	69.74	
	(ES1) 0.80	PID 0.50m <1ppm			MADE GROUND: Light brown slightly clayey fine to medium SAND. [MADE GROUND]		0.70	69.34	
	(B2) 1.00-1.20	PID 1.00m <1ppm			<i>PFAS Shake test - no foam recorded 1m bgl</i>		(0.90)		
		SPT(S) 1.20m N=8 (0,1/2,2,1,3)							
		PID 1.50m <1ppm					1.60	68.44	
					Medium dense brownish orange slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium subrounded of sandstone. [RIVER TERRACE DEPOSITS] <i>Grey staining and hydrocarbon odour 1.7-2m bgl</i>				
		PID 2.00m <1ppm SPT(S) 2.00m N=18 (7,5/5,3,4,6)					(1.10)		
		PID 2.50m <1ppm							
					Medium dense dark greyish brown sandy fine to medium subangular to subrounded GRAVEL of sandstone. Sand is fine to coarse. Unit is moist. [RIVER TERRACE DEPOSITS]		2.70	67.34	
		PID 3.00m 2.4ppm SPT(S) 3.00m N=10 (4,4/3,3,2,2)					(0.90)		
		PID 3.50m <1ppm							
					Stiff brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded to subangular of mudstone and sandstone. [GLACIAL TILL]		3.60	66.44	
		PID 4.00m <1ppm SPT(S) 4.00m N=24 (6,6/5,6,7,6)					(1.85)		
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 10:19	2.90			3.00	3.00							
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS					
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				
WS117	Standpipe	0.000	WS117	2.00	3.50	50					

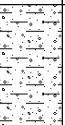
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379702.00

Ground Level (mAOD)
70.04
Northing (OS mN)
409098.00

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/23 10:20 4.00 / -		SPT(S) 5.00m N=22 (4,4/4,6,5,7)			Stiff brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded to subangular of mudstone and sandstone. [GLACIAL TILL]		5.45	64.59	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 10:19	2.90			3.00	3.00							
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS					
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				
WS117	Standpipe	0.000	WS117	2.00	3.50	50					

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379525.96

Ground Level (mAOD)
70.45
Northing (OS mN)
409193.45

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/25 11:16 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.30)		
	(ES1) 0.40	PID 0.40m <1ppm			MADE GROUND: Medium dense dark grey clayey fine to coarse subangular to subrounded GRAVEL of brick, sandstone and porcelain. Rare cobbles of subrounded sandstone.		0.30 (0.20)	70.15	
		PID 0.70m <1ppm			[MADE GROUND] PFAS Shake test - no foam recorded 0.4m bgl		0.50	69.95	
	(ES2) 1.00				Dense orangish brown slightly clayey cobbly fine to coarse subangular to subrounded GRAVEL of sandstone and mudstone with occasional subrounded cobbles of sandstone. Sand is fine to medium.				
		SPT(S) 1.20m N=34 (7,6/6,7,10,11)			[RIVER TERRACE DEPOSITS]				
		PID 1.50m 11.8ppm			Black staining and slight solvent odour 1.3-2.6m bgl		(2.10)		
		PID 2.00m <1ppm SPT(S) 2.00m N=10 (4,4/3,3,2,2)							
		PID 2.50m <1ppm							
					Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium subrounded to subangular of sandstone and mudstone.		2.60 (0.40)	67.85	
		PID 3.00m <1ppm SPT(S) 3.00m N=12 (3,2/3,3,3,3)			Stiff orangish brown very sandy CLAY. Sand is fine.		3.00	67.45	
									
	(D3) 3.50-3.70	PID 3.50m <1ppm							
		PID 4.00m <1ppm SPT(S) 4.00m N=15 (2,2/3,3,4,5)					(2.45)		
		PID 4.50m <1ppm							
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	5.45	115	90	115	3.00				25/01/2023 12:23	1.30											
		Inspection Pit																				
		Dynamic Sample																				

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
WS118	Standpipe	0.000	WS118	1.00	2.50																	

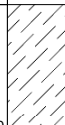
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379525.96

Ground Level (mAOD)
70.45
Northing (OS mN)
409193.45

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/25 12:59 3.00 / 1.50		SPT(S) 5.00m N=14 (3,2/3,3,4,4)			Stiff orangish brown very sandy CLAY. Sand is fine. [GLACIAL TILL]		5.45	65.00	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	3.00	115	3.00				25/01/2023 12:23	1.30											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
WS118	Standpipe	0.000	WS118	1.00	2.50																	

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379564.57

Ground Level (mAOD)
70.92
Northing (OS mN)
409263.39

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/25 14:17 - / -					MADE GROUND: CONCRETE [MADE GROUND]		(0.20)		
					MADE GROUND: Loose dark grey slightly clayey gravelly fine to coarse SAND with rare cobbles of brick. Gravel is fine to coarse subrounded to angular of slate, brick and concrete. [MADE GROUND]		0.20	70.72	
	(ES1) 0.50	PID 0.50m <1ppm			PFAS Shake test - no foam recorded 0.5m bgl		(0.40)		
					Firm brown slightly gravelly sandy CLAY with rare cobbles of subrounded sandstone. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone. [RIVER TERRACE DEPOSITS]		0.60	70.32	
	(B2) 1.00-1.10 (D3) 1.00	PID 1.00m <1ppm			Medium dense orangish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse subrounded to subangular of sandstone. [RIVER TERRACE DEPOSITS]		(0.30)		
		SPT(S) 1.20m N=17 (6,5/4,4,5,4)			PFAS Shake test - no foam recorded 1m bgl		0.90	70.02	
		PID 1.50m <1ppm					(1.50)		
		PID 2.00m <1ppm SPT(S) 2.00m N=4 (1,1/1,1,1,1)							
		PID 2.50m <1ppm			Firm orangish brown very sandy CLAY. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]		2.40	68.52	
							(0.40)		
		PID 3.00m <1ppm SPT(S) 3.00m N=5 (2,2/2,1,1,1)			Medium dense brown slightly gravelly fine to medium SAND. Gravel is fine subangular to subrounded of sandstone. [RIVER TERRACE DEPOSITS]		2.80	68.12	
		PID 3.20m <1ppm			Stained black and slight hydrocarbon odour 2.9-3.3m bgl		(0.50)		
					Firm becoming stiff light brown slightly sandy silty CLAY. Sand is fine. [GLACIAL TILL]		3.30	67.62	
	(D4) 4.70-5.00	PID 4.00m <1ppm SPT(S) 4.00m N=9 (1,2/2,2,2,3)					(2.15)		
		PID 4.50m <1ppm							
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Dynamic Sample	115	4.00	115	4.00				25/01/2023 15:02	1.70											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
WS119	Standpipe	0.000	WS119	1.00	3.30	50	

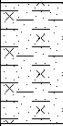
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379564.57

Ground Level (mAOD)
70.92
Northing (OS mN)
409263.39

Start Date
25/01/2023
End Date
25/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/25 15:43 4.00 / 2.00		SPT(S) 5.00m N=13 (2,2/3,2,4,4)			Firm becoming stiff light brown slightly sandy silty CLAY. Sand is fine. [GLACIAL TILL]		5.45	65.47	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Dynamic Sample	115	4.00	115	4.00				25/01/2023 15:02	1.70											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
WS119	Standpipe	0.000	WS119	1.00	3.30	50																

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379627.00

Ground Level (mAOD)
70.49
Northing (OS mN)
409199.00

Start Date
24/01/2023
End Date
24/01/2023

Scale
1:25
Sheet 1 of 1

Progress	Samples	Tests and Measurements				Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR ROD	Description	Legend				
2023/01/24 08:14 - / -	(ES1) 0.60	PID 0.50m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		(0.25)	70.24		
					MADE GROUND: Medium dense dark grey slightly gravelly fine to coarse SAND. Gravel is fine to medium subrounded to angular of ceramic and sandstone. [MADE GROUND] PFAS Shake test - no foam recorded 0.5m bgl		0.25			
		PID 1.00m <1ppm			Dense orangish brown very gravelly fine to medium SAND. Gravel is fine to coarse subrounded to subangular of sandstone. [RIVER TERRACE DEPOSITS] PFAS Shake test - no foam recorded 1m bgl		(0.45)	69.79		
							0.70			
		SPT(S) 1.20m N=37 (5,7/10,10,10,7)								
		PID 1.50m <1ppm								
		PID 2.00m <1ppm SPT(S) 2.00m N=37 (8,9/9,8,10,10)						(3.00)		
PID 2.50m <1ppm										
PID 3.00m <1ppm SPT(S) 3.00m N=11 (3,3/2,3,3,3)										
PID 3.50m <1ppm										
										
										
										
										
										
										
										
										
										
										
										
										
										
										

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379620.27

Ground Level (mAOD)
70.49
Northing (OS mN)
409257.23

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/23 13:36 - / -	(ES1) 0.50	PID 0.50m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		0.30	70.19	
					Orangish brown slightly gravelly clayey fine SAND. Gravel is fine to medium subrounded of sandstone. [RIVER TERRACE DEPOSITS]				
					PFAS shake test - no foam recorded 0.5m bgl				
							(1.10)		
		PID 1.00m <1ppm			PFAS Shake test - no foam recorded 1m bgl				
		SPT(S) 1.20m N=30 (4,4/9,8,10,3)							
		PID 1.50m <1ppm			Dense orangish brown slightly clayey sandy fine to coarse subrounded GRAVEL of sandstone. Sand is fine to medium. [RIVER TERRACE DEPOSITS]		1.40	69.09	
							(0.55)		
		PID 2.00m <1ppm SPT(S) 2.00m N=16 (3,5/4,4,4,4)			Dense dark grey slightly silty sandy fine to medium subrounded GRAVEL of sandstone and mudstone. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]		1.95	68.54	
							(0.55)		
		PID 2.50m <1ppm			Dense dark grey slightly clayey medium to coarse SAND. [RIVER TERRACE DEPOSITS]		2.50	67.99	
							(0.60)		
		PID 3.00m <1ppm SPT(S) 3.00m N=9 (2,1/2,2,2,3)			Firm grey slightly sandy CLAY. Sand is fine. [GLACIAL TILL]		3.10	67.39	
							(0.50)		
		PID 3.50m <1ppm			Stiff grey silty CLAY. [GLACIAL TILL]		3.60	66.89	
							(1.85)		
		SPT(S) 4.00m N=11 (2,2/2,3,3,3)							
		PID 4.50m <1ppm							
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 15:34	1.30											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
WS121	Standpipe	0.000	WS121	0.50	3.00	50	

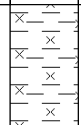
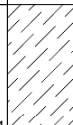
Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379620.27

Ground Level (mAOD)
70.49
Northing (OS mN)
409257.23

Start Date
23/01/2023
End Date
23/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/23 15:34 4.00 / 2.00		SPT(S) 5.00m N=9 (1,1/2,2,2,3)			Stiff grey silty CLAY. [GLACIAL TILL]		5.45	65.04	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				23/01/2023 15:34	1.30											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS																
Name	Type	m AGL	Well Name	From	To	Dia.																
WS121	Standpipe	0.000	WS121	0.50	3.00	50																

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379689.00

Ground Level (mAOD)
69.79
Northing (OS mN)
409212.00

Start Date
24/01/2023
End Date
24/01/2023

Scale
1:25
Sheet 1 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/01/24 11:11 - / -	(ES1) 0.20	PID 0.20m <1ppm			MADE GROUND: CONCRETE [MADE GROUND]		(0.15)		
					MADE GROUND: Dark grey slightly clayey slightly gravelly fine to medium SAND. Gravel is fine to medium subrounded to subangular of brick fragments, concrete fragments and sandstone.		0.15	69.64	
	(B2) 0.50-0.70	PID 0.70m <1ppm			[MADE GROUND] Medium dense orangish brown slightly clayey slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone and mudstone.		(0.15)	69.49	
		SPT(S) 1.20m N=22 (2,2/1,4,7,10)			[RIVER TERRACE DEPOSITS] PFAS Shake test - no foam recorded 0.3m bgl PFAS Shake test - no foam recorded 0.7m bgl		0.30		
		PID 1.50m <1ppm							
		PID 2.00m <1ppm SPT(S) 2.00m N=8 (4,3/2,2,2,2)					(3.20)		
		PID 2.50m <1ppm							
		PID 3.00m <1ppm SPT(S) 3.00m N=11 (8,4/3,2,3,3)							
					Medium dense brown silty fine to medium SAND. [RIVER TERRACE DEPOSITS]		3.50	66.29	
		PID 4.00m <1ppm SPT(S) 4.00m N=12 (2,2/2,3,3,4)					(1.95)		
		PID 4.50m <1ppm							
		PID 5.00m <1ppm							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				24/01/2023 12:01	2.60											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS		
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.	
WS122	Standpipe	0.000	WS122	0.50	2.50	50		

Project
Warth Road
Client
St. Modwen

Project No.
10058956
Easting (OS mE)
379689.00

Ground Level (mAOD)
69.79
Northing (OS mN)
409212.00

Start Date
24/01/2023
End Date
24/01/2023

Scale
1:25
Sheet 2 of 2

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RGD	Description	Legend			
2023/01/24 12:40 4.00 / 2.60		SPT(S) 5.00m N=19 (4,4/4,5,5,5)			Medium dense brown silty fine to medium SAND. [RIVER TERRACE DEPOSITS]		5.45	64.34	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER			CHISELLING			WATER OBSERVATIONS							FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	115	4.00	115	4.00				24/01/2023 12:01	2.60											
1.20	5.45	Dynamic Sample	90	5.45																		

INSTRUMENTS			WELL SCREEN DESIGN			REMARKS					
Name	Type	m AGL	Well Name	From	To	Dia.	Coordinates and level approximate from topographical survey.				
WS122	Standpipe	0.000	WS122	0.50	2.50	50					

Sheet 1 of 1

AGS REGISTERED SURVEYOR	Unless otherwise stated: Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)	Equipment Used	Termination Depth	Logged By	Checked By
		Hand Tools, Terrier	3.45m	RL	EY

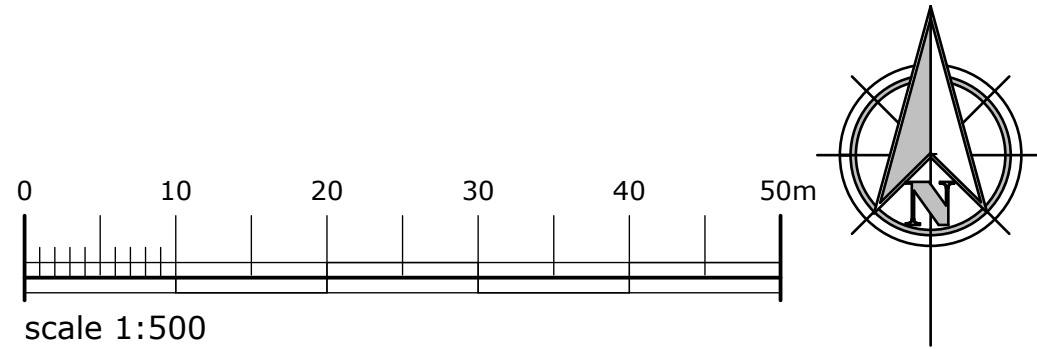
APPENDIX 2

Proposed Site Development



site plan surfacing key

- existing retained surface, repair works where required
- new concrete yard to engineers details and specifications
- tarmacadam access road/ parking to engineers details and specifications
- soft landscaping
- tarmac pedestrian footpath
- whitelined designated walk/ cycle path
- crushed and compacted stone surfacing
- ev charging point to be provided to car parking space
- ducting for future ev charging expansion to be provided to car parking space



APPENDIX 3

BGS Borehole Logs



Received 29/2/00

J P WHITTER (WATER WELL ENG) LTD

SD80/117

BOREHOLE RECORD

A. SITE DETAILS				
Borehole drilled for :	Ron Wood Developments Ltd			
Location :	Castle Brook Business Park, Plisworth Road, Bury			
NGR (8 fig.):	SD 8168 0870	Please attach site plan:		
Ground Level (If known) :	Unknown			
Drilling Company :	J P Whitter (Water Well Engineers) Ltd			
Date of Drilling :	Commenced: 10/99	Completed: 10/99		
B. CONSTRUCTION DETAILS				
Borehole Datum (If not ground level)	GL	m above/below GL		
(point from which all measurements of depth are taken eg. flange, edge of chamber, etc.)				
Borehole drilled diameter	250 mm from GL	to 42	m/depth	
	150 mm from 42	to 89	m/depth	
Casing material and type	plain steel lining tubes.			
	150 mm from GL	to 47.5	m/depth	
Grouting Details: Borehole grouted using OPC grout using tremmy pipes.				
Water struck at : 35m, 50m onwards			m (depth below datum mbd)	
Rest water level on completion :			m (depth below datum mbd)	
C. TEST PUMPING SUMMARY (Please supply full details on Forms WR-39)				
Test pumping datum	Edge of manhole, ground level	m above/below datum (mbd)		
(If different from borehole datum)				
Pump suction :		mbd		
Water level (Start of test) :		mbd		
Water level (End of test) :		mbd		
Pumping rate :		m ³ / day:l/s		
for		days/hours		
Recovery to :	mbd in	mins : hrs : days		
Date of measurements :				

D. STRATA LOG			
Geological	Description of Strata		
Classification		Thickness	Depth
(BGS only)		M	M
	Backfill	2	0 - 2
	Sand and gravel	31	2 - 33
	Marl	1	33 - 34
	Sandstone/marl	8	34 - 42
	Sandstone	34	42 - 76
	Sandstone/marl	4	76 - 80
	Marl with narrow sandstone bands	9	80 - 89
Other Comments			

FOR OFFICIAL USE ONLY

FILE: CONSENT NO: BGS REF. NO:
 LICENCE NO: USE OF BH: NGR:



Name of site

Castle Brook Business Park
Central L.S. Northwest E.A.

W R B No.

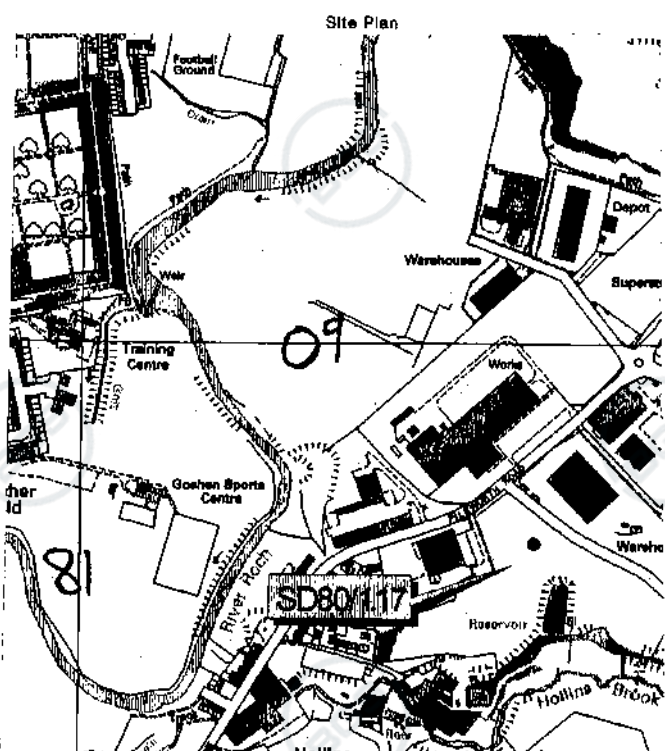
SD80/117
60

SD80/MW

Owner		Licence no. Appn no. 57463 Cancelled		Nat. grid ref. SD 8168 0870			
Occupier		IGS ref. no.		Status			
Ground Level		m OD		Aquifer Carb. Coal Measures			
Level of well top		m OD		Code 103 BDQ22			
Rest water level		16.99 m	m bwt	Summary of geological section		Thickness	Depth
(Date)		m OD		Borehole log + Casing details available			
Construction: Method		Date Oct. 99					
Depth bwt	Dia.	Linings (below well top)					
		From	To	Dia.	Type		
89m							
Abstraction rates		Type of pump					
gph PWL		Chem./bact. anal.		YES/NO			
gpd		Well driller J.P. Whittier					

If insufficient space has been allowed, continue in 'Notes' overleaf.

Lockle 182



Notes

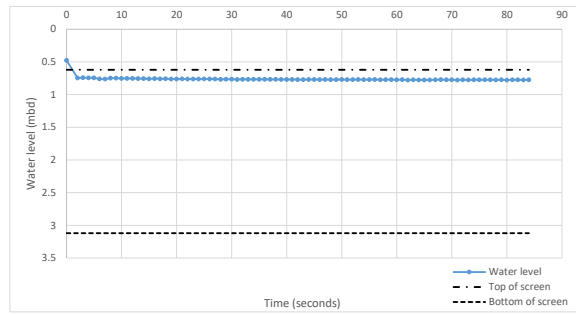
SD80/117 - Castle Brook Business Park
Borehole Drilled under consent No. 1130
in October 1999.
See GC15/00 for further details

APPENDIX 4

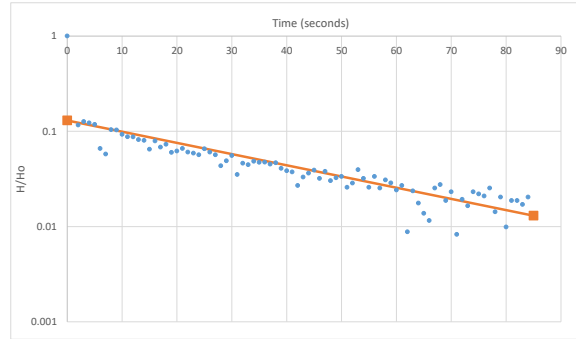
Hydraulic Conductivity Analysis

Well name: WS102
 Test date: 01/04/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 0.78 m below datum (mbd)
 Top of screen: 0.62 m below datum (mbd)
 Bottom of screen: 3.12 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	0.47661	0.30339	1
2	0.744663	0.035337	0.116474
3	0.741667	0.038333	0.126349
4	0.742837	0.037163	0.122493
5	0.744183	0.035817	0.118056
6	0.760008	0.019992	0.065895
7	0.762493	0.017507	0.057705
8	0.748489	0.031511	0.103863
9	0.748661	0.031339	0.103296
10	0.75183	0.02817	0.092851
11	0.753483	0.026517	0.087402
12	0.753502	0.026498	0.08734
13	0.755169	0.024831	0.081845
14	0.755655	0.024345	0.080243
15	0.760337	0.019663	0.064811
16	0.755999	0.024001	0.079109
17	0.759339	0.020661	0.0681
18	0.757823	0.022177	0.073097
19	0.761821	0.018179	0.05992
20	0.761166	0.018834	0.062079
21	0.759993	0.020007	0.065945
22	0.761666	0.018334	0.06043
23	0.762148	0.017852	0.058842
24	0.76282	0.01718	0.056627
25	0.760149	0.019851	0.065431
26	0.761649	0.018351	0.060487
27	0.76282	0.01718	0.056627
28	0.766832	0.013168	0.043403
29	0.765146	0.014854	0.04896
30	0.763164	0.016836	0.055493
31	0.76933	0.01067	0.035169
32	0.765989	0.014011	0.046181
33	0.766505	0.013495	0.044481
34	0.765335	0.014665	0.048337
35	0.765662	0.014338	0.047259
36	0.765646	0.014354	0.047312
37	0.766316	0.013684	0.045104
38	0.765817	0.014183	0.046748
39	0.767643	0.012357	0.04073
40	0.768313	0.011687	0.038521
41	0.768657	0.011343	0.037388
42	0.77181	0.00819	0.026995
43	0.769985	0.010015	0.03301
44	0.769001	0.010999	0.036254
45	0.768145	0.011855	0.039075
46	0.770312	0.009688	0.031932
47	0.768487	0.011513	0.037948
48	0.770827	0.009173	0.030235
49	0.770141	0.009859	0.032496
50	0.769813	0.010187	0.033577
51	0.77217	0.00783	0.025808
52	0.771328	0.008672	0.028584
53	0.768002	0.011998	0.039546
54	0.770312	0.009688	0.031932
55	0.77217	0.00783	0.025808
56	0.769843	0.010157	0.033478
57	0.772312	0.007688	0.02534
58	0.770655	0.009345	0.030802
59	0.771313	0.008687	0.028633
60	0.772668	0.007332	0.024167
61	0.77181	0.00819	0.026995
62	0.777335	0.002665	0.008784
63	0.772827	0.007173	0.023643
64	0.774652	0.005348	0.017627
65	0.775823	0.004177	0.013768
66	0.776492	0.003508	0.011563
67	0.772325	0.007675	0.025297
68	0.771656	0.008344	0.027503
69	0.774325	0.005675	0.018705
70	0.772983	0.007017	0.023129
71	0.777491	0.002509	0.00827
72	0.774153	0.005847	0.019272
73	0.774996	0.005004	0.016494
74	0.772983	0.007017	0.023129
75	0.773324	0.006676	0.022005
76	0.773653	0.006347	0.02092
77	0.772325	0.007675	0.025297
78	0.775667	0.004333	0.014282
79	0.773826	0.006174	0.02035
80	0.777007	0.002993	0.009865
81	0.774325	0.005675	0.018705
82	0.774325	0.005675	0.018705
83	0.774824	0.005176	0.017061
84	0.773826	0.006174	0.02035



Bouwer-Rice Analysis

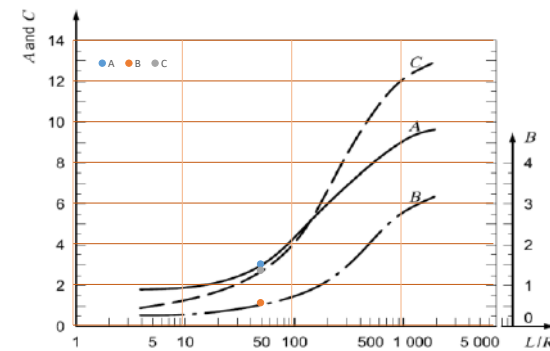


Input parameters

Radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.045
Length of saturated screen (Le on diagram)	L	m	2.34
Length of saturated screen + solid casing	L_w	m	2.34
Saturated thickness of aquifer	h	m	3.7
Use effective radius of well pipe? (when water level in screened section)			Yes
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	85
y-axis H/Ho 1	H_1/H_o		0.13
y-axis H/Ho 2	H_2/H_o		0.013



A	A	3
B	B	0.55
C	C	2.7
2B	2B	1.1

Calculated parameters

H1 (from line fitting)	H_1	m	0.039441
H2 (from line fitting)	H_2	m	0.003944
Effective radius of well pipe	r_e	m	0.031225
L/R	L/R		52
Effective radial distance over which induced head dissipated	Re	m	0.661056

Re fully penetrating

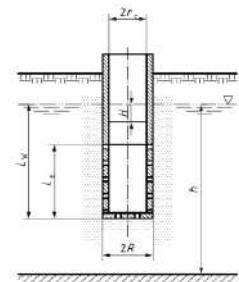
Assume fully penetrating?		No
$\ln (Re/R)$ (partially penetrating)	$\ln (Re/R)$	2.687176
$\ln (Re/R)$ (fully penetrating)	$\ln (Re/R)$	3.0274
$\ln (Re/R)$ (used)	$\ln (Re/R)$	2.687176

Hydraulic conductivity	K	m/s	1.52E-05
		m/d	1.31E+00

Equations used

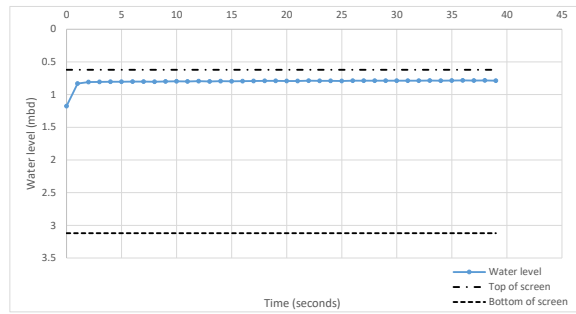
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

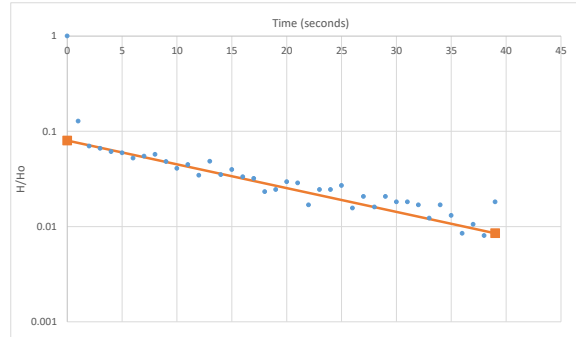


Well name: WS102
 Test date: 01/04/2026
 Test number: test 1 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 0.78 m below datum (mbd)
 Top of screen: 0.62 m below datum (mbd)
 Bottom of screen: 3.12 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.175751	-0.39575	1
1	0.83062	-0.05062	0.127909
2	0.80765	-0.02765	0.069867
3	0.806151	-0.02615	0.066079
4	0.804156	-0.02416	0.061038
5	0.803486	-0.02349	0.059345
6	0.80066	-0.02066	0.052205
7	0.801656	-0.02166	0.054721
8	0.802657	-0.02266	0.057251
9	0.798991	-0.01899	0.047987
10	0.796163	-0.01616	0.040841
11	0.797663	-0.01766	0.044632
12	0.793667	-0.01367	0.034534
13	0.79916	-0.01916	0.048414
14	0.793839	-0.01384	0.034969
15	0.795663	-0.01566	0.039578
16	0.793168	-0.01317	0.033273
17	0.792668	-0.01267	0.03201
18	0.789173	-0.00917	0.023179
19	0.789671	-0.00967	0.024437
20	0.791671	-0.01167	0.029491
21	0.79134	-0.01134	0.028654
22	0.786677	-0.00668	0.016872
23	0.789671	-0.00967	0.024437
24	0.789671	-0.00967	0.024437
25	0.790672	-0.01067	0.026966
26	0.786177	-0.00618	0.015608
27	0.788174	-0.00817	0.020654
28	0.786347	-0.00635	0.016038
29	0.788174	-0.00817	0.020654
30	0.787176	-0.00718	0.018133
31	0.787176	-0.00718	0.018133
32	0.786677	-0.00668	0.016872
33	0.78485	-0.00485	0.012255
34	0.786677	-0.00668	0.016872
35	0.785179	-0.00518	0.013087
36	0.783353	-0.00335	0.008472
37	0.784178	-0.00418	0.010557
38	0.783182	-0.00318	0.00804
39	0.787176	-0.00718	0.018133



Bouwer-Rice Analysis

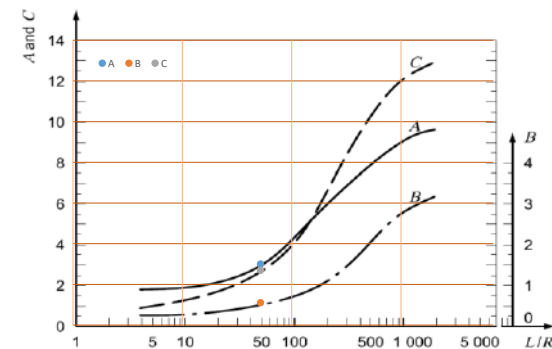
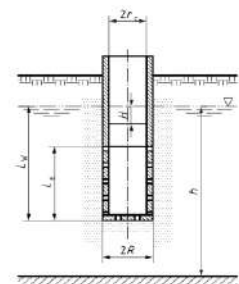


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t1	s	0
x-axis time 2	t2	s	39
y-axis H/Ho 1	H1/Ho		0.08
y-axis H/Ho 2	H2/Ho		0.0085



A	A	3
B	B	0.55
C	C	2.7
2B	2B	1.1

Calculated parameters

H1 (from line fitting)	H1	m	-0.03166
H2 (from line fitting)	H2	m	-0.00336
Effective radius of well pipe	r_e	m	0.031225
L/R	L/R		52
Effective radial distance over which induced head dissipated	Re	m	0.661056

Re fully penetrating

Assume fully penetrating?		No
ln (Re/R) (partially penetrating)	ln (Re/R)	2.687176
ln (Re/R) (fully penetrating)	ln (Re/R)	3.0274
ln (Re/R) (used)	ln (Re/R)	2.687176

Hydraulic conductivity	K	m/s	3.22E-05
		m/d	2.78E+00

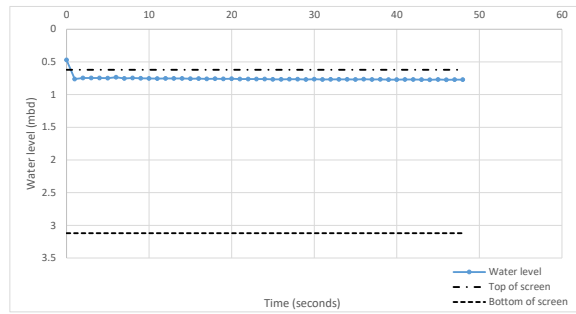
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

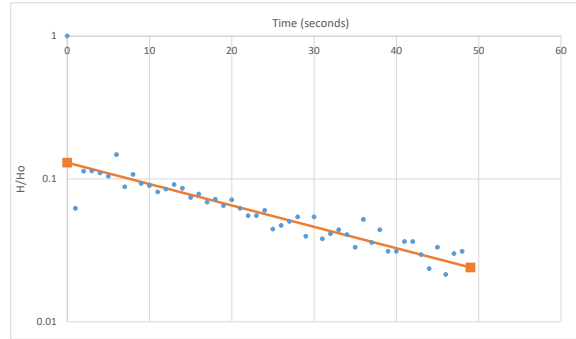
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS102
 Test date: 01/04/2026
 Test number: test 2 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 0.78 m below datum (mbd)
 Top of screen: 0.62 m below datum (mbd)
 Bottom of screen: 3.12 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	0.470054	0.309946	1
1	0.76072	0.01928	0.062204
2	0.744903	0.035097	0.113236
3	0.744733	0.035267	0.113784
4	0.745905	0.034095	0.110003
5	0.747731	0.032269	0.104112
6	0.734245	0.045755	0.147622
7	0.752727	0.027273	0.087993
8	0.746732	0.033268	0.107335
9	0.751228	0.028772	0.092829
10	0.752229	0.027771	0.089599
11	0.754895	0.025105	0.080998
12	0.753724	0.026276	0.084776
13	0.751728	0.028272	0.091216
14	0.753396	0.026604	0.085834
15	0.757062	0.022938	0.074006
16	0.755723	0.024277	0.078327
17	0.758722	0.021278	0.068651
18	0.757722	0.022278	0.071877
19	0.759891	0.020109	0.064879
20	0.757891	0.022109	0.071332
21	0.76072	0.01928	0.062204
22	0.762884	0.017116	0.055223
23	0.762884	0.017116	0.055223
24	0.761386	0.018614	0.060056
25	0.766211	0.013789	0.044488
26	0.765383	0.014617	0.04716
27	0.764383	0.015617	0.050386
28	0.763212	0.016788	0.054164
29	0.767709	0.012291	0.039655
30	0.763212	0.016788	0.054164
31	0.76821	0.01179	0.038039
32	0.767209	0.012791	0.041268
33	0.766382	0.013618	0.043937
34	0.767379	0.012621	0.04072
35	0.769707	0.010293	0.033209
36	0.763884	0.016116	0.051996
37	0.768879	0.011121	0.03588
38	0.766382	0.013618	0.043937
39	0.770376	0.009624	0.031051
40	0.770376	0.009624	0.031051
41	0.768711	0.011289	0.036422
42	0.768711	0.011289	0.036422
43	0.770875	0.009125	0.029441
44	0.772703	0.007297	0.023543
45	0.769707	0.010293	0.033209
46	0.773372	0.006628	0.021384
47	0.770705	0.009295	0.029989
48	0.770376	0.009624	0.031051



Bouwer-Rice Analysis

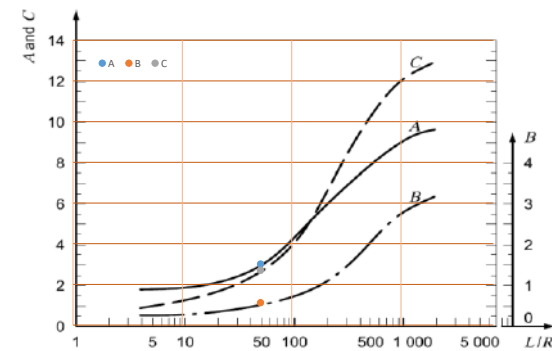


Input parameters

Radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.045
Length of saturated screen (Le on diagram)	L	m	2.34
Length of saturated screen + solid casing	L_w	m	2.34
Saturated thickness of aquifer	h	m	3.7
Use effective radius of well pipe? (when water level in screened section)		Yes	
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	49
y-axis H/Ho 1	H_1/H_o		0.13
y-axis H/Ho 2	H_2/H_o		0.024



A	A	3
B	B	0.55
C	C	2.7
2B	2B	1.1

Calculated parameters

H1 (from line fitting)	H_1	m	0.040293
H2 (from line fitting)	H_2	m	0.007439
Effective radius of well pipe	r_e	m	0.031225
L/R	L/R		52
Effective radial distance over which induced head dissipated	Re	m	0.661056

Re fully penetrating

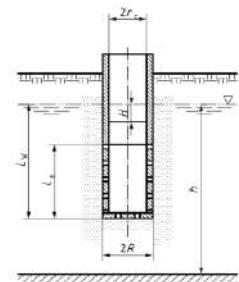
Assume fully penetrating?		No
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	2.687176
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	3.0274
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.687176

Hydraulic conductivity	K	m/s	1.93E-05
		m/d	1.67E+00

Equations used

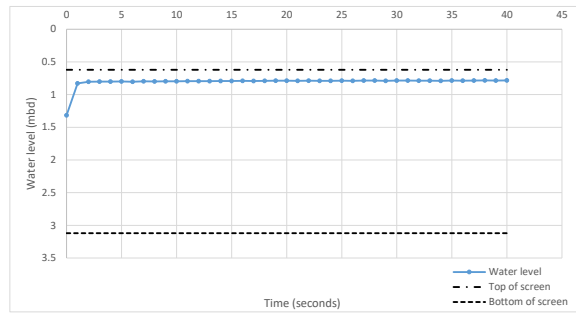
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

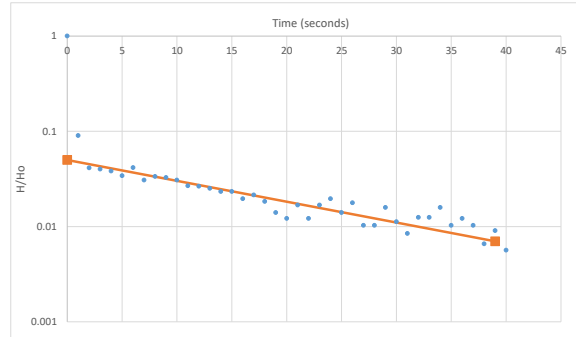


Well name: WS102
 Test date: 01/04/2026
 Test number: test 2 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 0.78 m below datum (mbd)
 Top of screen: 0.62 m below datum (mbd)
 Bottom of screen: 3.12 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.316817	-0.53682	1
1	0.828469	-0.04847	0.09029
2	0.802174	-0.02217	0.041306
3	0.801505	-0.0215	0.04006
4	0.800506	-0.02051	0.038199
5	0.798339	-0.01834	0.034162
6	0.802333	-0.02233	0.041603
7	0.796511	-0.01651	0.030757
8	0.79801	-0.01801	0.03355
9	0.797511	-0.01751	0.03262
10	0.796511	-0.01651	0.030757
11	0.794348	-0.01435	0.026728
12	0.794183	-0.01418	0.026421
13	0.793515	-0.01351	0.025176
14	0.792518	-0.01252	0.023319
15	0.792518	-0.01252	0.023319
16	0.79052	-0.01052	0.019597
17	0.791518	-0.01152	0.021456
18	0.78985	-0.00985	0.018349
19	0.787522	-0.00752	0.014012
20	0.786524	-0.00652	0.012153
21	0.789021	-0.00902	0.016805
22	0.786524	-0.00652	0.012153
23	0.789021	-0.00902	0.016805
24	0.79052	-0.01052	0.019597
25	0.787522	-0.00752	0.014012
26	0.789519	-0.00952	0.017732
27	0.785528	-0.00553	0.010298
28	0.785528	-0.00553	0.010298
29	0.788521	-0.00852	0.015873
30	0.786025	-0.00602	0.011224
31	0.784528	-0.00453	0.008435
32	0.786693	-0.00669	0.012468
33	0.786693	-0.00669	0.012468
34	0.788521	-0.00852	0.015873
35	0.785528	-0.00553	0.010298
36	0.786524	-0.00652	0.012153
37	0.785528	-0.00553	0.010298
38	0.783527	-0.00353	0.00657
39	0.784857	-0.00486	0.009048
40	0.78303	-0.00303	0.005644



Bouwer-Rice Analysis

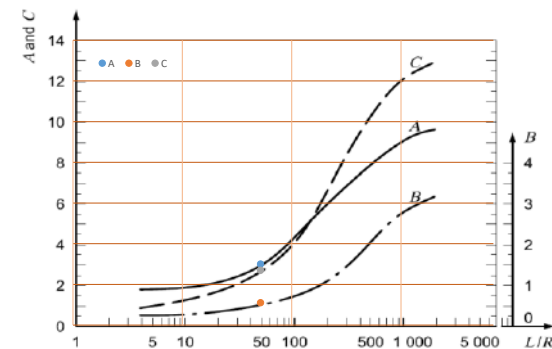


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	39
y-axis H/H_o 1	H_1/H_o		0.05
y-axis H/H_o 2	H_2/H_o		0.007



A	A	3
B	B	0.55
C	C	2.7
2B	2B	1.1

Calculated parameters

H1 (from line fitting)	H1	m	-0.02684
H2 (from line fitting)	H2	m	-0.00376
Effective radius of well pipe	r_e	m	0.031225
L/R	L/R		52
Effective radial distance over which induced head dissipated	R_e	m	0.661056

Re fully penetrating

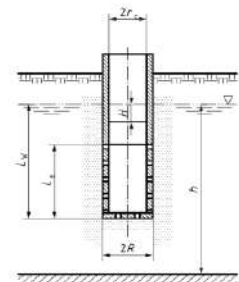
Assume fully penetrating?		No
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	2.687176
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	3.0274
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.687176

Hydraulic conductivity	K	m/s	2.82E-05
		m/d	2.44E+00

Equations used

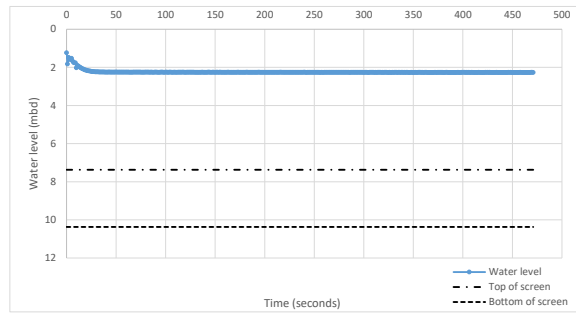
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

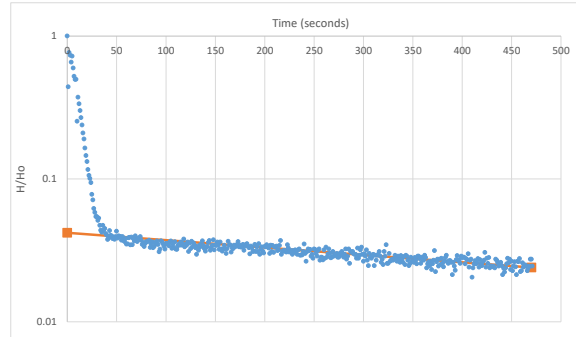


Well name: CP105D
 Test date: 27/03/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.29 m below datum (mbd)
 Top of screen: 7.37 m below datum (mbd)
 Bottom of screen: 10.37 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.230398	1.059602	1
1	1.822778	0.467222	0.440941
2	1.477804	0.812196	0.76651
3	1.513367	0.776633	0.732948
4	1.594057	0.695943	0.656797
5	1.522978	0.767022	0.723877
6	1.656743	0.633257	0.597637
7	1.736832	0.553168	0.522053
8	1.763375	0.526625	0.497003
9	1.761938	0.528062	0.498359
10	2.021799	0.268201	0.253115
11	1.894888	0.395112	0.372887
12	1.934598	0.355402	0.335411
13	1.971605	0.318395	0.300485
14	2.00585	0.28415	0.268167
15	2.037869	0.252131	0.237949
16	2.068148	0.221852	0.209373
17	2.088686	0.201314	0.18999
18	2.115905	0.174095	0.164302
19	2.135776	0.154224	0.145549
20	2.150098	0.139902	0.132033
21	2.166977	0.123023	0.116103
22	2.177955	0.112045	0.105743
23	2.183202	0.106798	0.100791
24	2.190358	0.099642	0.094037
25	2.207532	0.082468	0.077829
26	2.214512	0.075488	0.071242
27	2.224225	0.065775	0.062075
28	2.22834	0.06166	0.058192
29	2.232334	0.057666	0.054422
30	2.232334	0.057666	0.054422
31	2.235671	0.054329	0.051273
32	2.233762	0.056238	0.053075
33	2.239962	0.050038	0.047223
34	2.243776	0.046224	0.043624
35	2.245209	0.044791	0.042272
36	2.239962	0.050038	0.047223
37	2.243601	0.046399	0.043789
38	2.242345	0.047655	0.044974
39	2.24616	0.04384	0.041374
40	2.247114	0.042886	0.040474
41	2.250151	0.039849	0.037608
42	2.249196	0.040804	0.038509
43	2.243952	0.046048	0.043458
44	2.247415	0.042585	0.04019
45	2.247769	0.042231	0.039856
46	2.249497	0.040503	0.038225
47	2.248545	0.041455	0.039123
48	2.249977	0.040023	0.037772
49	2.248243	0.041757	0.039408
50	2.244429	0.045571	0.043008
51	2.249196	0.040804	0.038509
52	2.247769	0.042231	0.039856
53	2.248068	0.041932	0.039573
54	2.248243	0.041757	0.039408
55	2.250625	0.039375	0.03716
56	2.248243	0.041757	0.039408
57	2.250625	0.039375	0.03716
58	2.251404	0.038596	0.036425
59	2.249497	0.040503	0.038225
60	2.253012	0.036988	0.034907
61	2.252837	0.037163	0.035073
62	2.249021	0.040979	0.038674
63	2.248719	0.041281	0.038959
64	2.253489	0.036511	0.034457
65	2.248545	0.041455	0.039123
66	2.253314	0.036686	0.034622
67	2.249673	0.040327	0.038059
68	2.251104	0.038896	0.036708
69	2.247769	0.042231	0.039856
70	2.250625	0.039375	0.03716
71	2.251404	0.038596	0.036425
72	2.249371	0.040629	0.038344
73	2.250151	0.039849	0.037608
74	2.248243	0.041757	0.039408
75	2.250625	0.039375	0.03716
76	2.253187	0.036813	0.034742
77	2.252057	0.037943	0.035809
78	2.254441	0.035559	0.033559
79	2.252534	0.037466	0.035359
80	2.251581	0.038419	0.036258
81	2.251581	0.038419	0.036258
82	2.251281	0.038719	0.036541
83	2.250625	0.039375	0.03716
84	2.254919	0.035081	0.033108
85	2.253012	0.036988	0.034907
86	2.251581	0.038419	0.036258
87	2.255096	0.034904	0.032941
88	2.254441	0.035559	0.033559
89	2.252057	0.037943	0.035809
90	2.253012	0.036988	0.034907
91	2.251104	0.038896	0.036708
92	2.253187	0.036813	0.034742



Bouwer-Rice Analysis

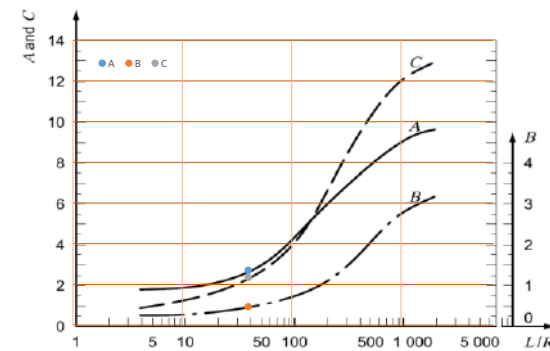


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c m	0.025
Borehole radius in screened section	R m	0.075
Length of saturated screen (Le on diagram)	L m	3
Length of saturated screen + solid casing	L_w m	8.08
Saturated thickness of aquifer	h m	10
Use effective radius of well pipe? (when water level in screened section)		No
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t1 s	0
x-axis time 2	t2 s	470
y-axis H/Ho 1	H1/Ho	0.042
y-axis H/Ho 2	H2/Ho	0.024



A	A	2.7
B	B	0.45
C	C	2.35
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1 m	0.044503
H2 (from line fitting)	H2 m	0.02543
Effective radius of well pipe	r_e m	0.025
L/R	L/R	40
Effective radial distance over which induced head dissipated	Re m	1.432249

Re fully penetrating

Assume fully penetrating?		No
ln (Re/R) (partially penetrating)	ln (Re/R)	2.949513
ln (Re/R) (fully penetrating)	ln (Re/R)	3.403562
ln (Re/R) (used)	ln (Re/R)	2.949513

Hydraulic conductivity	K m/s	3.66E-07
	m/d	3.16E-02

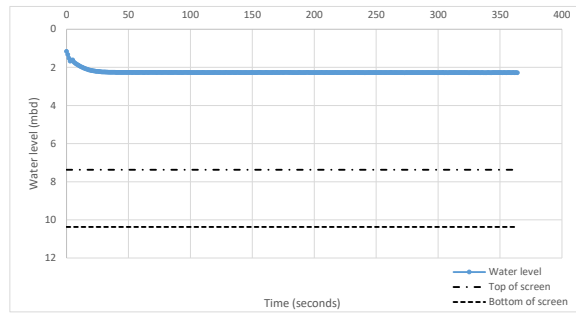
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

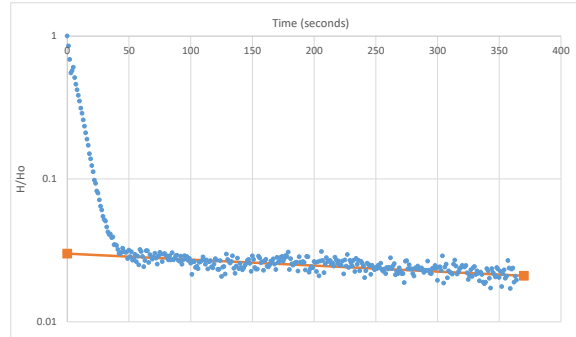
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: CP105D
 Test date: 31/03/2026
 Test number: test 2 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.3 m below datum (mbd)
 Top of screen: 7.37 m below datum (mbd)
 Bottom of screen: 10.37 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.159521	1.140479	1
1	1.326736	0.973264	0.853382
2	1.518479	0.781521	0.685257
3	1.671877	0.628123	0.550754
4	1.647852	0.652148	0.571819
5	1.611319	0.688681	0.603852
6	1.717029	0.582971	0.511163
7	1.77608	0.52392	0.459386
8	1.821373	0.478627	0.419672
9	1.862138	0.437862	0.383928
10	1.900299	0.399701	0.350468
11	1.943718	0.356282	0.312397
12	1.971397	0.328603	0.288127
13	2.005209	0.294791	0.25848
14	2.033452	0.266548	0.233716
15	2.060251	0.239749	0.210218
16	2.083879	0.216121	0.1895
17	2.103969	0.196031	0.171885
18	2.12902	0.17098	0.149919
19	2.142702	0.157298	0.137923
20	2.15866	0.14134	0.12393
21	2.172042	0.127958	0.112197
22	2.188291	0.111709	0.097949
23	2.193841	0.106159	0.093083
24	2.206264	0.093736	0.08219
25	2.209495	0.090505	0.079357
26	2.218685	0.081315	0.071299
27	2.226691	0.073309	0.064279
28	2.230988	0.069012	0.060511
29	2.237676	0.062324	0.054647
30	2.240838	0.059162	0.051875
31	2.242269	0.057731	0.05062
32	2.247521	0.052479	0.046015
33	2.251527	0.048473	0.042502
34	2.253437	0.046563	0.040828
35	2.253141	0.046859	0.041087
36	2.255823	0.044177	0.038735
37	2.255348	0.044652	0.039152
38	2.260599	0.039401	0.034548
39	2.260599	0.039401	0.034548
40	2.261076	0.038924	0.03413
41	2.263462	0.036538	0.032037
42	2.265851	0.034149	0.029943
43	2.265851	0.034149	0.029943
44	2.265077	0.034923	0.030621
45	2.26269	0.03731	0.032714
46	2.264602	0.035398	0.031038
47	2.265077	0.034923	0.030621
48	2.265077	0.034923	0.030621
49	2.268418	0.031582	0.027692
50	2.263828	0.036172	0.031716
51	2.267464	0.032536	0.028528
52	2.264783	0.035217	0.030879
53	2.26926	0.03074	0.026954
54	2.268782	0.031218	0.027373
55	2.266212	0.033788	0.029626
56	2.270033	0.029967	0.026276
57	2.267167	0.032833	0.028789
58	2.271467	0.028533	0.025018
59	2.263532	0.036468	0.031976
60	2.264668	0.035332	0.03098
61	2.267352	0.032648	0.028627
62	2.272304	0.027696	0.024285
63	2.26944	0.03056	0.026796
64	2.264188	0.035812	0.031401
65	2.264188	0.035812	0.031401
66	2.270394	0.029606	0.025959
67	2.266395	0.033605	0.029466
68	2.26753	0.03247	0.02847
69	2.268782	0.031218	0.027373
70	2.267646	0.032354	0.028369
71	2.265623	0.034377	0.030143
72	2.268187	0.031813	0.027894
73	2.271169	0.028831	0.02528
74	2.267054	0.032946	0.028888
75	2.265145	0.034855	0.030562
76	2.266099	0.033901	0.029725
77	2.26992	0.03008	0.026375
78	2.266099	0.033901	0.029725
79	2.265803	0.034197	0.029985
80	2.266757	0.033243	0.029148
81	2.267712	0.032288	0.028311
82	2.269144	0.030856	0.027055
83	2.267054	0.032946	0.028888
84	2.269144	0.030856	0.027055
85	2.265324	0.034676	0.030405
86	2.269144	0.030856	0.027055
87	2.26837	0.03163	0.027734
88	2.266937	0.033063	0.02899
89	2.266757	0.033243	0.029148
90	2.269324	0.030676	0.026897
91	2.269801	0.030199	0.026479
92	2.267236	0.032764	0.028728



Bouwer-Rice Analysis

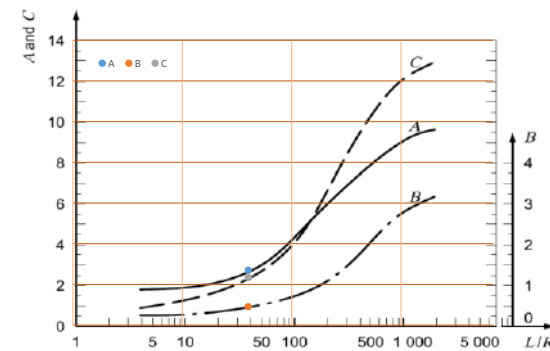


Input parameters

Radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.075
Length of saturated screen (Le on diagram)	L	m	3
Length of saturated screen + solid casing	L_w	m	8.07
Saturated thickness of aquifer	h	m	10
Use effective radius of well pipe? (when water level in screened section)			No
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	370
y-axis H/Ho 1	H_1/H_o		0.03
y-axis H/Ho 2	H_2/H_o		0.021



A	A	2.7
B	B	0.45
C	C	2.35
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H_1	m	0.034214
H2 (from line fitting)	H_2	m	0.02395
Effective radius of well pipe	r_e	m	0.025
L/R	L/R		40
Effective radial distance over which induced head dissipated	Re	m	1.430747

Re fully penetrating

Assume fully penetrating?		No
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	2.948464
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	3.402841
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.948464

Hydraulic conductivity	K	m/s	2.96E-07
		m/d	2.56E-02

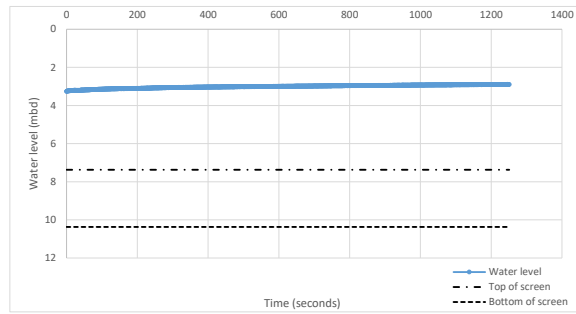
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

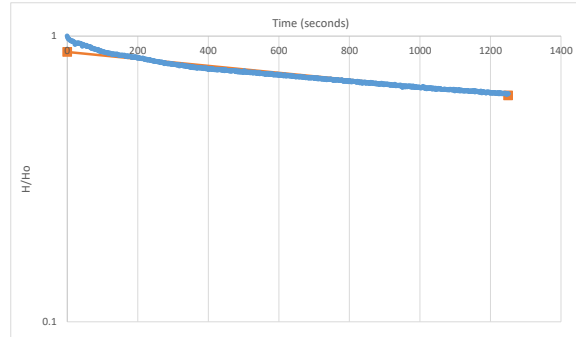
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: CP105D
 Test date: 31/03/2026
 Test number: test 2 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.28 m below datum (mbd)
 Top of screen: 7.37 m below datum (mbd)
 Bottom of screen: 10.37 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	3.260052	-0.98005	1
1	3.250599	-0.9706	0.990355
2	3.244453	-0.96445	0.984083
3	3.239725	-0.95973	0.979259
4	3.234527	-0.95453	0.973955
5	3.237835	-0.95783	0.977331
6	3.233107	-0.95311	0.972507
7	3.2298	-0.9498	0.969132
8	3.228381	-0.94838	0.967684
9	3.222707	-0.94271	0.961895
10	3.226015	-0.94602	0.96527
11	3.223182	-0.94318	0.96238
12	3.222398	-0.9424	0.96158
13	3.218452	-0.93845	0.957553
14	3.21987	-0.93987	0.959
15	3.222233	-0.94223	0.961411
16	3.221289	-0.94129	0.960448
17	3.215141	-0.93514	0.954175
18	3.214669	-0.93467	0.953693
19	3.214196	-0.9342	0.953211
20	3.212304	-0.9323	0.95128
21	3.213415	-0.93342	0.952414
22	3.194972	-0.91497	0.933595
23	3.201119	-0.92112	0.939867
24	3.203483	-0.92348	0.94228
25	3.1997	-0.9197	0.93842
26	3.203794	-0.92379	0.942597
27	3.205377	-0.92538	0.944212
28	3.20443	-0.92443	0.943246
29	3.205377	-0.92538	0.944212
30	3.204903	-0.9249	0.943728
31	3.207741	-0.92774	0.946624
32	3.205377	-0.92538	0.944212
33	3.202538	-0.92254	0.941315
34	3.20585	-0.92585	0.944695
35	3.203483	-0.92348	0.94228
36	3.202538	-0.92254	0.941315
37	3.202376	-0.92238	0.94115
38	3.203483	-0.92348	0.94228
39	3.200173	-0.92017	0.938902
40	3.1997	-0.9197	0.93842
41	3.194972	-0.91497	0.933595
42	3.188823	-0.90882	0.927321
43	3.182202	-0.9022	0.920565
44	3.196863	-0.91686	0.935525
45	3.195134	-0.91513	0.933761
46	3.190716	-0.91072	0.929253
47	3.193082	-0.91308	0.931667
48	3.191189	-0.91119	0.929735
49	3.190243	-0.91024	0.92877
50	3.188351	-0.90835	0.92684
51	3.18788	-0.90788	0.926359
52	3.186933	-0.90693	0.925393
53	3.183619	-0.90362	0.922011
54	3.181256	-0.90126	0.9196
55	3.18946	-0.90946	0.927971
56	3.181256	-0.90126	0.9196
57	3.183148	-0.90315	0.921531
58	3.179364	-0.89936	0.91767
59	3.18284	-0.90284	0.921216
60	3.180949	-0.90095	0.919287
61	3.179364	-0.89936	0.91767
62	3.180949	-0.90095	0.919287
63	3.180949	-0.90095	0.919287
64	3.176216	-0.89622	0.914458
65	3.176999	-0.897	0.915257
66	3.177162	-0.89716	0.915423
67	3.170066	-0.89007	0.908182
68	3.176216	-0.89622	0.914458
69	3.16723	-0.88723	0.905289
70	3.165178	-0.88518	0.903195
71	3.168649	-0.88865	0.906737
72	3.167067	-0.88707	0.905122
73	3.168176	-0.88818	0.906254
74	3.163917	-0.88392	0.901908
75	3.163445	-0.88345	0.901427
76	3.162973	-0.88297	0.900945
77	3.163445	-0.88345	0.901427
78	3.162024	-0.88202	0.899977
79	3.163917	-0.88392	0.901908
80	3.157769	-0.87777	0.895635
81	3.161556	-0.88156	0.899499
82	3.159187	-0.87919	0.897082
83	3.160606	-0.88061	0.89853
84	3.155403	-0.8754	0.893221
85	3.157133	-0.87713	0.894986
86	3.154931	-0.87493	0.892739
87	3.156349	-0.87635	0.894186
88	3.15966	-0.87966	0.897565
89	3.150198	-0.8702	0.88791
90	3.151782	-0.87178	0.889526
91	3.148781	-0.86878	0.886464
92	3.146888	-0.86689	0.884533



Bouwer-Rice Analysis

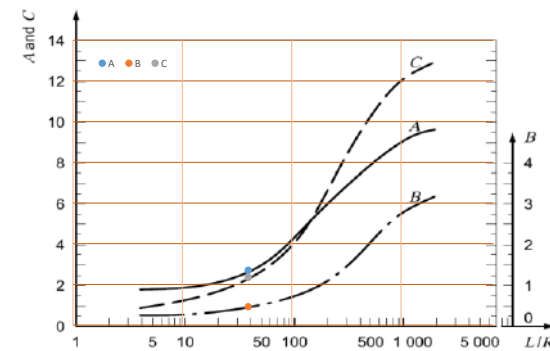


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		No
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

Symbol	Units	Value
x-axis time 1	t_1	s
x-axis time 2	t_2	s
y-axis H/Ho 1	H_1/H_o	0.88
y-axis H/Ho 2	H_2/H_o	0.62



A	A	2.7
B	B	0.45
C	C	2.35
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H_1	m	-0.86245
H2 (from line fitting)	H_2	m	-0.60763
Effective radius of well pipe	r_e	m	0.025
L/R	L/R		40
Effective radial distance over which induced head dissipated	Re	m	1.433756

Re fully penetrating

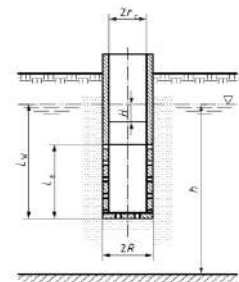
Assume fully penetrating?		No
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	2.950565
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	3.404281
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.950565

Hydraulic conductivity	K	m/s	8.61E-08
		m/d	7.44E-03

Equations used

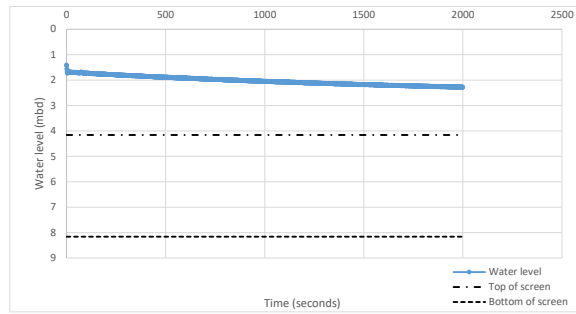
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

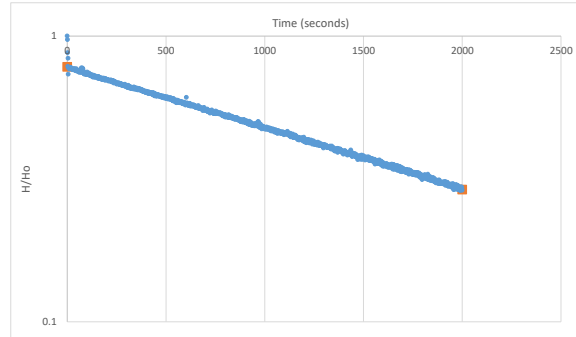


Well name: CP104D
 Test date: 31/03/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.64 m below datum (mbd)
 Top of screen: 4.16 m below datum (mbd)
 Bottom of screen: 8.16 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.405426	1.234574	1
1	1.44093	1.19907	0.971242
2	1.56026	1.07974	0.874585
3	1.673668	0.966332	0.782725
4	1.608164	1.031836	0.835783
5	1.732093	0.907907	0.735401
6	1.681687	0.958313	0.77623
7	1.682831	0.957169	0.775303
8	1.686064	0.953936	0.772684
9	1.685122	0.954878	0.773447
10	1.689706	0.950294	0.769734
11	1.694288	0.945712	0.766023
12	1.685122	0.954878	0.773447
13	1.687413	0.952587	0.771592
14	1.68856	0.95144	0.770663
15	1.687413	0.952587	0.771592
16	1.690852	0.949148	0.768806
17	1.680539	0.959461	0.77716
18	1.687413	0.952587	0.771592
19	1.690852	0.949148	0.768806
20	1.694288	0.945712	0.766023
21	1.687413	0.952587	0.771592
22	1.690852	0.949148	0.768806
23	1.690852	0.949148	0.768806
24	1.693143	0.946857	0.76695
25	1.689706	0.950294	0.769734
26	1.695637	0.944363	0.76493
27	1.694492	0.945508	0.765858
28	1.697724	0.942276	0.76324
29	1.696579	0.943421	0.764167
30	1.69887	0.94113	0.762312
31	1.700222	0.939778	0.761216
32	1.695431	0.944569	0.765097
33	1.69887	0.94113	0.762312
34	1.696579	0.943421	0.764167
35	1.695431	0.944569	0.765097
36	1.693143	0.946857	0.76695
37	1.691996	0.948004	0.767879
38	1.701367	0.938633	0.760289
39	1.695431	0.944569	0.765097
40	1.704598	0.935402	0.757672
41	1.700222	0.939778	0.761216
42	1.701367	0.938633	0.760289
43	1.703451	0.936549	0.758601
44	1.705743	0.934257	0.756744
45	1.69887	0.94113	0.762312
46	1.6922	0.9478	0.767714
47	1.703656	0.936344	0.758435
48	1.709385	0.930615	0.753794
49	1.70689	0.93311	0.755815
50	1.705949	0.934051	0.756578
51	1.709182	0.930818	0.753959
52	1.707093	0.932907	0.755651
53	1.705949	0.934051	0.756578
54	1.707093	0.932907	0.755651
55	1.708035	0.931965	0.754888
56	1.709385	0.930615	0.753794
57	1.708238	0.931762	0.754723
58	1.715114	0.924886	0.749154
59	1.713968	0.926032	0.750082
60	1.71626	0.92374	0.748226
61	1.71626	0.92374	0.748226
62	1.711675	0.928325	0.75194
63	1.707093	0.932907	0.755651
64	1.709385	0.930615	0.753794
65	1.715114	0.924886	0.749154
66	1.713968	0.926032	0.750082
67	1.713968	0.926032	0.750082
68	1.713968	0.926032	0.750082
69	1.719695	0.920305	0.745443
70	1.6922	0.9478	0.767714
71	1.696784	0.943216	0.764001
72	1.685327	0.954673	0.773281
73	1.693348	0.946652	0.766784
74	1.696784	0.943216	0.764001
75	1.694492	0.945508	0.765858
76	1.695637	0.944363	0.76493
77	1.686474	0.953526	0.772352
78	1.692405	0.947595	0.767548
79	1.691057	0.948943	0.76864
80	1.697929	0.942071	0.763074
81	1.71855	0.92145	0.746371
82	1.71188	0.92812	0.751773
83	1.725424	0.914576	0.740803
84	1.726569	0.913431	0.739875
85	1.72886	0.91114	0.73802
86	1.721987	0.918013	0.743587
87	1.7325	0.9075	0.735071
88	1.724277	0.915723	0.741732
89	1.725627	0.914373	0.740638
90	1.72886	0.91114	0.73802
91	1.723133	0.916867	0.742659
92	1.730209	0.909791	0.736927



Bouwer-Rice Analysis

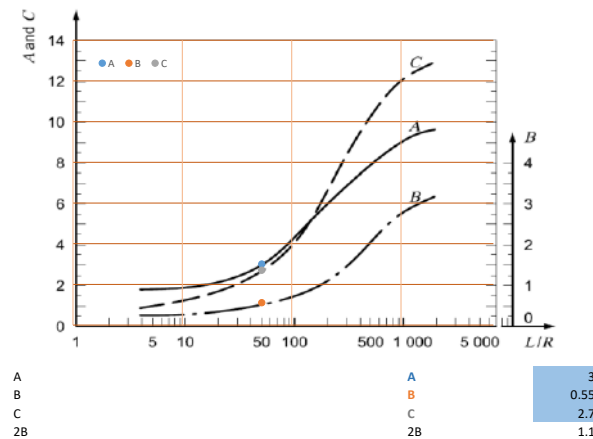


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		No
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	2000
y-axis H_1/H_o	H_1/H_o		0.78
y-axis H_2/H_o	H_2/H_o		0.29



Calculated parameters

H_1 (from line fitting)	H_1	m	0.962968
H_2 (from line fitting)	H_2	m	0.358026
Effective radius of well pipe	r_e	m	0.025
L/R	L/R		53.33333
Effective radial distance over which induced head dissipated	Re	m	1.958477

Re fully penetrating

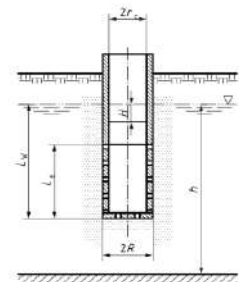
Assume fully penetrating?		Yes
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	#NUM!
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	3.262434
$\ln(Re/R)$ (used)	$\ln(Re/R)$	3.262434

Hydraulic conductivity	K	m/s	1.26E-07
		m/d	1.09E-02

Equations used

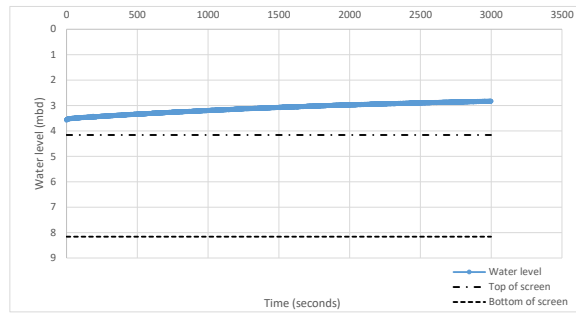
$$K = \frac{r_e^2 \cdot \ln(R/r_e)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

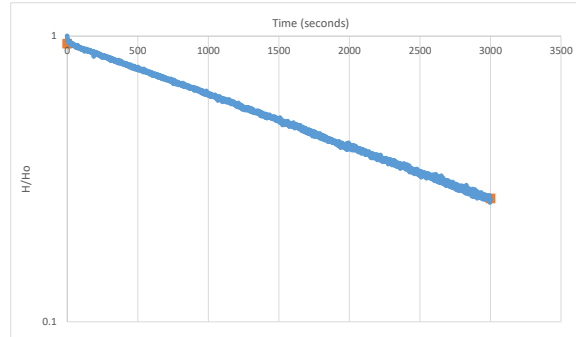


Well name: CP104D
 Test date: 31/03/2026
 Test number: test 1 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.56 m below datum (mbd)
 Top of screen: 4.16 m below datum (mbd)
 Bottom of screen: 8.16 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	3.577669	-1.01767	1
1	3.552423	-0.99242	0.975192
2	3.556832	-0.99683	0.979525
3	3.547835	-0.98783	0.970684
4	3.540399	-0.9804	0.963377
5	3.542279	-0.98228	0.965224
6	3.544393	-0.98439	0.967302
7	3.545175	-0.98517	0.96807
8	3.534845	-0.97484	0.95792
9	3.530805	-0.97081	0.95395
10	3.536542	-0.97654	0.959587
11	3.52718	-0.96718	0.950388
12	3.532733	-0.97273	0.955844
13	3.526813	-0.96681	0.950027
14	3.520112	-0.96011	0.943442
15	3.526997	-0.967	0.950208
16	3.533882	-0.97388	0.956973
17	3.524519	-0.96452	0.947773
18	3.521075	-0.96108	0.944389
19	3.518966	-0.95897	0.942316
20	3.521443	-0.96144	0.94475
21	3.521443	-0.96144	0.94475
22	3.517816	-0.95782	0.941186
23	3.514189	-0.95419	0.937622
24	3.524519	-0.96452	0.947773
25	3.515706	-0.95571	0.939113
26	3.520294	-0.96029	0.943621
27	3.515706	-0.95571	0.939113
28	3.514741	-0.95474	0.938165
29	3.514007	-0.95401	0.937443
30	3.509602	-0.9496	0.933115
31	3.514558	-0.95456	0.937985
32	3.512445	-0.95245	0.935908
33	3.511895	-0.9519	0.935368
34	3.514558	-0.95456	0.937985
35	3.520893	-0.96089	0.94421
36	3.507857	-0.94786	0.9314
37	3.514741	-0.95474	0.938165
38	3.504826	-0.94483	0.928422
39	3.5029	-0.9429	0.926529
40	3.504049	-0.94405	0.927658
41	3.506155	-0.94616	0.929728
42	3.510932	-0.95093	0.934422
43	3.511895	-0.9519	0.935368
44	3.499273	-0.93927	0.922965
45	3.505379	-0.94538	0.928965
46	3.506524	-0.94652	0.93009
47	3.499455	-0.93946	0.923144
48	3.509417	-0.94942	0.932933
49	3.506155	-0.94616	0.929728
50	3.504414	-0.94441	0.928017
51	3.501386	-0.94139	0.925041
52	3.506342	-0.94634	0.929911
53	3.501568	-0.94157	0.92522
54	3.501935	-0.94194	0.925581
55	3.502119	-0.94212	0.925762
56	3.500423	-0.94042	0.924095
57	3.496199	-0.9362	0.919945
58	3.505561	-0.94556	0.929144
59	3.499823	-0.93982	0.923506
60	3.496199	-0.9362	0.919945
61	3.498128	-0.93813	0.92184
62	3.493539	-0.93354	0.917331
63	3.487799	-0.9278	0.91169
64	3.50079	-0.94079	0.924456
65	3.493904	-0.9339	0.917689
66	3.493539	-0.93354	0.917331
67	3.495647	-0.93565	0.919402
68	3.493721	-0.93372	0.91751
69	3.501386	-0.94139	0.925041
70	3.485871	-0.92587	0.909796
71	3.499641	-0.93964	0.923327
72	3.484543	-0.92454	0.908491
73	3.503865	-0.94387	0.927477
74	3.489132	-0.92913	0.913
75	3.495647	-0.93565	0.919402
76	3.487982	-0.92798	0.91187
77	3.491609	-0.93161	0.915434
78	3.488764	-0.92876	0.912639
79	3.491426	-0.93143	0.915254
80	3.489132	-0.92913	0.913
81	3.489132	-0.92913	0.913
82	3.486836	-0.92684	0.910744
83	3.492756	-0.93276	0.916561
84	3.480731	-0.92073	0.904745
85	3.488947	-0.92895	0.912818
86	3.484725	-0.92473	0.90867
87	3.485506	-0.92551	0.909437
88	3.484357	-0.92436	0.908308
89	3.487614	-0.92761	0.911509
90	3.488166	-0.92817	0.912051
91	3.482063	-0.92206	0.906054
92	3.487982	-0.92798	0.91187



Bouwer-Rice Analysis

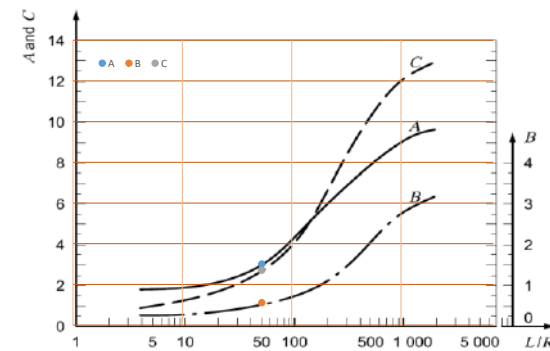


Input parameters

Radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.075
Length of saturated screen (Le on diagram)	L	m	4
Length of saturated screen + solid casing	L_w	m	5.6
Saturated thickness of aquifer	h	m	5.6
Use effective radius of well pipe? (when water level in screened section)			No
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	3000
y-axis H/Ho 1	H_1/H_o		0.94
y-axis H/Ho 2	H_2/H_o		0.27



A	A	3
B	B	0.55
C	C	2.7
2B	2B	1.1

Calculated parameters

H1 (from line fitting)	H_1	m	-0.95661
H2 (from line fitting)	H_2	m	-0.27477
Effective radius of well pipe	r_e	m	0.025
L/R	L/R		53.33333
Effective radial distance over which induced head dissipated	Re	m	1.976403

Re fully penetrating

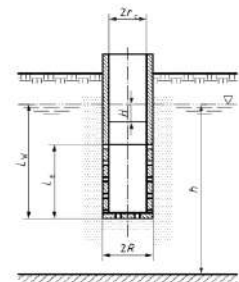
Assume fully penetrating?		Yes
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	#NUM!
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	3.271546
$\ln(Re/R)$ (used)	$\ln(Re/R)$	3.271546

Hydraulic conductivity	K	m/s	1.06E-07
		m/d	9.18E-03

Equations used

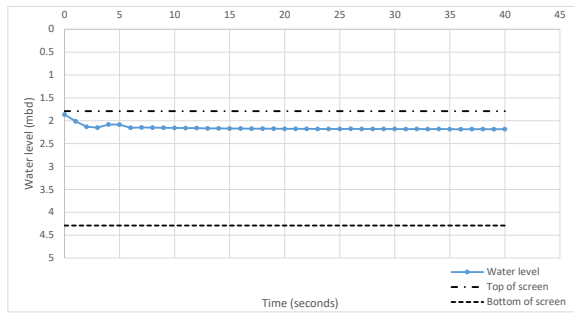
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

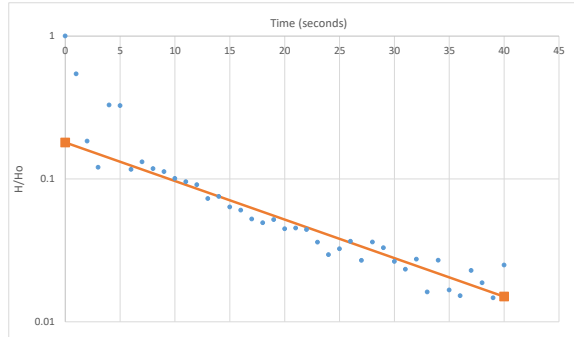


Well name: CP1075
 Test date: 31/03/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.19 m below datum (mbd)
 Top of screen: 1.79 m below datum (mbd)
 Bottom of screen: 4.29 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.862789	0.327211	1
1	2.012366	0.177634	0.542873
2	2.129789	0.060211	0.184013
3	2.150589	0.039411	0.120445
4	2.082304	0.107696	0.329133
5	2.083301	0.106699	0.326086
6	2.151894	0.038106	0.116457
7	2.146921	0.043079	0.131655
8	2.151431	0.038569	0.117872
9	2.153219	0.036781	0.112408
10	2.157061	0.032939	0.100666
11	2.158732	0.031268	0.095559
12	2.16021	0.02979	0.091042
13	2.166203	0.023797	0.072727
14	2.165376	0.024624	0.075254
15	2.169197	0.020803	0.063577
16	2.170216	0.019784	0.060463
17	2.172885	0.017115	0.052306
18	2.173866	0.016134	0.049308
19	2.173037	0.016963	0.051841
20	2.175363	0.014637	0.044733
21	2.17519	0.01481	0.045261
22	2.175555	0.014445	0.044146
23	2.178203	0.011797	0.036053
24	2.180354	0.009646	0.029479
25	2.179393	0.010607	0.032416
26	2.178031	0.011969	0.036579
27	2.181201	0.008799	0.026891
28	2.178186	0.011814	0.036105
29	2.179219	0.010781	0.032948
30	2.181354	0.008646	0.026423
31	2.182387	0.007613	0.023266
32	2.181043	0.008957	0.027374
33	2.184713	0.005287	0.016158
34	2.181182	0.008818	0.026949
35	2.18454	0.00546	0.016686
36	2.185022	0.004978	0.015213
37	2.182522	0.007478	0.022854
38	2.183867	0.006133	0.018743
39	2.185196	0.004804	0.014682
40	2.181853	0.008147	0.024898



Bouwer-Rice Analysis

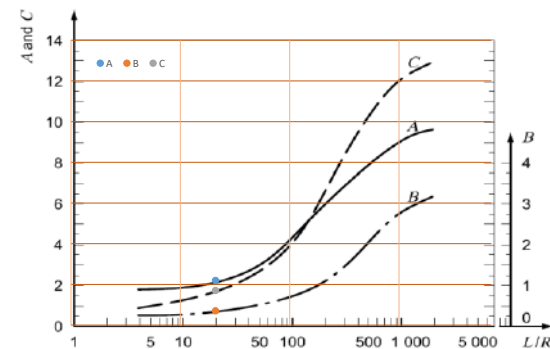
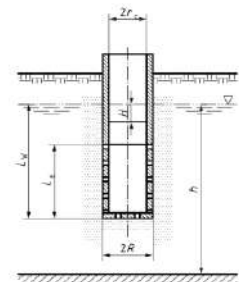


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	40
y-axis H/H_o 1	H_1/H_o		0.18
y-axis H/H_o 2	H_2/H_o		0.015



A	A	2.2
B	B	0.35
C	C	1.7
2B	2B	0.7

Calculated parameters

H1 (from line fitting)	H_1	m	0.058898
H2 (from line fitting)	H_2	m	0.004908
Effective radius of well pipe	r_e	m	0.054486
L/R	L/R		21
Effective radial distance over which induced head dissipated	Re	m	0.959391

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	#NUM!
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	2.261129
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.261129

Hydraulic conductivity	K	m/s	9.93E-05
		m/d	8.58E+00

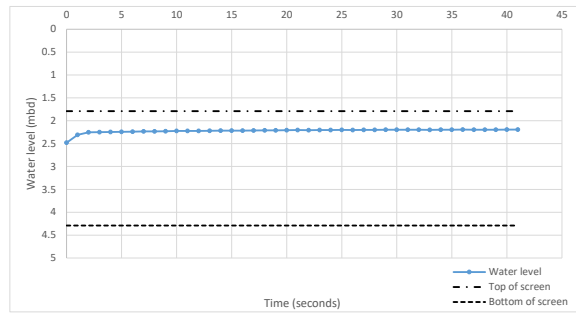
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

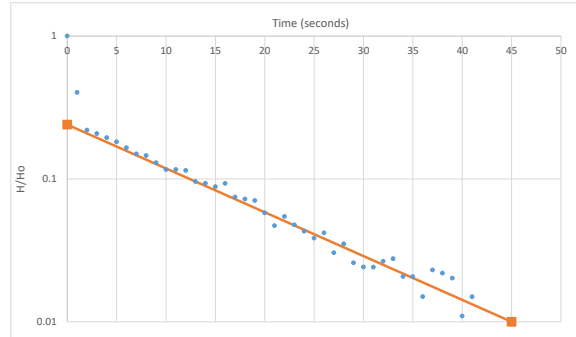
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: CP1075
 Test date: 31/03/2026
 Test number: test 1 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.19 m below datum (mbd)
 Top of screen: 1.79 m below datum (mbd)
 Bottom of screen: 4.29 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	2.480609	-0.29061	1
1	2.30716	-0.11716	0.403153
2	2.253743	-0.06374	0.219343
3	2.250266	-0.06027	0.207378
4	2.246444	-0.05644	0.194227
5	2.242779	-0.05278	0.181615
6	2.237959	-0.04796	0.165029
7	2.233465	-0.04347	0.149565
8	2.232296	-0.0423	0.145543
9	2.227645	-0.03765	0.129538
10	2.223811	-0.03381	0.116345
11	2.223811	-0.03381	0.116345
12	2.223328	-0.03333	0.114683
13	2.217819	-0.02782	0.095727
14	2.216992	-0.02699	0.092881
15	2.215651	-0.02565	0.088266
16	2.217008	-0.02701	0.092936
17	2.211654	-0.02165	0.074512
18	2.210986	-0.02099	0.072214
19	2.210502	-0.0205	0.070548
20	2.206819	-0.01682	0.057875
21	2.20367	-0.01367	0.047039
22	2.205854	-0.01585	0.054554
23	2.203841	-0.01384	0.047628
24	2.202499	-0.0125	0.04301
25	2.201174	-0.01117	0.03845
26	2.202173	-0.01217	0.041888
27	2.198848	-0.00885	0.030446
28	2.200191	-0.01019	0.035068
29	2.197508	-0.00751	0.025835
30	2.197022	-0.00702	0.024163
31	2.197006	-0.00701	0.024108
32	2.197696	-0.0077	0.026482
33	2.198023	-0.00802	0.027608
34	2.196026	-0.00603	0.020736
35	2.196008	-0.00601	0.020674
36	2.194356	-0.00436	0.014989
37	2.19668	-0.00668	0.022986
38	2.196352	-0.00635	0.021858
39	2.195869	-0.00587	0.020196
40	2.193186	-0.00319	0.010963
41	2.194339	-0.00434	0.014931



Bouwer-Rice Analysis

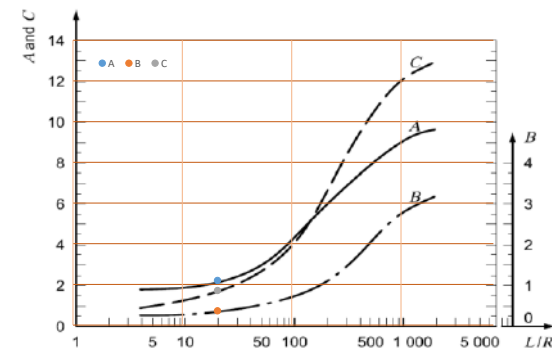
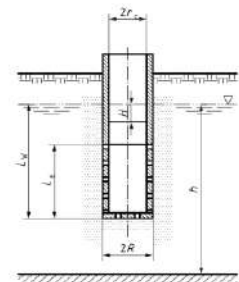


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	45
y-axis H/H_o 1	H_1/H_o		0.24
y-axis H/H_o 2	H_2/H_o		0.01



A	A	2.2
B	B	0.35
C	C	1.7
2B	2B	0.7

Calculated parameters

H1 (from line fitting)	H1	m	-0.06975
H2 (from line fitting)	H2	m	-0.00291
Effective radius of well pipe	r_e	m	0.054486
L/R	L/R		21
Effective radial distance over which induced head dissipated	Re	m	0.959391

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	#NUM!
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	2.261129
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.261129

Hydraulic conductivity	K	m/s	1.13E-04
		m/d	9.75E+00

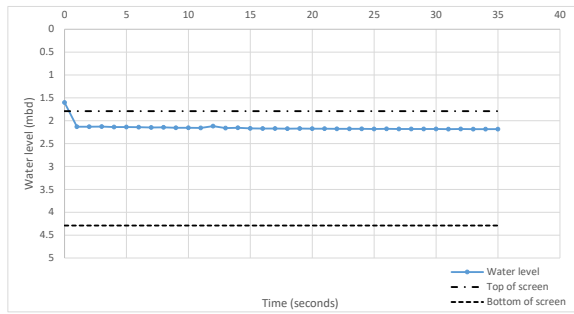
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

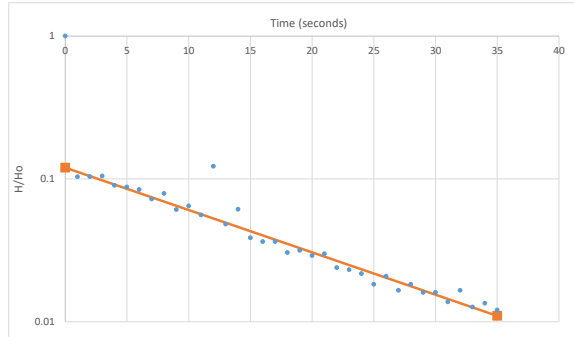
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: CP1075
 Test date: 31/03/2026
 Test number: test 2 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.19 m below datum (mbd)
 Top of screen: 1.79 m below datum (mbd)
 Bottom of screen: 4.29 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.601058	0.588942	1
1	2.129135	0.060865	0.103346
2	2.128965	0.061035	0.103635
3	2.128294	0.061706	0.104774
4	2.136935	0.053065	0.090102
5	2.138278	0.051722	0.087822
6	2.14043	0.04957	0.084168
7	2.147438	0.042562	0.072269
8	2.143444	0.046556	0.07905
9	2.154084	0.035916	0.060984
10	2.151915	0.038085	0.064667
11	2.157099	0.032901	0.055865
12	2.117806	0.072194	0.122583
13	2.161576	0.028424	0.048263
14	2.153929	0.036071	0.061247
15	2.167237	0.022763	0.038651
16	2.168563	0.021437	0.036399
17	2.168563	0.021437	0.036399
18	2.172061	0.017939	0.03046
19	2.171403	0.018597	0.031577
20	2.172902	0.017098	0.029032
21	2.172385	0.017615	0.02991
22	2.175898	0.014102	0.023945
23	2.176397	0.013603	0.023097
24	2.177224	0.012776	0.021693
25	2.179223	0.010777	0.018299
26	2.177723	0.012277	0.020846
27	2.180219	0.009781	0.016608
28	2.179223	0.010777	0.018299
29	2.180562	0.009438	0.016025
30	2.180548	0.009452	0.016049
31	2.18189	0.00811	0.01377
32	2.180219	0.009781	0.016608
33	2.182544	0.007456	0.01266
34	2.182062	0.007938	0.013478
35	2.182888	0.007112	0.012076



Bouwer-Rice Analysis

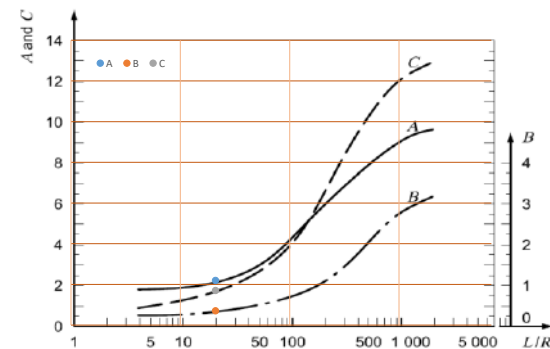


Input parameters

radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.1
Length of saturated screen (Le on diagram)	L	m	2.1
Length of saturated screen + solid casing	L_w	m	2.1
Saturated thickness of aquifer	h	m	2.1
Use effective radius of well pipe? (when water level in screened section)		Yes	
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t1	s	0
x-axis time 2	t2	s	35
y-axis H/Ho 1	H1/Ho		0.12
y-axis H/Ho 2	H2/Ho		0.011



A	A	2.2
B	B	0.35
C	C	1.7
2B	2B	0.7

Calculated parameters

H1 (from line fitting)	H1	m	0.070673
H2 (from line fitting)	H2	m	0.006478
Effective radius of well pipe	r_e	m	0.054486
L/R	L/R		21
Effective radial distance over which induced head dissipated	Re	m	0.959391

Re fully penetrating

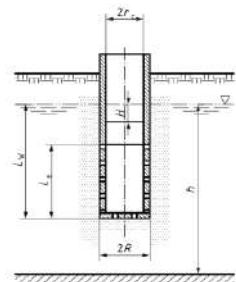
Assume fully penetrating?		Yes
In (Re/R) (partially penetrating)	In (Re/R)	#NUM!
In (Re/R) (fully penetrating)	In (Re/R)	2.261129
In (Re/R) (used)	In (Re/R)	2.261129

Hydraulic conductivity	K	m/s	1.09E-04
		m/d	9.43E+00

Equations used

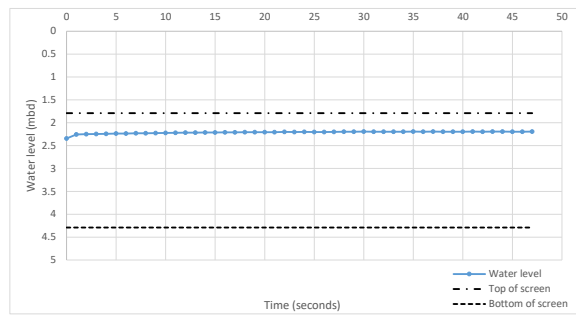
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

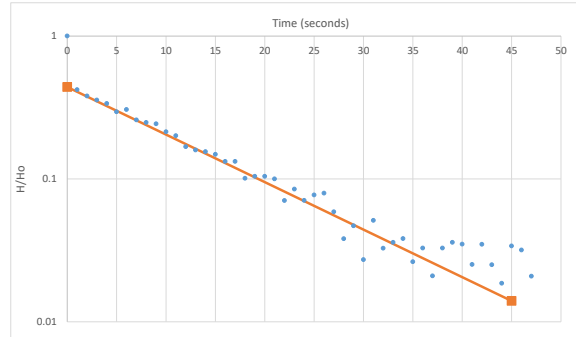


Well name: CP1075
 Test date: 31/03/2026
 Test number: test 2 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 2.19 m below datum (mbd)
 Top of screen: 1.79 m below datum (mbd)
 Bottom of screen: 4.29 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	2.34376	-0.15376	1
1	2.254758	-0.06476	0.421163
2	2.248439	-0.05844	0.380066
3	2.244791	-0.05479	0.356341
4	2.241807	-0.05181	0.336934
5	2.23529	-0.04529	0.29455
6	2.236973	-0.04697	0.305496
7	2.2298	-0.0398	0.258845
8	2.228146	-0.03815	0.248088
9	2.227331	-0.03733	0.242787
10	2.22826	-0.03283	0.213489
11	2.220829	-0.03083	0.200501
12	2.215823	-0.02582	0.167944
13	2.214496	-0.0245	0.159313
14	2.213841	-0.02384	0.155053
15	2.212844	-0.02284	0.148569
16	2.210349	-0.02035	0.132343
17	2.210349	-0.02035	0.132343
18	2.205511	-0.01551	0.100878
19	2.20601	-0.01601	0.104123
20	2.20604	-0.01604	0.104318
21	2.205369	-0.01537	0.099954
22	2.200846	-0.01085	0.070539
23	2.20303	-0.01303	0.084742
24	2.200861	-0.01086	0.070636
25	2.20186	-0.01186	0.077133
26	2.202203	-0.0122	0.079364
27	2.199035	-0.00903	0.05876
28	2.195854	-0.00585	0.038072
29	2.197224	-0.00722	0.046982
30	2.194183	-0.00418	0.027205
31	2.197866	-0.00787	0.051158
32	2.195027	-0.00503	0.032694
33	2.195525	-0.00552	0.035933
34	2.195869	-0.00587	0.03817
35	2.194044	-0.00404	0.026301
36	2.195041	-0.00504	0.032785
37	2.193219	-0.00322	0.020935
38	2.195041	-0.00504	0.032785
39	2.195525	-0.00552	0.035933
40	2.19537	-0.00537	0.034925
41	2.193873	-0.00387	0.025189
42	2.195353	-0.00535	0.034814
43	2.193856	-0.00386	0.025078
44	2.192859	-0.00286	0.018594
45	2.195214	-0.00521	0.03391
46	2.194886	-0.00489	0.031777
47	2.193202	-0.0032	0.020825



Bouwer-Rice Analysis

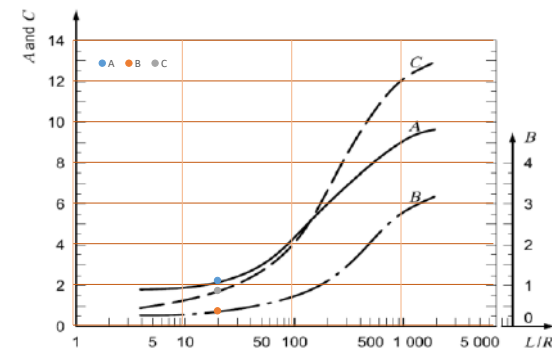


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	45
y-axis H/H_o 1	H_1/H_o		0.44
y-axis H/H_o 2	H_2/H_o		0.014



A	A	2.2
B	B	0.35
C	C	1.7
2B	2B	0.7

Calculated parameters

H1 (from line fitting)	H_1	m	-0.06765
H2 (from line fitting)	H_2	m	-0.00215
Effective radius of well pipe	r_e	m	0.054486
L/R	L/R		21
Effective radial distance over which induced head dissipated	Re	m	0.959391

Re fully penetrating

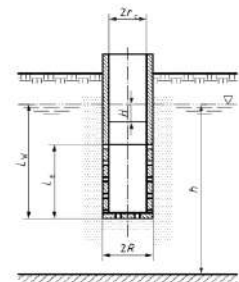
Assume fully penetrating?		Yes
$\ln(Re/R)$ (partially penetrating)	$\ln(Re/R)$	#NUM!
$\ln(Re/R)$ (fully penetrating)	$\ln(Re/R)$	2.261129
$\ln(Re/R)$ (used)	$\ln(Re/R)$	2.261129

Hydraulic conductivity	K	m/s	1.22E-04
		m/d	1.06E+01

Equations used

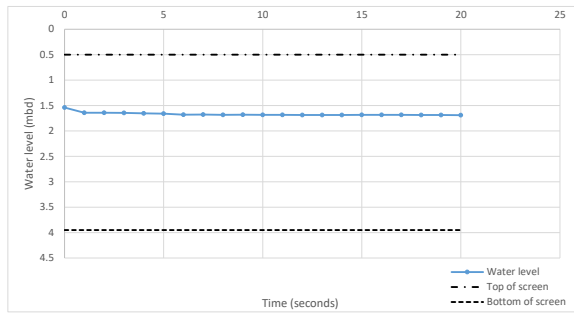
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

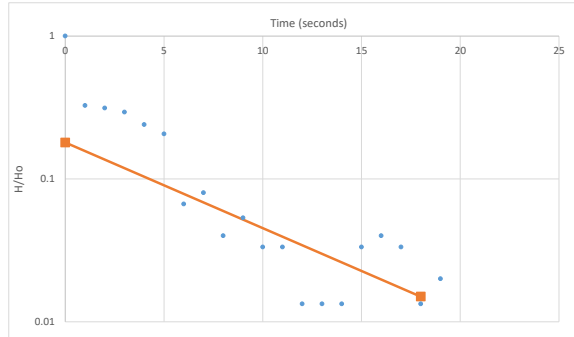


Well name: WS111
 Test date: 30/03/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.69 m below datum (mbd)
 Top of screen: 0.5 m below datum (mbd)
 Bottom of screen: 3.95 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.54	0.15	1
1	1.641	0.049	0.326667
2	1.643	0.047	0.313333
3	1.646	0.044	0.293333
4	1.654	0.036	0.24
5	1.659	0.031	0.206667
6	1.68	0.01	0.066667
7	1.678	0.012	0.08
8	1.684	0.006	0.04
9	1.682	0.008	0.053333
10	1.685	0.005	0.033333
11	1.685	0.005	0.033333
12	1.688	0.002	0.013333
13	1.688	0.002	0.013333
14	1.688	0.002	0.013333
15	1.685	0.005	0.033333
16	1.684	0.006	0.04
17	1.685	0.005	0.033333
18	1.688	0.002	0.013333
19	1.687	0.003	0.02
20	1.69	0	0



Bouwer-Rice Analysis

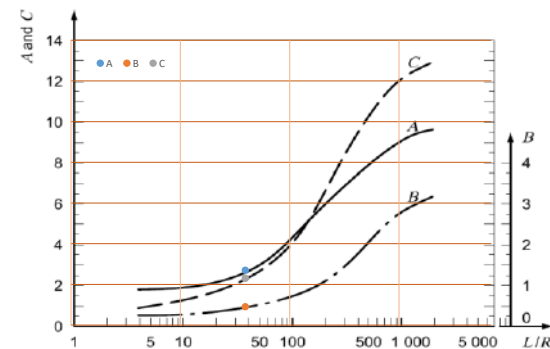
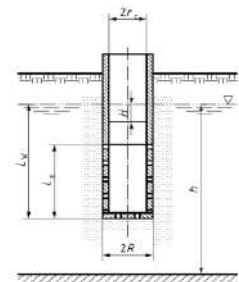


Input parameters

radius of well pipe	r_c	m	0.025
Borehole radius in screened section	R	m	0.0575
Length of saturated screen (Le on diagram)	L	m	2.26
Length of saturated screen + solid casing	L_w	m	2.26
Saturated thickness of aquifer	h	m	2.26
Use effective radius of well pipe? (when water level in screened section)		Yes	
Porosity of gravel pack	n		0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t1	s	0
x-axis time 2	t2	s	18
y-axis H/Ho 1	H1/Ho		0.18
y-axis H/Ho 2	H2/Ho		0.015



A	A	2.7
B	B	0.45
C	C	2.3
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	0.027
H2 (from line fitting)	H2	m	0.00225
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		39.30435
Effective radial distance over which induced head dissipated	Re	m	0.938252

Re fully penetrating

Assume fully penetrating?		Yes
ln (Re/R) (partially penetrating)	ln (Re/R)	#NUM!
ln (Re/R) (fully penetrating)	ln (Re/R)	2.792234
ln (Re/R) (used)	ln (Re/R)	2.792234

Hydraulic conductivity	K	m/s	1.10E-04
		m/d	9.54E+00

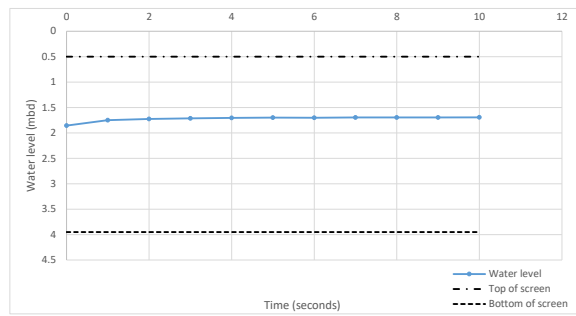
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

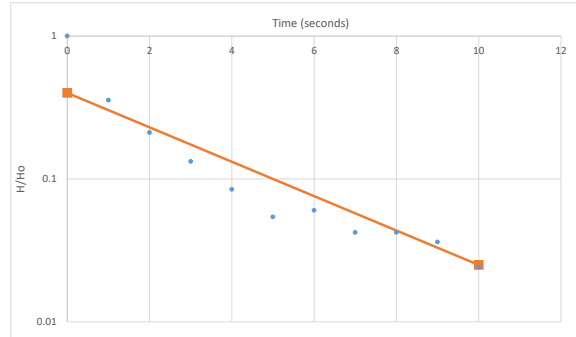
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS111
 Test date: 30/03/2026
 Test number: test 1 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.69 m below datum (mbd)
 Top of screen: 0.5 m below datum (mbd)
 Bottom of screen: 3.95 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.856	-0.166	1
1	1.749	-0.059	0.355422
2	1.725	-0.035	0.210843
3	1.712	-0.022	0.13253
4	1.704	-0.014	0.084337
5	1.699	-0.009	0.054217
6	1.7	-0.01	0.060241
7	1.697	-0.007	0.042169
8	1.697	-0.007	0.042169
9	1.696	-0.006	0.036145
10	1.694	-0.004	0.024096



Bouwer-Rice Analysis

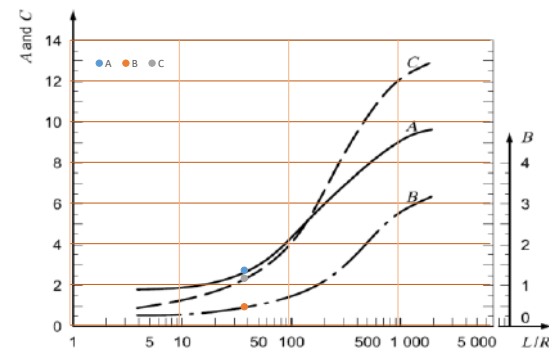
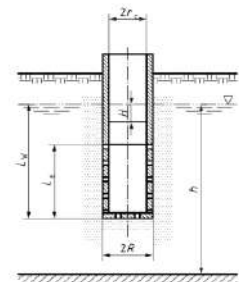


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	10
y-axis H/H_o 1	H_1/H_o		0.4
y-axis H/H_o 2	H_2/H_o		0.025



A	A	2.7
B	B	0.45
C	C	2.3
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H_1	m	-0.0664
H2 (from line fitting)	H_2	m	-0.00415
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		39.30435
Effective radial distance over which induced head dissipated	R_e	m	0.938252

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.792234
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.792234

Hydraulic conductivity	K	m/s	2.22E-04
		m/d	1.92E+01

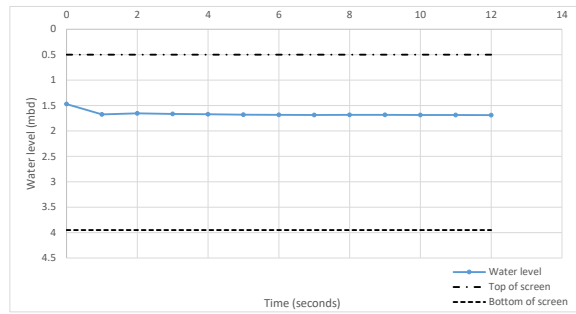
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

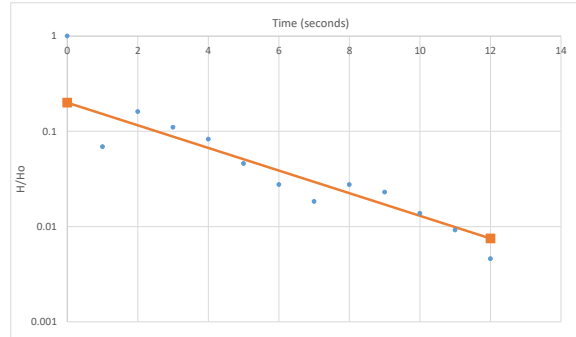
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS111
 Test date: 30/03/2026
 Test number: test 2 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.69 m below datum (mbd)
 Top of screen: 0.5 m below datum (mbd)
 Bottom of screen: 3.95 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.472	0.218	1
1	1.675	0.015	0.068807
2	1.655	0.035	0.16055
3	1.666	0.024	0.110092
4	1.672	0.018	0.082569
5	1.68	0.01	0.045872
6	1.684	0.006	0.027523
7	1.686	0.004	0.018349
8	1.684	0.006	0.027523
9	1.685	0.005	0.022936
10	1.687	0.003	0.013761
11	1.688	0.002	0.009174
12	1.689	0.001	0.004587



Bouwer-Rice Analysis

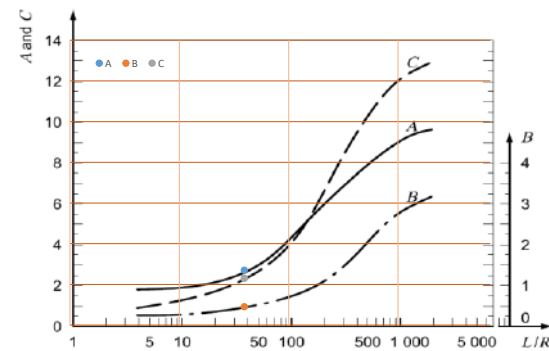
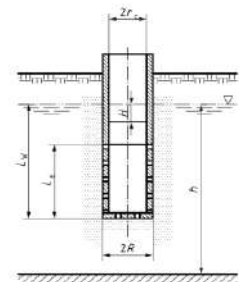


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t1	s	0
x-axis time 2	t2	s	12
y-axis H/Ho 1	H1/Ho		0.2
y-axis H/Ho 2	H2/Ho		0.0075



A	A	2.7
B	B	0.45
C	C	2.3
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	0.0436
H2 (from line fitting)	H2	m	0.001635
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		39.30435
Effective radial distance over which induced head dissipated	Re	m	0.938252

Re fully penetrating

Assume fully penetrating?		Yes
ln (Re/R) (partially penetrating)	ln (Re/R)	#NUM!
ln (Re/R) (fully penetrating)	ln (Re/R)	2.792234
ln (Re/R) (used)	ln (Re/R)	2.792234

Hydraulic conductivity	K	m/s	2.19E-04
		m/d	1.89E+01

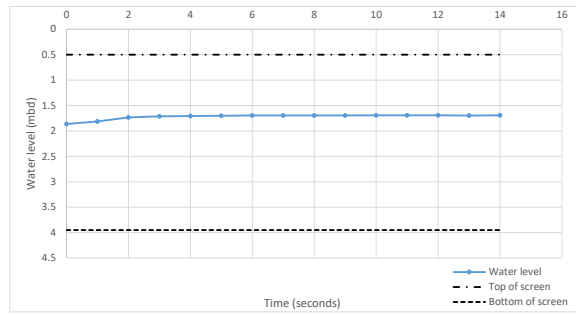
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

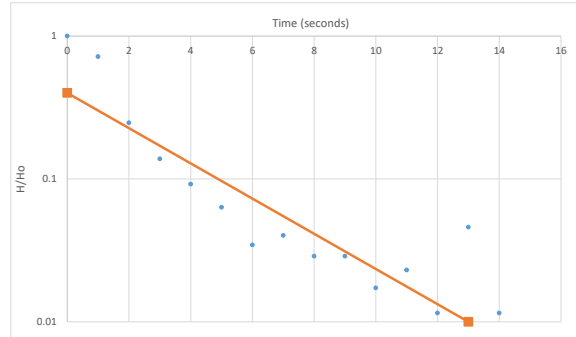
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS111
 Test date: 30/03/2026
 Test number: test 2 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.69 m below datum (mbd)
 Top of screen: 0.5 m below datum (mbd)
 Bottom of screen: 3.95 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.864	-0.174	1
1	1.815	-0.125	0.718391
2	1.733	-0.043	0.247126
3	1.714	-0.024	0.137931
4	1.706	-0.016	0.091954
5	1.701	-0.011	0.063218
6	1.696	-0.006	0.034483
7	1.697	-0.007	0.04023
8	1.695	-0.005	0.028736
9	1.695	-0.005	0.028736
10	1.693	-0.003	0.017241
11	1.694	-0.004	0.022989
12	1.692	-0.002	0.011494
13	1.698	-0.008	0.045977
14	1.692	-0.002	0.011494



Bouwer-Rice Analysis

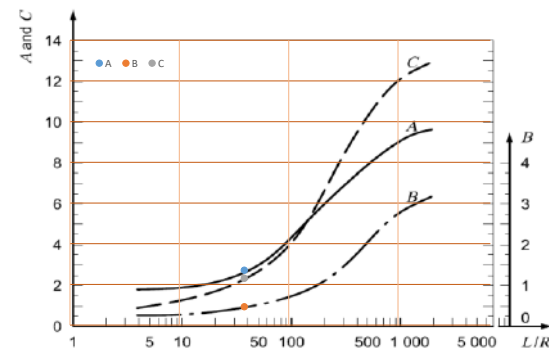
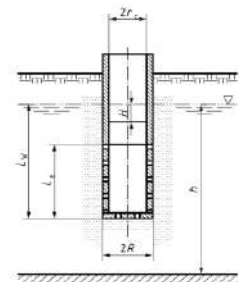


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	13
y-axis H_1/H_o	H_1/H_o		0.4
y-axis H_2/H_o	H_2/H_o		0.01



A	A	2.7
B	B	0.45
C	C	2.3
2B	2B	0.9

Calculated parameters

H_1 (from line fitting)	H_1	m	-0.0696
H_2 (from line fitting)	H_2	m	-0.00174
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		39.30435
Effective radial distance over which induced head dissipated	R_e	m	0.938252

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.792234
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.792234

Hydraulic conductivity	K	m/s	2.27E-04
		m/d	1.96E+01

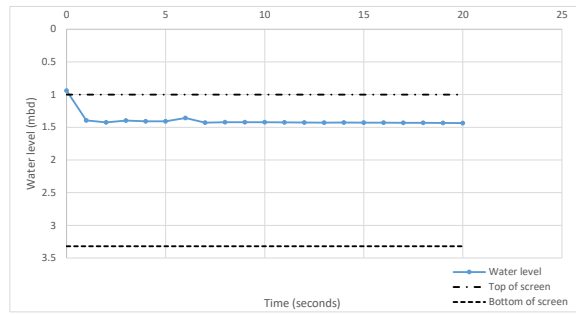
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

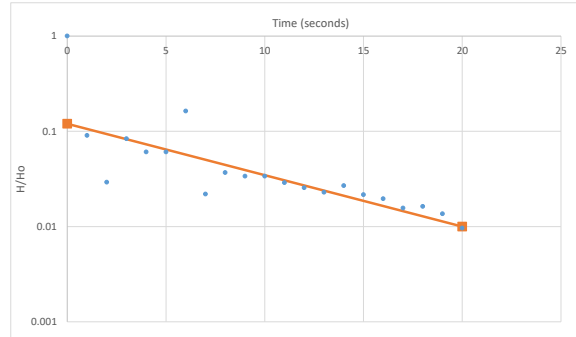
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS119
 Test date: 27/03/2026
 Test number: test 1 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.44 m below datum (mbd)
 Top of screen: 1 m below datum (mbd)
 Bottom of screen: 3.32 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	0.938167	0.501833	1
1	1.394623	0.045377	0.090423
2	1.425356	0.014644	0.029181
3	1.398113	0.041887	0.083468
4	1.409577	0.030423	0.060624
5	1.409577	0.030423	0.060624
6	1.358233	0.081767	0.162937
7	1.429013	0.010987	0.021894
8	1.421537	0.018463	0.036791
9	1.423033	0.016967	0.03381
10	1.423033	0.016967	0.03381
11	1.425524	0.014476	0.028846
12	1.427188	0.012812	0.02553
13	1.428515	0.011485	0.022886
14	1.426522	0.013478	0.026858
15	1.429181	0.010819	0.021559
16	1.430178	0.009822	0.019572
17	1.432172	0.007828	0.015599
18	1.431841	0.008159	0.016258
19	1.433169	0.006831	0.013612
20	1.435162	0.004838	0.009641



Bouwer-Rice Analysis

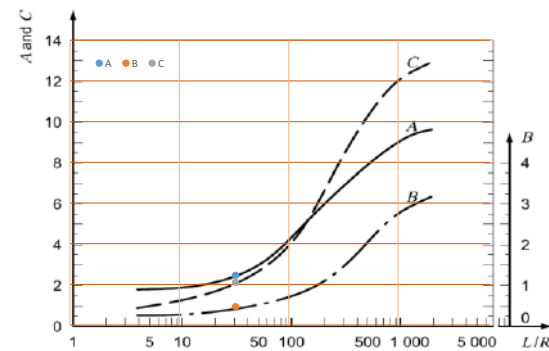
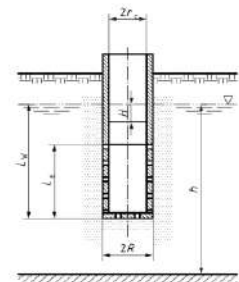


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	20
y-axis H/H_o 1	H_1/H_o		0.12
y-axis H/H_o 2	H_2/H_o		0.01



A	A	2.45
B	B	0.45
C	C	2.1
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	0.06022
H2 (from line fitting)	H2	m	0.005018
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		32.69565
Effective radial distance over which induced head dissipated	R_e	m	0.800864

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.633906
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.633906

Hydraulic conductivity	K	m/s	1.13E-04
		m/d	9.74E+00

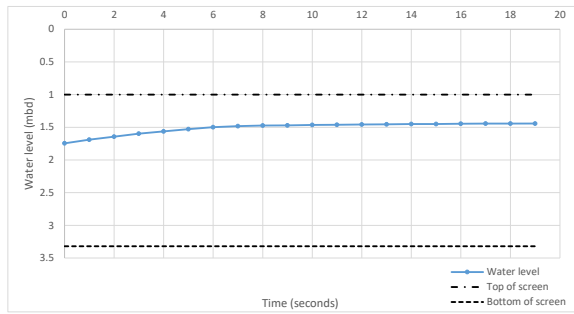
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

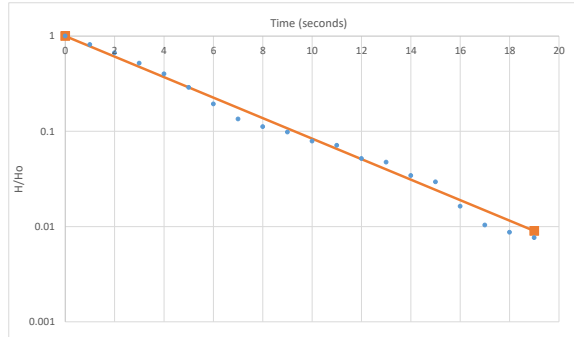
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS119
 Test date: 27/03/2026
 Test number: test 1 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.44 m below datum (mbd)
 Top of screen: 1 m below datum (mbd)
 Bottom of screen: 3.32 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.745267	-0.30527	1
1	1.688532	-0.24853	0.814146
2	1.643214	-0.20321	0.665693
3	1.598073	-0.15807	0.517819
4	1.562061	-0.12206	0.39985
5	1.528011	-0.08801	0.288308
6	1.49912	-0.05912	0.193667
7	1.481021	-0.04102	0.134377
8	1.474047	-0.03405	0.111532
9	1.469901	-0.0299	0.09795
10	1.464086	-0.02409	0.078901
11	1.461759	-0.02176	0.071279
12	1.455781	-0.01578	0.051696
13	1.454446	-0.01445	0.047323
14	1.45046	-0.01046	0.034265
15	1.448967	-0.00897	0.029374
16	1.444989	-0.00499	0.016343
17	1.44316	-0.00316	0.010352
18	1.442659	-0.00266	0.00871
19	1.442326	-0.00233	0.00762



Bouwer-Rice Analysis

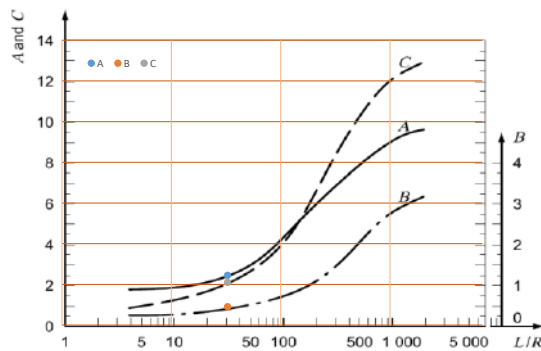
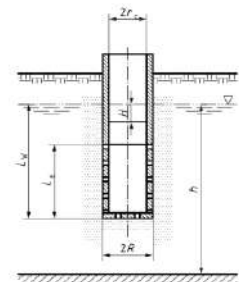


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	19
y-axis H/H_o 1	H_1/H_o		1
y-axis H/H_o 2	H_2/H_o		0.009



A	A	2.45
B	B	0.45
C	C	2.1
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	-0.30527
H2 (from line fitting)	H2	m	-0.00275
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		32.69565
Effective radial distance over which induced head dissipated	R_e	m	0.800864

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.633906
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.633906

Hydraulic conductivity	K	m/s	2.25E-04
		m/d	1.94E+01

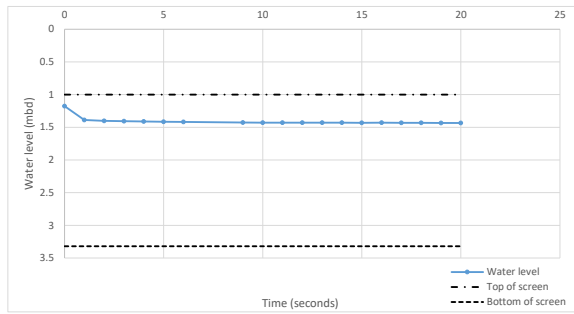
Equations used

$$K = \frac{r_c^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

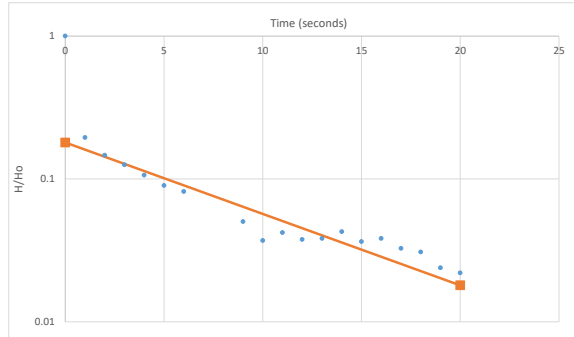
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS119
 Test date: 27/03/2026
 Test number: test 2 slug in
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.44 m below datum (mbd)
 Top of screen: 1 m below datum (mbd)
 Bottom of screen: 3.32 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.17565	0.26435	1
1	1.388519	0.051481	0.194746
2	1.40131	0.03869	0.146359
3	1.406791	0.033209	0.125625
4	1.41194	0.02806	0.106147
5	1.416259	0.023741	0.089809
6	1.418417	0.021583	0.081646
9	1.426721	0.013279	0.050233
10	1.43021	0.00979	0.037034
11	1.428879	0.011121	0.042069
12	1.430039	0.009961	0.037681
13	1.429875	0.010125	0.038301
14	1.428716	0.011284	0.042686
15	1.430375	0.009625	0.03641
16	1.429875	0.010125	0.038301
17	1.431371	0.008629	0.032642
18	1.431869	0.008131	0.030758
19	1.433697	0.006303	0.023843
20	1.434196	0.005804	0.021956



Bouwer-Rice Analysis

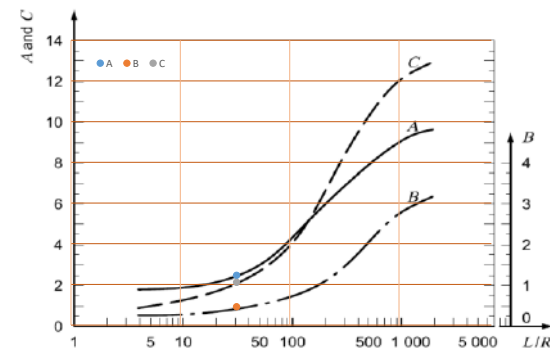
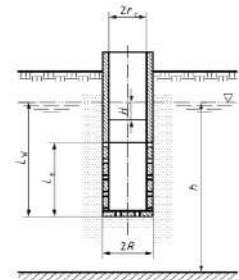


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

x-axis time 1	t_1	s	0
x-axis time 2	t_2	s	20
y-axis H_1/H_o	H_1/H_o		0.18
y-axis H_2/H_o	H_2/H_o		0.018



A	A	2.45
B	B	0.45
C	C	2.1
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	0.047583
H2 (from line fitting)	H2	m	0.004758
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		32.69565
Effective radial distance over which induced head dissipated	R_e	m	0.800864

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.633906
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.633906

Hydraulic conductivity	K	m/s	1.04E-04
		m/d	9.03E+00

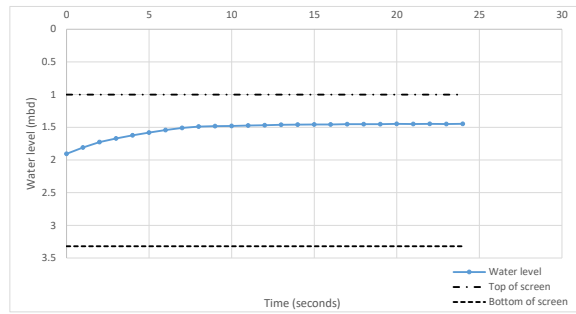
Equations used

$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

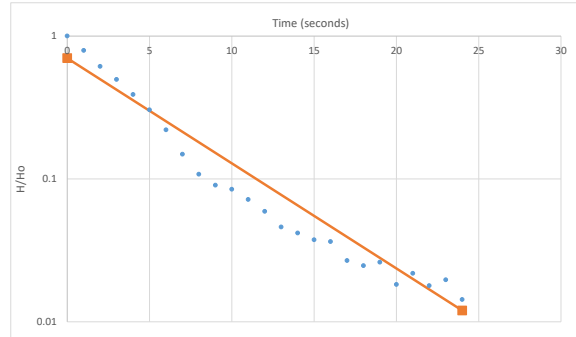
If L_w is less than h , the saturated thickness of the aquifer, then

Well name: WS119
 Test date: 27/03/2026
 Test number: test 2 slug out
 Analyst: LK
 Datum point: Ground level
 Rest water level: 1.44 m below datum (mbd)
 Top of screen: 1 m below datum (mbd)
 Bottom of screen: 3.32 m below datum (mbd)

Time (seconds)	Water level (mbd)	H (m)	H/Ho
0	1.905865	-0.46587	1
1	1.808999	-0.369	0.792073
2	1.725881	-0.28588	0.613656
3	1.671622	-0.23162	0.497187
4	1.62167	-0.18167	0.389963
5	1.581658	-0.14166	0.304075
6	1.542647	-0.10265	0.220336
7	1.509274	-0.06927	0.1487
8	1.490184	-0.05018	0.107722
9	1.48204	-0.04204	0.090241
10	1.479386	-0.03939	0.084544
11	1.473407	-0.03341	0.07171
12	1.467596	-0.0276	0.059236
13	1.461451	-0.02145	0.046046
14	1.459459	-0.01946	0.04177
15	1.457466	-0.01747	0.037492
16	1.45697	-0.01697	0.036427
17	1.452484	-0.01248	0.026797
18	1.451487	-0.01149	0.024657
19	1.452149	-0.01215	0.026078
20	1.448498	-0.0085	0.018241
21	1.450154	-0.01015	0.021796
22	1.448332	-0.00833	0.017885
23	1.449159	-0.00916	0.01966
24	1.446669	-0.00667	0.014315



Bouwer-Rice Analysis

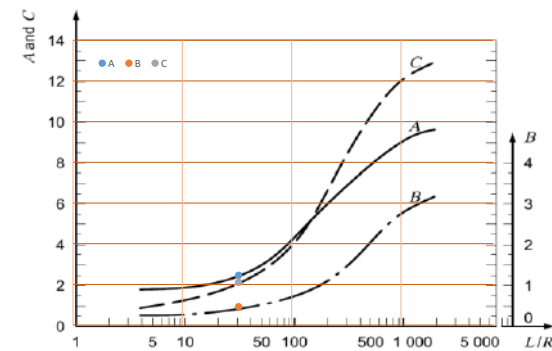
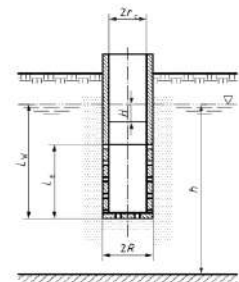


Input parameters

Symbol	Units	Value
Radius of well pipe	r_c	m
Borehole radius in screened section	R	m
Length of saturated screen (Le on diagram)	L	m
Length of saturated screen + solid casing	L_w	m
Saturated thickness of aquifer	h	m
Use effective radius of well pipe? (when water level in screened section)		Yes
Porosity of gravel pack	n	0.25

Line fitting parameters (adjust to best fit line)

Symbol	Units	Value
x-axis time 1	t_1	s
x-axis time 2	t_2	s
y-axis H_1/H_o	H_1/H_o	0.7
y-axis H_2/H_o	H_2/H_o	0.012



A	A	2.45
B	B	0.45
C	C	2.1
2B	2B	0.9

Calculated parameters

H1 (from line fitting)	H1	m	-0.32611
H2 (from line fitting)	H2	m	-0.00559
Effective radius of well pipe	r_e	m	0.03599
L/R	L/R		32.69565
Effective radial distance over which induced head dissipated	R_e	m	0.800864

Re fully penetrating

Assume fully penetrating?		Yes
$\ln(R_e/R)$ (partially penetrating)	$\ln(R_e/R)$	#NUM!
$\ln(R_e/R)$ (fully penetrating)	$\ln(R_e/R)$	2.633906
$\ln(R_e/R)$ (used)	$\ln(R_e/R)$	2.633906

Hydraulic conductivity	K	m/s	1.54E-04
		m/d	1.33E+01

Equations used

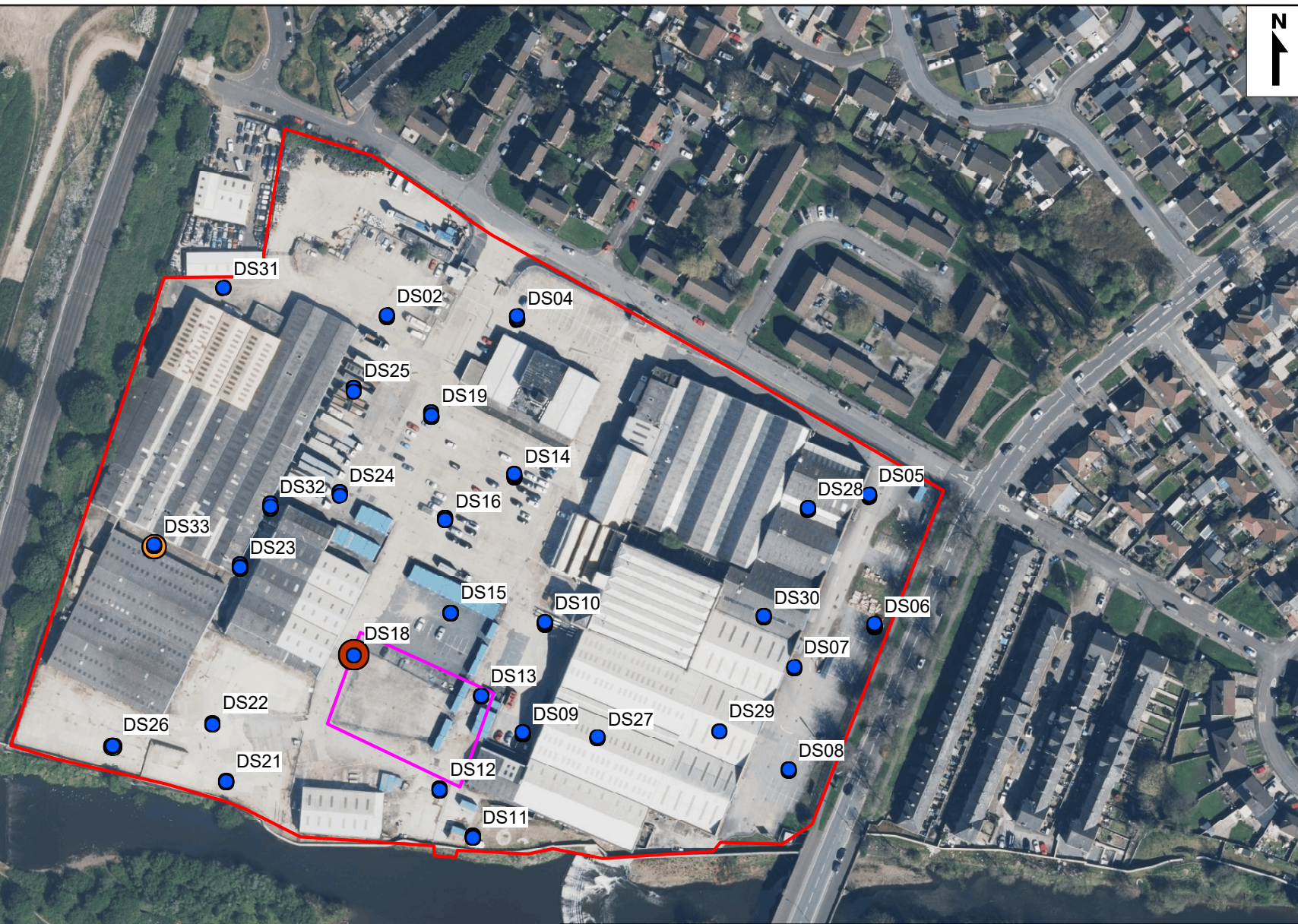
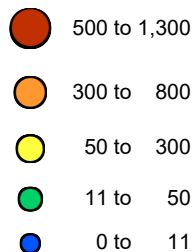
$$K = \frac{r_e^2 \ln(R_e/R)}{2L} \cdot \frac{1}{(t_2 - t_1)} \cdot \ln\left(\frac{H_1}{H_2}\right) \quad r_e = \sqrt{(1-n)r_c^2 + nR^2}$$

If L_w is less than h , the saturated thickness of the aquifer, then

APPENDIX 5

Contaminant Distribution Plots

Toluene (ug/kg)



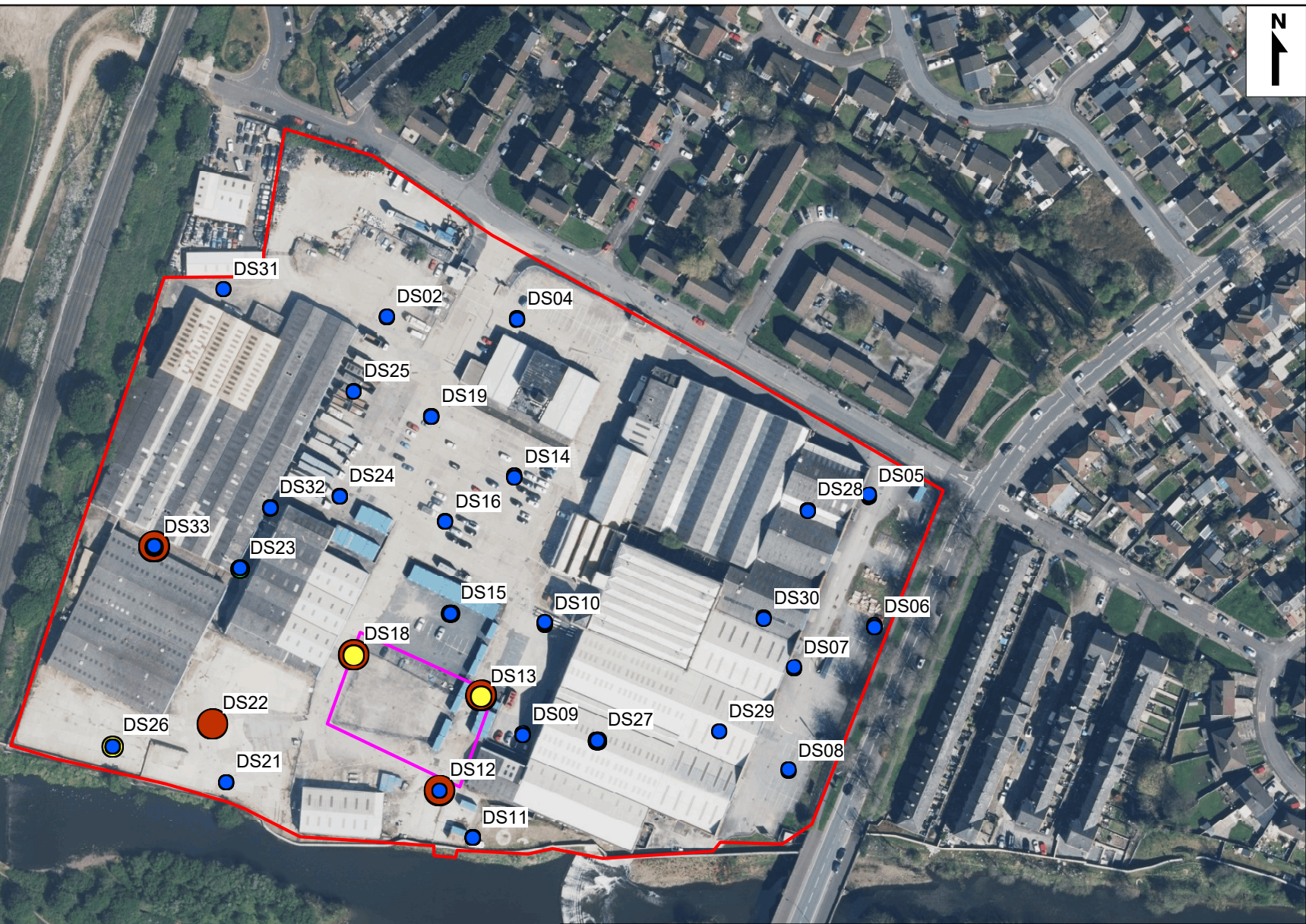
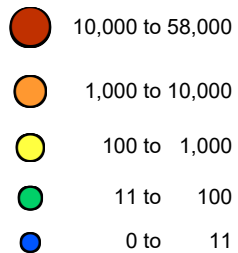
 Site
 Resin Unit location

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
------------------------------------	-------------------------

firth consultants
 environmental risk assessment
 Polygon Yard, 39a Islington Rd
 Bristol BS3 1QB
 Tel: 0117 379 0022
www.firthconsultants.co.uk

Figure A1	Toluene concentrations in soil
Scale: as shown	
Date: 27/04/26	

Ethylbenzene (ug/kg)



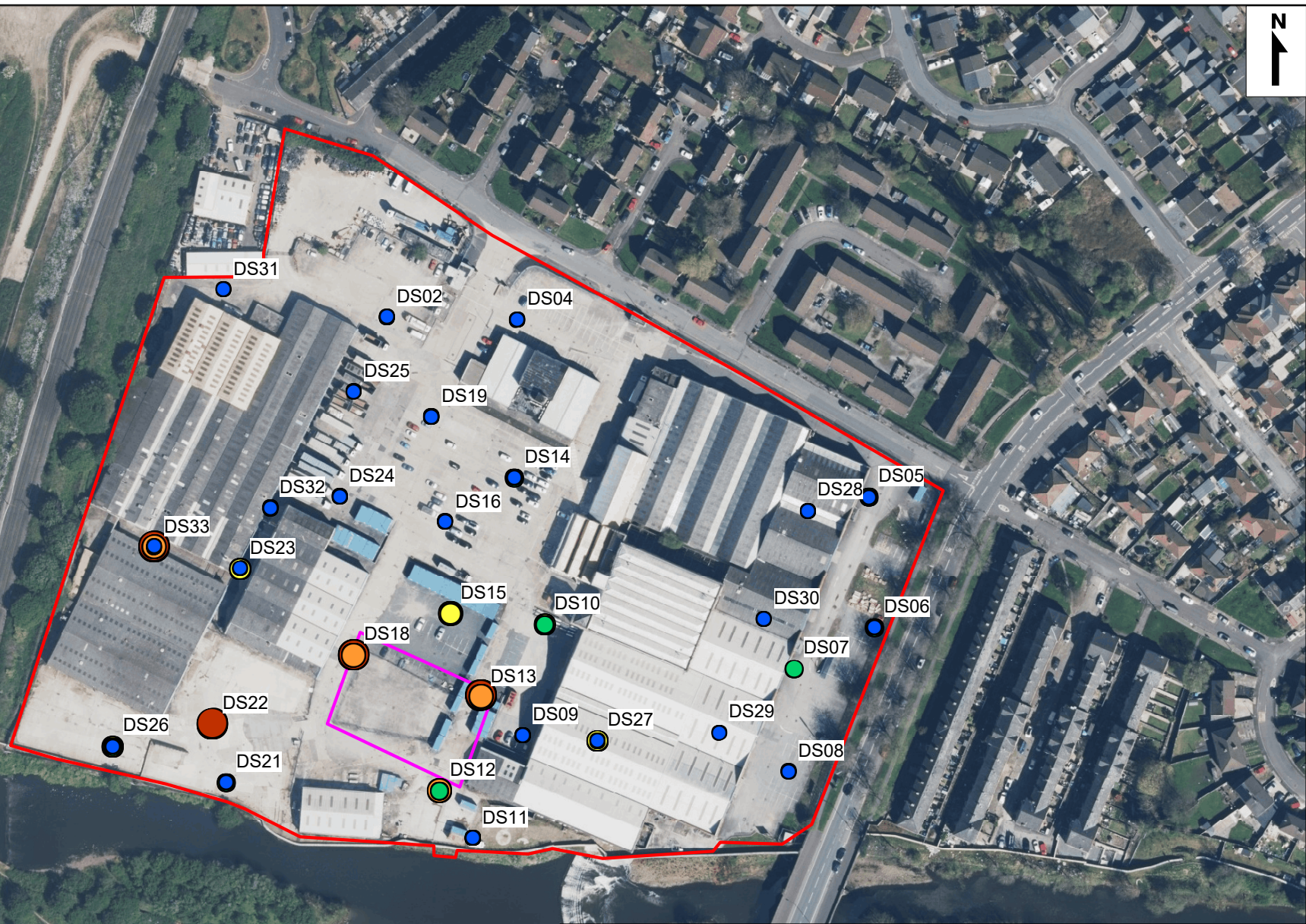
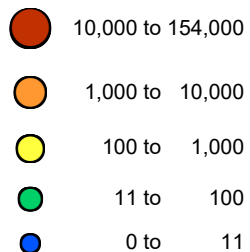
 Site
 Resin Unit location

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
------------------------------------	-------------------------

firth consultants
 environmental risk assessment
 Polygon Yard, 39a Islington Rd
 Bristol BS3 1QB
 Tel: 0117 379 0022
www.firthconsultants.co.uk

Figure A2	Ethylbenzene concentrations in soil
Scale: as shown	
Date: 27/04/26	

Total xylenes (ug/kg)



 Site
 Resin Unit location

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
------------------------------------	-------------------------

firth consultants
 environmental risk assessment
 Polygon Yard, 39a Islington Rd
 Bristol BS3 1QB
 Tel: 0117 379 0022
www.firthconsultants.co.uk

Figure A3	Xylenes concentrations in soil
Scale: as shown	
Date: 27/04/26	

Benzene (ug/L)

- 20 to 30
- 10 to 20
- 1 to 10
- 0 to 1



- Site
- Piezometric contour
- Resin Unit location

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

firth consultants
environmental risk assessment

Polygon Yard, 39a Islington Rd
Bristol BS3 1QB

Tel: 0117 379 0022
www.firthconsultants.co.uk

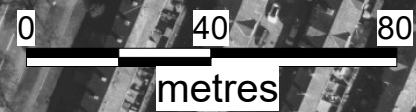
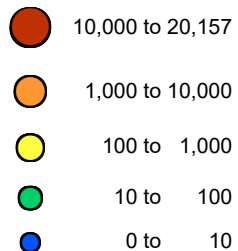
Figure B1

Scale: as shown

Date: 27/04/26

Benzene concentrations in
groundwater - March 26

Toluene (ug/L)



- Site
- Piezometric contour
- Resin Unit location

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

firth consultants
environmental risk assessment

Polygon Yard, 39a Islington Rd
Bristol BS3 1QB

Tel: 0117 379 0022
www.firthconsultants.co.uk

Figure B2

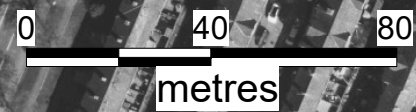
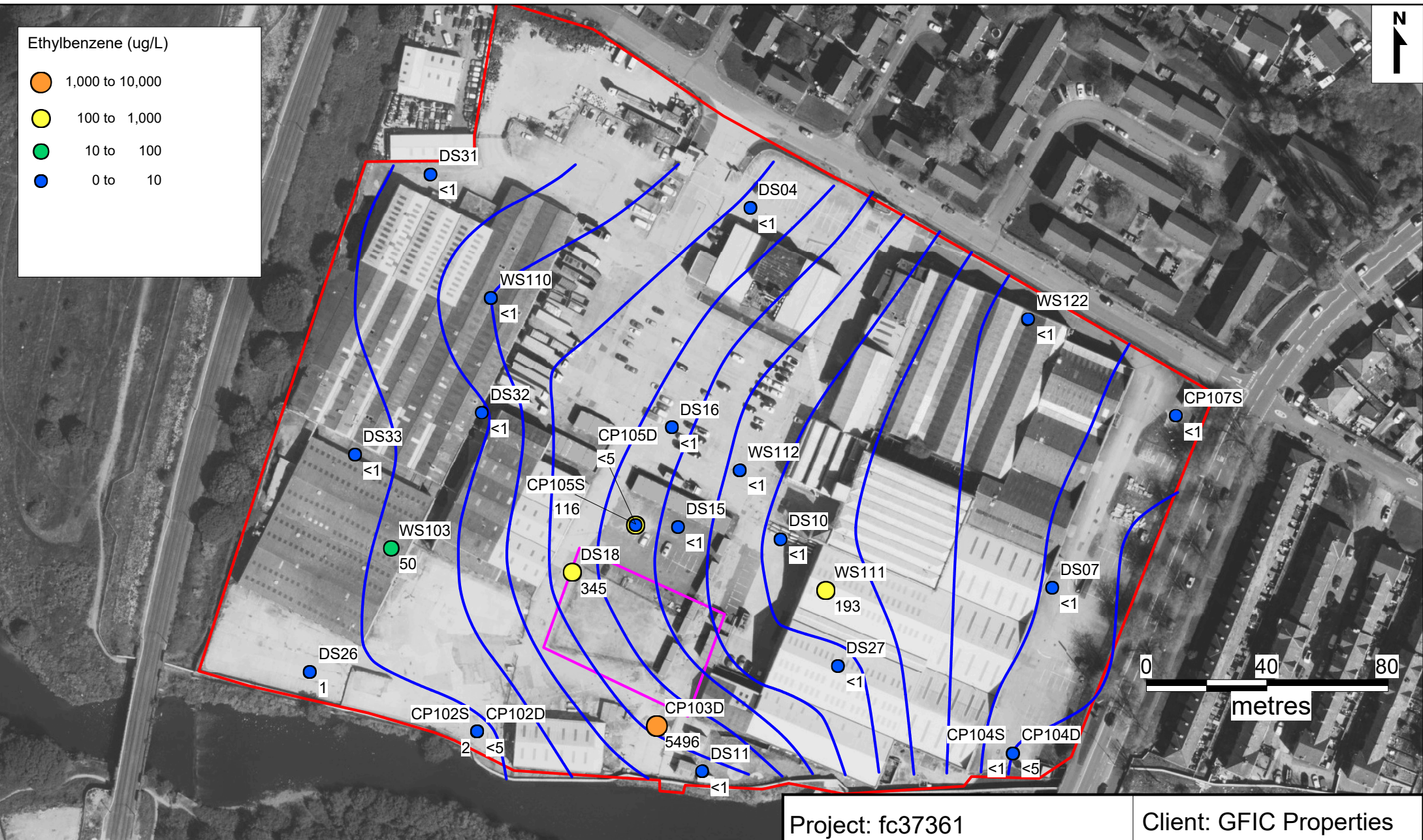
Scale: as shown

Date: 27/04/26

Toluene groundwater - March 26

Ethylbenzene (ug/L)

- 1,000 to 10,000
- 100 to 1,000
- 10 to 100
- 0 to 10



- Site
- Piezometric contour
- Resin Unit location

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
------------------------------------	-------------------------

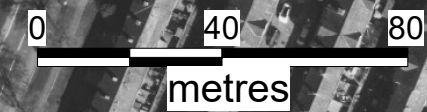
firth consultants
 environmental risk assessment

Polygon Yard, 39a Islington Rd
 Bristol BS3 1QB

Tel: 0117 379 0022
 www.firthconsultants.co.uk

Figure B3	Ethylbenzene groundwater - March 26
Scale: as shown	
Date: 27/04/26	

Total xylene (ug/L)



- Site
- Piezometric contour
- Resin Unit location

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
------------------------------------	-------------------------

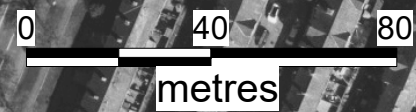
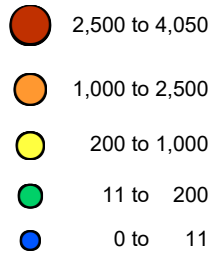
firth consultants
environmental risk assessment

Polygon Yard, 39a Islington Rd
Bristol BS3 1QB

Tel: 0117 379 0022
www.firthconsultants.co.uk

Figure B4	Xylene concentrations in groundwater - March 26
Scale: as shown	
Date: 27/04/26	

TPH aromatic >EC10-12 (ug/L)



- Site
- Piezometric contour
- Resin Unit location

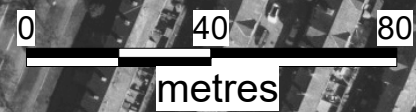
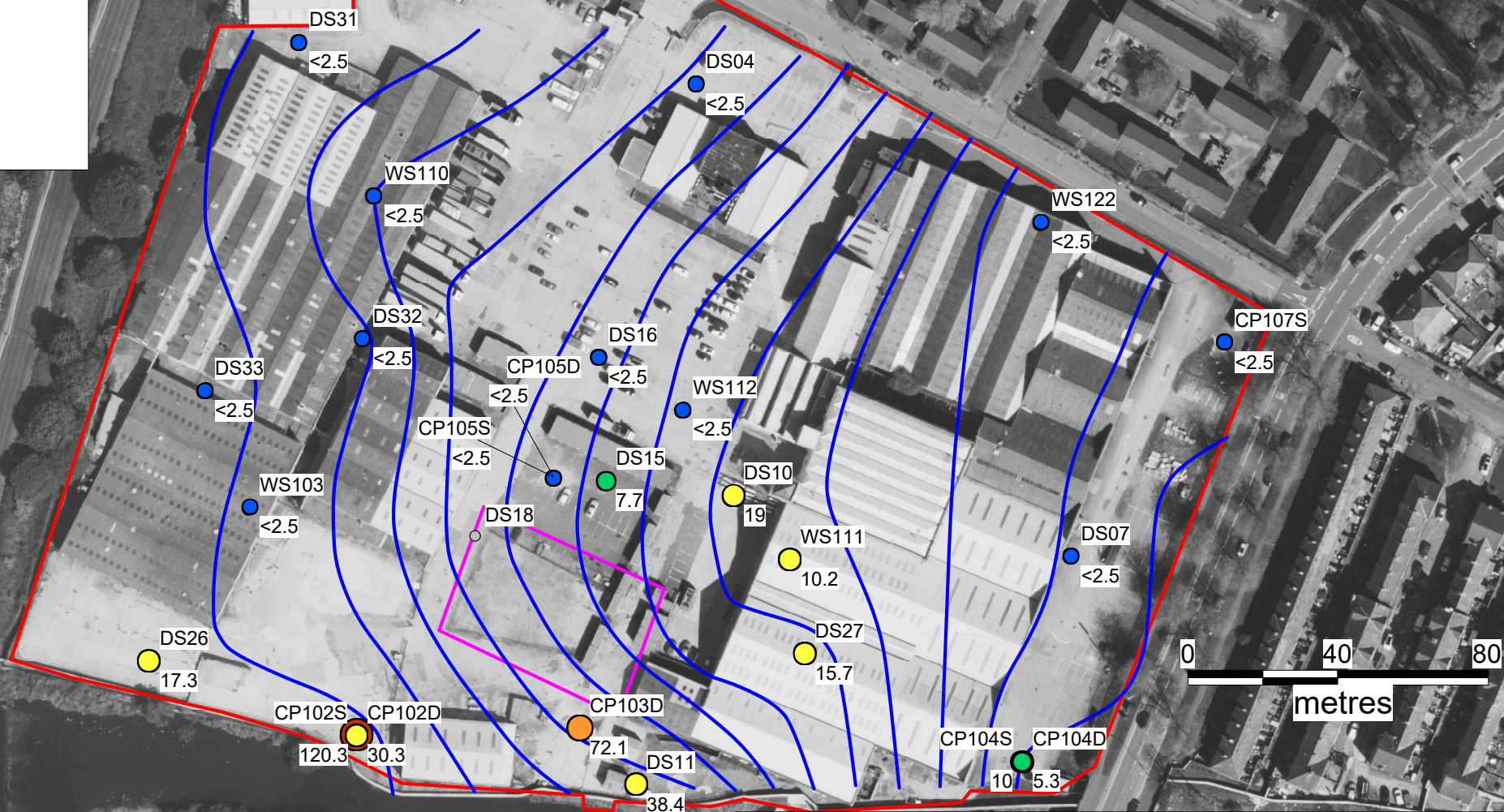
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environmental risk assessment

Polygon Yard, 39a Islington Rd
Bristol BS3 1QB

Tel: 0117 379 0022
www.firthconsultants.co.uk

Project: fc37361 Warth Rd, Bury		Client: GFIC Properties
Figure B5	TPH aromatic >EC10-12 concentrations in groundwater - March 26	
Scale: as shown		
Date: 27/04/26		

Arsenic (ug/L)



- Site
- Piezometric contour
- Resin Unit location

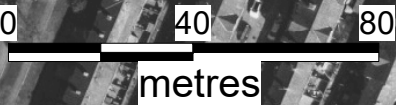
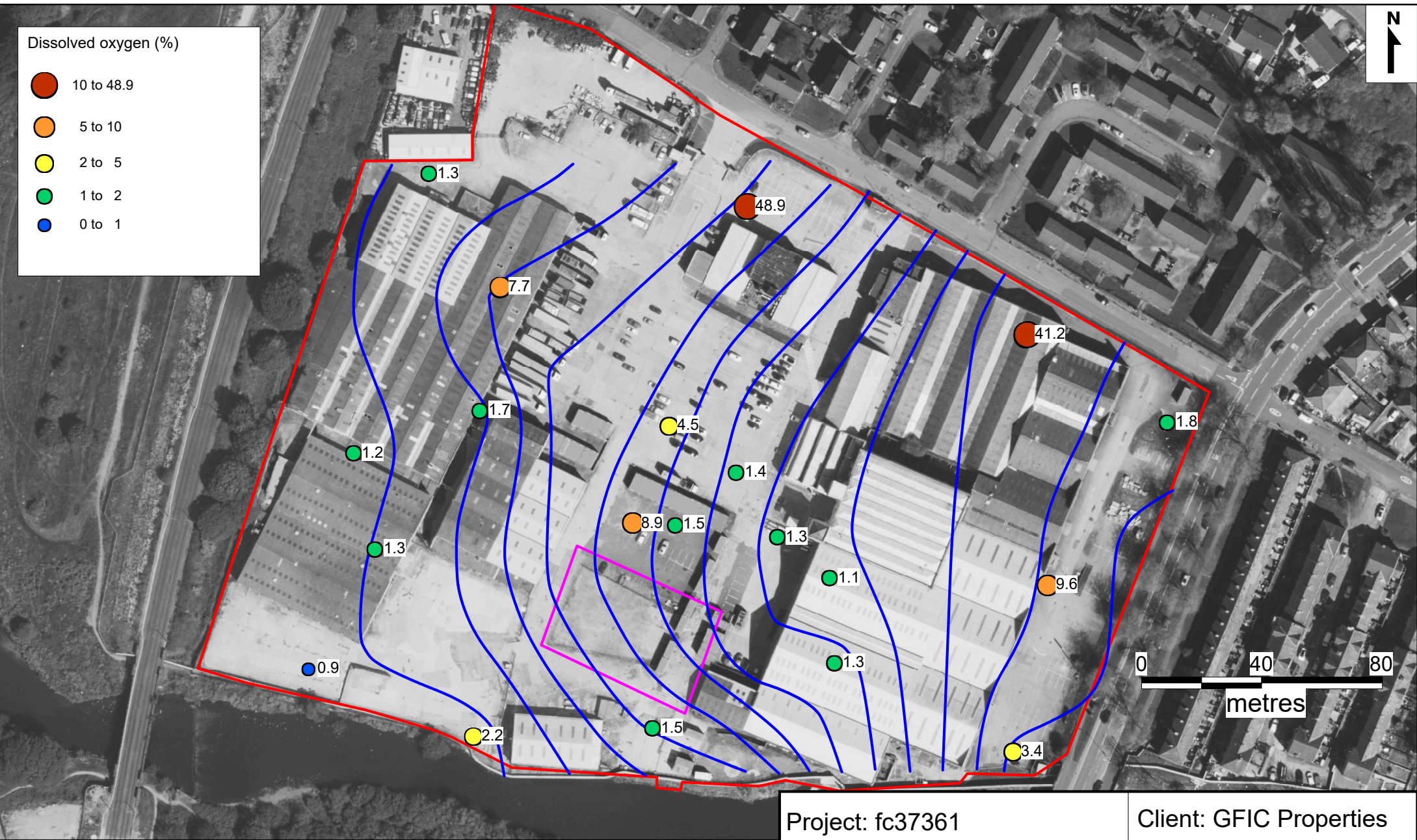
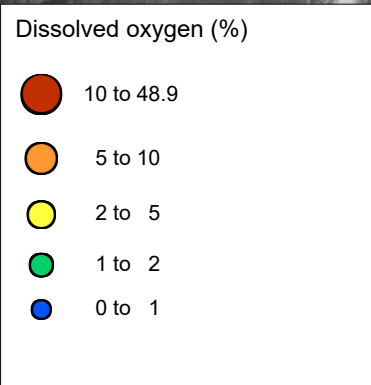
Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
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 Bristol BS3 1QB

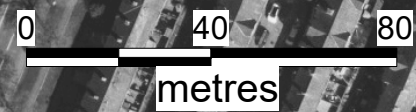
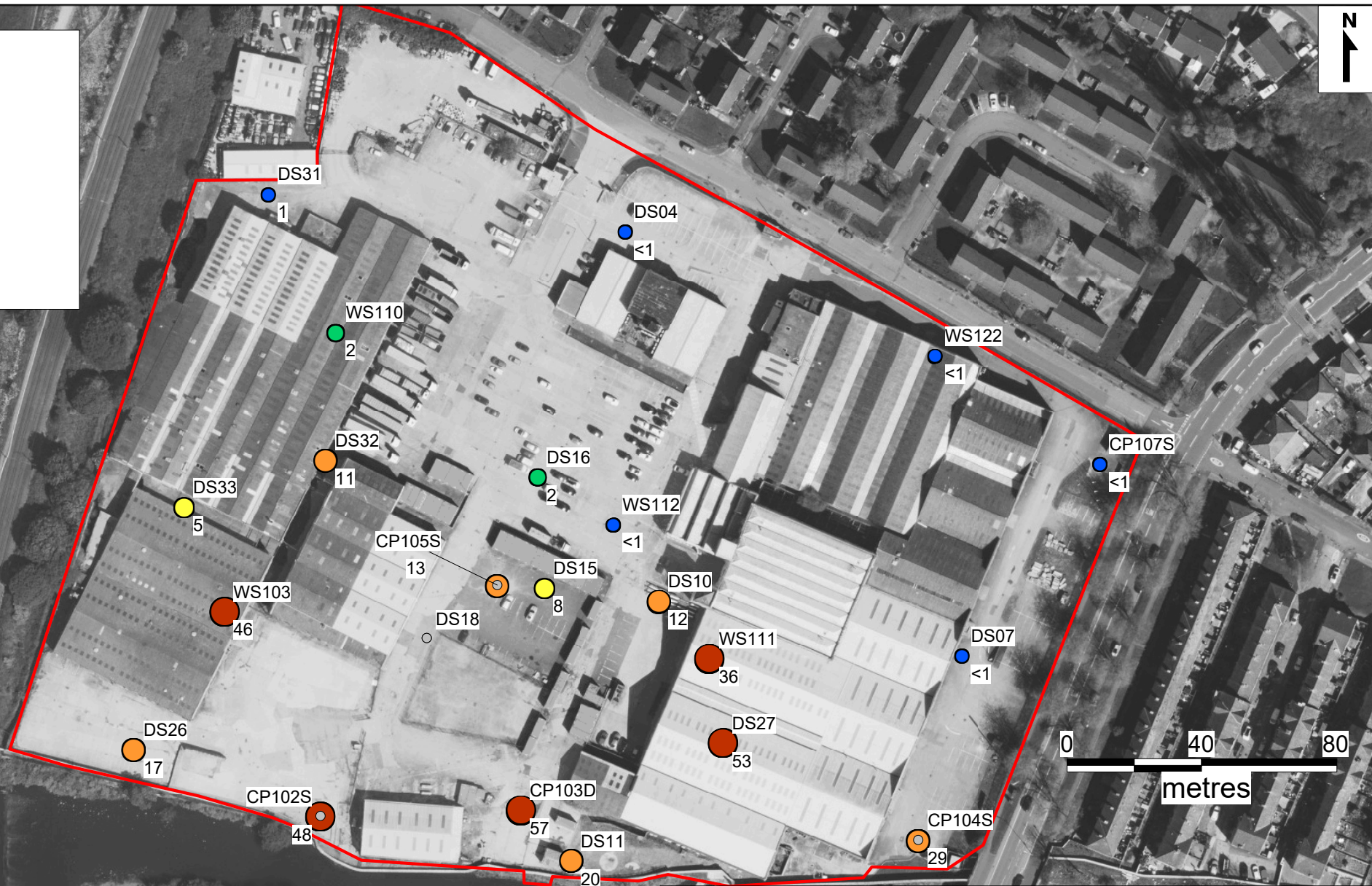
Tel: 0117 379 0022
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Figure B6	Arsenic concentrations in groundwater - March 26
Scale: as shown	
Date: 27/04/26	



- Site
- Piezometric contour
- Resin Unit location

Dissolved Iron II (mg/L)



Site

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

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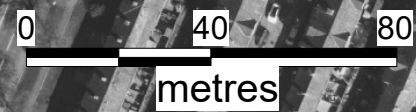
Figure B8

Scale: as shown

Date: 27/04/26

Dissolved iron II concentrations in
groundwater - March 26

Manganese II (mg/L)



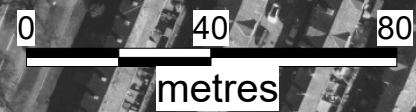
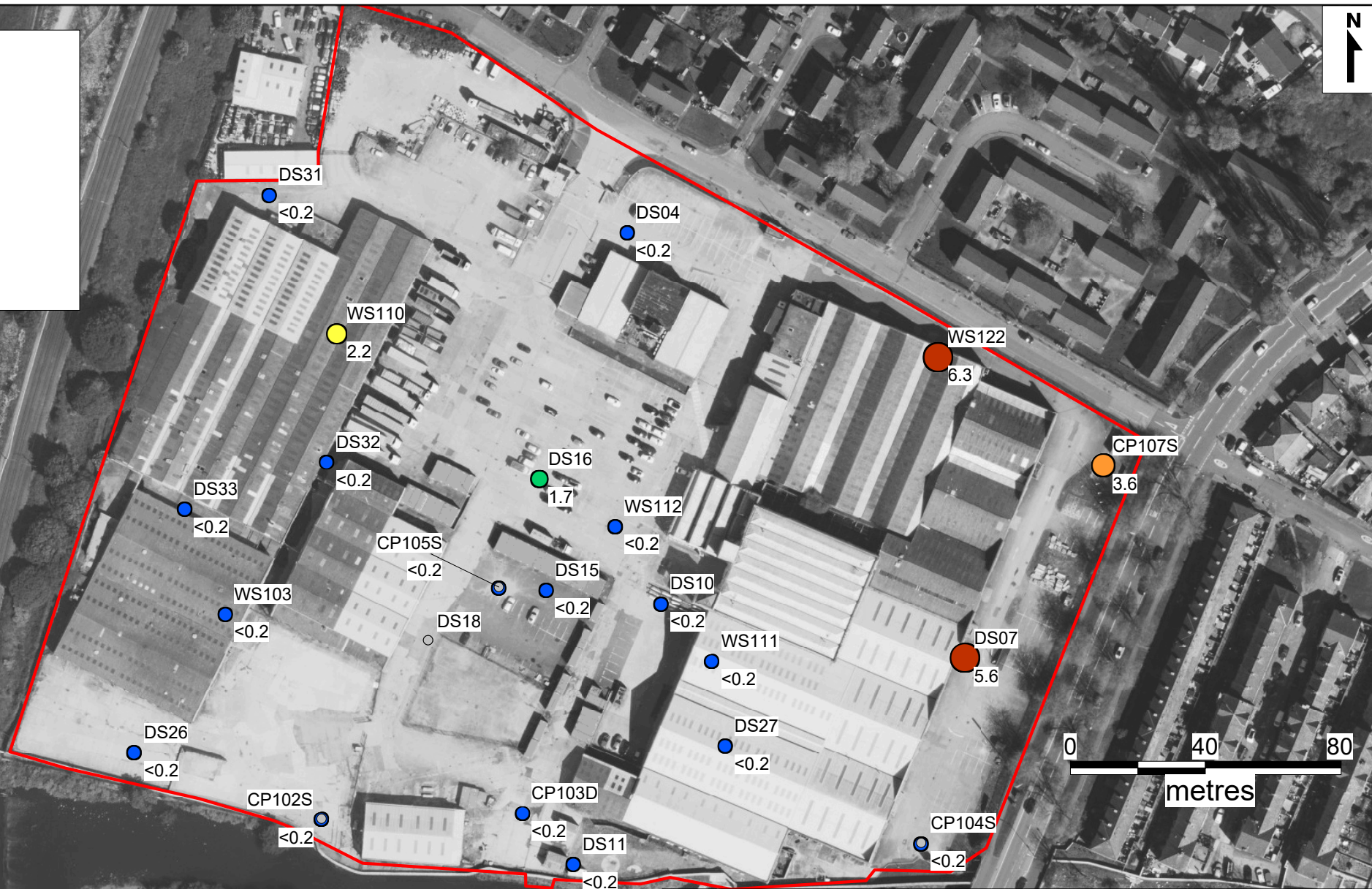
Site

Project: fc37361 Warth Rd, Bury	Client: GFIC Properties
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Bristol BS3 1QB
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Figure B9	Dissolved manganese II concentrations in groundwater - March 26
Scale: as shown	
Date: 27/04/26	

Nitrate as NO3 (mg/L)



Site

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

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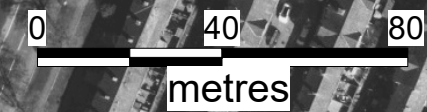
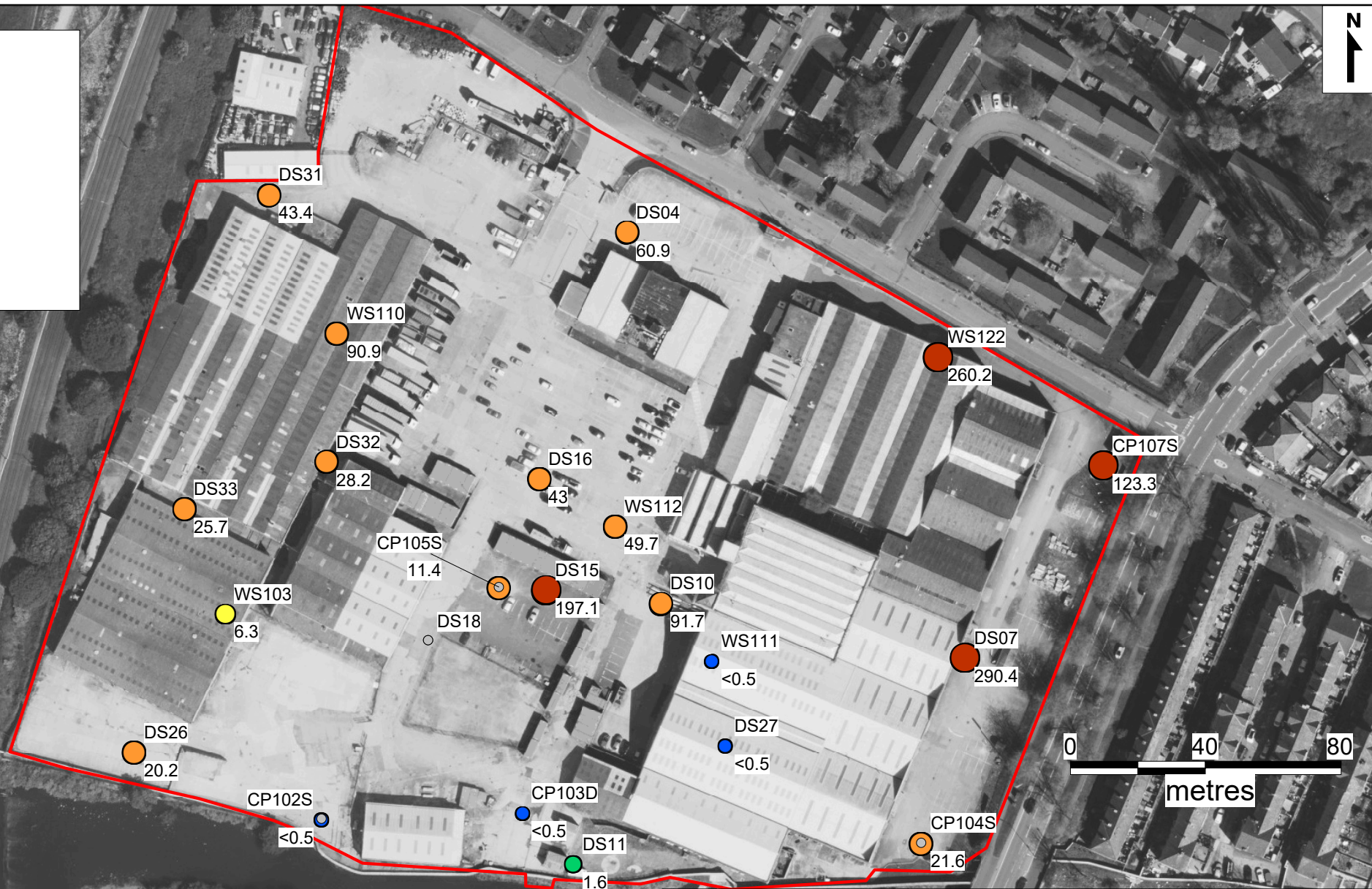
Figure B10

Scale: as shown

Date: 27/04/26

Nitrate concentrations
in groundwater - March 26

Sulphate (mg/L)



Site

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

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Figure B11

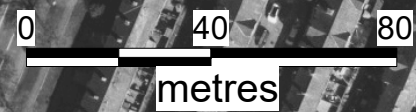
Scale: as shown

Date: 27/04/26

Sulphate concentrations
in groundwater - March 26

ORP (mV)

- 100 to 185
- 0 to 100
- 50 to 0
- 100 to -50
- 152 to -100



- Site
- Piezometric contour
- Resin Unit location

Project: fc37361
Warth Rd, Bury

Client: GFIC Properties

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Bristol BS3 1QB
Tel: 0117 379 0022
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Figure B12

Scale: as shown

Date: 27/04/26

ORP in groundwater - March 26

APPENDIX 6

Field Data Reports



Environmental Monitoring & Sampling Services Limited
07 April 2026

Mr M Holker
DB Remediation Limited
Carnoustie House
Kelvin Close
Birchwood
Warrington
WA3 7PB

Site Name: Warth Road, Bury
Report Number: C1125/5559
Client Ref:
Visit Date: 23/3/26-30/3/26

Dear Matt

Further to your instruction to perform works at the above site, please find enclosed the factual data recorded during this visit.

We trust you find the attached satisfactory, but should you have any queries please do not hesitate to contact us.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'P J Brennan'.

P J Brennan
Director

Enc.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP102(S)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.85	Total depth (m):	4.12
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.15
Approximate tube position (m):	3.0	Screen depth (mbgl):	1.5-4.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	250
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N - 1229646	

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
14:35	7.08	11.6	624.6	22.8	-95	1.88	-
14:39	7.07	10.1	660.4	1.9	-125	1.88	-
14:43	7.07	10.0	666.8	1.5	-129	1.88	-
14:47	7.07	9.9	673.9	1.3	-131	1.88	-
14:51	7.07	9.9	678.8	1.2	-131	1.88	-
14:55	7.08	9.9	679.8	1.1	-131	1.88	-
14:59	7.08	9.9	680.2	1.1	-131	1.88	-
15:03	7.08	9.9	684.3	1.0	-131	1.88	-
15:07	7.08	9.9	685.5	1.0	-131	1.88	-

Sample Description:	Sample Time:
Clear with grey brown tint, no obvious sheen and solvent odour	15:23

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4708

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP102(D)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.86	Total depth (m):	10.10
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.15
Approximate tube position (m):	8.1	Screen depth (mbgl):	7.0-10.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	9	Flow Rate (ml/min)	250-160
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N - 1229646	

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
15:50	7.19	10.7	707.3	2.3	-109	2.60	-
15:54	7.19	10.6	707.7	2.1	-108	2.73	-
15:58	7.18	10.5	704.9	2.4	-107	2.74	-
16:02	7.19	10.4	707.4	2.3	-106	2.75	-
16:06	7.19	10.4	705.8	2.3	-105	2.75	-
16:10	7.18	10.4	704.2	2.3	-105	2.75	-
16:14	7.18	10.4	703.0	2.3	-104	2.75	-
16:18	7.19	10.4	702.1	2.2	-104	2.76	-
16:22	7.19	10.4	700.4	2.3	-103	2.76	-
16:26	7.19	10.3	698.8	2.2	-103	2.76	-

Sample Description:	Sample Time:
Clear with grey tint, no obvious sheen, solvent odour	16:43

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 1 x filtered & fixed (HNO ₃).

Laboratory Job Number:
26-4708

Comments:
Purged water stored in client supplied IBC on site. Cannot get tube past a joint at 8.1m bgl.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP103(D)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.14	Total depth (m):	4.87
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.18
Approximate tube position (m):	3.8	Screen depth (mbgl):	3.0-4.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	150-240
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
09:46	6.76	9.0	743.5	3.0	-103	2.17	-
09:50	6.77	9.2	731.7	2.0	-103	2.17	-
09:54	6.78	9.2	726.4	1.8	-102	2.17	-
09:58	6.81	9.4	710.2	1.6	-104	2.17	-
10:02	6.80	9.8	711.5	1.6	-103	2.17	-
10:06	6.81	10.0	704.0	1.6	-103	2.17	-
10:10	6.82	9.5	701.2	1.5	-102	2.17	-
10:14	6.83	9.0	703.9	1.5	-101	2.17	-
10:18	6.83	9.1	702.4	1.4	-101	2.17	-
10:22	6.83	9.1	697.0	1.5	-100	2.17	-

Sample Description:	Sample Time:
Clear, no obvious sheen, solvent odour	10:46

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL), 2 x submerged and upright vials for dissolved gases with tape sealed caps.

Laboratory Job Number:
26-4845

Comments:
Purged water stored in client supplied IBC on site. Soft bottom.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP104(S)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	26/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.43	Total depth (m):	3.14
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.18
Approximate tube position (m):	2.8	Screen depth (mbgl):	1.5-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	8	Flow Rate (ml/min)	170
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
11:38	6.87	10.7	561.8	3.6	-73	2.51	-
11:42	6.82	10.7	556.0	3.7	-66	2.52	-
11:46	6.81	10.6	554.2	3.7	-62	2.53	-
11:50	6.79	10.5	554.4	3.9	-60	2.54	-
11:54	6.80	10.5	555.2	3.7	-61	2.54	-
11:58	6.81	10.6	556.0	3.1	-62	2.56	-
12:02	6.81	10.6	557.3	2.8	-63	2.57	-
12:06	6.82	10.6	558.2	2.6	-65	2.57	-
12:10	6.82	10.6	557.9	2.5	-66	2.57	-
12:14	6.84	10.6	559.4	2.4	-68	2.58	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	12:39

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL), 2 x submerged and upright vials for dissolved gases with tape sealed caps.

Laboratory Job Number:
26-4820

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP104(D)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	26/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.82	Total depth (m):	8.17
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.16
Approximate tube position (m):	6.0	Screen depth (mbgl):	4.0-8.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	4	Flow Rate (ml/min)	140-130
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
13:04	6.92	12.6	557.6	47.4	-57	3.15	-
13:08	6.94	11.5	573.3	6.3	-65	3.42	-
13:12	6.94	11.5	575.6	4.3	-67	3.55	-
13:16	6.94	11.5	572.7	3.7	-67	3.75	-
13:20	6.94	11.4	573.2	3.6	-66	3.94	-
13:24	6.94	11.5	574.4	3.4	-66	4.10	-
13:28	6.94	11.7	572.1	3.4	-66	4.18	-

Sample Description:	Sample Time:
Clear with orange tint, no obvious odour or sheen	13:51

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 1 x filtered & fixed (HNO ₃).

Laboratory Job Number:
26-4820

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP105(S)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.32	Total depth (m):	4.63
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.12
Approximate tube position (m):	3.8	Screen depth (mbgl):	3.0-4.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	130-310
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
11:27	7.09	5.5	589.5	14.5	-75	2.32	-
11:31	7.41	7.9	503.2	3.1	-118	2.32	-
11:35	7.45	9.8	476.9	1.6	-133	2.32	-
11:39	7.46	10.0	473.8	1.5	-137	2.32	-
11:43	7.46	10.1	475.5	1.3	-138	2.32	-
11:47	7.47	10.1	473.9	1.2	-139	2.32	-
11:51	7.47	10.0	471.9	1.1	-140	2.32	-
11:55	7.49	10.0	468.8	1.1	-141	2.32	-
11:59	7.49	10.1	469.1	1.1	-142	2.32	-

Sample Description:	Sample Time:
Clear, no obvious sheen, faint solvent odour	12:13

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4845

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP105(D)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.32	Total depth (m):	10.36
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.16
Approximate tube position (m):	8.1	Screen depth (mbgl):	7.0-10.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	8	Flow Rate (ml/min)	270-190
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
12:47	7.28	10.0	450.5	13.4	-34	2.91	-
12:51	7.34	9.5	442.6	10.7	-20	3.08	-
12:55	7.38	9.3	456.6	8.9	-20	3.28	-
12:59	7.37	9.5	484.7	7.7	-25	3.52	-
13:03	7.39	9.7	449.5	8.6	-25	3.71	-
13:07	7.38	9.7	445.7	9.7	-14	3.86	-
13:11	7.37	9.8	450.8	9.3	-10	4.07	-
13:15	7.39	9.7	447.0	8.9	-13	4.21	-

Sample Description:	Sample Time:
Clear with grey tint, no obvious odour or sheen	13:30

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 1 x filtered & fixed (HNO ₃).

Laboratory Job Number:
26-4845

Comments:
Purged water stored in client supplied IBC on site. Pipe catching joint circa 7.8-8.1m bgl.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	CP107(S)	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.23	Total depth (m):	4.30
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.17
Approximate tube position (m):	3.3	Screen depth (mbgl):	1.0-3.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	110-240
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N - 1229646	

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
08:45	6.88	9.8	904.9	6.3	159	2.24	-
08:49	6.88	9.8	896.5	6.9	175	2.24	-
08:53	6.88	9.8	907.6	4.0	182	2.24	-
08:57	6.89	9.8	911.3	3.2	185	2.24	-
09:01	6.89	9.8	924.3	2.5	186	2.24	-
09:05	6.89	9.8	921.9	2.3	186	2.24	-
09:09	6.89	9.8	922.1	2.2	185	2.24	-
09:13	6.90	9.8	927.7	1.9	185	2.24	-
09:17	6.90	9.8	926.0	1.9	185	2.24	-
09:21	6.90	9.8	927.1	1.8	185	2.24	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	09:33

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4708

Comments:
Purged water stored in client supplied IBC on site. Backfill around pipe collapsed to circa 0.75m bgl.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	WS103	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	0.99	Total depth (m):	3.68
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.15
Approximate tube position (m):	2.0	Screen depth (mbgl):	0.5-3.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	170-300
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
11:44	7.16	10.5	491.6	7.7	-108	0.99	-
11:48	7.17	9.5	496.2	1.8	-118	0.99	-
11:52	7.17	9.4	487.7	1.5	-119	0.99	-
11:56	7.17	9.4	490.5	1.3	-120	0.99	-
12:00	7.18	9.4	487.6	1.5	-121	0.99	-
12:04	7.17	9.4	481.2	1.4	-118	0.99	-
12:08	7.17	9.4	479.7	1.1	-118	0.99	-
12:12	7.17	9.4	479.7	1.1	-117	0.99	-
12:16	7.17	9.4	475.9	1.3	-116	0.99	-

Sample Description:	Sample Time:
Clear with grey tint, no obvious odour or sheen	12:27

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4708

Comments:
Purged water stored in client supplied IBC on site. Slight streaky oily appearance on inside of cover and on bung and tap. Believed to be from a spill on the surface possibly as part of the demolition as not present inside the installation below the bung.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	WS110	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	23/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.25	Total depth (m):	2.91
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.17
Approximate tube position (m):	1.9	Screen depth (mbgl):	1.0-2.8
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	4	Flow Rate (ml/min)	100
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
10:59	7.19	9.4	654.5	14.9	29	1.49	-
11:03	7.21	9.3	654.0	11.5	13	1.44	-
11:07	7.24	9.3	683.2	10.4	7	1.44	-
11:11	7.31	9.3	658.2	9.1	-11	1.43	-
11:15	7.31	9.3	663.2	8.5	-17	1.43	-
11:19	7.34	9.3	652.5	7.4	-27	1.42	-
11:23	7.35	9.4	647.6	7.2	-33	1.40	-
11:27	7.36	9.5	642.4	7.5	-36	1.40	-
11:31	7.36	9.6	637.9	7.7	-38	1.39	-

Sample Description:	Sample Time:
Clear with grey cloudy tint, no obvious odour or sheen	11:59

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL circa 80ml into each as quickly blocking filters).

Laboratory Job Number:
26-4659

Comments:
Purged water stored in client supplied IBC on site. Soft bottom. Initial flow rate between 10:52-10:55 circa 260ml/min and water level fell to 1.58m so flow rate reduced.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	WS111	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	30/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.69	Total depth (m):	3.95
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.16
Approximate tube position (m):	2.9	Screen depth (mbgl):	0.5-4.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	210-280
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
08:42	7.02	9.5	648.9	19.2	-124	1.69	-
08:46	7.01	10.4	631.2	2.8	-128	1.69	-
08:50	7.02	10.5	625.0	1.9	-130	1.69	-
08:54	7.02	10.5	626.5	1.4	-129	1.69	-
08:58	7.03	10.5	624.2	1.3	-129	1.69	-
09:02	7.03	10.5	626.0	1.2	-128	1.69	-
09:06	7.04	10.5	626.7	1.1	-128	1.69	-
09:10	7.04	10.6	624.9	1.1	-127	1.69	-
09:14	7.04	10.6	627.2	1.1	-126	1.69	-

Sample Description:	Sample Time:
Clear, no obvious sheen, possible "metallic" odour	09:27

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-5055

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	WS112	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	26/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.50	Total depth (m):	2.16
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.17
Approximate tube position (m):	1.9	Screen depth (mbgl):	0.5-2.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	10	Flow Rate (ml/min)	190-270
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
08:30	7.99	9.4	581.7	3.7	-73	1.50	-
08:34	8.00	9.5	577.7	2.6	-106	1.50	-
08:38	8.02	9.5	576.4	1.9	-122	1.50	-
08:42	8.02	9.5	574.1	1.7	-133	1.50	-
08:46	8.03	9.5	574.5	1.5	-140	1.50	-
08:50	8.04	9.6	573.4	1.4	-146	1.50	-
08:54	8.04	9.6	573.1	1.4	-149	1.50	-
08:58	8.04	9.6	572.2	1.4	-152	1.50	-

Sample Description:	Sample Time:
Clear, no obvious sheen, odour present and hard to identify but "sulphide" in nature	09:12

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4820

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.



Environmental Monitoring & Sampling Services Limited Low Flow Monitoring & Sampling Report

Location:	WS122	Well diameter (mm):	50
Report Number:	C1125/5559	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	23/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.02	Total depth (m):	2.60
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.17
Approximate tube position (m):	2.5	Screen depth (mbgl):	0.5-2.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	8	Flow Rate (ml/min)	130-290
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
15:21	7.06	11.1	1189.5	62.3	68	2.03	-
15:25	7.09	10.0	1203.5	44.1	114	2.03	-
15:29	7.01	9.8	1194.7	42.5	129	2.03	-
15:33	6.97	9.7	1165.7	41.7	141	2.03	-
15:37	6.95	9.7	1160.6	41.5	148	2.03	-
15:41	6.94	9.7	1170.6	41.4	151	2.03	-
15:45	6.94	9.7	1169.4	41.3	154	2.03	-
15:49	6.94	9.7	1158.3	41.2	157	2.03	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	16:01

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4659

Comments:
Purged water stored in client supplied IBC on site. Soft bottom.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.
Method Statement for Groundwater and Product Level Measurement v4.





Environmental Monitoring & Sampling Services Limited
07 April 2026

Mr M Holker
DB Remediation Limited
Carnoustie House
Kelvin Close
Birchwood
Warrington
WA3 7PB

Site Name: Warth Road, Bury
Report Number: C1125/5561
Client Ref:
Visit Date: 23/03/26-30/03/26

Dear Matt

Further to your instruction to perform works at the above site, please find enclosed the factual data recorded during this visit.

We trust you find the attached satisfactory, but should you have any queries please do not hesitate to contact us.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'P J Brennan'.

P J Brennan
Director

Enc.



Low Flow Monitoring & Sampling Report

Location:	DS04	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	23/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.41	Total depth (m):	3.03
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.11
Approximate tube position (m):	2.5	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	2	Flow Rate (ml/min)	170
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N - 1229646	

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
14:09	7.46	11.0	470.0	48.5	1	2.32	-
14:13	7.47	10.5	498.0	48.9	29	2.54	-
GRAB SAMPLE - Tube lowered to follow water level down. Purged dry after circa 750ml into bottles so allowed to recharge to complete filling last container.							

Sample Description:	Sample Time:
Grey, no obvious odour or sheen (heavy with fine sediment)	14:51

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, No filtered & fixed containers as will not filter.

Laboratory Job Number:
26-4654

Comments:
Purged water stored in client supplied IBC on site. Flow rate reduced from 170ml/min but water level continued to fall so purging stopped and grab sample recovered.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS07	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	26/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.06	Total depth (m):	2.94
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.10
Approximate tube position (m):	2.6	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	9	Flow Rate (ml/min)	160-300
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
14:41	6.85	11.8	915.2	45.0	52	2.06	-
14:45	6.73	10.2	931.4	11.7	97	2.06	-
14:49	6.72	10.1	933.1	10.5	115	2.06	-
14:53	6.72	10.1	904.3	10.2	127	2.06	-
14:57	6.72	10.1	910.5	10.0	135	2.06	-
15:01	6.72	10.1	911.3	9.8	141	2.06	-
15:05	6.71	10.1	910.6	9.9	146	2.06	-
15:09	6.71	10.1	905.9	9.6	150	2.06	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	15:20

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4819

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS10	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	30/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.85	Total depth (m):	3.10
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.15
Approximate tube position (m):	2.5	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	10	Flow Rate (ml/min)	170-250
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
13:57	6.65	10.0	720.3	13.4	-15	1.87	-
14:01	6.61	9.7	721.4	3.8	-21	1.87	-
14:05	6.60	9.8	719.0	2.2	-23	1.88	-
14:09	6.61	9.8	713.1	1.9	-27	1.88	-
14:13	6.62	9.7	708.6	1.7	-31	1.88	-
14:17	6.64	9.7	706.0	1.6	-36	1.88	-
14:21	6.65	9.7	703.8	1.5	-38	1.88	-
14:25	6.63	9.7	704.3	1.4	-36	1.88	-
14:29	6.65	9.8	698.5	1.4	-40	1.88	-
14:33	6.66	9.9	692.2	1.3	-41	1.88	-

Sample Description:	Sample Time:
Clear, no obvious sheen possible faint sulphide odour	14:47

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-5054

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS11	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.56	Total depth (m):	3.23
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.12
Approximate tube position (m):	Base	Screen depth (mbgl):	2.2-3.2
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	Grab	Flow Rate (ml/min)	Grab
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)

Sample Description:	Sample Time:
Clear with brown tint, no obvious sheen possible faint solvent odour	09:14

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4840

Comments:
Purged water stored in client supplied IBC on site. Grab sample - Water level dropped to 2.73m with pump on lowest setting (circa 250-300ml purged) so allowed installation to recharge and then recover a grab sample.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS15	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.89	Total depth (m):	2.31
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.14
Approximate tube position (m):	2.2	Screen depth (mbgl):	1.2-2.2
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	130-260
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
14:35	7.14	8.9	1721.3	7.3	-75	1.89	-
14:39	7.14	9.6	1664.0	2.6	-76	1.90	-
14:43	7.15	9.3	1649.4	2.3	-74	1.90	-
14:47	7.15	9.2	1665.3	1.9	-75	1.90	-
14:51	7.15	9.3	1670.0	1.8	-75	1.90	-
14:55	7.15	9.4	1666.6	1.7	-76	1.90	-
14:59	7.16	9.4	1662.1	1.5	-77	1.90	-
15:03	7.16	9.3	1672.3	1.5	-77	1.90	-
15:07	7.16	9.5	1674.9	1.5	-78	1.90	-

Sample Description:	Sample Time:
Clear, no obvious sheen, hydrocarbon/tar/solvent odour (more tarry like in nature)	15:23

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4840

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS16	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	26/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.60	Total depth (m):	2.58
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.11
Approximate tube position (m):	2.1	Screen depth (mbgl):	1.5-2.5
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	18	Flow Rate (ml/min)	210-310
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
09:52	7.37	9.8	486.7	2.0	-98	1.60	-
09:56	7.36	9.9	487.8	2.0	-94	1.60	-
10:00	7.36	9.9	487.7	2.0	-92	1.60	-
10:04	7.35	9.9	488.1	2.4	-88	1.60	-
10:08	7.35	9.9	489.2	2.7	-85	1.60	-
10:12	7.34	9.8	488.9	3.0	-83	1.60	-
10:16	7.34	9.9	488.9	3.4	-80	1.60	-
10:20	7.34	9.9	489.0	3.8	-78	1.60	-
10:24	7.33	9.9	488.3	4.1	-75	1.60	-
10:28	7.33	10.0	488.7	4.5	-73	1.60	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	10:40

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4819

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS18	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	25/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	2.09	Total depth (m):	2.32
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.13
Approximate tube position (m):	Base	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	Grab	Flow Rate (ml/min)	Grab
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)

Sample Description:	Sample Time:
Dark grey, no obvious sheen, possible hydrocarbon odour	14:01

Containers:
Only enough water to fill 2 x vials.

Laboratory Job Number:
26-4840

Comments:
Soft bottom.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS26	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	0.88	Total depth (m):	2.70
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.11
Approximate tube position (m):	1.9	Screen depth (mbgl):	0.8-2.8
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	11	Flow Rate (ml/min)	150-270
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
13:11	7.23	10.6	428.4	28.4	-94	0.88	-
13:15	7.25	9.3	439.7	2.0	-107	0.88	-
13:19	7.23	9.2	439.2	1.4	-109	0.88	-
13:23	7.32	9.2	449.2	1.2	-115	0.88	-
13:27	7.31	9.2	456.8	1.1	-116	0.88	-
13:31	7.28	9.2	448.9	1.0	-114	0.88	-
13:35	7.28	9.2	448.7	1.0	-113	0.88	-
13:39	7.23	9.2	447.0	0.9	-110	0.88	-
13:43	7.23	9.2	443.4	0.9	-109	0.88	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	13:56

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4706

Comments:
Purged water stored in client supplied IBC on site. Soft bottom.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS27	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	30/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	1.71	Total depth (m):	3.00
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.08
Approximate tube position (m):	2.5	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	10	Flow Rate (ml/min)	160-250
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
10:11	6.63	10.1	617.6	47.8	-48	1.71	-
10:15	6.60	10.9	608.8	2.5	-60	1.71	-
10:19	6.60	11.0	607.0	1.9	-66	1.71	-
10:23	6.60	11.0	607.1	1.6	-69	1.71	-
10:27	6.60	11.0	607.2	1.5	-70	1.71	-
10:31	6.60	11.0	607.6	1.4	-71	1.71	-
10:35	6.60	11.0	607.8	1.3	-72	1.72	-
10:39	6.61	11.0	607.8	1.3	-73	1.72	-
10:43	6.61	11.0	608.2	1.3	-74	1.72	-

Sample Description:	Sample Time:
Clear with no obvious sheen and a mixed odour (both "metallic" and hydrocarbon)	11:03

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL), 2 x submerged and upright vials for dissolved gases with tape sealed caps.

Laboratory Job Number:
26-5054

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS31	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	23/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	0.88	Total depth (m):	3.12
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.09
Approximate tube position (m):	2.5	Screen depth (mbgl):	2.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	9	Flow Rate (ml/min)	180-250
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
09:50	7.97	10.0	544.0	5.4	-88	0.88	-
09:54	7.97	9.7	543.5	2.7	-110	0.88	-
09:58	7.95	9.6	550.1	1.8	-112	0.88	-
10:02	7.95	9.6	549.6	1.6	-113	0.88	-
10:06	7.95	9.6	548.7	1.4	-114	0.88	-
10:10	7.94	9.6	548.8	1.3	-113	0.88	-
10:14	7.95	9.6	547.9	1.3	-114	0.88	-
10:18	7.94	9.6	548.4	1.3	-114	0.88	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	10:31

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4654

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS32	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	23/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	0.95	Total depth (m):	2.02
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.12
Approximate tube position (m):	1.5	Screen depth (mbgl):	0.8-1.8
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	6	Flow Rate (ml/min)	150-220
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
12:30	7.33	9.6	446.5	4.1	-70	0.97	-
12:34	7.37	9.5	444.8	3.3	-74	0.97	-
12:38	7.37	9.4	441.3	3.2	-76	0.97	-
12:42	7.36	9.3	438.1	2.2	-76	0.97	-
12:46	7.38	9.2	434.5	1.9	-79	0.98	-
12:50	7.41	9.2	427.8	1.8	-84	0.98	-
12:54	7.40	9.2	431.5	1.7	-86	0.98	-
12:58	7.41	9.2	431.8	1.7	-88	0.98	-

Sample Description:	Sample Time:
Clear, no obvious odour or sheen	13:11

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL).

Laboratory Job Number:
26-4654

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.



Low Flow Monitoring & Sampling Report

Location:	DS33	Well diameter (mm):	50
Report Number:	C1125/5561	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited		
Visit Date:	24/03/2026	Operative:	Paul Brennan

Level Measurements taken to:	Top of cover.		
Depth to water (m):	0.90	Total depth (m):	3.03
Depth to LNAPL (m):	ND	Depth to DNAPL (m):	ND
Cover level above ground level (m):	GL	Pipe below cover (m):	0.13
Approximate tube position (m):	2.0	Screen depth (mbgl):	1.0-3.0
Cover level (mAOD):	Unknown		
Initial depth to water (mAOD)	-	Total depth (mAOD)	-

Estimated volume pumped (Ltrs):	9	Flow Rate (ml/min)	150-310
Pump Type - Solinst 410 Peristaltic.		Tubing type:	New silicon & LDPE
Device Model - AquaTROLL 400		Device S/N -	1229646

Time	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Depth	Depth
(hh:mm)	(pH Units)	(°C)	(µS/cm)	(%)	(mV)	(m)	(mAOD)
10:26	7.69	10.1	390.9	20.1	-116	0.90	-
10:30	7.71	9.3	392.0	1.7	-138	0.91	-
10:34	7.71	9.1	392.5	1.2	-138	0.91	-
10:38	7.70	9.2	392.0	1.3	-136	0.91	-
10:42	7.69	9.2	391.8	1.3	-133	0.91	-
10:46	7.69	9.2	391.8	1.2	-132	0.91	-
10:50	7.69	9.2	391.7	1.2	-131	0.91	-

Sample Description:	Sample Time:
Clear with grey brown tint, no obvious odour or sheen	11:10

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 2 x filtered & fixed (HNO ₃ , HCL), 2 x submerged and upright vials for dissolved gases with tape sealed caps.

Laboratory Job Number:
26-4706

Comments:
Purged water stored in client supplied IBC on site.

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method Statement for Low Flow Monitoring and Sampling (Peristaltic) v5.

Method Statement for Groundwater and Product Level Measurement v4.





Environmental Monitoring & Sampling Services Limited
07 April 2026

Mr M Holker
DB Remediation Limited
Carnoustie House
Kelvin Close
Birchwood
Warrington
WA3 7PB

Site Name: Warth Road, Bury
Report Number: C1125/5562
Client Ref:
Visit Date: 31/03/2026

Dear Matt

Further to your instruction to perform works at the above site, please find enclosed the factual data recorded during this visit.

We trust you find the attached satisfactory, but should you have any queries please do not hesitate to contact us.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'P J Brennan'.

P J Brennan
Director

Enc.



Environmental Monitoring & Sampling Services Limited Surface water monitoring & sampling report

Site name: Warth Road, Bury

Operative: Paul Brennan

Report number: C1125/5562

Customer: DB Remediation Limited

Visit Date: 31/03/2026

Device Model - AquaTROLL 400

Device S/N - 1229646

Location	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Air temperature	What 3 Words
	(pH Units)	(°C)	(µS/cm)	(mg/l)	(mV)	(°C)	
SW1	8.31	8.1	219.2	11.6	264	11.39	wooden.nets.fries

Sample Description:	Sample Time:
Clear with light brown tint, no obvious odour or sheen.	08:23

Flow Description:
Calm but fast flow

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 1 x filtered & fixed (HNO ₃).

Laboratory Job Number:
26-5154

Comments: Upstream of railway bridge.
--



Environmental Monitoring & Sampling Services Limited Surface water monitoring & sampling report

Site name: Warth Road, Bury

Operative: Paul Brennan

Report number: C1125/5562

Customer: DB Remediation Limited

Visit Date: 31/03/2026

Device Model - AquaTROLL 400

Device S/N - 1229646

Location	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Air temperature	What 3 Words
	(pH Units)	(°C)	(µS/cm)	(mg/l)	(mV)	(°C)	
SW2	8.17	7.9	252.3	11.6	78	10.85	café.chill.pinks

Sample Description:	Sample Time:
Clear with light brown tint, no obvious odour or sheen.	N/A

Flow Description:
Calm but fast flow

Containers:
No sample - only in-situ measurements mid stream.

Laboratory Job Number:
N/A

Comments: Midpoint between Railway Bridge and Radcliffe Road Bridge. Also upstream of weir and screw station.
--



Environmental Monitoring & Sampling Services Limited Surface water monitoring & sampling report

Site name: Warth Road, Bury

Operative: Paul Brennan

Report number: C1125/5562

Customer: DB Remediation Limited

Visit Date: 31/03/2026

Device Model - AquaTROLL 400

Device S/N - 1229646

Location	pH	Temperature	Specific Conductivity	Dissolved Oxygen	ORP	Air temperature	What 3 Words
	(pH Units)	(°C)	(µS/cm)	(mg/l)	(mV)	(°C)	
SW3	8.33	7.9	219.6	11.9	163	10.61	stem.number.emerge

Sample Description:	Sample Time:
Clear with light brown tint, no obvious odour or sheen.	09:21

Flow Description:
Calm but fast flow

Containers:
1 x 500ml green glass, 1 x 500ml plastic, 2 x vials, 1 x filtered & fixed (HNO ₃).

Laboratory Job Number:
26-5154

Comments: Downstream of weir and screw station.
--





Environmental Monitoring & Sampling Services Limited
07 April 2026

Mr M Holker
DB Remediation Limited
Carnoustie House
Kelvin Close
Birchwood
Warrington
WA3 7PB

Site Name: Warth Road, Bury
Report Number: C1125/5563
Client Ref:
Visit Date: 01/04/2026

Dear Matt

Further to your instruction to perform works at the above site, please find enclosed the factual data recorded during this visit.

We trust you find the attached satisfactory, but should you have any queries please do not hesitate to contact us.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'P J Brennan'.

P J Brennan
Director

Enc.



Level Record Report

Report Number:	C1125/5563	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited	Operative:	Paul Brennan
Visit Date:	01/04/2026		

Installation	Time	Water Level*	Installation Base*	Cover/pipe height above ground level*	Comments
	(hrs:min)	(m)	(m)	(m)	
DS02	12:51	1.15	3.12	GL	No NAPL Detected.
DS04	13:04	1.36	3.03	GL	No NAPL Detected.
DS06	13:41	2.42	2.98	GL	No NAPL Detected. No tap.
DS07	13:47	2.08	2.92	GL	No NAPL Detected. Soft bottom.
DS09	11:12	1.86	3.10	GL	No NAPL Detected. Soft bottom.
DS10	11:08	1.87	3.10	GL	No NAPL Detected. Soft bottom.
DS11	14:20	2.42	3.23	GL	No NAPL Detected.
DS12	10:33	2.15	3.06	GL	No NAPL Detected. Soft bottom.
DS13	CNL	-	-	-	Shown on drawing but installation construction visually looks like the older boreholes. Possible BH2.
DS14	15:05	1.92	3.97	GL	No NAPL Detected.
DS15	11:17	1.85	2.31	GL	No NAPL Detected.
DS16	11:39	1.62	2.58	GL	No NAPL Detected.
DS18	11:27	2.01	2.33	GL	No NAPL Detected.
DS22	CNL	-	-	-	Under oversize stockpile.
DS25	12:56	1.19	1.56	GL	No NAPL Detected.
DS26	09:27	0.79	2.70	GL	No NAPL Detected.
DS27	11:03	1.74	3.00	GL	No NAPL Detected.
DS28	13:25	1.93	3.21	GL	No NAPL Detected.
DS31	12:44	0.79	3.12	GL	No NAPL Detected.
DS32	12:34	0.83	2.02	GL	No NAPL Detected.
DS33	10:01	0.78	3.03	GL	No NAPL Detected.

Instrument	Manufacturer	Model	S/N
Interface Meter	Geotech	12050256	6227

Weather Conditions:

Temperature (°C)	-	Precipitation:	Dry	Ground Conditions:	Dry/damp
Wind Conditions	Gentle breeze	Cloud Cover:	Cloudy		

Site Conditions:

These works have been undertaken in accordance with the following monitoring & sampling methodologies:

Method statement for groundwater and product level measurement v4.

* = Water and base level measurements dipped to top of cover or pipe if no cover.



Level Record Report

Report Number:	C1125/5563	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited	Operative:	Paul Brennan
Visit Date:	01/04/2026		

Installation	Time	Water Level*	Installation Base*	Cover/pipe height above ground level*	Comments
	(hrs:min)	(m)	(m)	(m)	
CP101(S)	09:37	0.82	3.73	GL	No NAPL Detected. Soft bottom.
CP101(D)	09:40	0.73	10.03	GL	No NAPL Detected. Soft bottom.
CP102(S)	10:20	1.73	4.13	GL	No NAPL Detected.
CP102(D)	10:22	1.80	10.10	GL	No NAPL Detected.
CP103(S)	10:36	2.23	2.23	GL	No NAPL Detected. Soft bottom.
CP103(D)	10:40	2.15	4.87	GL	No NAPL Detected. Soft bottom.
CP104(S)	14:06	2.45	3.13	GL	No NAPL Detected.
CP104(D)	14:08	2.58	8.16	GL	No NAPL Detected.
CP105(S)	11:20	2.30	4.62	GL	No NAPL Detected.
CP105(D)	11:23	2.31	10.36	GL	No NAPL Detected.
CP106(S)	15:18	0.86	4.26	GL	No NAPL Detected.
CP106(D)	15:21	0.82	8.35	GL	No NAPL Detected.
CP107(S)	13:32	2.20	4.30	GL	No NAPL Detected.
CP107(D)	13:35	2.12	9.09	GL	No NAPL Detected.
WS101	09:49	0.75	1.03	GL	No NAPL Detected.
WS102	08:13	0.78	3.12	GL	No NAPL Detected.
WS103	10:10	0.87	3.69	GL	No NAPL Detected.
WS104	CNL	-	-	-	Only evidence of one installation could be found in this area. The installation located has the same construction appearance as other "BH" installations and not a "DS" installation so assumed to be BH18.
WS105	CNL	-	-	-	Under oversize stockpile.
WS109	CNL	-	-	-	No evidence of any installation in this area.
WS110	12:40	1.22	2.86	GL	No NAPL Detected.
WS111	10:58	1.71	3.95	GL	No NAPL Detected.
WS112	11:34	1.51	2.15	GL	No NAPL Detected.
WS113	11:43	1.57	2.14	GL	No NAPL Detected. Soft bottom.
WS117	13:59	2.29	3.00	GL	No NAPL Detected. Soft bottom.
WS118	11:55	1.24	2.41	GL	No NAPL Detected.
WS119	13:00	1.47	3.29	GL	No NAPL Detected.
WS121	15:32	1.41	2.83	GL	No NAPL Detected.
WS122	13:15	1.99	2.60	GL	No NAPL Detected. Soft bottom.

Instrument	Manufacturer	Model	S/N
Interface Meter	Geotech	12050256	6227

Weather Conditions:					
Temperature (°C)	-	Precipitation:	Dry	Ground Conditions:	Dry/damp
Wind Conditions	Gentle breeze	Cloud Cover:	Cloudy		

Site Conditions:

These works have been undertaken in accordance with the following monitoring & sampling methodologies:
Method statement for groundwater and product level measurement v4. * = Water and base level measurements dipped to top of cover or pipe if no cover.

Results and factual data included in this report are representative of the conditions encountered during the event.

EMSS Ltd cannot be responsible for the suitability of installations installed.



Level Record Report

Report Number:	C1125/5563	Site Name:	Warth Road, Bury
Customer:	DB Remediation Limited	Operative:	Paul Brennan
Visit Date:	01/04/2026		

Installation	Time	Water Level*	Installation Base*	Cover/pipe height above ground level*	Comments
	(hrs:min)	(m)	(m)	(m)	
DS20/BH9	10:17	1.59	5.46	GL	No NAPL Detected. Shown on drawing as DS20 but installation construction visually does not look like the older boreholes and could be DS20.
DS21/BH9	10:27	1.79	3.38	GL	No NAPL Detected. Shown on drawing as DS21 but installation construction visually looks like the older boreholes and could be BH9.
BH1	CNL	-	-	-	Under crushed stockpile.
BH2	10:49	2.83	4.69	GL	No NAPL Detected. Expansion cap no tap. Hydrocarbon odour off probe. In position of DS13 on drawing but construction is different to other "DS" installations so assumed to be BH2.
BH3	11:51	1.41	2.59	GL	No NAPL Detected. No tap.
BH5	10:07	0.77	2.95	GL	No NAPL Detected. No tap.
BH6	14:13	Blocked	0.12	+0.01	No NAPL Detected. No bung, tap and cover broken.
BH7	CNL	-	-	-	
BH8	CNL	-	-	-	
BH9	CNL	-	-	-	
BH10	CNL	-	-	-	
BH11	13:19	1.92	5.70	GL	No NAPL Detected. No tap.
BH12	15:56	1.39	2.88	GL	No NAPL Detected. Soft bottom.
BH13	CNL	-	-	-	
BH14	11:30	1.64	2.28	GL	No NAPL Detected. Expansion cap, no tap.
BH15	CNL	-	-	-	
BH16	CNL	-	-	-	
BH17	CNL	-	-	-	Offsite
BH18	09:57	0.69	1.98	GL	No NAPL Detected. No tap.
BH19	09:53	0.68	1.57	GL	No NAPL Detected. No bung, tap or cover.
BH20	09:45	0.75	3.02	GL	No NAPL Detected. Evidence that a fire had been above installation as cap and top of pipe melted.

Instrument	Manufacturer	Model	S/N
Interface Meter	Geotech	12050256	6227

Weather Conditions:					
Temperature (°C)	-	Precipitation:	Dry	Ground Conditions:	Dry/damp
Wind Conditions	Gentle breeze	Cloud Cover:	Cloudy		

Site Conditions:

These works have been undertaken in accordance with the following monitoring & sampling methodologies:
Method statement for groundwater and product level measurement v4. * = Water and base level measurements dipped to top of cover or pipe if no cover.



APPENDIX 7

Laboratory Certificates

DB Remediation
Carnoustie House
Kelvin Close
Birchwood
Warrington
United Kingdom
WA3 7PB



4225



Attention : Matt Holker
Date : 8th April, 2026
Your reference : N/A
Our reference : Test Report 26/4654 Batch 1
Location : Warth Road Bury
Date samples received : 25th March, 2026
Status : Final Report
Issue : 202604081005

Three samples were received for analysis on 25th March, 2026 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 6.226 kg of CO2

Scope 1&2&3 emissions - 14.715 kg of CO2

Authorised By:



Phil Sommerton BSc

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4654

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12	13-18								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS04	DS31	DS32										
Depth	1.41	0.88	0.95										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V HN HCL P G										
Sample Date	23/03/2026 14:51	23/03/2026 10:31	23/03/2026 13:11										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	25/03/2026	25/03/2026	25/03/2026								LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5	<2.5								<2.5	ug/l	TM30/PM14
Dissolved Barium #	202	90	214								<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5								<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5								<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5								<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7								<7	ug/l	TM30/PM14
Total Dissolved Iron #	21	1445	15726 ^{AB}								<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5								<5	ug/l	TM30/PM14
Dissolved Manganese #	3965	3065	1527								<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1								<1	ug/l	TM30/PM14
Dissolved Nickel #	2	<2	<2								<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3								<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	1.7								<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3	4								<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1								<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.005	0.005								<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005	0.005								<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005	<0.005	0.005								<0.005	ug/l	TM4/PM30
Pyrene #	<0.005	<0.005	0.005								<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	<0.173								<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	86	60 ^{SV}	65 ^{SV}								<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	95	92	93								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	93	91								<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4654

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12	13-18								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS04	DS31	DS32										
Depth	1.41	0.88	0.95										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V HN HCL P G										
Sample Date	23/03/2026 14:51	23/03/2026 10:31	23/03/2026 13:11										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	25/03/2026	25/03/2026	25/03/2026								LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM3
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
Total aliphatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM3
Aromatics													
>C5-EC7 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM3
>EC12-EC16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
>EC21-EC35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM3
Total aliphatics and aromatics(C5-35) #	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM3
Sulphate as SO4 #	60.9	43.4	28.2								<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	186	266	196								<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	504	581	447								<2	uS/cm	TM76/PM0
Dissolved Iron II	<1	1	11 ^{AA}								<1	mg/l	TM213/PM3
Dissolved Iron III	<1	<1	5 ^{AA}								<1	mg/l	TM30/TM213/PM
Manganese II	4.21	3.34	1.50 ^{AA}								<0.02	mg/l	TM213/PM3
Dissolved Manganese IV (by calculation)	<0.02	<0.02	<0.04 ^{AA}								<0.02	mg/l	TM30/TM213/PM
pH #	7.77	8.03	7.42								<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4654

VOC Report : Liquid

EMT Sample No.	1-6	7-12	13-18								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS04	DS31	DS32										
Depth	1.41	0.88	0.95										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V HN HCL P G										
Sample Date	23/03/2026 14:51	23/03/2026 10:31	23/03/2026 13:11										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	25/03/2026	25/03/2026	25/03/2026								LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	13	10								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	95	92	93								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	93	91								<0	%	TM15/PM10

Client Name: DB Remediation

Reference: N/A

Location: Warth Road Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4654

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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	x2 Dilution
AB	x5 Dilution

EMT Job No: 26/4654

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/4654

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Carnoustie House
Kelvin Close
Birchwood
Warrington
United Kingdom
WA3 7PB



4225



Attention : Matt Holker
Date : 8th April, 2026
Your reference : N/A
Our reference : Test Report 26/4659 Batch 1
Location : Warth Road Bury
Date samples received : 25th March, 2026
Status : Final Report
Issue : 202604080935

Two samples were received for analysis on 25th March, 2026 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.199 kg of CO2

Scope 1&2&3 emissions - 9.924 kg of CO2

Authorised By:



Phil Sommerton BSc

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4659

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS110	WS122											
Depth	1.25	2.02											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	23/03/2026 11:59	23/03/2026 16:01											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	25/03/2026	25/03/2026									LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5									<2.5	ug/l	TM30/PM14
Dissolved Barium #	192	109									<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	2.0									<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7									<7	ug/l	TM30/PM14
Total Dissolved Iron #	2410	<20									<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5									<5	ug/l	TM30/PM14
Dissolved Manganese #	2441	<2									<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1									<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2									<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3									<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3									<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1									<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.032	<0.005									<0.005	ug/l	TM4/PM30
Acenaphthene #	0.009	<0.005									<0.005	ug/l	TM4/PM30
Fluorene #	0.013	<0.005									<0.005	ug/l	TM4/PM30
Phenanthrene #	0.081	<0.005									<0.005	ug/l	TM4/PM30
Anthracene #	0.032	<0.005									<0.005	ug/l	TM4/PM30
Fluoranthene #	0.152	<0.005									<0.005	ug/l	TM4/PM30
Pyrene #	0.146	<0.005									<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.080	<0.005									<0.005	ug/l	TM4/PM30
Chrysene #	0.095	<0.005									<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	0.153	<0.008									<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.101	<0.005									<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.063	<0.005									<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	0.012	<0.005									<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.057	<0.005									<0.005	ug/l	TM4/PM30
PAH 16 Total #	1.026	<0.173									<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.110	<0.008									<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.043	<0.008									<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	74	68 ^{SV}									<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2									<2	ug/l	TM15/PM10
o-Xylene #	<1	<1									<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92	88									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90	86									<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4659

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS110	WS122											
Depth	1.25	2.02											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	23/03/2026 11:59	23/03/2026 16:01											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	25/03/2026	25/03/2026											
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics C5-35 #	<10	<10									<10	ug/l	TM5/TM36/PM12/PM16/PM3
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35 #	<10	<10									<10	ug/l	TM5/TM36/PM12/PM16/PM3
Total aliphatics and aromatics(C5-35) #	<10	<10									<10	ug/l	TM5/TM36/PM12/PM16/PM3
Sulphate as SO4 #	90.9	260.2									<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	2.2	6.3									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	220	110									<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	667	1384									<2	uS/cm	TM76/PM0
Dissolved Iron II	2	<1									<1	mg/l	TM213/PM3
Dissolved Iron III	<1	<1									<1	mg/l	TM30/TM213/PM3
Manganese II	2.32	<0.02									<0.02	mg/l	TM213/PM3
Dissolved Manganese IV (by calculation)	0.12	<0.02									<0.02	mg/l	TM30/TM213/PM3
pH #	7.81	7.17									<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4659

VOC Report : Liquid

EMT Sample No.	1-6	7-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS110	WS122											
Depth	1.25	2.02											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	23/03/2026 11:59	23/03/2026 16:01											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	25/03/2026	25/03/2026									LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	4	<2									<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3									<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1									<1	ug/l	TM15/PM10
Chloroethane #	<3	<3									<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3									<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3									<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1									<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2									<2	ug/l	TM15/PM10
Chloroform #	<2	<2									<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2									<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2									<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2									<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2									<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2									<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2									<2	ug/l	TM15/PM10
o-Xylene #	<1	<1									<1	ug/l	TM15/PM10
Styrene	<2	<2									<2	ug/l	TM15/PM10
Bromoform	<2	<2									<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4									<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3									<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3									<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3									<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2									<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3									<3	ug/l	TM15/PM10
Naphthalene	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92	88									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90	86									<0	%	TM15/PM10

Client Name: DB Remediation

Reference: N/A

Location: Warth Road Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4659

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/4659

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/4659

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 8th April, 2026
Your reference : -
Our reference : Test Report 26/4706 Batch 1
Location : Warth Road, Bury
Date samples received : 26th March, 2026
Status : Final Report
Issue : 202604081327

Three samples were received for analysis on 26th March, 2026 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.416 kg of CO2

Scope 1&2&3 emissions - 10.437 kg of CO2

Authorised By:



Phil Sommerton BSc

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4706

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12	13-14									
Sample ID	DS26	DS33	DS33-GAS									
Depth	0.88	0.90	0.90									
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G	V									
Sample Date	24/03/2026 13:56	24/03/2026 11:10	24/03/2026									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	26/03/2026	26/03/2026	26/03/2026									
										LOD/LOR	Units	Method No.
Dissolved Arsenic #	17.3	<2.5	-							<2.5	ug/l	TM30/PM14
Dissolved Barium #	345	79	-							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	-							<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	-							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	-							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	-							<7	ug/l	TM30/PM14
Total Dissolved Iron #	20519 ^{AB}	4316	-							<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	-							<5	ug/l	TM30/PM14
Dissolved Manganese #	1190	1638	-							<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	-							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2	-							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	-							<3	ug/l	TM30/PM14
Dissolved Vanadium #	2.4	<1.5	-							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	5	7	-							<3	ug/l	TM30/PM14
PAH MS												
Naphthalene #	<0.1	<0.1	-							<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.010	<0.005	-							<0.005	ug/l	TM4/PM30
Acenaphthene #	0.019	<0.005	-							<0.005	ug/l	TM4/PM30
Fluorene #	0.013	<0.005	-							<0.005	ug/l	TM4/PM30
Phenanthrene #	0.019	<0.005	-							<0.005	ug/l	TM4/PM30
Anthracene #	0.006	<0.005	-							<0.005	ug/l	TM4/PM30
Fluoranthene #	0.006	<0.005	-							<0.005	ug/l	TM4/PM30
Pyrene #	0.010	0.009	-							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	-							<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	-							<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	-							<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	-							<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	-							<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	86	71	-							<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	-							<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	-							<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	-							<5	ug/l	TM15/PM10
Ethylbenzene #	1	<1	-							<1	ug/l	TM15/PM10
m/p-Xylene #	4	<2	-							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	-							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	95	95	-							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	93	-							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4706

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12	13-14								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS26	DS33	DS33-GAS										
Depth	0.88	0.90	0.90										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V										
Sample Date	24/03/2026 13:56	24/03/2026 11:10	24/03/2026										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	26/03/2026	26/03/2026	26/03/2026								LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	-								<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	-								<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	-								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	-								<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	<10	<10	-								<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	-								<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	-								<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	-								<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	-								<10	ug/l	TM5/PM16/PM30
Sulphate as SO4 #	20.2	25.7	-								<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	-								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	-								<0.02	mg/l	TM38/PM0
Dissolved Methane #	-	-	32								<1	ug/l	TM25/PM0
Dissolved Carbon Dioxide	-	-	<1								<1	ug/l	TM25/PM0
Total Alkalinity as CaCO3 #	198	174	-								<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	449	432	-								<2	uS/cm	TM76/PM0
Dissolved Iron II	17 ^{AA}	5	-								<1	mg/l	TM213/PM31
Dissolved Iron III	4 ^{AA}	<1	-								<1	mg/l	TM30/TM213/PM0
Manganese II	1.07 ^{AA}	1.60	-								<0.02	mg/l	TM213/PM31
Dissolved Manganese IV (by calculation)	0.12 ^{AA}	0.04	-								<0.02	mg/l	TM30/TM213/PM0
pH #	7.42	7.90	-								<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4706

VOC Report : Liquid

EMT Sample No.	1-6	7-12										
Sample ID	DS26	DS33										
Depth	0.88	0.90										
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G										
Sample Date	24/03/2026 13:56	24/03/2026 11:10										
Sample Type	Ground Water	Ground Water										
Batch Number	1	1										
Date of Receipt	26/03/2026	26/03/2026										
	LOD/LOR	Units	Method No.									
VOC MS												
Dichlorodifluoromethane	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	4	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	95	95								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	93								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: -

Location: Warth Road, Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4706

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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	x2 Dilution
AB	x5 Dilution

EMT Job No: 26/4706

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC-FID. 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.				
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			

EMT Job No: 26/4706

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/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 8th April, 2026
Your reference : -
Our reference : Test Report 26/4708 Batch 1
Location : Warth Road, Bury
Date samples received : 26th March, 2026
Status : Final Report
Issue : 202604081327

Four samples were received for analysis on 26th March, 2026 of which four 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 7.819 kg of CO2

Scope 1&2&3 emissions - 18.479 kg of CO2

Authorised By:



Phil Sommerton BSc

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4708

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-5,23	6-11	12-16	17-22							Please see attached notes for all abbreviations and acronyms		
Sample ID	WS103	CP102S	CP102D	CP107S									
Depth	0.99	1.85	1.86	2.23									
COC No / misc													
Containers	V HCL P G HN	V HN HCL P G	V HN P G	V HN HCL P G									
Sample Date	24/03/2026 12:27	24/03/2026 15:23	24/03/2026 16:43	24/03/2026 09:33									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	26/03/2026	26/03/2026	26/03/2026	26/03/2026							LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	120.3	30.3	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Barium #	771	493	695	272							<3	ug/l	TM30/PM14
Dissolved Beryllium	0.8	0.8	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<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	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7							<7	ug/l	TM30/PM14
Total Dissolved Iron #	54606 ^{AA}	62104 ^{AA}	-	<20							<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Manganese #	2695	449	-	2370							<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	4	5	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium #	4.4	6.8	3.3	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	5	5	7	5							<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	0.088	0.024	<0.005							<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	0.063	0.015	<0.005							<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005	0.011	<0.005							<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005	0.031	0.006	0.012							<0.005	ug/l	TM4/PM30
Pyrene #	<0.005	0.021	0.005	0.009							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(b)fluoranthene #	<0.008	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	0.203	<0.173	<0.173							<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	79	81	87	73							<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	-	<0.1							<0.1	ug/l	TM15/PM10
Benzene #	<0.5	18.9	-	<0.5							<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	-	<5							<5	ug/l	TM15/PM10
Ethylbenzene #	50	2	-	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	266	3	-	<2							<2	ug/l	TM15/PM10
o-Xylene #	1	<1	-	<1							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	103	98	-	96							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	96	-	94							<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4708

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-5,23	6-11	12-16	17-22							Please see attached notes for all abbreviations and acronyms		
Sample ID	WS103	CP102S	CP102D	CP107S									
Depth	0.99	1.85	1.86	2.23									
COC No / misc													
Containers	V HCL P G HN	V HN HCL P G	V HN P G	V HN HCL P G									
Sample Date	24/03/2026 12:27	24/03/2026 15:23	24/03/2026 16:43	24/03/2026 09:33									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1							LOD/LOR	Units	Method No.
Date of Receipt	26/03/2026	26/03/2026	26/03/2026	26/03/2026									
MTBE #	-	-	<5	-							<5	ug/l	TM36/PM12
Benzene #	-	-	7	-							<5	ug/l	TM36/PM12
Toluene #	-	-	<5	-							<5	ug/l	TM36/PM12
Ethylbenzene #	-	-	<5	-							<5	ug/l	TM36/PM12
m/p-Xylene #	-	-	<5	-							<5	ug/l	TM36/PM12
o-Xylene #	-	-	<5	-							<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>C6-C8 #	<10	50	22	<10							<10	ug/l	TM36/PM12
>C8-C10 #	132	665	199	<10							<10	ug/l	TM36/PM12
>C10-C12 #	<5	103	10	<5							<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	132	818	231	<10							<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	<10	15	<10	<10							<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC8-EC10 #	246	22	<10	<10							<10	ug/l	TM36/PM12
>EC10-EC12 #	177	656	252	<5							<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	30	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	423	723	252	<10							<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	555	1541	483	<10							<10	ug/l	TM5/PM16/PM30
Sulphate as SO4 #	6.3	<0.5	-	123.3							<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	-	3.6							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	-	<0.02							<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	174	284	-	156							<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	402	642	719	1112							<2	uS/cm	TM76/PM0
Dissolved Iron II	46 _{AA}	48 _{AA}	-	<1							<1	mg/l	TM213/PM31
Dissolved Iron III	<10 _{AA}	14 _{AA}	-	<1							<1	mg/l	TM30/TM213/PM0
Manganese II	2.78 _{AA}	0.48 _{AA}	-	2.36							<0.02	mg/l	TM213/PM31
Dissolved Manganese IV (by calculation)	<0.20 _{AA}	<0.20 _{AA}	-	<0.02							<0.02	mg/l	TM30/TM213/PM0
pH #	6.98	7.23	7.64	7.39							<0.01	pH units	TM73/PM0

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4708

VOC Report : Liquid

EMT Sample No.	1-5,23	6-11	17-22									
Sample ID	WS103	CP102S	CP107S									
Depth	0.99	1.85	2.23									
COC No / misc												
Containers	V HCL P G HN	V HN HCL P G	V HN HCL P G									
Sample Date	24/03/2026 12:27	24/03/2026 15:23	24/03/2026 09:33									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	26/03/2026	26/03/2026	26/03/2026									
VOC MS										LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	0.2	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3							<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	18.9	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	50	2	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	266	3	<2							<2	ug/l	TM15/PM10
o-Xylene #	1	<1	<1							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	5	71	<3							<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	25	32	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	16	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	12	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	407	90	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	14	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	103	98	96							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	96	94							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: -

Location: Warth Road, Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4708

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/4708

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/4708

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 9th April, 2026
Your reference : -
Our reference : Test Report 26/4819 Batch 1
Location : Warth Road, Bury
Date samples received : 27th March, 2026
Status : Final Report
Issue : 202604091414

Two samples were received for analysis on 27th March, 2026 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.199 kg of CO2

Scope 1&2&3 emissions - 9.924 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4819

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	DS07	DS16											
Depth	2.06	1.60											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	26/03/2026 15:20	26/03/2026 10:40											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	27/03/2026	27/03/2026									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics C5-35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics and aromatics(C5-35) #	<10	<10									<10	ug/l	TM5/PM16/PM3
Sulphate as SO4 #	290.4	43.0									<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	5.6	1.7									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	122	210									<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	1047	529									<2	uS/cm	TM76/PM0
Dissolved Iron II	<1	2									<1	mg/l	TM213/PM3
Dissolved Iron III	<1	<1									<1	mg/l	TM30/TM213/PM
Manganese II	0.10	0.48									<0.02	mg/l	TM213/PM3
Dissolved Manganese IV (by calculation)	<0.02	<0.02									<0.02	mg/l	TM30/TM213/PM
pH #	6.94	7.33									<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4819

VOC Report : Liquid

EMT Sample No.	1-6	7-12										
Sample ID	DS07	DS16										
Depth	2.06	1.60										
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G										
Sample Date	26/03/2026 15:20	26/03/2026 10:40										
Sample Type	Ground Water	Ground Water										
Batch Number	1	1										
Date of Receipt	27/03/2026	27/03/2026										
	LOD/LOR	Units	Method No.									
VOC MS												
Dichlorodifluoromethane	<2	7								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	87	88								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	91	91								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: -

Location: Warth Road, Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4819

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/4819

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/4819

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 16th April, 2026
Your reference : -
Our reference : Test Report 26/4820 Batch 1
Location : Warth Road, Bury
Date samples received : 27th March, 2026
Status : Final Report
Issue : 202604161543

Three samples were received for analysis on 27th March, 2026 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 5.864 kg of CO2

Scope 1&2&3 emissions - 13.859 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4820

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-14	15-17,19-20									
Sample ID	WS112	CP104S	CP104D									
Depth	1.50	2.43	2.82									
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G	V HN P G									
Sample Date	26/03/2026 09:15	26/03/2026 12:39	26/03/2026 13:51									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	27/03/2026	27/03/2026	27/03/2026									
										LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	10.0	5.3							<2.5	ug/l	TM30/PM14
Dissolved Barium #	132	532	508							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7							<7	ug/l	TM30/PM14
Total Dissolved Iron #	88	31789 ^{AA}	-							<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Manganese #	135	823 ^{AA}	-							<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	3.2	2.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	3	4	10							<3	ug/l	TM30/PM14
PAH MS												
Naphthalene #	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.008	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Acenaphthene #	0.346	0.020	<0.005							<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	0.018	<0.005							<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	0.005	0.006							<0.005	ug/l	TM4/PM30
Anthracene #	0.017	0.011	0.017							<0.005	ug/l	TM4/PM30
Fluoranthene #	0.010	0.009	0.015							<0.005	ug/l	TM4/PM30
Pyrene #	0.010	0.008	0.013							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.391	<0.173	<0.173							<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	86	73	81							<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	-							<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	-							<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	-							<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	-							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	-							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	-							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	96	174	-							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	182	-							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4820

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-14	15-17,19-20								Please see attached notes for all abbreviations and acronyms		
Sample ID	WS112	CP104S	CP104D										
Depth	1.50	2.43	2.82										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V HN P G										
Sample Date	26/03/2026 09:15	26/03/2026 12:39	26/03/2026 13:51										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	27/03/2026	27/03/2026	27/03/2026								LOD/LOR	Units	Method No.
MTBE #	-	-	<5								<5	ug/l	TM36/PM12
Benzene #	-	-	<5								<5	ug/l	TM36/PM12
Toluene #	-	-	<5								<5	ug/l	TM36/PM12
Ethylbenzene #	-	-	<5								<5	ug/l	TM36/PM12
m/p-Xylene #	-	-	<5								<5	ug/l	TM36/PM12
o-Xylene #	-	-	<5								<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	<10	46	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	46	<10								<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	46	<10								<10	ug/l	TM5/PM16/PM30
Sulphate as SO4 #	49.7	21.6	-								<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	-								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	-								<0.02	mg/l	TM38/PM0
Dissolved Methane #	-	>>1135	-								<1	ug/l	TM25/PM0
Dissolved Carbon Dioxide	-	>>160575	-								<1	ug/l	TM25/PM0
Total Alkalinity as CaCO3 #	244	164	-								<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	627	560	578								<2	uS/cm	TM76/PM0
Dissolved Iron II	<1	29 _{AB}	-								<1	mg/l	TM213/PM31
Dissolved Iron III	<1	3	-								<1	mg/l	TM30/TM213/PM0
Manganese II	0.15	0.62 _{AB}	-								<0.02	mg/l	TM213/PM31
Dissolved Manganese IV (by calculation)	<0.02	0.20	-								<0.02	mg/l	TM30/TM213/PM0
pH #	8.00	6.77	6.94								<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/4820

VOC Report : Liquid

EMT Sample No.	1-6	7-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS112	CP104S											
Depth	1.50	2.43											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	26/03/2026 09:15	26/03/2026 12:39											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	27/03/2026	27/03/2026									LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3									<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1									<1	ug/l	TM15/PM10
Chloroethane #	<3	<3									<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3									<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3									<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1									<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2									<2	ug/l	TM15/PM10
Chloroform #	<2	<2									<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2									<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2									<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2									<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2									<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2									<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2									<2	ug/l	TM15/PM10
o-Xylene #	<1	<1									<1	ug/l	TM15/PM10
Styrene	<2	<2									<2	ug/l	TM15/PM10
Bromoform	<2	<2									<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4									<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3									<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3									<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3									<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2									<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3									<3	ug/l	TM15/PM10
Naphthalene	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	96	174									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	182									<0	%	TM15/PM10

Client Name: DB Remediation

Reference: -

Location: Warth Road, Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4820

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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	x10 Dilution

EMT Job No: 26/4820

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.				
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			

EMT Job No: 26/4820

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/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 9th April, 2026
Your reference : N/A
Our reference : Test Report 26/4840 Batch 1
Location : Warth Road Bury
Date samples received : 27th March, 2026
Status : Final Report
Issue : 202604091025

Three samples were received for analysis on 27th March, 2026 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.489 kg of CO2

Scope 1&2&3 emissions - 10.608 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4840

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS11	DS15										
Depth	2.56	1.89										
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G										
Sample Date	25/03/2026 09:14	25/03/2026 15:23										
Sample Type	Ground Water	Ground Water										
Batch Number	1	1										
Date of Receipt	27/03/2026	27/03/2026								LOD/LOR	Units	Method No.
Dissolved Arsenic #	38.4	7.7								<2.5	ug/l	TM30/PM14
Dissolved Barium #	235	67								<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5								<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5								<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5								<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7								<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5								<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1								<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2								<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3								<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5								<1.5	ug/l	TM30/PM14
Dissolved Zinc #	9	14								<3	ug/l	TM30/PM14
PAH MS												
Naphthalene #	<0.1	<0.1								<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Acenaphthene #	0.008	0.010								<0.005	ug/l	TM4/PM30
Fluorene #	0.007	0.018								<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	0.015								<0.005	ug/l	TM4/PM30
Fluoranthene #	0.006	0.021								<0.005	ug/l	TM4/PM30
Pyrene #	0.006	0.014								<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005								<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173								<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008								<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	73	69 ^{SV}								<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Toluene #	<5	<5								<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1								<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	98	93								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	100	91								<0	%	TM15/PM10
												</

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4840

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	DS11	DS15											
Depth	2.56	1.89											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	25/03/2026 09:14	25/03/2026 15:23											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	27/03/2026	27/03/2026									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	24	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics C5-35 #	24	<10									<10	ug/l	TM5/PM16/PM3
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	718	<5									<5	ug/l	TM5/PM16/PM3
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35 #	718	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics and aromatics(C5-35) #	742	<10									<10	ug/l	TM5/PM16/PM3
Sulphate as SO4 #	1.6	197.1									<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	0.03									<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	220	750									<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	430	1825									<2	uS/cm	TM76/PM0
Dissolved Iron II	20 ^{AA}	8									<1	mg/l	TM213/PM3
Dissolved Iron III	3	<1									<1	mg/l	TM30/TM213/PM
Manganese II	0.39 ^{AA}	0.44									<0.02	mg/l	TM213/PM3
Dissolved Manganese IV (by calculation)	0.24 ^{AA}	0.04									<0.02	mg/l	TM30/TM213/PM
pH #	7.01	7.31									<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4840

VOC Report : Liquid

EMT Sample No.	1-6	7-12	13-15								Please see attached notes for all abbreviations and acronyms		
Sample ID	DS11	DS15	DS18										
Depth	2.56	1.89	2.09										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V G										
Sample Date	25/03/2026 09:14	25/03/2026 15:23	25/03/2026 14:01										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	27/03/2026	27/03/2026	27/03/2026								LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	345								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	1189								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	214								<1	ug/l	TM15/PM10
Styrene	<2	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	9								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	20								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	98	93	109								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	100	91	110								<0	%	TM15/PM10

Client Name:	DB Remediation
Reference:	N/A
Location:	Warth Road Bury
Contact:	Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4840

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/4840

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/4840

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 9th April, 2026
Your reference : N/A
Our reference : Test Report 26/4845 Batch 1
Location : Warth Road Bury
Date samples received : 27th March, 2026
Status : Final Report
Issue : 202604091420

Three samples were received for analysis on 27th March, 2026 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 6.661 kg of CO2

Scope 1&2&3 emissions - 15.741 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4845

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-8	9-14	15-19							Please see attached notes for all abbreviations and acronyms		
Sample ID	CP103D	CP105S	CP105D									
Depth	2.14	2.32	2.32									
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G	V HN P G									
Sample Date	25/03/2026 10:46	25/03/2026 12:13	25/03/2026 13:30									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	27/03/2026	27/03/2026	27/03/2026							LOD/LOR	Units	Method No.
Dissolved Arsenic #	72.1	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Barium #	332	367	78							<3	ug/l	TM30/PM14
Dissolved Beryllium	1.1	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7							<7	ug/l	TM30/PM14
Total Dissolved Iron #	68241 ^{AB}	16324 ^{AA}	-							<20	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Manganese #	1344 ^{AB}	2380 ^{AA}	-							<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium #	4.0	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	7	<3	15							<3	ug/l	TM30/PM14
PAH MS												
Naphthalene #	146.7 ^{AE}	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Acenaphthene #	0.181	<0.005	0.013							<0.005	ug/l	TM4/PM30
Fluorene #	0.111	<0.005	0.011							<0.005	ug/l	TM4/PM30
Phenanthrene #	0.163	<0.005	0.012							<0.005	ug/l	TM4/PM30
Anthracene #	0.030	<0.005	0.010							<0.005	ug/l	TM4/PM30
Fluoranthene #	0.032	<0.005	0.014							<0.005	ug/l	TM4/PM30
Pyrene #	0.025	<0.005	0.037							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005							<0.005	ug/l	TM4/PM30
PAH 16 Total #	147.242	<0.173	<0.173							<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008							<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	72	54 ^{SV}	69 ^{SV}							<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	-							<0.1	ug/l	TM15/PM10
Benzene #	28.7	<0.5	-							<0.5	ug/l	TM15/PM10
Toluene #	20157 ^{AD}	<5	-							<5	ug/l	TM15/PM10
Ethylbenzene #	5496 ^{AD}	116	-							<1	ug/l	TM15/PM10
m/p-Xylene #	28519 ^{AD}	423	-							<2	ug/l	TM15/PM10
o-Xylene #	6348 ^{AD}	33	-							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	112	120	-							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	75	109	-							<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4845

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-8	9-14	15-19								Please see attached notes for all abbreviations and acronyms		
Sample ID	CP103D	CP105S	CP105D										
Depth	2.14	2.32	2.32										
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G	V HN P G										
Sample Date	25/03/2026 10:46	25/03/2026 12:13	25/03/2026 13:30										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	27/03/2026	27/03/2026	27/03/2026								LOD/LOR	Units	Method No.
MTBE #	-	-	<5								<5	ug/l	TM36/PM12
Benzene #	-	-	<5								<5	ug/l	TM36/PM12
Toluene #	-	-	<5								<5	ug/l	TM36/PM12
Ethylbenzene #	-	-	<5								<5	ug/l	TM36/PM12
m/p-Xylene #	-	-	<5								<5	ug/l	TM36/PM12
o-Xylene #	-	-	<5								<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	3909	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	6243	92	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	10152	92	<10								<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	19	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 #	>>16789	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 #	>>28573	452	<10								<10	ug/l	TM36/PM12
>EC10-EC12 #	4045	<5	<5								<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	20	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	49446	452	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	59598	544	<10								<10	ug/l	TM5/PM16/PM30
Sulphate as SO4 #	<0.5	11.4	-								<0.5	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	-								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	-								<0.02	mg/l	TM38/PM0
Dissolved Methane #	>>12359	-	-								<1	ug/l	TM25/PM0
Dissolved Carbon Dioxide	>>330317	-	-								<1	ug/l	TM25/PM0
Total Alkalinity as CaCO3 #	338	240	-								<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	672	484	491								<2	uS/cm	TM76/PM0
Dissolved Iron II	57 ^{AC}	13 ^{AB}	-								<1	mg/l	TM213/PM31
Dissolved Iron III	11	3	-								<1	mg/l	TM30/TM213/PM0
Manganese II	0.81 ^{AC}	1.99 ^{AB}	-								<0.02	mg/l	TM213/PM31
Dissolved Manganese IV (by calculation)	0.53 ^{AC}	0.39 ^{AB}	-								<0.02	mg/l	TM30/TM213/PM0
pH #	6.74	7.24	7.52								<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: N/A
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/4845

VOC Report : Liquid

EMT Sample No.	1-8	9-14										
Sample ID	CP103D	CP105S										
Depth	2.14	2.32										
COC No / misc												
Containers	V HN HCL P G	V HN HCL P G										
Sample Date	25/03/2026 10:46	25/03/2026 12:13										
Sample Type	Ground Water	Ground Water										
Batch Number	1	1										
Date of Receipt	27/03/2026	27/03/2026										
	LOD/LOR	Units	Method No.									
VOC MS												
Dichlorodifluoromethane	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	9.2	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	16	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	172	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Benzene #	28.7	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
Toluene #	20157 ^{AD}	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	4	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	5496 ^{AD}	116								<1	ug/l	TM15/PM10
m/p-Xylene #	28519 ^{AD}	423								<2	ug/l	TM15/PM10
o-Xylene #	6348 ^{AD}	33								<1	ug/l	TM15/PM10
Styrene	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	78	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	169	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	833	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	2646 ^{AD}	5								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	366	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	112	120								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	75	109								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: N/A

Location: Warth Road Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/4845

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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	x10 Dilution
AC	x20 Dilution
AD	x50 Dilution
AE	x200 Dilution

EMT Job No: 26/4845

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC-FID. 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.				
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			

EMT Job No: 26/4845

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/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 15th April, 2026
Your reference : ..
Our reference : Test Report 26/5054 Batch 1
Location : Warth Road Bury
Date samples received : 1st April, 2026
Status : Final Report
Issue : 202604151544

Two samples were received for analysis on 1st April, 2026 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 4.489 kg of CO2

Scope 1&2&3 emissions - 10.608 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: ..
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/5054

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	DS10	DS27											
Depth	1.85	1.71											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	30/03/2026 14:47	30/03/2026 11:03											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	01/04/2026	01/04/2026											
Dissolved Arsenic #	19.0	15.7									<2.5	ug/l	TM30/PM14
Dissolved Barium #	172	671									<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	1.0									<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7									<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5									<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1									<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2									<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3									<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	3.4									<1.5	ug/l	TM30/PM14
Dissolved Zinc #	9	6									<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	0.2	<0.1									<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Acenaphthene #	0.036	0.297									<0.005	ug/l	TM4/PM30
Fluorene #	0.018	0.190									<0.005	ug/l	TM4/PM30
Phenanthrene #	0.012	0.173									<0.005	ug/l	TM4/PM30
Anthracene #	0.006	0.020									<0.005	ug/l	TM4/PM30
Fluoranthene #	0.009	0.039									<0.005	ug/l	TM4/PM30
Pyrene #	0.010	0.023									<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008									<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.291	0.742									<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008									<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008									<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	76	77									<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	289	<2									<2	ug/l	TM15/PM10
o-Xylene #	3	<1									<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	105	108									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	101									<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: ..
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/5054

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6	7-14									Please see attached notes for all abbreviations and acronyms			
Sample ID	DS10	DS27												
Depth	1.85	1.71												
COC No / misc														
Containers	V HN HCL P G	V HN HCL P G												
Sample Date	30/03/2026 14:47	30/03/2026 11:03												
Sample Type	Ground Water	Ground Water												
Batch Number	1	1												
Date of Receipt	01/04/2026	01/04/2026									LOD/LOR	Units	Method No.	
TPH CWG														
Aliphatics														
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12	
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12	
>C8-C10 #	54	263									<10	ug/l	TM36/PM12	
>C10-C12 #	<5	75									<5	ug/l	TM5/PM16/PM3	
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM16/PM3	
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM16/PM3	
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM16/PM3	
Total aliphatics C5-35 #	54	338									<10	ug/l	TM5/PM16/PM3	
Aromatics														
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12	
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12	
>EC8-EC10 #	267	12									<10	ug/l	TM36/PM12	
>EC10-EC12 #	<5	2388									<5	ug/l	TM5/PM16/PM3	
>EC12-EC16 #	<10	130									<10	ug/l	TM5/PM16/PM3	
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM16/PM3	
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM16/PM3	
Total aromatics C5-35 #	267	2530									<10	ug/l	TM5/PM16/PM3	
Total aliphatics and aromatics(C5-35) #	321	2868									<10	ug/l	TM5/PM16/PM3	
Sulphate as SO4 #	91.7	<0.5									<0.5	mg/l	TM38/PM0	
Nitrate as NO3 #	<0.2	<0.2									<0.2	mg/l	TM38/PM0	
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0	
Dissolved Methane #	-	>>5629									<1	ug/l	TM25/PM0	
Dissolved Carbon Dioxide	-	>>355507									<1	ug/l	TM25/PM0	
Total Alkalinity as CaCO3 #	232	260									<1	mg/l	TM75/PM0	
Electrical Conductivity @25C #	737	533									<2	uS/cm	TM76/PM0	
Dissolved Iron II	12 _{AA}	53 _{AB}									<1	mg/l	TM213/PM3	
Dissolved Iron III	3	15									<1	mg/l	TM30/TM213/PM	
Manganese II	1.12 _{AA}	0.77 _{AB}									<0.02	mg/l	TM213/PM3	
Dissolved Manganese IV (by calculation)	0.34	0.65									<0.02	mg/l	TM30/TM213/PM	
pH #	6.99	6.70									<0.01	pH units	TM73/PM0	

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: DB Remediation
Reference: ..
Location: Warth Road Bury
Contact: Matt Holker
EMT Job No: 26/5054

VOC Report : Liquid

EMT Sample No.	1-6	7-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	DS10	DS27											
Depth	1.85	1.71											
COC No / misc													
Containers	V HN HCL P G	V HN HCL P G											
Sample Date	30/03/2026 14:47	30/03/2026 11:03											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	01/04/2026	01/04/2026									LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3									<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1									<1	ug/l	TM15/PM10
Chloroethane #	<3	<3									<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3									<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3									<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1									<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2									<2	ug/l	TM15/PM10
Chloroform #	<2	<2									<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2									<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2									<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2									<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2									<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2									<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2									<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2									<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	289	<2									<2	ug/l	TM15/PM10
o-Xylene #	3	<1									<1	ug/l	TM15/PM10
Styrene	<2	<2									<2	ug/l	TM15/PM10
Bromoform	<2	<2									<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	33									<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4									<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3									<3	ug/l	TM15/PM10
Propylbenzene #	<3	85									<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3									<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	16									<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	5	>>1293									<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	32									<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	34									<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3									<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2									<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3									<3	ug/l	TM15/PM10
Naphthalene	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	105	108									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	101									<0	%	TM15/PM10

Client Name: DB Remediation

Reference: ..

Location: Warth Road Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/5054

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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	x2 Dilution
AB	x10 Dilution

EMT Job No: 26/5054

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.				
TM25	Determinaion of Dissolved Methane, Ethane and Ethene by Headspace GC-FID	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			

EMT Job No: 26/5054

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/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Suites 3&4
14-32 Hewitt Street
Manchester
United Kingdom
M15 4GB



4225



Attention : Matt Holker
Date : 15th April, 2026
Your reference : -
Our reference : Test Report 26/5055 Batch 1
Location : Warth Road, Bury
Date samples received : 1st April, 2026
Status : Final Report
Issue : 202604151541

One sample was received for analysis on 1st April, 2026 and was 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 2.172 kg of CO2

Scope 1&2&3 emissions - 5.133 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/5055

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6									Please see attached notes for all abbreviations and acronyms			
Sample ID	WS111												
Depth	1.69												
COC No / misc													
Containers	V HN HCL P G												
Sample Date	30/03/2026												
Sample Type	Ground Water												
Batch Number	1												
Date of Receipt	01/04/2026										LOD/LOR	Units	Method No.
Dissolved Arsenic #	10.2										<2.5	ug/l	TM30/PM14
Dissolved Barium #	693										<3	ug/l	TM30/PM14
Dissolved Beryllium	0.6										<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5										<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5										<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7										<7	ug/l	TM30/PM14
Total Dissolved Iron #	40717AA										<20	ug/l	TM30/PM14
Dissolved Lead #	<5										<5	ug/l	TM30/PM14
Dissolved Manganese #	900AA										<2	ug/l	TM30/PM14
Dissolved Mercury #	<1										<1	ug/l	TM30/PM14
Dissolved Nickel #	<2										<2	ug/l	TM30/PM14
Dissolved Selenium #	<3										<3	ug/l	TM30/PM14
Dissolved Vanadium #	1.8										<1.5	ug/l	TM30/PM14
Dissolved Zinc #	5										<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1										<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005										<0.005	ug/l	TM4/PM30
Acenaphthene #	0.110										<0.005	ug/l	TM4/PM30
Fluorene #	<0.005										<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005										<0.005	ug/l	TM4/PM30
Anthracene #	<0.005										<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005										<0.005	ug/l	TM4/PM30
Pyrene #	<0.005										<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005										<0.005	ug/l	TM4/PM30
Chrysene #	<0.005										<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008										<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005										<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005										<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005										<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005										<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173										<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008										<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008										<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	79										<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1										<0.1	ug/l	TM15/PM10
Benzene #	<0.5										<0.5	ug/l	TM15/PM10
Toluene #	<5										<5	ug/l	TM15/PM10
Ethylbenzene #	193										<1	ug/l	TM15/PM10
m/p-Xylene #	575										<2	ug/l	TM15/PM10
o-Xylene #	2										<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	107										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102										<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/5055

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-6											
Sample ID	WS111											
Depth	1.69											
COC No / misc												
Containers	V HN HCL P G											
Sample Date	30/03/2026											
Sample Type	Ground Water											
Batch Number	1											
Date of Receipt	01/04/2026											
Please see attached notes for all abbreviations and acronyms												
TPH CWG												
Aliphatics												
>C5-C6 #	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10									<10	ug/l	TM36/PM12
>C8-C10 #	144									<10	ug/l	TM36/PM12
>C10-C12 #	<5									<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10									<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10									<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10									<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	144									<10	ug/l	TM5/PM16/PM30
Aromatics												
>C5-EC7 #	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	739									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5									<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10									<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10									<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10									<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	739									<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	883									<10	ug/l	TM5/PM16/PM30
Sulphate as SO ₄ #	<0.5									<0.5	mg/l	TM38/PM0
Nitrate as NO ₃ #	<0.2									<0.2	mg/l	TM38/PM0
Nitrite as NO ₂ #	<0.02									<0.02	mg/l	TM38/PM0
Total Alkalinity as CaCO ₃ #	298									<1	mg/l	TM75/PM0
Electrical Conductivity @25C #	593									<2	uS/cm	TM76/PM0
Dissolved Iron II	36 ^{AA}									<1	mg/l	TM213/PM31
Dissolved Iron III	5									<1	mg/l	TM30/TM213/PM0
Manganese II	0.69 ^{AA}									<0.02	mg/l	TM213/PM31
Dissolved Manganese IV (by calculation)	0.21									<0.02	mg/l	TM30/TM213/PM0
pH #	7.13									<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Road, Bury
Contact: Matt Holker
EMT Job No: 26/5055

VOC Report : Liquid

EMT Sample No.	1-6												
Sample ID	WS111												
Depth	1.69												
COC No / misc													
Containers	V HN HCL P G												
Sample Date	30/03/2026												
Sample Type	Ground Water												
Batch Number	1												
Date of Receipt	01/04/2026												
											LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1										<0.1	ug/l	TM15/PM10
Chloromethane #	<3										<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1										<0.1	ug/l	TM15/PM10
Bromomethane	<1										<1	ug/l	TM15/PM10
Chloroethane #	<3										<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3										<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3										<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1										<1	ug/l	TM15/PM10
Bromochloromethane #	<2										<2	ug/l	TM15/PM10
Chloroform #	<2										<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2										<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2										<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2										<2	ug/l	TM15/PM10
Benzene #	<0.5										<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2										<2	ug/l	TM15/PM10
Dibromomethane #	<3										<3	ug/l	TM15/PM10
Bromodichloromethane #	<2										<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
Toluene #	<5										<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2										<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2										<2	ug/l	TM15/PM10
Dibromochloromethane	<2										<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2										<2	ug/l	TM15/PM10
Chlorobenzene #	<2										<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2										<2	ug/l	TM15/PM10
Ethylbenzene #	193										<1	ug/l	TM15/PM10
m/p-Xylene #	575										<2	ug/l	TM15/PM10
o-Xylene #	2										<1	ug/l	TM15/PM10
Styrene	<2										<2	ug/l	TM15/PM10
Bromoform	<2										<2	ug/l	TM15/PM10
Isopropylbenzene #	<3										<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4										<4	ug/l	TM15/PM10
Bromobenzene #	<2										<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3										<3	ug/l	TM15/PM10
Propylbenzene #	<3										<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3										<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3										<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3										<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3										<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	13										<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3										<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3										<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
n-Butylbenzene #	<3										<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2										<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3										<3	ug/l	TM15/PM10
Naphthalene	<2										<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	107										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102										<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: -

Location: Warth Road, Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/5055

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/5055

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 26/5055

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM213	Fe(II) and Mn(II) by IC	PM31	Prep of Waters for Inorganics				

DB Remediation
Carnoustie House
Kelvin Close
Birchwood
Warrington
United Kingdom
WA3 7PB



4225



Attention : Matt Holker
Date : 16th April, 2026
Your reference : -
Our reference : Test Report 26/5154 Batch 1
Location : Warth Rd Bury
Date samples received : 2nd April, 2026
Status : Final Report
Issue : 202604161524

Two samples were received for analysis on 2nd April, 2026 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 5.068 kg of CO2

Scope 1&2&3 emissions - 11.977 kg of CO2

Authorised By:



Sean English
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Rd Bury
Contact: Matt Holker
EMT Job No: 26/5154

Report : Liquid

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

EMT Sample No.	1-5	6-10									Please see attached notes for all abbreviations and acronyms		
Sample ID	SW1	SW3											
Depth													
COC No / misc													
Containers	V H N P G	V H N P G											
Sample Date	31/03/2026 08:23	31/03/2026 09:21											
Sample Type	Surface Water	Surface Water											
Batch Number	1	1											
Date of Receipt	02/04/2026	02/04/2026									LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5									<2.5	ug/l	TM30/PM14
Dissolved Barium #	36	36									<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Dissolved Calcium #	26.3	25.7									<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7									<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5									<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1									<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2									<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3									<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Zinc #	12	8									<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1									<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Fluoranthene #	0.014	0.008									<0.005	ug/l	TM4/PM30
Pyrene #	0.013	0.008									<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.007	<0.005									<0.005	ug/l	TM4/PM30
Chrysene #	0.008	<0.005									<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	0.010	<0.008									<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.006	<0.005									<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005									<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173									<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008									<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008									<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	81	75									<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1									<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5									<0.5	ug/l	TM15/PM10
Toluene #	<5	<5									<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1									<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2									<2	ug/l	TM15/PM10
o-Xylene #	<1	<1									<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	102	101									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	107									<0	%	TM15/PM10

Element Materials Technology

Client Name: DB Remediation
Reference: -
Location: Warth Rd Bury
Contact: Matt Holker
EMT Job No: 26/5154

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-5	6-10									Please see attached notes for all abbreviations and acronyms		
Sample ID	SW1	SW3											
Depth													
COC No / misc													
Containers	V H N P G	V H N P G											
Sample Date	31/03/2026 08:23	31/03/2026 09:21											
Sample Type	Surface Water	Surface Water											
Batch Number	1	1											
Date of Receipt	02/04/2026	02/04/2026											
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics C5-35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5									<5	ug/l	TM5/PM16/PM3
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM16/PM3
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35 #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total aliphatics and aromatics(C5-35) #	<10	<10									<10	ug/l	TM5/PM16/PM3
Total Alkalinity as CaCO3 #	56	58									<1	mg/l	TM75/PM0
Dissolved Organic Carbon #	5	5									<2	mg/l	TM60/PM0
Electrical Conductivity @25C #	249	246									<2	uS/cm	TM76/PM0
pH #	7.76	7.21									<0.01	pH units	TM73/PM0

Client Name: DB Remediation
Reference: -
Location: Warth Rd Bury
Contact: Matt Holker
EMT Job No: 26/5154

VOC Report : Liquid

EMT Sample No.	1-5	6-10										
Sample ID	SW1	SW3										
Depth												
COC No / misc												
Containers	V H N P G	V H N P G										
Sample Date	31/03/2026 08:23	31/03/2026 09:21										
Sample Type	Surface Water	Surface Water										
Batch Number	1	1										
Date of Receipt	02/04/2026	02/04/2026										
										LOD/LOR	Units	Method No.
VOC MS												
Dichlorodifluoromethane	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	106								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	100	101								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: DB Remediation

Reference: -

Location: Warth Rd Bury

Contact: Matt Holker

[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.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 26/5154

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil 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 is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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 requirement of our Accreditation Body 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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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 quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 26/5154

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 8270D v5:2014 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.				
TM4	Modified USEPA 8270D v5:2014 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.	Yes			
TM5	Modified 8015B v2:1996 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.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM36	Modified US EPA method 8015B v2:1996. 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 will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			

EMT Job No: 26/5154

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
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

APPENDIX 8

RTM Worksheets

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Benzene	from Level 1
Target Concentration	C _T	1.00E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	2.87E-02	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	1.00E+02	days	
Calculated decay rate	λ	6.93E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	6.76E-01	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters Variable

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	4.88E+00	fraction
Decay rate used	λ	6.93E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	8.19E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	7.02E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	4.09E+03	

Remedial Targets

Remedial Target	4.09E+00	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	7.02E-06	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

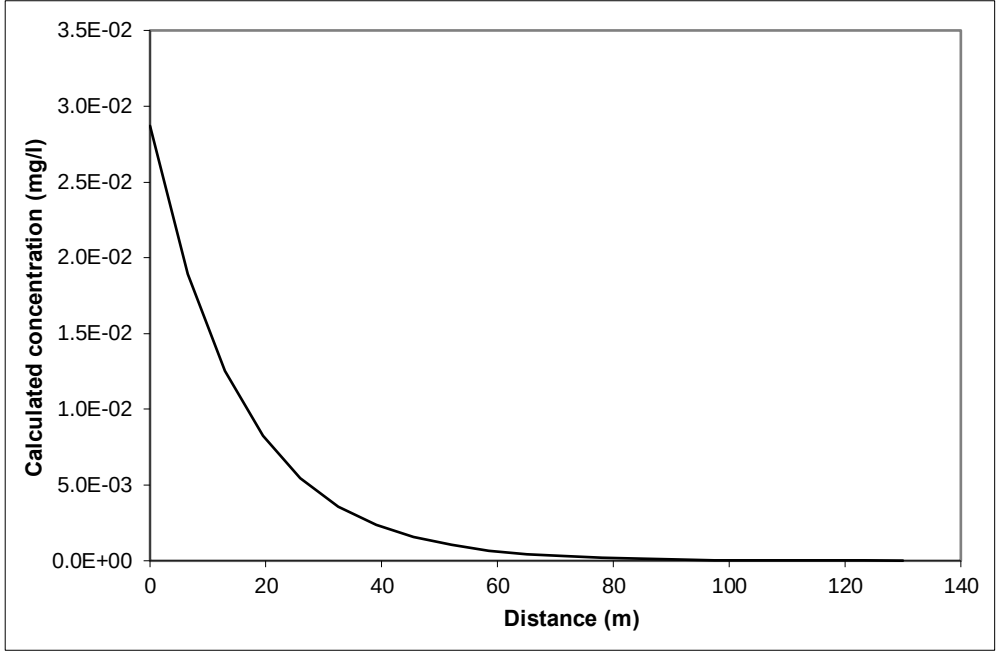
Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	1.00E-02	fraction
Organic carbon partition coefficient	Koc	6.76E+01	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{OC,n}		l/kg
Sorption coefficient for ionised species	K _{OC,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	6.76E-01	l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity	ax	5.06E+00	5.06E+00 m
Transverse dispersivity	az	5.06E-01	5.06E-01 m
Vertical dispersivity	ay	1.00E-99	1.30E-01 5.06E-02
Note values of dispersivity must be > 0			
For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x			
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ x) ^{2.414} ; az = ax/10, ay = ax/100 are assumed			



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	2.9E-02
6.5	1.89E-02
13.0	1.25E-02
19.5	8.25E-03
26.0	5.45E-03
32.5	3.59E-03
39.0	2.37E-03
45.5	1.57E-03
52.0	1.03E-03
58.5	6.82E-04
65.0	4.50E-04
71.5	2.97E-04
78.0	1.96E-04
84.5	1.29E-04
91.0	8.53E-05
97.5	5.63E-05
104.0	3.71E-05
110.5	2.45E-05
117.0	1.62E-05
123.5	1.07E-05
130.0	7.02E-06

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Toluene	from Level 1
Target Concentration	C _T	7.40E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	2.02E+01	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	5.00E+01	days	
Calculated decay rate	λ	1.39E-02	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	2.04E+00	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.27E+01	fraction
Decay rate used	λ	1.39E-02	d ⁻¹
Rate of contaminant flow due to retardation	u	3.15E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	2.04E-11	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.90E+11	

Remedial Targets

Remedial Target	7.33E+10	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			

Distance to compliance point 130 m

Concentration of contaminant at compliance point after C_{ED}/C₀ 2.04E-11 mg/l Ogata Banks
1.0E+100 days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 2.04E+02 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc fraction

Soil water partition coefficient Kd 2.04E+00 l/kg

Define dispersivity (click brown cell and use pull down list)

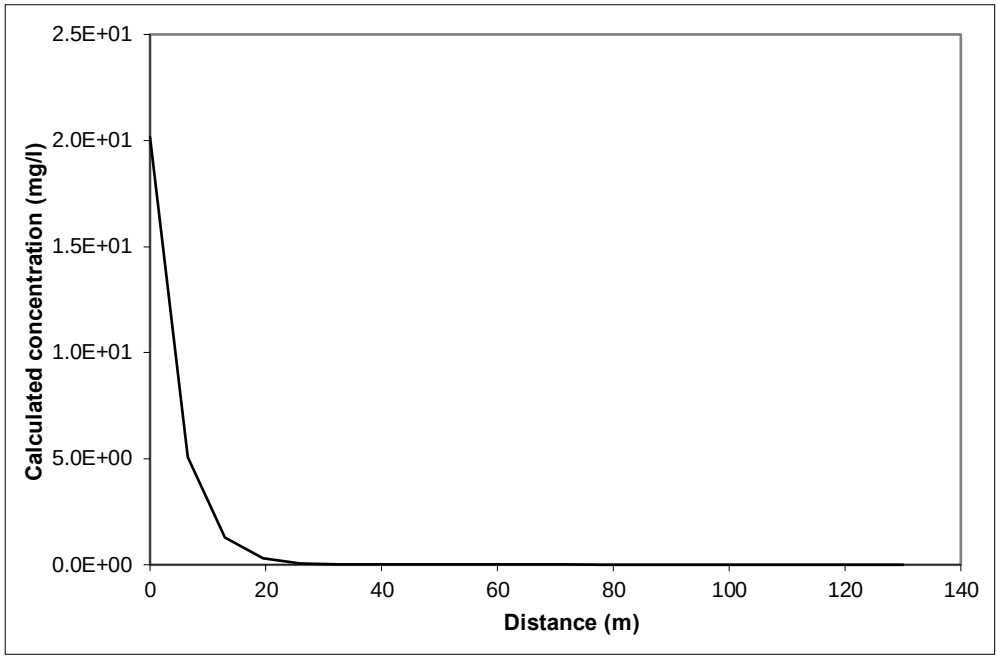
User defined values for dispersivity

Longitudinal dispersivity	ax	Enter value 5.06E+00	Calc value Xu & Eckstein 1.30E+01	5.06E+00	m
Transverse dispersivity	az	5.06E-01	1.30E+00	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	1.30E-01	5.06E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 2.0E+01

6.5 5.07E+00

13.0 1.27E+00

19.5 3.20E-01

26.0 8.05E-02

32.5 2.02E-02

39.0 5.08E-03

45.5 1.28E-03

52.0 3.21E-04

58.5 8.08E-05

65.0 2.03E-05

71.5 5.10E-06

78.0 1.28E-06

84.5 3.22E-07

91.0 8.10E-08

97.5 2.04E-08

104.0 5.11E-09

110.5 1.28E-09

117.0 3.23E-10

123.5 8.10E-11

130.0 2.04E-11

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Ethylbenzene	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks	Equations in HRA publication
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Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	5.50E+00	mg/l
Half life for degradation of contaminant in water	t _{1/2}	2.00E+02	days
Calculated decay rate	λ	3.47E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	4.47E+00	l/kg see options
Longitudinal dispersivity	ax	5.06E+00	m see options
Transverse dispersivity	az	5.06E-01	m see options
Vertical dispersivity	ay	1.00E-99	m see options

Calculated Parameters Variable

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	2.67E+01	fraction
Decay rate used	λ	3.47E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	1.50E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	1.06E-07	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	5.21E+07	

Remedial Targets

Remedial Target	1.56E+07	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	1.06E-07	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

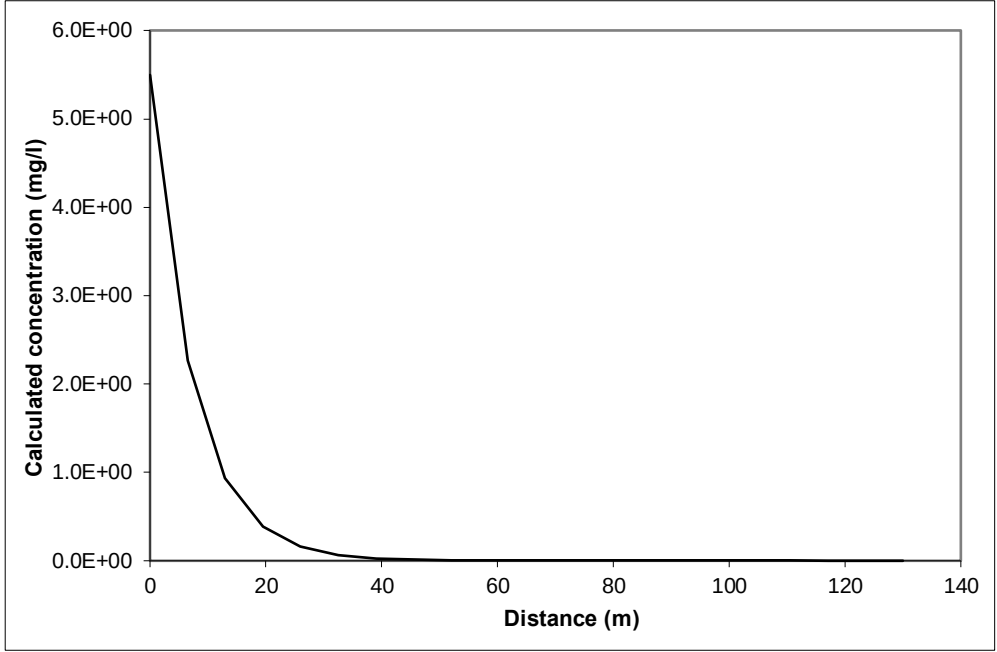
Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	1.00E-02	fraction
Organic carbon partition coefficient	Koc	4.47E+02	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{OC,n}		l/kg
Sorption coefficient for ionised species	K _{OC,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	4.47E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity	ax	5.06E+00	1.30E+01 5.06E+00 m
Transverse dispersivity	az	5.06E-01	1.30E+00 5.06E-01 m
Vertical dispersivity	ay	1.00E-99	1.30E-01 5.06E-02
Note values of dispersivity must be > 0			
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x			
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ x) ^{2.414} ; az = ax/10, ay = ax/100 are assumed			



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance	Concentration
	mg/l
0	5.5E+00
6.5	2.26E+00
13.0	9.30E-01
19.5	3.83E-01
26.0	1.57E-01
32.5	6.48E-02
39.0	2.66E-02
45.5	1.10E-02
52.0	4.51E-03
58.5	1.86E-03
65.0	7.63E-04
71.5	3.14E-04
78.0	1.29E-04
84.5	5.31E-05
91.0	2.19E-05
97.5	8.99E-06
104.0	3.70E-06
110.5	1.52E-06
117.0	6.25E-07
123.5	2.57E-07
130.0	1.06E-07

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Xylenes		from Level 1
Target Concentration	C _T	3.00E-02	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value				
Initial contaminant concentration in groundwater at plume core	C ₀	3.49E+01	mg/l	
Half life for degradation of contaminant in water	t _{1/2}	1.00E+02	days	
Calculated decay rate	λ	6.93E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	4.27E+00	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	2.55E+01	fraction
Decay rate used	λ	6.93E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	1.57E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.30E-11	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.06E+12	

Remedial Targets

Remedial Target	3.17E+10	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	3.30E-11	mg/l
		1.0E+100	days
			Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Transverse dispersivity

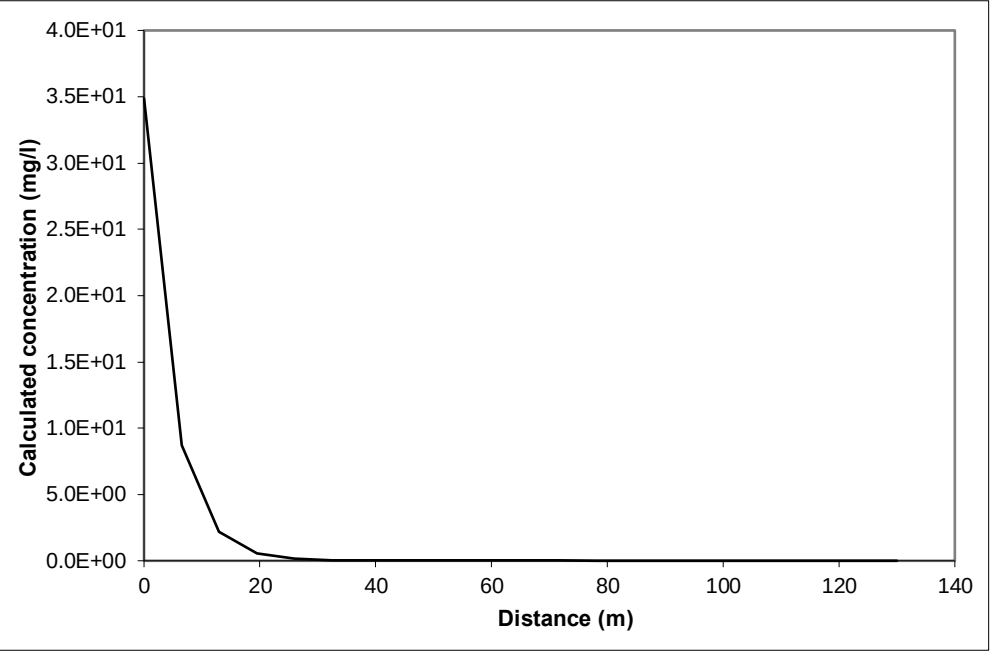
az

Vertical dispersivity

ay

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	3.5E+01
6.5	8.74E+00
13.0	2.19E+00
19.5	5.48E-01
26.0	1.37E-01
32.5	3.44E-02
39.0	8.63E-03
45.5	2.16E-03
52.0	5.41E-04
58.5	1.36E-04
65.0	3.40E-05
71.5	8.52E-06
78.0	2.13E-06
84.5	5.34E-07
91.0	1.34E-07
97.5	3.35E-08
104.0	8.40E-09
110.5	2.10E-09
117.0	5.26E-10
123.5	1.32E-10
130.0	3.30E-11

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Naphthalene	from Level 1
Target Concentration	C _T	2.00E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	3.66E-01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	2.00E+02	days
Calculated decay rate	λ	3.47E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	6.46E+00	l/kg see options
Longitudinal dispersivity	ax	5.06E+00	m see options
Transverse dispersivity	az	5.06E-01	m see options
Vertical dispersivity	ay	1.00E-99	m see options

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	3.81E+01	fraction
Decay rate used	λ	3.47E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	1.05E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.46E-11	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.06E+10	

Remedial Targets

Remedial Target	2.12E+07	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	3.46E-11	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Transverse dispersivity

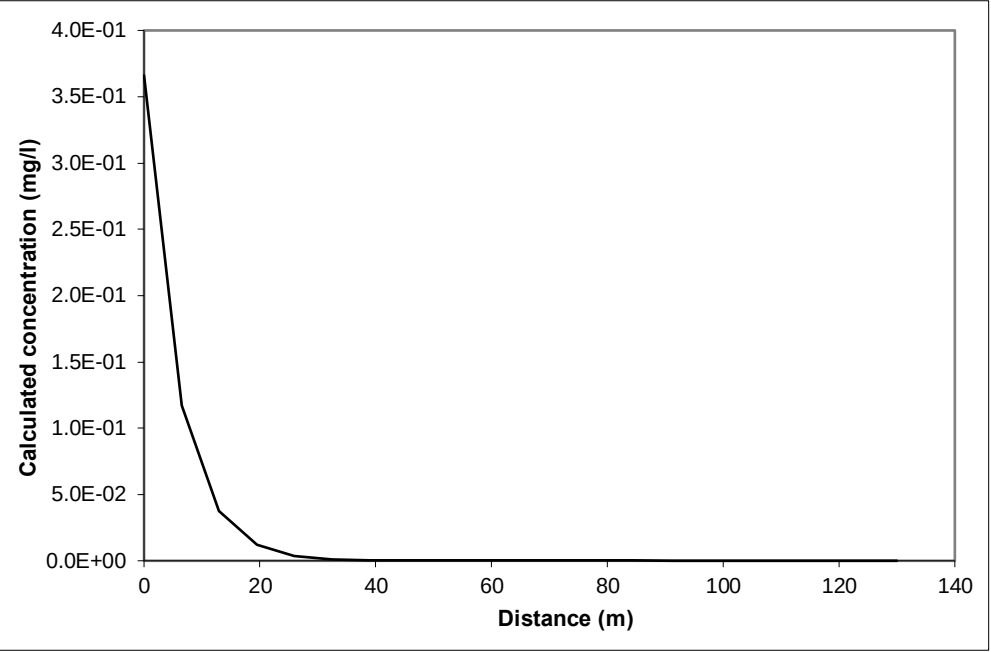
az

Vertical dispersivity

ay

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	3.7E-01
6.5	1.17E-01
13.0	3.76E-02
19.5	1.20E-02
26.0	3.80E-03
32.5	1.20E-03
39.0	3.78E-04
45.5	1.19E-04
52.0	3.73E-05
58.5	1.17E-05
65.0	3.67E-06
71.5	1.15E-06
78.0	3.61E-07
84.5	1.13E-07
91.0	3.56E-08
97.5	1.12E-08
104.0	3.52E-09
110.5	1.11E-09
117.0	3.49E-10
123.5	1.10E-10
130.0	3.46E-11

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aliphatic C8-10	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	6.24E+00	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	2.00E+02	days	
Calculated decay rate	λ	3.47E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	3.02E+02	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.74E+03	fraction
Decay rate used	λ	3.47E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	2.31E-04	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	5.35E-92	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.17E+92	

Remedial Targets

Remedial Target	3.50E+91	mg/l	For comparison with measured groundwater concentration.
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Ogata Banks

Distance to compliance point

130

m

Concentration of contaminant at compliance point

C_{ED}/C₀

5.35E-92

mg/l

Ogata Banks

after

1.0E+100

days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 3.02E+04 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc fraction

Soil water partition coefficient Kd 3.02E+02 l/kg

Define dispersivity (click brown cell and use pull down list)

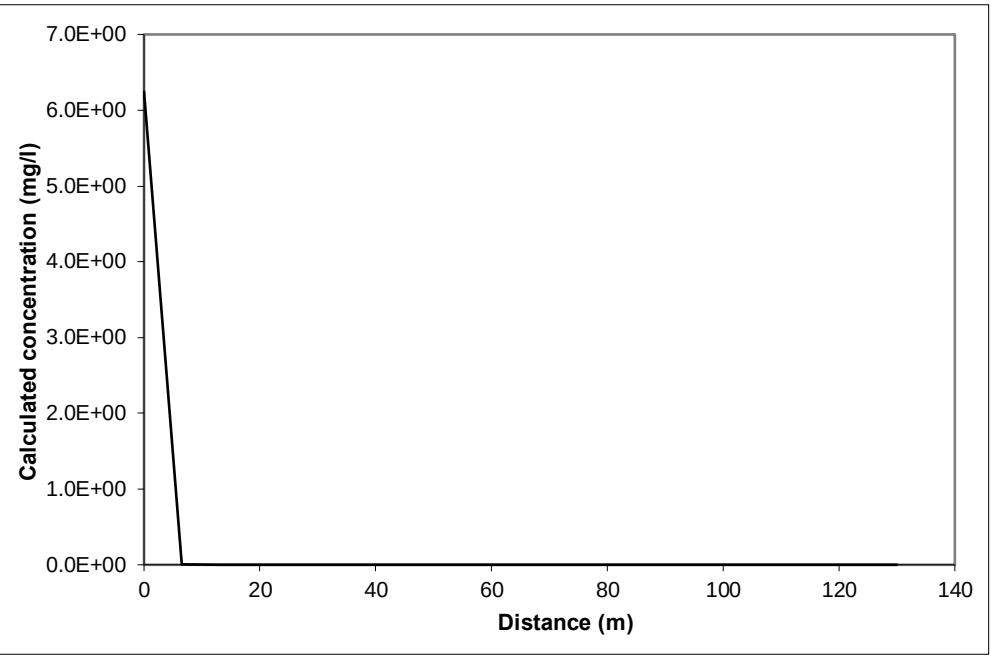
User defined values for dispersivity

Longitudinal dispersivity	ax	Enter value 5.06E+00	Calc value 1.30E+01	Xu & Eckstein 5.06E+00	m
Transverse dispersivity	az	5.06E-01	1.30E+00	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	1.30E-01	5.06E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 6.2E+00

6.5 1.58E-04

13.0 4.00E-09

19.5 1.01E-13

26.0 2.53E-18

32.5 6.32E-23

39.0 1.57E-27

45.5 3.90E-32

52.0 9.69E-37

58.5 2.40E-41

65.0 5.95E-46

71.5 1.48E-50

78.0 3.66E-55

84.5 9.09E-60

91.0 2.26E-64

97.5 5.61E-69

104.0 1.39E-73

110.5 3.47E-78

117.0 8.63E-83

123.5 2.15E-87

130.0 5.35E-92

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed: Warth Road

Completed by: LK

Date: #####

Version: 1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aromatic C8-10	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks	Equations in HRA publication
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Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	2.86E+01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	2.00E+02	days
Calculated decay rate	λ	3.47E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	1.58E+01	l/kg see options
Longitudinal dispersivity	ax	5.06E+00	m see options
Transverse dispersivity	az	5.06E-01	m see options
Vertical dispersivity	ay	1.00E-99	m see options

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	9.17E+01	fraction
Decay rate used	λ	3.47E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	4.36E-03	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	9.29E-17	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	3.08E+17	

Remedial Targets

Remedial Target	9.23E+16	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	9.29E-17	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

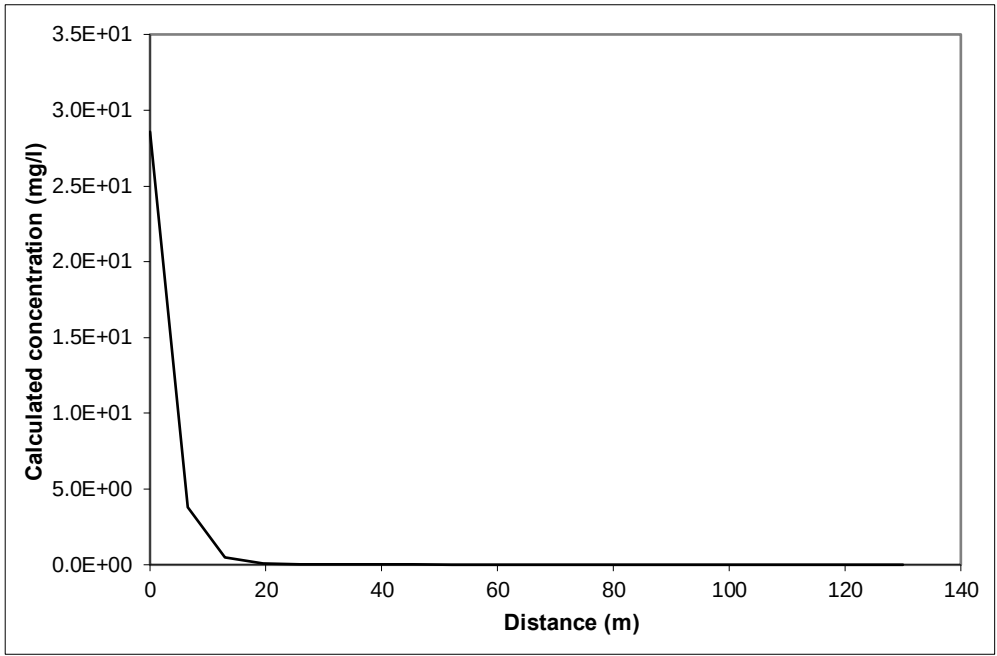
Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	1.00E-02	fraction
Organic carbon partition coefficient	Koc	1.58E+03	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{oc,n}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.58E+01	l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity	ax	5.06E+00	1.30E+01 5.06E+00 m
Transverse dispersivity	az	5.06E-01	1.30E+00 5.06E-01 m
Vertical dispersivity	ay	1.00E-99	1.30E-01 5.06E-02
Note values of dispersivity must be > 0			
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x			
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ x) ^{0.414} ; az = ax/10, ay = ax/100 are assumed			



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance	Concentration
	mg/l
0	2.9E+01
6.5	3.82E+00
13.0	5.10E-01
19.5	6.81E-02
26.0	9.09E-03
32.5	1.21E-03
39.0	1.62E-04
45.5	2.17E-05
52.0	2.89E-06
58.5	3.87E-07
65.0	5.16E-08
71.5	6.90E-09
78.0	9.21E-10
84.5	1.23E-10
91.0	1.64E-11
97.5	2.19E-12
104.0	2.93E-13
110.5	3.91E-14
117.0	5.22E-15
123.5	6.96E-16
130.0	9.29E-17

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aromatic C10-12	from Level 1
Target Concentration	C _T	9.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	4.05E+00	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	2.00E+02	days	
Calculated decay rate	λ	3.47E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	2.51E+01	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.45E+02	fraction
Decay rate used	λ	3.47E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	2.76E-03	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.06E-23	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.32E+23	

Remedial Targets

Remedial Target	1.19E+22	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			

Distance to compliance point 130 m

Concentration of contaminant at compliance point after C_{ED}/C₀ 3.06E-23 mg/l Ogata Banks
1.0E+100 days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 2.51E+03 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc fraction

Soil water partition coefficient Kd 2.51E+01 l/kg

Define dispersivity (click brown cell and use pull down list)

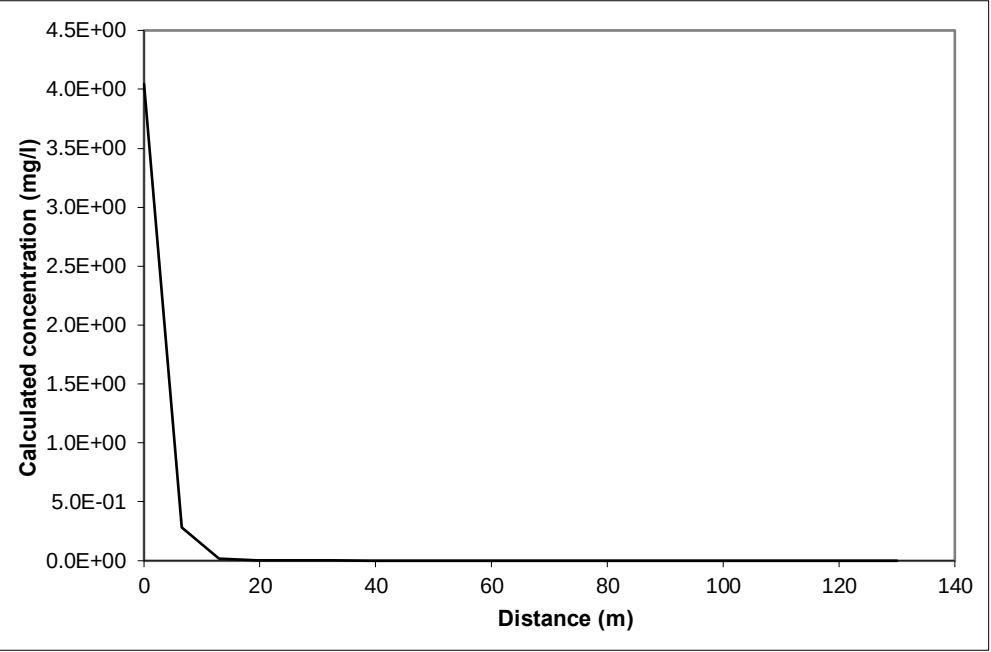
User defined values for dispersivity

Longitudinal dispersivity	ax	Enter value 5.06E+00	Calc value 1.30E+01	Xu & Eckstein 5.06E+00	m
Transverse dispersivity	az	5.06E-01	1.30E+00	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	1.30E-01	5.06E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 4.0E+00

6.5 2.82E-01

13.0 1.97E-02

19.5 1.38E-03

26.0 9.62E-05

32.5 6.71E-06

39.0 4.69E-07

45.5 3.27E-08

52.0 2.29E-09

58.5 1.60E-10

65.0 1.11E-11

71.5 7.78E-13

78.0 5.43E-14

84.5 3.79E-15

91.0 2.65E-16

97.5 1.85E-17

104.0 1.29E-18

110.5 9.00E-20

117.0 6.28E-21

123.5 4.38E-22

130.0 3.06E-23

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Vinyl Chloride	from Level 1
Target Concentration	C _T	5.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	9.20E-03	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	1.00E+02	days	
Calculated decay rate	λ	6.93E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only

Parameters values determined from options

Partition coefficient	Kd	1.66E-01	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.95E+00	fraction
Decay rate used	λ	6.93E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	2.05E-01	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	1.45E-04	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	6.36E+01	

Remedial Targets

Remedial Target	3.18E-02	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			

Distance to compliance point 130 m

Concentration of contaminant at compliance point after C_{ED}/C₀ 1.45E-04 mg/l Ogata Banks
1.0E+100 days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 1.66E+01 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc fraction

Soil water partition coefficient Kd 1.66E-01 l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax 5.06E+00 Enter value Calc value Xu & Eckstein m

Transverse dispersivity

az 5.06E-01 1.30E+00 5.06E-01 m

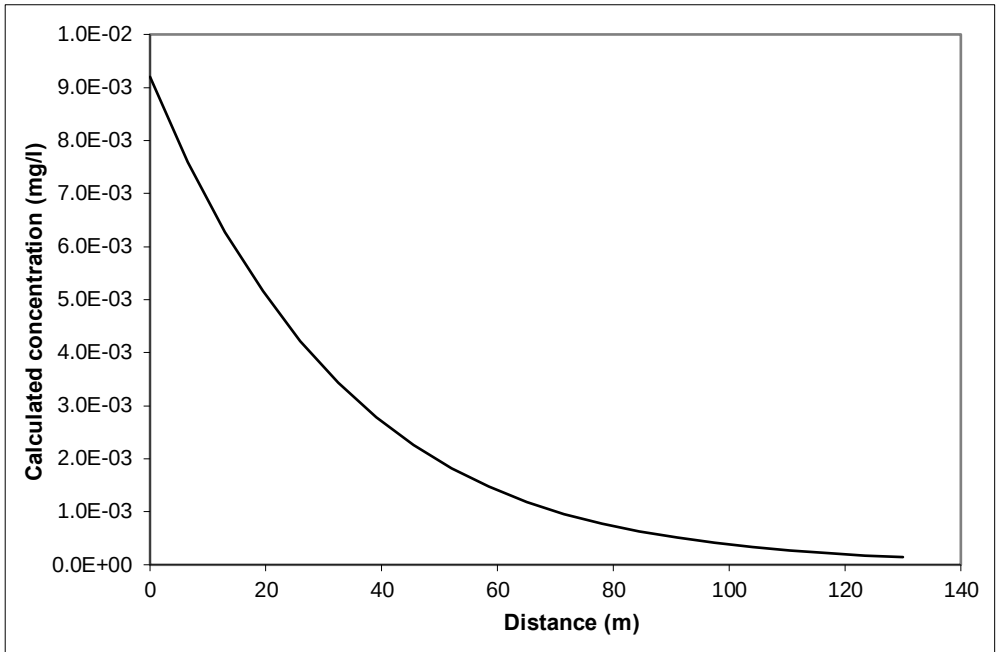
Vertical dispersivity

ay 1.00E-99 1.30E-01 5.06E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 9.2E-03

6.5 7.60E-03

13.0 6.27E-03

19.5 5.15E-03

26.0 4.21E-03

32.5 3.43E-03

39.0 2.78E-03

45.5 2.25E-03

52.0 1.82E-03

58.5 1.47E-03

65.0 1.19E-03

71.5 9.61E-04

78.0 7.77E-04

84.5 6.29E-04

91.0 5.09E-04

97.5 4.12E-04

104.0 3.34E-04

110.5 2.71E-04

117.0 2.20E-04

123.5 1.78E-04

130.0 1.45E-04

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed: Warth Road

Completed by: LK

Date: #####

Version: 1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		cis 1,2-Dichloroethene	from Level 1
Target Concentration	C _T	5.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	1.72E-01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	5.00E+02	days
Calculated decay rate	λ	1.39E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
<i>Parameters values determined from options</i>			
Partition coefficient	Kd	4.07E-01	l/kg
Longitudinal dispersivity	ax	5.06E+00	m
Transverse dispersivity	az	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	m

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	3.34E+00	fraction
Decay rate used	λ	1.39E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	1.20E-01	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.00E-02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	5.74E+00	

Remedial Targets

Remedial Target	2.87E-01	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	3.00E-02	mg/l
		1.0E+100	days
			Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Transverse dispersivity

az

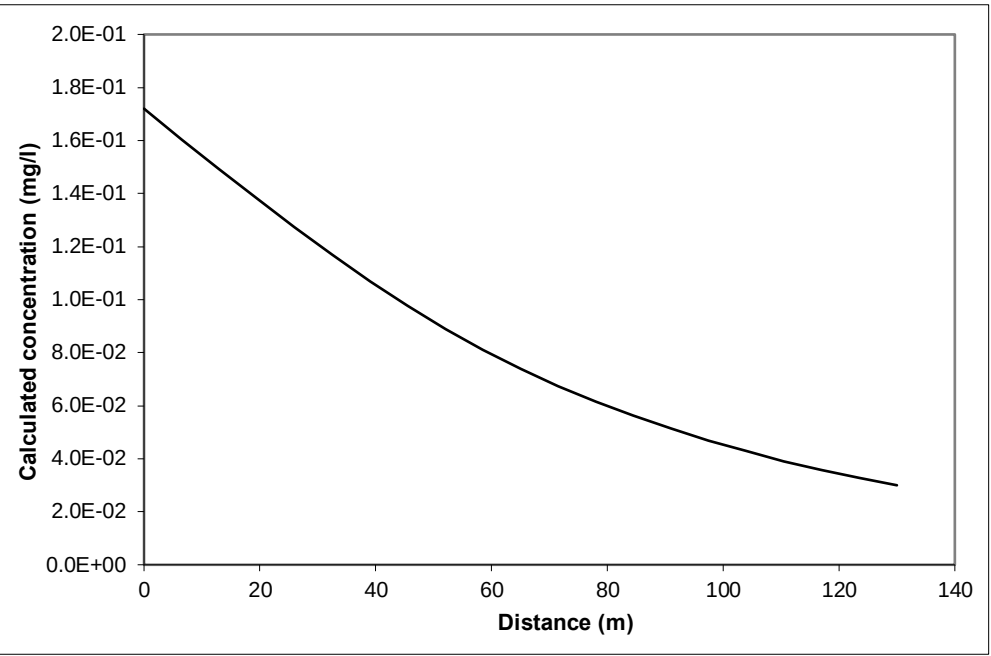
Vertical dispersivity

ay

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

Distance	Concentration
	mg/l
0	1.7E-01
6.5	1.60E-01
13.0	1.49E-01
19.5	1.38E-01
26.0	1.27E-01
32.5	1.17E-01
39.0	1.07E-01
45.5	9.76E-02
52.0	8.90E-02
58.5	8.12E-02
65.0	7.40E-02
71.5	6.74E-02
78.0	6.15E-02
84.5	5.61E-02
91.0	5.12E-02
97.5	4.68E-02
104.0	4.28E-02
110.5	3.91E-02
117.0	3.58E-02
123.5	3.27E-02
130.0	3.00E-02

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Benzene	from Level 1
Target Concentration	C _T	1.00E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	2.87E-02	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	5.00E+02	days	
Calculated decay rate	λ	1.39E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	6.76E-01	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Variable

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	4.88E+00	fraction
Decay rate used	λ	1.39E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	8.19E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.72E-03	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	7.71E+00	

Remedial Targets

Remedial Target	7.71E-03	mg/l	For comparison with measured groundwater concentration.
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Ogata Banks

Distance to compliance point

130

m

Concentration of contaminant at compliance point

C_{ED}/C₀

3.72E-03

mg/l

Ogata Banks

after

1.0E+100

days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

fraction

Organic carbon partition coefficient Koc

l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

l/kg

Sorption coefficient for ionised species K_{OC,i}

l/kg

pH value pH

pKa

acid dissociation constant pKa

fraction

Fraction of organic carbon in aquifer foc

fraction

Soil water partition coefficient Kd

l/kg

Soil water partition coefficient Kd

l/kg

Soil water partition coefficient Kd

l/kg

Soil water partition coefficient Kd

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Soil water partition coefficient Kd

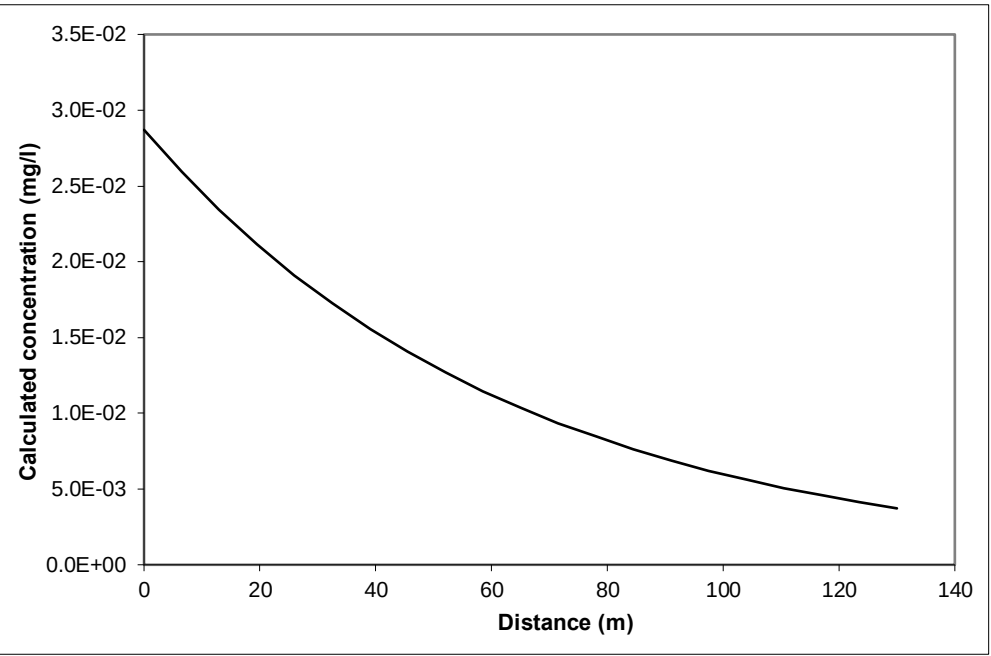
l/kg

Soil water partition coefficient Kd

l/kg

Soil water partition coefficient Kd

l/kg



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 2.9E-02

6.5 2.59E-02

13.0 2.34E-02

19.5 2.11E-02

26.0 1.91E-02

32.5 1.72E-02

39.0 1.56E-02

45.5 1.41E-02

52.0 1.27E-02

58.5 1.15E-02

65.0 1.04E-02

71.5 9.36E-03

78.0 8.45E-03

84.5 7.63E-03

91.0 6.89E-03

97.5 6.22E-03

104.0 5.61E-03

110.5 5.07E-03

117.0 4.57E-03

123.5 4.13E-03

130.0 3.72E-03

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Toluene	from Level 1
Target Concentration	C _T	7.40E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	2.02E+01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	3.00E+02	days
Calculated decay rate	λ	2.31E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
<i>Parameters values determined from options</i>			
Partition coefficient	Kd	2.04E+00	l/kg
Longitudinal dispersivity	ax	5.06E+00	m
Transverse dispersivity	az	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	m

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.27E+01	fraction
Decay rate used	λ	2.31E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	3.15E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	1.21E-02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.66E+03	

Remedial Targets

Remedial Target	1.23E+02	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	1.21E-02	mg/l
		1.0E+100	days
			Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

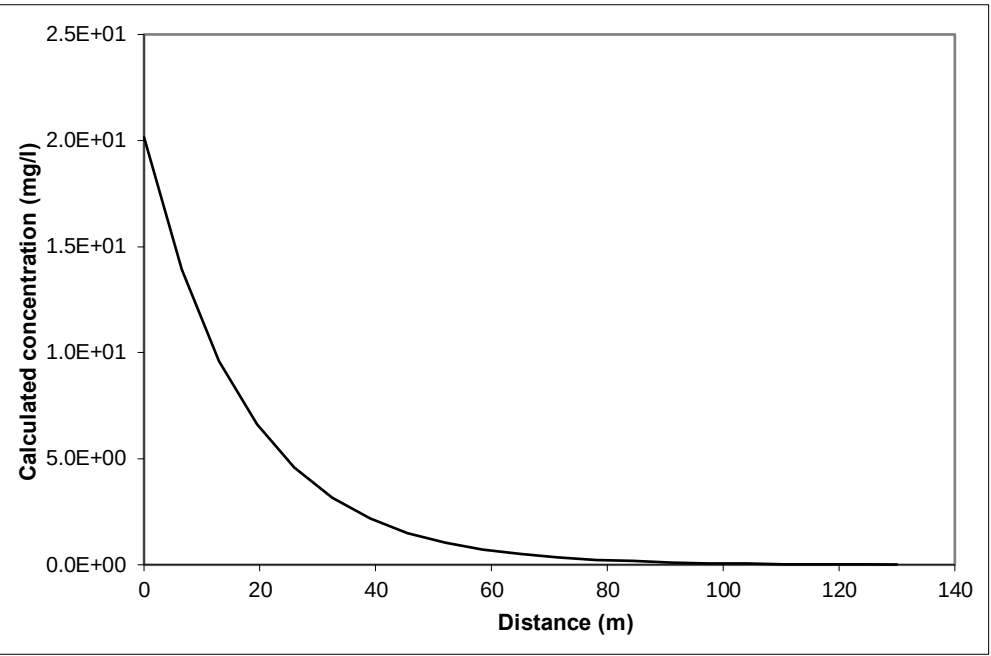
Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Ethylbenzene	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks	Equations in HRA publication
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Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	5.50E+00	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	8.00E+02	days	
Calculated decay rate	λ	8.66E-04	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	4.47E+00	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	2.67E+01	fraction
Decay rate used	λ	8.66E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	1.50E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	1.26E-02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	4.37E+02	

Remedial Targets

Remedial Target	1.31E+02	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	1.26E-02	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

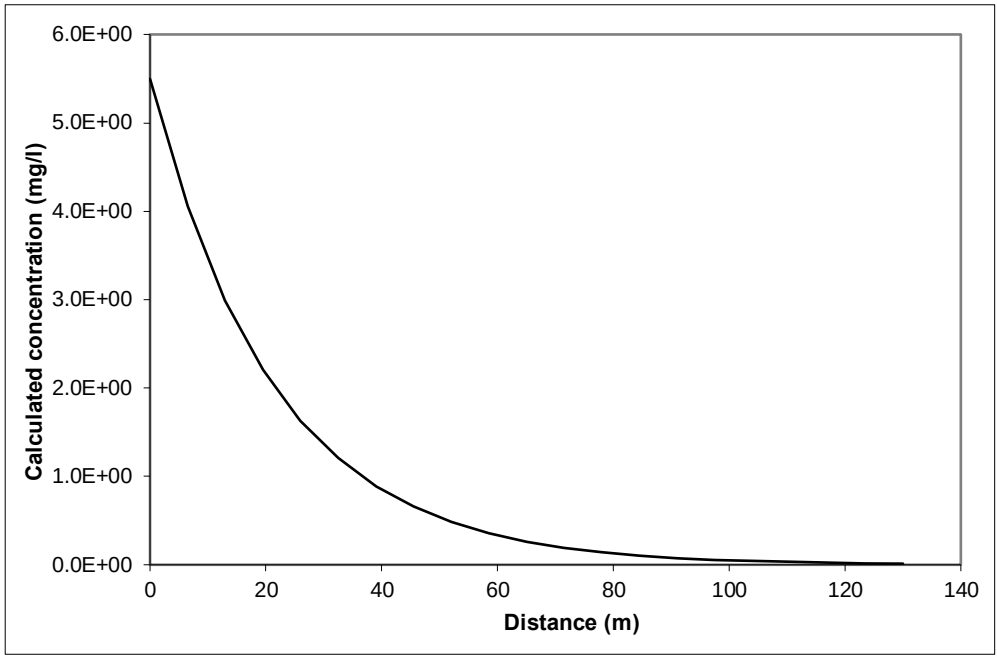
Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	1.00E-02	fraction
Organic carbon partition coefficient	Koc	4.47E+02	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{OC,n}		l/kg
Sorption coefficient for ionised species	K _{OC,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	4.47E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	5.06E-01	1.30E+00	5.06E+00	m
Vertical dispersivity	ay	1.00E-99	1.30E-01	5.06E-02	
Note values of dispersivity must be > 0					
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x					
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ x) ^{2.414} ; az = ax/10, ay = ax/100 are assumed					



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	5.5E+00
6.5	4.06E+00
13.0	2.99E+00
19.5	2.21E+00
26.0	1.63E+00
32.5	1.20E+00
39.0	8.88E-01
45.5	6.56E-01
52.0	4.84E-01
58.5	3.57E-01
65.0	2.64E-01
71.5	1.95E-01
78.0	1.44E-01
84.5	1.06E-01
91.0	7.82E-02
97.5	5.77E-02
104.0	4.26E-02
110.5	3.14E-02
117.0	2.32E-02
123.5	1.71E-02
130.0	1.26E-02

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Xylenes	from Level 1
Target Concentration	C _T	3.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	3.49E+01	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	5.00E+02	days	
Calculated decay rate	λ	1.39E-03	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	4.27E+00	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	2.55E+01	fraction
Decay rate used	λ	1.39E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	1.57E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	6.31E-03	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	5.52E+03	

Remedial Targets

Remedial Target	1.66E+02	mg/l	For comparison with measured groundwater concentration.
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Ogata Banks

Distance to compliance point

130

m

Concentration of contaminant at compliance point

C_{ED}/C₀

6.31E-03

mg/l

Ogata Banks

after

1.0E+100

days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 4.27E+02 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd 4.27E+00 l/kg

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Enter value

5.06E+00

Calc value Xu & Eckstein

m

Transverse dispersivity

az

5.06E-01

1.30E+00

5.06E-01

m

Vertical dispersivity

ay

1.00E-99

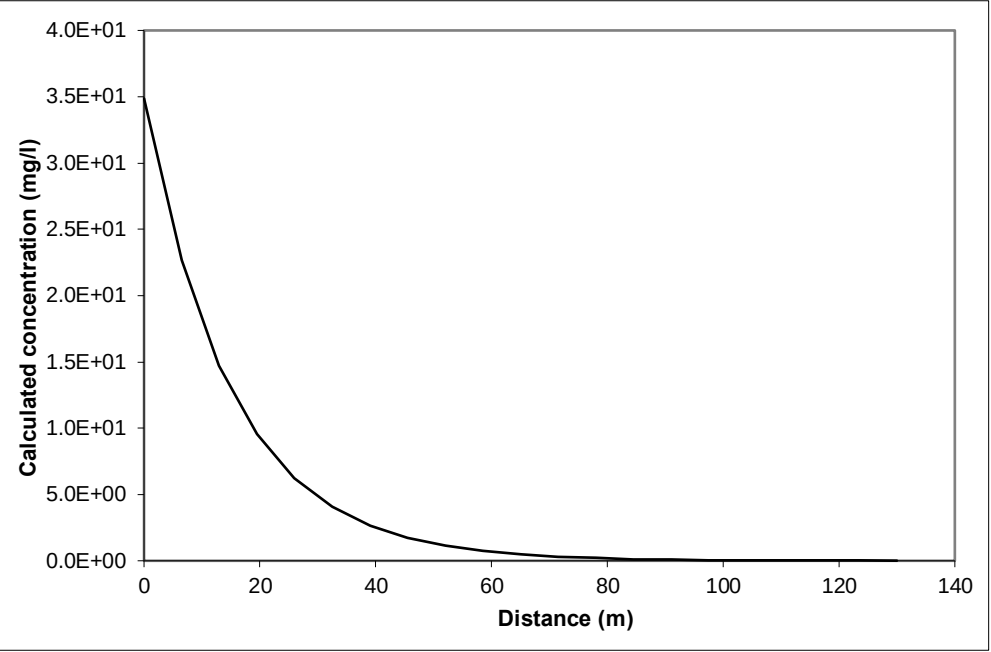
1.30E-01

5.06E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 3.5E+01

6.5 2.27E+01

13.0 1.47E+01

19.5 9.58E+00

26.0 6.23E+00

32.5 4.05E+00

39.0 2.63E+00

45.5 1.71E+00

52.0 1.11E+00

58.5 7.23E-01

65.0 4.70E-01

71.5 3.06E-01

78.0 1.99E-01

84.5 1.29E-01

91.0 8.39E-02

97.5 5.45E-02

104.0 3.54E-02

110.5 2.30E-02

117.0 1.50E-02

123.5 9.72E-03

130.0 6.31E-03

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed: Warth Road

Completed by: LK

Date: #####

Version: 1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Naphthalene	from Level 1
Target Concentration	C _T	2.00E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	3.66E-01	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	1.00E+03	days	
Calculated decay rate	λ	6.93E-04	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only

Parameters values determined from options

Partition coefficient	Kd	6.46E+00	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	3.81E+01	fraction
Decay rate used	λ	6.93E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	1.05E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	2.99E-04	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.23E+03	

Remedial Targets

Remedial Target	2.45E+00	mg/l	For comparison with measured groundwater concentration.
-----------------	----------	------	---

Ogata Banks

Distance to compliance point 130 m

Concentration of contaminant at compliance point after C_{ED}/C₀ 2.99E-04 mg/l Ogata Banks
1.0E+100 days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc 1.00E-02 fraction

Organic carbon partition coefficient Koc 6.46E+02 l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n} l/kg

Sorption coefficient for ionised species K_{OC,i} l/kg

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc fraction

Soil water partition coefficient Kd 6.46E+00 l/kg

Define dispersivity (click brown cell and use pull down list)

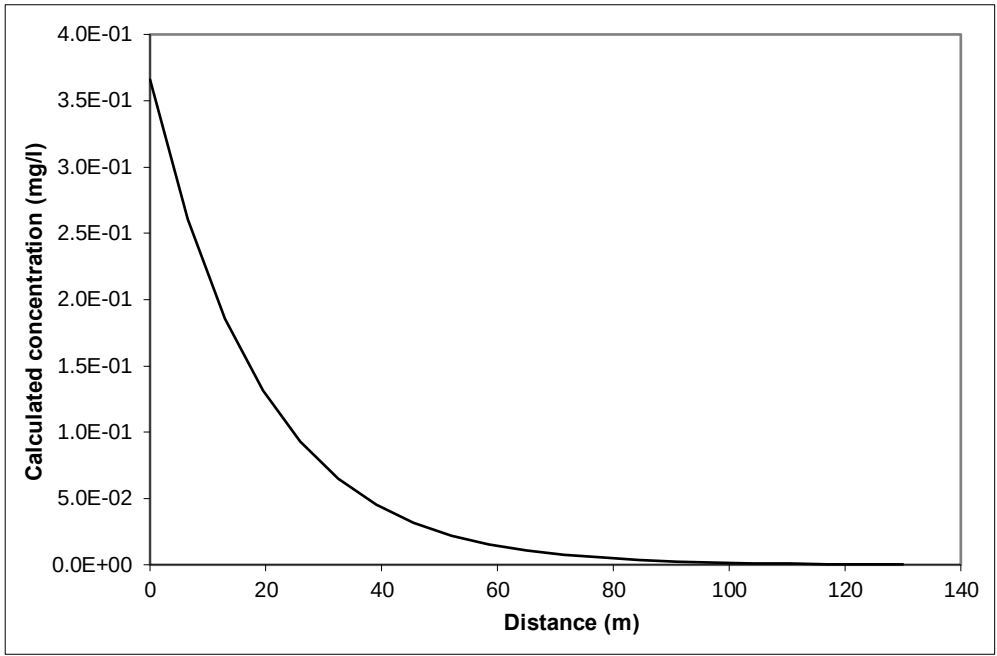
User defined values for dispersivity

Longitudinal dispersivity	ax	Enter value 5.06E+00	Calc value Xu & Eckstein 1.30E+01	5.06E+00	m
Transverse dispersivity	az	5.06E-01	1.30E+00	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	1.30E-01	5.06E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 3.7E-01

6.5 2.61E-01

13.0 1.86E-01

19.5 1.32E-01

26.0 9.28E-02

32.5 6.51E-02

39.0 4.55E-02

45.5 3.18E-02

52.0 2.22E-02

58.5 1.55E-02

65.0 1.08E-02

71.5 7.51E-03

78.0 5.24E-03

84.5 3.65E-03

91.0 2.55E-03

97.5 1.78E-03

104.0 1.25E-03

110.5 8.71E-04

117.0 6.09E-04

123.5 4.26E-04

130.0 2.99E-04

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aliphatic C8-10	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	6.24E+00	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	8.00E+02	days	
Calculated decay rate	λ	8.66E-04	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	1.30E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	3.02E+02	l/kg	see options
Longitudinal dispersivity	ax	5.06E+00	m	see options
Transverse dispersivity	az	5.06E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.74E+03	fraction
Decay rate used	λ	8.66E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	2.31E-04	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	1.75E-43	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	3.56E+43	

Remedial Targets

Remedial Target	1.07E+43	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	1.75E-43	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Transverse dispersivity

az

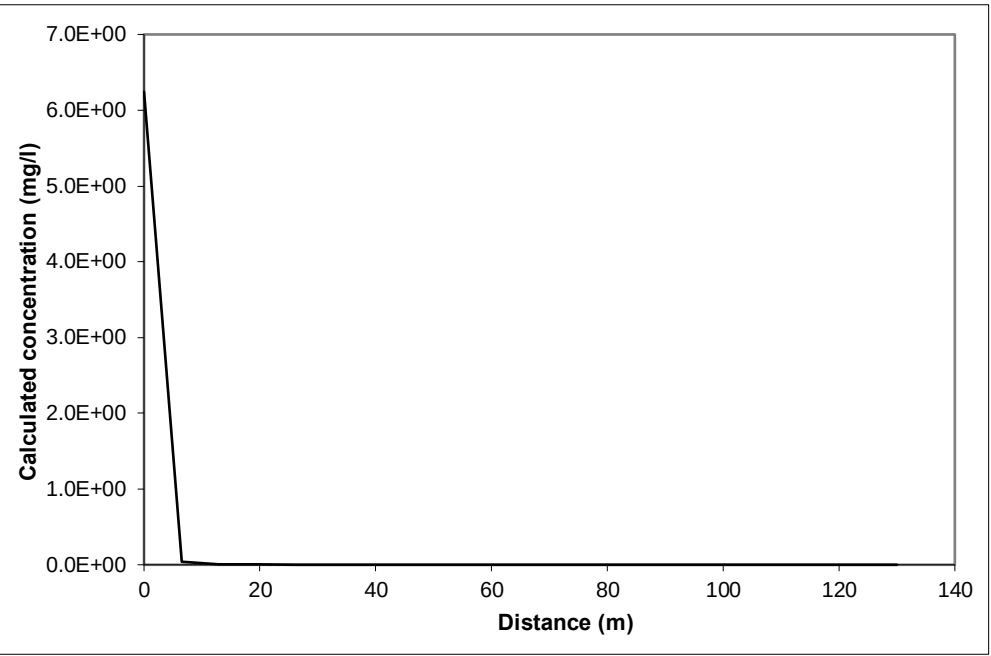
Vertical dispersivity

ay

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

	mg/l
0	6.2E+00
6.5	4.22E-02
13.0	2.84E-04
19.5	1.91E-06
26.0	1.28E-08
32.5	8.51E-11
39.0	5.64E-13
45.5	3.73E-15
52.0	2.47E-17
58.5	1.63E-19
65.0	1.08E-21
71.5	7.13E-24
78.0	4.71E-26
84.5	3.12E-28
91.0	2.06E-30
97.5	1.37E-32
104.0	9.05E-35
110.5	6.00E-37
117.0	3.98E-39
123.5	2.64E-41
130.0	1.75E-43

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aromatic C8-10	from Level 1
Target Concentration	C _T	3.00E-01	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	2.86E+01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	8.00E+02	days
Calculated decay rate	λ	8.66E-04	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	1.58E+01	l/kg
Longitudinal dispersivity	ax	5.06E+00	m
Transverse dispersivity	az	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	m

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	9.17E+01	fraction
Decay rate used	λ	8.66E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	4.36E-03	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	3.39E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	8.43E+06	

Remedial Targets

Remedial Target	2.53E+06	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	3.39E-06	mg/l
		1.0E+100	days
			Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

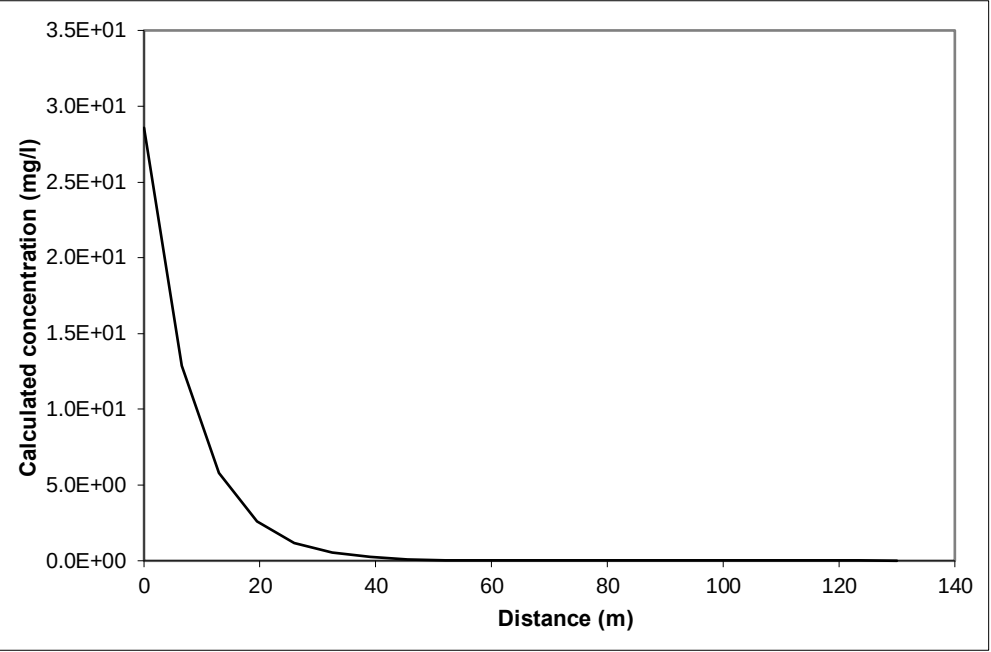
Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity ax	5.06E+00	1.30E+01	5.06E+00
Transverse dispersivity az	5.06E-01	1.30E+00	5.06E-01
Vertical dispersivity ay	1.00E-99	1.30E-01	5.06E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

Distance	Concentration
	mg/l
0	2.9E+01
6.5	1.29E+01
13.0	5.80E+00
19.5	2.61E+00
26.0	1.18E+00
32.5	5.31E-01
39.0	2.39E-01
45.5	1.08E-01
52.0	4.86E-02
58.5	2.19E-02
65.0	9.86E-03
71.5	4.44E-03
78.0	2.00E-03
84.5	9.02E-04
91.0	4.06E-04
97.5	1.83E-04
104.0	8.24E-05
110.5	3.71E-05
117.0	1.67E-05
123.5	7.53E-06
130.0	3.39E-06

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		TPH Aromatic C10-12	from Level 1
Target Concentration	C _T	9.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	4.05E+00	mg/l
Half life for degradation of contaminant in water	t _{1/2}	1.00E+03	days
Calculated decay rate	λ	6.93E-04	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	6.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	2.51E+01	l/kg see options
Longitudinal dispersivity	ax	5.06E+00	m see options
Transverse dispersivity	az	5.06E-01	m see options
Vertical dispersivity	ay	1.00E-99	m see options

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.45E+02	fraction
Decay rate used	λ	6.93E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	2.76E-03	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	2.60E-08	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.56E+08	

Remedial Targets

Remedial Target	1.40E+07	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	2.60E-08	mg/l Ogata Banks
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

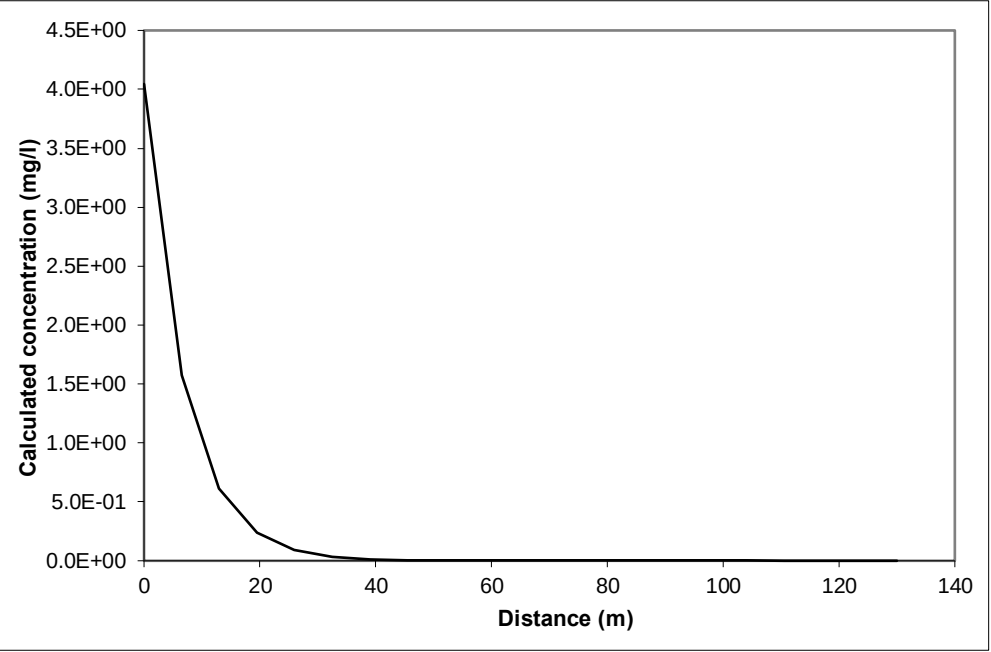
Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity ax	5.06E+00	1.30E+01	5.06E+00 m
Transverse dispersivity az	5.06E-01	1.30E+00	5.06E-01 m
Vertical dispersivity ay	1.00E-99	1.30E-01	5.06E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0 4.0E+00

6.5 1.58E+00

13.0 6.14E-01

19.5 2.39E-01

26.0 9.31E-02

32.5 3.63E-02

39.0 1.41E-02

45.5 5.50E-03

52.0 2.14E-03

58.5 8.34E-04

65.0 3.25E-04

71.5 1.27E-04

78.0 4.93E-05

84.5 1.92E-05

91.0 7.47E-06

97.5 2.91E-06

104.0 1.13E-06

110.5 4.41E-07

117.0 1.72E-07

123.5 6.67E-08

130.0 2.60E-08

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Vinyl Chloride	from Level 1
Target Concentration	C _T	5.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	9.20E-03	mg/l
Half life for degradation of contaminant in water	t _{1/2}	5.00E+02	days
Calculated decay rate	λ	1.39E-03	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
<i>Parameters values determined from options</i>			
Partition coefficient	Kd	1.66E-01	l/kg
Longitudinal dispersivity	ax	5.06E+00	m
Transverse dispersivity	az	5.06E-01	m
Vertical dispersivity	ay	1.00E-99	m

Calculated Parameters

Variable			
Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.95E+00	fraction
Decay rate used	λ	1.39E-03	d ⁻¹
Rate of contaminant flow due to retardation	u	2.05E-01	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	2.84E-03	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	3.24E+00	

Remedial Targets

Remedial Target	1.62E-03	mg/l	For comparison with measured groundwater concentration.
Ogata Banks			
Distance to compliance point	130	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	2.84E-03	mg/l
		1.0E+100	days
Ogata Banks			

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)

Soil water partition coefficient Kd

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer foc

Organic carbon partition coefficient Koc

Entry for ionic organic chemicals (option)

Sorption coefficient for related species K_{OC,n}

Sorption coefficient for ionised species K_{OC,i}

pH value pH

acid dissociation constant pKa

Fraction of organic carbon in aquifer foc

Soil water partition coefficient Kd

Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity

ax

Transverse dispersivity

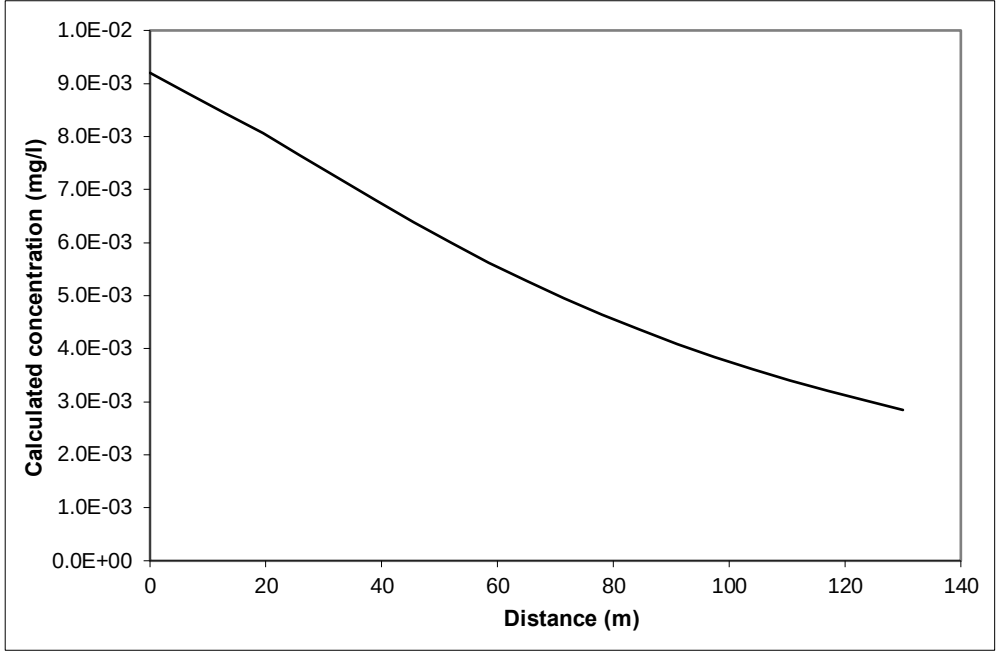
az

Vertical dispersivity

ay

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	9.2E-03
6.5	8.82E-03
13.0	8.44E-03
19.5	8.06E-03
26.0	7.64E-03
32.5	7.22E-03
39.0	6.79E-03
45.5	6.38E-03
52.0	5.99E-03
58.5	5.62E-03
65.0	5.27E-03
71.5	4.94E-03
78.0	4.64E-03
84.5	4.36E-03
91.0	4.09E-03
97.5	3.85E-03
104.0	3.62E-03
110.5	3.40E-03
117.0	3.20E-03
123.5	3.02E-03
130.0	2.84E-03

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		cis 1,2-Dichloroethene	from Level 1
Target Concentration	C _T	5.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value)

Source of parameter value			
Initial contaminant concentration in groundwater at plume core	C ₀	1.72E-01	mg/l
Half life for degradation of contaminant in water	t _{1/2}	3.00E+03	days
Calculated decay rate	λ	2.31E-04	days ⁻¹
Width of plume in aquifer at source (perpendicular to flow)	Sz	2.50E+01	m
Plume thickness at source	Sy	2.50E+00	m
Saturated aquifer thickness	da	2.50E+00	m
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³
Effective porosity of aquifer	n	3.10E-01	fraction
Hydraulic gradient	i	1.00E-02	fraction
Hydraulic conductivity of aquifer	K	1.24E+01	m/d
Distance to compliance point	x	1.30E+02	m
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m
Time since pollutant entered groundwater	t	1.00E+100	days
Parameters values determined from options			
Partition coefficient	Kd	4.07E-01	l/kg see options
Longitudinal dispersivity	ax	5.06E+00	m see options
Transverse dispersivity	az	5.06E-01	m see options
Vertical dispersivity	ay	1.00E-99	m see options

Calculated Parameters Variable

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	3.34E+00	fraction
Decay rate used	λ	2.31E-04	d ⁻¹
Rate of contaminant flow due to retardation	u	1.20E-01	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	9.72E-02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	1.77E+00	

Remedial Targets

Remedial Target	8.85E-02	mg/l	For comparison with measured groundwater concentration.
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Ogata Banks

Distance to compliance point 130 m

Concentration of contaminant at compliance point after C_{ED}/C₀ 9.72E-02 mg/l Ogata Banks
1.0E+100 days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	1.00E-02	fraction
Organic carbon partition coefficient	Koc	4.07E+01	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{OC,n}		l/kg
Sorption coefficient for ionised species	K _{OC,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	4.07E-01	l/kg

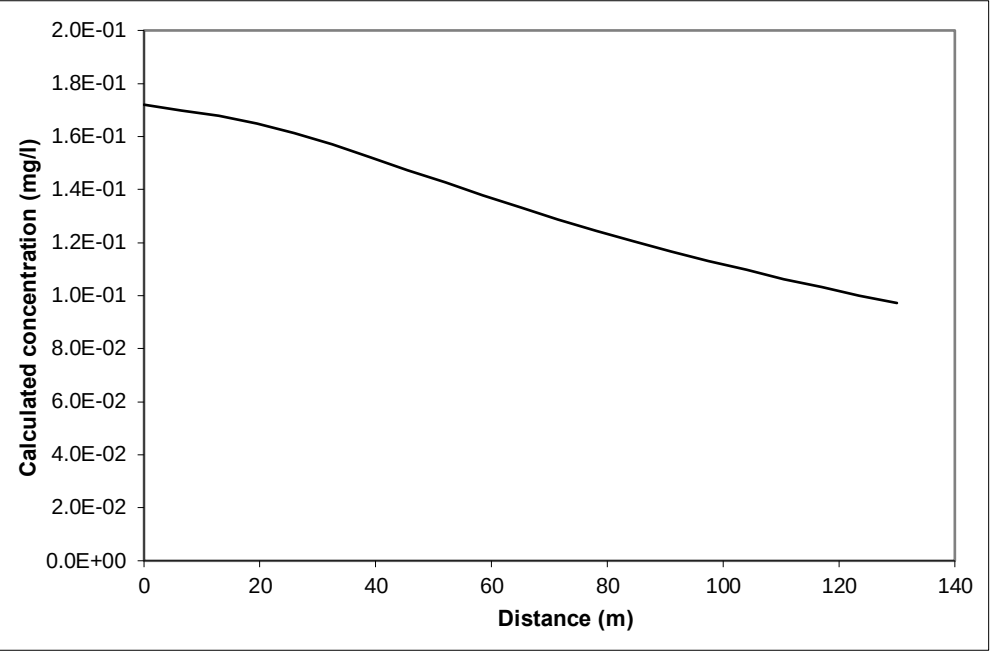
Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

	Enter value	Calc value Xu & Eckstein	m
Longitudinal dispersivity ax	5.06E+00	1.30E+01	5.06E+00 m
Transverse dispersivity az	5.06E-01	1.30E+00	5.06E-01 m
Vertical dispersivity ay	1.00E-99	1.30E-01	5.06E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.414}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	1.7E-01
6.5	1.70E-01
13.0	1.68E-01
19.5	1.65E-01
26.0	1.61E-01
32.5	1.57E-01
39.0	1.52E-01
45.5	1.47E-01
52.0	1.43E-01
58.5	1.38E-01
65.0	1.33E-01
71.5	1.29E-01
78.0	1.25E-01
84.5	1.21E-01
91.0	1.17E-01
97.5	1.13E-01
104.0	1.10E-01
110.5	1.06E-01
117.0	1.03E-01
123.5	1.00E-01
130.0	9.72E-02

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant		Arsenic		from Level 1
Target Concentration	C _T	1.00E-02	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks

Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to pollutants in all phases (e.g. field derived value)

Initial contaminant concentration in groundwater at plume core	C ₀	1.20E-01	mg/l	Source of parameter value
Half life for degradation of contaminant in water	t _{1/2}	9.00E+99	days	
Calculated decay rate	λ	7.70E-101	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.00E+01	m	
Plume thickness at source	Sy	2.50E+00	m	
Saturated aquifer thickness	da	2.50E+00	m	
Bulk density of aquifer materials	ρ	1.78E+00	g/cm ³	
Effective porosity of aquifer	n	3.10E-01	fraction	
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	1.24E+01	m/d	
Distance to compliance point	x	2.20E+02	m	
Distance (lateral) to compliance point perpendicular to flow direction	z	0.00E+00	m	
Distance (depth) to compliance point perpendicular to flow direction	y	0.00E+00	m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	2.51E+03	l/kg	see options
Longitudinal dispersivity	ax	6.48E+00	m	see options
Transverse dispersivity	az	6.48E-01	m	see options
Vertical dispersivity	ay	1.00E-99	m	see options

Calculated Parameters

Groundwater flow velocity	v	4.00E-01	m/d
Retardation factor	Rf	1.44E+04	fraction
Decay rate used	λ	7.70E-101	d ⁻¹
Rate of contaminant flow due to retardation	u	2.78E-05	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{ED}	2.80E-02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	4.29E+00	

Remedial Targets

Remedial Target	4.29E-02	mg/l	For comparison with measured groundwater concentration.
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Ogata Banks

Distance to compliance point	220	m	
Concentration of contaminant at compliance point after	C _{ED} /C ₀	2.80E-02	mg/l
		1.0E+100	days

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	2.51E+03	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	K _{oc,n}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction

Soil water partition coefficient	Kd	2.51E+03	l/kg
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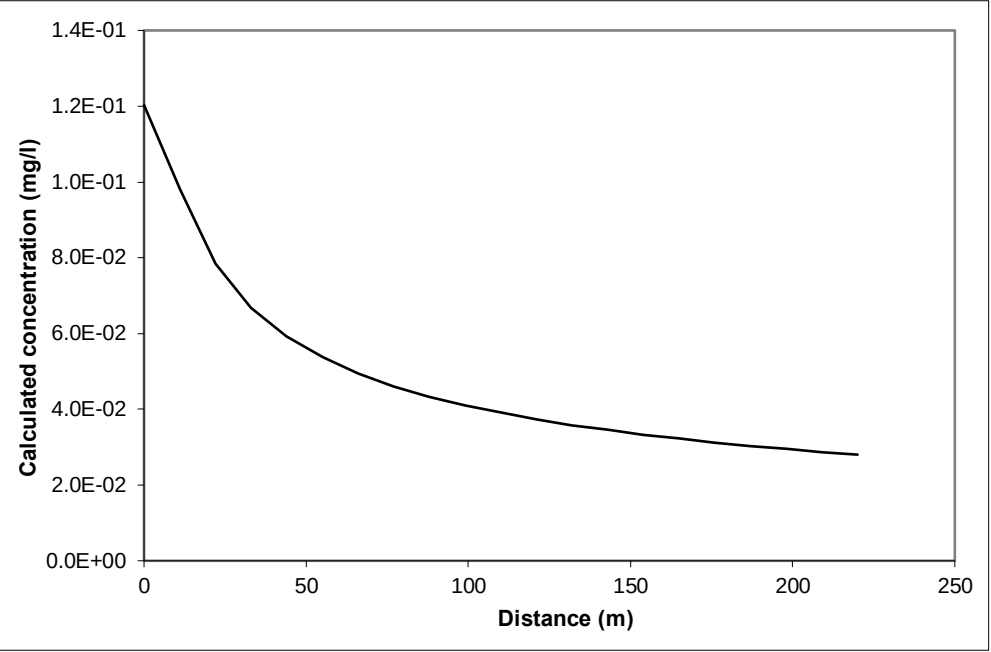
Define dispersivity (click brown cell and use pull down list)

User defined values for dispersivity

Longitudinal dispersivity	ax	6.48E+00	2.20E+01	6.48E+00	m
Transverse dispersivity	az	6.48E-01	2.20E+00	6.48E-01	m
Vertical dispersivity	ay	1.00E-99	2.20E-01	6.48E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{2.414}; az = ax/10, ay = ax/100 are assumed



Calculated concentrations for distance-concentration graph

Ogata Banks

From calculation sheet

Distance Concentration

mg/l

0	1.2E-01
11.0	9.80E-02
22.0	7.83E-02
33.0	6.68E-02
44.0	5.92E-02
55.0	5.37E-02
66.0	4.95E-02
77.0	4.61E-02
88.0	4.34E-02
99.0	4.10E-02
110.0	3.91E-02
121.0	3.73E-02
132.0	3.58E-02
143.0	3.45E-02
154.0	3.33E-02
165.0	3.22E-02
176.0	3.12E-02
187.0	3.03E-02
198.0	2.95E-02
209.0	2.87E-02
220.0	2.80E-02

Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared

with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Warth Road
Completed by:	LK
Date:	#####
Version:	1