

Site Details:

Plot W Kingsway Business Park,
Lower Lane, ROCHDALE, OL16
4PR

Client Ref: POR028892
Report Ref: HMD-214-6443778
Grid Ref: 391211, 411237

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000

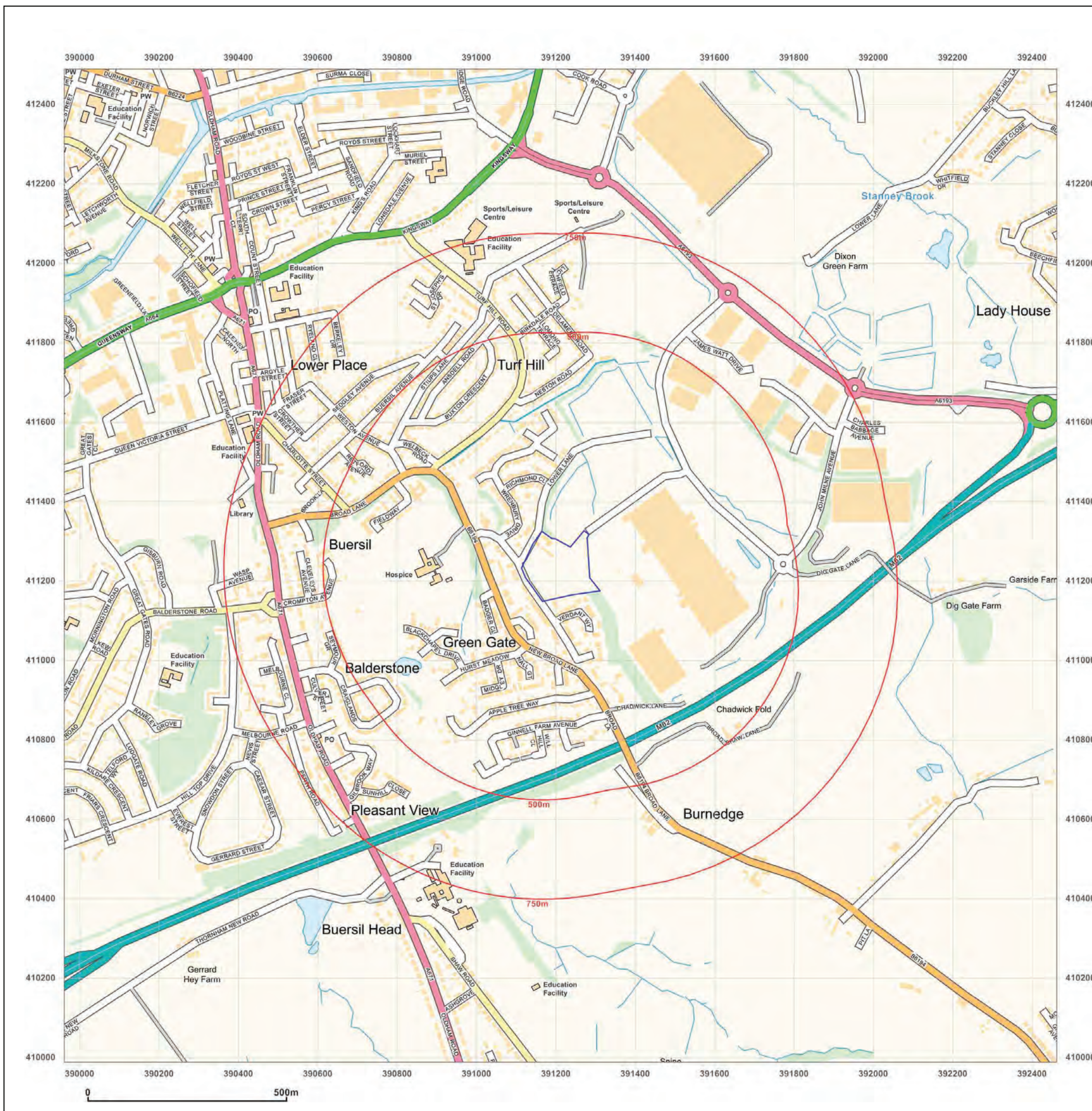


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Groundsure Insights
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Production date: 05 November 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Appendix 5: Coal Mining Report

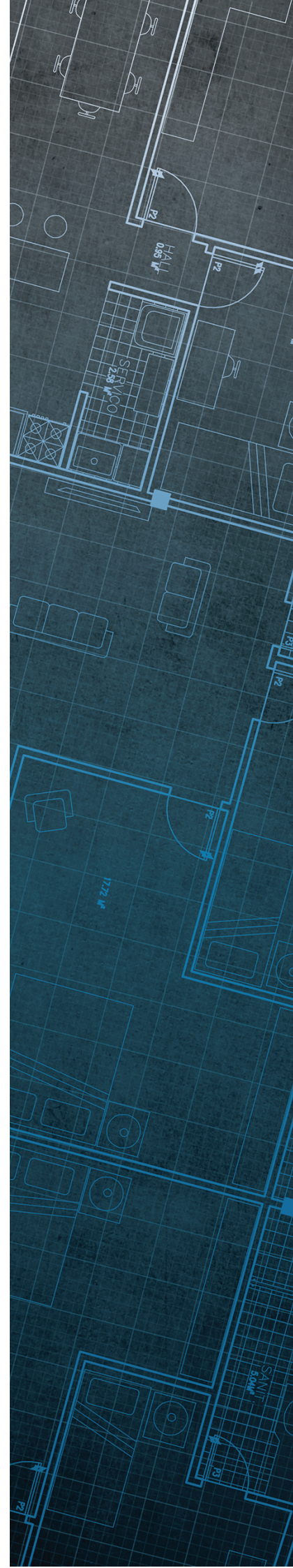


The Coal
Authority

Consultants Coal Mining Report

Plot W Kingsway Business Park,
Lower Lane, Rochdale, OL16 4pr
Greater Manchester

Date of enquiry:	6 November 2019
Date enquiry received:	6 November 2019
Issue date:	6 November 2019
Our reference:	51002188279001
Your reference:	HMD-214-6443779



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Plot W Kingsway Business Park, Lower Lane,
Rochdale, OL16 4pr
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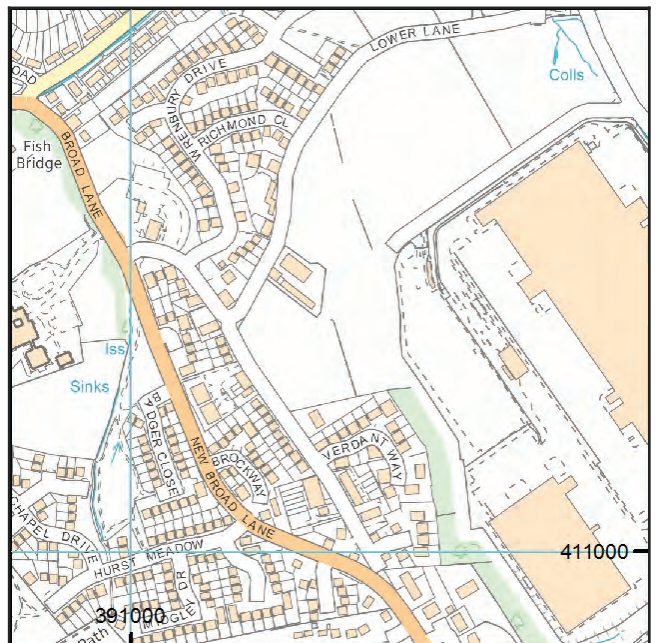
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

None available.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

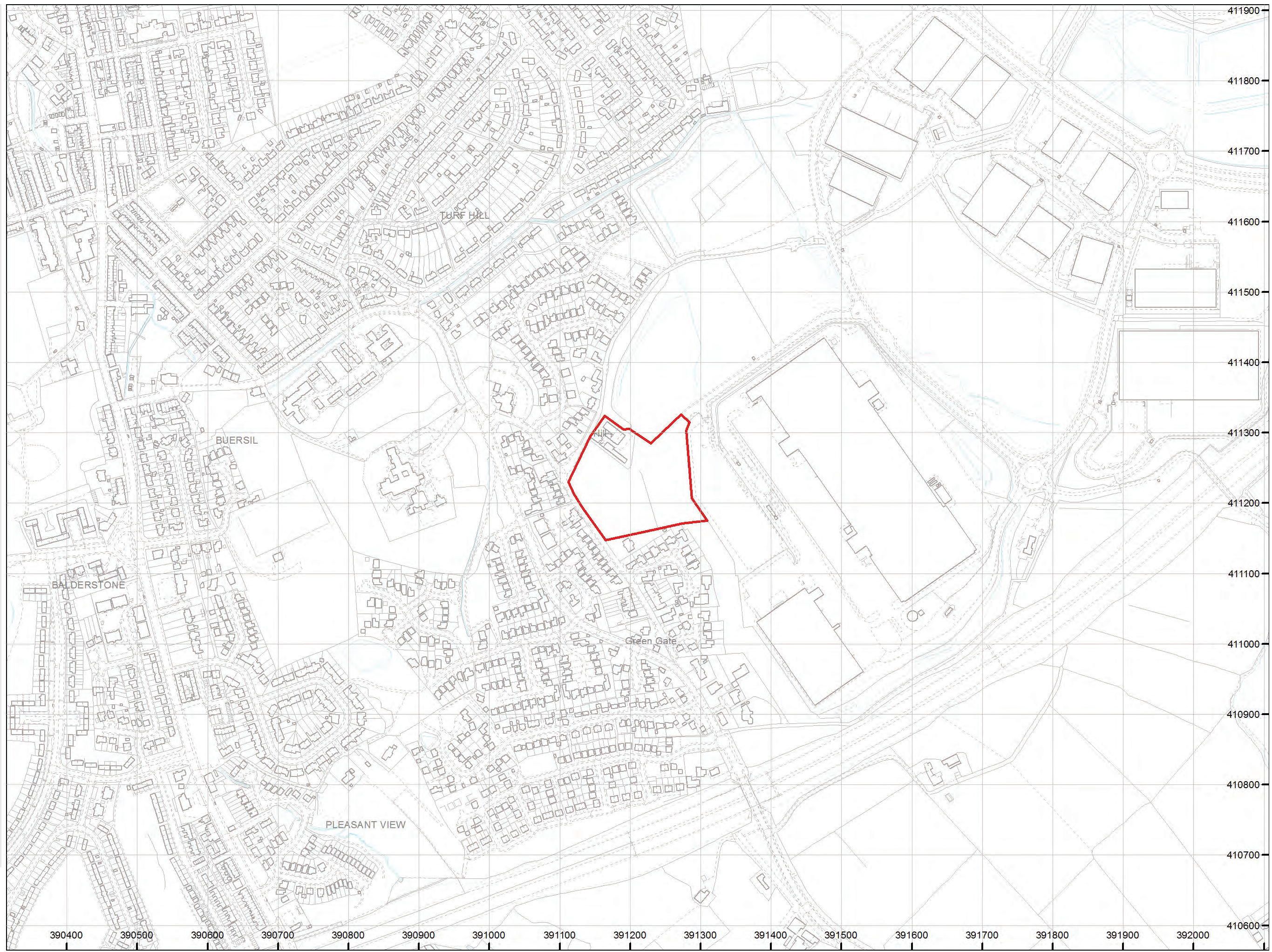
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

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Appendix 6: Classification of Risk

BWB RISK ASSESSMENT CLASSIFICATION (REFERENCE CIRIA C552, CONTAMINATED LAND RISK ASSESSMENT: A GUIDE TO GOOD PRACTICE, 2001)

CIRIA C552, *Contaminated Land Risk Assessment A Guide to Good Practice*, 2001 sets out a methodology for estimating risk. The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

- Magnitude of the potential consequence (severity) of risk occurring; and
- Magnitude of the probability (likelihood) of the risk occurring.

The classification of consequence and probability are replicated in **Table 1** and **Table 2**, respectively.

Table 1: Classification of Consequence

Classification	Definition	Examples
Severe (Sv)	Short term (acute) risk to human health likely to result in “significant harm” as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium (Md)	Chronic damage to Human Health (“significant harm”). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of a contaminant from site exceeding the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of species within a designated nature reserve.
Mild (Mi)	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor (Mr)	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc.). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentration that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

The classification of consequence does not take into account the probability of the consequence being realised. Therefore, there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death.

Severe relates to short term (acute) risk while medium relates to long term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

Table 2: Classification of Probability

Classification	Definition
High likelihood (Hi)	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor of harm or pollution.
Likely (Li)	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood (Lw)	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely (Ui)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as “no risk” but as “very low risk”. Differing stakeholders may have a different view on the acceptability of a risk.

Once the consequence and probability have been classified these can be compared using a matrix to identify an overall risk category, as shown in **Table 3**. These categories and the actions required are categorised in **Table 4**.

Table 3: Risk Evaluation Matrix

Consequence		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High likelihood (Hi)	Very High Risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/Low Risk (M/L)
	Likely (Li)	High Risk (H)	Moderate Risk (M)	Mod/Low Risk (M/L)	Low Risk (L)
	Low likelihood (Lw)	Moderate Risk (M)	Mod/Low Risk (M/L)	Low Risk (L)	Very Low Risk (VL)
	Unlikely (Ui)	Mod/Low Risk (M/L)	Low Risk (L)	Very Low Risk (VL)	Very Low Risk (VL)

Table 4: Risk Categorisations

Very High Risk (VH)	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk (H)	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
Moderate Risk (M)	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.
Low Risk (L)	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk (VL)	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Reference:

CIRIA C552 *Contaminated land risk assessment. A guide to good practice*. Rudland, D J, Lancefield, R M, Mayell, P N, 2001.

Appendix 7: Engineering Logs

BOREHOLE LOG

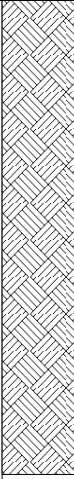
LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale					Ground Level (m AOD): 158.02						
BH01		Project Number: NTE2554					Eastings: 391191.72						
		Client: Wilson Bowden Developments Ltd					Northings: 411276.22						
Hole Type: CP		Rig: Dando 2000			Start & End Date: 10/10/2019			Engineer: JA		Checker: CR			
Boring		Strata					Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)	
		(0.35)	Grass over very soft dark brown sandy gravelly CLAY with rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse ash, brick, concrete and sandstone. (Made Ground)		0.35	D1	0.30						
		157.66 (0.75)					B1	0.50	1.00	PID	0.50	0.3ppm	
		156.92 (1.70)	Very soft light brown mottled orange and grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse ash, brick, concrete and sandstone. (Made Ground)		1.10	3	1.20	1.65	SPT	1.20	N=1 (0,0/0,0,1,0)		
							B2	1.20					
			Very soft dark orangish brown slightly gravelly sandy SILT. Gravel is subangular to rounded fine to coarse mudstone and siltstone. Sand is fine to coarse. (Hummocky Glacial Deposits)			D2	1.75						
							B3	2.00	2.45	SPT	2.00	N=4 (1,1/1,1,1,1)	
		155.22 (4.80)	Very loose orangish brown slightly silty SAND and GRAVEL with a low cobble content ad occasional silty clay bands. Sand is fine to coarse. Gravel subangular to rounded fine to coarse sandstone, mudstone and siltstone. Cobbles are rounded to subangular sandstone and siltstone. (Hummocky Glacial Deposits)		2.80	D3	2.80						
							B4	3.00	3.45	SPT	3.00	N=4 (2,1/1,1,1,1)	
						B5	4.00	4.45	SPT	4.00	N=4 (1,0/1,1,1,1)		
						B6	5.00	5.45	SPT	5.00	N=14 (1,1/3,4,4,3)		
						B7	6.00	6.45	SPT	6.00	N=31 (1,1/7,8,8,8)		
		150.42 (1.70)	Very soft brownish grey slightly gravelly sandy CLAY. Gravel subangular to rounded fine to coarse sandstone, mudstone and siltstone. Sand is fine to coarse. (Hummocky Glacial Deposits)		7.60	B8	7.50	7.95	SPT	7.50	N=4 (1,0/1,0,1,2)		
							D4	8.50					
		148.72 (1.50)	Very soft to soft dark orangish slightly gravelly sandy SILT. Gravel is angular to subrounded fine to coarse coal and		9.30	13	9.00	9.45					
							U1 (71)	9.00					
						D5	9.45	9.50					
Chiseling		Remarks											
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:										
			Target depth reached.										
Groundwater Remarks:			No groundwater encountered.										
Water Added			Other Remarks:										
From (m bgl)	To (m bgl)	Volume (l)	1. No visual or olfactory evidence of contamination.										
			2. Borehole installed with 50mm HDPE pipe and cover.										



BOREHOLE LOG

Scale 1:50

Sheet 2 of 2

LOCATION ID BH01		Project Name: Plot W, Kingsway Business Park, Rochdale						Ground Level (m AOD): 158.02					
		Project Number: NTE2554						Eastings: 391191.72					
		Client: Wilson Bowden Developments Ltd						Northings: 411276.22					
Hole Type: CP		Rig: Dando 2000			Start & End Date: 10/10/2019			Engineer: JA		Checker: CR			
Boring		Strata					Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description		Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		147.22 [2.04]	Very soft to soft dark orangish slightly gravelly sandy SILT. Gravel is angular to subrounded fine to coarse coal and siltstone. Sand is fine to coarse. (Hummocky Glacial Deposits)			10.80	B9	11.00	11.50	SPT	10.50	N=37 (6,6/7,9,9,12)	
			Very dense orangish brown silty medium and coarse SAND with frequent coal fragments. (Hummocky Glacial Deposits)										
			145.18	Hole Terminated at 12.84m bgl.			12.84	16 D6	12.50 12.50	12.84	SPT	12.50	50 (3.5/50 for 285mm)
Remarks													
Chiseling													
From (m bgl)	To (m bgl)	Time (hh:mm)											
Water Added													
From (m bgl)	To (m bgl)	Volume (l)											
			Other Remarks:										
1. No visual or olfactory evidence of contamination. 2. Borehole installed with 50mm HDPE pipe and cover.													

BWB

CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

Scale 1:50

Sheet 1 of 2

BWB
CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

BOREHOLE LOG

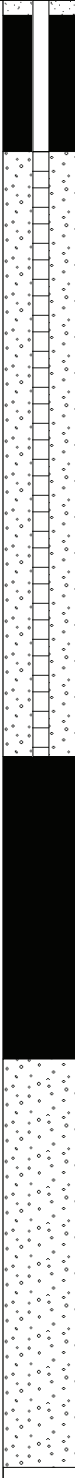
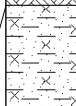
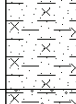
LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale					Ground Level (m AOD): 159.01						
BH02		Project Number: NTE2554					Eastings: 391178.71						
		Client: Wilson Bowden Developments Ltd					Northings: 411179.82						
Hole Type: CP		Rig: Dando 2000			Start & End Date: 08/10/2019 - 09/10/2019			Engineer: JA		Checker: CR			
Boring		Strata					Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description		Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		149.01 [1.50]	Firm orangish greyish brown slightly silty slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse sandstone, mudstone and coal. Sand is fine to coarse. (Hummocky Glacial Deposits)			10.00							
			Dense orangish greyish brown SAND and GRAVEL with occasional silty clay bands. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse sandstone, mudstone and coal. (Hummocky Glacial Deposits)				18 B8	10.50 10.50	10.95	SPT	10.50	N=34 (3,7/10,10,7,7)	
		147.51 [3.95]	Medium dense dark greyish brown slightly gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse sandstone, mudstone and coal. (Hummocky Glacial Deposits)			11.50							
							B9	12.00 12.00	12.45	SPT	12.00	N=13 (2,2/2,4,3,4)	
							D8	13.50 13.50	13.95	SPT	13.50	N=16 (1,2/3,3,5,5)	
							21 B10	14.00 14.00	14.50				
							B11	15.00 15.00	15.45	SPT	15.00	N=19 (2,3/3,3,5,8)	
		143.56	Hole Terminated at 15.45m bgl.			15.45							
Remarks													
Chiseling													
From (m bgl)	To (m bgl)	Time (hh:mm)											
			Reason for Termination:										
			Target depth reached.										
Groundwater Remarks:													
Water Added			Water ingress at 0.70m bgl.										
From (m bgl)	To (m bgl)	Volume (l)											
			Other Remarks:										
			1. No visual or olfactory evidence of contamination. 2. Borehole installed with 50mm HDPE pipe and cover.										



BOREHOLE LOG

Scale 1:50

Sheet 1 of 2

LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale					Ground Level (m AOD): 158.15								
BH03		Project Number: NTE2554					Eastings: 391265.54								
		Client: Wilson Bowden Developments Ltd					Northings: 411231.47								
Hole Type: CP		Rig: Dando 2000		Start & End Date: 07/10/2019 - 08/10/2019			Engineer: JA		Checker: CR						
Boring		Strata					Samples			In-Situ Tests					
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (ublow)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)			
		[0.45]	Very soft dark brown slightly gravelly sandy CLAY with roots and rootlets. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. Sand is fine to coarse. (Topsoil)		0.45	D1	0.30	1.00							
		157.70 [1.25]	Very soft dark brown silty sandy CLAY with roots and rootlets. Sand is fine to coarse. (Hummocky Glacial Deposits)		2	0.50	B1						0.50		
					3	1.20	B2						1.20		
				156.45 [2.10]	Very soft light brown mottled dark brownish grey slightly gravelly silty sandy CLAY with an organic odour. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. Sand is fine to coarse. (Hummocky Glacial Deposits)		1.70	D2	1.75	SPT	1.20	N=2 (1,0/1,0,1,0)			
						5	2.00	B3	2.00						
						B4	3.00		3.45						
				154.35 [2.30]	Medium dense orangish brown slightly silty gravelly medium and coarse SAND. Gravel is subangular to rounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		3.80	7	3.90	SPT	4.00	N=23 (4,5/5,6,6,6)			
					Below 4.00m bgl: Medium dense.			D3	3.90					B5	4.00
								B6	5.00						5.45
				152.05 [4.70]	Medium dense light yellowish brown fine SAND with frequent coal fragments. (Hummocky Glacial Deposits)		6.10	B7	6.00	SPT	6.00	N=18 (3,3/3,3,4,8)			
						B8	6.50		7.00						
			Below 7.50m bgl: Very dense.			B9	7.50	SPT	7.50					50 (6,10/50 for 235mm)	
						D4	7.50								
			Below 9.00m bgl: Medium dense.			14	9.00	SPT	9.00	N=28 (4,5/7,6,7,8)					
						B10	9.00								
Chiseling		Remarks													
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:												
			Target depth reached.												
Groundwater Remarks:															
Water Added			Water ingress at 0.70m bgl.												
From (m bgl)	To (m bgl)	Volume (l)	Other Remarks:												
			1. No visual or olfactory evidence of contamination.												
			2. Borehole installed with 50mm HDPE pipe and cover.												



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BOREHOLE LOG

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LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale						Ground Level (m AOD): 158.15						
BH03		Project Number: NTE2554						Eastings: 391265.54						
		Client: Wilson Bowden Developments Ltd						Northings: 411231.47						
Hole Type: CP		Rig: Dando 2000			Start & End Date: 07/10/2019 - 08/10/2019			Engineer: JA		Checker: CR				
Boring		Strata						Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description			Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			Medium dense light yellowish brown fine SAND with frequent coal fragments. (Hummocky Glacial Deposits)											
		147.35 [0.90]					10.80	D5	10.50	10.95	SPT	10.50	N=22 (2,1/2,4,6,10)	
		146.45 [3.75]	Stiff dark brownish grey slightly sandy slightly gravelly silty CLAY. Sand is medium and coarse. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. (Hummocky Glacial Deposits)				11.70	16 D6	11.50 11.50					
			Medium dense light brownish grey silty fine to coarse SAND with frequent clay bands. (Hummocky Glacial Deposits)					B11	12.00	12.45	SPT	12.00	N=22 (1,4/5,6,5,6)	
								B12	13.50	13.95	SPT	13.50	N=17 (2,3/3,4,5,5)	
								D7	15.00	15.45	SPT	15.00	N=22 (3,3/5,5,5,7)	
		142.70	Hole Terminated at 15.45m bgl.				15.45							
</														

BOREHOLE LOG

LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale					Ground Level (m AOD):						
DS201		Project Number: NTE2554					Eastings: 391257.41						
		Client: Wilson Bowden Developments Ltd					Northings: 411256.48						
Hole Type: WLS		Rig: Premier 110			Start & End Date: 19/11/2019			Engineer: JA		Checker: RTR			
Boring		Strata					Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & Thickness (m)	Description		Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		(0.30)	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to rounded fine to coarse sandstone and quartzite. Sand is fine to coarse. (Topsoil)			0.30							
		(0.80)	Soft to firm dark greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, quartzite and coal. (Hummocky Glacial Deposits)			1.10	ES1	0.80	0.90				
		(1.90)	Soft orangish brown mottled orange and grey slightly gravelly sandy SILT. Gravel is angular to subrounded fine to coarse siltstone, coal and mudstone. Sand is medium and coarse. (Hummocky Glacial Deposits)			1.60	ES2	1.60	1.70				
			Below 1.40m bgl: Very soft. Below 2.00m bgl: Light greyish orangish brown and slightly sandy (fine to coarse).			3.00							
Hole Terminated at 3.00m bgl.													
Chiseling		Remarks											
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:										
			Target depth reached.										
Groundwater Remarks:			Water ingress at 1.20m bgl.										
Water Added			Other Remarks:										
From (m bgl)	To (m bgl)	Volume (l)	1. No visual or olfactory evidence of contamination. 2. Borehole installed with 50mm HDPE pipe and cover.										

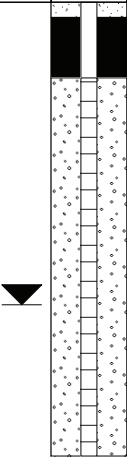
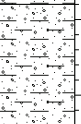
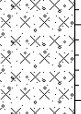
BOREHOLE LOG

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BOREHOLE LOG

LOCATION ID		Project Name: Plot W, Kingsway Business Park, Rochdale				Ground Level (m AOD):						
DS203		Project Number: NTE2554				Eastings: 391238.54						
		Client: Wilson Bowden Developments Ltd				Northings: 411227.82						
Hole Type: WLS		Rig: Premier 110		Start & End Date: 19/11/2019		Engineer: JA		Checker: RTR				
Boring		Strata				Samples		In-Situ Tests				
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		(0.30)	Grass over very soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse sandstone, quartzite, concrete, glass and brick. (Made Ground)		0.30							
		(0.60)										
		(0.90)	Very soft light orangish brown slightly sandy slightly gravelly CLAY with frequent rootlets and roots and a slight organic odour. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse brick, sandstone, mudstone and siltstone. (Reworked Natural)		0.90	ES1	0.60	0.70				
		(1.20)	Firm multicoloured (dark brown, yellow, orange and purplish brown) slightly gravelly sandy CLAY with rare rootlets. Gravel is angular to subangular fine to coarse mudstone, siltstone, coal and sandstone. Sand is fine to coarse. (Hummocky Glacial Deposits) <i>Below 1.20m bgl: Brown mottled grey and orange.</i>		1.80	ES2	1.00	1.10				
			Very soft light pinkish brown slightly sandy slightly gravelly SILT. Gravel is angular to subangular fine to coarse mudstone, siltstone, coal and sandstone. Sand is fine to coarse. (Hummocky Glacial Deposits) Hole Terminated at 3.00m bgl.		3.00							
Chiseling		Remarks										
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:									
			Target depth reached.									
Groundwater Remarks:			Water ingress at 2.00m bgl.									
Water Added			Other Remarks:									
From (m bgl)	To (m bgl)	Volume (l)	1. Slight organic odour between 0.30m and 0.90m bgl. 2. Borehole installed with 50mm HDPE pipe and cover.									



TRIAL PIT LOG

Scale: 1:50

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LOCATION ID:	Project Name: Plot W, Kingsway Business Park, Rochdale		0.50 0.50 Pit Dimensions (m) Degrees Stability: Stable.	
DS204	Project Number: NTE2554			
	Client: Wilson Bowden Developments Ltd			
	Plant: Hand Tools	Start & End Date: 19/11/2019		
Ground Level (m AOD):		Eastings & Northings: 391220E 411181N	Engineer: JA	Checker: RTR

Strata					Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m 0.50m 0.10m	Grass over soft dark brown slightly sandy slightly gravelly CLAY with abundant roots and rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone and quartzite. (Topsoil) Soft orangish brown mottled dark brown, orange and grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. (Hummocky Glacial Deposits) Soft orangish brown slightly gravelly silty medium and coarse SAND. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. (Hummocky Glacial Deposits) Hole Terminated at 1.00m bgl.		ESES1	0.70	0.80			

Remarks

Reason for Termination:

Target depth reached.

Groundwater Notes:

No groundwater encountered.

Other Remarks:

1. No visual or olfactory evidence of contamination.
2. Borehole installed with 50mm HDPE pipe and cover.



TRIAL PIT LOG

Scale: 1:50Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			0.50 0.50 Pit Dimensions (m) Degrees Stability: Stable.										
DS205		Project Number: NTE2554													
		Client: Wilson Bowden Developments Ltd													
		Plant: Hand Tools	Start & End Date: 19/11/2019												
Ground Level (m AOD):		Eastings & Northings: 391160E 411256N			Engineer: JA		Checker: RTR								
Strata Groundwater Strike Backfill Level (m AOD) 0.45m 0.55m Description Grass over dark brown slightly gravelly clayey fine to coarse SAND with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse sandstone and quartzite. (Topsoil) Soft Orangish brown sandy gravelly CLAY with a low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse siltstone, mudstone and sandstone. Cobbles are subrounded sandstone. (Hummocky Glacial Deposits) Hole Terminated at 1.00m bgl. Legend 0.45 1.00 <tr><td colspan="4"> Samples TypeFrom (m)To (m) ESES10.750.85 </td></tr> <tr><td colspan="4"> In-Situ Tests TypeDepth (m)Result </td></tr>								Samples TypeFrom (m)To (m) ESES10.750.85				In-Situ Tests TypeDepth (m)Result			
Samples TypeFrom (m)To (m) ESES10.750.85															
In-Situ Tests TypeDepth (m)Result															

Remarks

Reason for Termination:

Target depth reached.

Groundwater Notes:

No groundwater encountered.

Other Remarks:

1. No visual or olfactory evidence of contamination.
2. Borehole installed with 50mm HDPE pipe and cover.

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LOCATION ID:	Project Name: Plot W, Kingsway Business Park, Rochdale		0.50 0.50 Pit Dimensions (m) Degrees	
DS206	Project Number: NTE2554			
	Client: Wilson Bowden Developments Ltd			
	Plant: Hand Tools	Start & End Date: 19/11/2019		
Ground Level (m AOD):		Eastings & Northings: 391161E 411211N	Engineer: JA	Checker: RTR

Strata					Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Type	From (m)	To (m)	Type	Depth (m)	Result

Remarks	
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Reason for Termination:

Target depth reached.

Groundwater Notes:

No groundwater encountered.

Other Remarks:	
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1. No visual or olfactory evidence of contamination.
2. Borehole installed with 50mm HDPE pipe and cover.



TRIAL PIT LOG

Scale: 1:20

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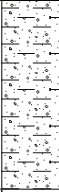
LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			1.70 0.70 Pit Dimensions (m) Degrees						
TP01		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 02/10/2019								
Ground Level (m AOD): 155.95		Eastings & Northings: 391161E 411315N			Stability: Stable.						
					Engineer: JA		Checker: CR				
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
			Grass over dark brown slightly clayey gravelly fine to coarse SAND with a low cobble content and pockets of soft blackish brown clay up to 10cm. Gravel is angular to subrounded fine to coarse concrete, brick, wood and plastic. Cobbles are angular and subangular concrete and brick. (Made Ground)								
		0.60m				ES1	0.40	0.50	PID	0.40	1.3ppm
			From 0.40m to 0.50m bgl: Black staining on the northern face of trial pit.								
		155.34			0.60	D2	0.70	0.75	HSV	0.70	(60, 72, 66)kPa
		0.30m	Firm micaceous dark brown mottled light brown sandy CLAY with rare rootlets. Sand is fine to coarse. (Hummocky Glacial Deposits)								
		155.04			0.90	B4	1.00	1.10	PID	1.00	0.2ppm
		0.50m	Light grey slightly gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)			ES3	1.00	1.10			
		154.54			1.40	B5	2.00	2.10			
		2.60m	Soft reddish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)								
Remarks											
Reason for Termination: Target depth reached.											
Groundwater Notes: No groundwater encountered.											
Other Remarks: 1. Black staining on the northern face of trial pit from 0.40m to 0.50m bgl. 2. Trial pit backfilled with arisings.											

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TRIAL PIT LOG

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				1.70 0.70 Pit Dimensions (m) Degrees Stability: Stable.					
TP01		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 02/10/2019							
Ground Level (m AOD): 155.95		Eastings & Northings: 391161E 411315N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		151.94	Soft reddish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		4.00	D6	3.80	3.90			
			Hole Terminated at 4.00m bgl.								
Remarks											
Reason for Termination: Target depth reached.											
Groundwater Notes: No groundwater encountered.											
Other Remarks: 1. Black staining on the northern face of trial pit from 0.40m to 0.50m bgl. 2. Trial pit backfilled with arisings.											



TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				1.70 1.00 Pit Dimensions (m) Degrees Stability: Unstable.					
TP02		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 02/10/2019							
Ground Level (m AOD): 156.91		Eastings & Northings: 391180E 411308N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with a low cobble and boulder content and frequent roots and rootlets. Gravel is angular to subrounded fine to coarse brick, concrete, sandstone, wood, plastic, tile and metal. Cobbles are angular and subangular brick. Boulders are angular concrete. (Made Ground)		0.40	D2	0.30	0.40	PID	0.30	0.0ppm
		ES1	0.30			0.40					
		156.51	Dark brown slightly gravelly COBBLES with a moderate boulder content. Cobbles are angular and subangular brick. Gravel is angular and subrounded fine to coarse brick, concrete, sandstone, wood, plastic, tile and metal. Boulders are angular and subangular brick and concrete. (Made Ground)			EW4	0.40	0.50			
		0.80m									
▼		155.71				ES3	1.10	1.20	PID	1.10	0.3ppm
			Hole Terminated at 1.20m bgl.		1.20						
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Moderate water ingress at 0.40m bgl. Fast water ingress at 1.20m bgl.											
Other Remarks: 1. Manure odour noted on groundwater. 2. Trial pit backfilled with arisings.											

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TRIAL PIT LOG

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LOCATION ID:	Project Name: Plot W, Kingsway Business Park, Rochdale		1.70 0.60 Pit Dimensions (m) Degrees Stability: Unstable.		
TP03	Project Number: NTE2554				
	Client: Wilson Bowden Developments Ltd				
	Plant: 360 Excavator	Start & End Date: 02/10/2019			
Ground Level (m AOD): 157.84		Eastings & Northings: 391181E 411276N		Engineer: JA	Checker: CR

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Remarks

Reason for Termination:

Terminated due to trial pit collapsing.

Groundwater Notes:

Moderate water ingress at 3.20m bgl.

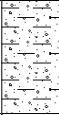
Other Remarks:

1. Black staining on northern face of trial pit at 0.50m bgl.
2. Trial pit backfilled with arisings.



TRIAL PIT LOG

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				1.70 0.60 Pit Dimensions (m) Degrees Stability: Unstable.							
TP03		Project Number: NTE2554											
		Client: Wilson Bowden Developments Ltd											
		Plant: 360 Excavator		Start & End Date: 02/10/2019									
Ground Level (m AOD): 157.84		Eastings & Northings: 391181E 411276N				Engineer: JA		Checker: CR					
Strata						Samples			In-Situ Tests				
Groundwa ter Strike	Backfill	Level (m AOD)	Description			Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		154.04	Soft orangish brown slightly gravelly sandy CLAY with frequent orange veins and pockets of firm clay. Gravel is angular to subrounded fine to coarse mudstone, coal and sandstone. Sand is fine to coarse. (Hummocky Glacial Deposits)				3.80	D8	3.70	3.80			
			Hole Terminated at 3.80m bgl.										
Remarks													
Reason for Termination: Terminated due to trial pit collapsing.													
Groundwater Notes: Moderate water ingress at 3.20m bgl.													
Other Remarks: 1. Black staining on northern face of trial pit at 0.50m bgl. 2. Trial pit backfilled with arisings.													

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TRIAL PIT LOG

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LOCATION ID:

Project Name:

Plot W, Kingsway Business Park, Rochdale

TP04

Project Number:

NTE2554

Client:

Wilson Bowden Developments Ltd

Plant:

360 Excavator

Start & End Date:

02/10/2019

1.70

0.60

Pit Dimensions (m)

Degrees

Stability:

Unstable.

Ground Level (m AOD):

157.79

Eastings & Northings:

391202E 411289N

Engineer:

JA

Checker:

CR

Strata

Groundwater Strike

Backfill

Level (m AOD)

0.10m

157.69

1.30m

156.39

1.40m

154.99

Description

Grass over soft dark brown slightly sandy CLAY with abundant roots and rootlets. Sand is fine to coarse. (Topsoil)

Soft multicoloured (orangish brown, dark grey and dark brown) sandy gravelly CLAY with a low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse brick, concrete, wood, quartzite, sandstone and pottery. Cobbles are angular to subrounded fine to coarse brick and concrete. (Made Ground)

Very soft slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone. Sand is fine to coarse. Cobbles are subangular and subrounded sandstone. (Hummocky Glacial Deposits)

Hole Terminated at 2.80m bgl.

Legend

Depth (m bgl)

0.10

1.40

2.80

Samples

Type

From (m)

To (m)

B1 ES2

0.50

0.50

0.60

0.60

D3

1.30

1.35

B5 ES4

1.50

1.50

1.60

1.60

D6

2.70

2.80

In-Situ Tests

Type

Depth (m)

Result

PID

0.50

0.3ppm

PID

1.50

0.2ppm

Remarks

Reason for Termination:

Terminated due to trial pit collapsing.

Groundwater Notes:

Fast water ingress at 1.20m bgl.

Other Remarks:

1. No visual or olfactory evidence of contamination.

2. Trial pit backfilled with arisings.

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TRIAL PIT LOG

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LOCATION ID:	Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.20 Pit Dimensions (m) Degrees	
TP05	Project Number: NTE2554				
	Client: Wilson Bowden Developments Ltd				
	Plant: 360 Excavator	Start & End Date: 08/10/2019			
Ground Level (m AOD): 158.29		Eastings & Northings: 391213E 411263N		Engineer: JA	Checker: CR

Strata					Samples			In-Situ Tests																		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Type	From (m)	To (m)	Type	Depth (m)	Result																
		0.20m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse sandstone, quartzite and brick. Sand is fine to coarse.																							
		158.09	(Reworked Natural)									0.20														
		0.50m	Orangish brown slightly clayey gravelly fine to coarse SAND with a low cobble content. Gravel is angular to subrounded fine to coarse brick, sandstone and coal. Cobbles are angular and subangular sandstone.											0.50												
		157.59	(Made Ground)													0.70										
		0.20m	Firm dark brown sandy gravelly CLAY with a low cobble content. Sand fine to coarse. Gravel is angular to subrounded fine to coarse brick, sandstone and coal. Cobbles are angular and subangular sandstone and brick.															0.90								
		157.39	(Made Ground)																	0.90						
			<i>From 0.70m to 0.90m bgl: Organic odour.</i>																			1.40m				
			Firm orangish brown mottled orange and grey slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse coal, sandstone and mudstone. Sand is fine to coarse. Cobbles are angular and subangular mudstone.																					1.40m		
			(Hummocky Glacial Deposits)																							1.40m
			<i>At 0.90m bgl: Land drain.</i>																							
			1.40m																							
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Remarks

Reason for Termination:

Terminated due to trial pit collapsing.

Groundwater Notes:

Fast water ingress at 2.30m bgl.

Other Remarks:

1. No visual or olfactory evidence of contamination.
2. Trial pit backfilled with arisings.



TRIAL PIT LOG

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees							
TP05		Project Number: NTE2554											
		Client: Wilson Bowden Developments Ltd											
		Plant: 360 Excavator	Start & End Date: 08/10/2019							Stability: Unstable.			
Ground Level (m AOD): 158.29		Eastings & Northings: 391213E 411263N				Engineer: JA		Checker: CR					
Strata						Samples			In-Situ Tests				
Groundwater Strike	Backfill	Level (m AOD)	Description			Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		154.69	Firm orangish brown mottled dark grey sandy very gravelly CLAY with a low cobble content and pockets of firm clay up to 20cm. Gravel is angular to subrounded fine to coarse coal, sandstone and mudstone. Sand is fine to coarse. Cobbles are angular and subangular mudstone. (Hummocky Glacial Deposits)				3.60						
			Hole Terminated at 3.60m bgl.										
Remarks													
Reason for Termination: Terminated due to trial pit collapsing.													
Groundwater Notes: Fast water ingress at 2.30m bgl.													
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.													



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TRIAL PIT LOG

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.00 Pit Dimensions (m) Degrees Stability: Unstable.									
TP06		Project Number: NTE2554													
		Client: Wilson Bowden Developments Ltd													
		Plant: 360 Excavator	Start & End Date: 07/10/2019												
Ground Level (m AOD): 157.17		Eastings & Northings: 391153E 411256N				Engineer: JA		Checker: CR							
Strata						Samples			In-Situ Tests						
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result				
▼		0.40m	Grass over dark brown slightly clayey slightly gravelly fine to coarse SAND with abundant rootlets and roots. Gravel is angular to subrounded fine to coarse sandstone. (Topsoil)		0.40	ES1	0.20	0.30	PID	0.20	0.0ppm				
		156.77	Soft orangish brown slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone. Sand is fine to coarse. Cobbles are angular to subrounded sandstone. (Hummocky Glacial Deposits)				B2 ES3	0.90 0.90				1.00 1.00	PID	0.90	0.0ppm
		0.50m													
		156.27													
		2.00m													
Below 2.10m bgl: Slightly gravelly and silty. Gravel is angular and subangular fine to coarse mudstone and coal.				D4	2.10	2.20	HSV	3.00	(12, 20, 18)kPa						
154.27	Very soft orangish brown slightly gravelly slightly silty sandy CLAY with pockets of soft to firm clay up to 10cm. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. Sand is fine to coarse. (Hummocky Glacial Deposits)									B5	3.00	3.10			
0.30m	D6									3.10	3.15				
		153.97	Hole Terminated at 3.20m bgl.												
Remarks															
Reason for Termination: Terminated due to trial pit collapsing.															
Groundwater Notes: Moderate water ingress at 1.00m bgl.															
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.															

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale		2.50 1.50 Pit Dimensions (m) Degrees							
TP07		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 07/10/2019					Stability: Unstable.			
Ground Level (m AOD): 156.84		Eastings & Northings: 391137E 411231N		Engineer: JA		Checker: CR					
Strata						Samples		In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.50m	Grass over dark brown slightly clayey slightly gravelly fine to coarse SAND with abundant rootlets. Gravel is angular to subrounded fine to coarse sandstone. (Topsoil)		0.50						
		156.34	Soft orangish brown mottled orange and grey sandy gravelly CLAY with a low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone. Cobbles are angular to subrounded fine to coarse sandstone. (Hummocky Glacial Deposits)		B2 ES1	0.60 0.60	0.70 0.70	PID	0.60	0.0ppm	
		1.70m			D3	1.50	1.60				
		154.64	Orangish brown slightly clayey gravelly medium and coarse SAND. Gravel is angular to subrounded fine to coarse sandstone and quartzite. (Hummocky Glacial Deposits)		B5 ES4	2.20 2.20	2.30 2.30				
		0.90m				D6	3.00	3.10			
		153.74	Hole Terminated at 3.10m bgl.		3.10						
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Moderate water ingress at 0.70m bgl. Fast water ingress at 2.20m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.50 Pit Dimensions (m) Degrees						
TP08		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 07/10/2019							Stability: Unstable.	
Ground Level (m AOD): 157.88		Eastings & Northings: 391173E 411237N			Engineer: JA		Checker: CR				
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over dark brown slightly clayey slightly gravelly fine to coarse SAND with rootlets and roots. Gravel is angular to subrounded fine to coarse sandstone. (Topsoil)		0.40	B2 ES1	0.40 0.40	0.50 0.50	PID	0.40	0.0ppm
		157.48	Soft greyish brown slightly gravelly sandy CLAY. Sand fine to coarse. Gravel is angular to subrounded fine to coarse sandstone. (Hummocky Glacial Deposits)								
		0.20m									
		157.28									
			From 0.40m to 0.60m bgl: Strong organic odour.		0.60						
			Soft orangish brown mottled orange and light grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse mudstone, sandstone and coal. (Hummocky Glacial Deposits)								
		1.40m	Below 1.30m bgl: Pockets of firm sandy clay up to 10cm.			D3	1.40	1.50			
		155.88	Very soft greyish pinkish brown slightly gravelly sandy SILT. Gravel is angular to subrounded fine to coarse coal, sandstone and mudstone. Sand is fine to coarse. (Hummocky Glacial Deposits)		2.00	D4	2.10	2.20			
▼		2.00m	Below 3.00m bgl: Pockets of firm silt up to 10cm.								
Remarks											
Reason for Termination: Target depth reached.											
Groundwater Notes: Slow water ingress at 0.60m bgl. Fast water ingress at 3.20m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.50 Pit Dimensions (m) Degrees Stability: Unstable.					
TP08		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 07/10/2019								
Ground Level (m AOD): 157.88		Eastings & Northings: 391173E 411237N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		153.88	Very soft greyish pinkish brown slightly gravelly sandy SILT. Gravel is angular to subrounded fine to coarse coal, sandstone and mudstone. Sand is fine to coarse. (Hummocky Glacial Deposits)		4.00	B5	3.90	4.00			
			Hole Terminated at 4.00m bgl.								
Remarks											
Reason for Termination: Target depth reached. Groundwater Notes: Slow water ingress at 0.60m bgl. Fast water ingress at 3.20m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.50 Pit Dimensions (m) Degrees					
TP09		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 07/10/2019							
Ground Level (m AOD): 157.43		Eastings & Northings: 391153E 411211N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m	Grass over soft dark brown slightly sandy silty CLAY with abundant roots and rootlets. Sand is fine to coarse. (Topsoil)		0.40	D2 ES1	0.40 0.40	0.50 0.50	PID	0.40	0.0ppm
		157.03	Soft orangish brown mottled greyish brown and orange sandy gravelly CLAY with a low cobble content. Sand is fine to coarse. Gravel is angular and subangular fine to coarse sandstone, coal and mudstone. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)								
		1.60m									
		155.43	Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse mudstone, coal and sandstone. (Hummocky Glacial Deposits) <i>Below 2.20m bgl: Pockets of sandy clay up to 10cm.</i>								
		1.40m				B3	1.50	1.60			
					2.00						
						D4	2.50	2.60			
		154.03									
		0.10m	Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to		3.40	B5	3.40	3.50	HSV	3.40	(65, 68, 70)kPa
		153.93			3.50						
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Fast water ingress at 0.20m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
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TRIAL PIT LOG

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.50 Pit Dimensions (m) Degrees							
TP09		Project Number: NTE2554											
		Client: Wilson Bowden Developments Ltd											
		Plant: 360 Excavator		Start & End Date: 07/10/2019									
Ground Level (m AOD): 157.43		Eastings & Northings: 391153E 411211N				Engineer: JA		Checker: CR					
Strata						Samples			In-Situ Tests				
Groundwater Strike	Backfill	Level (m AOD)	Description			Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
			Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse mudstone, coal and sandstone. Sand is fine to coarse. (Hummocky Glacial Deposits) Hole Terminated at 3.50m bgl.										
Remarks													
Reason for Termination: Terminated due to trial pit collapsing. Groundwater Notes: Fast water ingress at 0.20m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.													
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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.50 Pit Dimensions (m) Degrees					
TP10		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 07/10/2019								
Ground Level (m AOD): 157.78		Eastings & Northings: 391155E 411193N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly sandy silty CLAY with abundant roots and rootlets. Sand is fine to coarse. (Topsoil)		0.40	ES1	0.30	0.40	PID	0.30	0.0ppm
		157.38	Soft orangish brown mottled light grey and orange slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. Sand is fine to coarse. Cobbles are angular sandstone. (Hummocky Glacial Deposits)			D2	1.00	1.05			
		1.20m									
▼		156.18	Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse mudstone, coal and sandstone. (Hummocky Glacial Deposits)		1.60	B3 ES4	1.50 1.50	1.60 1.60	PID	1.50	0.0ppm
		2.00m									
						B5	3.10	3.20			
						D6	3.50	3.55			
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Slow water ingress at 0.70m bgl. Moderate water ingress at 3.10m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
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LOCATION ID:	Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.50 Pit Dimensions (m) Degrees Stability: Unstable.	
TP10	Project Number: NTE2554				
	Client: Wilson Bowden Developments Ltd				
	Plant: 360 Excavator	Start & End Date: 07/10/2019			
Ground Level (m AOD): 157.78		Eastings & Northings: 391155E 411193N		Engineer: JA	Checker: CR

Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		154.18	Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse mudstone, coal and sandstone. (Hummocky Glacial Deposits) Hole Terminated at 3.60m bgl.		3.60						

Remarks

Reason for Termination:

Terminated due to trial pit collapsing.

Groundwater Notes:

Slow water ingress at 0.70m bgl. Moderate water ingress at 3.10m bgl.

Other Remarks:

1. No visual or olfactory evidence of contamination.
2. Trial pit backfilled with arisings.



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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees					
TP11		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 09/10/2019								
Ground Level (m AOD): 158.77		Eastings & Northings: 391198E 411228N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.30m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. Sand is fine to coarse. (Topsoil)		0.30	ES1	0.20	0.30	PID	0.20	0.0ppm
		158.47	Soft to firm orangish brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)		D2	0.40	HSV	0.40	(65, 75, 75)kPa		
		1.80m									
		156.67	Greyish and orangish brown slightly clayey sandy GRAVEL of angular to subrounded fine to coarse mudstone and sandstone with a low cobble content. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)		2.10	B3	2.20	2.30			
0.40m											
156.27	Hole Terminated at 2.50m bgl.				2.50						
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Moderate water ingress at 2.10m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.50 Pit Dimensions (m) Degrees					
TP12		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 07/10/2019							
Ground Level (m AOD): 158.77		Eastings & Northings: 391185E 411206N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly sandy silty CLAY with abundant roots and rootlets. Sand is fine to coarse. (Topsoil)		0.40	B2 ES1	0.50 0.50	0.60 0.60	PID	0.50	0.0ppm
		158.37	Soft orangish brown mottled greyish brown and orange sandy gravelly CLAY with a low cobble content. Sand is fine to coarse. Gravel is angular and subangular fine to coarse sandstone, coal and mudstone. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)								
			Below 1.60m bgl: Firm slightly gravelly pockets of clay up to 10cm with mudstone and coal gravels.								
		3.10m									
▼		155.27	Hole Terminated at 3.50m bgl.		3.50	D4	3.40	3.50			
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Slow water ingress at 0.50m bgl. Slow water ingress at 2.00m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.20 Pit Dimensions (m) Degrees						
TP13		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 09/10/2019								
Ground Level (m AOD): 158.61		Eastings & Northings: 391169E 411163N			Engineer: JA		Checker: CR				
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse coal, pottery, sandstone, quartzite. Sand is fine to coarse. (Reworked Natural)		0.40	ES1	0.20	0.30	PID	0.20	0.0ppm
		158.21	Soft to firm orangish brown mottled grey slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits) From 0.60m bgl: Gravelly.			D2	0.50	0.60	HSV	0.50	(42, 40, 42)kPa
		1.60m									
		156.61	Very soft pinkish greyish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)			D3	1.80	1.90			
		1.60m			2.00						
			Below 3.20m bgl: Pockets of firm clay and pockets of coarse grey sand up to 10cm.			B4	3.40	3.50			
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Moderate water ingress at 0.60m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale		2.50 1.20 Pit Dimensions (m) Degrees Stability: Unstable.	
TP13	Project Number: NTE2554				
	Client: Wilson Bowden Developments Ltd				
	Plant: 360 Excavator	Start & End Date: 09/10/2019			
Ground Level (m AOD): 158.61		Eastings & Northings: 391169E 411163N		Engineer: JA	Checker: CR

Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		155.01	Very soft pinkish greyish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		3.60						
			Hole Terminated at 3.60m bgl.								

Remarks

Reason for Termination:

Terminated due to trial pit collapsing.

Groundwater Notes:

Moderate water ingress at 0.60m bgl.

Other Remarks:

1. No visual or olfactory evidence of contamination.
2. Trial pit backfilled with arisings.



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LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.20 Pit Dimensions (m) Degrees						
TP14		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 09/10/2019								
Ground Level (m AOD): 159.26		Eastings & Northings: 391217E 411213N			Engineer: JA		Checker: CR				
Strata					Samples			In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravels are angular to subrounded fine to coarse coal, sandstone, quartzite. Sand is fine to coarse. (Topsoil)		0.40	B2 ES1	0.60 0.60	0.70 0.70	PID	0.60	0.0ppm
		158.86	Soft to firm orangish brown mottled grey slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)								
		1.60m									
▼		157.26	Very soft pinkish brown mottled grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		2.00	D3	2.60	2.70			
		2.00m									
From 3.30m bgl: Pockets of firm clay up to 10cm.											
Remarks											
Reason for Termination: Target depth reached. Groundwater Notes: Slow water ingress at 0.70m bgl. Fast water ingress at 3.00m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
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TRIAL PIT LOG

Scale: 1:20Sheet 2 of 2

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees					
TP14		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 09/10/2019							
Ground Level (m AOD): 159.26		Eastings & Northings: 391217E 411213N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		155.26	Very soft pinkish brown mottled grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		4.00	D4	3.90	4.00			
			Hole Terminated at 4.00m bgl.								
Remarks											
Reason for Termination: Target depth reached. Groundwater Notes: Slow water ingress at 0.70m bgl. Fast water ingress at 3.00m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
BWB CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS											

TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees					
TP15		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019								
Ground Level (m AOD): 159.33		Eastings & Northings: 391229E 411182N				Engineer: JA		Checker: CR			
Strata						Samples		In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. Sand is fine to coarse. (Topsoil)		0.40	D2 ES1	0.40	0.50	HSV PID	0.40	(32, 38, 32)kPa 0.1ppm
		158.93	Soft greyish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. Sand is fine to coarse. Organic odour throughout. (Hummocky Glacial Deposits)								
		0.40m									
		158.53	Firm orangish brown mottled grey and orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. (Hummocky Glacial Deposits)								
		0.80m									
157.73	Very soft greyish brown mottled grey slightly gravelly sandy silty CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. Sand is fine to coarse. Cobbles are angular and subangular sandstone and mudstone. (Hummocky Glacial Deposits)	1.60	B3	1.50	1.60						
1.90m											
		155.83	Hole Terminated at 3.50m bgl.		3.50	D4	3.10	3.20			
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Slow water ingress at 0.80m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
BWB CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS											

TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.70 2.00 Pit Dimensions (m) Degrees Stability: Unstable.					
TP16		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019								
Ground Level (m AOD): 158.55		Eastings & Northings: 391263E 411192N				Engineer: JA		Checker: CR			
Strata						Samples		In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets and a low cobble content. Gravel is angular to subrounded fine to coarse brick, sandstone, quartzite and coal. Sand is fine to coarse. Cobbles are angular and subangular sandstone and brick. (Reworked Natural)		0.40	D1	0.60	0.70	HSV	0.60	(80, 110, 110)kPa
		158.15	Soft to firm orangish brown mottled grey and orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)								
		0.90m									
		157.25	At 1.20m bgl: Land drain.		1.30	Hole Terminated at 1.30m bgl.					
Remarks											
Reason for Termination: Trial pit moved south due to land drain at 1.30m bgl.											
Groundwater Notes: Fast water ingress at 0.60m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

BWB

CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			2.70 2.00 Pit Dimensions (m) Degrees Stability: Unstable.						
TP16B		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019								
Ground Level (m AOD): 158.55		Eastings & Northings: 391263E 411192N			Engineer: JA		Checker: CR				
Strata						Samples		In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets and a low cobble content. Gravel is angular to subrounded fine to coarse brick, sandstone, quartzite and coal. Sand is fine to coarse. Cobbles are angular and subangular sandstone and brick. (Reworked Natural)		0.40						
		158.15	Soft to firm orangish brown mottled grey and orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)								
		1.60m	At 1.20m bgl: Land drain- trial pit moved slightly south.								
		156.55	Soft greyish brown slightly silty slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse sandstone, coal, mudstone. Sand is fine to coarse. (Hummocky Glacial Deposits)								
		1.00m			2.00						
		155.55	Hole Terminated at 3.00m bgl.		3.00						
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: No groundwater encountered.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
BWB CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS											

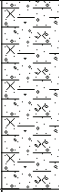
TRIAL PIT LOG

Scale: 1:20Sheet 1 of 2

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale			2.50 1.00 Pit Dimensions (m) Degrees						
TP17		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019								
Ground Level (m AOD): 158.30		Eastings & Northings: 391279E 411209N			Engineer: JA		Checker: CR				
Strata					Samples			In-Situ Tests			
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
▼		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets and a low cobble content. Gravel is angular to subrounded fine to coarse plastic, metal, sandstone, quartzite and coal. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Reworked Natural)		0.40	ES1	0.30	0.40	PID	0.30	0.0ppm
		157.90	Soft light greyish brown slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, quartzite and coal. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)			D2	0.50	0.60	HSV	0.50	(13, 12, 12)kPa
		0.90m									
		157.00	Firm orangish brown mottled grey and orange sandy gravelly CLAY. Sand fine to coarse. Gravel is angular to subrounded fine to coarse coal, sandstone and mudstone. (Hummocky Glacial Deposits)			ES3	1.20	1.30	PID	1.20	0.1ppm
		0.80m									
		156.20	Soft reddish greyish brown slightly silty slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)		2.10						
		Below 2.80m bgl: Very soft and soft.				B4	2.80	2.90			
		1.90m									
Remarks											
Reason for Termination: Target depth reached.											
Groundwater Notes: Fast water ingress at 0.50m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
BWB CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS											

TRIAL PIT LOG

Scale: 1:20Sheet 2 of 2

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.00 Pit Dimensions (m) Degrees Stability: Unstable.							
TP17		Project Number: NTE2554											
		Client: Wilson Bowden Developments Ltd											
		Plant: 360 Excavator	Start & End Date: 08/10/2019										
Ground Level (m AOD): 158.30		Eastings & Northings: 391279E 411209N				Engineer: JA		Checker: CR					
Strata						Samples			In-Situ Tests				
Groundwa ter Strike	Backfill	Level (m AOD)	Description			Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		154.29	Soft reddish greyish brown slightly silty slightly gravelly sandy CLAY with a low cobble content. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. Sand is fine to coarse. Cobbles are angular and subangular sandstone. (Hummocky Glacial Deposits)				4.00	D5	3.90	4.00	HSV	3.90	(30, 32, 30)kPa
			Hole Terminated at 4.00m bgl.										
Remarks													
Reason for Termination: Target depth reached.													
Groundwater Notes: Fast water ingress at 0.50m bgl.													
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.													

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TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees					
TP18		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator		Start & End Date: 08/10/2019							
Ground Level (m AOD): 158.83		Eastings & Northings: 391232E 411216N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwa ter Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m	Soft dark brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse pottery, coal and sandstone. Sand is fine to coarse. (Reworked Natural)		0.40	D1 ES2	0.40 0.40	0.50 0.50	PID	0.40	0.0ppm
		158.43	Orangish brown mottled orange and grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse sandstone, quartzite and coal. Sand is fine to coarse. (Hummocky Glacial Deposits)								
		3.10m									
			Below 2.80m bgl: Reddish greyish brown colour. Pockets of firm clay up to 20cm. Low cobble content of angular and subangular mudstone.			D3	1.70	1.80			
						B4	3.40	3.50			
		155.33	Hole Terminated at 3.50m bgl.								
Remarks											
Reason for Termination: Terminated due to trial pit collapsing.											
Groundwater Notes: Fast water ingress at 0.30m bgl.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											
BWB CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS											

TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees					
TP19		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019							Stability: Unstable.	
Ground Level (m AOD): 158.02		Eastings & Northings: 391266E 411262N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.40m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. Sand is fine to coarse. (Topsoil)								
		157.62	Soft to firm orangish brown mottled grey and orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone, coal and mudstone. (Hummocky Glacial Deposits)		0.40	D1 ES2 B3	1.10	1.20	PID	1.10	0.1ppm
		0.90m					1.10	1.20			
		156.72	1.20	1.25							
			Hole Terminated at 1.30m bgl.		1.30						
Remarks											
Reason for Termination: Terminated due to services.											
Groundwater Notes: No groundwater encountered.											
Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

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INFRASTRUCTURE | BUILDINGS

TRIAL PIT LOG

Scale: 1:20Sheet 1 of 1

LOCATION ID:		Project Name: Plot W, Kingsway Business Park, Rochdale				2.50 1.20 Pit Dimensions (m) Degrees Stability: Unstable.					
TP20		Project Number: NTE2554									
		Client: Wilson Bowden Developments Ltd									
		Plant: 360 Excavator	Start & End Date: 08/10/2019								
Ground Level (m AOD): 157.66		Eastings & Northings: 391269E 411305N				Engineer: JA		Checker: CR			
Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.90m	Grass over soft dark brown slightly gravelly sandy CLAY with abundant roots and rootlets. Gravel is angular to subrounded fine to coarse coal, sandstone and quartzite. Sand is fine to coarse. (Topsoil)		0.90	ES1	0.60	0.70	PID	0.60	0.0ppm
		156.76	Orangish brown slightly gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. (Hummocky Glacial Deposits)		0.90	B2	1.00	1.10			
		1.20m									
		155.56	Below 2.00m bgl: Gravelly. Greyish and orangish brown slightly clayey sandy GRAVEL of angular to subrounded fine to coarse mudstone and sandstone with a low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded sandstone. (Hummocky Glacial Deposits)		2.10	B4	2.20	2.30			
		1.40m									
		154.16	Hole Terminated at 3.50m bgl.			3.50					
Remarks											
Reason for Termination: Terminated due to trial pit collapsing. Groundwater Notes: Moderate water ingress at 2.00m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination. 2. Trial pit backfilled with arisings.											

Appendix 8: SPT Calibration Certificates

GSS

GEO SITE SURVEYS

CABLE & ROTARY DRILLING

32 Mersey Road, Sale, Cheshire M33 6HN

Office Tel: +44 (0)161 282 8583 Fax: 0870-738 6388 Mobile: 07738 929394

Email: info@geositesurveys.co.uk www.geositesurveys.co.uk

TOWN Rochdale

SITE NAME Plot W kings Way

JOB No NTE2554

BORE HOLE BH02

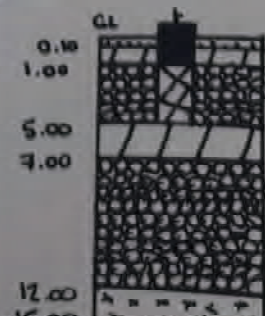
DATE 08-10-19/09-10-19 DAY Tuesday-Wednesday DEPTH TO BASE OF STRATA Mtr

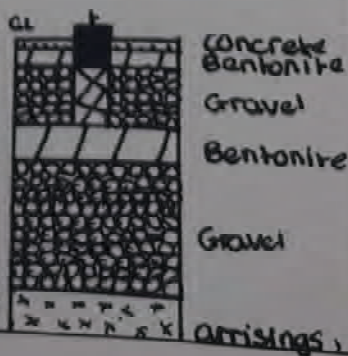
DESCRIPTION OF STRATA

DESCRIPTION OF STRATA	Start of days	Hole depth	Water level	CORE RECOVERY = LENGTH	Type	From	To	Number Length	CASED To	Type = U S C B D Core 412 PWF ETC						
										SPT BLOWS						
										75	150	225	300	375	450	525
Grass onto topsoil contains roots	0.00	0.00		D	0.20											
				B	0.50	1.00										
Soft light brown mottled orangeish				U100	1.20	1.65	16 blows	100% Recovery								
				D	1.65	1.75	(Shoe)									
gravelly Sandy Silty Clay.	0.40-5.20	SPTB	2.00	2.45						1	0	0	0	1	0	NR
		D	2.75													
Dark brown orangeish Sand + gravel.	5.20-5.60	SPTB	3.00	3.45						1	1	1	1	1	1	
		D	3.75													
Dark brown orangeish Silty Sandy Clay	5.60-5.90	SPTB	4.00	4.45						1	1	1	1	1	2	
		U100	5.00	5.45	26 blows	100% Recovery										
Fine-coarse Sand and gravel.	5.90-8.10	D	5.45	5.50	(Shoe)											
		D	5.75													
medium-stiff dark brown boulder clay	8.10-10.00	CPTB	6.00	6.45						2	3	3	2	4	4	
		CPTB	7.50	7.95						2	3	3	4	6	7	
Sand and gravel with Silty clay bands.	10.00-11.50	B	8.50	9.00												
		U100	9.00	9.45	30 blows	100% Recovery										
light brown grey silty sand.	11.50-15.45	D	9.45	9.50	(Shoe)											
		CPTB	10.50	10.95						3	7	10	10	7	7	
		SPTB	12.00	12.45						2	2	2	4	3	4	NR
		SPT	13.50	13.95						1	2	3	3	5	5	
		B	14.00	14.50												
		SPT	15.00	15.45						2	3	3	3	5	8	

END OF SHIFT		WATER		DRILLING AT													
OBSTRUCTIONS CHISELLING, PITS ETC				CASING SIZE		From	To	TOTAL SAMPLES TAKEN				BORE HOLE BACK FILLED				YES! NO	
Reasons	From	To	Time Hrs	150mm	0.00	15.00	U100	C/S	BULK	D=jar	From		To				
Hand Pit	GL	1.20	20 mins				3	9	10	7	With	-	GROUT	GRAVEL	SPOIL		
											OTHERS						

				INSTALLATION DETAILS		ROTARY DRILLING FLUSH TYPE					
				GAS WELL DETAILS		PIEZOMETER DETAILS		WATER	AIR	FOAM	MIST
				COVER TYPE	Standup	COVER TYPE		RETURNS	STRONG	MEDIUM	WEAK
				VALVE	GAS	CONCRETE		TOTAL LOSS AT	CASING		
				CONCRETE	0.10			RETURNED	CASING		
WATER OBSERVATIONS STRIKES SEALS SAMPLES ETC				PLAIN TO	1.00	BACK FILLED		REMARKS DELAYS, PITS, EXTRA OVER 1Hr MOVE, Etc. 2 hours day works For move of all Plant and gear + TRUCK to Position			
				SEAL TO		OR					
STRUCK AT	5min	10min	FLOW RATE	FILTER TYPE		TOP SEAL					
Water in Pit at 0.70m				SAND OR							
SAMPLE	15min	20min	SEALED	PEA GRAVEL							
				PIPE Dia	50mm						
				SLOTTED TO	5.00						
				FILTER TO		BOTT SEAL					
				BOTT SEAL TO		FILL TYPE					
				GRAVEL FILL		GROUT					
				GROUT ETC		GRAVEL Etc					
				B/H DEPTH	15.00 <th>B/H DEPTH</th> <td></td> <th colspan="4"></th>	B/H DEPTH					
WATER OBSERVATIONS STRIKES SEALS SAMPLES ETC											
STRUCK AT	5min	10min	FLOW RATE								
Water in Pit at 0.70m											
SAMPLE	15min	20min	SEALED								
STRUCK AT	5min	10min	FLOW RATE								
SAMPLE	15min	20min	SEALED								
STRUCK AT	5min	10min	FLOW RATE								
SAMPLE	15min	20min	SEALED								
Yes / No											
DRILLER				CLIENT							
2. B...											

0.10	1.00	5.00	7.00	12.00	15.00
					
Concrete					
Bentonite					
Gravel					
Bentonite					
Gravel					
X marks					





CABLE & ROTARY DRILLING

32 Mersey Road, Sale, Cheshire M33 6HN

Office Tel: +44 (0)161 282 8583 Fax: 0870-738 6388 Mobile: 07738 929394

Email: info@geositesurveys.co.uk www.geositesurveys.co.uk

TOWN Rochdale

SITE NAME Plot W kings way

JOB No NTE2554

BORE HOLE BH03

DATE 07-10-19/08-10-19 DAY Monday - Tuesday DEPTH TO BASE OF STRATA Mtr

DESCRIPTION OF STRATA

Start of days

Hole depth 0.00

Water level 0.00

CORE RECOVERY = LENGTH

Type = U S C B D Core 412 PWF ETC

U BLOWS = NUMBER

Number Cased

SPT BLOWS

75 150 225 300 375 450 525

Grass onto dark brown topsoil

Contains rootlets (Wet)

Very Soft dark brown Sandy Silty

Clay Contains rootlets (Wet)

Very Soft light brown mottled dark

brown-grey Silty Sandy clay

occasional gravels (organic odour).

light brown orangeish Silty sand and

gravel.

Fine light brown yellow sand with

Coal Fragments Throughout.

Dark brown grey Silty clay.

light brown grey Silty sand clay bands

11.70-15.45

END OF SHIFT

WATER

DRILLING AT

OBSTRUCTIONS CHISELLING, PITS ETC

Reasons From To Time Hrs

Hand Pit GL 1.20 20mins

CASING SIZE

From To

150mm 0.00 15.00

TOTAL SAMPLES TAKEN

U100 C/S BULK D=jar

0 12 11 4

BORE HOLE BACK FILLED

YES/NO

From To

With = GROUT GRAVEL SPOIL

OTHERS

INSTALLATION DETAILS

GAS WELL DETAILS

PIEZOMETER DETAILS

ROTARY DRILLING FLUSH TYPE

WATER AIR FOAM MIST

RETURNS STRONG MEDIUM WEAK

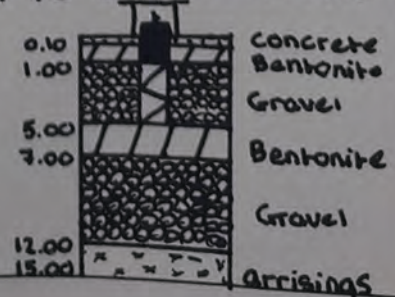
TOTAL LOSS AT CASING

RETURNED CASING

REMARKS

DELAYS, PITS, EXTRA OVER 1Hr MOVE, Etc.

08:00-10:30 Day Works
Filling Bowser and waiting
on JCB to clear site access
Plus Pulling all Plant and
Gear to BH Position.



WATER OBSERVATIONS

STRIKES SEALS SAMPLES ETC

STRUCK AT 5min 10min FLOW RATE

in Hand Pit at 0.90m

SAMPLE 15min 20min SEALED

STRUCK AT 5min 10min FLOW RATE

SAMPLE 15min 20min SEALED

STRUCK AT 5min 10min FLOW RATE

SAMPLE 15min 20min SEALED

Yes / No

DRILLER CLIENT

COVER TYPE

Standup

VALVE

Gas

CONCRETE

0.10

PLAIN TO

1.00

SEAL TO

BACK FILLED

FILTER TYPE

OR

SAND OR

GROUTED

PEA GRAVEL

TOP SEAL

PIPE Dia

50mm

SLOTTED TO

5.00

FILTER TO

BOTT SEAL

BOTT SEAL TO

FILL TYPE

GRAVEL FILL

GROUT

GROUT ETC

GRAVEL Etc

B/H DEPTH

15.00

B/H DEPTH

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: AR1502
Test Date: 06/09/2019
Report Date: 06/09/2019
File Name: AR1502.spt
Test Operator: JL

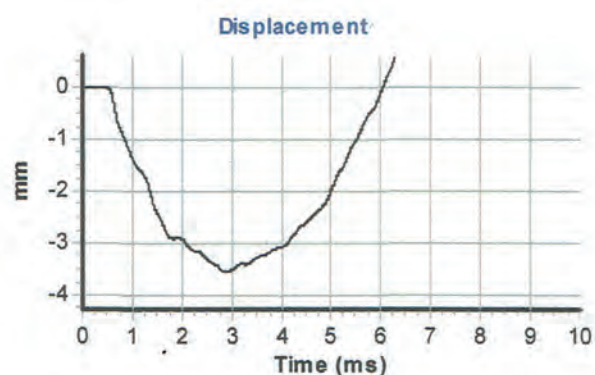
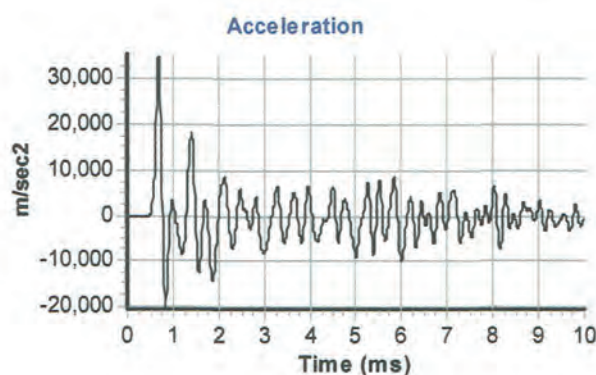
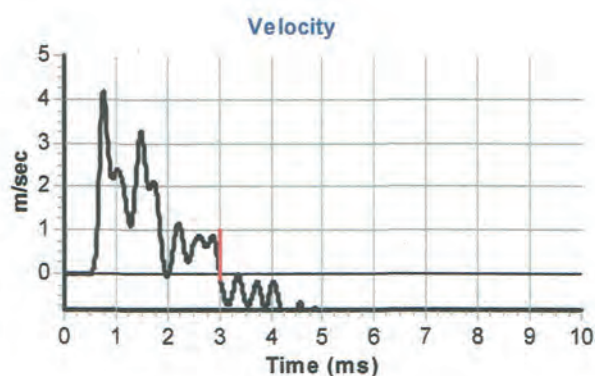
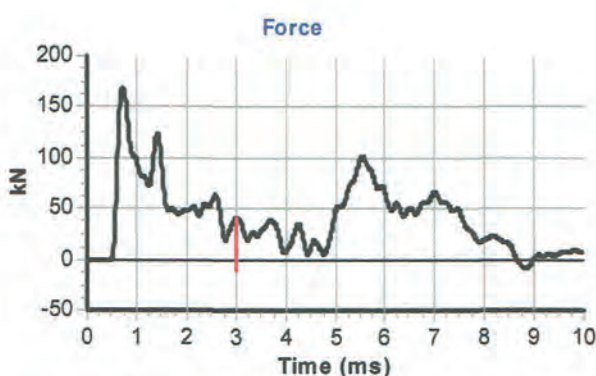
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.2
Assumed Modulus E_a (GPa): 210
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm^2): 931
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 328

Energy Ratio E_r (%): **69**

Signed: J.LOCK
Title: TRAINEE FITTER

The recommended calibration interval is 12 months

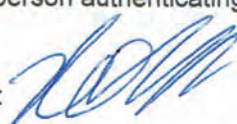
ARCHWAY ENGINEERING (UK) LIMITED

AINLEYS INDUSTRIAL ESTATE, ELLAND, WEST YORKSHIRE HX5 9JP

TEL: 01422 373101 FAX: 01422 374947

Email: info@archway-engineering.com

REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: AR1502 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	AR1502	AUTO TRIPHAMMER OUTER SLEEVE	634KG	300KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:	Yes	No ☒	Before being issued for the first time	Yes	No ☒
Supplied reconditioned:	Yes	No ☒	Within an interval of 6 months	Yes ☒	No
Examined only:	Yes	No ☒	Within an interval of 12 months	Yes	No ☒
Examined and tested:	Yes ☒	No	As part of an examination scheme	Yes	No ☒
Examined, repaired and tested	Yes	No ☒	After an exceptional circumstance	Yes	No ☒
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons				Yes	No ☒
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE				Yes ☒	No
Name of person making this report: J.LOCK		Name of person authenticating this report: Signature: 			

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
The EC Declaration of conformity is available if the equipment is new and manufactured and supplied by
Archway Engineering (UK) Limited

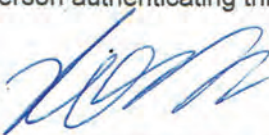
ARCHWAY ENGINEERING (UK) LIMITED

AINLEYS INDUSTRIAL ESTATE, ELLAND, WEST YORKSHIRE HX5 9JP

TEL: 01422 373101 FAX: 01422 374947

Email: info@archway-engineering.com

REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: AR2741 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	AR2741	SWIVEL SINKER BAR	8186KG	4000KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:	Yes	No ☒	Before being issued for the first time	Yes	No ☒
Supplied reconditioned:	Yes	No ☒	Within an interval of 6 months	Yes ☒	No
Examined only:	Yes	No ☒	Within an interval of 12 months	Yes	No ☒
Examined and tested:	Yes ☒	No	As part of an examination scheme	Yes	No ☒
Examined, repaired and tested	Yes	No ☒	After an exceptional circumstance	Yes	No ☒
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons				Yes	No ☒
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE				Yes ☒	No
Name of person making this report: J.LOCK		Name of person authenticating this report: Signature: 			

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
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Archway Engineering (UK) Limited

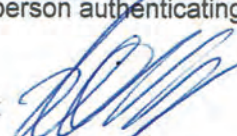
ARCHWAY ENGINEERING (UK) LIMITED

AINLEYS INDUSTRIAL ESTATE, ELLAND, WEST YORKSHIRE HX5 9JP

TEL: 01422 373101 FAX: 01422 374947

Email: info@archway-engineering.com

REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: AR2742 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	AR2742	SNATCH BLOCK	8164KG	4000KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:			Yes	No	X
Supplied reconditioned:			Yes	No	X
Examined only:			Yes	No	X
Examined and tested:			Yes	X	No
Examined, repaired and tested			Yes	No	X
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons					
Yes					
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE					
Yes					
X					
No					
Name of person making this report: J.LOCK			Name of person authenticating this report: Signature: 		

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
The EC Declaration of conformity is available if the equipment is new and manufactured and supplied by
Archway Engineering (UK) Limited

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REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: AR2621 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	AR2621	SPT ROD SWIVEL	8163KG	4000KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:			Yes	No	X
Supplied reconditioned:			Yes	No	X
Examined only:			Yes	No	X
Examined and tested:			Yes	X	No
Examined, repaired and tested			Yes	No	X
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons					
Yes					
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE					
Yes					
Name of person making this report:					
J.LOCK					
Name of person authenticating this report:					
Signature: 					

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
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Archway Engineering (UK) Limited

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REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: A15 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	A15	D-SHACKLE	4113KG	2000KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:			Yes	No	X
Supplied reconditioned:			Yes	No	X
Examined only:			Yes	No	X
Examined and tested:			Yes	X	No
Examined, repaired and tested			Yes	No	X
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons					
Yes					
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE					
Yes					
X					
No					
Name of person making this report: J.LOCK			Name of person authenticating this report: Signature: 		

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
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TEL: 01422 373101 FAX: 01422 374947

Email: info@archway-engineering.com

REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made:		Address of the premises at which the examination was made:						
GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP						
Report Number: AR2745		Latest date by which the next thorough examination should be carried out: 05.03.2020						
Sales order Ref: 67707								
Date of Report: 06.09.2019								
Quantity	ID number	Description	Test weight	SWL	Date of test			
1	AR2745	SAFETY SWIVEL HOOK	8187KG	4000KG	06.09.2019			
Was this equipment:			Was the examination carried out:					
Supplied new:	Yes	No	X	Before being issued for the first time	Yes	No	X	
Supplied reconditioned:	Yes	No	X	Within an interval of 6 months	Yes	X	No	
Examined only:	Yes	No	X	Within an interval of 12 months	Yes	No	X	
Examined and tested:	Yes	X	No	As part of an examination scheme	Yes	No	X	
Examined, repaired and tested	Yes	No	X	After an exceptional circumstance	Yes	No	X	
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE")								
NONE								
Is the above defect a defect which is of immediate danger to persons						Yes	No	X
If the defect is not an immediate danger to persons state required rectification date:								
Particulars of any repair, renewal or alteration required to remedy the defect identified above:								
IS THE EQUIPMENT SAFE TO OPERATE						Yes	X	No
Name of person making this report:				Name of person authenticating this report:				
J.LOCK				Signature: 				

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
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 Archway Engineering (UK) Limited

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TEL: 01422 373101 FAX: 01422 374947

Email: info@archway-engineering.com

REPORT OF A THOROUGH EXAMINATION OF LIFTING EQUIPMENT

Name and Address for whom the examination was made: GEOSITE SURVEYS LTD 32 MERSEY ROAD SALE CHESHIRE M33 6HN		Address of the premises at which the examination was made: Archway Engineering (UK) Ltd Ainleys Industrial Estate, Elland, West Yorkshire HX5 9JP			
Report Number: AR2853 Sales order Ref: 67707 Date of Report: 06.09.2019		Latest date by which the next thorough examination should be carried out: 05.03.2020			
Quantity	ID number	Description	Test weight	SWL	Date of test
1	AR2853	D-SHACKLE	4067KG	2000KG	06.09.2019
Was this equipment:			Was the examination carried out:		
Supplied new:	Yes	No X	Before being issued for the first time	Yes	No X
Supplied reconditioned:	Yes	No X	Within an interval of 6 months	Yes X	No
Examined only:	Yes	No X	Within an interval of 12 months	Yes	No X
Examined and tested:	Yes X	No	As part of an examination scheme	Yes	No X
Examined, repaired and tested	Yes	No X	After an exceptional circumstance	Yes	No X
Identification of any part found to have a defect which is or could become a danger to persons and a description of the defect. (If no defects found state "NONE") NONE					
Is the above defect a defect which is of immediate danger to persons				Yes	No X
If the defect is not an immediate danger to persons state required rectification date:					
Particulars of any repair, renewal or alteration required to remedy the defect identified above:					
IS THE EQUIPMENT SAFE TO OPERATE				Yes X	No
Name of person making this report: J.LOCK		Name of person authenticating this report: Signature: 			

This report complies with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998
The EC Declaration of conformity is available if the equipment is new and manufactured and supplied by
Archway Engineering (UK) Limited

Appendix 9: Ground Gas and Groundwater Monitoring Data

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale	
Client:		Wilson Bowden Developments Ltd	
Job No.:		NTE2554	
Date:		11 October 2019	
Start / End Time:		10:40-12:00	
Engineer:		JA	
Monitoring Equipment:	Gas Meter ID	BWB00994	
	PID ID	BWB00946	
	Dip Tape	BWB00969	
	Other		

NR = Not Recorded
Dry = No Groundwater



**CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS**

Weather Conditions	Start	End
(Dry / Raining)	Raining	Raining
Wind Strength (m/s)	2.0	2.0
Wind Direction (from)	SW	SW
Temperature (°C)	9.0	11.0
Barometric Pressure (h Pa / mB)	983.0	983.0
12 Hour Pressure (h Pa / mB)	982.0	982.0
12 Hour Pressure Trend	Rising	
PID - Air	0	0
PID - Calibration Gas		

[illegible]

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale
Client:		Wilson Bowden Developments Ltd
Job No.:		NTE2554
Date:		22 October 2019
Start / End Time:		09:15-10:30
Engineer:		JA
Monitoring Equipment:	Gas Meter ID	BWB00994
	PID ID	BWB00946
	Dip Tape	BWB00969
	Other	

NR = Not Recorded
Dry = No Groundwater



Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	0.9	1.3
Wind Direction (from)	SW	SW
Temperature (°C)	6.0	8.0
Barometric Pressure (h Pa / mB)	1001.0	1001.0
12 Hour Pressure (h Pa / mB)	1001.0	1001.0
12 Hour Pressure Trend	Stable	
PID - Air	<0.1	<0.1
PID - Calibration Gas		

[illegible]

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale
Client:		Wilson Bowden Developments Ltd
Job No.:		NTE2554
Date:		29 October 2019
Start / End Time:		09:15-10:30
Engineer:		JA
Monitoring Equipment:	Gas Meter ID	BWB00994
	PID ID	BWB00946
	Dip Tape	BWB00969
	Other	

NR = Not Recorded

Dry = No Groundwater



**CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS**

Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	1.3	3.0
Wind Direction (from)	NE	NE
Temperature (°C)	5.0	7.0
Barometric Pressure (h Pa / mB)	1008.0	1008.0
12 Hour Pressure (h Pa / mB)	1008.0	1008.0
12 Hour Pressure Trend	Stable	
PID - Air	<0.1	<0.1
PID - Calibration Gas		

[illegible]

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale
Client:		Wilson Bowden Developments Ltd
Job No.:		NTE2554
Date:		25/11/2019
Start / End Time:		9.00am-11.45am
Engineer:		JA
Monitoring Equipment:	Gas Meter ID	BWB00994
	PID ID	BWB00946
	Dip Tape	BWB00969
	Other	

NR = Not Recorded

Dry = No Groundwater



**CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS**

Weather Conditions	Start	End
(Dry / Raining)	Rain	Rain
Wind Strength (m/s)	4.0	4.4
Wind Direction (from)	SE	SE
Temperature (°C)	9.0	9.0
Barometric Pressure (h Pa / mB)	982.0	980.0
12 Hour Pressure (h Pa / mB)	983.0	983.0
12 Hour Pressure Trend	Falling	
PID - Air	0	0
PID - Calibration Gas		

[illegible]

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale
Client:		Wilson Bowden Developments Ltd
Job No.:		NTE2554
Date:		03/12/2019
Start / End Time:		9.30am-12.00pm
Engineer:		JA
Monitoring Equipment:	Gas Meter ID	BWB00994
	PID ID	BWB00946
	Dip Tape	BWB00969
	Other	

NR = Not Recorded
Dry = No Groundwater



Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	2.6	2.6
Wind Direction (from)	SW	SW
Temperature (°C)	3.0	4.0
Barometric Pressure (h Pa / mB)	1007.0	1005.0
12 Hour Pressure (h Pa / mB)	1015.0	1014.0
12 Hour Pressure Trend	Falling	
PID - Air	0	0
PID - Calibration Gas		

[illegible]

BWB GAS AND GROUNDWATER MONITORING

Site:		Plot W, Kingsway Business Park, Rochdale
Client:		Wilson Bowden Developments Ltd
Job No.:		NTE2554
Date:		16/12/2019
Start / End Time:		14.00-15.50
Engineer:		JA
Monitoring Equipment:	Gas Meter ID	BWB00960
	PID ID	Hired PID
	Dip Tape	BWB00969
	Other	

NR = Not Recorded

Dry = No Groundwater



**CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS**

Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	4.0	3.5
Wind Direction (from)	SW	SW
Temperature (°C)	5.0	4.0
Barometric Pressure (h Pa / mB)	978.0	977.0
12 Hour Pressure (h Pa / mB)	979.0	979.0
12 Hour Pressure Trend	Falling	
PID - Air	0	0
PID - Calibration Gas		

[illegible]

Appendix 10: Chemical Laboratory Results



Jade Allen
BWB Consulting Limited
Livery Place
35 Livery Street Birmingham
B3 2PB

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01217962087

e: jade.allen@bwbconsulting.com

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 19-67057

Replaces Analytical Report Number : 19-67057, issue no. 1

Project / Site name:	Flaw W, Kingsway Business Park, Rochdale	Samples received on:	11/10/2019
Your job number:	NTE2554	Samples instructed on:	21/10/2019
Your order number:	POR028610	Analysis completed by:	31/10/2019
Report Issue Number:	2	Report issued on:	31/10/2019
Samples Analysed:	8 soil samples		

Signed: 

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 19-67057-2 Flaw W, Kingsway Business Park, Rochdale NTE2554

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

The results included within the report are representative of the samples submitted for analysis.

Page 1 of 10



Analytical Report Number: 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale
Your Order No: POR028610

Lab Sample Number				1336567	1336568	1336569	1336570	1336571
Sample Reference				TP01	TP02	TP03	TP04	TP05
Sample Number				BWB4191003005	BWB4191003003	BWB4191002002	BWB4191002010	BWB4191008019
Depth (m)				0.40	1.10	0.50	0.50	0.70
Date Sampled				03/10/2019	03/10/2019	02/10/2019	02/10/2009	08/10/2019
Time Taken				1502	1453	1217	1332	1450
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	30	27	24	16	17
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	1.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	0.003	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	0.003	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	8.6	7.4	7.3	6.6
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	1	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.2	0.57	0.40	0.54	0.15
Total Sulphur	mg/kg	50	MCERTS	4700	2200	1900	1600	1000
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.040	0.023	0.029	0.015	0.048

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.3
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	34	< 0.05	0.53
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	18	< 0.05	0.99
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	16	< 0.05	0.72
Phenanthrene	mg/kg	0.05	MCERTS	2.4	1.2	75	1.0	5.3
Anthracene	mg/kg	0.05	MCERTS	0.55	0.29	11	0.20	1.3
Fluoranthene	mg/kg	0.05	MCERTS	2.8	2.7	80	1.4	7.0
Pyrene	mg/kg	0.05	MCERTS	5.6	2.4	68	1.3	6.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.6	1.3	33	0.63	3.9
Chrysene	mg/kg	0.05	MCERTS	1.8	1.1	27	0.74	3.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.7	1.3	26	0.81	3.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	0.93	14	0.48	2.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.7	1.4	26	0.80	3.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	0.66	11	0.36	1.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.35	0.28	4.1	< 0.05	0.58
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.2	0.76	12	0.43	1.6

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	21.8	14.2	453	8.15	42.5
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	1.6	15	< 1.0	14	19
Barium (aqua regia extractable)	mg/kg	1	MCERTS	100	120	93	91	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	0.49	0.72	0.68	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	3.3	1.3	1.5	0.9	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.2	< 0.2	< 0.2	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	18	16	15	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	28	51	30	36
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	55	55	61	86
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	13	18	17	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	19	27	21	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	93	100	48	330	110



Analytical Report Number: 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

Your Order No: POR028610

Lab Sample Number				1336567	1336568	1336569	1336570	1336571
Sample Reference				TP01	TP02	TP03	TP04	TP05
Sample Number				BWB4191003005	BWB4191003003	BWB4191002002	BWB4191002010	BWB4191008019
Depth (m)				0.40	1.10	0.50	0.50	0.70
Date Sampled				03/10/2019	03/10/2019	02/10/2019	02/10/2009	08/10/2019
Time Taken				1502	1453	1217	1332	1450
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	660	350	2000	130	140
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	3.8	< 1.0	< 1.0	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	74	4.5	< 2.0	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	150	8.5	< 8.0	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	130	86	< 8.0	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	360	98	< 10	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	60	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	13	4.6	220	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	79	29	670	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	99	140	900	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	190	170	1800	-	-



Analytical Report Number: 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

Your Order No: POR028610

Lab Sample Number				1336572	1336573	1336574		
Sample Reference				TP08	TP15	TP17		
Sample Number				BWB4191007028	None Supplied	BWB4191008001		
Depth (m)				0.40	0.60	0.30		
Date Sampled				07/10/2019	09/10/2019	08/10/2019		
Time Taken				1620	None Supplied	1041		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	19	18	17		
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-		
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.5	6.7	7.8		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.012	0.043		
Total Sulphur	mg/kg	50	MCERTS	180	220	360		
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.010	0.017	0.022		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.36		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.38		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.14		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.19		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	2.00		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.2	< 1.0	13		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	26	29	69		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.19	0.29	0.50		
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.3		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.1	12	16		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.6	8.4	22		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	14	38		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	7.5	9.4	14		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	13	18		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	21	54		



Analytical Report Number: 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

Your Order No: POR028610

Lab Sample Number				1336572	1336573	1336574		
Sample Reference				TP08	TP15	TP17		
Sample Number				BWB4191007028	None Supplied	BWB4191008001		
Depth (m)				0.40	0.60	0.30		
Date Sampled				07/10/2019	09/10/2019	08/10/2019		
Time Taken				1620	None Supplied	1041		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-		
Toluene	µg/kg	1	MCERTS	-	-	-		
Ethylbenzene	µg/kg	1	MCERTS	-	-	-		
p & m-xylene	µg/kg	1	MCERTS	-	-	-		
o-xylene	µg/kg	1	MCERTS	-	-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-		

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	27		
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-		



Analytical Report Number: 19-67057
Project / Site name: Flaw W, Kingsway Business Park, Rochdale
Your Order No: POR028610

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1336570	TP04	0.50	126	Loose Fibrous Debris	Chrysotile	0.003	0.003

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number : 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1336567	TP01	3WB4191003009	0.40	Grey loam and clay with gravel and vegetation.
1336568	TP02	3WB4191003003	1.10	Grey sandy clay with gravel and brick.
1336569	TP03	3WB4191002002	0.50	Grey clay with gravel.
1336570	TP04	3WB4191002010	0.50	Grey sandy clay with vegetation and gravel.
1336571	TP05	3WB4191008019	0.70	Grey sandy clay.
1336572	TP08	3WB4191007028	0.40	Grey clay with vegetation.
1336573	TP15	None Supplied	0.60	Grey clay with vegetation.
1336574	TP17	3WB4191008001	0.30	Grey sandy clay with vegetation.



Analytical Report Number : 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L009-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-67057

Project / Site name: Flaw W, Kingsway Business Park, Rochdale

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/cleanup.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP01	BWB4191003005	S	19-67057	1336567	c	Free cyanide in soil	L080-PL	c
TP01	BWB4191003005	S	19-67057	1336567	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
TP01	BWB4191003005	S	19-67057	1336567	c	Complex Cyanide in soil	L080-PL	c
TP01	BWB4191003005	S	19-67057	1336567	c	Total cyanide in soil	L080-PL	c
TP02	BWB4191003003	S	19-67057	1336568	c	Free cyanide in soil	L080-PL	c
TP02	BWB4191003003	S	19-67057	1336568	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
TP02	BWB4191003003	S	19-67057	1336568	c	Complex Cyanide in soil	L080-PL	c
TP02	BWB4191003003	S	19-67057	1336568	c	Total cyanide in soil	L080-PL	c
TP03	BWB4191002002	S	19-67057	1336569	c	Free cyanide in soil	L080-PL	c
TP03	BWB4191002002	S	19-67057	1336569	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
TP03	BWB4191002002	S	19-67057	1336569	c	Complex Cyanide in soil	L080-PL	c
TP03	BWB4191002002	S	19-67057	1336569	c	Total cyanide in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Free cyanide in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Hexavalent chromium in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Complex Cyanide in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Fraction of Organic Carbon in soil	L009-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Monohydric phenols in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Organic matter (Automated) in soil	L009-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	TPH Banding in Soil by FID	L076-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	TPH2 (Soil)	L088-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	Total cyanide in soil	L080-PL	c
TP04	BWB4191002010	S	19-67057	1336570	c	pH in soil (automated)	L099-PL	c
TP05	BWB4191008019	S	19-67057	1336571	c	Free cyanide in soil	L080-PL	c
TP05	BWB4191008019	S	19-67057	1336571	c	Complex Cyanide in soil	L080-PL	c
TP05	BWB4191008019	S	19-67057	1336571	c	Total cyanide in soil	L080-PL	c
TP08	BWB4191007028	S	19-67057	1336572	c	Free cyanide in soil	L080-PL	c
TP08	BWB4191007028	S	19-67057	1336572	c	Complex Cyanide in soil	L080-PL	c
TP08	BWB4191007028	S	19-67057	1336572	c	Total cyanide in soil	L080-PL	c
TP15		S	19-67057	1336573	c	Free cyanide in soil	L080-PL	c
TP15		S	19-67057	1336573	c	Complex Cyanide in soil	L080-PL	c
TP15		S	19-67057	1336573	c	Total cyanide in soil	L080-PL	c
TP17	BWB4191008001	S	19-67057	1336574	c	Free cyanide in soil	L080-PL	c
TP17	BWB4191008001	S	19-67057	1336574	c	Complex Cyanide in soil	L080-PL	c
TP17	BWB4191008001	S	19-67057	1336574	c	Total cyanide in soil	L080-PL	c

**Jade Allen**

BWB Consulting Limited
5th Floor
Waterfront House
Nottingham
NG2 3DQ

e: jade.allen@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
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WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 19-73321

Project / Site name:	Plot W, Kingsway Business Park, Rochdale	Samples received on:	21/11/2019
Your job number:	NTE2554	Samples instructed on:	21/11/2019
Your order number:	POR029163	Analysis completed by:	27/11/2019
Report Issue Number:	1	Report issued on:	27/11/2019
Samples Analysed:	8 soil samples		

Signed: *Karolina Marek*

Karolina Marek
Technical Reviewer (Reporting Team)

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 19-73321

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Your Order No: POR029163

Lab Sample Number				1369702	1369703	1369704	1369705	1369706
Sample Reference				DS201	DS202	DS202	DS203	DS203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80-0.90	0.90-1.00	2.40-2.50	0.60-0.70	1.00-1.10
Date Sampled				19/11/2019	19/11/2019	19/11/2019	19/11/2019	19/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	22	14
Total mass of sample received				kg	0.001	NONE	0.54	0.57

General Inorganics

Organic Matter	%	0.1	MCERTS	3.9	5.4	5.2	1.1	0.9
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Analytical Report Number: 19-73321

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Your Order No: POR029163

Lab Sample Number				1369707	1369708	1369709		
Sample Reference				DS104	DS105	DS106		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.70-0.80	0.75-0.85	0.60-0.70		
Date Sampled				19/11/2019	19/11/2019	19/11/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	16	15
Total mass of sample received				kg	0.001	NONE	0.65	0.63
							0.62	

General Inorganics

Organic Matter	%	0.1	MCERTS	1.9	1.4	0.8		
----------------	---	-----	--------	-----	-----	-----	--	--



Analytical Report Number : 19-73321

Project / Site name: Plot W, Kingsway Business Park, Rochdale

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1369702	DS201	None Supplied	0.80-0.90	Brown loam and clay with gravel.
1369703	DS202	None Supplied	0.90-1.00	Brown loam and clay with gravel and vegetation.
1369704	DS202	None Supplied	2.40-2.50	Brown loam and clay with gravel.
1369705	DS203	None Supplied	0.60-0.70	Brown loam and clay with gravel.
1369706	DS203	None Supplied	1.00-1.10	Brown loam and clay with gravel.
1369707	DS104	None Supplied	0.70-0.80	Brown loam and clay with gravel.
1369708	DS105	None Supplied	0.75-0.85	Brown loam and clay with gravel and vegetation.
1369709	DS106	None Supplied	0.60-0.70	Light brown clay and sand.



Analytical Report Number : 19-73321

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Appendix 11: Geotechnical Testing Results



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

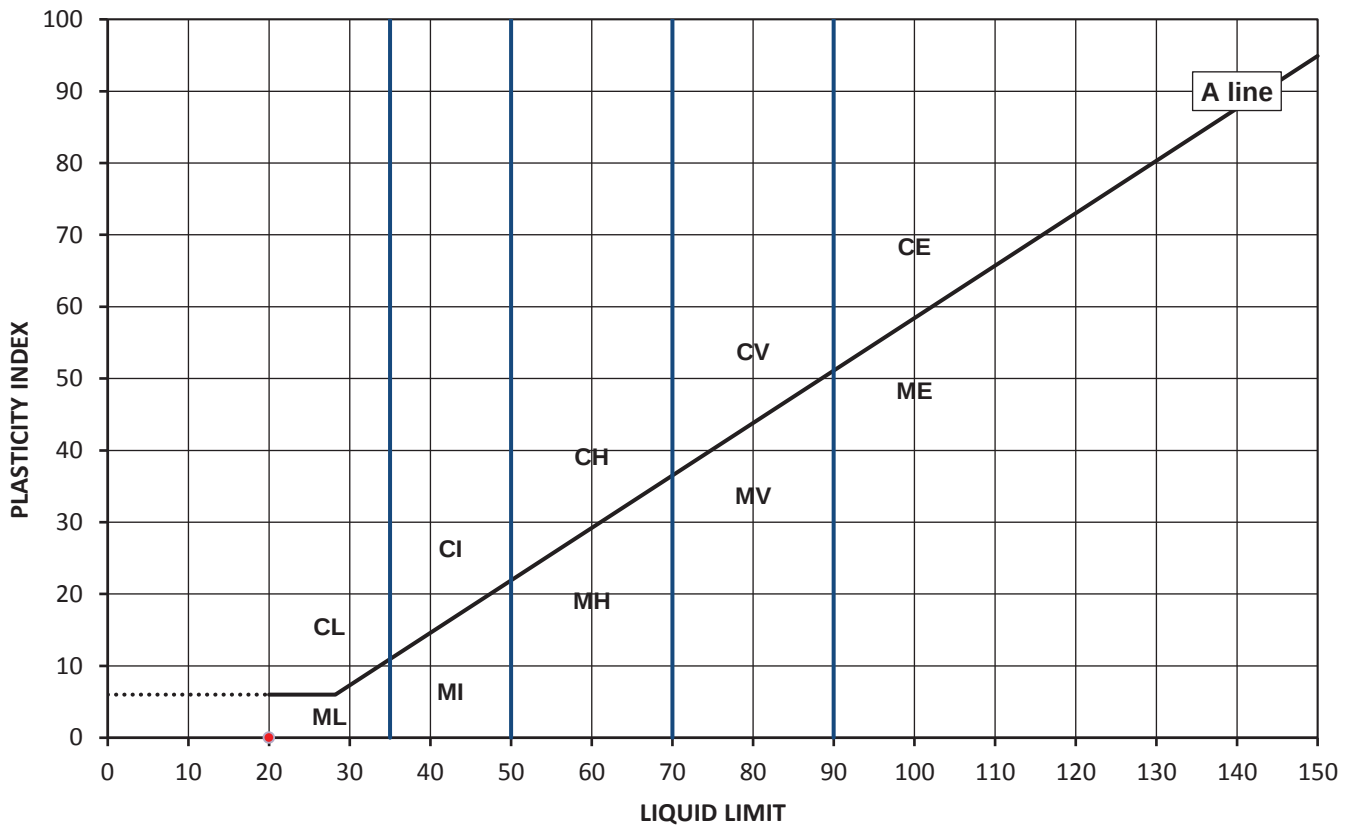
Test Results:

Laboratory Reference: 1345831
Hole No.: BH01
Sample Reference: 13
Soil Description: Yellowish brown gravelly SAND

Depth Top [m]: 9.00
Depth Base [m]: 9.45
Sample Type: U

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	20	NP	NP.	42



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: NP – non plastic

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 232.5

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland.*



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

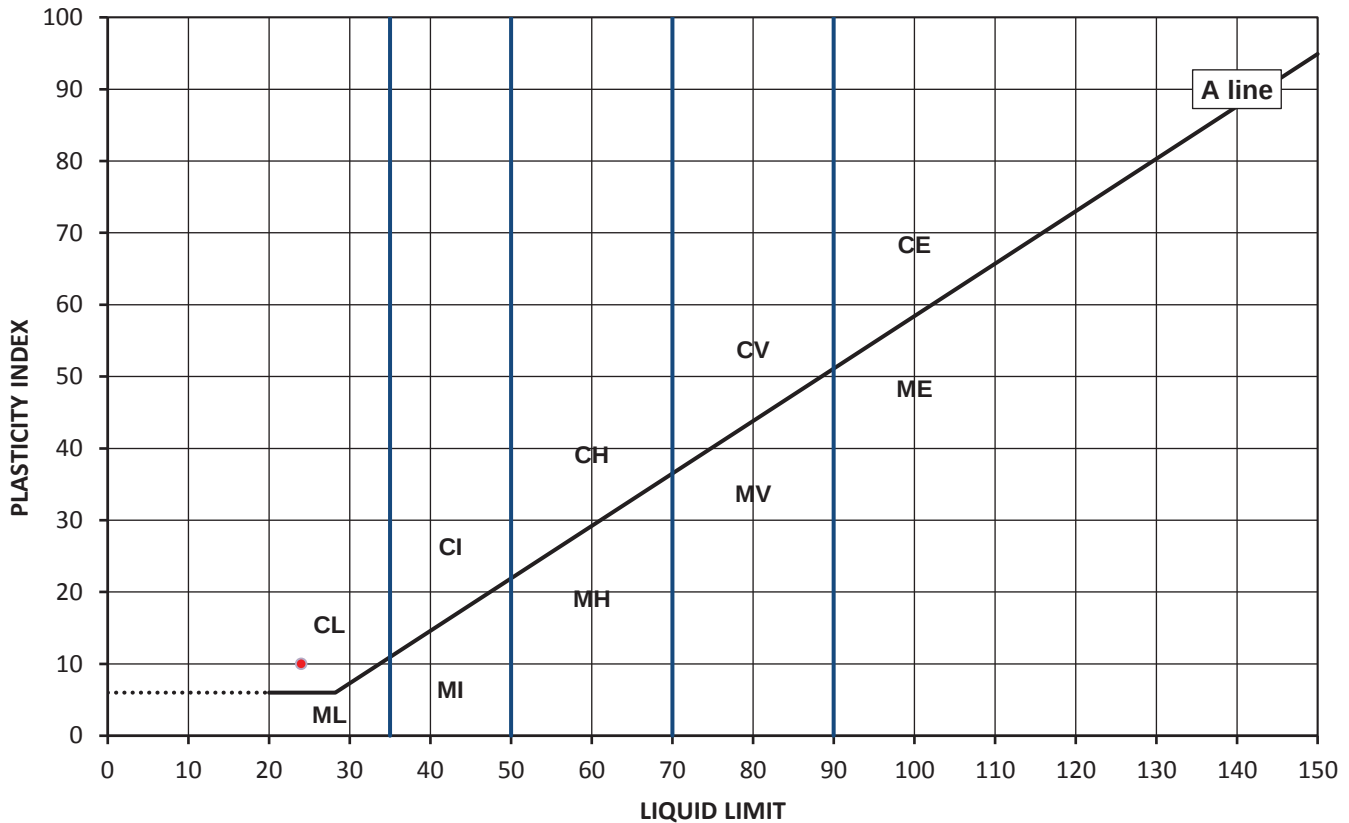
Test Results:

Laboratory Reference: 1345834
Hole No.: BH02
Sample Reference: 3
Soil Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: U

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	24	14	10	73



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

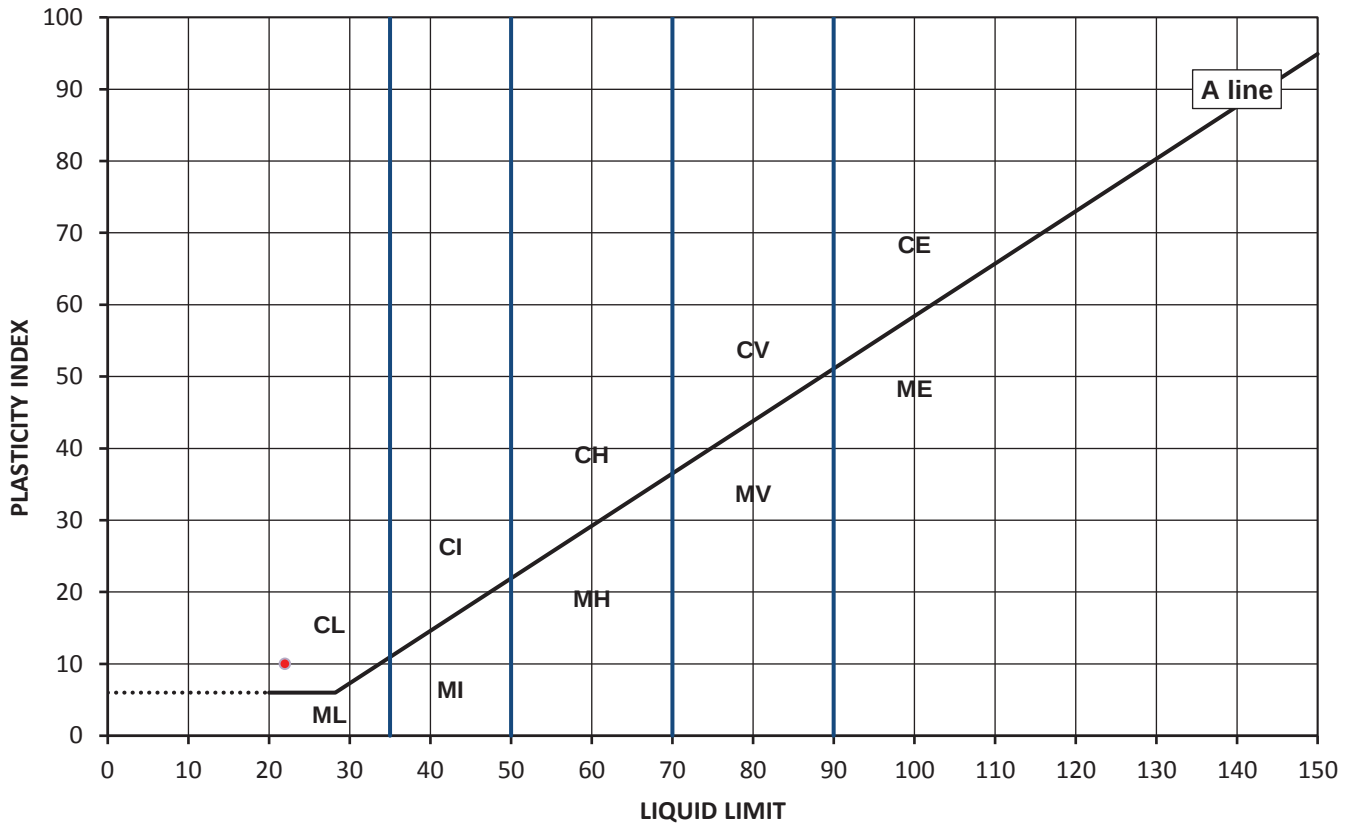
Test Results:

Laboratory Reference: 1345836
Hole No.: BH02
Sample Reference: 10
Soil Description: Brown gravelly clayey SAND

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	22	12	10	61



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

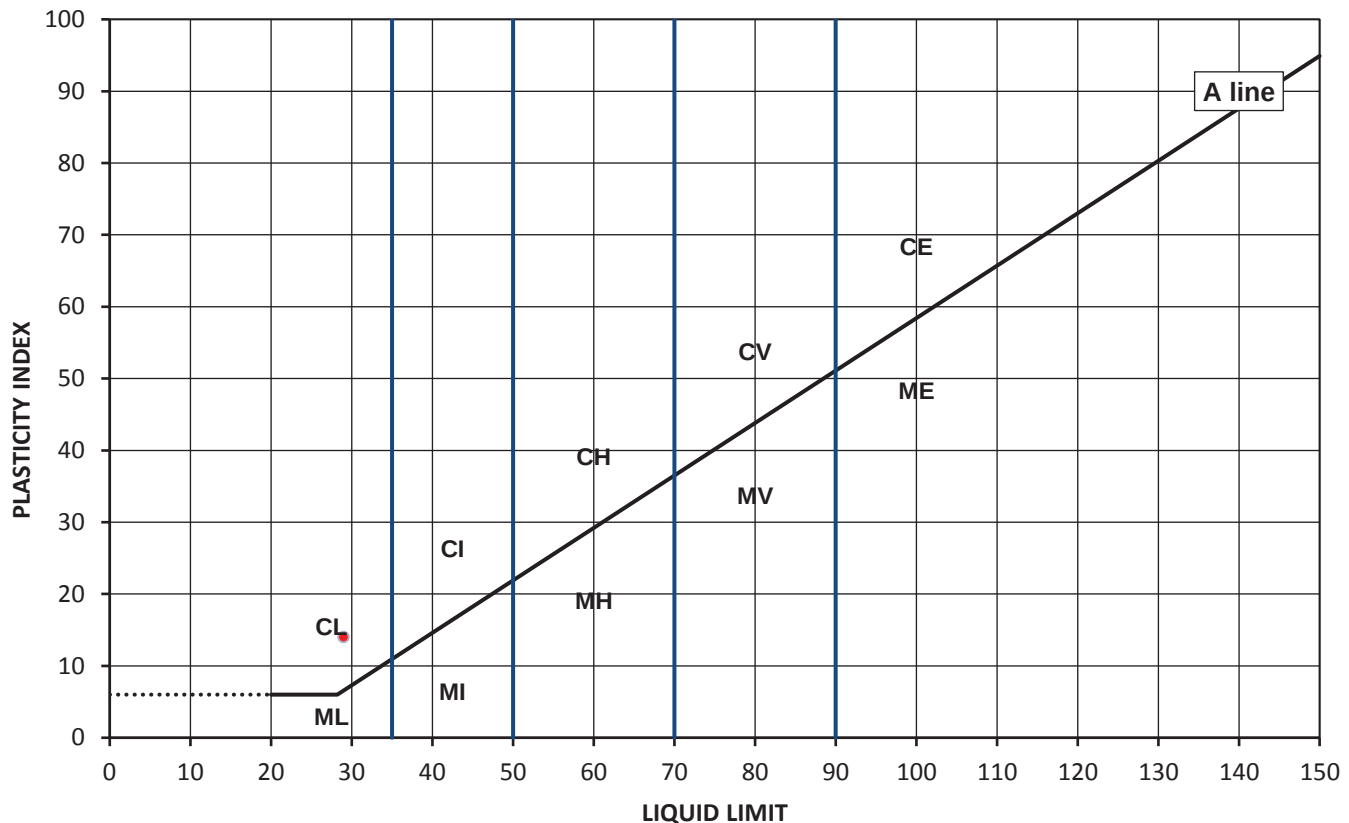
Test Results:

Laboratory Reference: 1345838
Hole No.: BH02
Sample Reference: 16
Soil Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 9.00
Depth Base [m]: 9.45
Sample Type: U

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	29	15	14	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

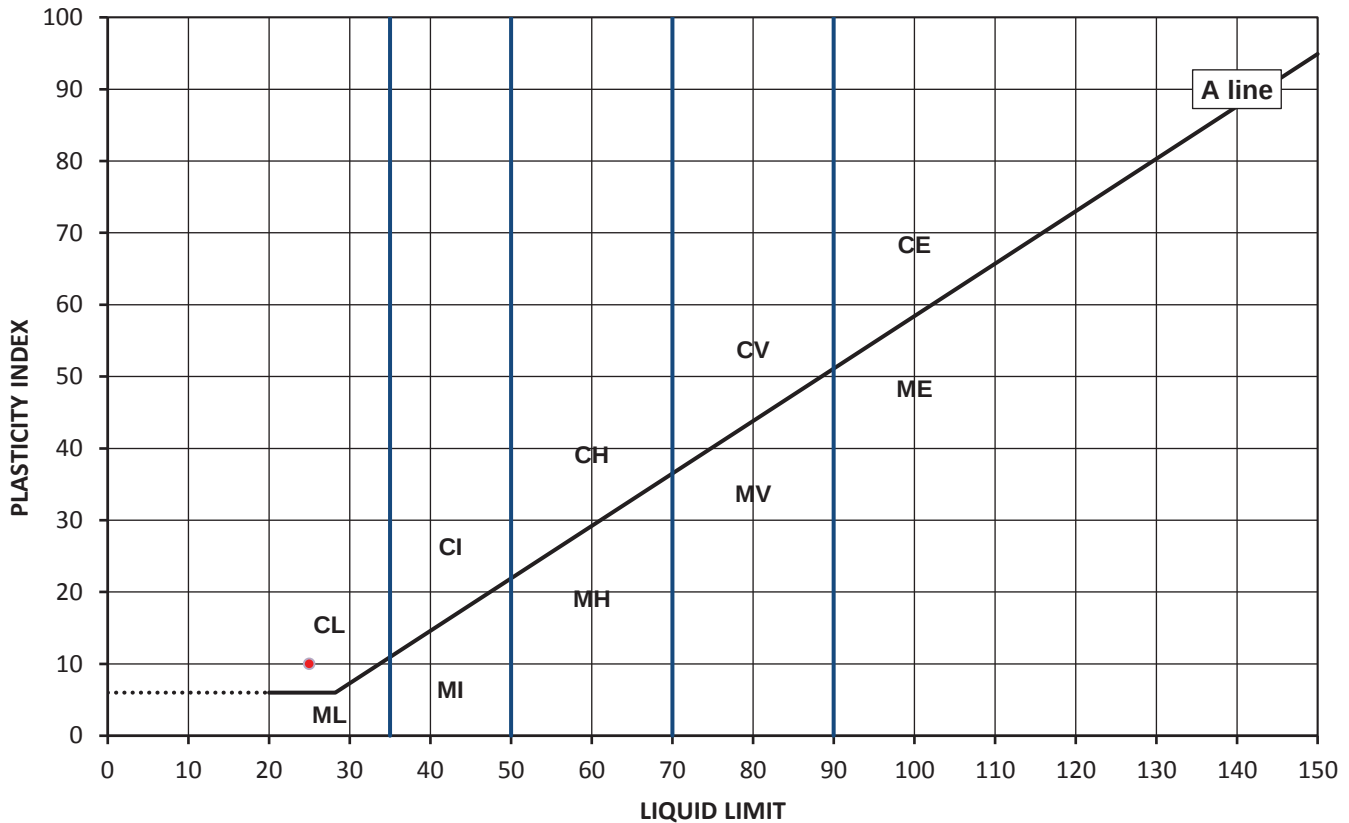
Test Results:

Laboratory Reference: 1345843
Hole No.: BH03
Sample Reference: 5
Soil Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
28**	25	15	10	68



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: ** sample is wet

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

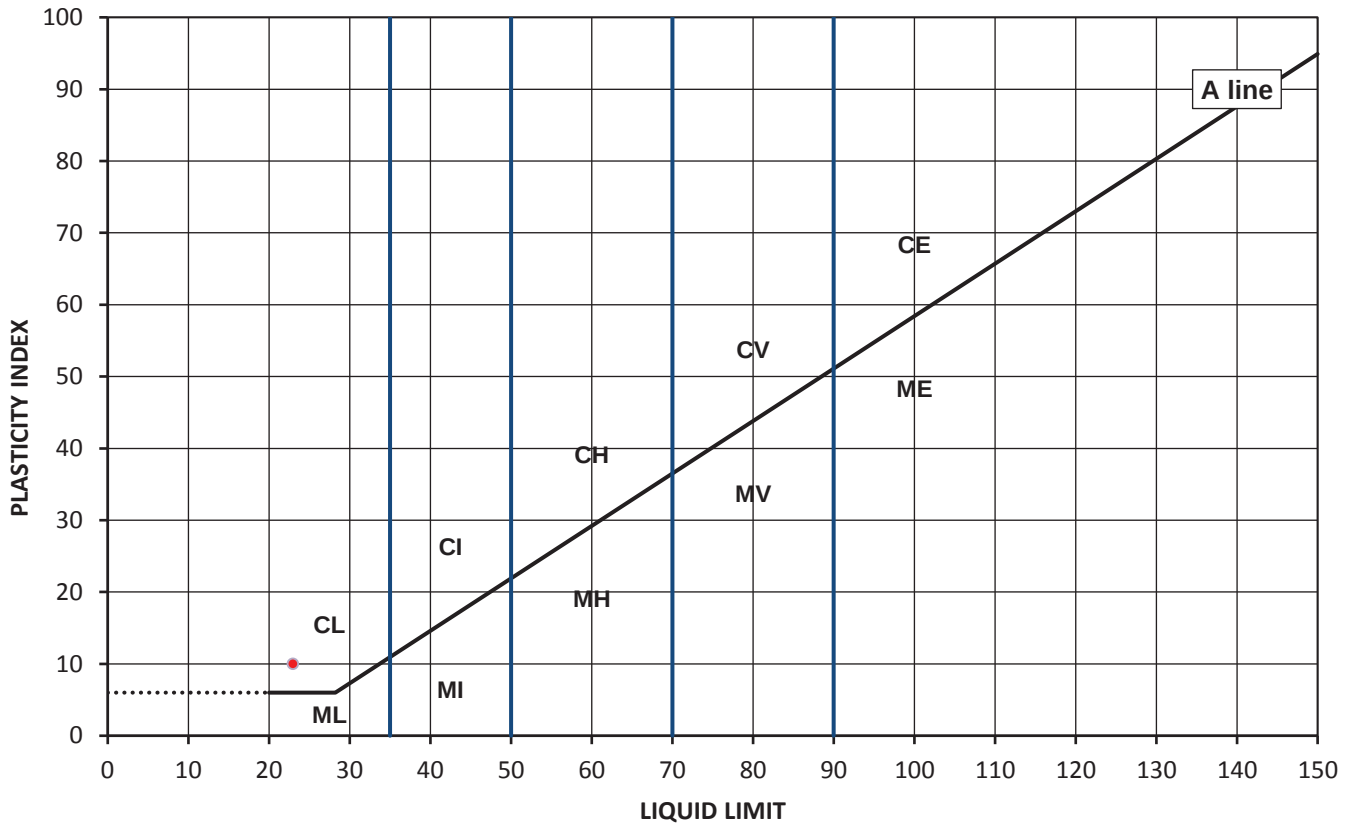
Test Results:

Laboratory Reference: 1345848
Hole No.: TP01
Sample Reference: 5
Soil Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 2.00
Depth Base [m]: 2.10
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	23	13	10	69



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

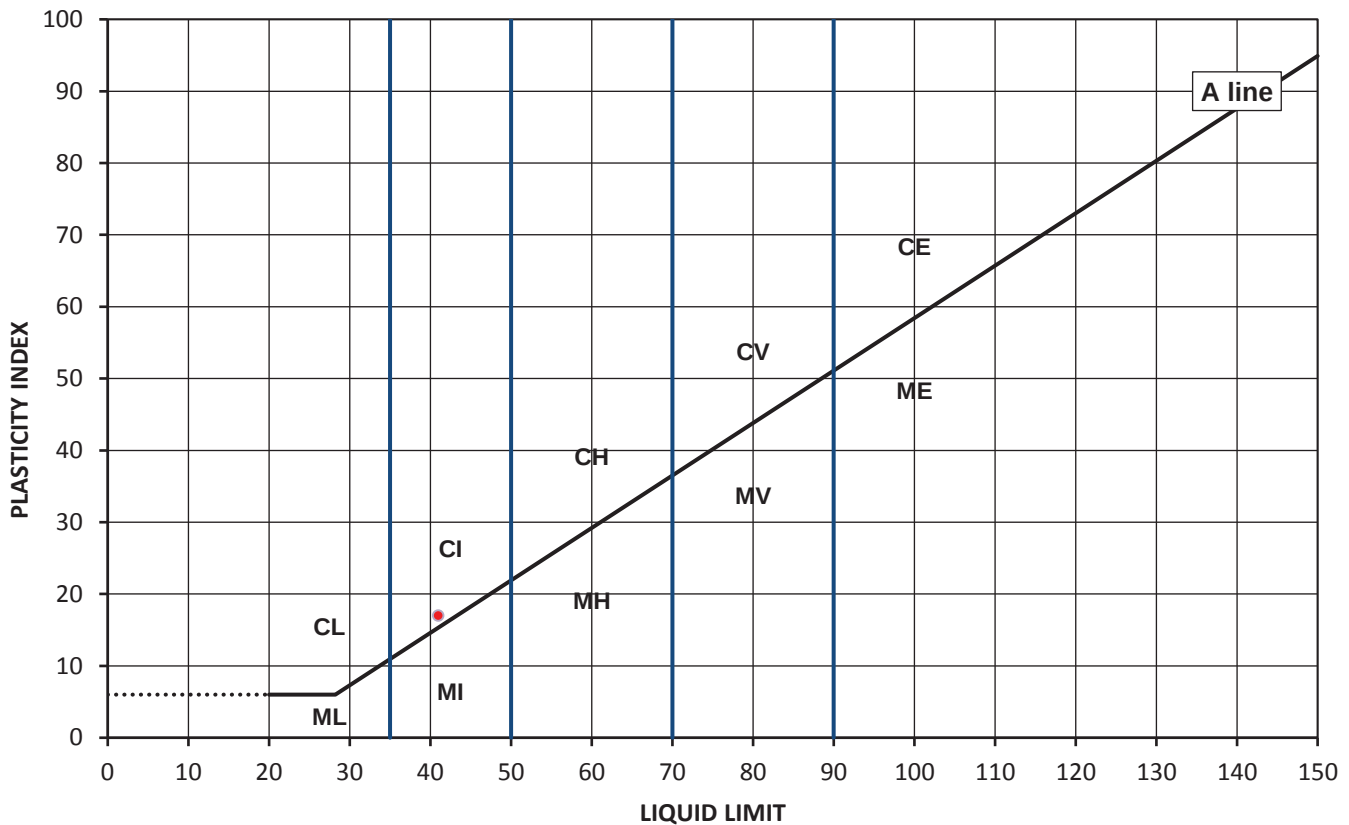
Test Results:

Laboratory Reference: 1345852
Hole No.: TP05
Sample Reference: 2
Soil Description: Brown gravelly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: 0.60
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	41	24	17	54



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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Liquid and Plastic Limits

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7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

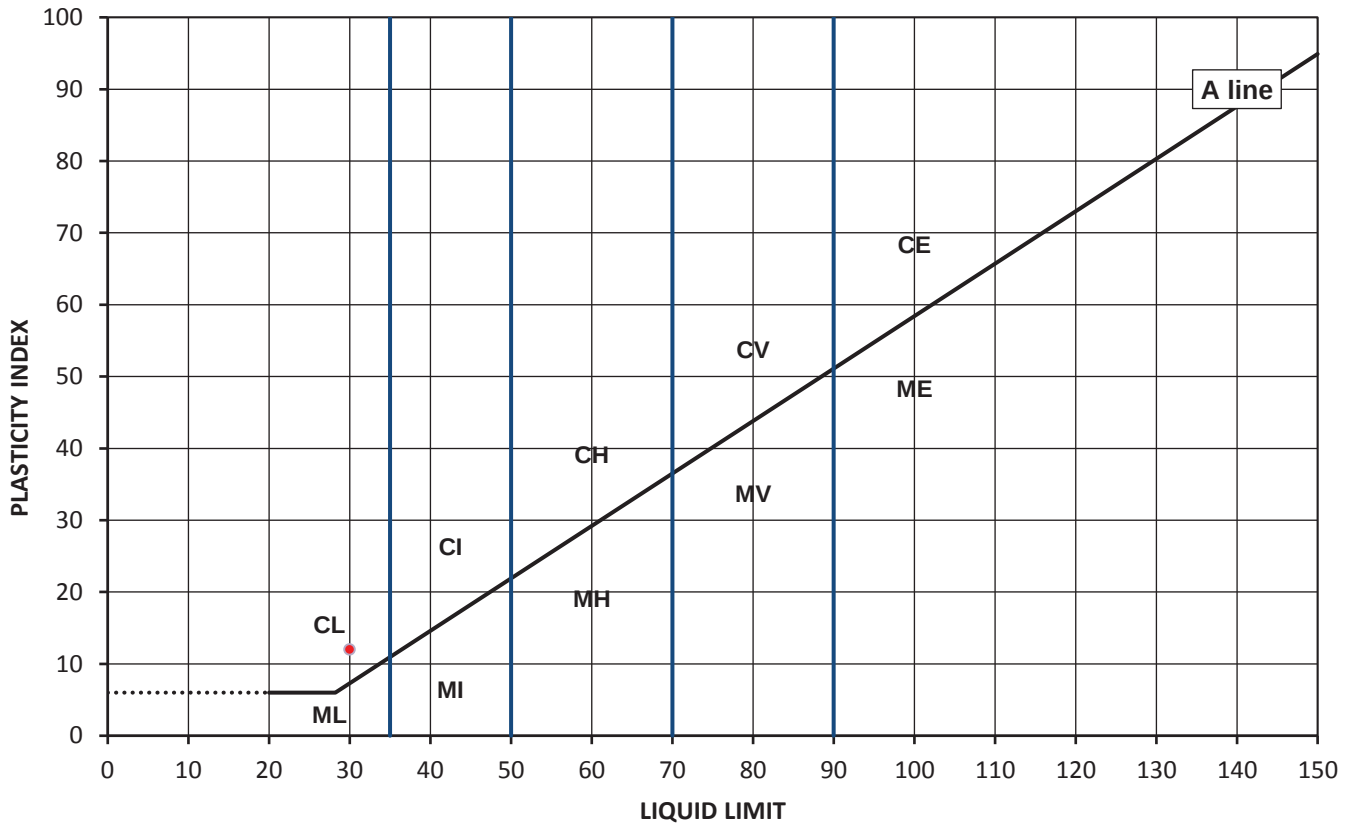
Test Results:

Laboratory Reference: 1345854
Hole No.: TP08
Sample Reference: 2
Soil Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 0.40
Depth Base [m]: 0.50
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
32	30	18	12	92



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: ** sample is wet

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

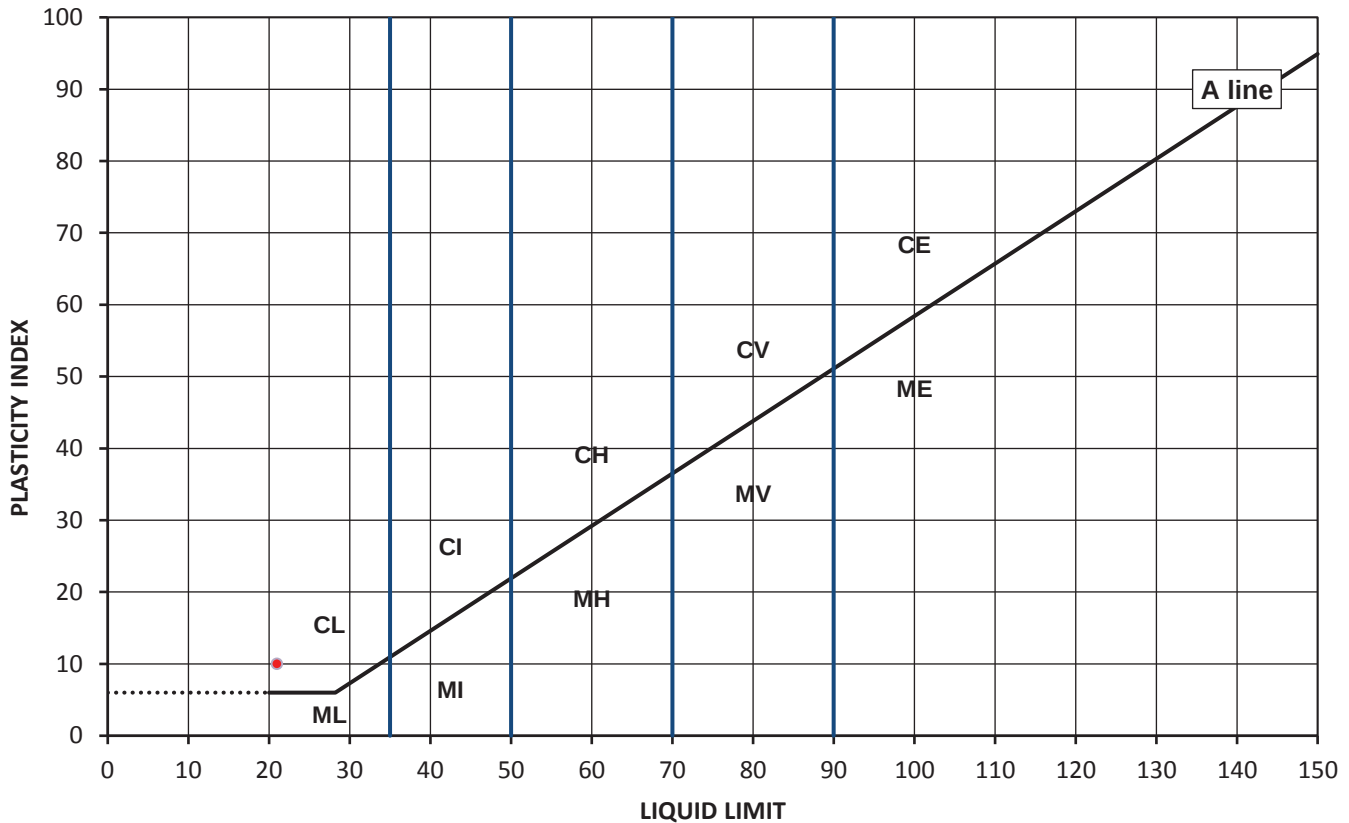
Test Results:

Laboratory Reference: 1345857
Hole No.: TP14
Sample Reference: 3
Soil Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 2.60
Depth Base [m]: 2.70
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	21	11	10	95



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

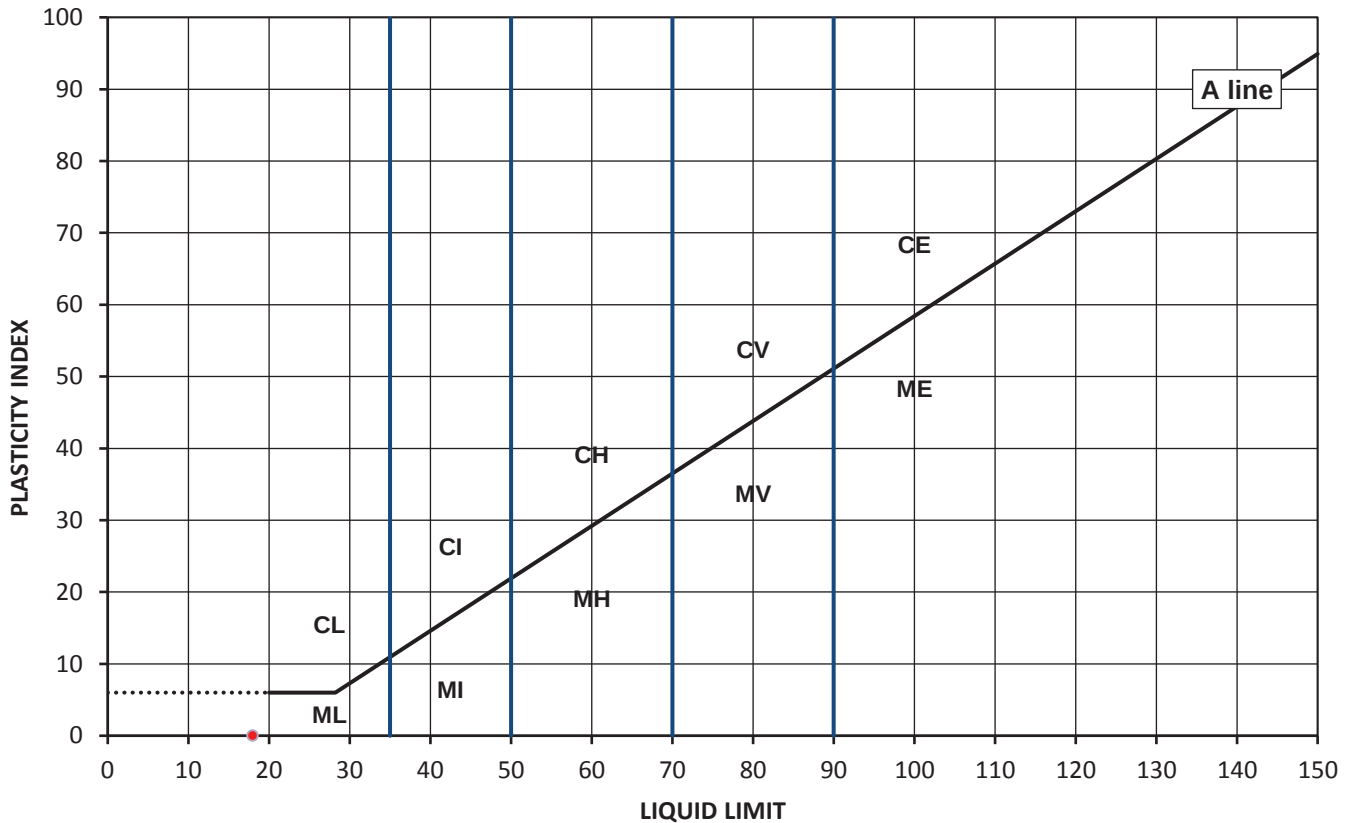
Test Results:

Laboratory Reference: 1345860
Hole No.: TP17
Sample Reference: 5
Soil Description: Dark brown slightly gravelly SAND

Depth Top [m]: 3.90
Depth Base [m]: 4.00
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	18	NP	NP.	91



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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Any assessment of compliance with specifications based the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
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Croxley Green Business Park
Watford Herts WD18 8YS



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

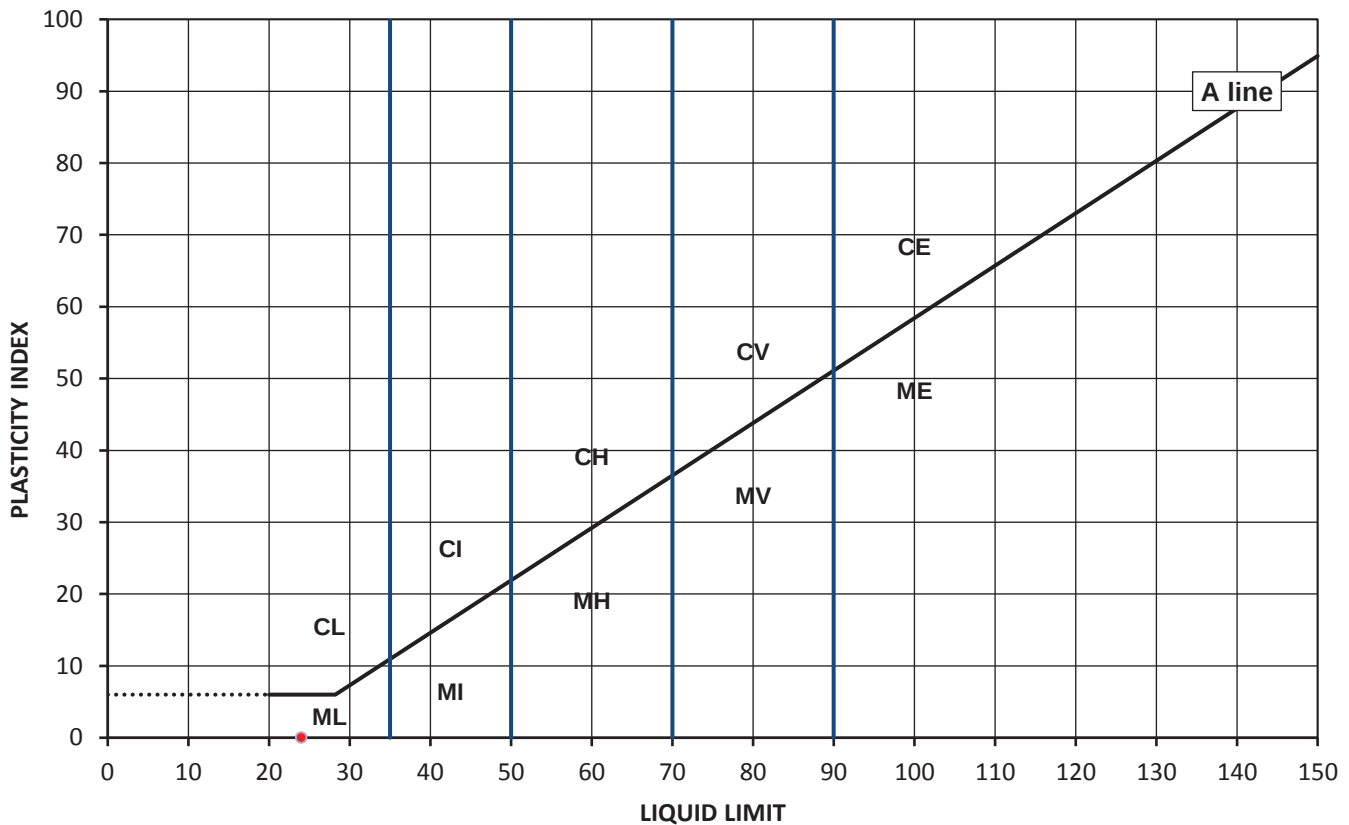
Test Results:

Laboratory Reference: 1345861
Hole No.: TP19
Sample Reference: 1
Soil Description: Brown slightly gravelly silty clayey SAND

Depth Top [m]: 1.10
Depth Base [m]: 1.20
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	24	NP	NP.	67



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: NP – non plastic

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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4041

Client: BWB Consulting Limited
 Client Address: 5th Floor, Waterfront House,
 Nottingham, NG2 3DQ

Contact: Jade Allen
 Site Name: Plot W ,Kingsway Business Park, Rochdale
 Site Address: Not Given

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
 by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
 Clause 8.2

i2 Analytical Ltd
 7 Woodshots Meadow
 Croxley Green Business Park
 Watford Herts WD18 8YS



Client Reference: NTE2554
 Job Number: 19-68821
 Date Sampled: 09/10/2019
 Date Received: 11/10/2019
 Date Tested: 02/11/2019
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1345830	BH01	3	1.20	1.65	B	Brown CLAY		15*								2.67			
1345831	BH01	13	9.00	9.45	U	Yellowish brown gravelly SAND	Atterberg 1 Point	12		42	20	NP	NP						
1345833	BH02	2	0.50	1.00	B	Brown gravelly CLAY		20								2.66			
1345834	BH02	3	1.20	1.65	U	Brown slightly gravelly clayey SAND	Atterberg 4 Point	15		73	24	14	10						
1345835	BH02	6	2.75	Not Given	D	Brown very gravelly sandy CLAY		14											
1345836	BH02	10	5.00	5.45	U	Brown gravelly clayey SAND	Atterberg 4 Point	15		61	22	12	10						
1345837	BH02	15	8.50	9.00	B	Dark brown slightly gravelly sandy CLAY		16											
1345838	BH02	16	9.00	9.45	U	Brown slightly gravelly very sandy CLAY	Atterberg 4 Point	14		99	29	15	14						
1345841	BH03	2	0.50	1.00	B	Dark brown sandy organic CLAY		30											
1345842	BH03	3	1.20	1.65	B	Dark brown organic CLAY		32											

Note: # Non accredited; NP - Non plastic

Comments: * sample is dry

Approved: Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 Date Reported: 12/11/2019

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Signed: Darren Berrill
 Geotechnical General Manager
 for and on behalf of i2 Analytical Ltd

GF 238.7



4041

Client: BWB Consulting Limited
 Client Address: 5th Floor, Waterfront House,
 Nottingham, NG2 3DQ

Contact: Jade Allen
 Site Name: Plot W ,Kingsway Business Park, Rochdale
 Site Address: Not Given

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
 by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
 Clause 8.2

i2 Analytical Ltd
 7 Woodshots Meadow
 Croxley Green Business Park
 Watford Herts WD18 8YS



Client Reference: NTE2554
 Job Number: 19-68821
 Date Sampled: 09/10/2019
 Date Received: 11/10/2019
 Date Tested: 02/11/2019
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1345843	BH03	5	2.00	2.45	B	Brown slightly gravelly clayey SAND	Atterberg 4 Point	28**		68	25	15	10						
1345846	BH03	16	11.50	Not Given	D	Brown SILT		20											
1345847	TP01	2	0.70	0.75	D	Dark brown sandy CLAY		36											
1345848	TP01	5	2.00	2.10	B	Brown slightly gravelly clayey SAND	Atterberg 4 Point	14		69	23	13	10			2.59			
1345850	TP03	6	2.80	2.90	B	Brown gravelly CLAY		16											
1345851	TP04	3	1.30	1.35	D	Dark brown gravelly sandy CLAY		21											
1345852	TP05	2	0.50	0.60	B	Brown gravelly sandy CLAY	Atterberg 4 Point	13		54	41	24	17						
1345853	TP07	5	2.20	2.30	B	Brown gravelly slightly sandy clayey SILT										2.63			
1345854	TP08	2	0.40	0.50	B	Brown slightly gravelly very sandy CLAY	Atterberg 4 Point	32**		92	30	18	12						
1345855	TP09	2	0.40	0.50	D	Brown slightly gravelly clayey SAND		15											

Note: # Non accredited; NP - Non plastic

Comments: **sample is wet

Approved: Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 Date Reported: 12/11/2019

Signed: Darren Berrill
 Geotechnical General Manager
 for and on behalf of i2 Analytical Ltd

GF 238.7

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4041

Client: BWB Consulting Limited
 Client Address: 5th Floor, Waterfront House,
 Nottingham, NG2 3DQ

Contact: Jade Allen
 Site Name: Plot W ,Kingsway Business Park, Rochdale
 Site Address: Not Given

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
 by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
 Clause 8.2

i2 Analytical Ltd
 7 Woodshots Meadow
 Croxley Green Business Park
 Watford Herts WD18 8YS



Client Reference: NTE2554
 Job Number: 19-68821
 Date Sampled: 09/10/2019
 Date Received: 11/10/2019
 Date Tested: 02/11/2019
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1345856	TP12	2	0.50	0.60	B	Brown slightly gravelly sandy CLAY		18											
1345857	TP14	3	2.60	2.70	D	Brown slightly gravelly clayey SAND	Atterberg 4 Point	16		95	21	11	10						
1345858	TP15	2	0.40	0.50	D	Brown sandy organic CLAY		31											
1345859	TP15	4	3.10	3.20	D	Brown slightly gravelly silty CLAY		16											
1345860	TP17	5	3.90	4.00	D	Dark brown slightly gravelly SAND	Atterberg 4 Point	14		91	18	NP	NP.						
1345861	TP19	1	1.10	1.20	D	Brown slightly gravelly silty clayey SAND	Atterberg 4 Point	16		67	24	NP	NP.						

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 Date Reported: 12/11/2019

Signed:

Darren Berrill
 Geotechnical General Manager
 for and on behalf of i2 Analytical Ltd GF 238.7

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



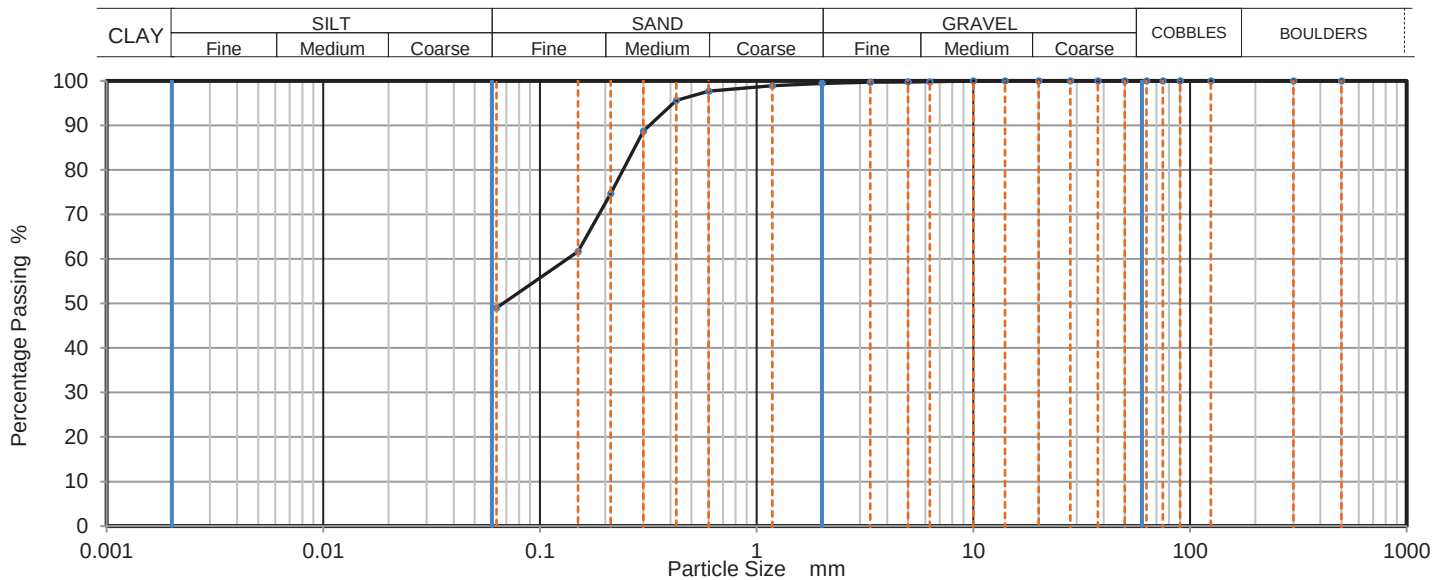
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345832
Hole No.: BH01
Sample Reference: 16
Sample Description: Brown sandy CLAY

Depth Top [m]: 12.50
Depth Base [m]: 12.84
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	96		
0.3	89		
0.212	75		
0.15	62		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	49.60
Fines <0.063mm	49.80

Grading Analysis	
D100	mm 10
D60	mm 0.133
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



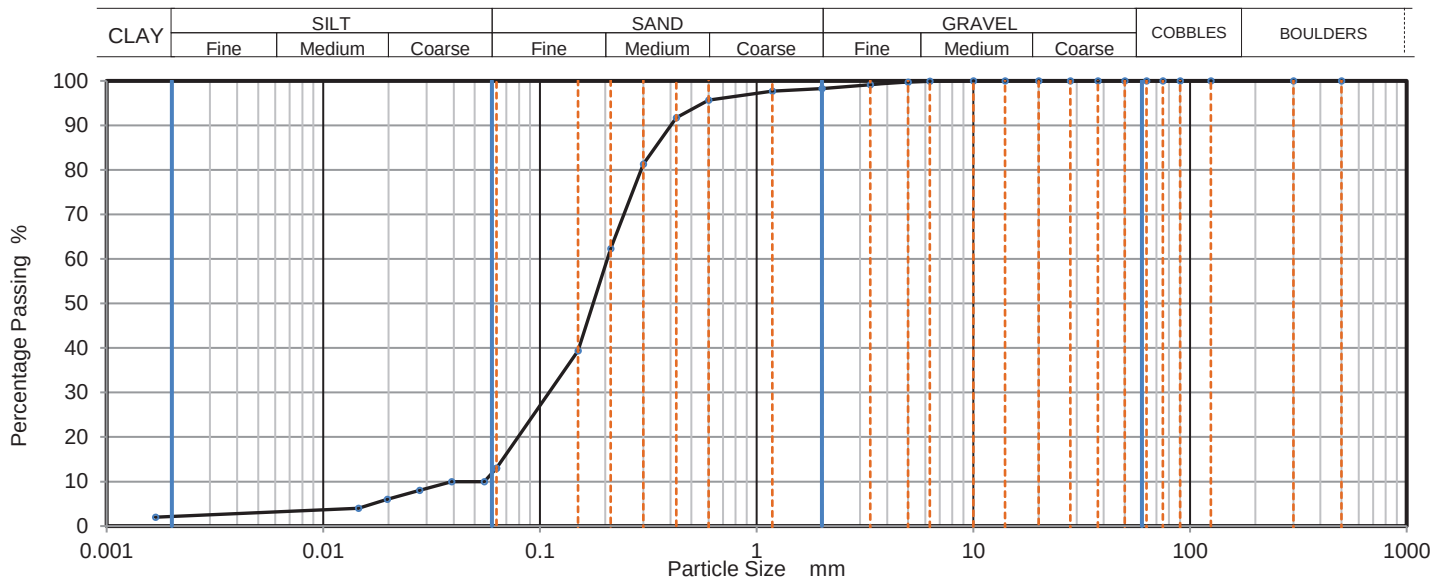
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
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Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345840
Hole No.: BH02
Sample Reference: 21
Sample Description: Brown silty slightly gravelly slightly clayey SAND

Depth Top [m]: 14.00
Depth Base [m]: 14.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	13
300	100	0.0553	10
125	100	0.0391	10
90	100	0.0278	8
75	100	0.0198	6
63	100	0.0145	4
50	100	0.0017	2
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98	Particle density (assumed) 2.65 Mg/m3	
1.18	98		
0.6	96		
0.425	92		
0.3	81		
0.212	62		
0.15	39		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.70
Sand	85.90
Silt	10.10
Clay	2.30

Grading Analysis	
D100	mm 10
D60	mm 0.205
D30	mm 0.111
D10	mm 0.0365
Uniformity Coefficient	5.6
Curvature Coefficient	1.6

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13



TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
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Croxley Green Business Park
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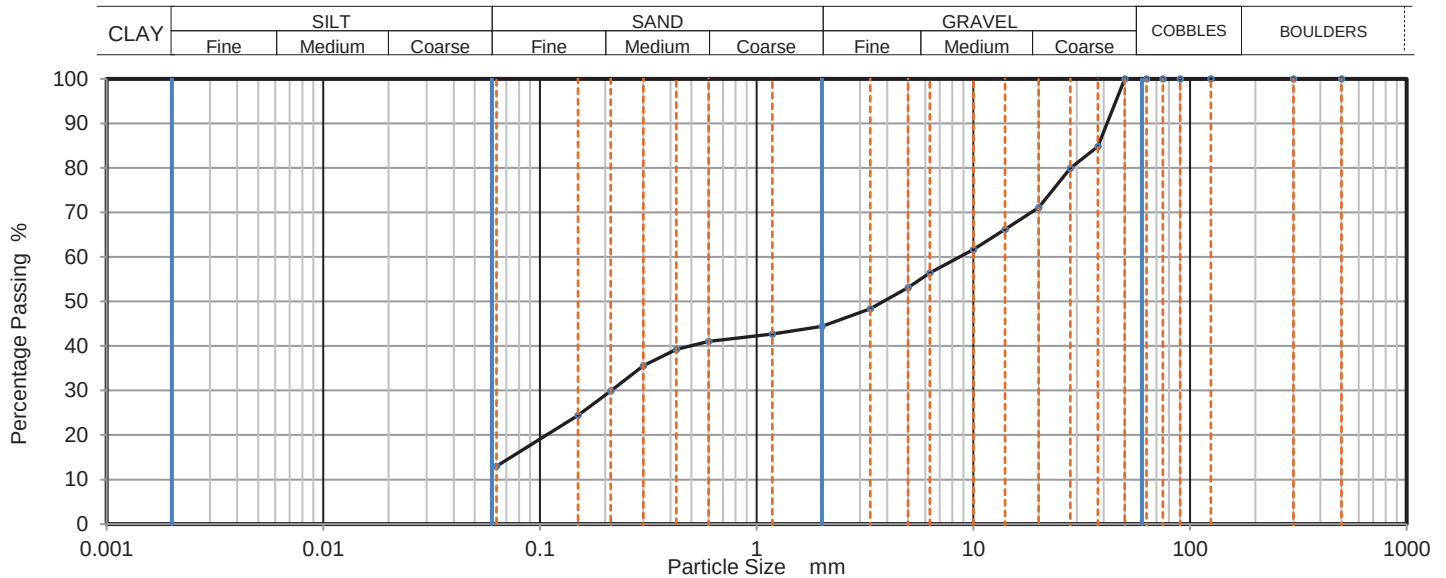
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345844
Hole No.: BH03
Sample Reference: 7
Sample Description: Brown clayey very sandy GRAVEL

Depth Top [m]: 3.90
Depth Base [m]: Not Given
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	85		
28	80		
20	71		
14	66		
10	62		
6.3	56		
5	53		
3.35	48		
2	44		
1.18	43		
0.6	41		
0.425	39		
0.3	36		
0.212	30		
0.15	24		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	55.60
Sand	30.90
Fines <0.063mm	13.50

Grading Analysis	
D100	mm 50
D60	mm 8.65
D30	mm 0.213
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



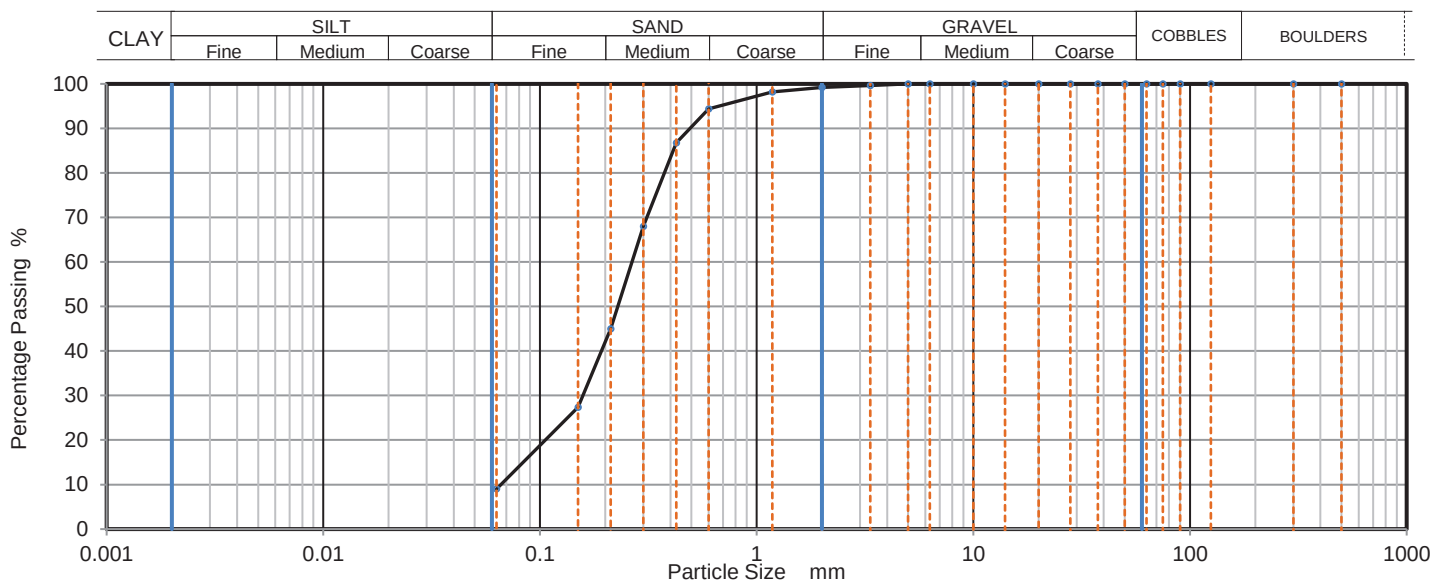
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345845
Hole No.: BH03
Sample Reference: 14
Sample Description: Brown slightly clayey SAND

Depth Top [m]: 9.00
Depth Base [m]: 9.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	94		
0.425	87		
0.3	68		
0.212	45		
0.15	27		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.80
Sand	89.40
Fines <0.063mm	9.80

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Rudka Slaska, Poland.*

Any assessment of compliance with specifications based on the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Environmental Science

Client: BWB Consulting Limited

Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ

Contact: Jade Allen

Site Name: Plot W ,Kingsway Business Park, Rochdale

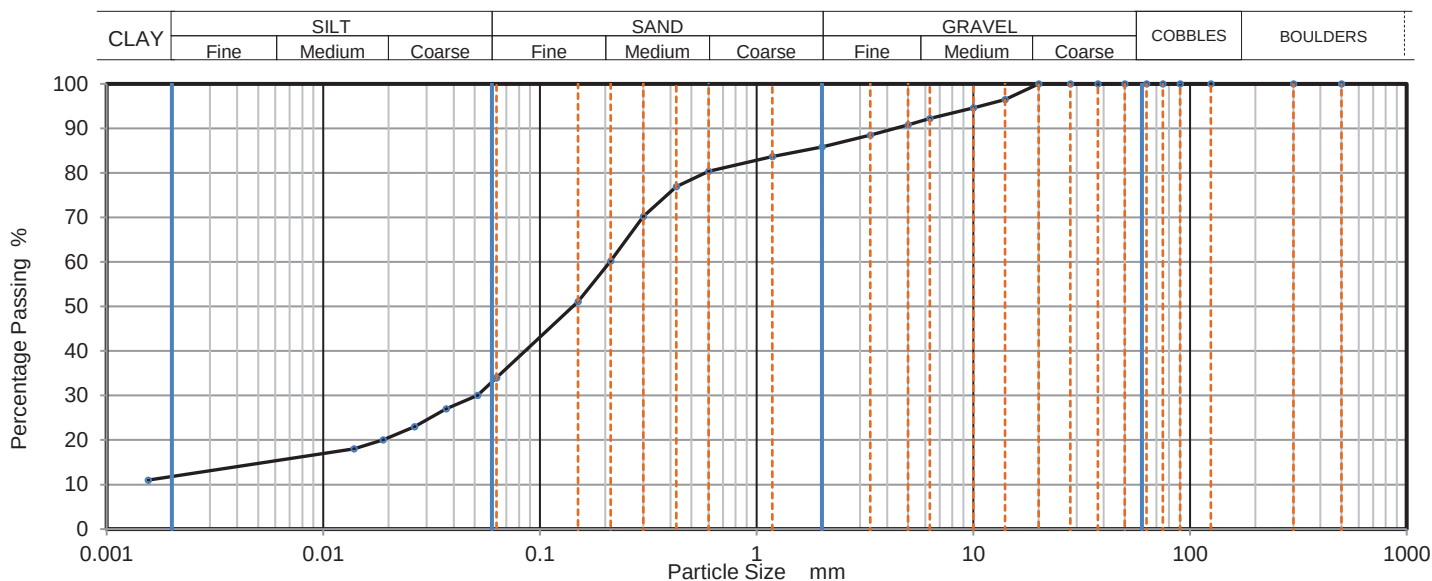
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Laboratory Reference: 1345849
Hole No.: TP03
Sample Reference: 3
Sample Description: Brown clayey silty gravelly SAND

Depth Base [m]: 0.70

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	34
300	100	0.0515	30
125	100	0.0369	27
90	100	0.0264	23
75	100	0.0189	20
63	100	0.0139	18
50	100	0.0016	11
37.5	100		
28	100		
20	100		
14	97		
10	95		
6.3	92		
5	91		
3.35	89		
2	86	Particle density (assumed) 2.65 Mg/m3	
1.18	84		
0.6	80		
0.425	77		
0.3	70		
0.212	60		
0.15	51		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	14.20
Sand	52.00
Silt	22.30
Clay	11.50

Grading Analysis		
D100	mm	20
D60	mm	0.21
D30	mm	0.0504
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
 for and on behalf of i2 Analytical Ltd GF 100.13



TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



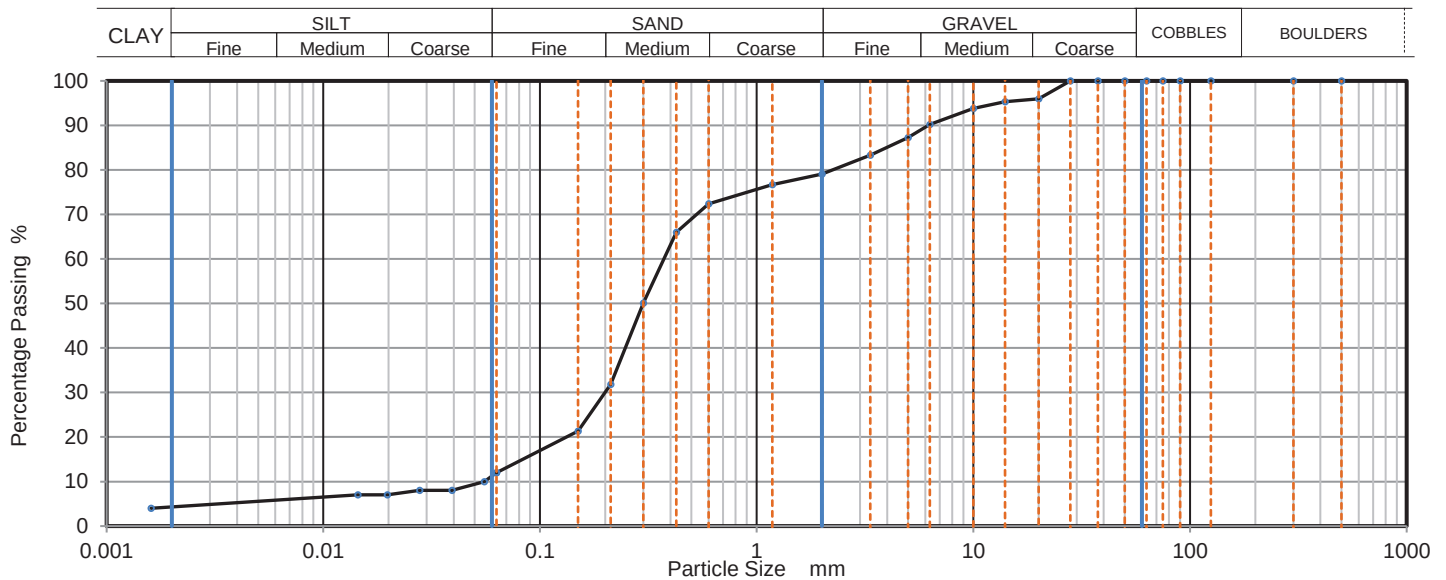
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345853
Hole No.: TP07
Sample Reference: 5
Sample Description: Brown silty clayey very gravelly SAND

Depth Top [m]: 2.20
Depth Base [m]: 2.30
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	12
300	100	0.0553	10
125	100	0.0393	8
90	100	0.0278	8
75	100	0.0197	7
63	100	0.0144	7
50	100	0.0016	4
37.5	100		
28	100		
20	96		
14	95		
10	94		
6.3	90		
5	87		
3.35	83		
2	79	Particle density (measured) 2.63 Mg/m3	
1.18	77		
0.6	72		
0.425	66		
0.3	50		
0.212	32		
0.15	21		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	20.90
Sand	66.80
Silt	7.90
Clay	4.40

Grading Analysis	
D100	mm 28
D60	mm 0.373
D30	mm 0.2
D10	mm 0.0564
Uniformity Coefficient	6.6
Curvature Coefficient	1.9

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13



TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



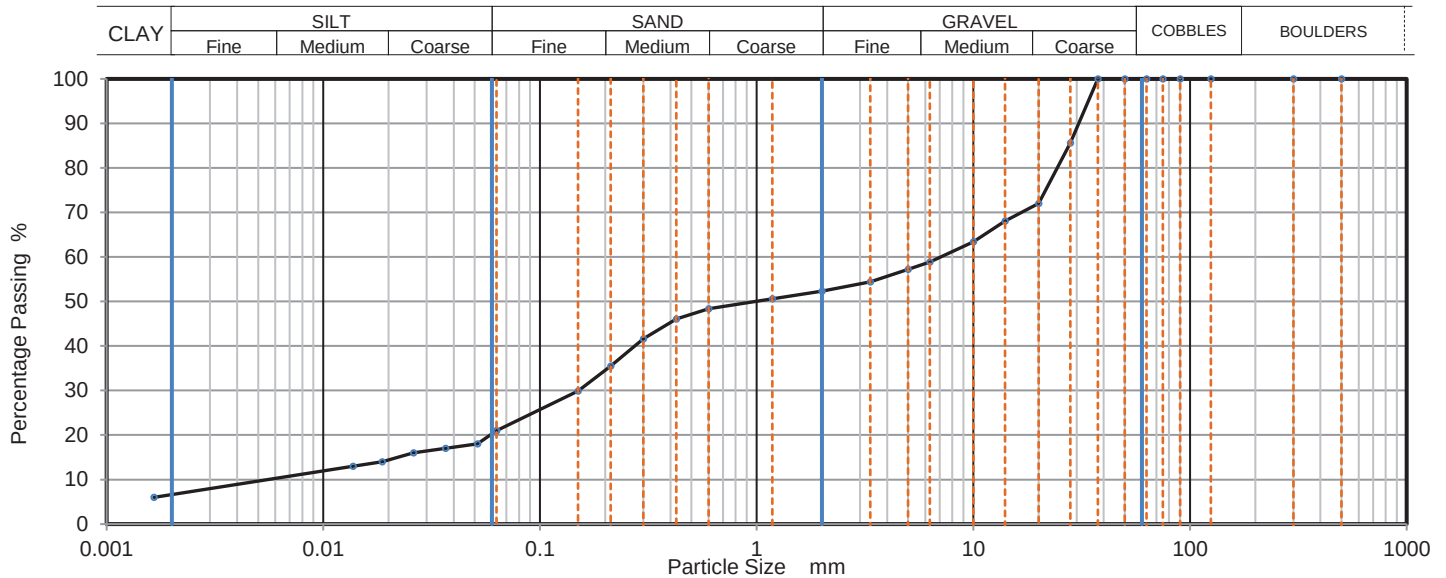
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345862
Hole No.: TP20
Sample Reference: 3
Sample Description: Brown slightly clayey silty very sandy GRAVEL

Depth Top [m]: 1.90
Depth Base [m]: 1.95
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	21
300	100	0.0515	18
125	100	0.0367	17
90	100	0.0261	16
75	100	0.0187	14
63	100	0.0137	13
50	100	0.0017	6
37.5	100		
28	86		
20	72		
14	68		
10	63		
6.3	59		
5	57		
3.35	54		
2	52	Particle density (assumed) 2.65 Mg/m3	
1.18	51		
0.6	48		
0.425	46		
0.3	42		
0.212	36		
0.15	30		
0.063	21		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	47.70
Sand	31.60
Silt	14.20
Clay	6.50

Grading Analysis	
D100	mm 37.5
D60	mm 7.03
D30	mm 0.151
D10	mm 0.00579
Uniformity Coefficient	1200
Curvature Coefficient	0.56

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13



4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**Tested in Accordance with:
BS 1377-4: 1990i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

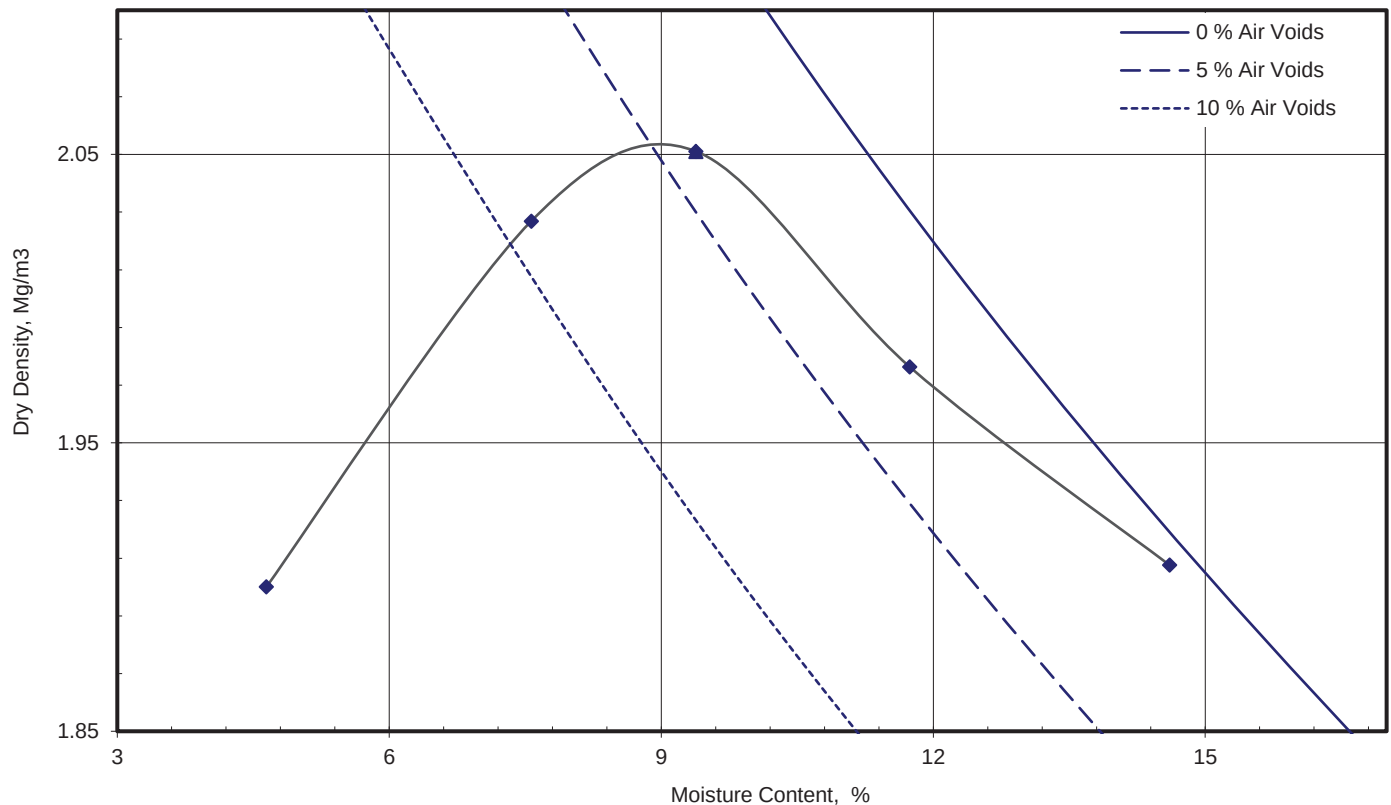
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 08/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345830
Hole No.: BH01
Sample Reference: 3
Sample Description: Brown CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	14
Particle Density - Measured using gas jar	Mg/m³	2.67
As received Moisture Content	%	20
Maximum Dry Density	Mg/m³	2.05
Optimum Moisture Content	%	9.4

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.4 using 2.5kg [light] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 109.15

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4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**Tested in Accordance with:
BS 1377-4: 1990i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

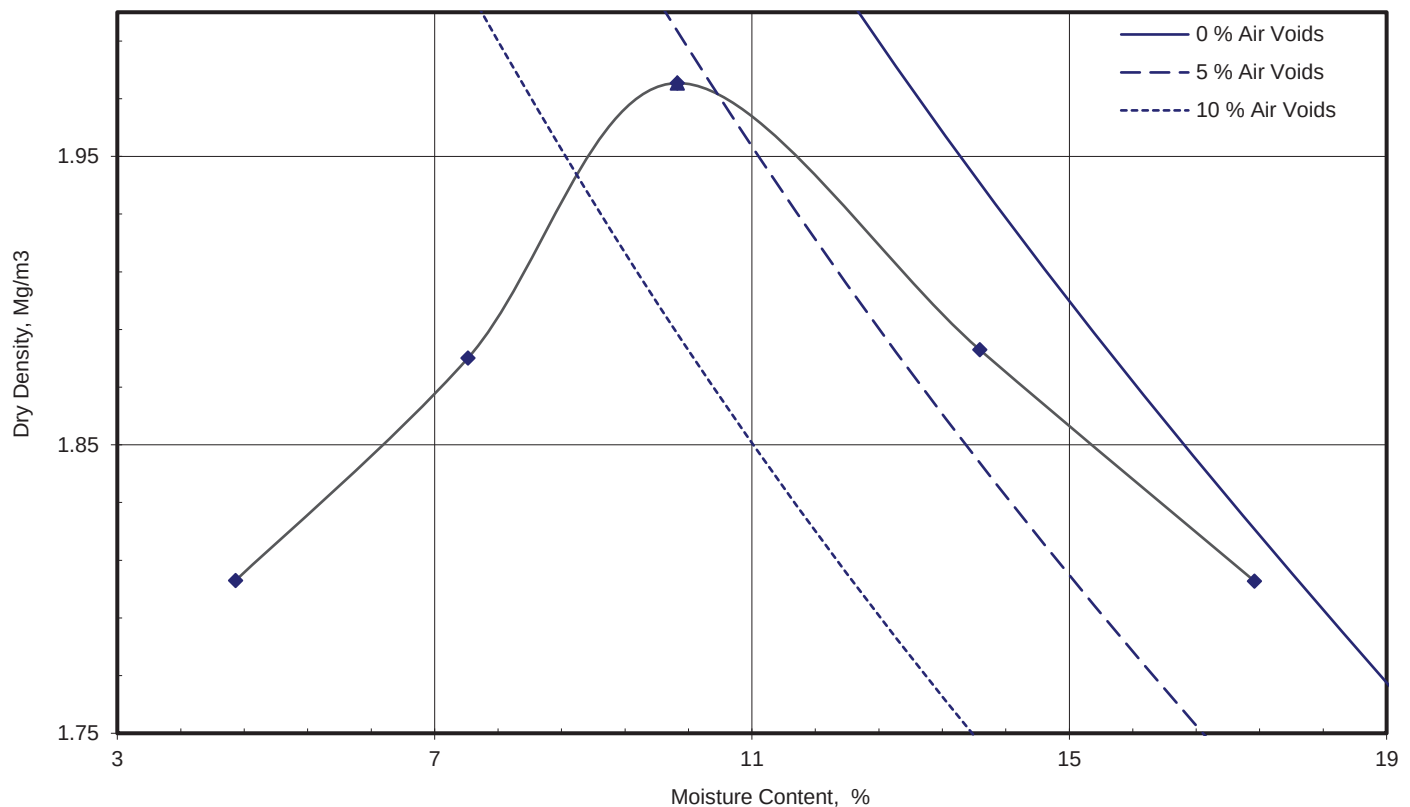
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345833
Hole No.: BH02
Sample Reference: 2
Sample Description: Brown gravelly CLAY

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	5
Particle Density - Measured using gas jar	Mg/m ³	2.66
As received Moisture Content	%	20
Maximum Dry Density	Mg/m ³	1.98
Optimum Moisture Content	%	10

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.4 using 2.5kg [light] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 109.15

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4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**Tested in Accordance with:
BS 1377-4: 1990i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

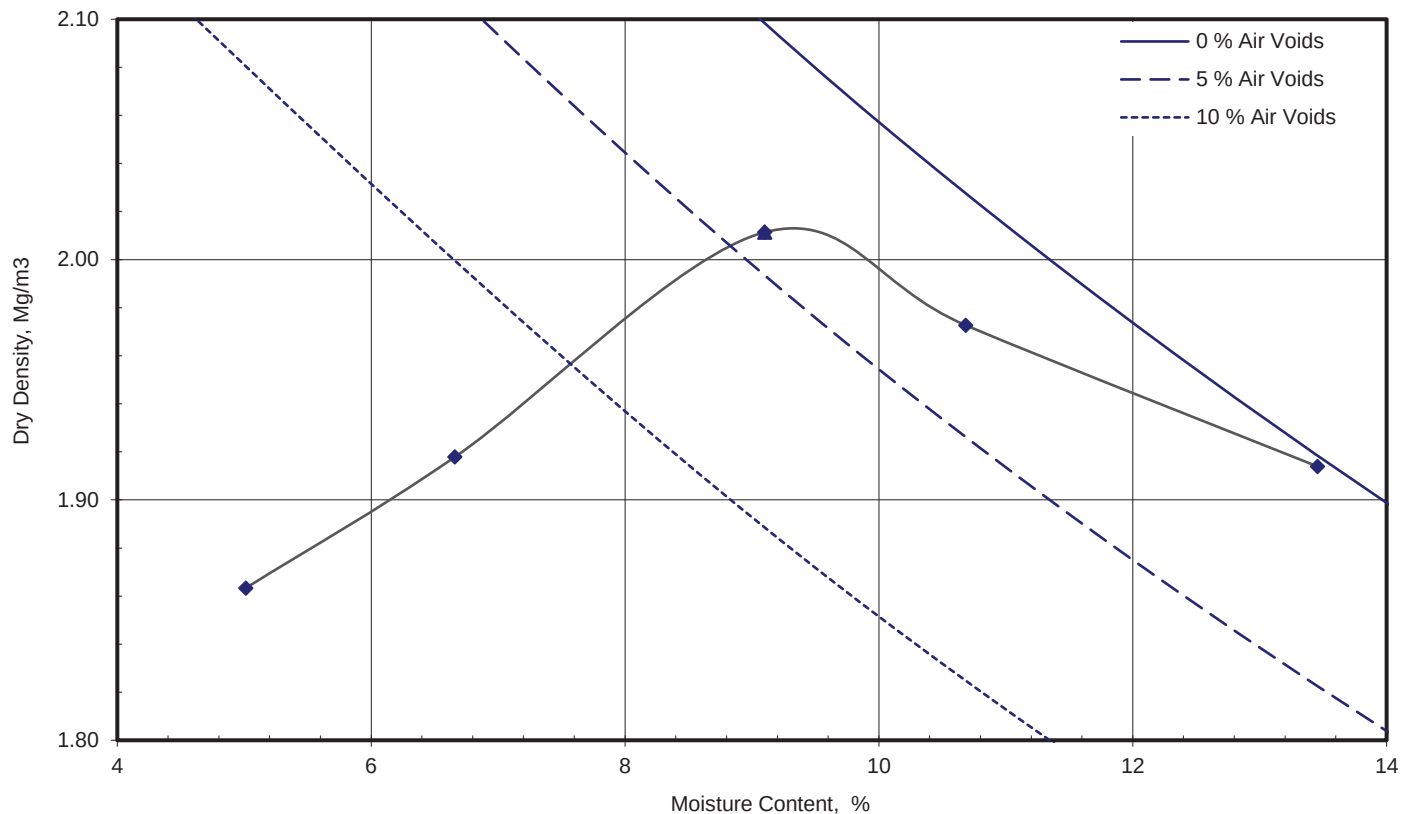
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 07/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345848
Hole No.: TP01
Sample Reference: 5
Sample Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 2.00
Depth Base [m]: 2.10
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	9
Particle Density - Measured using gas jar	Mg/m ³	2.59
As received Moisture Content	%	13
Maximum Dry Density	Mg/m ³	2.01
Optimum Moisture Content	%	9.1

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.4 using 2.5kg [light] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 109.15

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4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**Tested in Accordance with:
BS 1377-4: 1990i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

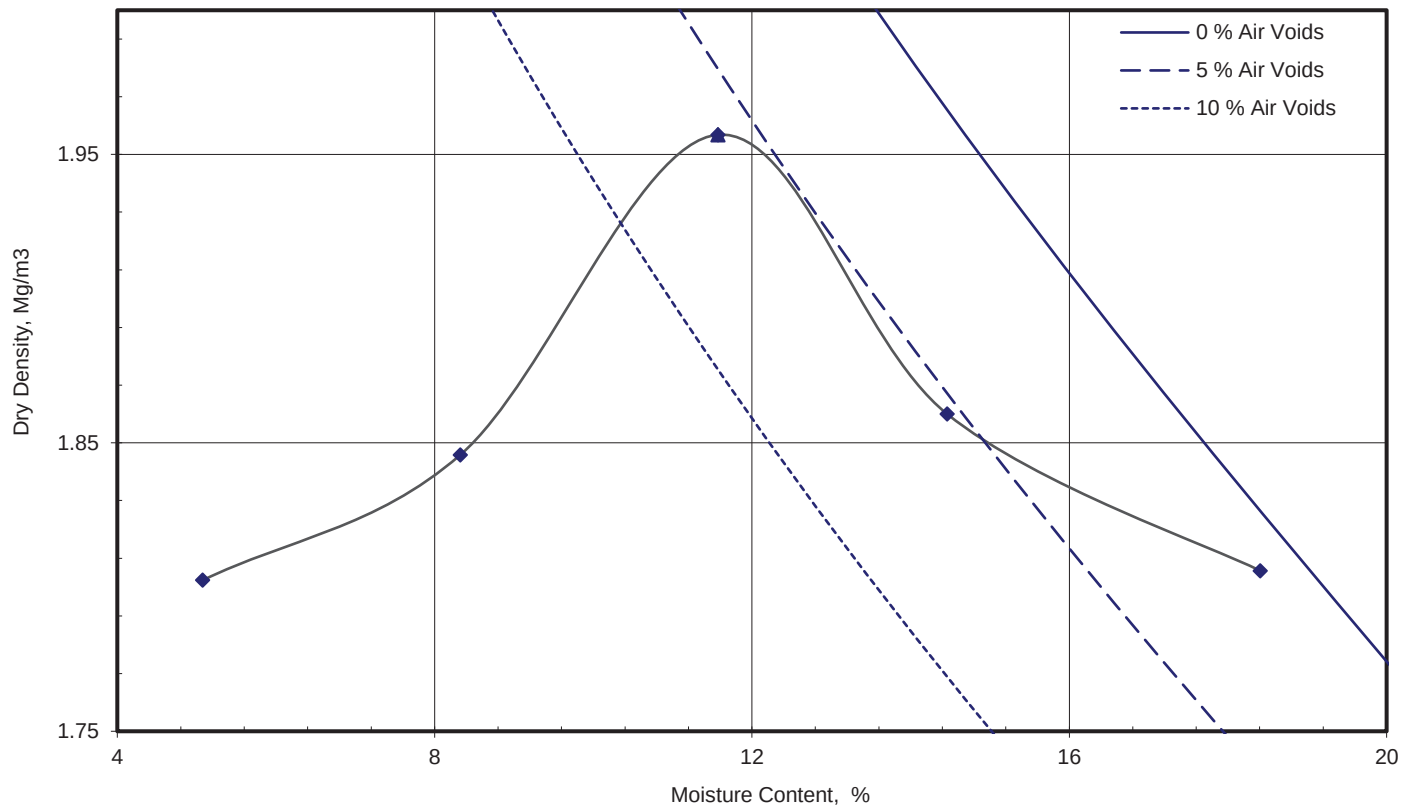
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 08/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345849
Hole No.: TP03
Sample Reference: 3
Sample Description: Brown clayey silty gravelly SAND

Depth Top [m]: 0.60
Depth Base [m]: 0.70
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m ³	2.75
As received Moisture Content	%	23
Maximum Dry Density	Mg/m ³	1.96
Optimum Moisture Content	%	12

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 109.15

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4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**Tested in Accordance with:
BS 1377-4: 1990i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

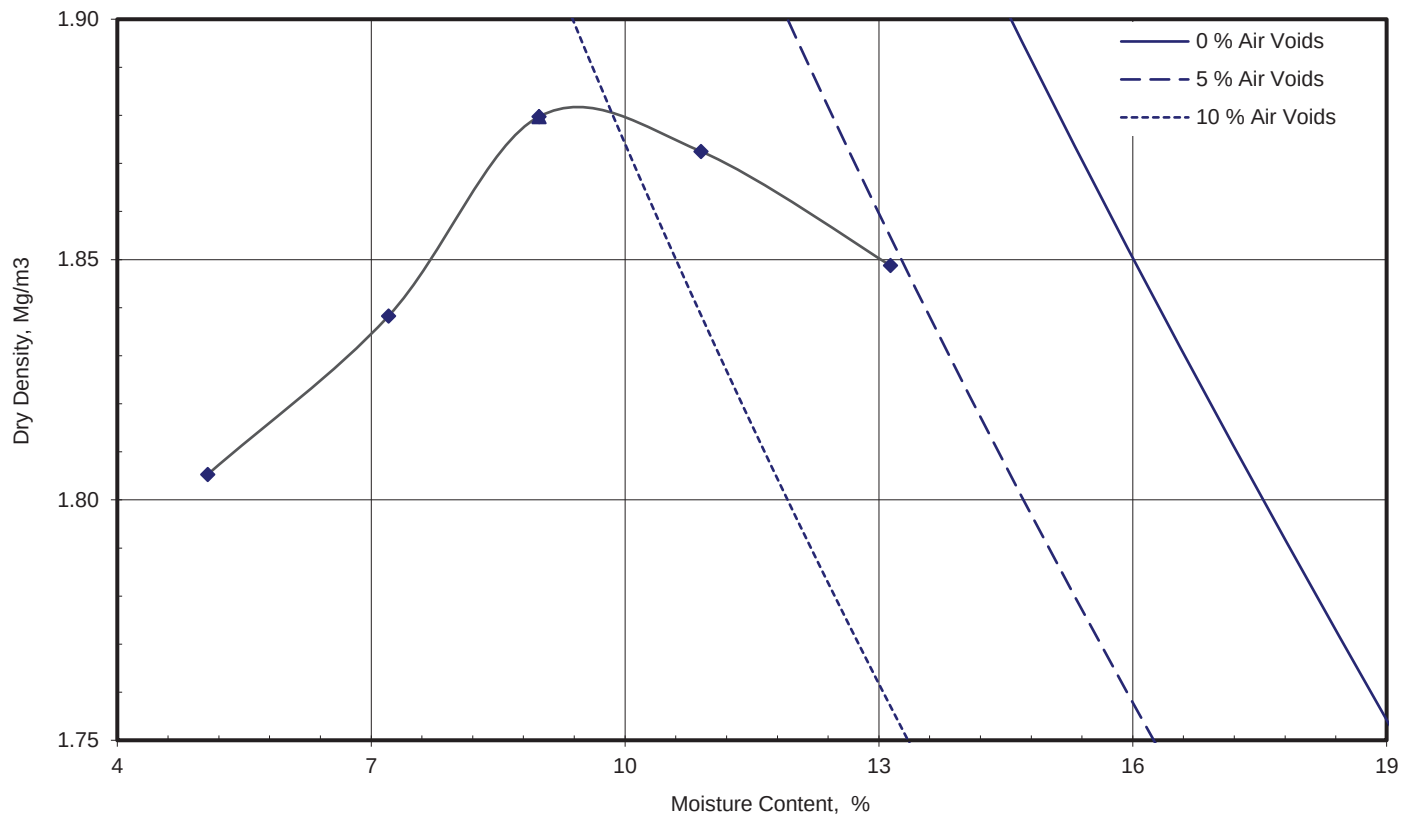
Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 07/11/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1345853
Hole No.: TP07
Sample Reference: 5
Sample Description: Brown silty clayey very gravelly SAND

Depth Top [m]: 2.20
Depth Base [m]: 2.30
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	1
Material Retained on 20.0 mm Sieve	%	3
Particle Density - Measured using gas jar	Mg/m³	2.63
As received Moisture Content	%	13
Maximum Dry Density	Mg/m³	1.88
Optimum Moisture Content	%	9.0

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.4 using 2.5kg [light] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 109.15

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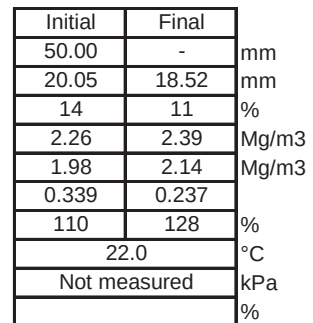
One Dimensional Consolidation Test



Environmental Science

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 04/11/2019
Sampled By: Not Given

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

[illegible]

Signed: Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd GF 172.11

TEST CERTIFICATE



4041

TEST CERTIFICATE
Unconsolidated Undrained**Triaxial Compression**Tested in Accordance with:
BS 1377-7: 1990: Clause 8i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: BWB Consulting Limited
 Client Address: 5th Floor, Waterfront House,
 Nottingham, NG2 3DQ
 Contact: Jade Allen
 Site Name: Plot W ,Kingsway Business Park, Rochdale
 Site Address: Not Given

Client Reference: NTE2554
 Job Number: 19-68821
 Date Sampled: 09/10/2019
 Date Received: 11/10/2019
 Date Tested: 02/11/2019
 Sampled By: Not Given

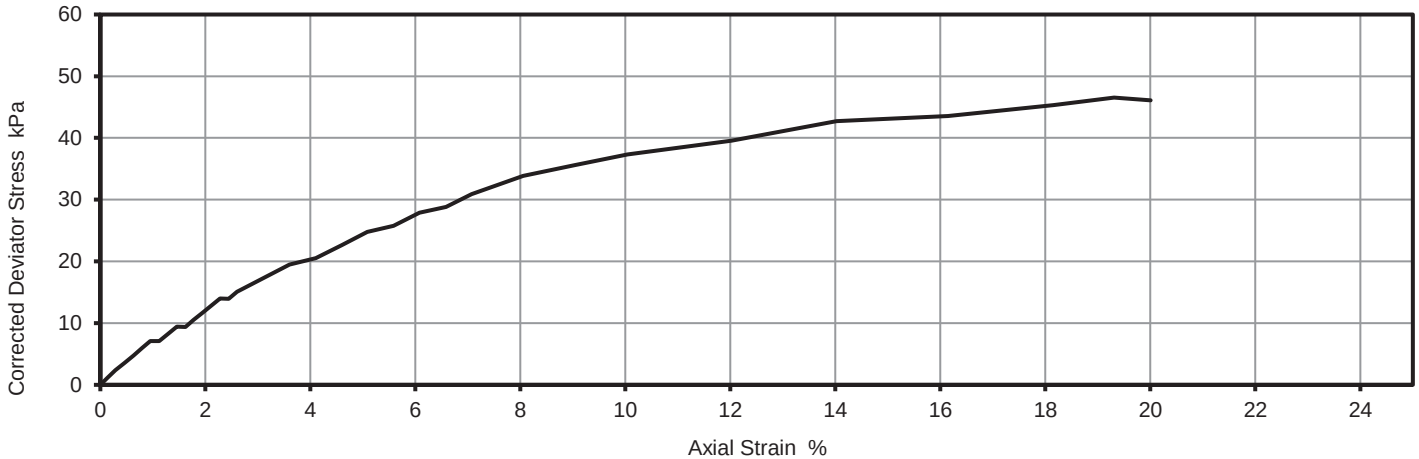
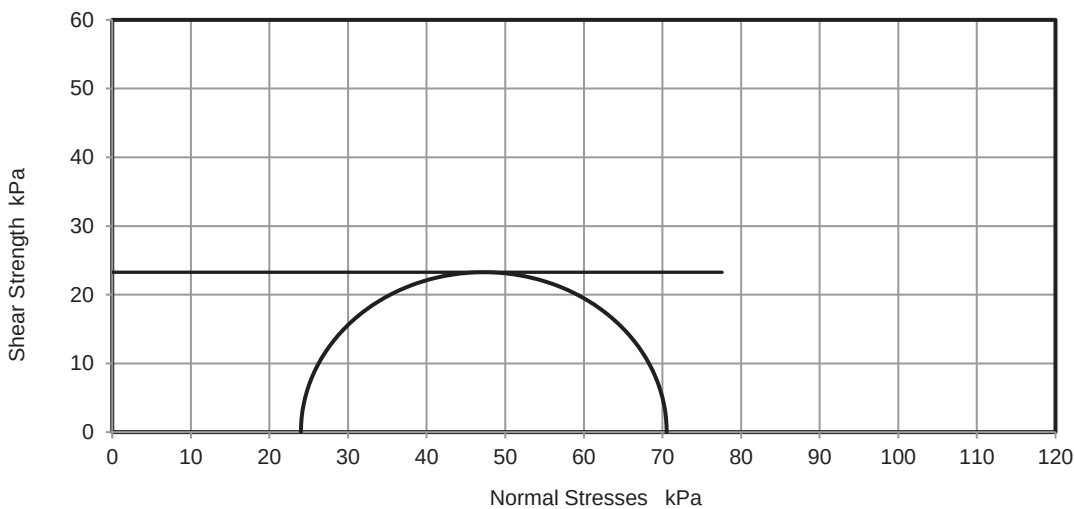
Test Results:

Laboratory Reference: 1345834
 Hole No.: BH02
 Sample Reference: 3
 Sample Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 1.20
 Depth Base [m]: 1.65
 Sample Type: U

Test Number	1
Length	197.35 mm
Diameter	102.53 mm
Bulk Density	2.30 Mg/m ³
Moisture Content	15 %
Dry Density	2.01 Mg/m ³
Membrane Correction	1.35 kPa

Rate of Strain	2.00 %/min
Cell Pressure	24 kPa
Axial Strain at failure	19.3 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	47 kPa
Undrained Shear Strength, c_u	23 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic
Membrane thickness	0.37 mm

Deviator Stress v Axial Strain**Mohr Circles**

Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
 This is provided for information only.

Remarks:

Approved: Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
 Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 184.7

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 The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland.*



4041

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

Tested in Accordance with:
BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

Test Results:

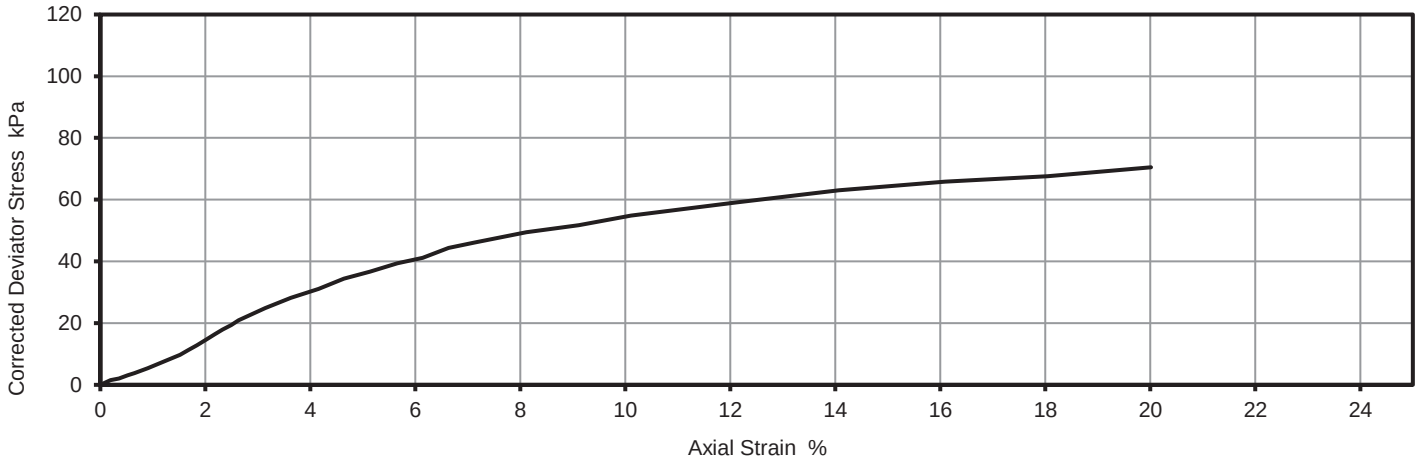
Laboratory Reference: 1345836
Hole No.: BH02
Sample Reference: 10
Sample Description: Brown gravelly clayey SAND

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

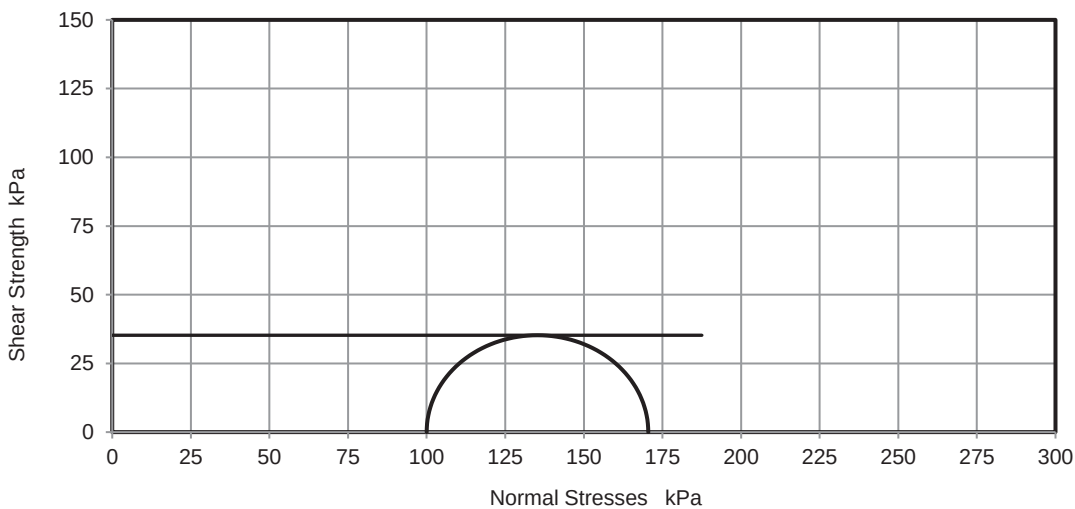
Test Number	1
Length	96.14 mm
Diameter	48.91 mm
Bulk Density	2.30 Mg/m ³
Moisture Content	15 %
Dry Density	2.01 Mg/m ³
Membrane Correction	1.89 kPa

Rate of Strain	2.00 %/min
Cell Pressure	100 kPa
Axial Strain at failure	20.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	70 kPa
Undrained Shear Strength, c_u	35 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Compound
Membrane thickness	0.24 mm

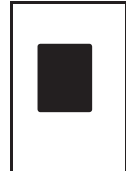
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 184.7

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4041

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

Tested in Accordance with:
BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ
Contact: Jade Allen
Site Name: Plot W ,Kingsway Business Park, Rochdale
Site Address: Not Given

Client Reference: NTE2554
Job Number: 19-68821
Date Sampled: 09/10/2019
Date Received: 11/10/2019
Date Tested: 02/11/2019
Sampled By: Not Given

Test Results:

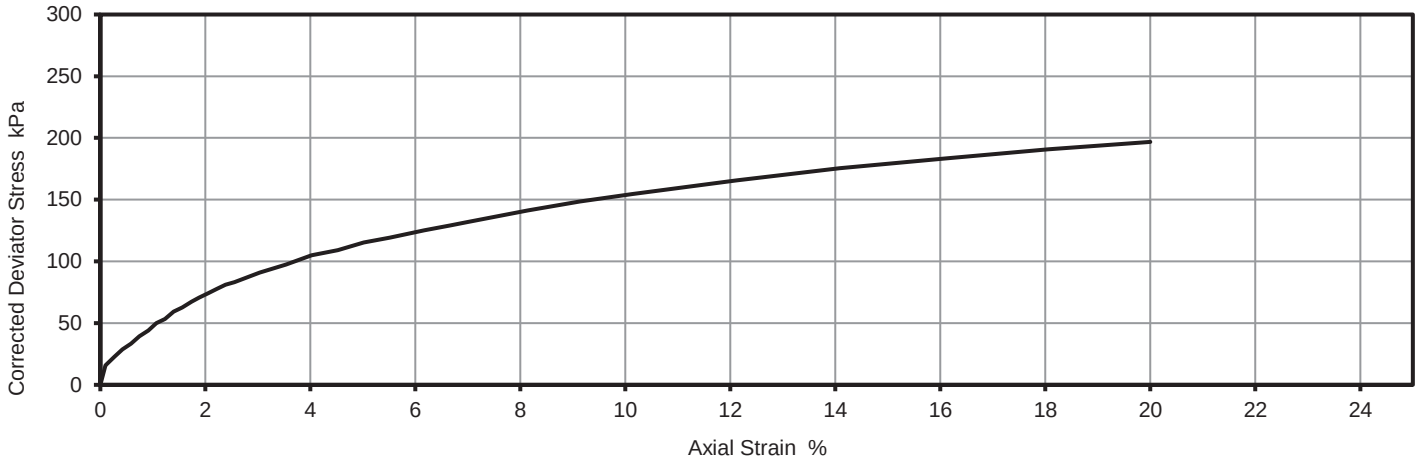
Laboratory Reference: 1345838
Hole No.: BH02
Sample Reference: 16
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 9.00
Depth Base [m]: 9.45
Sample Type: U

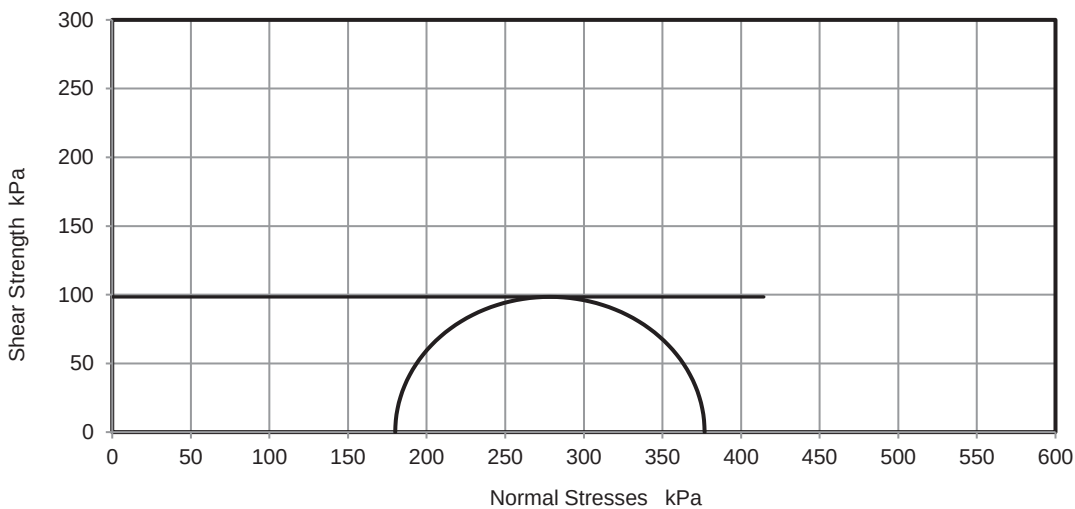
Test Number	1
Length	199.71 mm
Diameter	102.83 mm
Bulk Density	2.24 Mg/m ³
Moisture Content	14 %
Dry Density	1.97 Mg/m ³
Membrane Correction	0.67 kPa

Rate of Strain	2.00 %/min
Cell Pressure	180 kPa
Axial Strain at failure	20.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	197 kPa
Undrained Shear Strength, c_u	98 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Compound
Membrane thickness	0.18 mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 12/11/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 184.7

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

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Analytical Report Number : 19-68837

Project / Site name:	Plot W, Kingsway Business Park, Rochdale	Samples received on:	11/10/2019
Your job number:	NTE2554	Samples instructed on:	28/10/2019
Your order number:	POR028734	Analysis completed by:	08/11/2019
Report Issue Number:	1	Report issued on:	08/11/2019
Samples Analysed:	13 soil samples		


Signed:

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 19-68837

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Your Order No: POR028734

Lab Sample Number				1345950	1345951	1345952	1345953	1345954
Sample Reference				BH01	BH01	BH02	BH03	BH03
Sample Number				2	4	4	2	5
Depth (m)				0.50-1.00	1.75	1.65-1.75	0.50-1.00	2.00-2.45
Date Sampled				09/10/2019	09/10/2019	09/10/2019	09/10/2019	09/10/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	17	12
Total mass of sample received				kg	0.001	NONE	1.0	1.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3	8.3	8.1	7.5	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.092	0.0046	0.017	0.065	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	91.6	4.6	17.2	65.4	-
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7.2	-	-	-	-
Organic Matter	%	0.1	MCERTS	-	0.2	< 0.1	3.3	1.3
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-	-	-	-

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	14	-	-	-	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	6.8	-	-	-	-



Analytical Report Number: 19-68837

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Your Order No: POR028734

Lab Sample Number				1345955	1345956	1345957	1345958	1345959
Sample Reference				TP01	TP04	TP05	TP07	TP08
Sample Number				6	1	2	6	2
Depth (m)				3.80-3.90	0.50-0.60	0.50-0.60	3.00-3.10	0.40-0.50
Date Sampled				09/10/2019	09/10/2019	09/10/2019	09/10/2019	09/10/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	13	11	14	20
Total mass of sample received	kg	0.001	NONE	0.91	0.47	0.82	0.60	0.55

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	7.2	7.9	6.8	5.9
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.26	0.044	0.0093	0.0086
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	13.7	259	43.9	9.3	8.6
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	7.2	1.4	-	-
Organic Matter	%	0.1	MCERTS	< 0.1	-	-	-	1.6
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	9.8	< 2.0	-	-

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	33	15	-	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	16	7.3	-	-



Analytical Report Number: 19-68837

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Your Order No: POR028734

Lab Sample Number				1345960	1345961	1345962		
Sample Reference				TP13	TP17	TP19		
Sample Number				4	4	3		
Depth (m)				3.40-3.50	2.80-2.90	1.20-1.25		
Date Sampled				09/10/2019	09/10/2019	09/10/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	13	12	14		
Total mass of sample received	kg	0.001	NONE	0.66	0.88	0.82		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.4	5.5	-		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	0.019	-		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16.0	19.4	-		
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-		
Organic Matter	%	0.1	MCERTS	-	0.4	0.4		
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-		

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	-		
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-		



Analytical Report Number : 19-68837

Project / Site name: Plot W, Kingsway Business Park, Rochdale

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1345950	BH01	2	0.50-1.00	Brown clay and sand with gravel.
1345951	BH01	4	1.75	Brown sandy clay with gravel.
1345952	BH02	4	1.65-1.75	Brown clay and sand with gravel.
1345953	BH03	2	0.50-1.00	Brown clay and sand with gravel.
1345954	BH03	5	2.00-2.45	Brown clay and sand with gravel.
1345955	TP01	6	3.80-3.90	Brown clay and sand.
1345956	TP04	1	0.50-0.60	Brown clay and sand with gravel and vegetation.
1345957	TP05	2	0.50-0.60	Brown clay and sand with vegetation and gravel
1345958	TP07	6	3.00-3.10	Brown sand with gravel.
1345959	TP08	2	0.40-0.50	Brown clay and sand with vegetation.
1345960	TP13	4	3.40-3.50	Brown sandy clay with gravel.
1345961	TP17	4	2.80-2.90	Brown clay and sand.
1345962	TP19	3	1.20-1.25	Brown clay and sand with gravel.



Analytical Report Number : 19-68837

Project / Site name: Plot W, Kingsway Business Park, Rochdale

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Appendix 12: Derivation of GSAC

BWB HUMAN HEALTH GENERIC QUANTITATIVE RISK ASSESSMENT (GQRA)

Human Health Generic Screening Criteria

The Environment Agency published the revised CLEA framework for assessing the risk to human health from soil contamination in January 2009. The framework comprises a technical background document (EA, 2009a), toxicological assessment EA 2009b and CLEA spreadsheet model (EA 2009c). The new framework supersedes the 2002 CLEA model and subsequent briefing notes. The 2002 CLEA software and CLEA 2005 have also been withdrawn and all previously published Soil Guideline Values (SGV) have been withdrawn. The EA have issued revised SGVs for the following substances.

- Arsenic
- cadmium
- nickel
- selenium
- benzene
- toluene
- ethylbenzene
- xylene
- dioxins and dioxin like PCBS
- Phenol
- Mercury

In the absence of an SGV for a particular contaminant Generic assessment criteria have been generated by BWB using the CLEA framework. This is a similar approach to Generic screening criteria published by LQM/CIEH and CLAIRE/EIC.

The Statutory Guidance on Part IIa of the Environment Act was revised in 2012 and introduced the concept of characterising Land into 4 categories. Categories 1 and 2 were classed as “Contaminated Land” and Categories 3 and 4 as “not Contaminated Land”. DEFRA commissioned a research project to develop Category 4 Screening Levels (C4SLs) which would be used to rapidly screen sites as not contaminated land. These values would be less conservative than SGVs or equivalent GSACs but still be strongly precautionary. In 2014 DEFRA published the framework for deriving C4SLs and C4SLs for six substances:

Arsenic
Cadmium
Chromium VI
Lead
Benzo(a)pyrene
Benzene

The framework recommended changes to exposure parameters as well as introducing a new Health Criteria Value known as a “Low level of Toxicological Concern” (LLTC). This would be less conservative than the minimal risk approach used to derive TDIs and IDs under the 2009b CLEA framework.

In response LQM/CIEH published their third edition of Generic screening criteria for human health in January 2015. These were known as “Suitable for Use Levels” (S4ULs) and adopted the changes to exposure parameters that were developed under the Category 4 Screening Level methodology. The report also reviewed toxicity information but adopted the minimal risk approach as set out in EA 2009b. This report presented revised data for some substances for which an SGV had been developed, therefore some of the existing SGVs have been superseded.

BWB have updated their GSACs to take into account the LQM/CIEH S4ULs and DEFRA C4SLs but have retained the CLEA exposure assumptions, the BWB GSACs represent the most conservative minimal risk approach.

The screening approach comprises tiered assessment of contaminant data against BWB GSACs in the first instance, then S4ULs and finally C4SLs if available.

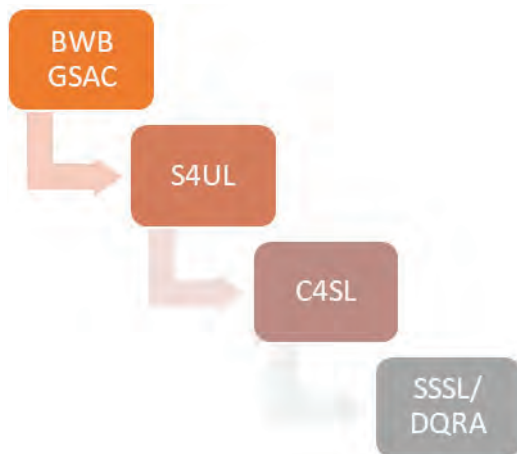


Figure 1 GSAC Hierarchy

Conceptual Site Model

The standard exposure pathways and Conceptual Models for human exposure to contaminants for different site uses are set out in the updated technical background to the CLEA model (Environment Agency 2009a).

Descriptive Conceptual Models (From Environment Agency 2009a)

Residential

This generic scenario assumes a typical residential property consisting of a two-storey house built on a ground bearing slab with a private garden consisting of lawn, flower beds and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden area.

The key assumptions for BWB GSACs are

Critical receptor is a young female child (aged zero to six years old)

Exposure duration is six years

Exposure pathways include direct soil and indoor dust ingestion, consumption of homegrown produce, consumption of soil attached to home grown produce, skin contact with soils and indoor dusts, and inhalation of indoor and outdoor dust and vapours.

Soil type is a Sandy Loam with 1% organic matter

Building type is a two storey small terraced house

Commercial/industrial

There are many different kinds of workplace and work-related activities. This generic scenario assumes a typical commercial or light industrial property consisting of a three storey building at which employees spend most time indoors and are involved in office based or relatively light physical work.

The key assumptions for BWB GSACs are

Critical receptor is a working female adult (aged 16 to 65 years)

Exposure duration is a working lifetime of 49 years

Exposure pathways include direct soil and indoor dust ingestion, skin contact with soils and dusts, and inhalation of dust and vapours.

Soil type is a Sandy Loam with 1% organic matter

Building type is a three storey office (post 1970) (Representative of new buildings)

The 2009a report identifies 10 potential exposure pathways by which contaminated soils may impact human health and also sets out which pathways are applicable for four standard land uses. The pathways for the residential and commercial end uses are shown below.

Screening Criteria Modelling

The CLEA model version 1.071 has been used to calculate BWB GSACs. BWB have used the model to calculate Individual criteria for each relevant pathway so, for example, in a residential with vegetable uptake scenario we would need six individual criteria:-

- Ingestion of soil and dust
- Ingestion of contaminated vegetables and soil attached to vegetables
- Dermal contact indoors and outdoors
- Particulate dust inhalation indoors and outdoors
- Vapour inhalation indoors
- Vapour inhalation outdoors

The final overall assessment criteria is calculated by adding together the reciprocal of the individual criteria for each pathway, therefore if several of the individual criteria are of similar magnitude the final criteria may be substantially lower than the lowest individual criteria so that total exposure is below the respective health threshold.

$$1/\text{GSAC} = \sum 1/\text{ASC}_{\text{ingestion}} + 1/\text{ASC}_{\text{inhalation}} + 1/\text{ASC}_{\text{dermal}}$$

By adopting this methodology BWB are able to provide a more flexible site specific approach to generic human health risk assessment.

Pathway Selection - Generic Site Assessment Criteria

Pathway	Residential	Commercial / Industrial
Ingestion of Soil	Yes	Yes
Ingestion of site derived household dust	Yes	Yes
Ingestion of contaminated homegrown produce	Optional	No
Ingestion of soil attached to homegrown produce	Optional	No
Dermal contact with Soil	Yes	Yes
Dermal contact with site derived household dust	Yes	Yes
Inhalation of fugitive soil dust	Yes	Yes
Inhalation of fugitive site derived household dust	Yes	Yes
Inhalation of vapours outside	Yes	Yes
Inhalation of vapours inside	Yes	Yes

Health Criteria Values

The general hierarchy for selecting health criteria values is as follows:

1. EA / DEFRA TOX report
2. Other UK authoritative body e.g. Committee on toxicity, Food Standards Agency
3. EU authoritative body
4. Other EU body e.g. RIVM
5. Other US/International Body

In the absence of updated TOX reports which take into account the recommendations of EA report (2009b) TOX reports produced under the old regime have been used and GSACs will be updated accordingly as further authoritative information is issued.

References

Environment Agency, 2009a, Updated Technical Background to the CLEA Model, Science Report SC050021/SR3 ISBN 978-1-84432-856-7

Environment Agency, 2009b, Human health Toxicological Assessment of Contaminants in Soil, Science Report SC050021/SR2 ISBN 978-1-84432-858-1

Environment Agency 2009c, CLEA Software Handbook (version 1.06) Science Report SC050021/SR4, ISBN 978-1-84432-857-4

EIC/AGS/CL:AIRE (2010), Soil Generic Assessment Criteria for Human Health Risk Assessment. Environment Industries Commission (EIC), Association of Geotechnical and Geoenvironmental Specialists (AGS), Contaminated Land: Applications in Real Environments (CL:AIRE). Published by CL:AIRE. ISBN: 978-1-905046-20-1.

Nathanail, C.P., McCaffrey, C., Ashmore, M.H., Cheng, Y.Y., Gillett, A., Ogden, R. & Scott, D. (2009). The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd Edition). Land Quality Press, Nottingham. ISBN: 0-9547474-7-X.

Nathanail, C.P.; McCaffrey, C.; Gillett, A.G.; Ogden, R.C. & Nathanail, J.F. (2015). The LQM/CIEH Suitable 4 Use Levels. Land Quality Press, Nottingham. ISBN: 978-0-9931084-0-2.

Residential Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic Matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg
Arsenic	NR	NR	3.50E+01	4.29E+02	8.50E+01	3.24E+01	N/A
Barium	NR	NR	1.35E+03		4.25E+05	1.34E+03	N/A
Beryllium	NR	NR	1.56E+02	2.96E+03	1.21E+00	1.21E+00	N/A
Boron	NR	NR	1.08E+04	3.00E+02	3.65E+06	2.91E+02	N/A
Cadmium	NR	NR	1.21E+02	1.24E+01	1.27E+02	1.03E+01	N/A
Chromium III	NR	NR	1.98E+04	1.25E+06	6.37E+02	6.17E+02	N/A
Chromium VI	NR	NR	7.05E+01	1.22E+01	4.25E+00	4.25E+00	N/A
Copper	NR	NR	1.08E+04	3.54E+03	9.89E+03	2.10E+03	N/A
Lead						2.00E+02	N/A
Inorganic Mercury	NR	NR	5.71E+01	1.40E+02	2.55E+03	3.99E+01	N/A
Nickel	NR	NR	7.89E+02	1.64E+03	1.27E+02	1.27E+02	N/A
Selenium	NR	NR	4.31E+02	6.15E+02	1.36E+05	2.53E+02	N/A
Vanadium	NR	NR	1.17E+03	6.21E+02	1.03E+03	2.91E+02	N/A
Zinc	NR	NR	4.05E+04	4.13E+03	2.55E+07	3.74E+03	N/A
Cyanide (free)						4.30E+01	N/A
Cyanide (Complex)						2.13E+02	N/A
Phenol	3.43E+02	4.21E+05	6.56E+02	1.55E+02	3.22E+05	9.18E+01	4.16E+04
Benzene	2.69E-01	5.63E+03	2.58E+01	1.13E-01	5.95E+04	7.93E-02	1.22E+03
Toluene	6.38E+02	8.78E+06	1.98E+04	1.48E+02	5.92E+07	1.19E+02	8.69E+02
Ethylbenzene	5.86E+01	6.17E+05	8.88E+03	1.07E+02	3.11E+06	3.77E+01	5.18E+02
Total Xylene	5.57E+01	5.15E+05	1.60E+04	1.87E+02	2.28E+06	4.28E+01	4.78E+02
TPH (EC5-6) aliphatic	2.88E+01	2.41E+06	2.23E+05	4.90E+03	1.06E+08	2.86E+01	3.04E+02
TPH (>EC6-8) aliphatic	7.02E+01	3.76E+06	2.23E+05	1.53E+04	1.06E+08	6.99E+01	1.44E+02
TPH (>EC8-10) aliphatic	1.82E+01	4.61E+05	4.45E+03	2.17E+03	6.16E+06	1.80E+01	7.77E+01
TPH (>EC10-12) aliphatic	9.02E+01	1.03E+06	4.45E+03	1.67E+04	6.16E+06	8.79E+01	4.75E+01

Residential Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic Matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
TPH (>EC12-16) aliphatic	7.55E+02	2.97E+06	4.45E+03	2.32E+05	6.16E+06	6.43E+02	2.37E+01
TPH (>EC16-35) aliphatic	8.91E+04	8.47E+07	8.91E+04	1.15E+07	4.25E+07	4.43E+04	8.48E+00
TPH (>EC35-44) aliphatic	8.91E+04	8.47E+07	8.91E+04	1.15E+07	4.25E+07	4.43E+04	8.48E+00
TPH (>EC6-7) aromatic (benzene)	2.69E-01	5.63E+03	2.58E+01	1.13E-01	5.95E+04	7.93E-02	1.22E+03
TPH (>EC7-8) aromatic (toluene)	6.26E+02	8.62E+06	1.98E+04	1.48E+02	5.81E+07	1.19E+02	8.69E+02
TPH (>EC8-10) aromatic	3.22E+01	2.79E+05	1.78E+03	5.73E+01	1.28E+06	2.04E+01	6.13E+02
TPH (>EC10-12) aromatic	1.75E+02	6.50E+05	1.78E+03	8.34E+01	1.28E+06	5.47E+01	3.64E+02
TPH (>EC12-16) aromatic	1.94E+03	2.15E+06	1.78E+03	1.52E+02	1.28E+06	1.31E+02	2.37E+01
TPH (>EC16-21) aromatic	3.54E+04	5.95E+06	1.34E+03	3.06E+02	6.38E+05	2.47E+02	5.37E+01
TPH (>EC21-35) aromatic	3.99E+06	2.67E+07	1.34E+03	2.66E+03	6.38E+05	8.90E+02	4.83E+00
TPH (>EC35-44) aromatic	3.99E+06	2.67E+07	1.34E+03	2.66E+03	6.38E+05	8.90E+02	4.83E+00
Naphthalene	1.64E+00	3.17E+04	1.58E+03	2.72E+01	2.93E+04	1.55E+00	7.64E+01
Acenaphthylene	3.27E+03	1.26E+07	4.85E+03	1.84E+02	2.55E+06	1.68E+02	8.61E+01
Acenaphthene	3.47E+03	1.32E+07	4.85E+03	2.28E+02	2.55E+06	2.05E+02	5.70E+01
Fluorene	4.37E+03	1.17E+07	3.23E+03	1.79E+02	1.70E+06	1.63E+02	3.09E+01
Phenanthrene	5.09E+03	6.29E+06	1.00E+03	1.03E+02	5.30E+05	9.17E+01	3.60E+01
Anthracene	1.09E+05	1.48E+08	2.43E+04	2.55E+03	1.27E+07	2.26E+03	1.17E+00
Fluoranthene	2.84E+04	1.26E+07	1.01E+03	3.49E+02	5.31E+05	2.57E+02	1.89E+01
Pyrene	6.50E+04	2.87E+07	2.42E+03	7.43E+02	1.27E+06	5.63E+02	2.20E+00
Benzo(a)anthracene	2.40E+01	3.37E+03	1.25E+01	2.11E+01	6.37E+01	5.41E+00	1.71E+00
Chrysene	2.53E+02	5.87E+03	2.51E+01	2.90E+01	1.27E+02	1.16E+01	4.40E-01
Benzo(b)fluoranthene	9.32E+01	1.05E+03	3.15E+00	7.43E+00	1.61E+01	1.90E+00	1.22E+00
Benzo(k)fluoranthene	4.04E+03	3.28E+04	8.33E+01	2.85E+02	4.25E+02	5.51E+01	6.87E-01
Benzo(a)pyrene	1.04E+02	9.12E+02	2.51E+00	7.36E+00	1.27E+01	1.60E+00	9.11E-01
Indeno(123-cd)pyrene	8.78E+02	1.10E+04	3.58E+01	6.93E+01	1.83E+02	2.04E+01	6.14E-02
Dibenzo(ah)anthracene	5.23E+00	1.13E+02	2.51E-01	1.11E+00	1.27E+00	1.70E-01	3.93E-03

Residential Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic Matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
Benzo(g,h,i)perylene	2.34E+04	1.83E+05	2.78E+02	2.77E+03	1.40E+03	2.12E+02	1.54E-02
Tetrachloroethene (PCE)	1.26E-01	2.48E+04	4.92E+02	4.36E+00	2.34E+05	1.22E-01	4.24E+02
Trichloroethene (TCE)	1.21E-02	2.44E+03	4.45E+01	2.74E-01	2.42E+04	1.15E-02	1.54E+03
cis-1,2-Dichloroethene	1.20E-01	2.33E+04	4.82E+02	1.75E+00	2.30E+05	1.12E-01	3.94E+03
Vinyl Chloride (VC)	5.43E-04	3.59E+02	1.25E+00	3.70E-03	1.27E+04	4.73E-04	1.36E+03
1,1,2,2-Tetrachloroethane (PCA)	2.76E+00	1.17E+05	5.07E+02	2.72E+00	2.41E+05	1.37E+00	2.67E+03
1,1,1-Trichloroethane (TCA)	6.33E+00	1.79E+06	5.34E+04	3.22E+02	2.46E+07	6.21E+00	1.43E+03
1,2-Dichloroethane	6.46E-03	8.09E+02	1.07E+01	3.07E-02	5.10E+03	5.33E-03	3.41E+03
Carbon Tetrachloride	1.81E-02	5.07E+03	5.38E+02	3.00E+00	6.93E+04	1.80E-02	1.52E+03
Carbon disulphide	1.01E-01	3.42E+04	3.55E+02	3.20E+01	6.08E+05	1.01E-01	2.11E+03

ASC exceeds soil saturation limit

Residential Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg
Arsenic	NR	NR	3.50E+01	4.29E+02	8.50E+01	3.24E+01	N/A
Barium	NR	NR	1.35E+03		4.25E+05	1.34E+03	N/A
Beryllium	NR	NR	1.56E+02	2.96E+03	1.21E+00	1.21E+00	N/A
Boron	NR	NR	1.08E+04	3.00E+02	3.65E+06	2.91E+02	N/A
Cadmium	NR	NR	1.21E+02	1.24E+01	1.27E+02	1.03E+01	N/A
Chromium III	NR	NR	1.98E+04	1.25E+06	6.37E+02	6.17E+02	N/A
Chromium VI	NR	NR	7.05E+01	1.22E+01	4.25E+00	4.25E+00	N/A
Copper	NR	NR	1.08E+04	3.54E+03	9.89E+03	2.10E+03	N/A
Lead						2.00E+02	N/A
Inorganic Mercury	NR	NR	5.71E+01	1.40E+02	2.55E+03	3.99E+01	N/A
Nickel	NR	NR	7.89E+02	1.64E+03	1.27E+02	1.27E+02	N/A
Selenium	NR	NR	4.31E+02	6.15E+02	1.36E+05	2.53E+02	N/A
Vanadium	NR	NR	1.17E+03	6.21E+02	1.03E+03	2.91E+02	N/A
Zinc	NR	NR	4.05E+04	4.13E+03	2.55E+07	3.74E+03	N/A
Cyanide (free)						4.30E+01	N/A
Cyanide (Complex)						2.13E+02	N/A
Phenol	5.39E+02	5.28E+05	6.56E+02	2.88E+02	3.22E+05	1.46E+02	8.15E+04
Benzene	4.99E-01	7.68E+03	2.58E+01	2.30E-01	5.95E+04	1.57E-01	2.26E+03
Toluene	1.41E+03	1.30E+07	1.98E+04	3.41E+02	5.92E+07	2.71E+02	1.92E+03
Ethylbenzene	1.37E+02	9.44E+05	8.88E+03	2.58E+02	3.11E+06	8.88E+01	1.22E+03
Total Xylene	1.31E+02	7.89E+05	1.60E+04	4.50E+02	2.28E+06	1.01E+02	1.12E+03
TPH (EC5-6) aliphatic	5.28E+01	3.26E+06	2.23E+05	1.14E+04	1.06E+08	5.25E+01	5.58E+02
TPH (>EC6-8) aliphatic	1.57E+02	5.62E+06	2.23E+05	3.75E+04	1.06E+08	1.56E+02	3.22E+02
TPH (>EC8-10) aliphatic	4.44E+01	7.20E+05	4.45E+03	5.38E+03	6.16E+06	4.36E+01	1.90E+02

Residential Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
TPH (>EC10-12) aliphatic	2.24E+02	1.62E+06	4.45E+03	4.00E+04	6.16E+06	2.12E+02	1.18E+02
TPH (>EC12-16) aliphatic	1.89E+03	4.69E+06	4.45E+03	3.64E+05	6.16E+06	1.32E+03	5.91E+01
TPH (>EC16-35) aliphatic	2.23E+05	1.34E+08	8.91E+04	1.16E+07	4.25E+07	6.32E+04	2.12E+01
TPH (>EC35-44) aliphatic	2.23E+05	1.34E+08	8.91E+04	1.16E+07	4.25E+07	6.32E+04	2.12E+01
TPH (>EC6-7) aromatic (benzene)	4.99E-01	7.68E+03	2.58E+01	2.30E-01	5.95E+04	1.56E-01	2.26E+03
TPH (>EC7-8) aromatic (toluene)	1.38E+03	1.28E+07	1.98E+04	3.41E+02	5.81E+07	2.70E+02	1.92E+03
TPH (>EC8-10) aromatic	7.88E+01	4.36E+05	1.78E+03	1.42E+02	1.28E+06	4.93E+01	1.50E+03
TPH (>EC10-12) aromatic	4.34E+02	1.02E+06	1.78E+03	2.07E+02	1.28E+06	1.30E+02	8.99E+02
TPH (>EC12-16) aromatic	4.83E+03	3.39E+06	1.78E+03	3.79E+02	1.28E+06	2.93E+02	5.91E+01
TPH (>EC16-21) aromatic	8.83E+04	9.40E+06	1.34E+03	7.61E+02	6.38E+05	4.82E+02	1.34E+02
TPH (>EC21-35) aromatic	9.98E+06	4.23E+07	1.34E+03	6.50E+03	6.38E+05	1.11E+03	1.21E+01
TPH (>EC35-44) aromatic	9.98E+06	4.23E+07	1.34E+03	6.50E+03	6.38E+05	1.11E+03	1.21E+01
Naphthalene	3.93E+00	4.91E+04	1.58E+03	6.63E+01	2.93E+04	3.70E+00	1.83E+02
Acenaphthylene	8.06E+03	1.97E+07	4.85E+03	4.56E+02	2.55E+06	3.96E+02	2.12E+02
Acenaphthene	8.57E+03	2.07E+07	4.85E+03	5.67E+02	2.55E+06	4.79E+02	1.41E+02
Fluorene	1.08E+04	1.84E+07	3.23E+03	4.45E+02	1.70E+06	3.77E+02	7.65E+01
Phenanthrene	1.27E+04	9.91E+06	1.00E+03	2.57E+02	5.30E+05	2.01E+02	8.96E+01
Anthracene	2.70E+05	2.33E+08	2.43E+04	6.34E+03	1.27E+07	4.93E+03	2.91E+00
Fluoranthene	7.08E+04	2.00E+07	1.01E+03	8.68E+02	5.31E+05	4.63E+02	4.73E+01
Pyrene	1.62E+05	4.54E+07	2.42E+03	1.85E+03	1.27E+06	1.04E+03	5.49E+00
Benzo(a)anthracene	6.00E+01	5.32E+03	1.25E+01	5.18E+01	6.37E+01	7.60E+00	4.28E+00
Chrysene	6.32E+02	9.28E+03	2.51E+01	7.15E+01	1.27E+02	1.58E+01	1.10E+00
Benzo(b)fluoranthene	2.33E+02	1.66E+03	3.15E+00	1.81E+01	1.61E+01	2.28E+00	3.04E+00
Benzo(k)fluoranthene	1.01E+04	5.19E+04	8.33E+01	6.87E+02	4.25E+02	6.27E+01	1.72E+00
Benzo(a)pyrene	2.61E+02	1.44E+03	2.51E+00	1.78E+01	1.27E+01	1.86E+00	2.28E+00
Indeno(123-cd)pyrene	2.20E+03	1.74E+04	3.58E+01	1.70E+02	1.83E+02	2.51E+01	5.30E-01

Residential Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
Dibenzo(ah)anthracene	1.31E+01	1.79E+02	2.51E-01	2.65E+00	1.27E+00	1.91E-01	9.82E-03
Benzo(g,h,i)perylene	5.85E+04	2.89E+05	2.78E+02	6.27E+03	1.40E+03	2.23E+02	3.85E-02
Tetrachloroethene (PCE)	2.82E-01	3.71E+04	4.92E+02	1.02E+01	2.34E+05	2.74E-01	9.51E+02
Trichloroethene (TCE)	2.52E-02	3.53E+03	4.45E+01	6.09E-01	2.42E+04	2.42E-02	3.22E+03
cis-1,2-Dichloroethene	2.02E-01	3.02E+04	4.82E+02	3.35E+00	2.30E+05	1.90E-01	6.61E+03
Vinyl Chloride (VC)	7.02E-04	4.08E+02	1.25E+00	6.67E-03	1.27E+04	6.35E-04	1.76E+03
1,1,2,2-Tetrachloroethane (PCA)	5.65E+00	1.68E+05	5.07E+02	5.92E+00	2.41E+05	2.87E+00	5.46E+03
1,1,1-Trichloroethane (TCA)	1.29E+01	2.55E+06	5.34E+04	7.06E+02	2.46E+07	1.27E+01	2.92E+03
1,2-Dichloroethane	9.32E-03	9.72E+02	1.07E+01	5.56E-02	5.10E+03	7.98E-03	4.91E+03
Carbon Tetrachloride	3.97E-02	7.50E+03	5.38E+02	6.95E+00	6.93E+04	3.95E-02	3.32E+03
Carbon disulphide	2.02E-01	4.83E+04	3.55E+02	6.84E+01	6.08E+05	2.01E-01	4.21E+03

ASC exceeds soil saturation limit

Residential Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg
Arsenic	NR	NR	3.50E+01	4.29E+02	8.50E+01	3.24E+01	N/A
Barium	NR	NR	1.35E+03		4.25E+05	1.34E+03	N/A
Beryllium	NR	NR	1.56E+02	2.96E+03	1.21E+00	1.21E+00	N/A
Boron	NR	NR	1.08E+04	3.00E+02	3.65E+06	2.91E+02	N/A
Cadmium	NR	NR	1.21E+02	1.24E+01	1.27E+02	1.03E+01	N/A
Chromium III	NR	NR	1.98E+04	1.25E+06	6.37E+02	6.17E+02	N/A
Chromium VI	NR	NR	7.05E+01	1.22E+01	4.25E+00	4.25E+00	N/A
Copper	NR	NR	1.08E+04	3.54E+03	9.89E+03	2.10E+03	N/A
Lead						2.00E+02	N/A
Inorganic Mercury	NR	NR	5.71E+01	1.40E+02	2.55E+03	3.99E+01	N/A
Nickel	NR	NR	7.89E+02	1.64E+03	1.27E+02	1.27E+02	N/A
Selenium	NR	NR	4.31E+02	6.15E+02	1.36E+05	2.53E+02	N/A
Vanadium	NR	NR	1.17E+03	6.21E+02	1.03E+03	2.91E+02	N/A
Zinc	NR	NR	4.05E+04	4.13E+03	2.55E+07	3.74E+03	N/A
Cyanide (free)						4.30E+01	N/A
Cyanide (Complex)						2.13E+02	N/A
Phenol	9.95E+02	7.17E+05	6.56E+02	5.72E+02	3.22E+05	2.34E+02	1.74E+05
Benzene	1.04E+00	1.11E+04	2.58E+01	4.98E-01	5.95E+04	3.32E-01	4.71E+03
Toluene	3.20E+03	1.97E+07	1.98E+04	7.89E+02	5.92E+07	6.13E+02	4.36E+03
Ethylbenzene	3.22E+02	1.44E+06	8.88E+03	6.09E+02	3.11E+06	2.06E+02	2.84E+03
Total Xylene	3.06E+02	1.21E+06	1.60E+04	1.06E+03	2.28E+06	2.34E+02	2.62E+03
TPH (EC5-6) aliphatic	1.09E+02	4.68E+06	2.23E+05	2.62E+04	1.06E+08	1.08E+02	1.15E+03
TPH (>EC6-8) aliphatic	3.59E+02	8.49E+06	2.23E+05	8.91E+04	1.06E+08	3.57E+02	7.36E+02
TPH (>EC8-10) aliphatic	1.06E+02	1.11E+06	4.45E+03	1.27E+04	6.16E+06	1.03E+02	4.51E+02

Residential Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
TPH (>EC10-12) aliphatic	5.38E+02	2.51E+06	4.45E+03	8.76E+04	6.16E+06	4.77E+02	2.83E+02
TPH (>EC12-16) aliphatic	4.53E+03	7.27E+06	4.45E+03	4.67E+05	6.16E+06	2.23E+03	1.42E+02
TPH (>EC16-35) aliphatic	5.34E+05	2.07E+08	8.91E+04	1.17E+07	4.25E+07	7.57E+04	5.09E+01
TPH (>EC35-44) aliphatic	5.34E+05	2.07E+08	8.91E+04	1.17E+07	4.25E+07	7.57E+04	5.09E+01
TPH (>EC6-7) aromatic (benzene)	1.04E+00	1.11E+04	2.58E+01	4.98E-01	5.95E+04	3.32E-01	4.71E+03
TPH (>EC7-8) aromatic (toluene)	3.14E+03	1.93E+07	1.98E+04	7.89E+02	5.81E+07	6.11E+02	4.36E+03
TPH (>EC8-10) aromatic	1.88E+02	6.73E+05	1.78E+03	3.38E+02	1.28E+06	1.13E+02	3.58E+03
TPH (>EC10-12) aromatic	1.04E+03	1.58E+06	1.78E+03	4.95E+02	1.28E+06	2.82E+02	2.15E+03
TPH (>EC12-16) aromatic	1.16E+04	5.25E+06	1.78E+03	9.07E+02	1.28E+06	5.71E+02	1.42E+02
TPH (>EC16-21) aromatic	2.12E+05	1.46E+07	1.34E+03	1.81E+03	6.38E+05	7.66E+02	3.21E+02
TPH (>EC21-35) aromatic	2.39E+07	6.54E+07	1.34E+03	1.48E+04	6.38E+05	1.23E+03	2.90E+01
TPH (>EC35-44) aromatic	2.39E+07	6.54E+07	1.34E+03	1.48E+04	6.38E+05	1.23E+03	2.90E+01
Naphthalene	9.28E+00	7.55E+04	1.58E+03	1.57E+02	2.93E+04	8.71E+00	4.32E+02
Acenaphthylene	1.92E+04	3.05E+07	4.85E+03	1.09E+03	2.55E+06	8.50E+02	5.06E+02
Acenaphthene	2.05E+04	3.20E+07	4.85E+03	1.36E+03	2.55E+06	1.01E+03	3.36E+02
Fluorene	2.58E+04	2.85E+07	3.23E+03	1.06E+03	1.70E+06	7.74E+02	1.83E+02
Phenanthrene	3.03E+04	1.53E+07	1.00E+03	6.14E+02	5.30E+05	3.75E+02	2.14E+02
Anthracene	6.48E+05	3.60E+08	2.43E+04	1.52E+04	1.27E+07	9.21E+03	6.96E+00
Fluoranthene	1.70E+05	3.09E+07	1.01E+03	2.07E+03	5.31E+05	6.75E+02	1.12E+02
Pyrene	3.89E+05	7.03E+07	2.42E+03	4.40E+03	1.27E+06	1.55E+03	1.32E+01
Benzo(a)anthracene	1.44E+02	8.24E+03	1.25E+01	1.20E+02	6.37E+01	9.01E+00	1.03E+01
Chrysene	1.52E+03	1.44E+04	2.51E+01	1.67E+02	1.27E+02	1.84E+01	2.64E+00
Benzo(b)fluoranthene	5.59E+02	2.57E+03	3.15E+00	4.12E+01	1.61E+01	2.47E+00	7.29E+00
Benzo(k)fluoranthene	2.43E+04	8.03E+04	8.33E+01	1.53E+03	4.25E+02	6.63E+01	4.12E+00
Benzo(a)pyrene	6.27E+02	2.23E+03	2.51E+00	4.01E+01	1.27E+01	1.98E+00	5.46E+00
Indeno(123-cd)pyrene	5.27E+03	2.69E+04	3.58E+01	3.90E+02	1.83E+02	2.76E+01	3.68E-01

Residential Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & dermal contact	Ingestion of Contaminated Vegetables and soil attached to vegetables	Particulate Dust Inhalation	Residential GSAC	Soil Saturation Limit
Dibenzo(ah)anthracene	3.14E+01	2.78E+02	2.51E-01	5.77E+00	1.27E+00	2.01E-01	2.36E-02
Benzo(g,h,i)perylene	1.41E+05	4.48E+05	2.78E+02	1.24E+04	1.40E+03	2.27E+02	9.23E-02
Tetrachloroethene (PCE)	6.47E-01	5.61E+04	4.92E+02	2.38E+01	2.34E+05	6.29E-01	2.18E+03
Trichloroethene (TCE)	5.60E-02	5.25E+03	4.45E+01	1.39E+00	2.42E+04	5.38E-02	7.14E+03
cis-1,2-Dichloroethene	3.93E-01	4.22E+04	4.82E+02	6.91E+00	2.30E+05	3.72E-01	1.29E+04
Vinyl Chloride (VC)	1.07E-03	5.05E+02	1.25E+00	1.22E-02	1.27E+04	9.83E-04	2.69E+03
1,1,2,2-Tetrachloroethane (PCA)	1.24E+01	2.49E+05	5.07E+02	1.33E+01	2.41E+05	6.34E+00	1.20E+04
1,1,1-Trichloroethane (TCA)	2.84E+01	3.78E+06	5.34E+04	1.59E+03	2.46E+07	2.79E+01	6.39E+03
1,2-Dichloroethane	1.60E-02	1.27E+03	1.07E+01	1.06E-01	5.10E+03	1.39E-02	8.43E+03
Carbon Tetrachloride	8.99E-02	1.13E+04	5.38E+02	1.61E+01	6.93E+04	8.94E-02	7.54E+03
Carbon disulphide	4.37E-01	7.10E+04	3.55E+02	1.52E+02	6.08E+05	4.35E-01	9.11E+03

ASC exceeds soil saturation limit

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg
Arsenic	NR	NR	6.35E+02	6.95E+02	6.40E+02	N/A
Barium	NR	NR	2.22E+04	3.48E+06	2.21E+04	N/A
Beryllium	NR	NR	3.97E+03	1.24E+01	1.24E+01	N/A
Boron	NR	NR	2.38E+05	2.99E+07	2.36E+05	N/A
Cadmium	NR	NR	3.99E+02	2.43E+02	2.30E+02	N/A
Chromium III	NR	NR	3.31E+05	9.09E+03	8.84E+03	N/A
Chromium VI	NR	NR	1.79E+03	3.48E+01	3.48E+01	N/A
Copper	NR	NR	1.89E+05	9.50E+04	6.33E+04	N/A
Lead					2.33E+03	N/A
Inorganic Mercury	NR	NR	1.18E+03	2.09E+04	3.60E+03	N/A
Nickel	NR	NR	2.22E+04	1.04E+03	1.04E+03	N/A
Selenium	NR	NR	1.23E+04	1.93E+06	1.30E+04	N/A
Vanadium	NR	NR	2.15E+04	9.58E+03	6.63E+03	N/A
Zinc	NR	NR	7.35E+05	2.09E+08	7.33E+05	N/A
Cyanide (free)					4.30E+01	N/A
Cyanide (Complex)					2.13E+02	N/A
Phenol	8.34E+04	1.09E+06	4.07E+04	3.28E+06	2.65E+04	4.16E+04
Benzene	2.97E+01	1.17E+04	5.53E+02	4.87E+05	2.81E+01	1.22E+03
Toluene	6.91E+04	1.83E+07	4.25E+05	4.86E+08	5.92E+04	8.69E+02
Ethylbenzene	6.28E+03	1.30E+06	1.91E+05	2.57E+07	6.05E+03	5.18E+02
Total Xylene	6.43E+03	1.17E+06	3.43E+05	2.03E+07	6.28E+03	4.78E+02
TPH (EC5-6) aliphatic	3.31E+03	5.01E+06	4.77E+06	8.69E+08	3.31E+03	3.04E+02
TPH (>EC6-8) aliphatic	8.06E+03	7.82E+06	4.77E+06	8.69E+08	8.04E+03	1.44E+02
TPH (>EC8-10) aliphatic	2.09E+03	9.59E+05	9.53E+04	5.04E+07	2.04E+03	7.77E+01
TPH (>EC10-12) aliphatic	1.04E+04	2.13E+06	9.53E+04	5.04E+07	9.33E+03	4.75E+01

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
TPH (>EC12-16) aliphatic	8.68E+04	6.18E+06	9.53E+04	5.04E+07	4.51E+04	2.37E+01
TPH (>EC16-35) aliphatic	1.02E+07	1.76E+08	1.91E+06	3.48E+08	1.59E+06	8.48E+00
TPH (>EC35-44) aliphatic	1.02E+07	1.76E+08	1.91E+06	3.48E+08	1.59E+06	8.48E+00
TPH (>EC6-7) aromatic (benzene)	4.75E+01	1.17E+04	5.53E+02	4.87E+05	4.36E+01	1.22E+03
TPH (>EC7-8) aromatic (toluene)	6.88E+04	1.83E+07	4.25E+05	4.84E+08	5.90E+04	8.69E+02
TPH (>EC8-10) aromatic	3.70E+03	5.80E+05	3.81E+04	1.04E+07	3.35E+03	6.13E+02
TPH (>EC10-12) aromatic	2.02E+04	1.35E+06	3.81E+04	1.04E+07	1.31E+04	3.64E+02
TPH (>EC12-16) aromatic	2.25E+05	4.48E+06	3.81E+04	1.04E+07	3.22E+04	2.37E+01
TPH (>EC16-21) aromatic	4.59E+06	1.24E+07	2.86E+04	5.22E+06	2.82E+04	5.37E+01
TPH (>EC21-35) aromatic	7.57E+08	5.56E+07	2.86E+04	5.22E+06	2.84E+04	4.83E+00
TPH (>EC35-44) aromatic	7.57E+08	5.56E+07	2.86E+04	5.22E+06	2.84E+04	4.83E+00
Naphthalene	2.06E+02	7.85E+04	3.64E+04	2.85E+05	2.04E+02	7.64E+01
Acenaphthylene	3.76E+05	2.62E+07	1.10E+05	2.09E+07	8.45E+04	8.61E+01
Acenaphthene	3.87E+05	2.74E+07	1.10E+05	2.09E+07	8.50E+04	5.70E+01
Fluorene	5.10E+05	2.44E+07	7.31E+04	1.39E+07	6.35E+04	3.09E+01
Phenanthrene	6.87E+05	1.31E+07	2.28E+04	4.34E+06	2.19E+04	3.60E+01
Anthracene	1.41E+07	3.07E+08	5.49E+05	1.04E+08	5.25E+05	1.17E+00
Fluoranthene	4.36E+06	2.63E+07	2.29E+04	4.34E+06	2.26E+04	1.89E+01
Pyrene	1.02E+07	5.98E+07	5.49E+04	1.04E+07	5.43E+04	2.20E+00
Benzo(a)anthracene	4.04E+03	7.01E+03	2.84E+02	5.21E+02	1.71E+02	1.71E+00
Chrysene	5.01E+04	1.22E+04	5.67E+02	1.04E+03	3.54E+02	4.40E-01
Benzo(b)fluoranthene	1.86E+04	2.18E+03	7.13E+01	1.32E+02	4.52E+01	1.22E+00
Benzo(k)fluoranthene	8.14E+05	6.83E+04	1.88E+03	3.48E+03	1.20E+03	6.87E-01
Benzo(a)pyrene	2.10E+04	1.90E+03	5.67E+01	1.04E+02	3.60E+01	9.11E-01
Indeno(123-cd)pyrene	1.75E+05	2.29E+04	8.10E+02	1.49E+03	5.12E+02	6.14E-02
Dibenzo(ah)anthracene	1.01E+03	2.36E+02	5.67E+00	1.04E+01	3.60E+00	3.93E-03
Benzo(g,h,i)perylene	4.64E+06	3.81E+05	6.29E+03	1.15E+04	4.02E+03	1.54E-02

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 1% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
Tetrachloroethene (PCE)	1.98E+01	7.63E+04	1.12E+04	2.83E+06	1.97E+01	4.24E+02
Trichloroethene (TCE)	1.31E+00	5.07E+03	9.53E+02	1.98E+05	1.30E+00	1.54E+03
cis-1,2-Dichloroethene	1.45E+01	5.26E+04	1.12E+04	2.04E+06	1.45E+01	3.94E+03
Vinyl Chloride (VC)	6.31E-02	7.47E+02	2.67E+01	1.04E+05	6.29E-02	1.36E+03
1,1,2,2-Tetrachloroethane (PCA)	2.98E+02	2.49E+05	1.10E+04	2.01E+06	2.90E+02	2.67E+03
1,1,1-Trichloroethane (TCA)	7.01E+02	3.81E+06	1.14E+06	2.07E+08	7.00E+02	1.43E+03
1,2-Dichloroethane	7.14E-01	1.68E+03	2.29E+02	4.17E+04	7.11E-01	3.41E+03
Carbon Tetrachloride	3.04E+00	1.65E+04	7.62E+03	8.85E+05	3.04E+00	1.52E+03
Carbon disulphide	1.16E+01	7.12E+04	9.53E+04	4.97E+06	1.16E+01	2.11E+03

ASC exceeds soil saturation limit

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg
Arsenic	NR	NR	6.35E+02	6.95E+02	6.40E+02	N/A
Barium	NR	NR	2.22E+04	3.48E+06	2.21E+04	N/A
Beryllium	NR	NR	3.97E+03	1.24E+01	1.24E+01	N/A
Boron	NR	NR	2.38E+05	2.99E+07	2.36E+05	N/A
Cadmium	NR	NR	3.99E+02	2.43E+02	2.30E+02	N/A
Chromium III	NR	NR	3.31E+05	9.09E+03	8.84E+03	N/A
Chromium VI	NR	NR	1.79E+03	3.48E+01	3.48E+01	N/A
Copper	NR	NR	1.89E+05	9.50E+04	6.33E+04	N/A
Lead					2.33E+03	N/A
Inorganic Mercury	NR	NR	1.18E+03	2.09E+04	3.60E+03	N/A
Nickel	NR	NR	2.22E+04	1.04E+03	1.04E+03	N/A
Selenium	NR	NR	1.23E+04	1.93E+06	1.30E+04	N/A
Vanadium	NR	NR	2.15E+04	9.58E+03	6.63E+03	N/A
Zinc	NR	NR	7.35E+05	2.09E+08	7.33E+05	N/A
Cyanide (free)					4.30E+01	N/A
Cyanide (Complex)					2.13E+02	N/A
Phenol	1.31E+05	1.37E+06	4.07E+04	3.28E+06	3.01E+04	8.15E+04
Benzene	5.53E+01	1.60E+04	5.53E+02	4.87E+05	5.01E+01	2.26E+03
Toluene	1.52E+05	2.72E+07	4.25E+05	4.86E+08	1.12E+05	1.92E+03
Ethylbenzene	1.47E+04	1.99E+06	1.91E+05	2.57E+07	1.36E+04	1.22E+03
Total Xylene	1.51E+04	1.79E+06	3.43E+05	2.03E+07	1.43E+04	1.12E+03
TPH (EC5-6) aliphatic	6.07E+03	6.79E+06	4.77E+06	8.69E+08	6.06E+03	5.58E+02
TPH (>EC6-8) aliphatic	1.80E+04	1.17E+07	4.77E+06	8.69E+08	1.79E+04	3.22E+02
TPH (>EC8-10) aliphatic	5.11E+03	1.50E+06	9.53E+04	5.04E+07	4.83E+03	1.90E+02
TPH (>EC10-12) aliphatic	2.58E+04	3.37E+06	9.53E+04	5.04E+07	2.02E+04	1.18E+02

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
TPH (>EC12-16) aliphatic	2.17E+05	9.77E+06	9.53E+04	5.04E+07	6.57E+04	5.91E+01
TPH (>EC16-35) aliphatic	2.56E+07	2.79E+08	1.91E+06	3.48E+08	1.76E+06	2.12E+01
TPH (>EC35-44) aliphatic	2.56E+07	2.79E+08	1.91E+06	3.48E+08	1.76E+06	2.12E+01
TPH (>EC6-7) aromatic (benzene)	5.53E+01	1.60E+04	5.53E+02	4.87E+05	5.01E+01	2.26E+03
TPH (>EC7-8) aromatic (toluene)	1.52E+05	2.71E+07	4.25E+05	4.84E+08	1.11E+05	1.92E+03
TPH (>EC8-10) aromatic	9.06E+03	9.08E+05	3.81E+04	1.04E+07	7.26E+03	1.50E+03
TPH (>EC10-12) aromatic	4.99E+04	2.13E+06	3.81E+04	1.04E+07	2.13E+04	8.99E+02
TPH (>EC12-16) aromatic	5.59E+05	7.06E+06	3.81E+04	1.04E+07	3.54E+04	5.91E+01
TPH (>EC16-21) aromatic	1.15E+07	1.96E+07	2.86E+04	5.22E+06	2.83E+04	1.34E+02
TPH (>EC21-35) aromatic	1.89E+09	8.79E+07	2.86E+04	5.22E+06	2.84E+04	1.21E+01
TPH (>EC35-44) aromatic	1.89E+09	8.79E+07	2.86E+04	5.22E+06	2.84E+04	1.21E+01
Naphthalene	4.93E+02	1.21E+05	3.64E+04	2.85E+05	4.84E+02	1.83E+02
Acenaphthylene	9.26E+05	4.11E+07	1.10E+05	2.09E+07	9.76E+04	2.12E+02
Acenaphthene	9.56E+05	4.31E+07	1.10E+05	2.09E+07	9.80E+04	1.41E+02
Fluorene	1.26E+06	3.84E+07	7.31E+04	1.39E+07	6.86E+04	7.65E+01
Phenanthrene	1.71E+06	2.07E+07	2.28E+04	4.34E+06	2.24E+04	8.96E+01
Anthracene	3.51E+07	4.84E+08	5.49E+05	1.04E+08	5.37E+05	2.91E+00
Fluoranthene	1.09E+07	4.16E+07	2.29E+04	4.34E+06	2.27E+04	4.73E+01
Pyrene	2.54E+07	9.45E+07	5.49E+04	1.04E+07	5.45E+04	5.49E+00
Benzo(a)anthracene	1.01E+04	1.11E+04	2.84E+02	5.21E+02	1.77E+02	4.28E+00
Chrysene	1.25E+05	1.93E+04	5.67E+02	1.04E+03	3.59E+02	1.10E+00
Benzo(b)fluoranthene	4.66E+04	3.45E+03	7.13E+01	1.32E+02	4.57E+01	3.04E+00
Benzo(k)fluoranthene	2.03E+06	1.08E+05	1.88E+03	3.48E+03	1.21E+03	1.72E+00
Benzo(a)pyrene	5.26E+04	3.00E+03	5.67E+01	1.04E+02	3.63E+01	2.28E+00
Indeno(123-cd)pyrene	4.38E+05	3.62E+04	8.10E+02	1.49E+03	5.17E+02	5.30E-01
Dibenzo(ah)anthracene	2.53E+03	3.73E+02	5.67E+00	1.04E+01	3.63E+00	9.82E-03
Benzo(g,h,i)perylene	1.16E+07	6.02E+05	6.29E+03	1.15E+04	4.03E+03	3.85E-02

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 2.5% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
Tetrachloroethene (PCE)	4.43E+01	1.14E+05	1.12E+04	2.83E+06	4.41E+01	9.51E+02
Trichloroethene (TCE)	2.74E+00	7.34E+03	9.53E+02	1.98E+05	2.73E+00	3.22E+03
cis-1,2-Dichloroethene	2.43E+01	6.81E+04	1.12E+04	2.04E+06	2.42E+01	6.61E+03
Vinyl Chloride (VC)	8.16E-02	8.50E+02	2.67E+01	1.04E+05	8.13E-02	1.76E+03
1,1,2,2-Tetrachloroethane (PCA)	6.11E+02	3.56E+05	1.10E+04	2.01E+06	5.78E+02	5.46E+03
1,1,1-Trichloroethane (TCA)	1.43E+03	5.46E+06	1.14E+06	2.07E+08	1.43E+03	2.92E+03
1,2-Dichloroethane	1.03E+00	2.02E+03	2.29E+02	4.17E+04	1.02E+00	4.91E+03
Carbon Tetrachloride	6.67E+00	2.44E+04	7.62E+03	8.85E+05	6.66E+00	3.32E+03
Carbon disulphide	2.32E+01	1.00E+05	9.53E+04	4.97E+06	2.32E+01	4.21E+03

ASC exceeds soil saturation limit

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg
Arsenic	NR	NR	6.35E+02	6.95E+02	6.40E+02	N/A
Barium	NR	NR	2.22E+04	3.48E+06	2.21E+04	N/A
Beryllium	NR	NR	3.97E+03	1.24E+01	1.24E+01	N/A
Boron	NR	NR	2.38E+05	2.99E+07	2.36E+05	N/A
Cadmium	NR	NR	3.99E+02	2.43E+02	2.30E+02	N/A
Chromium III	NR	NR	3.31E+05	9.09E+03	8.84E+03	N/A
Chromium VI	NR	NR	1.79E+03	3.48E+01	3.48E+01	N/A
Copper	NR	NR	1.89E+05	9.50E+04	6.33E+04	N/A
Lead					2.33E+03	N/A
Inorganic Mercury	NR	NR	1.18E+03	2.09E+04	3.60E+03	N/A
Nickel	NR	NR	2.22E+04	1.04E+03	1.04E+03	N/A
Selenium	NR	NR	1.23E+04	1.93E+06	1.30E+04	N/A
Vanadium	NR	NR	2.15E+04	9.58E+03	6.63E+03	N/A
Zinc	NR	NR	7.35E+05	2.09E+08	7.33E+05	N/A
Cyanide (free)					4.30E+01	N/A
Cyanide (Complex)					2.13E+02	N/A
Phenol	2.42E+05	1.86E+06	4.07E+04	3.28E+06	3.39E+04	1.74E+05
Benzene	1.15E+02	2.30E+04	5.53E+02	4.87E+05	9.47E+01	4.71E+03
Toluene	3.46E+05	4.11E+07	4.25E+05	4.86E+08	1.90E+05	4.36E+03
Ethylbenzene	3.45E+04	3.04E+06	1.91E+05	2.57E+07	2.89E+04	2.84E+03
Total Xylene	3.53E+04	2.74E+06	3.43E+05	2.03E+07	3.16E+04	2.62E+03
TPH (EC5-6) aliphatic	1.25E+04	9.74E+06	4.77E+06	8.69E+08	1.25E+04	1.15E+03
TPH (>EC6-8) aliphatic	4.12E+04	1.77E+07	4.77E+06	8.69E+08	4.08E+04	7.36E+02
TPH (>EC8-10) aliphatic	1.21E+04	2.31E+06	9.53E+04	5.04E+07	1.07E+04	4.51E+02
TPH (>EC10-12) aliphatic	6.18E+04	5.22E+06	9.53E+04	5.04E+07	3.72E+04	2.83E+02

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
TPH (>EC12-16) aliphatic	5.20E+05	1.51E+07	9.53E+04	5.04E+07	8.00E+04	1.42E+02
TPH (>EC16-35) aliphatic	6.14E+07	4.32E+08	1.91E+06	3.48E+08	1.83E+06	5.09E+01
TPH (>EC35-44) aliphatic	6.14E+07	4.32E+08	1.91E+06	3.48E+08	1.83E+06	5.09E+01
TPH (>EC6-7) aromatic (benzene)	1.15E+02	2.30E+04	5.53E+02	4.87E+05	9.48E+01	4.71E+03
TPH (>EC7-8) aromatic (toluene)	3.45E+05	4.09E+07	4.25E+05	4.84E+08	1.89E+05	4.36E+03
TPH (>EC8-10) aromatic	2.16E+04	1.40E+06	3.81E+04	1.04E+07	1.36E+04	3.58E+03
TPH (>EC10-12) aromatic	1.19E+05	3.29E+06	3.81E+04	1.04E+07	2.85E+04	2.15E+03
TPH (>EC12-16) aromatic	1.34E+06	1.09E+07	3.81E+04	1.04E+07	3.68E+04	1.42E+02
TPH (>EC16-21) aromatic	2.75E+07	3.03E+07	2.86E+04	5.22E+06	2.84E+04	3.21E+02
TPH (>EC21-35) aromatic	4.54E+09	1.36E+08	2.86E+04	5.22E+06	2.84E+04	2.90E+01
TPH (>EC35-44) aromatic	4.54E+09	1.36E+08	2.86E+04	5.22E+06	2.84E+04	2.90E+01
Naphthalene	1.16E+03	1.87E+05	3.64E+04	2.85E+05	1.11E+03	4.32E+02
Acenaphthylene	2.21E+06	6.35E+07	1.10E+05	2.09E+07	1.04E+05	5.06E+02
Acenaphthene	2.28E+06	6.67E+07	1.10E+05	2.09E+07	1.04E+05	3.36E+02
Fluorene	3.02E+06	5.94E+07	7.31E+04	1.39E+07	7.09E+04	1.83E+02
Phenanthrene	4.09E+06	3.20E+07	2.28E+04	4.34E+06	2.25E+04	2.14E+02
Anthracene	8.41E+07	7.50E+08	5.49E+05	1.04E+08	5.42E+05	6.96E+00
Fluoranthene	2.61E+07	6.44E+07	2.29E+04	4.34E+06	2.28E+04	1.12E+02
Pyrene	6.09E+07	1.46E+08	5.49E+04	1.04E+07	5.45E+04	1.32E+01
Benzo(a)anthracene	2.42E+04	1.72E+04	2.84E+02	5.21E+02	1.80E+02	1.03E+01
Chrysene	3.00E+05	2.99E+04	5.67E+02	1.04E+03	3.62E+02	2.64E+00
Benzo(b)fluoranthene	1.12E+05	5.34E+03	7.13E+01	1.32E+02	4.59E+01	7.29E+00
Benzo(k)fluoranthene	4.88E+06	1.67E+05	1.88E+03	3.48E+03	1.21E+03	4.12E+00
Benzo(a)pyrene	1.26E+05	4.65E+03	5.67E+01	1.04E+02	3.64E+01	5.46E+00
Indeno(123-cd)pyrene	1.05E+06	5.60E+04	8.10E+02	1.49E+03	5.20E+02	3.68E-01
Dibenzo(ah)anthracene	6.07E+03	5.78E+02	5.67E+00	1.04E+01	3.65E+00	2.36E-02
Benzo(g,h,i)perylene	2.78E+07	9.33E+05	6.29E+03	1.15E+04	4.04E+03	9.23E-02

Commercial/Industrial Pathway Specific Assessment Sub Criteria derived May 2015 6% Organic matter	Vapour Inhalation (Indoors)	Vapour Inhalation (Outdoors)	Soil Ingestion & Dermal Contact	Particulate Dust Inhalation	Commercial GSAC	Soil Saturation Limit
Tetrachloroethene (PCE)	1.02E+02	1.73E+05	1.12E+04	2.83E+06	1.01E+02	2.18E+03
Trichloroethene (TCE)	6.07E+00	1.09E+04	9.53E+02	1.98E+05	6.03E+00	7.14E+03
cis-1,2-Dichloroethene	4.73E+01	9.50E+04	1.12E+04	2.04E+06	4.71E+01	1.29E+04
Vinyl Chloride (VC)	1.25E-01	1.05E+03	2.67E+01	1.04E+05	1.24E-01	2.69E+03
1,1,2,2-Tetrachloroethane (PCA)	1.34E+03	5.27E+05	1.10E+04	2.01E+06	1.19E+03	1.20E+04
1,1,1-Trichloroethane (TCA)	3.14E+03	8.08E+06	1.14E+06	2.07E+08	3.13E+03	6.39E+03
1,2-Dichloroethane	1.77E+00	2.65E+03	2.29E+02	4.17E+04	1.76E+00	8.43E+03
Carbon Tetrachloride	1.51E+01	3.67E+04	7.62E+03	8.85E+05	1.51E+01	7.54E+03
Carbon disulphide	5.01E+01	1.48E+05	9.53E+04	4.97E+06	5.01E+01	9.11E+03

ASC exceeds soil saturation limit

Appendix 13: Soil Assessment Sheets

STATISTICAL APPROACH FOR ASSESSING RISK TO HUMAN HEALTH FROM CONTAMINATED LAND 2008

CIEH/CLAIRE Guidance on Comparing Soil Contamination Data with a Critical Concentration May 2008

STAGE 1 QA CHECK

Are data of acceptable quality
Lab sampling errors / erroneous results
Are data sufficient to characterise area of interest

No

Review CSM, update sampling and analytical strategy

STAGE 2 DATA SCREENING

Compare all data against GSAC
Do any values exceed GSAC?

No

True mean is less than critical concentration
No action required

STAGE 3 ZONING AND OUTLIER CHECK

Plot data on bubble chart
Plot histogram
Identify and deal with non detects

Outliers

Assess Outliers directly against GSAC

Non detects to DL or DL/2
Remove outliers

STAGE 4 UPPER CONFIDENCE LIMIT

With outliers removed
do any values exceed GSAC ?

No

True mean is less than critical concentration
No action required

Yes

With outliers removed are data normally Distributed
Histogram
Shapiro Wilkes test, q-q plot

Normal

Non-normal

Normal Distributed data
UCL from
Students t-test

Non-normal Distributed data
UCL from
Chebychev theorem

Compare UCL to GSAC
Does UCL exceed GSAC?

No

True mean is less than critical concentration
No action required

Yes

true mean is greater than critical concentration
Further action required

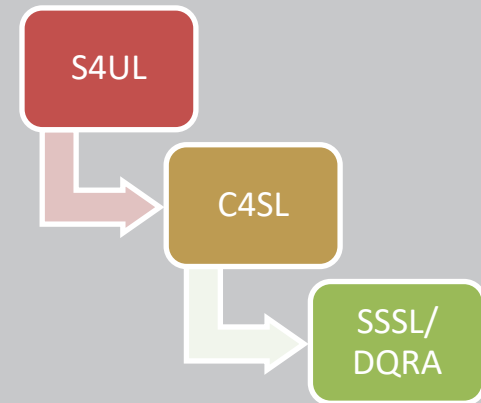
Human Health Generic QRA Worksheet

Job Name	Job Number
Data population description	

Define CSM – Is site represented by a standard land use?

Residential with / without homegrown produce
Commercial / Industrial
Public Open Space - Residential (S4UL/C4SL only)
Public Open Space - Park (S4UL/C4SL only)

GSAC Hierarchy



GSAC Type (BWB, LQM S4UL, C4SL, Bespoke)	LQM_CIEH_S4UL
Key Receptor/CSM (Residential/Commercial/POS)	S4UL Residential with homegrown produce
Organic Matter % (If unknown use 1%)	1

Generic Assessment Criteria

Job Name Job Number	S4UL Residential with homegrown produce mg/kg	
		Source
Arsenic	3.70E+01	LQM_CIEH_S4UL
Barium	1.35E+03	LQM_CIEH_S4UL
Beryllium	1.70E+00	LQM_CIEH_S4UL
Boron	2.90E+02	LQM_CIEH_S4UL
Cadmium	1.10E+01	LQM_CIEH_S4UL
Chromium VI	6.00E+00	LQM_CIEH_S4UL
Chromium III	9.10E+02	LQM_CIEH_S4UL
Copper	2.40E+03	LQM_CIEH_S4UL
Lead*	2.00E+02	DEFRA_C4SL
Inorganic Mercury	4.00E+01	LQM_CIEH_S4UL
Nickel	1.80E+02	LQM_CIEH_S4UL
Selenium	2.50E+02	LQM_CIEH_S4UL
Vanadium	4.10E+02	LQM_CIEH_S4UL
Zinc	3.70E+03	LQM_CIEH_S4UL
Cyanide (Free)	4.30E+01	BWB
Cyanide (Complex)	2.13E+02	BWB
Phenols (Total)	1.20E+02	LQM_CIEH_S4UL
Benzene	8.70E-02	LQM_CIEH_S4UL
Toluene	1.30E+02	LQM_CIEH_S4UL
Ethyl benzene	4.70E+01	LQM_CIEH_S4UL
Total Xylene	5.60E+01	LQM_CIEH_S4UL
TPH (EC5-6) aliphatic	4.20E+01	LQM_CIEH_S4UL
TPH (>EC6-8) aliphatic	1.00E+02	LQM_CIEH_S4UL
TPH (>EC8-10) aliphatic	2.70E+01	LQM_CIEH_S4UL
TPH (>EC10-12) aliphatic	1.30E+02	LQM_CIEH_S4UL
TPH (>EC12-16) aliphatic	1.10E+03	LQM_CIEH_S4UL
TPH (>EC16-21) aliphatic	6.50E+04	LQM_CIEH_S4UL
TPH (>EC21-35) aliphatic	6.50E+04	LQM_CIEH_S4UL
TPH (>EC35-44) aliphatic	6.50E+04	LQM_CIEH_S4UL
TPH (>EC6-7) aromatic (benzene)	7.00E+01	LQM_CIEH_S4UL
TPH (>EC7-8) aromatic (toluene)	1.30E+02	LQM_CIEH_S4UL
TPH (>EC8-10) aromatic	3.40E+01	LQM_CIEH_S4UL
TPH (>EC10-12) aromatic	7.40E+01	LQM_CIEH_S4UL
TPH (>EC12-16) aromatic	1.40E+02	LQM_CIEH_S4UL
TPH (>EC16-21) aromatic	2.60E+02	LQM_CIEH_S4UL
TPH (>EC21-35) aromatic	1.10E+03	LQM_CIEH_S4UL
TPH (>EC35-44) aromatic	1.10E+03	LQM_CIEH_S4UL
Total TPH	5.00E+02	LQM_CIEH_S4UL
Naphthalene	2.30E+00	LQM_CIEH_S4UL
Acenaphthylene	1.70E+02	LQM_CIEH_S4UL
Acenaphthene	2.10E+02	LQM_CIEH_S4UL
Fluorene	1.70E+02	LQM_CIEH_S4UL
Phenanthrene	9.50E+01	LQM_CIEH_S4UL
Anthracene	2.40E+03	LQM_CIEH_S4UL
Fluoranthene	2.80E+02	LQM_CIEH_S4UL
Pyrene	6.20E+02	LQM_CIEH_S4UL
Benzo(a)anthracene	7.20E+00	LQM_CIEH_S4UL

Generic Assessment Criteria

S4UL Residential
with homegrown
produce
mg/kg



Job Name
Job Number

Source

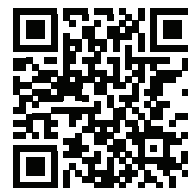
Chrysene	1.50E+01	LQM_CIEH_S4UL
Benzo(b)fluoranthene	2.60E+00	LQM_CIEH_S4UL
Benzo(k)fluoranthene	7.70E+01	LQM_CIEH_S4UL
Benzo(a)pyrene	2.20E+00	LQM_CIEH_S4UL
Indeno(1,2,3-c,d)pyrene	2.70E+01	LQM_CIEH_S4UL
Dibenzo(a,h)anthracene	2.40E-01	LQM_CIEH_S4UL
Benzo(g,hi)perylene	3.20E+02	LQM_CIEH_S4UL
Coal Tar (B(a)P as surrogate marker	7.90E-01	LQM_CIEH_S4UL
Tetrachloroethene (PCE)	1.80E-01	LQM_CIEH_S4UL
Trichloroethene (TCE)	1.60E-02	LQM_CIEH_S4UL
cis -1,2-Dichloroethene	1.10E-01	LQM_CIEH_S4UL
Vinyl Chloride (VC)	6.40E-04	LQM_CIEH_S4UL
1,1,2,2-Tetrachloroethane (PCA)	1.60E+00	LQM_CIEH_S4UL
1,1,1-Trichloroethane (TCA)	8.80E+00	LQM_CIEH_S4UL
1,2-Dichloroethane	7.10E-03	LQM_CIEH_S4UL
Carbon Tetrachloride	2.60E-02	LQM_CIEH_S4UL
Carbon disulphide	1.40E-01	LQM_CIEH_S4UL

Location	Sample depth	Easting	Northing	Strata Type	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium VI	Chromium III	Copper	Lead	Inorganic Mercury	Nickel	Selenium	Vanadium	Zinc	Cyanide (Free)	Cyanide (Complex)	Phenols (Total)
Detection Limit					1	1	0.06	0.2	0.2	4	1	1	1	0.3	1	1	1	1	1	1	1
GSAC					3.70E+01	1.35E+03	1.70E+00	2.90E+02	1.10E+01	6.00E+00	9.10E+02	2.40E+03	2.00E+02	4.00E+01	1.80E+02	2.50E+02	4.10E+02	3.70E+03	4.30E+01	2.13E+02	1.20E+02
TP01	0.40			MG	1.6	100	0.65	3.3	0.2	4	20	24	40	0.3	23	1	21	93	1	1	1
TP02	1.10			MG	15	120	0.49	1.3	0.2	4	18	28	55	0.3	13	1	19	100	1	1	1
TP03	0.50			MG	1	93	0.72	1.5	0.2	4	16	51	55	0.3	18	1	27	48	1	1	1
TP04	0.50			MG	14	91	0.68	0.9	0.2	4	15	30	61	0.3	17	1	21	330	1	1	1
TP05	0.70			MG	19	100	0.75	1.1	0.4	4	10	36	86	0.3	13	1	22	110	1	1	1.3
TP08	0.40			Nat	2.2	26	0.19	0.2	0.2	4	9.1	8.6	10	0.3	7.5	1	12	32	1	1	1
TP15	0.60			Nat	1	29	0.29	0.3	0.2	4	12	8.4	14	0.3	9.4	1	13	21	1	1	1
TP17	0.30			TS	13	69	0.5	0.3	0.2	4	16	22	38	0.3	14	1	18	54	1	1	1

Location	Sample depth	TPH (>EC35-44) aromatic	Total TPH	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a)anthracene	Chrysene	Benzo (b)fluoranthene	Benzo (k)fluoranthene	Benzo (a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo (a,h)anthracene	Benzo (g,h,i)perylene
Detection Limit		10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
GSAC		1.10E+03	5.00E+02	2.30E+00	1.70E+02	2.10E+02	1.70E+02	9.50E+01	2.40E+03	2.80E+02	6.20E+02	7.20E+00	1.50E+01	2.60E+00	7.70E+01	2.20E+00	2.70E+01	2.40E-01	3.20E+02
TP01	0.40		660	0.05	0.05	0.05	0.05	2.4	0.55	2.8	5.6	1.6	1.8	1.7	1.1	1.7	1.1	0.33	1.2
TP02	1.10		350	0.05	0.05	0.05	0.05	1.2	0.29	2.7	2.4	1.3	1.1	1.3	0.93	1.4	0.66	0.28	0.76
TP03	0.50		2000	32	0.05	18	16	75	11	80	68	33	27	26	14	26	11	4.1	12
TP04	0.50		130	0.05	0.05	0.05	0.05	1	0.2	1.4	1.3	0.63	0.74	0.81	0.48	0.8	0.36	0.05	0.43
TP05	0.70		140	0.53	0.05	0.99	0.72	5.3	1.3	7	6.7	3.9	3.2	2.2	2.2	1.5	1.5	1.6	
TP08	0.40		10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP15	0.60		10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP17	0.30		27	0.05	0.05	0.05	0.05	0.24	0.05	0.36	0.38	0.14	0.24	0.23	0.19	0.22	0.05	0.05	0.05

Appendix 14: Waste Assessment

Waste Classification Report



J3Q4A-5A7AJ-QW4TK

Job name

NTE2554 Plot W Kingsway

Description/Comments

Project

NTE2554 Plot W Kingsway

Site

NTE2554 Plot W Kingsway

Related Documents

#	Name	Description
None		

Waste Stream Template

BWB Contaminated Land Suite WM3

Classified by

Name:
Richard Robinson
Date:
06 Nov 2019 09:20 GMT
Telephone:
0115 924 1100

Company:
BWB Consulting Ltd
5th Floor
Waterfront House, Station Street
Nottingham
NG2 3DQ

Report

Created by: Richard Robinson
Created date: 06 Nov 2019 09:20 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP01	0.40	Non Hazardous		3
2	TP02	1.10	Non Hazardous		6
3	TP03	0.50	Hazardous	HP 7, HP 11	9
4	TP04	0.50	Non Hazardous		12
5	TP05	0.70	Non Hazardous		15
6	TP08	0.40	Non Hazardous		18
7	TP15	0.60	Non Hazardous		20
8	TP17	0.30	Non Hazardous		22

Appendices

	Page
Appendix A: Classifier defined and non CLP determinands	25
Appendix B: Rationale for selection of metal species	26



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HazWasteOnline™

Report created by Richard Robinson on 06 Nov 2019

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Classification of sample: TP01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40 m		
Moisture content:		
30%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 30% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				✔					
2	arsenic { arsenic trioxide }				1.6 mg/kg	1.32	2.113 mg/kg	0.000211 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.65 mg/kg	2.775	1.804 mg/kg	0.00018 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				3.3 mg/kg	13.43	44.319 mg/kg	0.00443 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	0.2 mg/kg	1.285	0.257 mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	40 mg/kg	1.56	62.393 mg/kg	0.004 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				23 mg/kg	1.579	36.328 mg/kg	0.00363 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc chromate }				93 mg/kg	2.774	257.996 mg/kg	0.0258 %		
	024-007-00-3									
13	pH				7.4 pH		7.4 pH	7.4 pH		
			PH							

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				660	mg/kg		660	mg/kg	0.066 %		
			TPH									
16	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
17	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
18	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
19	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
21	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
22	anthracene				0.55	mg/kg		0.55	mg/kg	0.000055 %		
		204-371-1	120-12-7									
23	benzo[a]anthracene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
	601-033-00-9	200-280-6	56-55-3									
24	benzo[a]pyrene; benzo[def]chrysene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
	601-032-00-3	200-028-5	50-32-8									
25	benzo[b]fluoranthene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[ghi]perylene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		205-883-8	191-24-2									
27	benzo[k]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
	601-036-00-5	205-916-6	207-08-9									
28	chrysene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
	601-048-00-0	205-923-4	218-01-9									
29	dibenz[a,h]anthracene				0.35	mg/kg		0.35	mg/kg	0.000035 %		
	601-041-00-2	200-181-8	53-70-3									
30	fluoranthene				2.8	mg/kg		2.8	mg/kg	0.00028 %		
		205-912-4	206-44-0									
31	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
32	indeno[123-cd]pyrene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
		205-893-2	193-39-5									
33	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
34	phenanthrene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
		201-581-5	85-01-8									
35	pyrene				5.6	mg/kg		5.6	mg/kg	0.00056 %		
		204-927-3	129-00-0									
36	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.113 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.066%)

Classification of sample: TP02

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
TP02	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.10 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
27%	
(no correction)	

Hazard properties

None identified

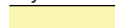
Determinands

Moisture content: 27% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				☒						
2	arsenic { arsenic trioxide }				15 mg/kg	1.32	19.805 mg/kg	0.00198 %			
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.49 mg/kg	2.775	1.36 mg/kg	0.000136 %			
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.3 mg/kg	13.43	17.459 mg/kg	0.00175 %			
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	0.2 mg/kg	1.285	0.257 mg/kg	0.00002 %			
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
7	copper { dicopper oxide; copper (I) oxide }				28 mg/kg	1.126	31.525 mg/kg	0.00315 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	55 mg/kg	1.56	85.79 mg/kg	0.0055 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				13 mg/kg	1.579	20.533 mg/kg	0.00205 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	034-002-00-8										
12	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %			
	024-007-00-3										
13	pH				8.6 pH		8.6 pH	8.6 pH			
			PH								

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				350	mg/kg		350	mg/kg	0.035 %		
			TPH									
16	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
17	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
18	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
19	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
21	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
22	anthracene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
		204-371-1	120-12-7									
23	benzo[a]anthracene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
	601-033-00-9	200-280-6	56-55-3									
24	benzo[a]pyrene; benzo[def]chrysene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
	601-032-00-3	200-028-5	50-32-8									
25	benzo[b]fluoranthene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[ghi]perylene				0.76	mg/kg		0.76	mg/kg	0.000076 %		
		205-883-8	191-24-2									
27	benzo[k]fluoranthene				0.93	mg/kg		0.93	mg/kg	0.000093 %		
	601-036-00-5	205-916-6	207-08-9									
28	chrysene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
	601-048-00-0	205-923-4	218-01-9									
29	dibenz[a,h]anthracene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
	601-041-00-2	200-181-8	53-70-3									
30	fluoranthene				2.7	mg/kg		2.7	mg/kg	0.00027 %		
		205-912-4	206-44-0									
31	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
32	indeno[123-cd]pyrene				0.66	mg/kg		0.66	mg/kg	0.000066 %		
		205-893-2	193-39-5									
33	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
34	phenanthrene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		201-581-5	85-01-8									
35	pyrene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
		204-927-3	129-00-0									
36	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0824 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

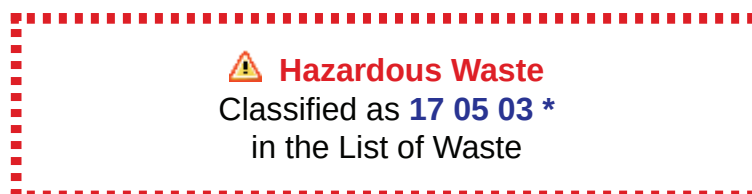
Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.035%)

Classification of sample: TP03



Sample details

Sample Name:	LoW Code:
TP03	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 03 * (Soil and stones containing hazardous substances)
24%	
(no correction)	

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.2%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.2%)

Determinands

Moisture content: **24%** No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				☒						
2	arsenic { arsenic trioxide }				<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %			<LOD
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.72 mg/kg	2.775	1.998 mg/kg	0.0002 %			
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.5 mg/kg	13.43	20.145 mg/kg	0.00201 %			
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %			<LOD
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %			
		215-160-9	1308-38-9								

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
7	copper { dicopper oxide; copper (I) oxide }			1	51	mg/kg	1.126	57.42	mg/kg	0.00574 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }				55	mg/kg	1.56	85.79	mg/kg	0.0055 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dihydroxide }				18	mg/kg	1.579	28.431	mg/kg	0.00284 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	034-002-00-8											
12	zinc { zinc chromate }				48	mg/kg	2.774	133.159	mg/kg	0.0133 %		
	024-007-00-3											
13	pH				7.4	pH		7.4	pH	7.4 pH		
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				1	mg/kg	1.884	1.884	mg/kg	0.000188 %		
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				2000	mg/kg		2000	mg/kg	0.2 %		
16	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
17	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
18	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
19	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20	acenaphthene				18	mg/kg		18	mg/kg	0.0018 %		
		201-469-6	83-32-9									
21	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
22	anthracene				11	mg/kg		11	mg/kg	0.0011 %		
		204-371-1	120-12-7									
23	benzo[a]anthracene				33	mg/kg		33	mg/kg	0.0033 %		
	601-033-00-9	200-280-6	56-55-3									
24	benzo[a]pyrene; benzo[def]chrysene				26	mg/kg		26	mg/kg	0.0026 %		
	601-032-00-3	200-028-5	50-32-8									
25	benzo[b]fluoranthene				26	mg/kg		26	mg/kg	0.0026 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[ghi]perylene				12	mg/kg		12	mg/kg	0.0012 %		
		205-883-8	191-24-2									
27	benzo[k]fluoranthene				14	mg/kg		14	mg/kg	0.0014 %		
	601-036-00-5	205-916-6	207-08-9									
28	chrysene				27	mg/kg		27	mg/kg	0.0027 %		
	601-048-00-0	205-923-4	218-01-9									
29	dibenz[a,h]anthracene				4.1	mg/kg		4.1	mg/kg	0.00041 %		
	601-041-00-2	200-181-8	53-70-3									
30	fluoranthene				80	mg/kg		80	mg/kg	0.008 %		
		205-912-4	206-44-0									
31	fluorene				16	mg/kg		16	mg/kg	0.0016 %		
		201-695-5	86-73-7									
32	indeno[123-cd]pyrene				11	mg/kg		11	mg/kg	0.0011 %		
		205-893-2	193-39-5									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
33	naphthalene									
	601-052-00-2	202-049-5	91-20-3		34 mg/kg		34 mg/kg	0.0034 %		
34	phenanthrene									
		201-581-5	85-01-8		75 mg/kg		75 mg/kg	0.0075 %		
35	pyrene									
		204-927-3	129-00-0		68 mg/kg		68 mg/kg	0.0068 %		
36	phenol									
	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.279 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.2%)

Classification of sample: TP04

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP04	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m		
Moisture content:		
16%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: **16% No Moisture Correction applied (MC)**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
1		confirm TPH has NOT arisen from diesel or petrol				☒								
2		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %			
		033-003-00-0	215-481-4	1327-53-3										
3		beryllium { beryllium oxide }				0.68		mg/kg	2.775	1.887	mg/kg	0.000189 %		
		004-003-00-8	215-133-1	1304-56-9										
4		boron {  boron tribromide/trichloride/trifluoride (combined) }					0.9		mg/kg	13.43	12.087	mg/kg	0.00121 %	
				10294-33-4, 10294-34-5, 7637-07-2										
5		cadmium { cadmium sulfide }			1		<0.2		mg/kg	1.285	<0.257	mg/kg	<0.00002 %	
		048-010-00-4	215-147-8	1306-23-6										
6		chromium {  chromium(III) oxide }				15		mg/kg	1.462	21.923	mg/kg	0.00219 %		
			215-160-9	1308-38-9										
7		copper { dicopper oxide; copper (I) oxide }					30		mg/kg	1.126	33.777	mg/kg	0.00338 %	
		029-002-00-X	215-270-7	1317-39-1										
8		lead { lead chromate }			1		61		mg/kg	1.56	95.149	mg/kg	0.0061 %	
		082-004-00-2	231-846-0	7758-97-6										
9		mercury { mercury dichloride }				<0.3		mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7										
10		nickel { nickel dihydroxide }					17		mg/kg	1.579	26.851	mg/kg	0.00269 %	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]										
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }					<1		mg/kg	2.554	<2.554	mg/kg	<0.000255 %	
		034-002-00-8												
12		zinc { zinc chromate }					330		mg/kg	2.774	915.468	mg/kg	0.0915 %	
		024-007-00-3												
13		pH					7.3		pH		7.3	pH	7.3 pH	
				PH										

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
15	TPH (C6 to C40) petroleum group				130 mg/kg		130 mg/kg	0.013 %			
			TPH								
16	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
17	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								
18	anthracene				0.2 mg/kg		0.2 mg/kg	0.00002 %			
		204-371-1	120-12-7								
19	benzo[a]anthracene				0.63 mg/kg		0.63 mg/kg	0.000063 %			
	601-033-00-9	200-280-6	56-55-3								
20	benzo[a]pyrene; benzo[def]chrysene				0.8 mg/kg		0.8 mg/kg	0.00008 %			
	601-032-00-3	200-028-5	50-32-8								
21	benzo[b]fluoranthene				0.81 mg/kg		0.81 mg/kg	0.000081 %			
	601-034-00-4	205-911-9	205-99-2								
22	benzo[ghi]perylene				0.43 mg/kg		0.43 mg/kg	0.000043 %			
		205-883-8	191-24-2								
23	benzo[k]fluoranthene				0.48 mg/kg		0.48 mg/kg	0.000048 %			
	601-036-00-5	205-916-6	207-08-9								
24	chrysene				0.74 mg/kg		0.74 mg/kg	0.000074 %			
	601-048-00-0	205-923-4	218-01-9								
25	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
26	fluoranthene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
		205-912-4	206-44-0								
27	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-695-5	86-73-7								
28	indeno[123-cd]pyrene				0.36 mg/kg		0.36 mg/kg	0.000036 %			
		205-893-2	193-39-5								
29	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
30	phenanthrene				1 mg/kg		1 mg/kg	0.0001 %			
		201-581-5	85-01-8								
31	pyrene				1.3 mg/kg		1.3 mg/kg	0.00013 %			
		204-927-3	129-00-0								
32	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.124 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.013%)

Classification of sample: TP05

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP05	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.70 m		
Moisture content:		
17%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				✔						
2	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %			
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.75 mg/kg	2.775	2.082 mg/kg	0.000208 %			
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.1 mg/kg	13.43	14.773 mg/kg	0.00148 %			
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	0.4 mg/kg	1.285	0.514 mg/kg	0.00004 %			
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide }				10 mg/kg	1.462	14.616 mg/kg	0.00146 %			
		215-160-9	1308-38-9								
7	copper { dicopper oxide; copper (I) oxide }				36 mg/kg	1.126	40.532 mg/kg	0.00405 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	86 mg/kg	1.56	134.144 mg/kg	0.0086 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				13 mg/kg	1.579	20.533 mg/kg	0.00205 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	034-002-00-8										
12	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg	0.0305 %			
	024-007-00-3										
13	pH				6.6 pH		6.6 pH	6.6 pH			
			PH								

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				140	mg/kg		140	mg/kg	0.014 %		
			TPH									
16	acenaphthene				0.99	mg/kg		0.99	mg/kg	0.000099 %		
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
		204-371-1	120-12-7									
19	benzo[a]anthracene				3.9	mg/kg		3.9	mg/kg	0.00039 %		
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				3.6	mg/kg		3.6	mg/kg	0.00036 %		
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				3.5	mg/kg		3.5	mg/kg	0.00035 %		
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				2.2	mg/kg		2.2	mg/kg	0.00022 %		
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				3.2	mg/kg		3.2	mg/kg	0.00032 %		
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				0.58	mg/kg		0.58	mg/kg	0.000058 %		
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				7	mg/kg		7	mg/kg	0.0007 %		
		205-912-4	206-44-0									
27	fluorene				0.72	mg/kg		0.72	mg/kg	0.000072 %		
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		205-893-2	193-39-5									
29	naphthalene				0.53	mg/kg		0.53	mg/kg	0.000053 %		
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				5.3	mg/kg		5.3	mg/kg	0.00053 %		
		201-581-5	85-01-8									
31	pyrene				6.7	mg/kg		6.7	mg/kg	0.00067 %		
		204-927-3	129-00-0									
32	phenol				1.3	mg/kg		1.3	mg/kg	0.00013 %		
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0698 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.014%)

Classification of sample: TP08

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP08	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40 m		
Moisture content:		
19%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: **19% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	confirm TPH has NOT arisen from diesel or petrol				☒							
2	arsenic { arsenic trioxide }				2.2	mg/kg	1.32	2.905	mg/kg	0.00029 %		
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				0.19	mg/kg	2.775	0.527	mg/kg	0.0000527 %		
	004-003-00-8	215-133-1	1304-56-9									
4	boron { boron tribromide/trichloride/trifluoride (combined) }				<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
5	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
6	chromium { chromium(III) oxide }				9.1	mg/kg	1.462	13.3	mg/kg	0.00133 %		
		215-160-9	1308-38-9									
7	copper { dicopper oxide; copper (I) oxide }				8.6	mg/kg	1.126	9.683	mg/kg	0.000968 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	10	mg/kg	1.56	15.598	mg/kg	0.001 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dihydroxide }				7.5	mg/kg	1.579	11.846	mg/kg	0.00118 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	034-002-00-8											
12	zinc { zinc chromate }				32	mg/kg	2.774	88.773	mg/kg	0.00888 %		
	024-007-00-3											
13	pH				6.5	pH		6.5	pH	6.5 pH		
			PH									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
16	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
17	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								
18	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		204-371-1	120-12-7								
19	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
20	benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
21	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
22	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-883-8	191-24-2								
23	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
25	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
26	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-912-4	206-44-0								
27	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-695-5	86-73-7								
28	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-893-2	193-39-5								
29	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
30	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-581-5	85-01-8								
31	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		204-927-3	129-00-0								
32	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0157 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP15

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
TP15	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **18% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				☒						
2	arsenic { arsenic trioxide }				<1 mg/kg	1.32	<1.32	mg/kg	<0.000132 %		<LOD
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.29 mg/kg	2.775	0.805	mg/kg	0.0000805 %		
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				0.3 mg/kg	13.43	4.029	mg/kg	0.000403 %		
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide }				12 mg/kg	1.462	17.539	mg/kg	0.00175 %		
		215-160-9	1308-38-9								
7	copper { dicopper oxide; copper (I) oxide }				8.4 mg/kg	1.126	9.457	mg/kg	0.000946 %		
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	14 mg/kg	1.56	21.837	mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				9.4 mg/kg	1.579	14.847	mg/kg	0.00148 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	034-002-00-8										
12	zinc { zinc chromate }				21 mg/kg	2.774	58.257	mg/kg	0.00583 %		
	024-007-00-3										
13	pH				6.7 pH		6.7	pH	6.7 pH		
			PH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
16	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
17	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
18	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
19	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
20	benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
21	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
22	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2							
23	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
24	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
25	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
26	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
27	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
28	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
29	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
30	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
31	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
32	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0137 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP17

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP17	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30 m		
Moisture content:		
17%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: **17% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				☒						
2	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %			
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.5 mg/kg	2.775	1.388 mg/kg	0.000139 %			
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				0.3 mg/kg	13.43	4.029 mg/kg	0.000403 %			
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %			<LOD
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %			
		215-160-9	1308-38-9								
7	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	38 mg/kg	1.56	59.273 mg/kg	0.0038 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				14 mg/kg	1.579	22.113 mg/kg	0.00221 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	034-002-00-8										
12	zinc { zinc chromate }				54 mg/kg	2.774	149.804 mg/kg	0.015 %			
	024-007-00-3										
13	pH				7.8 pH		7.8 pH	7.8 pH			
			PH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
15	TPH (C6 to C40) petroleum group				27 mg/kg		27 mg/kg	0.0027 %			
			TPH								
16	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
17	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								
18	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		204-371-1	120-12-7								
19	benzo[a]anthracene				0.14 mg/kg		0.14 mg/kg	0.000014 %			
	601-033-00-9	200-280-6	56-55-3								
20	benzo[a]pyrene; benzo[def]chrysene				0.22 mg/kg		0.22 mg/kg	0.000022 %			
	601-032-00-3	200-028-5	50-32-8								
21	benzo[b]fluoranthene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
	601-034-00-4	205-911-9	205-99-2								
22	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-883-8	191-24-2								
23	benzo[k]fluoranthene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
	601-036-00-5	205-916-6	207-08-9								
24	chrysene				0.24 mg/kg		0.24 mg/kg	0.000024 %			
	601-048-00-0	205-923-4	218-01-9								
25	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
26	fluoranthene				0.36 mg/kg		0.36 mg/kg	0.000036 %			
		205-912-4	206-44-0								
27	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-695-5	86-73-7								
28	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-893-2	193-39-5								
29	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
30	phenanthrene				0.24 mg/kg		0.24 mg/kg	0.000024 %			
		201-581-5	85-01-8								
31	pyrene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
		204-927-3	129-00-0								
32	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0316 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No significant volatile or calorific material has been identified.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0027%)

Appendix A: Classifier defined and non CLP determinands

• confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

• boron tribromide/trichloride/trifluoride (combined) (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Conversion factor: 13.43
Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: Skin Corr. 1B H314 , Skin Corr. 1A H314 , Acute Tox. 2 H300 , Acute Tox. 2 H330 , EUH014

• chromium(III) oxide (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

• pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

• salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s)/Risk Phrase(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

• ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

• acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2 H351

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on risk phrases

beryllium {beryllium oxide}

Worst case species based on risk phrases

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on risk phrases

cadmium {cadmium sulfide}

Worst case species based on risk phrases

chromium {chromium(III) oxide}

Chromium VI concentrations all below laboratory LoD.

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead chromate}

Worst case species based on risk phrases

mercury {mercury dichloride}

Worst case species based on risk phrases

nickel {nickel dihydroxide}

Worst case species based on risk phrases

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on risk phrases

zinc {zinc chromate}

Worst case species based on risk phrases

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**

HazWasteOnline Classification Engine Version: 2019.256.4006.8076 (13 Sep 2019)

HazWasteOnline Database: 2019.256.4006.8076 (13 Sep 2019)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010

2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

