Tionscadal Soláthair Uisce
Water Supply Project

Environmental Impact Assessment Report (EIAR)

Volume 6 of 6: Appendices

(Appendix 10.14) Supplemental Ground Investigations for Lot 3

Document no: 32105801/EIARA10.14
Version: Final

December 2025

Uisce Éireann
Irish Water

Jacobs

TOBIN

IRISH DRILLING LIMITED

LOUGHREA, CO. GALWAY, IRELAND

CONTRACT DRILLING
SITE INVESTIGATION

Phone: (091) 841 274
Fax: (091) 847 687

email: info@irishdrilling.ie

WSP LOT 3, PIPELINE (SUPPLEMENTARY)

GROUND INVESTIGATION CONTRACT FACTUAL REPORT

FINAL

Irish Water,
Covill House,
24-26 Talbot Street,
Dublin 1.

Mott MacDonald Ireland,
Consulting Engineers,
Rockfield,
Dundrum,
Dublin 16.

	Prepared by	Approved by	Rev. Issue Date:	Revision No.
	Ronan Killeen	Declan Joyce	24th March 2023	22 _KE _103/03
Signature				

FOREWORD

The borehole records have been compiled from an examination of the samples by a Geotechnical Engineer and from the Drillers' descriptions.

The report presents an opinion on the configuration of the strata within the site based on the borehole sampling results. The assumptions, though reasonable, are given for guidance only and no liability can be accepted for changes in conditions not revealed by the borehole samples.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

Contents:

11.1 Introduction.

The Water Supply Project (WSP) – Eastern and Midlands Region is a scheme to provide water from the River Shannon and pipe it east to the Dublin Region.

The proposed scheme extends from Parteen Basin in North Tipperary to Peamount Reservoir in West Dublin with a proposal to transport water approximately 170km.

The proposed civil works will include the construction of some or all of the following:

- Raw Water Abstraction Point.
- Raw Water Intake and Pumping Station.
- Raw Water Rising Main.
- Water Treatment Plant connected to the Raw Water Rising Main.
- A pressurised pipeline extending from the WTP to a new Break Pressure Tank (BPT).
- A gravity fed pipeline from the BPT to a Terminal Point Reservoir (TPR).

The geotechnical investigation works for the overall project has been divided into three lots as follows:

Lot 1 (Contract 1):

- Raw Water Intake
- Raw Water Rising Main
- Water Treatment Plant
- Pipeline Ch.0 to Ch36,000 (36km)

Lot 2 (Contract 2):

- Break Pressure Tank
- Pipeline Ch.36,000 to Ch. 103,000 (67km)

Lot 3 (Contract 3):

- Termination Point Reservoir
- Pipeline Ch. 103,000 to 170,000 (67km)

Irish Drilling Ltd. (IDL) has been awarded Lot 2 (Contract 2) and as part of this contract IDL has been instructed by Mott Macdonald Ireland, Consulting Engineers, on behalf of Irish Water to carry out a site investigation along the proposed pipeline route from Chainage 36,000m to Chainage 103,000m (a distance of circa 67km).

As an extension to this Contract 2 IDL was further instructed to carry out some geotechnical investigation works along the pipeline route for Lot 3 (Contract 3). The works along the pipeline route for Lot 3 (Contract 3) were carried out between chainages Ch. 103,000m to 170,000m.

This site investigation was carried out to provide detailed factual geotechnical information of the underlying ground conditions along the pipeline route.

The factual report issued here for the Lot 3 pipeline route will be collated with all other factual reports generated for the WSP Project (Lots 1 to 3) to provide the client with a factual report for the overall WSP Eastern and Midlands Region Project.

The fieldwork commenced on September 27th 2021 and was completed on June 15th 2022.

11.2 Site & Geology

The proposed Lot 3 pipeline route commences at Chainage 103,000m and ends at Chainage 170,000m.

The fieldwork was carried out predominantly on agricultural lands. Weather conditions in general were quite variable with the majority of the fieldwork carried out over a typical summer period in Ireland.

A Site Plan, prepared by the client's representatives and amended by IDL to show approximate 'As-Built' fieldwork locations, is included with this report.

The following were the main published information sources used:
Geological Map of Ireland: 1:100,000 scale map series.

Site investigation data is available as point source data along the proposed route, and the majority of the ground in between the points can only be assumed to follow the characteristics of the nearest available data.

Overview of Subsoil Geology
Peat:
The deposition of peat occurred in post-glacial periods and is generally associated with the start of warmer and wetter climatic conditions. Peat is an unconsolidated usually dark brown to black organic material comprising a mixture of decomposed and undecomposed plant matter that accumulated in an acidic waterlogged environment. Peat has an extremely high-water content generally averaging over 90% by volume.

Estuarine Deposits:
These comprise of estuarine sands, gravels and silts from water borne deposits.

Glacial Till:
Glacial Till is what was often referred to as Boulder Clay. It is a diverse material that is largely deposited sub-glacially and has a wide range of characteristics due to the variety of parent materials and different processes of deposition. Tills are tightly packed, unsorted, heterogeneous, unbedded, and can have a wide range of particle sizes and types, which are often but not exclusively angular or sub-angular.

The type of parent material plays a critical role in providing the particles that create different subsoil permeability with sandstones giving rise to a high proportion of sand sized grains in the till matrix.

The Quarternary sediments are Till derived from limestone (Map Reference GSI: 1:10000).

Solid Geology
The Geological Map of Ireland: (GSI 1:100,000 scale map series) indicate that the site is underlain by mudstone and limestone rock of the Dinantian Waulsortian Limestone Formation and thinly a bedded fine and medium grained oolitic limestone of the Edenderry Oolitic Member.

Ground conditions encountered during the completion of the fieldwork were typical and as expected for this region and predominantly consisted of Peat over Glacial Tills and/or Glacial Tills.

The Glacial Tills in general consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

Very soft brown peat and/or organic silt was encountered in a number of boreholes to depths ranging from 1.20m to 4.90m below ground level.

Intact bedrock was encountered in the boreholes at depths ranging from 8.20m to 9.70m below ground level. Weathered bedrock was also encountered in a number of the boreholes at shallower depths while many of the boreholes were terminated at target depth without bedrock being encountered.

Bedrock is predominantly described as strong and very strong, thinly-bedded, grey, fine and medium grained Limestone.

For detailed descriptions of the ground conditions encountered please refer to the borehole logs included as Appendix 6A.

11.3 Fieldwork.

11.3.1 Fieldwork Plant:

The following plant was mobilised to site by IDL to carry out fieldwork operations:
1nr. Dando 2000 Cable Percussive Boring Rig.
1nr. DeltaBase 520 Rotary Core Drilling Rig.
1nr. GEO 602 Rotary Core Drilling Rig.
3 nr. Yanmarr All-Terrain Support Vehicle.
1nr. GeoboreS Drill String.
1nr. HQ Rotary Core Drill String.
1nr. Permeability Test Equipment.
1nr. Honda Water Supply Pump.
2nr. Drilling Water Recirculation Tank System.

Fieldwork carried out to date has included the following:

11.3.2 Fieldwork Operations:

A general summary of fieldwork operations carried out to date includes the following:

- Completion of 1nr GeoboreS Borehole.
- Completion of 6nr Cable Percussive Boreholes.
- Completion of 18nr Cable Percussive with Rotary Core 'follow-on' Boreholes.
- Completion of Standard Penetration Tests in overburden at borehole locations.
- Completion of 2nr Variable Head Permeability Tests at borehole locations.
- Installation of 12nr 50mm diameter standpipes at borehole locations.

11.3.3 Cable Percussive Boreholes:

Six cable percussion (Shell & Auger) boreholes were completed using a Dando 2000 Cable Percussive Boring Rig. The boreholes were bored to 'refusal' or to depths as instructed by the client's representatives.

The borehole depths ranged from 8.10m to 12.00m below ground level.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client's representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and were returned to the laboratory and logged by a Geotechnical Engineer and presented for testing. Groundwater samples were taken where possible and returned to the laboratory for storage and analysis.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-121326
BH-145414
BH-147850

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Detailed engineering logs for the cable percussive boreholes completed are included with this report in Appendix 6A.

11.3.4 Cable Percussive with Rotary Core 'Follow-On' Boreholes:
Eighteen cable percussion (Shell & Auger) with rotary core 'follow-on' boreholes were completed using a Dando 2000 Cable Percussive Boring Rig and GEO602/DB520 Rotary Core Drill Rigs.

The borehole depths ranged from 10.10m to 15.00m below ground level. The boreholes were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The cable percussive element of the boreholes were bored to 'refusal' or to depths as instructed by the client's representatives while the rotary core boreholes were carried out as 'follow-on' rotary core boreholes at locations where the cable percussive boreholes encountered relatively 'shallow' refusals.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client's representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and were returned to the laboratory and logged by a Geotechnical Engineer and presented for testing. Groundwater samples were taken where possible and returned to the laboratory for storage and analysis.

The rotary core drilling was carried out using HQ size (64mm core diameter, 96mm hole diameter) drill strings with wireline drilling techniques were used to recover the core samples.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.
The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-117150
BH-118375
BH-118987
BH-119542
BH-119737
BH-135774
BH-136209
BH-136548
BH-143428

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Two Variable Head Permeability Tests were carried out at borehole BH 143428 and the records of same are included as Appendix 6E, Part 1.

Detailed engineering logs for the cable percussive with rotary core 'follow-on' boreholes completed are included with this report in Appendix 6A.

11.3.5 Soils/Rock Rotary Core Boreholes (GeoboreS):
One rotary core borehole using GeoboreS drilling techniques was carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The borehole was carried out to a depth of 10.00m below ground level.

The rotary core boreholes were carried out as 'stand-alone' rotary core boreholes using wireline drilling techniques to recover soil and rock core samples.

GeoboreS drill strings ((101mm core diameter, 146mm hole diameter) were used to recover soil core samples in the overburden.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

In-Situ testing consisting of Standard Penetration Tests were carried out in the overburden at regular intervals.

Detailed engineering logs for the soils/rock rotary core boreholes (GeoboreS) boreholes completed are included with this report in Appendix 6A.

11.3.6 General Summary:

The borehole locations were set out on site using a Trimble CU Bluetooth GPS Surveying Unit and the co-ordinates are included on the logs presented in the appendices.

All fieldwork co-ordinates are reported to Irish Transverse Mercator (ITM) with Reduced Levels recorded relative to Malin Head Datum and with an accuracy level of + or – 0.10m.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930:2015+A1:2020 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

11.4 Laboratory Testing

Representative samples recovered from the boreholes were scheduled for testing in the laboratory.

The test schedules were prepared by the Client's Engineer and included the following tests on bulk disturbed soil samples and/or undisturbed soil samples:

Test Type:	Number
Moisture Content	78
Atterberg Limit	54
Particle Size Distribution	78
Sedimentation	52
Organic Content	10
Loss on Ignition	09
Chemical (pH, Sulphate)	10
Compaction (Light)	04
Compaction (Heavy)	01
Moisture Condition Value	02
Direct Shearbox (Small)	03
BRE, Suite B	27
BRE, Suite D	01

The test schedules also included the following tests on rock core samples:

Test Type:	Number
UCS	05
Point Load	09

The test schedules were carried out predominantly at the IDL Laboratory located at Loughrea, County Galway and Structural Soils Ltd., Castleford, UK.

A number of specialist tests not available at the IDL laboratory were carried out by designated laboratories on a subcontract basis as follows:

Laboratory chemical tests (BRE Suite) were carried out by Envirolab Ltd., Cheshire, UK.

Envirolab, Cheshire, UK is accredited to ISO/IEC 17025:2017 (UKAS).

Structural Soils Ltd., Castleford, UK is accredited to ISO/IEC 17025:2017 (UKAS).

Soil samples (disturbed and undisturbed) in general were recovered from the completion of cable percussive boreholes. Soil and/or rock core samples were recovered from the completion of rotary core boreholes and the records of the laboratory test results carried out on same are reported in Appendix 6H.

The soil and rock descriptions as noted on the borehole logs are in general visual descriptions as observed and logged by our Engineers and are described in accordance with IS EN 1997-2 and BS5930:2015+A1:2020 Code of Practice for Site Investigations.

Soils descriptions (cohesive or otherwise) are also initially assessed based on the texture and 'feel' of the soil materials as witnessed by our Geotechnical Engineers and in accordance with IS EN 1997-2 and BS5930:2015+A1:2020.

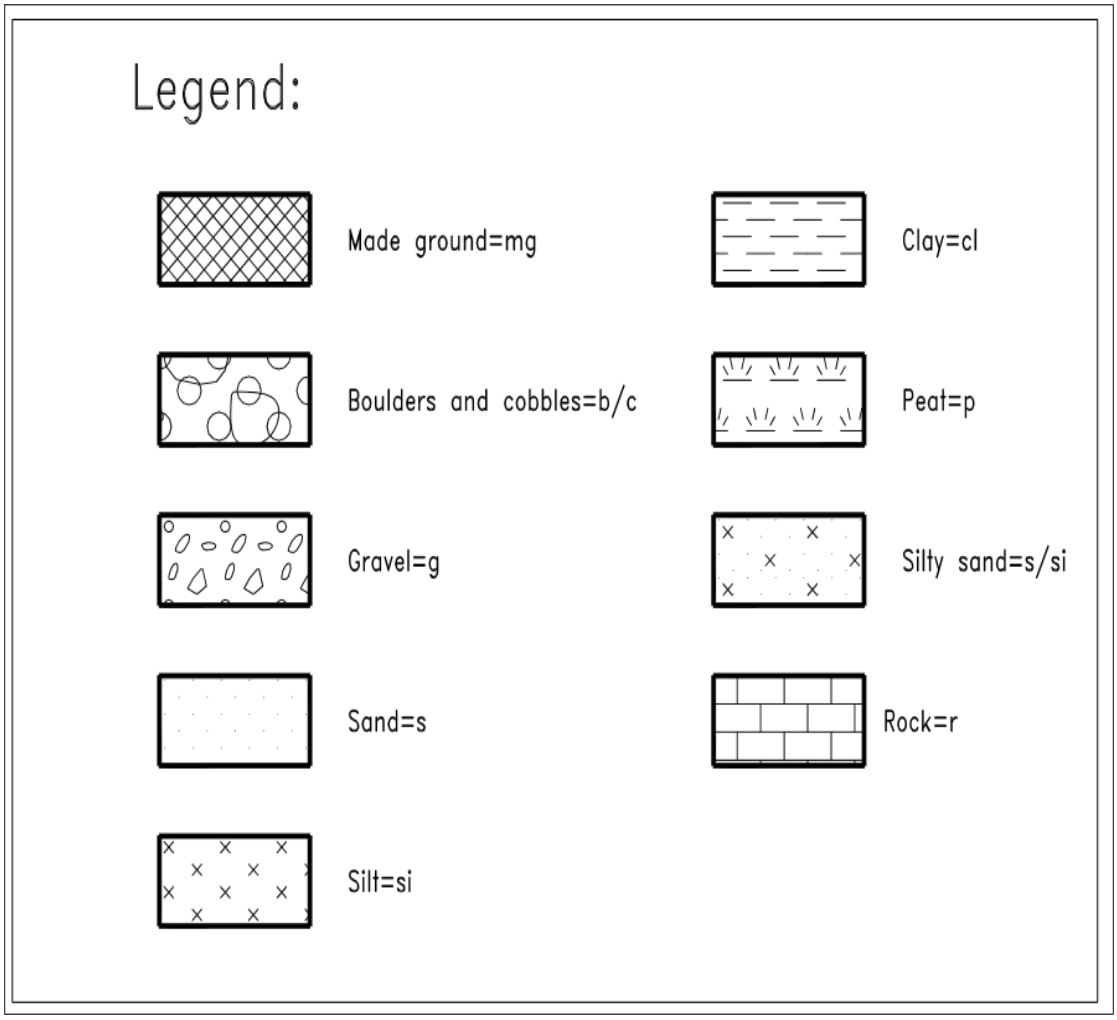
Where laboratory classification tests have been carried out on soil and/or rock samples then these visual descriptions have been amended accordingly to take into account the results of these classification tests.

The records of the laboratory test results are included with this report as Appendix 6H.

Ronan Killeen
Chartered Engineer
Irish Drilling Limited
March 24th 2023

Appendix 11A
Borehole Records

The following Key Legend Table details the symbology used in general on the engineering logs to describe ground conditions encountered:



Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117150**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	28-06-22 03-08-22	74.19	E 657,064.0 N 728,282.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.60m 4.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			73.79		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly sandy SILT. Sand is fine to coarse.	
				73.29		(0.50) 0.90	Firm grey silty CLAY.	
1.00	SPT	N = 27 (3, 3, 6, 9, 6, 6)					Stiff damp brown slightly gravelly sandy slightly clayey SILT. Sand is fine to medium. Gravel is subangular to subrounded fine and medium of assorted brown sandstone and assorted grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 30 (4, 2, 5, 6, 8, 11)						
2.00-2.50	B7							
2.50	D8					(3.70)		
3.00	SPT	N = 24 (3, 5, 6, 5, 6, 7)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 58 (6, 10, 10, 11, 17, 20)	1				4.00m: becoming very stiff slightly sandy. Sand is fine to medium.	
4.00-4.50	B13							
4.50	D14		1	69.59		4.60		
4.60	B15						Dense brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine and medium of assorted brown sandstone and assorted grey limestone.	
4.60	D16					(0.50)		
5.00	SPT	50 for 10 mm (25, 50)		69.09		5.10	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
26-06-22	17.00	5.20	3.00 5.10	84 203	2.90	2.45	2.7	1:00			50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117150**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	28-06-22 03-08-22	74.19	E 657,064.0 N 728,282.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
26.06 26.06 5.10	20 - -		69.09		5.10	5.10 - 10.10 : overburden.	Very dense subangular to subrounded fine and medium assorted brown sandstone and assorted grey limestone GRAVEL.	
5.80	19 - -				(2.10)			
			66.99		7.20			
7.40		7.40 (52)					Very stiff light orangish brown silty CLAY.	
	27 - -				(1.80)			
8.90		8.90 (60)	65.19		9.00			
	25 - -				(1.10)		Very dense subangular to subrounded fine and medium assorted brown sandstone and assorted grey limestone GRAVEL with a little orangish brown clay.	
03.08 10.10		10.10 (53)	64.09		10.10		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
26/06/22 03/08/22	17.00 17.00	5.20 10.10	5.10	203			2.90

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.1	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117542**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	24-06-22 02-08-22	75.71	E 657,414.5 N 728,468.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			75.31		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 17 (3, 2, 4, 4, 3, 6)				(1.60)	Firm brown silty very sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with medium cobble content and organic material. Sand is fine to medium. Cobbles are subrounded to rounded of assorted grey limestone. 1.00m: becoming medium dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			73.71		2.00		
2.00	SPT	N = 25 (4, 4, 5, 7, 6, 7)				(1.10)	Stiff brown sandy gravelly SILT with medium cobble content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
2.00-2.50	B7							
2.50	D8			72.61		3.10		
3.00	SPT	N = 31 (3, 7, 6, 9, 8, 8)				(0.80)	Very stiff brown sandy SILT. Sand is fine to medium.	
3.00-3.50	B10							
3.50	D11			71.81		3.90		
3.80	SPT	50 for 0 mm (25, 50)		71.71		4.00	Obstruction as limestone boulder. *Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
24-06-22	17.00	4.00	3.00 4.00	84 203	

Chiselling

From	To	Hours
3.9	4	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117542**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	24-06-22 02-08-22	75.71	E 657,414.5 N 728,468.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
24.06 4.00	25		71.71		4.00	4.00 - 10.10 : overburden.		Orangish brown slightly silty very sandy subangular coarse assorted grey limestone GRAVEL. Sand is medium.	
4.20	-								
	-								
	21								
	-								
	-								
5.60		5.60 (52)						5.60m: very dense.	
	13								
	-								
	-								
7.20		7.20 (48)			(6.10)			7.20m: becoming dense.	
	27								
	-								
	-							8.40m: becoming very dense.	
8.70		8.70 (50/75mm)							
	47								
	-								
	-								
02.08 10.10		10.10 (50/75mm)	65.61		10.10			BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
24/06/22	17.00	4.00	4.00	203			
02/08/22	16.00	10.10					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
4	10.1	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117728**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-08-22 11-08-22	77.32	E 657,571.2 N 728,501.2

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00						0.00 - 10.00 : overburden.		Open hole drilling. No recovery.	
	- - -				(1.50)				
1.50			75.82		1.50				
		1.50 (26)						Medium dense brown silty very gravelly fine to coarse SAND interbedded with rounded to subrounded fine to coarse assorted brown sandstone and grey limestone gravel.	
	33 - -								
3.50		3.50 (38)						3.50m: becoming dense.	
	47 - -								
5.00		5.00 (39)						4.80m to 5.00m: sand becoming dark grey medium to coarse.	
	47 - -				(8.50)				
6.50		6.50 (47)						6.50m: becoming gravelly very silty.	
	47 - -								
8.00									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
			1.50	101			

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Polymer	100

GENERAL REMARKS

1 gallon polydrill used. BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used CS-14		Driller DC	Logged By EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117728**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-08-22 11-08-22	77.32	E 657,571.2 N 728,501.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
	50 - -	8.00 (35)						Medium dense brown silty very gravelly fine to coarse SAND interbedded with rounded to subrounded fine to coarse assorted brown sandstone and grey limestone gravel. *(continued)* 8.00m to 8.10m: sand becoming dark grey medium to coarse.	
9.50	80 - -	9.50 (39)							
11.08 10.00			67.32		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/08/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

1 gallon polydrill used. BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used CS-14		Driller DC	Logged By EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117778**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	26-06-22 28-07-22	77.11	E 657,635.8 N 728,506.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.00)	MADE GROUND: Grass over brown silty sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are rounded of limestone.	
				76.11		1.00		
1.00	SPT	59 for 95 mm (5, 11, 27, 32)					Brown silty sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are rounded of limestone.	
				75.81		1.30		
1.00	D2			75.71		1.40		
1.00-1.40	B4						Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
24-06-22	11.30	1.40	1.30	203	

Chiselling

From	To	Hours
0.4	0.8	1:00
1.3	1.4	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117778**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	26-06-22 28-07-22	77.11	E 657,635.8 N 728,506.9

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
24.06 1.40	- -		75.71		1.40
1.50	- -		75.61		1.50
	27 - -				(1.50)
3.00			74.11		3.00
	71 - -	3.00 (50/150mm)			
3.70					
	19 - -				
5.30		5.30 (50/0mm)			
	13 - -				(6.30)
6.90		6.90 (54)			
	50 - -				
7.70					
	19 - -				
9.30		9.30	67.81		9.30

STRATA DESCRIPTION

Discontinuities	Detail	Main
1.40 - 15.00 : overburden.		Open hole drilling. No recovery.
		Brownish grey silty fine to coarse SAND. (0.40m recovered).
		Very dense slightly silty slightly sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of assorted grey limestone.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
24/06/22	11.30	1.40					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.4	15	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-117778**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	26-06-22 28-07-22	77.11	E 657,635.8 N 728,506.9

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
		(41)						Dense pinkish brown silty gravelly medium SAND. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. (1.20m recovered). *(continued)*	
	38 -								
10.90					(3.20)				
	44 -								
12.50			64.61		12.50				
		12.50 (50/75mm)						Very dense subangular to subrounded fine to coarse brown sandstone and assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.	
	53 -								
14.00		14.00 (50/75mm)			(2.50)				
	70 -								
28.07 15.00			62.11		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
28/07/22	17.00	15.00	15.00	84								BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118164**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	23-06-22 29-07-22	74.26	E 658,015.9 N 728,481.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.80m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.00)	TOPSOIL: Grass over brown silty sandy subangular to subrounded fine and medium assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content and organic material. Sand is fine to coarse. Cobbles are subangular to subrounded of assorted grey limestone.	
				73.26		1.00		
1.00	SPT	N = 23 (4, 5, 4, 4, 7, 8)					Stiff greyish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 31 (4, 4, 7, 8, 7, 9)				(2.40)	2.00m: becoming very stiff.	
2.00-2.50	B7							
2.50	D8		▼					
3.00	SPT	67 for 235 mm (3, 5, 8, 10, 40, 9)						
3.00-3.50	B10			70.86		3.40		
				70.76		3.50	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
23-06-22	16.00	3.50	1.50 3.50	84 203	3.00

Chiselling

From	To	Hours
0.7 3.45	1 3.5	1:00 1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118164**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	23-06-22 29-07-22	74.26	E 658,015.9 N 728,481.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
23.06 3.50			70.76		3.50	3.50 - 8.90 : overburden.	Brown slightly clayey sandy silty subangular to subrounded coarse assorted brown sandstone and assorted grey limestone GRAVEL. Sand is fine to coarse.	
	13 -							
4.50					(2.10)			
	18 -							
5.60			68.66		5.60			
		5.60 (50/150mm)					Very stiff orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
	35 -							
7.00		7.00 (53/225mm)			(3.30)			
	38 -							
8.60		8.60 (50/75mm)	65.36		8.90			
	100 (71) 54	4			(1.20)	8.90 - 10.10 Discontinuities, medium spaced, locally closely spaced, dipping 14 to 18°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear.	Strong locally very strong thinly bedded grey fine and medium grained OOLITIC LIMESTONE. UCS - 8.90m to 9.20m: strong. Point Load Test - 9.20m to 9.40m: strong. Point Load Test - 9.60m to 9.75m: very strong.	
29.07 10.10			64.16		10.10			
							BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
23/06/22	16.00	3.50	3.50	203			3.00
29/07/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	10.1	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118375**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	09-08-22 10-08-22	74.75	E 658,194.4 N 728,392.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			74.35		(0.40) 0.40	TOPSOIL: Grass over firm brown silty CLAY.	
1.00	SPT	N = 19 (8, 7, 4, 5, 4, 6)				(2.80)	Brown very silty very sandy subangular to angular fine and coarse assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is medium to coarse. Cobbles are subrounded to rounded of assorted grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 30 (5, 4, 6, 7, 9, 8)						
2.00-2.50	B7							
2.50	D8							
2.60	SPT	48 for 160 mm (4, 7, 11, 12, 25)					2.60m: becoming dense.	
3.00	SPT	55 for 50 mm (10, 10, 55)		71.55		3.20		
3.00-3.30	B10			71.45		3.30	Obstruction as limestone boulder. *Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
09-08-22	12.00	3.30	2.60 3.30	84 203	

Chiselling

From	To	Hours
0.7 3.2	1 3.3	1:00 1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS14		Driller: BT/DC	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118375**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	09-08-22 10-08-22	74.75	E 658,194.4 N 728,392.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
09.08 3.30	50 - -		71.45		3.30	3.30 - 10.10 : overburden.	Very dense subangular to subrounded fine to coarse assorted grey sandstone and assorted grey limestone GRAVEL.	
4.20		4.20 (25/20mm)			(2.30)			
5.60	78 - -		69.15		5.60			
		5.60 (62)					Very stiff orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of assorted brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
	94 - -				(1.60)			
7.20			67.55		7.20			
		7.20 (38/85mm)					Brown sandy very silty subangular to angular medium and coarse assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is medium to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
8.60	100 - -	8.60 (58)			(2.90)			
10.08 10.10			64.65		10.10			
							BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
09/08/22	12.00	3.30	3.30	203			
10/08/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.3	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS14	Driller BT/DC	Logged By EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118987**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	27-06-22 04-08-22	76.63	E 658,804.2 N 728,231.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
				76.03		0.60		
						(0.40)	Firm brown sandy SILT with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
				75.63		1.00		
1.00	SPT	N = 37 (4, 10, 11, 9, 8, 9)					Dense brown silty sandy subrounded to subangular fine to coarse assorted brown sandstone and assorted grey limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	D2					(0.70)		
1.00-1.50	B4							
1.50	D5			74.93		1.70		
1.70	SPT	50 for 15 mm (25, 50)		74.83		1.80	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
27-06-22	11.00	1.80	1.50 1.50	84 203	

Chiselling

From	To	Hours
0.6 1.7	0.9 1.8	1:00 1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118987**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	27-06-22 04-08-22	76.63	E 658,804.2 N 728,231.5

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
27.06 1.80	40 - -		74.83		1.80
3.00	25 - -	3.00 (42)			(2.40)
4.20	38 - -	4.20 (50/150mm)	72.43		4.20
5.80	35 - -	5.80 (52)	70.83		(1.60) 5.80
7.20	38 - -	7.20 (50/0mm)			(4.30)
8.60	23 - -	8.60 (58)			

STRATA DESCRIPTION

Discontinuities	Detail	Main
1.80 - 10.10 : overburden.		Dark greyish brown gravelly silty fine and medium SAND. Gravel is subrounded to subangular fine to coarse assorted brown sandstone and assorted grey limestone. (0.80m recovered).
		3.00m: dense.
		Brown sandy silty subrounded to subangular fine to coarse assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.
		Very stiff reddish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.
		8.60m: becoming very gravelly.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
27/06/22	11.00	1.80					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.8	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-118987**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	27-06-22 04-08-22	76.63	E 658,804.2 N 728,231.5

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
04.08 10.10			66.53		10.10			BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
04/08/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-119542**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	27-06-22 05-08-22	75.57	E 659,368.3 N 728,387.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			75.17		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 29 (5, 4, 7, 8, 7, 7)					Firm light brown slightly sandy slightly gravelly clayey SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of assorted brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone. 1.00m: becoming stiff.	
1.00	D2							
1.00-1.50	B4					(2.10)		
1.50	D5							
2.00	SPT	N = 23 (3, 7, 4, 5, 5, 9)						
2.00-2.50	B7			73.07		2.50		
2.50	D8						Light brown very sandy very silty subangular to rounded fine to coarse assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
3.00	SPT	51 for 265 mm (6, 8, 8, 5, 26, 12)				(0.95)		
3.00-3.50	B10			72.12		3.45		
3.50	D11			71.97		3.60	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
27-06-22	17.00	3.60	1.50 3.40	84 203		3.45	3.6	1:00			50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG/IP	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-119542**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	27-06-22 05-08-22	75.57	E 659,368.3 N 728,387.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
27.06 3.60	42 - -		71.97		3.60	3.60 - 10.10 : overburden.	Very stiff reddish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of assorted brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
4.20								
	71 - -							
5.60		5.60 (49)			(3.60)			
	31 - -							
7.20		7.20 (44)	68.37		7.20		Dense reddish brown slightly gravelly silty fine and medium SAND. Gravel is angular to subangular fine to coarse of assorted brown sandstone and assorted grey limestone. (1.00m recovered).	
	35 - -							
8.60		8.60 (50)			(2.90)		8.60m: becoming very dense.	
	40 - -							
05.08 10.10		10.10 (54)	65.47		10.10		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
27/06/22	17.00	3.60					
05/08/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.6	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG/IP	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-119737**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	08-08-22 09-08-22	72.71	E 659,571.9 N 728,316.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-3.00	C						Grass over brown very sandy very silty subrounded to subangular fine to medium assorted brown sandstone and assorted grey limestone GRAVEL. Sand is fine to coarse.	
0.00-1.00	B1					(1.00)		
				71.71		1.00		
1.00	SPT	N = 22 (5, 4, 6, 5, 5, 6)					Medium dense grey very silty very sandy subrounded to subangular fine to medium assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(1.50)		
2.00	SPT	N = 43 (4, 5, 7, 8, 11, 17)					2.00m: becoming dense.	
2.00-2.50	B7			70.21		2.50		
2.50	D8						Dense greyish green very silty very sandy subrounded to subangular fine to medium assorted brown sandstone and assorted grey limestone GRAVEL with high coble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
3.00	SPT	57 for 150 mm (8, 10, 10, 17, 30)				(0.90)		
3.00-4.20	C			69.31		3.40		
3.00-3.50	B10			69.21		3.50	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-08-22	17.00	3.50	3.00 3.40	84 203		1.6 2.4 3.4	1.9 2.6 3.5	1:00 1:00 1:00			50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS14		Driller: BT/DC	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-119737**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	08-08-22 09-08-22	72.71	E 659,571.9 N 728,316.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
08.08	50		69.21		3.50
4.20		4.20 (41)			
	28				
5.60		5.60 (39)			
	33				
					(6.60)
7.10		7.10 (45)			
	33				
8.60		8.60 (37/85mm)			
	60				
09.08 10.10		10.10 (39)	62.61		10.10

STRATA

DESCRIPTION			Instrument/ Backfill
Discontinuities	Detail	Main	
3.50 - 10.10 : overburden.		Dense dark brownish grey gravelly silty fine to coarse SAND. Gravel is subrounded to subangular fine of assorted brown sandstone and assorted grey limestone.	
		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/08/22	17.00	3.50					
09/08/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS14		Driller BT/DC	Logged By EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-121326**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	09-08-22 10-08-22	67.25	E 661,062.6 N 727,972.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 3.60m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1						Reeds over soft blackish brown PEAT.	
						(1.40)		
1.00	SPT	N = 2 (1, 0, 0, 0, 1, 1)						
1.00	D2			65.85		1.40		
1.00-1.50	B4						Very loose grey lightly sandy SILT. Sand is fine.	
1.50	D5							
2.00	SPT	N = 18 (3, 2, 4, 5, 5, 4)					2.00m: becoming medium dense.	
2.00-2.50	B7							
2.50	D8							
						(3.10)		
3.00	SPT	N = 18 (3, 3, 4, 2, 5, 7)						
3.00-3.50	B10							
3.50	D11		1					
4.00	SPT	N = 20 (4, 4, 4, 5, 6, 5)						
4.00-4.50	B13		1	62.75		4.50		
4.50	D14						Medium dense grey silty fine to medium SAND.	
5.00	SPT	N = 29 (3, 5, 6, 8, 8, 7)						
5.00-5.50	B16							
5.50	D17							
						(3.90)		
6.50	SPT	N = 29 (3, 4, 7, 7, 7, 8)						
6.50-7.00	B19							
7.00	D20							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
09-08-22	16.30	2.00									50mm standpipe installed.
10-08-22	08.00	2.00									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-121326**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	09-08-22 10-08-22	67.25	E 661,062.6 N 727,972.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 3.60m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 23 (5, 3, 4, 7, 6, 6)					Medium dense grey silty fine to medium SAND. *(continued)*	
8.00-8.50	B22			58.85		8.40		
8.50	D23						Medium dense grey silty very gravelly fine to medium SAND. Gravel is subrounded to rounded fine to medium of assorted grey limestone.	
						(1.60)		
9.50	SPT	N = 14 (3, 2, 4, 2, 4, 4)						
9.50-10.00	B25			57.25		10.00		
10.00	D26						BH terminated at 10.00m bgl on REs instruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-08-22	17.00	10.00	10.00	203	3.20						50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-135774**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	29-06-22 19-07-22	81.71	E 672,743.0 N 731,370.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.45)	TOPSOIL: Grass over soft black CLAY.	
				81.26		0.45		
							Medium dense grey silty very sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	SPT	N = 18 (3, 2, 4, 5, 4, 5)						
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 23 (2, 5, 6, 6, 5, 6)				(3.55)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 23 (3, 4, 4, 4, 7, 8)						
3.00-3.50	B10							
3.50	D11							
				77.71		4.00		
4.00	SPT	N = 34 (5, 7, 9, 8, 8, 9)					Dense grey very silty very gravelly coarse to fine SAND. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
4.00-4.50	B13							
4.50	D14					(1.40)		
5.00	SPT	57 for 255 mm (8, 10, 9, 9, 11, 28)					5.00m: becoming very dense.	
5.00-5.50	B16		1	76.31		5.40		
				76.21		5.50	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
29-06-22	14.00	5.50	1.50 5.40	84 203	5.50

Chiselling

From	To	Hours
5.4	5.5	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-135774**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	29-06-22 19-07-22	81.71	E 672,743.0 N 731,370.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
29.06 5.50	87		76.21		5.50
5.80	- -				
	47				(3.30)
	- -				
7.30		7.30 (50/225mm)			
	8				
	- -				
8.50		8.50 (50/150mm)			
			72.91		8.80
	25				(1.30)
	- -				
19.07 10.10		10.10 (50/150mm)	71.61		10.10

STRATA

Discontinuities	Detail	DESCRIPTION: Main	Instrument / Backfill
5.50 - 10.10 : overburden.		Very stiff light orangish brown slightly sandy gravelly SILT with low cobble content. Sand is medium to coarse. Gravel is subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
		Very dense white slightly silty slightly sandy angular medium weakly dolomitised limestone GRAVEL.	
		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
29/06/22	14.00	5.50					5.50
19/07/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.5	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-135905**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	29-06-22 18-07-22	83.67	E 672,791.9 N 731,470.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.40 0.00-1.00	C B1			83.27		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
				82.97		0.70	Firm greyish brown CLAY.	
1.00 1.00 1.00-1.50 1.40-2.80 1.50	SPT D2 B4 C D5	N = 19 (3, 2, 4, 4, 5, 6)				(1.80)	Firm brown slightly sandy slightly gravelly slightly clayey SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone. 1.00m: becoming stiff. 1.40m: becoming gravelly.	
2.00 2.00-2.50	SPT B7	67 for 245 mm (4, 4, 9, 8, 29, 21)					2.00m: becoming very stiff.	
				81.17		2.50		
2.50	D8			81.07		2.60	Obstruction as limestone boulder. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
29-06-22	17.00	2.60	1.50 2.50	84 203		2.45	2.6	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-135905**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	29-06-22 18-07-22	83.67	E 672,791.9 N 731,470.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)
29.06 2.80			81.07		2.60
	53 -				
4.10	-	4.10 (50/0mm)			
	85 -				
4.80	-				
	58 -				
6.00	-	6.00 (50/75mm)			
	67 -				(7.50)
7.20	-	7.20 (50/150mm)			
	53 -				
8.50	-	8.50 (50/0mm)			
	44 -				
18.07 10.10	-	10.10 (50/225mm)	73.57		10.10

STRATA

DESCRIPTION

Discontinuities	Detail	Main
2.60 - 10.10 : overburden.		Very stiff light orangish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.
		BH terminated at 10.10m bgl on REs instruction.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
29/06/22	17.00	2.60					
18/07/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.6	10.1	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136080**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	04-07-22 20-07-22	86.65	E 672,824.1 N 731,659.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.50	C						TOPSOIL: Grass over firm brown slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of dark grey limestone.	
0.00-1.00	B1					(1.00)		
				85.65		1.00		
1.00	SPT	N = 24 (4, 6, 5, 6, 6, 7)					Stiff brown slightly gravelly slightly sandy clayey SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of dark grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50-2.20	C						1.50m: becoming sandy gravelly.	
1.50	D5							
2.00	SPT	N = 16 (2, 3, 4, 4, 3, 5)				(2.50)		
2.00-2.50	B7							
2.20-3.30	C							
2.50	D8							
3.00	SPT	N = 35 (4, 3, 6, 8, 10, 11)					3.00m: becoming very stiff.	
3.00-3.50	B10							
3.30-4.80	C			83.15		3.50		
3.50	D11			82.95		3.70	Very stiff dark brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Cobbles are angular of grey limestone.	
3.70	SPT	50 for 0 mm (25, 50)		82.85		3.80	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
04-07-22	17.00	3.80	1.50 3.50	84 203	

Chiselling

From	To	Hours
3.7	3.8	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller BT/PMCG	Logged By EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136080**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	04-07-22 20-07-22	86.65	E 672,824.1 N 731,659.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
04.07	40 - -		82.85		3.80	3.80 - 6.20 : overburden.	Very dense brown slightly sandy slightly silty subangular fine to coarse dark grey limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are angular to subangular of dark grey limestone.	
4.80					(2.40)			
	75 - -							
5.60		5.60 (50/225mm)						
			80.45		6.20			
	73 (44) 24					6.20 - 10.10 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. Recovered as cobble and boulder sized clasts of strong locally very strong apparently massive white 'marbled' light grey fine grained LIMESTONE with a little light orangish brown clay.	
7.10		7.10 (50/0mm)						
	53 (31) 17	NI			(3.90)			
8.60		8.60 (50/0mm)					UCS - 8.60m to 8.80m: strong.	
	46 (21) 12						Point Load Test - 9.60m to 9.75m: very strong.	
20.07 10.10			76.55		10.10			
							BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
04/07/22	17.00	3.80					
20/07/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.8	10.1	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136209**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	01-07-22 21-07-22	84.56	E 672,838.3 N 731,788.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown SILT.	
				83.96		0.60		
						(0.60)	Firm grey sandy gravelly SILT with organic material. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
1.00	SPT	N = 16 (10, 4, 5, 4, 3, 4)		83.36		1.20	1.00m: becoming stiff.	
1.00	D2						Soft grey slightly gravelly slightly sandy slightly clayey SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00-1.50	B4							
1.50	D5					(1.40)		
2.00	SPT	N = 33 (3, 7, 5, 8, 10, 10)					2.00m: becoming very stiff.	
2.00-2.50	B7							
2.50	D8			81.96		2.60		
	SPT			81.86		2.70	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
01-07-22	12.00	2.70	1.50 2.50	84 203	

Chiselling

From	To	Hours
0.7 2.6	1 2.7	1:00 1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136209**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	01-07-22 21-07-22	84.56	E 672,838.3 N 731,788.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)
01.07 2.70	46		81.86		2.70
2.80	-	3.00 (50/17mm)			
	33				
	-				(2.70)
4.30		4.30 (50/0mm)			
	56				
	-				
5.20			79.16		5.40
	81				
	-				
6.30		6.30 (50/0mm)			
	100 (16)	NI			(2.80)
7.30					
	100 (62)				
	21		76.36		8.20
8.80		5			
	100 (83)				(1.90)
	35	8			
21.07 10.10			74.46		10.10

STRATA

DESCRIPTION		
Discontinuities	Detail	Main
2.70 - 5.40 : overburden.		Dense grey sandy silty subangular to subrounded fine to coarse assorted grey limestone GRAVEL. Sand is coarse.
		4.30m: becoming very dense.
5.40 - 8.20 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Weathered LIMESTONE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of strong locally medium strong apparently massive light grey 'marbled' light grey fine grained LIMESTONE with a little light light orangish grey silt.
		Point Load Test - 7.40m to 7.50m: medium strong.
8.20 - 10.10 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 8mm thick orangish brown mottled grey silt smear. 8.70 - 9.20 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and minor orange and orangish brown iron stain and powder, open.		Strong locally medium strong apparently massive light grey 'marbled' brownish white and white fine and coarse grained LIMESTONE. Point Load Test - 8.60m to 8.70m: medium strong. Point Load Test - 9.40m to 9.50m: medium strong. UCS - 9.50m to 9.73m: strong.
		BH terminated at 10.10m bgl on REs instruction.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
01/07/22	12.00	2.70					
21/07/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.7	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136548**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	04-07-22 22-07-22	84.83	E 672,866.1 N 732,138.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.20m 1.90m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over soft black organic SILT.	
				84.33		0.50		
						(0.40)	Soft greyish brown CLAY.	
				83.93		0.90		
1.00	SPT	N = 17 (3, 2, 4, 4, 4, 5)					Firm brown slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brown sandstone and assorted grey limestone.	
1.00	D2							
1.00-1.50	B4					(1.10)		
1.50	D5		1					
				82.83		2.00		
2.00	SPT	N = 22 (3, 5, 7, 4, 6, 5)					Firm grey slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
2.00-2.50	B7							
2.50	D8					(1.40)		
3.00	SPT	65 for 160 mm (2, 8, 9, 34, 22)	1				3.00m: becoming very stiff.	
3.00-3.50	B10							
				81.43		3.40		
				81.33		3.50	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
04-07-22	12.00	3.50	1.50 3.40	84 203	1.80

Chiselling

From	To	Hours
3.4	3.5	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-136548**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	04-07-22 22-07-22	84.83	E 672,866.1 N 732,138.4

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
04.07 3.50	38 - -		81.33		3.50
4.30	100 - -				
4.90	44 - -	4.90 (50/225mm)			(3.60)
5.80	66 - -				
6.40	55 (19) 14	6.40 (50/225mm)	77.73		7.10
7.30	75 (50) -				
8.50	100 (53) 40	8.50 NI (50/0mm)	75.13		9.70
22.07 10.10		0	74.73		(0.40) 10.10

STRATA

Discontinuities	Detail	Main
3.50 - 7.10 : overburden.		Dense grey slightly sandy subangular to subrounded fine to coarse brown sandstone and assorted grey limestone GRAVEL with low cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of assorted grey limestone. Core run - 4.30m to 4.90m: 1 No light grey limestone boulder 240mm in length. 4.90m: becoming very dense.
7.10 - 9.70 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Possible weathered LIMESTONE rock. Recovered as angular coarse gravel cobble and boulder sized clasts of very strong locally medium strong apparently massive grey 'marbled' brownish white fine grained LIMESTONE with some grey silt. Point Load Test - 8.50m to 8.62m: very strong.
9.70 - 10.10 Discontinuities, medium spaced, dipping 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear.		Point Load Test - 9.60m to 9.80m: very strong. Very strong apparently massive whitish grey 'marbled' grey and white fine and coarse grained LIMESTONE. UCS - 9.80m to 10.10m: strong. BH terminated at 10.10m bgl on REs instruction.

Instrument/Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
04/07/22	12.00	3.50					1.80
22/07/22	16.00	10.10					1.80

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143428**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	06-07-22 25-07-22	74.33	E 678,992.1 N 733,982.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 1.90m 9.20m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass and reeds over very soft dry black PEAT.	
						(1.60)		
1.00	SPT	N = 1 (1, 0, 0, 1, 0, 0)						
1.00	D2							
1.00-1.50	B4			72.73		1.60		
1.50	D5		1				Firm brown fibrous PEAT.	
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)						
2.00-2.50	B7					(1.50)		
2.50	D8							
3.00	SPT	N = 22 (3, 4, 4, 6, 7, 5)		71.23		3.10		
3.00-3.50	B10						Firm grey slightly gravelly slightly sandy clayey SILT. Sand is coarse to fine.Gravel is subangular to rounded medium of assorted grey limestone.	
3.50	D11					(1.10)		
4.00	SPT	N = 22 (2, 5, 4, 7, 6, 5)		70.13		4.20		
4.00-4.50	B13		1				Medium dense grey silty sandy subangular to rounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are rounded of assorted grey limestone.	
4.50	D14					(0.80)		
5.00	SPT	N = 25 (3, 5, 4, 7, 6, 8)		69.33		5.00		
5.00-5.50	B16						Medium dense silty sandy subangular to rounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse . Cobbles are rounded of assorted grey limestone.	
5.50	D17					(2.10)		
6.50	SPT	N = 46 (4, 7, 10, 8, 11, 17)					6.50m: becoming dense.	
6.50-7.00	B19							
7.00	D20			67.23		7.10		
7.10	D21						Stiff brown clayey sandy very silty subangular to rounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of assorted grey limestone.	
7.10	B22					(0.90)		
				66.33		8.00		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
06-07-22	17.00	4.50	8.00	84	
07-07-22	08.00	4.50			1.60

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

2nr Rising Head Tests expedited in BH.
50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143428**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	06-07-22 25-07-22	74.33	E 678,992.1 N 733,982.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 1.90m 9.20m 2nd: 3rd:	2 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 42 (8, 10, 10, 9, 10, 13)					Dense subangular to rounded fine to coarse assorted grey limestone and assorted brown sandstone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.	
8.00-8.50	B24							
8.50	D25					(1.10)		
				65.23		9.10		
						(0.60)	Very stiff dark brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
9.50	SPT	50 for 75 mm (18, 7, 50)		64.63		9.70		
				64.53		9.80	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-07-22	17.00	9.80	9.80	203	8.50	8.4	8.7	1:00			2nr Rising Head Tests expedited in BH. 50mm standpipe installed.
25-07-22	17.00	15.00				9.7	9.8	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143428**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	06-07-22 25-07-22	74.33	E 678,992.1 N 733,982.8

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS

Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)
07.07 9.80			64.53		9.80
	13 -				
10.80	-				
	55 -				
11.80	-	11.80 (60)			
	42 -				(5.20)
13.00	-	13.00 (50/150mm)			
	100 -				
14.50	-	14.50 (50/0mm)			
	60 -				
25.07 15.00	-		59.33		15.00

STRATA

DESCRIPTION

Discontinuities	Detail	Main
9.80 - 15.00 : overburden.		Dense grey slightly silty slightly sandy subangular to rounded fine to coarse assorted grey limestone GRAVEL with low cobble content and low boulder content. Sand is fine to medium. Cobbles are subrounded to rounded of assorted grey limestone.
		Core run - 13.00m to 15.00m: 1 No light grey limestone boulder 250mm in length.
		BH terminated at 15.00m bgl on REs instruction.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/07/22	17.00	9.80	9.80	203			8.50
25/07/22	17.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
9.8	15	Water	100

GENERAL REMARKS

2nr Rising Head Tests expedited in BH.
50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143591**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	05-07-22 06-07-22	73.88	E 679,123.7 N 734,039.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 1.60m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.70)	Grass and reeds over firm dark brown fibrous PEAT.	
				73.18		0.70		
1.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)					Firm brown slightly gravelly sandy SILT with organic material. Sand is fine to coarse. Gravel is subrounded to rounded fine of assorted grey limestone.	
1.00	D2							
1.00-1.50	B4		1					
1.50	D5							
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)				(3.10)		
2.00-2.50	B7							
2.50	D8							
3.00-3.45	U1009	1 blows						
3.00-3.50	B10							
3.50	SPT	N = 2 (1, 0, 0, 0, 1, 1)						
				70.08		3.80		
3.50	D11						Very soft white calcareous SILT/MARL.	
3.50-4.00	B13					(0.40)		
4.00	D14			69.68		4.20		
							Soft grey SILT.	
			1	69.28		(0.40)		
4.50	SPT	N = 17 (3, 2, 4, 4, 5, 4)				4.60		
4.50-5.00	B16						Stiff greyish brown slightly sandy slightly gravelly SILT with high cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to medium of assorted grey limestone. Cobbles are rounded of grey limestone.	
5.00	D17							
5.50	SPT	N = 16 (2, 4, 4, 3, 5, 4)						
5.50-6.00	B19							
6.00	D20					(2.90)		
7.00	SPT	N = 23 (4, 5, 7, 4, 6, 6)						
7.00-7.50	B22							
				66.38		7.50		
7.50	D23							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
05-07-22	17.00	7.50			
06-07-22	08.00	7.50			
06-07-22	14.00	4.50			8.60

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143591**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	05-07-22 06-07-22	73.88	E 679,123.7 N 734,039.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 1.60m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.50	SPT	N = 23 (4, 5, 7, 4, 6, 6)				(2.30)	Soft grey brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of assorted grey limestone. Cobbles are rounded to subrounded of grey limestone. *(continued)* 8.50m: becoming stiff.	
8.50-9.00	B25							
9.00	D26			64.08		9.80		
10.00	SPT	N = 26 (4, 3, 5, 6, 7, 8)				(1.20)	Firm brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of assorted grey limestone. Cobbles are rounded to subrounded of grey limestone. 10.00m: becoming stiff.	
10.00-10.50	B28							
10.50	D29			62.88		11.00		
11.00	SPT	50 for 0 mm (25, 50)		62.68		11.20	Obstruction as possible boulder.	
							BH terminated at 11.20m bgl. Obstruction as possible boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
			11.20	203		11	11.2	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143998**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	12-07-22 20-07-22	74.05	E 679,524.0 N 734,097.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.50m 2.90m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.20)	Grass and reeds over firm black fibrous PEAT.	
1.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)		72.85		1.20		
1.00	D2						Very soft whitish brown sandy organic SILT/MARL. Sand is fine to coarse.	
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)						
2.00-2.50	B7							
2.50	D8		1			(3.30)		
3.00	SPT	N = 1 (1, 0, 0, 0, 1, 0)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 1 (1, 0, 0, 1, 0, 0)						
4.00-4.50	B13			69.55		4.50		
4.50	D14			69.15		(0.40) 4.90	Very soft whitish green organic SILT/MARL.	
5.00	SPT	N = 4 (1, 2, 1, 1, 0, 2)				(0.60)	Soft grey slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of assorted grey limestone.	
5.00-5.50	B16		1	68.55		5.50		
5.50	D17						Loose greyish brown slightly silty sandy subrounded to rounded coarse assorted grey limestone GRAVEL with medium cobble content. Sand is medium to coarse. Cobbles are rounded of grey limestone.	
5.60	B18							
5.60	D19							
6.50	SPT	N = 42 (5, 9, 10, 16, 9, 7)					6.50m: becoming dense.	
6.50-7.00	B21							
7.00	D22					(4.00)		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
12-07-22	17.00	7.00	8.00	84	
13-07-22	08.00	7.00			

Chiselling

From	To	Hours
6.7	6.9	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520		Driller: BT/DK	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143998**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	12-07-22 20-07-22	74.05	E 679,524.0 N 734,097.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.50m 2.90m 2nd: 3rd:	2 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 30 (4, 5, 3, 7, 5, 15)					Loose greyish brown slightly silty sandy subrounded to rounded coarse assorted grey limestone GRAVEL with medium cobble content. Sand is medium to coarse. Cobbles are rounded of grey limestone. *(continued)*	
8.00-8.50	B24							
8.50	D25							
				64.55		9.50		
9.50	SPT	N = 30 (5, 7, 7, 6, 8, 9)					Dense grey sandy very silty subrounded to rounded coarse assorted grey limestone GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are rounded to subrounded of grey limestone.	
9.50-10.00	B27							
10.00	D28							
11.00	SPT	N = 28 (4, 6, 6, 7, 6, 9)				(3.40)	11.00m: becoming medium dense.	
11.00-11.50	B30							
11.50	D31							
12.50	SPT	54 for 235 mm (8, 9, 10, 13, 21, 10)					12.50m: becoming very dense.	
12.50-13.00	B33			61.15		12.90		
				61.05		13.00	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
13-07-22	17.00	11.45	13.00	203	9.00
18-07-22	08.00	11.45			8.70
18-07-22	12.00	13.00			9.20
20-07-22	17.00	15.00			

Chiselling

From	To	Hours
8.4	8.7	1:00
12.9	13	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520		Driller: BT/DK	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-143998**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	12-07-22 20-07-22	74.05	E 679,524.0 N 734,097.1

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
18.07 13.00	40 -		61.05		13.00	13.00 - 15.00 : overburden.	Dense subrounded to subangular fine to coarse assorted grey and light grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.	
14.00	-	14.00 (50/75mm)			(2.00)		14.00m: becoming very dense.	
	60 -							
20.07 15.00	-		59.05		15.00		BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/07/22	12.00	13.00	13.00	203			9.20
20/07/22	17.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
13	15	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520	Driller: BT/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-144109**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-07-22 21-07-22	75.43	E 679,617.8 N 734,063.6

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.40m 2nd: 3rd:	Sheet 1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.90)	Grass over plastic black amorphous PEAT.	
				74.53		0.90		
1.00	SPT	N = 2 (1, 0, 0, 1, 0, 1)					Firm brown fibrous PEAT.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(1.60)		
2.00	SPT	N = 0 (1, 0, 0, 0, 0, 0)	1					
2.00-2.50	B7			72.93		2.50		
2.50	D8		1				Very loose grey gravelly silty fine to medium SAND. Gravel is subrounded to rounded coarse of assorted grey limestone.	
3.00	SPT	N = 8 (1, 2, 2, 3, 2, 1)					3.00m: becoming loose.	
3.00-3.50	B10							
3.50	D11					(3.00)		
4.00	SPT	N = 17 (2, 2, 4, 5, 4, 4)					4.00m: becoming medium dense.	
4.00-4.50	B13							
4.50	D14						4.50m: becoming very silty slightly clayey gravelly. Gravel is subrounded to rounded fine to coarse of assorted grey limestone.	
5.00	SPT	N = 18 (3, 4, 3, 5, 4, 6)						
5.00-5.50	B16			69.93		5.50		
5.50	D17						Stiff grey sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
6.50	SPT	N = 26 (5, 6, 6, 7, 6, 7)						
6.50-7.00	B19							
7.00	D20					(4.10)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520		Driller: BT/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-144109**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-07-22 21-07-22	75.43	E 679,617.8 N 734,063.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.40m 2nd: 3rd:	2 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 30 (4, 7, 5, 8, 8, 9)					Stiff grey sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. *(continued)*	
8.00-8.50	B22						8.00m: becoming very stiff.	
8.50	D23							
				65.83		9.60		
9.50	SPT	50 for 75 mm (10, 15, 50)		65.73		9.70	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
11-07-22	16.00	9.70	9.00	84	9.00
21-07-22	17.00	15.00	9.60	203	

Chiselling

From	To	Hours
9.6	9.7	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520		Driller BT/DK	Logged By EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-144109**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-07-22 21-07-22	75.43	E 679,617.8 N 734,063.6

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level
11.07 9.70	53 - -		65.73
11.00		11.00 (59)	
	47 - -		
12.50		12.50 (50/150mm)	
	40 - -		
14.00		14.00 (50/150mm)	
	50 - -		
21.07 15.00			60.43

STRATA

Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main
	9.70	9.70 - 15.00 : overburden.	Dense slightly silty subrounded to subangular fine to coarse assorted brown sandstone and assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.
	(5.30)		11.00m: becoming very dense.
	15.00		BH terminated at 15.00m bgl on REs instruction.

Instrument / Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/07/22	16.00	9.70					9.00
21/07/22	17.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
9.7	15	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB520	Driller: BT/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-145414**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	18-07-22 20-07-22	73.93	E 680,861.8 N 734,025.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass and reeds over plastic dry black amorphous PEAT.	
1.00	SPT	N = 4 (1, 0, 0, 1, 1, 2)				(1.60)		
1.00	D2							
1.00-1.50	B4			72.33		1.60		
1.50	D5						Dense brown silty sandy angular coarse assorted grey limestone GRAVEL. Sand is fine to coarse.	
2.00	SPT	N = 39 (3, 5, 8, 14, 9, 8)				(1.20)		
2.00-2.50	B7		▽1					
2.50	D8			71.13		2.80		
3.00	SPT	N = 9 (2, 1, 2, 2, 3, 2)	▼1				Loose grey slightly silty very gravelly medium to coarse SAND. Gravel is angular medium to fine of assorted grey limestone.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 17 (3, 5, 4, 4, 4, 5)					4.00m: becoming medium dense.	
4.00-4.50	B13							
4.50	D14					(3.60)		
5.00	SPT	N = 22 (4, 5, 4, 6, 5, 7)						
5.00-5.50	B16							
5.50	D17							
				67.53		6.40		
6.50	SPT	N = 32 (5, 4, 6, 8, 9, 9)					Dense brown slightly silty sandy subrounded to subangular medium assorted grey limestone GRAVEL. Sand is fine to coarse.	
6.50-7.00	B19							
7.00	D20					(1.60)		
				65.93		8.00		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
18-07-22	17.00	6.00			4.50
19-07-22	08.00	6.00			1.70

Chiselling

From	To	Hours
2.4	2.6	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-145414**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	18-07-22 20-07-22	73.93	E 680,861.8 N 734,025.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.50m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 24 (3, 2, 4, 7, 6, 7)					Grey slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to subangular fine of assorted grey limestone with firm greyish brown clay bands.	
8.00-8.50	B22							
8.50	D23							
						(2.50)		
9.50	SPT	N = 20 (4, 5, 7, 4, 4, 5)						
9.50-10.00	B25							
10.00	D26							
				63.43		10.50		
							BH terminated at 10.50m bgl on REs instruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-07-22	17.00	10.50	10.50	203							50mm standpipe installed.
20-07-22	08.00	10.50									
20-07-22	10.00	10.50									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-145703**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	20-07-22 21-07-22	71.65	E 681,160.4 N 734,059.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.50m 2.70m 2nd: 7.50m 1.80m 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over plastic black amorphous PEAT.	
						(1.60)		
1.00	SPT	N = 3 (1, 0, 0, 0, 1, 2)						
1.00	D2							
1.00-1.50	B4			70.05		1.60		
1.50	D5		2				Very soft grey slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine of assorted grey limestone.	
2.00	SPT	N = 9 (2, 1, 3, 2, 2, 2)					2.00m: becoming soft.	
2.00-2.50	B7							
2.50	D8		1					
3.00	SPT	N = 8 (2, 2, 2, 1, 3, 2)						
3.00-3.50	B10		1			(3.40)		
3.50	D11							
4.00	SPT	N = 13 (2, 2, 3, 4, 3, 3)					4.00m: becoming firm.	
4.00-4.50	B13							
4.50	D14							
				66.65		5.00		
5.00	SPT	N = 12 (1, 3, 2, 3, 3, 4)					Firm grey slightly sandy clayey SILT. Sand is fine to medium.	
5.00-5.50	B16							
5.50	D17							
6.50	SPT	N = 13 (3, 2, 4, 3, 3, 3)						
6.50-7.00	B19							
7.00	D20		2					
						(5.50)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-07-22	17.00	6.00									BH backfilled.
21-07-22	08.00	6.00			2.30						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-145703**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	20-07-22 21-07-22	71.65	E 681,160.4 N 734,059.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.50m 2.70m 2nd: 7.50m 1.80m 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 11 (2, 3, 3, 2, 4, 2)					Firm grey slightly sandy clayey SILT. Sand is fine to medium. *(continued)*	
8.00-8.50	B22							
8.50	D23							
9.50	SPT	N = 11 (2, 2, 3, 2, 3, 3)						
9.50-10.00	B25							
10.00	D26							
				61.15		10.50		
							BH terminated at 10.50m bgl on REs instruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-07-22	12.00	10.50	10.00	203	2.20						BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146387**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	21-07-22 26-07-22	71.35	E 681,775.1 N 734,280.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.50m 2.10m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over plastic black amorphous PEAT.	
						(1.50)		
1.00	SPT	N = 1 (1, 0, 0, 0, 1, 0)						
1.00	D2			69.85		1.50		
1.00-1.50	B4						Soft white calcareous SILT/MARL.	
1.50	D5					(0.50)		
			1	69.35		2.00		
2.00	SPT	N = 9 (1, 1, 1, 2, 3, 3)					Soft grey slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine of assorted grey limestone.	
2.00-2.50	B7							
2.50	D8					(1.70)		
3.00	SPT	N = 7 (2, 3, 2, 1, 2, 2)						
3.00-3.50	B10							
3.50	D11			67.65		3.70		
							Dense grey sandy very silty subrounded to subangular coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are rounded of grey limestone.	
4.00	SPT	N = 42 (4, 5, 19, 8, 8, 7)						
4.00-4.50	B13							
4.50	D14					(2.20)		
5.00	SPT	N = 54 (8, 10, 11, 11, 16, 16)						
5.00-5.50	B16							
5.50	D17			65.45		5.90		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
21-07-22	17.00	5.90	5.90 6.00	203 84	

Chiselling

From	To	Hours
4.2 5.9	4.4	1:00 1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146387**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	21-07-22 26-07-22	71.35	E 681,775.1 N 734,280.6

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)
21.07 5.90	13	5.90 (50/0mm)	65.45		5.90
6.00	- - 13 - -				
6.80					
	63 - -				
7.60		7.60 (51)			
	50 - -				
8.80		8.80 (50/0mm)			
	100 - -				(7.40)
9.80					
	92 - -				
11.00		11.00 (62)			
	20 - -				
12.50		12.50 (50/0mm)			
	85 (32) 11		58.05		13.30
13.90					

STRATA

DESCRIPTION

Discontinuities	Detail	Main
5.90 - 13.30 : overburden.		Dense greyish brown slightly silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.
		7.60m: becoming very dense.
		UCS - 11.26m to 11.50m: very strong.
		Point Load Test - 13.00m to 13.20m: very strong.
13.30 - 15.00 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.		

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21/07/22	17.00	5.90	5.90 6.00	203 84			

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.9	15	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146387**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	21-07-22 26-07-22	71.35	E 681,775.1 N 734,280.6

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (59) 21	NI			(1.70)			Possible weathered LIMESTONE rock. Recovered as angular fine to coarse gravel cobble and boulder sized clasts of very strong thinly bedded grey fine and medium grained LIMESTONE with subvertical and vertical white calcitic veinlets and some greyish brown silt. *(continued)*	
26.07 15.00			56.35		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
26/07/22	17.00	15.00										BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146437**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	22-07-22 27-07-22	73.13	E 681,787.8 N 734,329.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 6.00m 4.20m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over plastic black amorphous PEAT.	
						(0.80)		
				72.33		0.80		
							Very soft white calcareous organic SILT/MARL.	
1.00	SPT	N = 1 (1, 0, 0, 0, 1, 0)				(0.70)		
1.00	D2							
1.00-1.50	B4			71.63		1.50		
1.50	D5						Soft grey slightly gravelly slightly sandy clayey SILT. Sand is coarse to fine. Gravel is subrounded to subangular fine of assorted grey limestone.	
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)						
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 16 (2, 3, 3, 4, 4, 5)					3.00m: becoming stiff.	
3.00-3.50	B10							
3.50	D11					(4.40)		
4.00	SPT	N = 17 (2, 4, 5, 4, 4, 4)	1					
4.00-4.50	B13							
4.50	D14							
5.00	SPT	N = 23 (4, 3, 5, 7, 5, 6)						
5.00-5.50	B16							
5.50	D17							
			1	67.23		5.90		
							Very dense silty sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is medium to coarse.	
6.50	SPT	N = 53 (6, 8, 10, 16, 18, 9)				(1.40)		
6.50-7.00	B19							
7.00	D20							
				65.83		7.30		
7.30		50 for 10 mm (25, 50)		65.73		7.40	Obstruction as limestone boulder.	
7.30	D21						*Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
25-07-22	17.00	6.00	3.00	84	2.00
26-07-22	08.00	6.00	7.30	203	1.50
26-07-22	11.00	7.40			1.90

Chiselling

From	To	Hours
6.5	6.7	1:00
7.3	7.4	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400		Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146437**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	22-07-22 27-07-22	73.13	E 681,787.8 N 734,329.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)
26.07 7.40	- - -		65.73		7.40
8.60	- - -	8.60 (54)			(2.70)
9.30	- - -				
27.07 10.10		10.10 (57)	63.03		10.10

STRATA

DESCRIPTION			Instrument/ Backfill
Discontinuities	Detail	Main	
7.40 - 10.10 : overburden.		Dense grey slightly silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.	
		8.60m: becoming very dense.	
		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
26/07/22	11.00	7.40					1.90
27/07/22	16.00	10.10					2.00

Rotary Flush

From (m)	To (m)	Type	Return (%)
7.4	10.1	Water	100

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD400	Driller: BT/PMCG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146605**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-08-22 12-08-22	72.81	E 681,919.7 N 734,437.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.20m 6.50m 8.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						MADE GROUND: Grass over medium dense brown clayey very silty very sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to subrounded of assorted grey limestone. Boulders are subangular to subrounded of grey limestone.	
						(1.40)		
1.00	SPT	N = 24 (5, 4, 3, 8, 9, 4)						
1.00	D2			71.41		1.40		
1.00-1.50	B4						Soft black PEAT.	
1.50	D5			71.11		1.70		
							Very soft whitish brown slightly gravelly slightly sandy organic SILT/MARL. Sand is fine to coarse. Gravel is subrounded to rounded fine of assorted grey limestone.	
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)						
2.00-2.50	B7							
2.50	D8							
						(2.50)		
3.00	SPT	N = 0 (1, 0, 0, 0, 0, 0)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 3 (1, 0, 1, 1, 1, 0)		68.61		4.20		
4.00-4.50	B13						Very soft grey SILT.	
4.50	D14							
5.00	SPT	N = 5 (1, 0, 1, 2, 1, 1)						
5.00-5.50	B16							
5.50	D17					(2.80)		
			1					
6.50	SPT	N = 30 (3, 2, 5, 4, 10, 11)					6.50m: becoming stiff.	
6.50-7.00	B19			65.81		7.00		
7.00	D20		1				Medium dense grey subangular to subrounded fine to coarse brown sandstone and assorted grey limestone GRAVEL.	
						(0.90)		
				64.91		7.90		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-08-22	17.00	7.00				7.7	7.9	1:00			BH backfilled.
12-08-22	08.00	7.00									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-146605**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	11-08-22 12-08-22	72.81	E 681,919.7 N 734,437.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.20m 6.50m 8.00m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
8.00	SPT	N = 26 (5, 5, 6, 7, 5, 8)					Stiff greyish brown slightly gravelly slightly sandy clayey SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
8.00-8.50	B22							
8.50	D23					(2.10)		
9.50	SPT	59 for 190 mm (8, 8, 10, 17, 32)					9.50m: becoming very stiff.	
9.50-10.00	B25			62.81		10.00		
10.00	D26						Firm dry greyish black sandy SILT. Sand is fine to medium.	
11.00	SPT	N = 32 (5, 6, 6, 9, 8, 9)				(2.00)	11.00m: becoming very stiff.	
11.00-11.50	B28							
11.50	D29			60.81		12.00	BH terminated at 12.00m bgl on REs instruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-08-22	14.00	12.00	12.00	203		9.8	10	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-147850**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	15-08-22 16-08-22	83.90	E 683,194.0 N 734,873.6

Engineer	GROUNDWATER STRIKES	Water strikes:	Rose to (@ 20 min.):	Sealed at:	Sheet	Status
Mott MacDonald		1st: 4.60m	3.70m	6.00m	1 of 2	FINAL / REVFINAL
		2nd: 7.00m	6.30m			
		3rd:				

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.60		0.30	TOPSOIL: Grass over soft black CLAY.	
							Stiff grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of assorted grey limestone.	
1.00	SPT	62 for 225 mm (5, 8, 8, 17, 37)					1.00m: becoming very stiff.	
1.00	D2					(2.20)		
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 43 (6, 6, 8, 9, 7, 19)						
2.00-2.50	B7			81.40		2.50		
2.50	D8						Firm dark brown clayey SILT with low cobble content. Cobbles are subrounded to rounded of assorted grey limestone.	
3.00	SPT	N = 23 (4, 4, 5, 6, 5, 7)					3.00m: becoming stiff.	
3.00-3.50	B10							
3.50	D11		1			(2.00)		
4.00	SPT	N = 31 (3, 7, 6, 8, 8, 9)					4.00m: becoming very stiff.	
4.00-4.50	B13			79.40		4.50		
4.50	D14		1				Stiff greyish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
5.00	SPT	N = 29 (4, 6, 5, 4, 9, 11)						
5.00-5.50	B16					(1.50)		
5.50	D17							
				77.90		6.00		
			2				Very stiff black silty CLAY.	
6.50	SPT	N = 37 (6, 7, 7, 8, 10, 12)				(1.00)		
6.50-7.00	B19		2	76.90		7.00		
7.00	D20						Dense brown angular fine to coarse grey limestone GRAVEL.	
						(0.90)		
	SPT			76.00		7.90	7.80m: becoming very dense.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
15-08-22	17.00	4.00	8.00	203	
16-08-22	08.00	4.00			

Chiselling

From	To	Hours
1.4	1.6	1:00
2.5	2.7	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

IDL AGS4 UK BH WSP LOT3 CPNRC ALL FINAL F1 MARCH 13 2023.GPJ ID GINT AGS 4_0_4.GDT 23/3/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Lot 3 Pipeline (Supplementary)	Co Offaly	**BH-147850**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2022KE103	15-08-22 16-08-22	83.90	E 683,194.0 N 734,873.6

Engineer	GROUNDWATER STRIKES	Water strikes:	Rose to (@ 20 min.):	Sealed at:	Sheet	Status
Mott MacDonald	1st:	4.60m	3.70m	6.00m	2 of 2	FINAL / REVFINAL
	2nd:	7.00m	6.30m			
	3rd:					

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
7.80		50 for 40 mm (25, 50)		75.80		8.10	Obstruction as possible limestone rock or probable limestone boulder. *(continued)*	
7.80-8.10	B22						BH terminated at 8.10m bgl. Obstruction as possible limestone rock or probable limestone boulder.	
8.10	D23							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
16-08-22	14.00	8.10									50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Cable Percussive/Dando 2000		Driller BT	Logged By BT

Appendix 11B
Dynamic Sampling Records

(N/A)

Appendix 11C
Trial Pit Records

(N/A)

Appendix 11D
Peat Probe & Russian Core Records

(N/A)

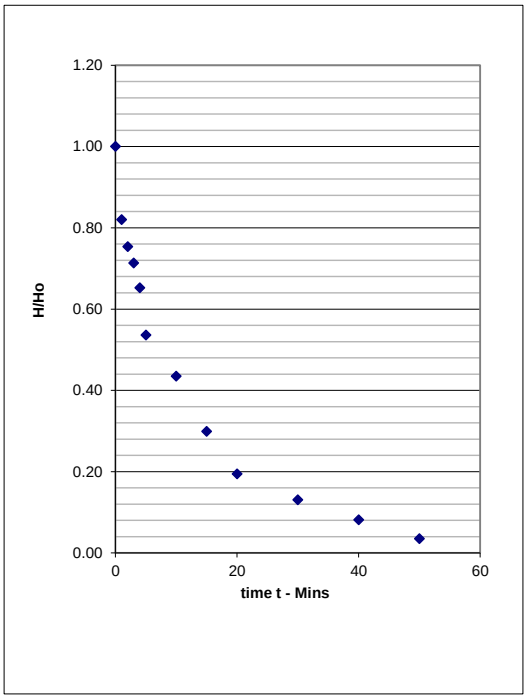
Appendix 11E
In-Situ Test Records
Part 1: Permeability

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 3 Pipeline	**Borehole:** **BH 143428**
	Date:	04.08.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		9.80m		Weather	Fair
Bottom of solid casing (below g.L.)		4.00m		Type of test	Rising Head
Top of filter material (m O.D.)		NA		Diameter of borehole	0.200m
Initial water level (m bgl)		-0.60m		Length of filter	5.80m
Ground level (m O.D.)		74.33		Diameter of filter	0.200m
Co-ordinates:	678992.1E	733982.8N		Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	4.000	3.450	1.00
1	3.380	2.830	0.82
2	3.150	2.600	0.75
3	3.010	2.460	0.71
4	2.800	2.250	0.65
5	2.400	1.850	0.54
10	2.050	1.500	0.43
15	1.580	1.030	0.30
20	1.220	0.670	0.19
30	1.000	0.450	0.13
40	0.830	0.280	0.08
50	0.670	0.120	0.03
60	0.550	0.000	0.00



L	5.800	m
D	0.200	m
F	8.900	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 7.96E-07 m/sec

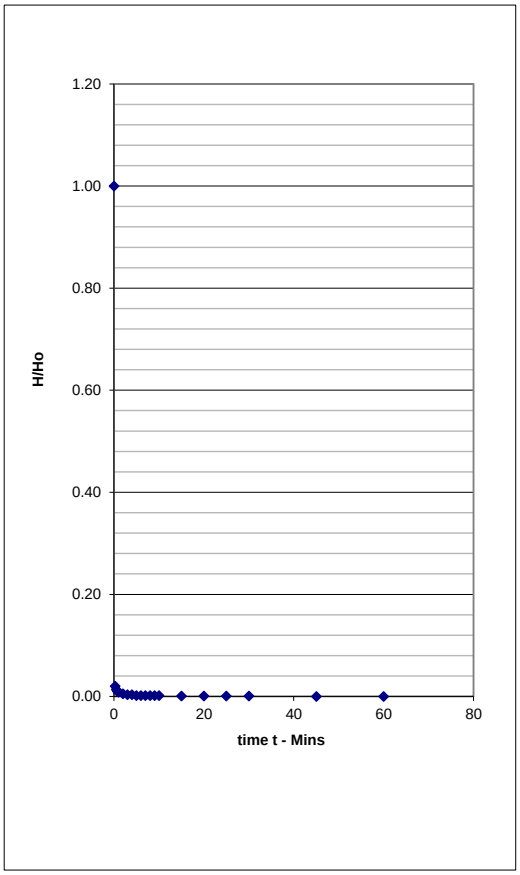
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
4.00-9.80m: Overburden (Refer to borehole log)

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 3 Pipeline	**Borehole:** **BH 143428**
	Date:	04.08.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)			10.00m	Weather	Fair
Bottom of solid casing (below g.L.)			6.50m	Type of test	Rising Head
Top of filter material (m O.D.)			NA	Diameter of borehole	0.200m
Initial water level (m bgl)			-1.29m	Length of filter	3.50m
Ground level (m O.D.)			74.33	Diameter of filter	0.200m
Co-ordinates:	678992.1E	733982.8N		Type of piezometer	50mm

RISING HEAD TEST

time min	water level m	H	H/Ho
0	7.200	5.900	1.00
0.25	1.420	0.120	0.02
0.5	1.380	0.080	0.01
0.75	1.360	0.060	0.01
1	1.350	0.050	0.01
2	1.330	0.030	0.01
3	1.320	0.020	0.00
4	1.320	0.020	0.00
5	1.310	0.010	0.00
6	1.310	0.010	0.00
7	1.310	0.010	0.00
8	1.310	0.010	0.00
9	1.310	0.010	0.00
10	1.310	0.010	0.00
15	1.305	0.005	0.00
20	1.305	0.005	0.00
25	1.305	0.005	0.00
30	1.305	0.005	0.00
45	1.300	0.000	0.00
60	1.300	0.000	0.00



L	3.500	m
D	0.200	m
F	6.190	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 7.99E-07 m/sec

Remarks:
Test carried out in borehole standpipe.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
6.5010.00m: Overburden (Refer to borehole log).

Appendix 11F
Specialist In-Situ Test Results

(N/A)

Appendix 11G
Geophysics Report

(N/A)

Appendix 11H
Laboratory Test Results

Project ID	2022KE103
Project Name	Lot 3, Eastern & Midlands WSP
Schedule ID	2022KE103_1+2

Client	ERVIA
Scheduled Date	31/08/2022 15:04

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification				Chemical / Concrete				Compaction					Strength (Total)	Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Water Gravimetric	ph	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	Small Direct Shearbox	Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-117150	0.00	1.00	B	1	28/06/22																				
BH-117150	1.00		D	2	28/06/22		1	1																	
BH-117150	1.00	1.50	B	4	28/06/22				1	1															
BH-117150	1.50		D	5	28/06/22																				
BH-117150	2.00	2.50	B	7	28/06/22																				
BH-117150	2.50		D	8	28/06/22																				
BH-117150	3.00	3.50	B	10	28/06/22																				
BH-117150	3.50		D	11	28/06/22																				
BH-117150	4.00	4.50	B	13	28/06/22				1	1															
BH-117150	4.50		D	14	28/06/22		1	1																	
BH-117150	4.60		B	15	28/06/22																				
BH-117150	4.60		D	16	28/06/22																				
BH-117542	0.00	1.00	B	1	24/06/22																				
BH-117542	1.00		D	2	24/06/22		1	1																	
BH-117542	1.00	1.50	B	4	24/06/22				1	1															
BH-117542	1.50		D	5	24/06/22																		1		Envirolab 22/09645
BH-117542	2.00	2.50	B	7	24/06/22													1							
BH-117542	2.50		D	8	24/06/22		1	1																	
BH-117542	3.00	3.50	B	10	24/06/22																				
BH-117542	3.50		D	11	24/06/22																				
BH-117778	0.00	1.00	B	1	24/06/22				1	1															Sample tested from upper 0.5m MG
BH-117778	1.00		D	2	24/06/22		1	1																	
BH-117778	1.00	1.40	B	4	24/06/22				1	1															
BH-117778	1.40		D	5	24/06/22																				
BH-118164	0.00	1.00	B	1	23/06/22																				
BH-118164	1.00		D	2	23/06/22		1	1																	
BH-118164	1.00	1.50	B	4	23/06/22				1	1															
BH-118164	1.50		D	5	23/06/22																				
BH-118164	2.00	2.50	B	7	23/06/22																				
BH-118164	2.50		D	8	23/06/22		1	1																	
BH-118164	3.00	3.50	B	10	23/06/22																				
BH-118164	3.50		D	11	23/06/22																				
BH-118375	0.00	1.00	B	1	09/08/22																				
BH-118375	1.00		D	2	09/08/22		1	1																	
BH-118375	1.00	1.50	B	4	09/08/22				1	1															
BH-118375	1.50		D	5	09/08/22																				
BH-118375	2.00	2.50	B	7	09/08/22										1										* SAMPLES COMBINED FOR COMP
BH-118375	2.50		D	8	09/08/22		1	1					1	1											Envirolab 22/09645
BH-118375	3.00	3.30	B	10	09/08/22																				
BH-118375	3.30		D	11	09/08/22																				
BH-118987	0.00	1.00	B	1	27/06/22																				
BH-118987	1.00		D	2	27/06/22		1	1																	
BH-118987	1.00	1.50	B	4	27/06/22				1	1															
BH-118987	1.50		D	5	27/06/22																				
BH-119542	0.00	1.00	B	1	27/06/22																				
BH-119542	1.00		D	2	27/06/22		1	1																	
BH-119542	1.00	1.50	B	4	27/06/22				1	1															
BH-119542	1.50		D	5	27/06/22																				
BH-119542	2.00	2.50	B	7	27/06/22																				
BH-119542	2.50		D	8	27/06/22		1	1															1		Envirolab 22/09645

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103	Client	ERVIA	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2	Scheduled Date	31/08/2022 15:04		

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction						press	Strength (Total)							Rock		Other			
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		ph			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox							Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-119542	3.00	3.50	B	10	27/06/22						1	1																									
BH-119542	3.50		D	11	27/06/22		1	1																													
BH-119737	0.00	1.00	B	1	08/08/22																																
BH-119737	1.00		D	2	08/08/22		1	1																													
BH-119737	1.00	1.50	B	4	08/08/22						1	1																										
BH-119737	1.50		D	5	08/08/22																																
BH-119737	2.00	2.50	B	7	08/08/22																1																* SAMPLES COMBINED FOR COMP
BH-119737	2.50		D	8	08/08/22																																
BH-119737	3.00	3.50	B	10	08/08/22						1																											
BH-119737	3.50		D	11	08/08/22																																
BH-121326	0.00	1.00	B	1	09/08/22																																
BH-121326	1.00		D	2	09/08/22		1						1	1																						1		Envirolab 22/09645
BH-121326	1.00	1.50	B	4	09/08/22																																
BH-121326	1.50		D	5	09/08/22																																
BH-121326	2.00	2.50	B	7	10/08/22						1	1																										
BH-121326	2.50		D	8	10/08/22		1																														
BH-121326	3.00	3.50	B	10	10/08/22																								1								(25kPa, 50kPa, 100kPa)
BH-121326	3.50		D	11	10/08/22											1		1																			Envirolab 22/09645
BH-121326	4.00	4.50	B	13	10/08/22																																
BH-121326	4.50		D	14	10/08/22																																
BH-121326	5.00	5.50	B	16	10/08/22						1	1																										
BH-121326	5.50		D	17	10/08/22		1																														
BH-121326	6.50	7.00	B	19	10/08/22																																
BH-121326	7.00		D	20	10/08/22																																
BH-121326	8.00	8.50	B	22	10/08/22																																
BH-121326	8.50		D	23	10/08/22																														1		Envirolab 22/09645
BH-121326	9.50	10.00	B	25	10/08/22						1	1																										
BH-121326	10.00		D	26	10/08/22																																
BH-135774	0.00	1.00	B	1	29/06/22																																
BH-135774	1.00		D	2	29/06/22		1	1																													
BH-135774	1.00	1.50	B	4	29/06/22						1	1																										
BH-135774	1.50		D	5	29/06/22																														1		Envirolab 22/09645
BH-135774	2.00	2.50	B	7	29/06/22																																
BH-135774	2.50		D	8	29/06/22																																
BH-135774	3.00	3.50	B	10	29/06/22																																
BH-135774	3.50		D	11	29/06/22		1	1																													
BH-135774	4.00	4.50	B	13	29/06/22						1	1																										
BH-135774	4.50		D	14	29/06/22		1																														
BH-135774	5.00	5.50	B	16	29/06/22																																
BH-135774	5.50		D	17	29/06/22																																
BH-135905	0.00	1.00	B	1	29/06/22																																
BH-135905	1.00		D	2	29/06/22		1	1																													
BH-135905	1.00	1.50	B	4	29/06/22						1	1																										
BH-135905	1.50		D	5	29/06/22																																
BH-135905	2.00	2.50	B	7	29/06/22																1																	
BH-135905	2.50		D	8	29/06/22																																
BH-136080	0.00	1.00	B	1	04/07/22																																
BH-136080	1.00		D	2	04/07/22		1	1																													
BH-136080	1.00	1.50	B	4	04/07/22						1	1																										
BH-136080	1.50		D	5	04/07/22																																
BH-136080	2.00	2.50	B	7	04/07/22																																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103	Client	ERVIA	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2	Scheduled Date	31/08/2022 15:04		

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction						press	Strength (Total)								Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		ph			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox								Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-136080	2.50		D	8	04/07/22		1	1																													
BH-136080	3.00	3.50	B	10	04/07/22																																
BH-136080	3.50		D	11	04/07/22		1	1																													
BH-136209	0.00	1.00	B	1	01/07/22																																
BH-136209	1.00		D	2	01/07/22		1	1																													
BH-136209	1.00	1.50	B	4	01/07/22																																
BH-136209	1.50		D	5	01/07/22											1		1																			Envirolab 22/09645
BH-136209	2.00	2.50	B	7	01/07/22						1	1																									
BH-136209	2.50		D	8	01/07/22		1	1																													
BH-136548	0.00	1.00	B	1	04/07/22																																
BH-136548	1.00		D	2	04/07/22		1	1																													
BH-136548	1.00	1.50	B	4	04/07/22						1	1																									
BH-136548	1.50		D	5	04/07/22																																
BH-136548	2.00	2.50	B	7	04/07/22						0*	0*												0*													*Not tested - StSoils
BH-136548	2.50		D	8	04/07/22		1	1																													
BH-136548	3.00	3.50	B	10	04/07/22																																
BH-136548	3.50		D	11	04/07/22																																
BH-143428	0.00	1.00	B	1	06/07/22																																
BH-143428	1.00		D	2	06/07/22		1						1	1																						1		Envirolab 22/09645
BH-143428	1.00	1.50	B	4	06/07/22																																
BH-143428	1.50		D	5	06/07/22																																
BH-143428	2.00	2.50	B	7	06/07/22																																
BH-143428	2.50		D	8	06/07/22		1						1	1		1		1																			Envirolab 22/09645
BH-143428	3.00	3.50	B	10	06/07/22						1	1																									
BH-143428	3.50		D	11	06/07/22		1																														
BH-143428	4.00	4.50	B	13	06/07/22																																
BH-143428	4.50		D	14	06/07/22																																
BH-143428	5.00	5.50	B	16	07/07/22						1	1																	0*									*not suitable (40kPa, 80kPa, 160kPa)
BH-143428	5.50		D	17	07/07/22		1									1		1																			Envirolab 22/09645
BH-143428	6.50	7.00	B	19	07/07/22																																
BH-143428	7.00		D	20	07/07/22																																
BH-143428	7.10		D	21	07/07/22		1	1																													
BH-143428	7.10		B	22	07/07/22						1	1																									
BH-143428	8.00	8.50	B	24	07/07/22																																
BH-143428	8.50		D	25	07/07/22																																
BH-143591	0.00	1.00	B	1	05/07/22																																
BH-143591	1.00		D	2	05/07/22																																
BH-143591	1.00	1.50	B	4	05/07/22																																
BH-143591	1.50		D	5	05/07/22		1						1	1																						1		Envirolab 22/09645
BH-143591	2.00	2.50	B	7	05/07/22																																
BH-143591	2.50		D	8	05/07/22																																
BH-143591	3.00	3.45	U100	9	05/07/22																																
BH-143591	3.00	3.50	B	10	05/07/22																																
BH-143591	3.50		D	11	05/07/22		1	1																													
BH-143591	3.50	4.00	B	13	05/07/22						1	1																									
BH-143591	4.00		D	14	05/07/22																																
BH-143591	4.50	5.00	B	16	05/07/22						1																											
BH-143591	5.00		D	17	05/07/22		1																														
BH-143591	5.50	6.00	B	19	05/07/22																																
BH-143591	6.00		D	20	05/07/22																																
BH-143591	7.00	7.50	B	22	05/07/22																																
BH-143591	7.50		D	23	05/07/22																																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103		Client	ERVIA	
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2		Scheduled Date	31/08/2022 15:04	

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction						press	Strength (Total)						ar Stre gth (Effe	Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		pH			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox							Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-143591	8.50	9.00	B	25	06/07/22						1	1																									
BH-143591	9.00		D	26	06/07/22		1	1																													
BH-143591	10.00	10.50	B	28	06/07/22																																
BH-143591	10.50		D	29	06/07/22		1	1																													
BH-143998	0.00	1.00	B	1	12/07/22																																
BH-143998	1.00		D	2	12/07/22		1						1	1		1		1																			Envirolab 22/09645
BH-143998	1.00	1.50	B	4	12/07/22																																
BH-143998	1.50		D	5	12/07/22																																
BH-143998	2.00	2.50	B	7	12/07/22						1	1																										
BH-143998	2.50		D	8	12/07/22																																
BH-143998	3.00	3.50	B	10	12/07/22																																
BH-143998	3.50		D	11	12/07/22		1	1								1		1																			Envirolab 22/09645
BH-143998	4.00	4.50	B	13	12/07/22																																
BH-143998	4.50		D	14	12/07/22																																
BH-143998	5.00	5.50	B	16	12/07/22																																
BH-143998	5.50		D	17	12/07/22		1	1																													
BH-143998	5.60		B	18	12/07/22																																
BH-143998	5.60		D	19	12/07/22																														1		Envirolab 22/09645
BH-143998	6.50	7.00	B	21	12/07/22						1																	1									(50kPa, 100kPa, 200kPa)
BH-143998	7.00		D	22	12/07/22		1																														
BH-143998	8.00	8.50	B	24	13/07/22																																
BH-143998	8.50		D	25	13/07/22																																
BH-143998	9.50	10.00	B	27	13/07/22						1	1																										
BH-143998	10.00		D	28	13/07/22		1																														
BH-143998	11.00	11.50	B	30	18/07/22																																
BH-143998	11.50		D	31	18/07/22																																
BH-143998	12.50	13.00	B	33	18/07/22																																
BH-143998	13.00		D	34	18/07/22																																
BH-144109	0.00	1.00	B	1	11/07/22																																
BH-144109	1.00		D	2	11/07/22																																
BH-144109	1.00	1.50	B	4	11/07/22																																
BH-144109	1.50		D	5	11/07/22		1						1	1		1		1																			Envirolab 22/09645
BH-144109	2.00	2.50	B	7	11/07/22																																
BH-144109	2.50		D	8	11/07/22																																
BH-144109	3.00	3.50	B	10	11/07/22						1	1									1																	
BH-144109	3.50		D	11	11/07/22		1	1																													
BH-144109	4.00	4.50	B	13	11/07/22																																
BH-144109	4.50		D	14	11/07/22		1	1																													
BH-144109	5.00	5.50	B	16	11/07/22																																
BH-144109	5.50		D	17	11/07/22																																
BH-144109	6.50	7.00	B	19	11/07/22																																
BH-144109	7.00		D	20	11/07/22		1	1																													
BH-144109	8.00	8.50	B	22	11/07/22																																
BH-144109	8.50		D	23	11/07/22		1	1																													
BH-145414	0.00	1.00	B	1	18/07/22																																
BH-145414	1.00		D	2	18/07/22		1						1	1																						1		Envirolab 22/09645
BH-145414	1.00	1.50	B	4	18/07/22																																
BH-145414	1.50		D	5	18/07/22																																
BH-145414	2.00	2.50	B	7	18/07/22						1																												
BH-145414	2.50		D	8	18/07/22																																
BH-145414	3.00	3.50	B	10	18/07/22						1	1																										

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103		Client	ERVIA	
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2		Scheduled Date	31/08/2022 15:04	

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction					press	Strength (Total)							Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		pH		Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox							Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-145414	3.50		D	11	18/07/22		1																												
BH-145414	4.00	4.50	B	13	18/07/22																				1										(30kPa, 60kPa, 120kPa)
BH-145414	4.50		D	14	18/07/22																												1		Envirolab 22/09645
BH-145414	5.00	5.50	B	16	18/07/22																														
BH-145414	5.50		D	17	18/07/22																														
BH-145414	6.50	7.00	B	19	19/07/22						1																								
BH-145414	7.00		D	20	19/07/22																														
BH-145414	8.00	8.50	B	22	19/07/22						1																								
BH-145414	8.50		D	23	19/07/22		1																												
BH-145414	9.50	10.00	B	25	19/07/22																														
BH-145414	10.00		D	26	19/07/22																														
BH-145703	0.00	1.00	B	1	20/07/22																														
BH-145703	1.00		D	2	20/07/22		1						1	1		1		1																	Envirolab 22/09645
BH-145703	1.00	1.50	B	4	20/07/22																														
BH-145703	1.50		D	5	20/07/22																														
BH-145703	2.00	2.50	B	7	20/07/22						1	1																							
BH-145703	2.50		D	8	20/07/22		1																												
BH-145703	3.00	3.50	B	10	20/07/22																		1	0*											* only suitable for 1pt
BH-145703	3.50		D	11	20/07/22																														
BH-145703	4.00	4.50	B	13	20/07/22																														
BH-145703	4.50		D	14	20/07/22																														
BH-145703	5.00	5.50	B	16	20/07/22						1	1																							
BH-145703	5.50		D	17	20/07/22		1																												
BH-145703	6.50	7.00	B	19	21/07/22																														
BH-145703	7.00		D	20	21/07/22																														
BH-145703	8.00	8.50	B	22	21/07/22																														
BH-145703	8.50		D	23	21/07/22																														
BH-145703	9.50	10.00	B	25	21/07/22																														
BH-145703	10.00		D	26	21/07/22																														
BH-146387	0.00	1.00	B	1	21/07/22																														
BH-146387	1.00		D	2	21/07/22		1						1	1																			1		Envirolab 22/09645
BH-146387	1.00	1.50	B	4	21/07/22																														
BH-146387	1.50		D	5	21/07/22		1	1																											
BH-146387	2.00	2.50	B	7	21/07/22						1	1																							
BH-146387	2.50		D	8	21/07/22																														
BH-146387	3.00	3.50	B	10	21/07/22																														
BH-146387	3.50		D	11	21/07/22											1		1																	Envirolab 22/09645
BH-146387	4.00	4.50	B	13	21/07/22						1																								
BH-146387	4.50		D	14	21/07/22																														
BH-146387	5.00	5.50	B	16	21/07/22																														
BH-146387	5.50		D	17	21/07/22																														
BH-146437	0.00	1.00	B	1	22/07/22																														
BH-146437	1.00		D	2	22/07/22		1	1																											
BH-146437	1.00	1.50	B	4	22/07/22																														
BH-146437	1.50		D	5	22/07/22																														
BH-146437	2.00	2.50	B	7	22/07/22						1	1																							
BH-146437	2.50		D	8	22/07/22		1	1																											
BH-146437	3.00	3.50	B	10	22/07/22																1														
BH-146437	3.50		D	11	22/07/22																														
BH-146437	4.00	4.50	B	13	22/07/22																														
BH-146437	4.50		D	14	22/07/22		1	1																											
BH-146437	5.00	5.50	B	16	22/07/22																														

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103
Project Name	Lot 3, Eastern & Midlands WSP
Schedule ID	2022KE103_1+2

Client	ERVIA
Scheduled Date	31/08/2022 15:04

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction						press	Strength (Total)						ar Stre gth (Effe	Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		pH			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox							Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
BH-146437	5.50		D	17	22/07/22																															
BH-146437	6.50	7.00	B	19	25/07/22						1																									
BH-146437	7.00		D	20	25/07/22		1																													
BH-146437	7.30		D	21	25/07/22																															
BH-146605	0.00	1.00	B	1	11/08/22						1	1																								
BH-146605	1.00		D	2	11/08/22		1	1																											1	Envirolab 22/09645
BH-146605	1.00	1.50	B	4	11/08/22																															
BH-146605	1.50		D	5	11/08/22		1						1																							Envirolab 22/09645
BH-146605	2.00	2.50	B	7	11/08/22						1	1																								
BH-146605	2.50		D	8	11/08/22		1	1																											1	Envirolab 22/09645
BH-146605	3.00	3.50	B	10	11/08/22																															
BH-146605	3.50		D	11	11/08/22																															
BH-146605	4.00	4.50	B	13	11/08/22						1	1																								
BH-146605	4.50		D	14	11/08/22		1	1																												
BH-146605	5.00	5.50	B	16	11/08/22																															
BH-146605	5.50		D	17	11/08/22																															
BH-146605	6.50	7.00	B	19	11/08/22																															
BH-146605	7.00		D	20	11/08/22																															
BH-146605	8.00	8.50	B	22	12/08/22						1	1																								
BH-146605	8.50		D	23	12/08/22		1	1																												
BH-146605	9.50	10.00	B	25	12/08/22																															
BH-146605	10.00		D	26	12/08/22		1	1																												
BH-146605	11.00	11.50	B	28	12/08/22																															
BH-146605	11.50		D	29	12/08/22																															
RC-117150	0.00	1.50	C		03/08/22																															
RC-117150	1.50	3.00	C		03/08/22																															
RC-117150	3.00	4.30	C		03/08/22																															
RC-117150	4.30	5.80	C		03/08/22																															
RC-117150	5.80	7.40	C		03/08/22																															
RC-117150	7.40	8.90	C		03/08/22																															
RC-117150	8.90	10.10	C		03/08/22																															
RC-117542	0.00	1.50	C		02/08/22																															
RC-117542	1.50	3.00	C		02/08/22		1	1																												
RC-117542	1.50	3.00	C		02/08/22																														1	BRE to ALS 221003-59
RC-117542	3.00	4.20	C		02/08/22																															
RC-117542	4.20	5.60	C		02/08/22																															
RC-117542	5.60	7.20	C		02/08/22																															
RC-117542	7.20	8.70	C		02/08/22						1	0*																								
RC-117542	7.20	8.70	C		02/08/22																															
RC-117542	8.70	10.10	C		02/08/22																															
RC-117728	0.00	1.50	C		11/08/22																															
RC-117728	1.50	3.50	C		11/08/22						1	1																								
RC-117728	1.50	3.50	C		11/08/22																															
RC-117728	3.50	5.00	C		11/08/22																															
RC-117728	5.00	6.50	C		11/08/22																															
RC-117728	6.50	8.00	C		11/08/22						1	1																								
RC-117728	6.50	8.00	C		11/08/22																														1	BRE to ALS 221003-59
RC-117728	8.00	9.50	C		11/08/22																															
RC-117728	9.50	10.00	C		11/08/22																															
RC-117778	0.00	1.50	C		28/07/22																															
RC-117778	1.50	3.00	C		28/07/22						1	1																								
RC-117778	1.50	3.00	C		28/07/22																															

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103	Client	ERVIA	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2	Scheduled Date	31/08/2022 15:04		

Turnaround

Sample Details							Classification					Chemical / Concrete						Compaction					press	Strength (Total)							Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		pH			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship			Small Direct Shearbox						Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
RC-117778	3.00	3.70	C		28/07/22																													
RC-117778	3.70	5.30	C		28/07/22																													
RC-117778	5.30	6.90	C		28/07/22																													
RC-117778	6.90	7.70	C		28/07/22						1																							
RC-117778	6.90	7.70	C		28/07/22																													
RC-117778	7.70	9.30	C		28/07/22																													
RC-117778	9.30	10.90	C		28/07/22						1	0*																						
RC-117778	9.30	10.90	C		28/07/22																												0*		BRE not suitable
RC-117778	10.90	12.50	C		28/07/22																													
RC-117778	12.50	14.00	C		28/07/22																													
RC-117778	14.00	15.00	C		28/07/22																													
RC-118164	0.00	1.50	C		29/07/22																													
RC-118164	1.50	3.00	C		29/07/22						1	0*																						
RC-118164	1.50	3.00	C		29/07/22																												1		BRE to ALS 221003-59
RC-118164	3.00	4.50	C		29/07/22																													
RC-118164	4.50	5.60	C		29/07/22																													
RC-118164	5.60	7.00	C		29/07/22		1	1			1	1																						
RC-118164	5.60	7.00	C		29/07/22																													
RC-118164	7.00	8.60	C		29/07/22																													
RC-118164	8.60	10.10	C		29/07/22																												1	2	UCS, 2 x PLSI (axial) at 9.0m, PLSI (A)at 9.6m
RC-118375	0.00	2.60	C		10/08/22																													
RC-118375	2.60	4.20	C		10/08/22						1	0*																						
RC-118375	2.60	4.20	C		10/08/22																												1		BRE to ALS 221003-59
RC-118375	4.20	5.60	C		10/08/22																													
RC-118375	5.60	7.20	C		10/08/22																													
RC-118375	7.20	8.60	C		10/08/22		1	1			1	1																						
RC-118375	7.20	8.60	C		10/08/22																													
RC-118375	8.60	10.10	C		10/08/22		1	1																										
RC-118375	8.60	10.10	C		10/08/22																												1		BRE to ALS 221003-59
RC-118987	0.00	1.50	C		04/08/22																													
RC-118987	1.50	3.00	C		04/08/22						1	1																						
RC-118987	1.50	3.00	C		04/08/22																													
RC-118987	3.00	4.20	C		04/08/22																													
RC-118987	4.20	5.80	C		04/08/22		0*	0*			1	1																						
RC-118987	4.20	5.80	C		04/08/22																												1		BRE to ALS 221003-59
RC-118987	5.80	7.20	C		04/08/22																													
RC-118987	7.20	8.60	C		04/08/22																													
RC-118987	8.60	10.10	C		04/08/22						1	1																						
RC-118987	8.60	10.10	C		04/08/22																													
RC-119542	0.00	1.50	C		05/08/22																													
RC-119542	1.50	3.00	C		05/08/22						1	1																						
RC-119542	1.50	3.00	C		05/08/22																													
RC-119542	3.00	4.20	C		05/08/22																													
RC-119542	4.20	5.60	C		05/08/22																													
RC-119542	5.60	7.20	C		05/08/22		1	1			1	1																						
RC-119542	5.60	7.20	C		05/08/22																													
RC-119542	7.20	8.60	C		05/08/22																													
RC-119542	8.60	10.10	C		05/08/22						1	1																						
RC-119542	8.60	10.10	C		05/08/22																												0*		*not suitable
RC-119737	0.00	3.00	C		09/08/22																													
RC-119737	3.00	4.20	C		09/08/22						1	0*																						

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103		Client	ERVIA	
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2		Scheduled Date	31/08/2022 15:04	

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction					press	Strength (Total)							ar Stre gth (Effe	Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		ph			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox								Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
RC-119737	3.00	4.20	C		09/08/22																														1		BRE to ALS 221003-59
RC-119737	4.20	5.60	C		09/08/22																																
RC-119737	5.60	7.10	C		09/08/22																																
RC-119737	7.10	8.60	C		09/08/22																																
RC-119737	8.60	10.10	C		09/08/22						1	0*																									
RC-119737	8.60	10.10	C		09/08/22																																
RC-135774	0.00	1.50	C		19/07/22																																
RC-135774	1.50	3.10	C		19/07/22						1	0*																									
RC-135774	1.50	3.10	C		19/07/22																																
RC-135774	3.10	4.70	C		19/07/22																																
RC-135774	4.70	5.80	C		19/07/22		1	0*			1	0*																									
RC-135774	4.70	5.80	C		19/07/22																														1		BRE to ALS 221003-59
RC-135774	5.80	7.30	C		19/07/22																																
RC-135774	7.30	8.50	C		19/07/22																																
RC-135774	8.50	10.10	C		19/07/22						1	0*																									PSD 8.8-10.1m
RC-135774	8.50	10.10	C		19/07/22																																
RC-135905	0.00	1.40	C		18/07/22																																
RC-135905	1.40	2.80	C		18/07/22		1	1			1	1																									
RC-135905	1.40	2.80	C		18/07/22																																
RC-135905	2.80	4.10	C		18/07/22																																
RC-135905	4.10	4.80	C		18/07/22		1	1																													
RC-135905	4.10	4.80	C		18/07/22																														1		BRE to ALS 221003-59
RC-135905	4.80	6.00	C		18/07/22																																
RC-135905	6.00	7.20	C		18/07/22																																
RC-135905	7.20	8.50	C		18/07/22																																
RC-135905	8.50	10.10	C		18/07/22		1	1																													
RC-135905	8.50	10.10	C		18/07/22																																
RC-136080	0.00	1.50	C		20/07/22																																
RC-136080	1.50	2.20	C		20/07/22						1	0*																									
RC-136080	1.50	2.20	C		20/07/22																														1		BRE to ALS 221003-59
RC-136080	2.20	3.30	C		20/07/22																																
RC-136080	3.30	4.80	C		20/07/22																																
RC-136080	4.80	5.60	C		20/07/22																																
RC-136080	5.60	7.10	C		20/07/22																																
RC-136080	7.10	8.60	C		20/07/22																																
RC-136080	8.60	10.10	C		20/07/22																														1	1			2 x PLSI (Axial) at 8.8m and 9.6m, UCS on first available core run
RC-136209	0.00	1.50	C		21/07/22						0*	0*																										*no RECOVERY
RC-136209	0.00	1.50	C		21/07/22																																
RC-136209	1.50	2.80	C		21/07/22																																
RC-136209	2.80	4.30	C		21/07/22																																
RC-136209	4.30	5.20	C		21/07/22																																
RC-136209	5.20	6.30	C		21/07/22																																
RC-136209	6.30	7.30	C		21/07/22																																
RC-136209	7.30	8.80	C		21/07/22																															1		PLSI Axial at 7.4m
RC-136209	8.80	10.10	C		21/07/22																														1	2			UCS, 2 x PLSI (axial) at 8.9m and at PLSI (A) 9.5m
RC-136548	0.00	1.50	C		22/07/22																																
RC-136548	1.50	3.00	C		22/07/22																																
RC-136548	3.00	4.30	C		22/07/22																																
RC-136548	4.30	4.90	C		22/07/22						1																											

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103	Client	ERVIA	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.
Project Name	Lot 3, Eastern & Midlands WSP				
Schedule ID	2022KE103_1+2	Scheduled Date	31/08/2022 15:04		

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction							Strength (Total)							Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point			Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition		Sulphate Water Gravimetric		pH			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship				Small Direct Shearbox							Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
RC-136548	4.30	4.90	C		22/07/22																														
RC-136548	4.90	5.80	C		22/07/22																														
RC-136548	5.80	6.40	C		22/07/22																														
RC-136548	6.40	7.30	C		22/07/22																														
RC-136548	7.30	8.50	C		22/07/22						1																								
RC-136548	7.30	8.50	C		22/07/22																												1		BRE to ALS 221003-59
RC-136548	8.50	10.10	C		22/07/22																										1	2			2 x PLSI (axial) at 8.6m, UCS and PLSI (A) at 9.7m
RC-143428	0.00	3.00	C		25/07/22																														
RC-143428	3.00	4.50	C		25/07/22						1																								
RC-143428	3.00	4.50	C		25/07/22																												1		BRE to ALS 221003-59
RC-143428	4.50	6.10	C		25/07/22																														
RC-143428	6.10	7.60	C		25/07/22																														
RC-143428	7.60	9.20	C		25/07/22																														
RC-143428	9.20	10.80	C		25/07/22																														
RC-143428	10.80	11.80	C		25/07/22																														
RC-143428	11.80	13.00	C		25/07/22						1																								
RC-143428	11.80	13.00	C		25/07/22																														
RC-143428	13.00	14.50	C		25/07/22																														
RC-143428	14.50	15.00	C		25/07/22																														
RC-143998	0.00	2.00	C		20/07/22																														
RC-143998	2.00	9.50	C		20/07/22																														
RC-143998	9.50	12.50	C		20/07/22																														
RC-143998	12.50	14.00	C		20/07/22						1																								
RC-143998	12.50	14.00	C		20/07/22																														* not suitable
RC-143998	14.00	15.00	C		20/07/22																														
RC-144109	0.00	5.00	C		21/07/22		1	1			1	1																							
RC-144109	0.00	5.00	C		21/07/22																														BRE to ALS 221003-59
RC-144109	5.00	8.00	C		21/07/22																														
RC-144109	8.00	9.50	C		21/07/22		1	1																											
RC-144109	8.00	9.50	C		21/07/22																														@8.0-9.3m
RC-144109	9.50	11.00	C		21/07/22																														
RC-144109	11.00	12.50	C		21/07/22						1																								
RC-144109	11.00	12.50	C		21/07/22																														
RC-144109	12.50	14.00	C		21/07/22																														
RC-144109	14.00	15.00	C		21/07/22																														
RC-146387	0.00	3.00	C		26/07/22																														
RC-146387	3.00	4.50	C		26/07/22		1	1			1	1																							
RC-146387	3.00	4.50	C		26/07/22																														BRE to ALS 221003-59
RC-146387	4.50	6.00	C		26/07/22																														
RC-146387	6.00	6.80	C		26/07/22																														
RC-146387	6.80	7.60	C		26/07/22						1																								
RC-146387	6.80	7.60	C		26/07/22																														
RC-146387	7.60	8.80	C		26/07/22																														
RC-146387	8.80	9.80	C		26/07/22																														
RC-146387	9.80	11.00	C		26/07/22																														
RC-146387	11.00	12.50	C		26/07/22																										1	0*			PLSI Axial, UCS
RC-146387	12.50	13.90	C		26/07/22																														
RC-146387	13.90	15.00	C		26/07/22																											1			PLSI Axial
RC-146437	0.00	3.00	C		27/07/22																														
RC-146437	3.00	4.50	C		27/07/22						1	1																							
RC-146437	3.00	4.50	C		27/07/22																														BRE to ALS 221003-59

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2022KE103
Project Name	Lot 3, Eastern & Midlands WSP
Schedule ID	2022KE103_1+2

Client	ERVIA
Scheduled Date	31/08/2022 15:04

Remarks: For all PSDs & hydrometer tests scheduled: Hydrometer only required if more than 10% passing for last sieve.

Turnaround

Sample Details							Classification						Chemical / Concrete						Compaction					press	Strength (Total)					Rock		Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density Pyc	Particle Density Pic	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Sulphate Titration	ph			Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship		Small Direct Shearbox					Shear Strength (Effe	Rock Uniaxial compression	Point Load	BRE Suite B	BRE Suite D	Comments
RC-146437	4.50	5.70	C		27/07/22																													
RC-146437	5.70	7.10	C		27/07/22																													
RC-146437	7.10	8.60	C		27/07/22																													
RC-146437	8.60	9.30	C		27/07/22																													
RC-146437	9.30	10.10	C		27/07/22																													
	Completed				10/03/23		78	54	0	0	78	52	10	9	0	10	0	10	0	0	4	1	0	2	0		3					5	9	27	1	

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

STRUCTURAL SOILS LTD

TEST REPORT

1774

Report No. 785305-1

Date 15-November-2022 Contract Lot 3 Eastern Midlands

Client Irish Drilling Ltd
Address Galway Road
Loughrea
Co. Galway

For the Attention of Dympna Darcy

Samples submitted by client	28/09/2022	Client Reference	Lot 3 Eastern Midlands
Testing Started	28/09/2022	Client Order No.	
Testing Completed	15/11/2022	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests Undertaken

Water Content (oven drying method) BS EN ISO 17892-1
Liquid Limit (definitive method) BS EN ISO 17892-12
Plastic Limit BS EN ISO 17892-12
Plasticity Index Derivation BS EN ISO 17892-12
Particle Size Distribution wet sieve method BS EN ISO 17892-4
Dry density/moisture content relationship 2.5kg rammer method BS1377:Part 4:1990
Dry density/moisture content relationship 4.5kg rammer method BS1377:Part 4:1990
Moisture condition value natural moisture content BS1377:Part 4:1990,clause 5.4
Moisture condition value/moisture content relationship BS1377:Part 4:1990,clause 5.5
Peak and residual shear strength parameters of consolidated drained 60x60mm specimen

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.0117 9471000. e-mail mark.athorne@soils.co.uk

SUMMARY OF WATER CONTENT TESTS

In accordance with BS EN ISO 17892-1 : 2014

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content (%)	Drying Temperature (degC)	Description	Lab location
BH-121326	2	D	1.00	202	50	Black PEAT	C
BH-135774	14	D	4.50	14.4	50	Brown slightly sandy slightly gravelly CLAY	C
BH-143428	2	D	1.00	492	50	Black PEAT	C
BH-143428	8	D	2.50	153	50	Black organic CLAY	C
BH-143428	11	D	3.50	14.6	50	Brown grey sandy gravelly silty CLAY	C
BH-143428	17	D	5.50	3.5	50	Black sandy GRAVEL	C
BH-143591	5	D	1.50	269	50	Black PEAT	C
BH-143998	2	D	1.00	88.6	50	Brown slightly sandy organic CLAY	C
BH-143998	22	D	7.00	2.3	50	Brown sandy GRAVEL	C
BH-143998	28	D	10.00	11.3	50	Brown grey slightly sandy slightly gravelly CLAY	C
BH-144109	5	D	1.50	188	50	Black slightly sandy organic CLAY	
BH-145414	2	D	1.00	54.8	50	Black slightly sandy slightly gravelly CLAY	C
BH-145414	11	D	3.50	7.2	50	Black sandy GRAVEL	C
BH-145414	23	D	8.50	19.8	50	Grey slightly gravelly CLAY	C
BH-145703	2	D	1.00	231	50	Black PEAT	C
BH-145703	8	D	2.50	33.4	50	Brown sandy gravelly CLAY	C
BH-145703	17	D	5.50	24.7	50	Grey silty CLAY	C
BH-146387	2	D	1.00	209	50	Black PEAT	C

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	**27.10.22**

Contract: **Lot 3 Eastern & Midlands WSP**

Contract Ref: **785305**

SUMMARY OF WATER CONTENT TESTS

In accordance with BS EN ISO 17892-1 : 2014

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content (%)	Drying Temperature (degC)	Description	Lab location
BH-146437	20	D	7.00	1.8	50	Black sandy GRAVEL	C
BH-146605	5	D	1.50	127	50	Black organic CLAY	C
BH-121326	8	D	2.50	17.0	50	Grey slightly sandy SILT	C
BH-121326	17	D	5.50	20.1	50	Grey SAND	C
BH-143591	17	D	5.00	29.2	50	Grey slightly gravelly SILT	C

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	27.10.22

Contract: **Lot 3 Eastern & Midlands WSP**

Contract Ref: **785305**

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-117150	2	D	1.00	20.0	42	31	11	62	Brown slightly gravelly sandy clayey SILT
BH-117150	14	D	4.50	12.6	28	17	11	77	Brown gravelly clayey SAND
BH-117542	2	D	1.00	22.9	42	25	17	41	Brown sandy gravelly CLAY with organic material
BH-117542	8	D	2.50	19.9	33	23	10	36	Brown sandy gravelly CLAY
BH-117778	2	D	1.00	15.7	40	24	16	18	Brown sandy clayey silty GRAVEL with high cobble content
BH-118164	2	D	1.00	16.6	NP	NP	NP	65	Brown very sandy very silty clayey GRAVEL with organic material
BH-118164	8	D	2.50	11.9	22	14	8	48	Brown sandy gravelly CLAY
BH-118375	2	D	1.00	15.4	37	24	13	50	Brown very sandy clayey very silty GRAVEL

SYMBOLS: * denotes BS 1377

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-118375	8	D	2.50	13.6	23	18	5	48	Brown sandy gravelly CLAY
BH-118987	2	D	1.00	18.2	43	33	10	28	Brown sandy slightly clayey silty GRAVEL with medium cobble content
BH-119542	2	D	1.00	17.5	36	20	16	79	Brown slightly sandy slightly gravelly clayey SILT
BH-119542	8	D	2.50	11.4	27	16	11	43	Brown sandy gravelly CLAY
BH-119542	11	D	3.50	12.3	24	15	9	46	Brown sandy very gravelly CLAY with medium cobble content
BH-119737	2	D	1.00	15.4	27	16	11	44	Brown very sandy clayey very silty GRAVEL
BH-135774	2	D	1.00	12.6	29	20	9	38	Brown grey COBBLES with much very sandy clayey silty GRAVEL
BH-135774	11	D	3.50	10.0	25	15	10	44	Brown sandy gravelly CLAY

SYMBOLS: * denotes BS 1377

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-135905	2	D	1.00	11.2	23	16	7	59	Brown slightly sandy slightly gravelly clayey SILT
BH-136080	2	D	1.00	13.6	25	17	8	73	Brown slightly gravelly slightly sandy clayey SILT
BH-136080	8	D	2.50	13.6	26	18	8	56	Brown sandy gravelly CLAY
BH-136080	11	D	3.50	6.1	25	16	9	35	Brown sandy gravelly CLAY
BH-136209	2	D	1.00	15.7	38	22	16	73	Brown sandy gravelly CLAY with organic material
BH-136209	8	D	2.50	9.0	25	13	12	49	Brown sandy gravelly CLAY
BH-136548	2	D	1.00	15.1	25	16	9	68	Brown slightly gravelly slightly sandy clayey SILT
BH-136548	8	D	2.50	13.1	23	15	8	63	Brown slightly sandy slighlty gravelly CLAY

SYMBOLS: * denotes BS 1377

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-143428	21	D	7.10	3.7	24	15	9	56	Grey slightly sandy gravelly clayey SILT
BH-143591	11	D	3.50	72.2	NP	NP	NP	64	Brown slightly gravelly sandy SILT with organic material
BH-143591	26	D	9.00	15.8	21	13	8	53	Grey gravelly slightly sandy CLAY
BH-143591	29	D	10.50	22.7	23	16	7	61	Grey gravelly silty CLAY
BH-143998	11	D	3.50	74.5	115	70	45	83	Brown sandy CLAY
BH-143998	17	D	5.50	31.2	28	19	9	89	Grey slightly gravelly CLAY
BH-144109	11	D	3.50	17.0	NP	NP	NP	92	Brown grey silty slightly clayey SAND
BH-144109	14	D	4.50	18.2	NP	NP	NP	86	Brown grey very silty slightly clayey gravelly SAND

SYMBOLS: * denotes BS 1377

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-144109	20	D	7.00	23.0	NP	NP	NP	94	Brown silty SAND
BH-144109	23	D	8.50	25.4	NP	NP	NP	93	Brown grey SILT
BH-146387	5	D	1.50	79.6	NP	NP	NP	38	Black grey PEAT with organic material
BH-146437	2	D	1.00	132	NP	NP	NP	83	Grey brown organic CLAY
BH-146437	8	D	2.50	39.6	48	34	14	98	Brown silty CLAY
BH-146437	14	D	4.50	23.4	29	20	9	94	Brown grey silty CLAY
BH-146605	2	D	1.00	12.3	36	27	9	22	Brown sandy gravelly CLAY with organic material
BH-146605	8	D	2.50	183	NP	NP	NP	-8	Light brown slightly sandy organic CLAY

SYMBOLS: * denotes BS 1377

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

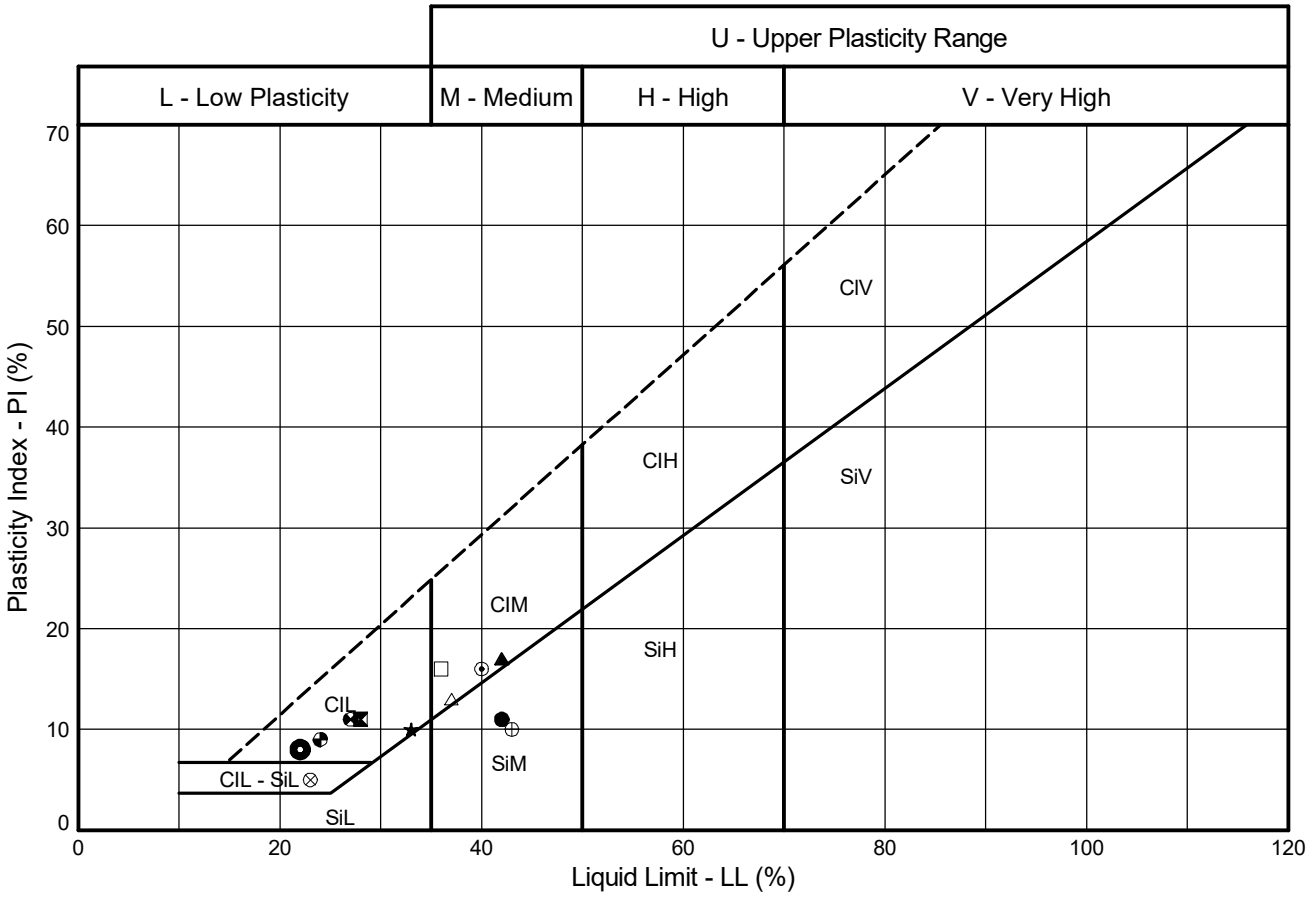
Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-146605	14	D	4.50	24.4	26	18	8	100	Brown gravelly silty CLAY
BH-146605	23	D	8.50	17.8	30	20	10	62	Brown slightly gravelly silty CLAY
BH-146605	26	D	10.00	19.8	35	20	15	83	Brown clayey SILT

SYMBOLS: * denotes BS 1377

STRUCTURAL SOILS LTD	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC	LL	PL	PI	<425µm	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	BH-117150	2D	1.00	5.3.14/5.5/6.5	5.2.7	20.0	42	31	11	62	C	
⊠	BH-117150	14D	4.50	5.3/5.5/6.5	5.2.7	12.6	28	17	11	77	C	
▲	BH-117542	2D	1.00	5.3/5.5/6.5	5.2.7	22.9	42	25	17	41	C	
★	BH-117542	8D	2.50	5.3.14/5.5/6.5	5.2.7	19.9	33	23	10	36	C	
⊙	BH-117778	2D	1.00	5.3/5.5/6.5	5.2.7	15.7	40	24	16	18	C	
	BH-118164	2D	1.00	5.3/5.5/6.5	5.2.1	16.6	NP	NP	NP	65	C	
◉	BH-118164	8D	2.50	5.3.14/5.5/6.5	5.2.7	11.9	22	14	8	48	C	
△	BH-118375	2D	1.00	5.3.14/5.5/6.5	5.2.7	15.4	37	24	13	50	C	
⊗	BH-118375	8D	2.50	5.3.14/5.5/6.5	5.2.7	13.6	23	18	5	48	C	
⊕	BH-118987	2D	1.00	5.3/5.5/6.5	5.2.7	18.2	43	33	10	28	C	
□	BH-119542	2D	1.00	5.3/5.5/6.5	5.2.7	17.5	36	20	16	79	C	
⊠	BH-119542	8D	2.50	5.3/5.5/6.5	5.2.7	11.4	27	16	11	43	C	
◓	BH-119542	11D	3.50	5.3.14/5.5/6.5	5.2.7	12.3	24	15	9	46	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

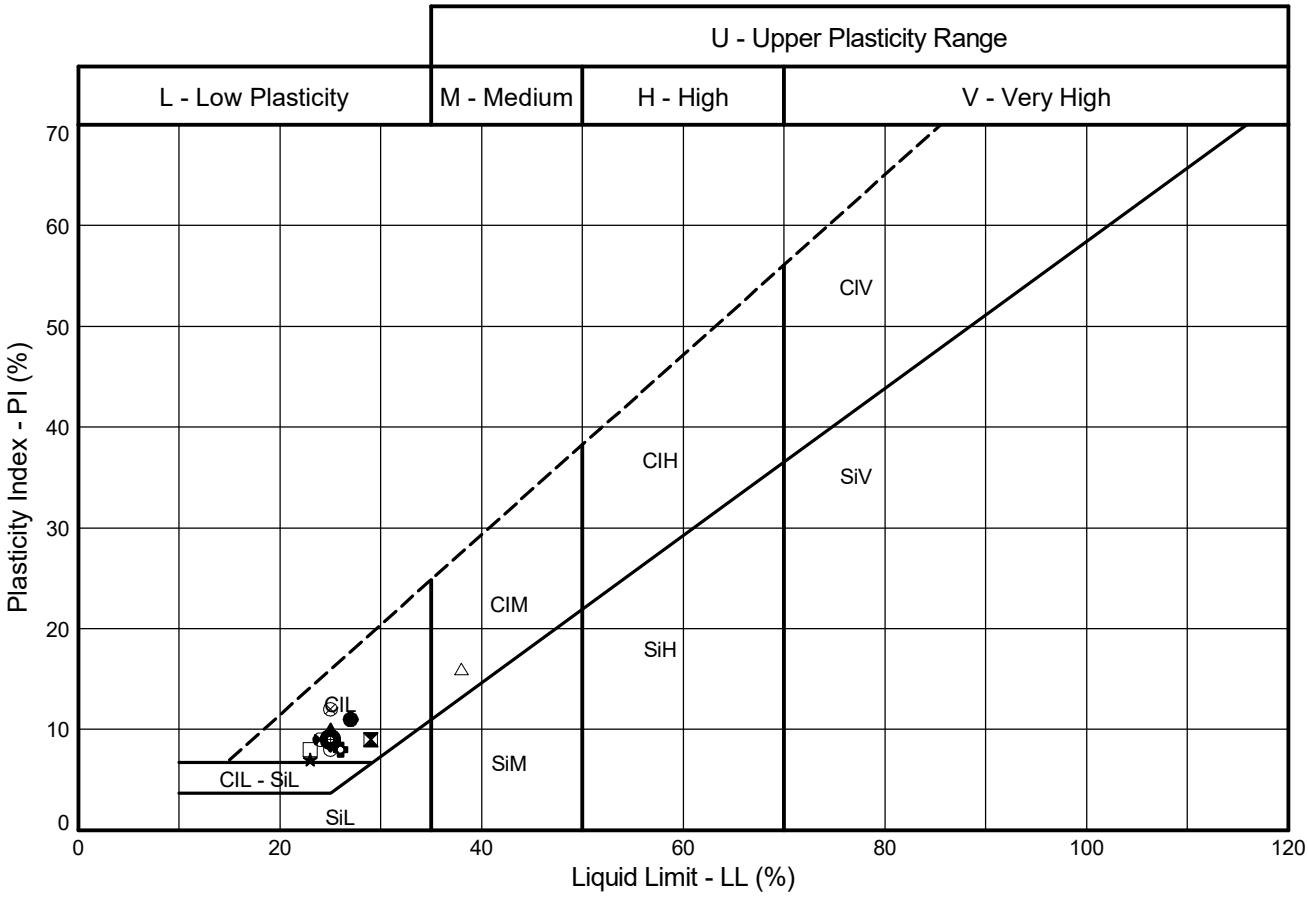
STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	26/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC	LL	PL	PI	<425µm	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	BH-119737	2D	1.00	5.3.14/5.5/6.5	5.2.7	15.4	27	16	11	44	C	
⊠	BH-135774	2D	1.00	5.3.14/5.5/6.5	5.2.7	12.6	29	20	9	38	C	
▲	BH-135774	11D	3.50	5.3.14/5.5/6.5	5.2.7	10.0	25	15	10	44	C	
★	BH-135905	2D	1.00	5.3/5.5/6.5	5.2.7	11.2	23	16	7	59	C	
⊙	BH-136080	2D	1.00	5.3/5.5/6.5	5.2.1	13.6	25	17	8	73	C	
✿	BH-136080	8D	2.50	5.3/5.5/6.5	5.2.7	13.6	26	18	8	56	C	
◉	BH-136080	11D	3.50	5.3.14/5.5/6.5	5.2.7	6.1	25	16	9	35	C	
△	BH-136209	2D	1.00	5.3/5.5/6.5	5.2.7	15.7	38	22	16	73	C	
⊗	BH-136209	8D	2.50	5.3.14/5.5/6.5	5.2.7	9.0	25	13	12	49	C	
⊕	BH-136548	2D	1.00	5.3/5.5/6.5	5.2.7	15.1	25	16	9	68	C	
□	BH-136548	8D	2.50	5.3/5.5/6.5	5.2.7	13.1	23	15	8	63	C	
⊠	BH-143428	21D	7.10	5.3/5.5/6.5	5.2.7	3.7	24	15	9	56	C	
	BH-143591	11D	3.50	5.3/5.5/6.5	5.2.7	72.2	NP	NP	NP	64	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

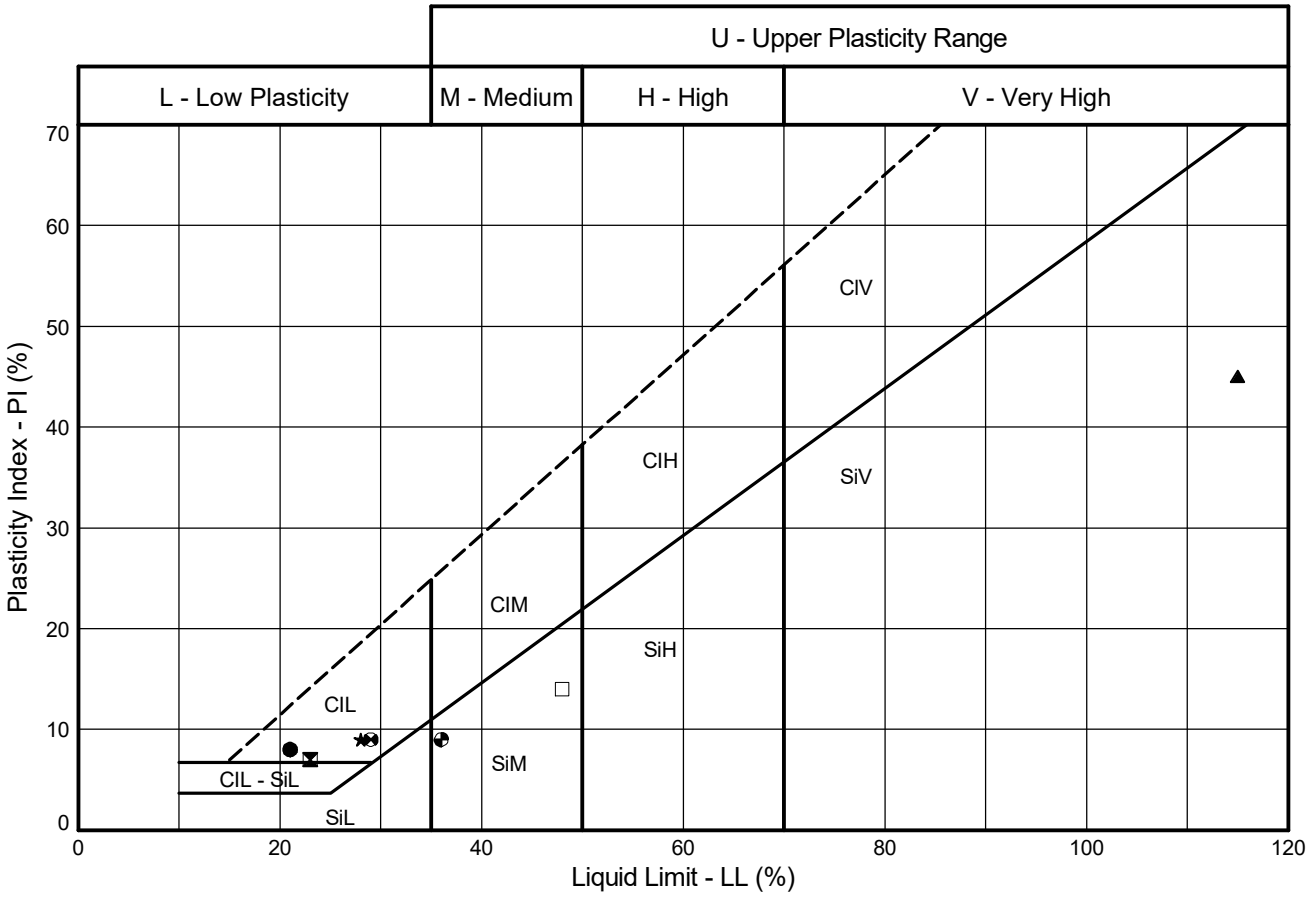
STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	26/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC	LL	PL	PI	<425µm	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%		
●	BH-143591	26D	9.00	5.3/5.5/6.5	5.2.7	15.8	21	13	8	53	C	
⊠	BH-143591	29D	10.50	5.3/5.5/6.5	5.2.7	22.7	23	16	7	61	C	
▲	BH-143998	11D	3.50	5.3/5.5/6.5	5.2.7	74.5	115	70	45	83	C	
★	BH-143998	17D	5.50	5.3/5.5/6.5	5.2.7	31.2	28	19	9	89	C	
	BH-144109	11D	3.50	5.3/5.5/6.5	5.2.7	17.0	NP	NP	NP	92	C	
	BH-144109	14D	4.50	5.3/5.5/6.5	5.2.7	18.2	NP	NP	NP	86	C	
	BH-144109	20D	7.00	5.3/5.5/6.5	5.2.7	23.0	NP	NP	NP	94	C	
	BH-144109	23D	8.50	5.3/5.5/6.5	5.2.7	25.4	NP	NP	NP	93	C	
	BH-146387	5D	1.50	5.3/5.5/6.5	5.2.7	79.6	NP	NP	NP	38	C	
	BH-146437	2D	1.00	5.3/5.5/6.5	5.2.7	132	NP	NP	NP	83	C	
□	BH-146437	8D	2.50	5.3/5.5/6.5	5.2.7	39.6	48	34	14	98	C	
⊗	BH-146437	14D	4.50	5.3/5.5/6.5	5.2.7	23.4	29	20	9	94	C	
◓	BH-146605	2D	1.00	5.3.14/5.5/6.5	5.2.7	12.3	36	27	9	22	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

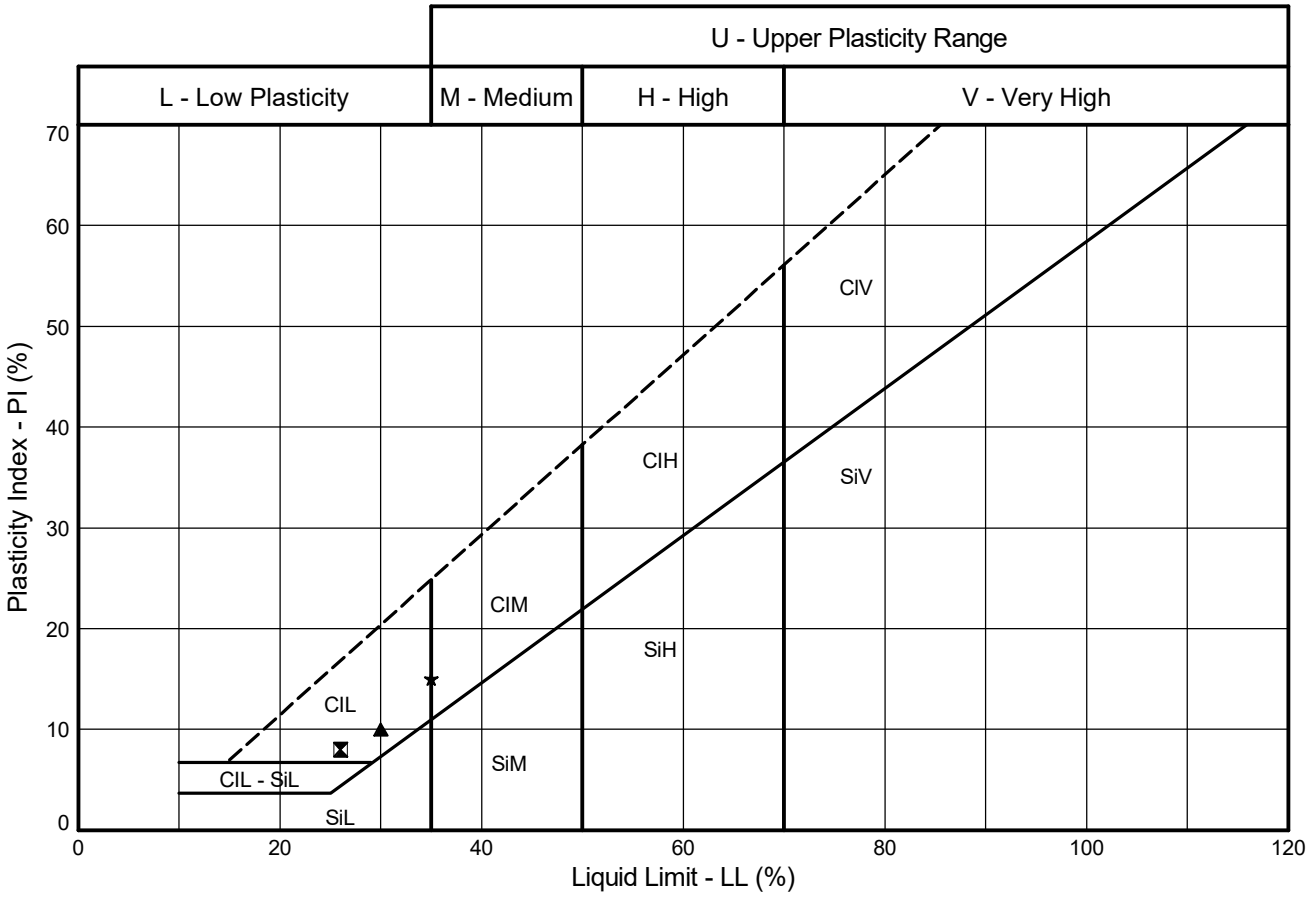
STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	26/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC %	LL %	PL %	PI %	<425µm %	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)									
	BH-146605	8D	2.50	5.3/5.5/6.5	5.2.7	183	NP	NP	NP	-8	C	
⊠	BH-146605	14D	4.50	5.3/5.5/6.5	5.2.1	24.4	26	18	8	100	C	
▲	BH-146605	23D	8.50	5.3/5.5/6.5	5.2.7	17.8	30	20	10	62	C	
★	BH-146605	26D	10.00	5.3/5.5/6.5	5.2.7	19.8	35	20	15	83	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

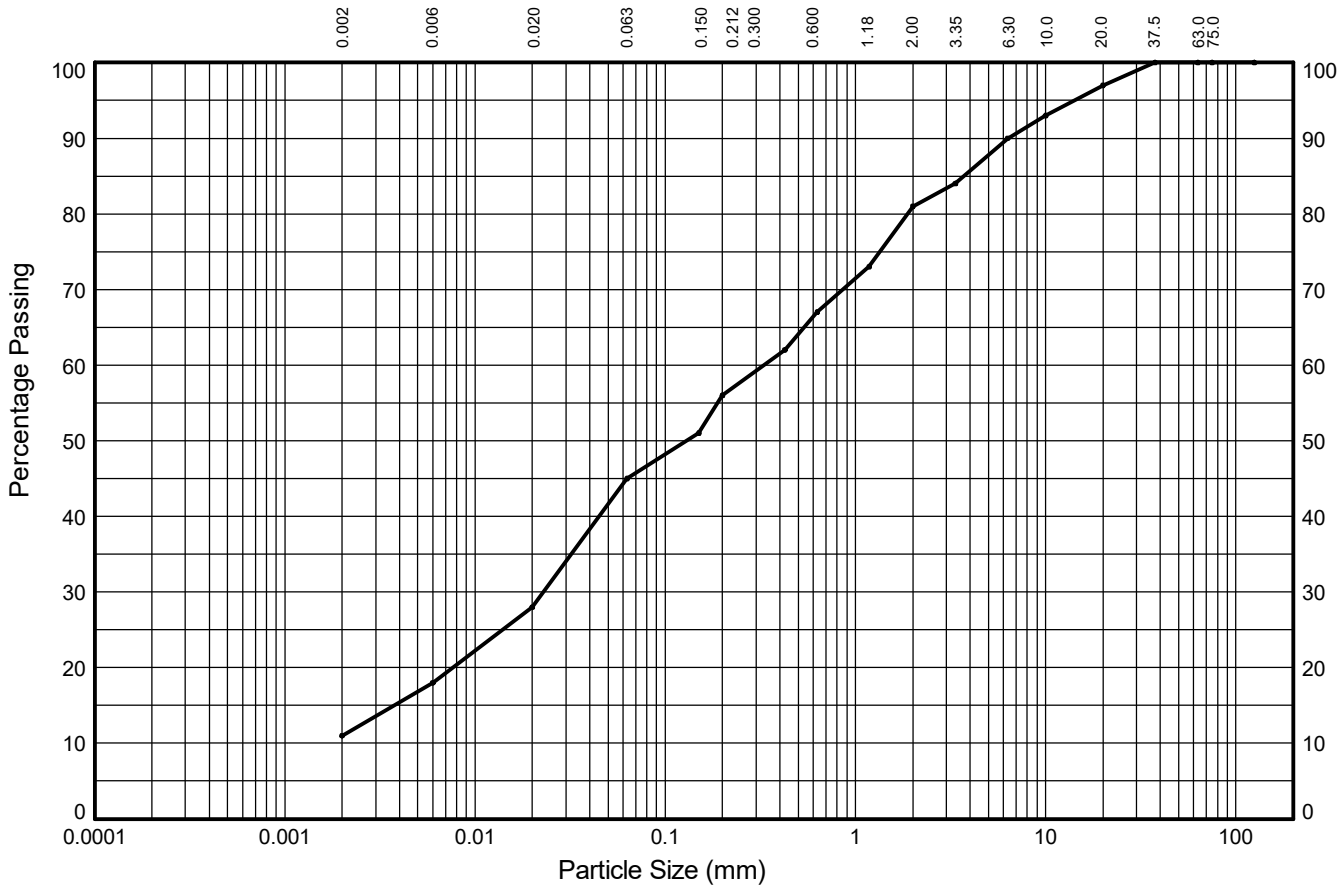
Compiled By		Date
	LAURA SCHRAMM	26/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-117150** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	7%	10%	17%	11%	11%	14%	9%	7%	3%	
	SILT			SAND			GRAVEL			
11%	34%			36%			19%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**97**
10.0	**93**
6.30	**90**
3.35	**84**
2.00	**81**
1.18	**73**
0.630	**67**
0.425	**62**
0.200	**56**
0.150	**51**
0.063	**45**

Particle Diameter (mm)	Percent Passing (%)
0.02	**28**
0.006	**18**
0.002	**11**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.004**
D_{30} (mm)	**0.023**
D_{50} (mm)	**0.130**
D_{60} (mm)	**0.331**
D_{85} (mm)	**3.722**
D_{90} (mm)	**6.300**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-117150** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	13%	12%	9%	12%	9%	8%	11%	5%	4%	
	SILT			SAND			GRAVEL			
17%	34%			29%			20%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**97**
20.0	**96**
10.0	**94**
6.30	**91**
3.35	**84**
2.00	**80**
1.18	**77**
0.630	**72**
0.425	**69**
0.200	**63**
0.150	**59**
0.063	**51**

Particle Diameter (mm)	Percent Passing (%)
0.02	**42**
0.006	**30**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.006**
D_{50} (mm)	**0.055**
D_{60} (mm)	**0.161**
D_{85} (mm)	**3.666**
D_{90} (mm)	**5.756**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy slightly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

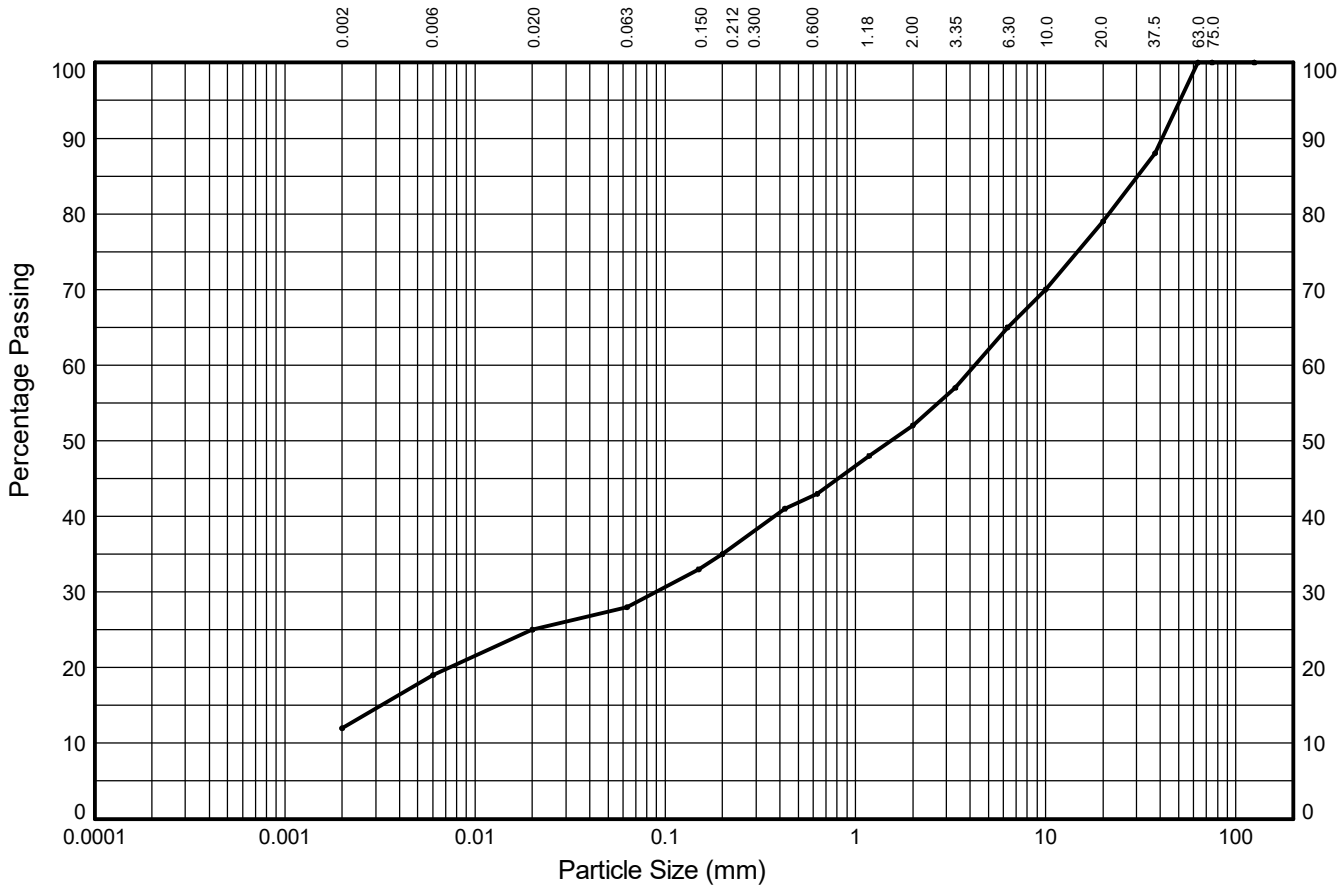
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-117542** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	7%	6%	3%	7%	8%	9%	13%	14%	21%	
	SILT			SAND			GRAVEL			
12%	16%			24%			48%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**88**
20.0	**79**
10.0	**70**
6.30	**65**
3.35	**57**
2.00	**52**
1.18	**48**
0.630	**43**
0.425	**41**
0.200	**35**
0.150	**33**
0.063	**28**

Particle Diameter (mm)	Percent Passing (%)
0.02	**25**
0.006	**19**
0.002	**12**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.089**
D_{50} (mm)	**1.536**
D_{60} (mm)	**4.245**
D_{85} (mm)	**30.411**
D_{90} (mm)	**40.887**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown very sandy very silty slightly clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	**02/11/22**

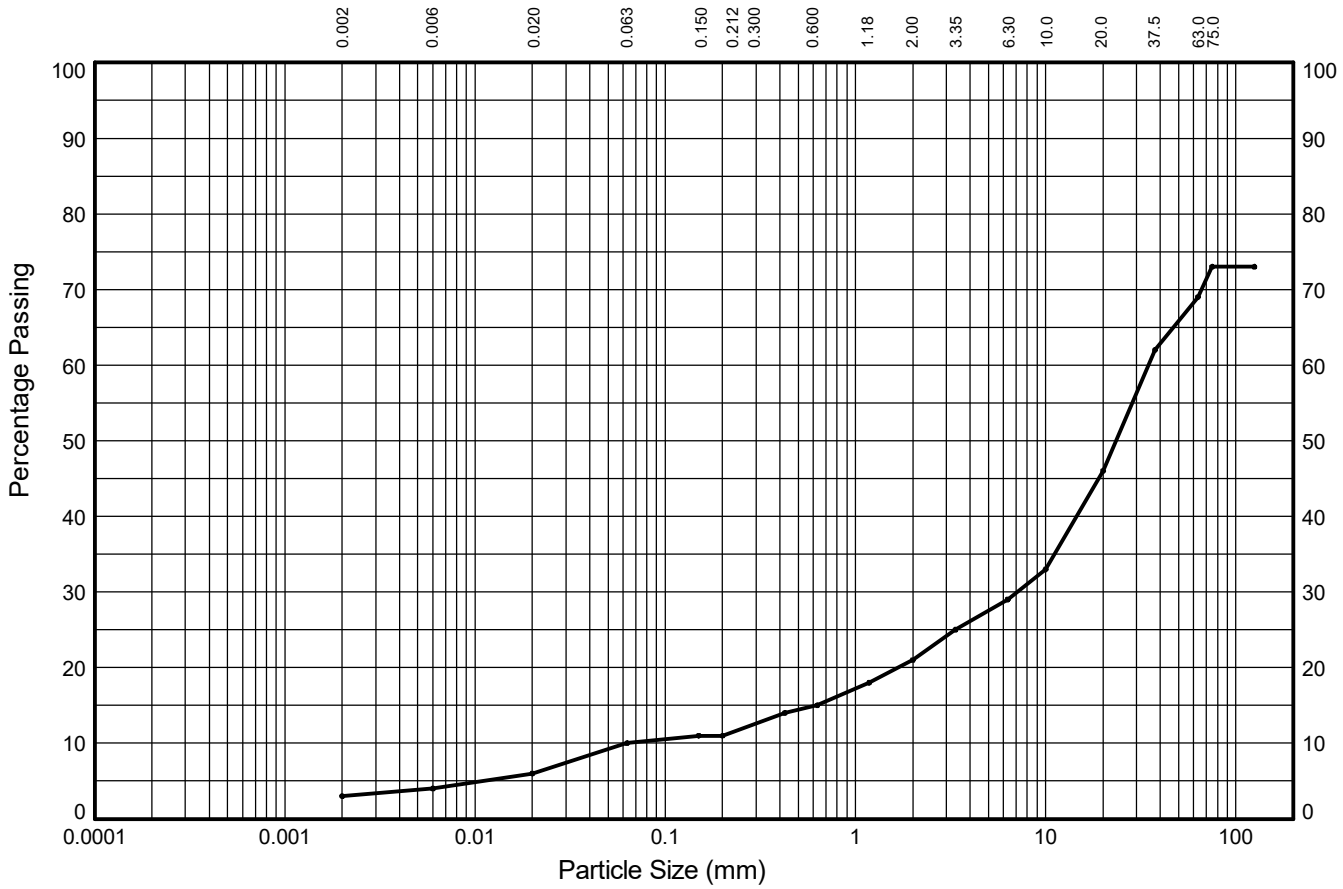
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-117778** Sample Ref: **1** Sample Type: **B** Depth (m): **0.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	1%	2%	4%	1%	4%	6%	8%	17%	23%	
	SILT			SAND			GRAVEL			
3%	7%			11%			48%			31%

Test Sieve (mm)	Percent Passing (%)
125.0	**73**
75.0	**73**
63.0	**69**
37.5	**62**
20.0	**46**
10.0	**33**
6.30	**29**
3.35	**25**
2.00	**21**
1.18	**18**
0.630	**15**
0.425	**14**
0.200	**11**
0.150	**11**
0.063	**10**

Particle Diameter (mm)	Percent Passing (%)
0.02	**6**
0.006	**4**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.063**
D_{15} (mm)	**0.630**
D_{30} (mm)	**7.071**
D_{50} (mm)	**23.403**
D_{60} (mm)	**34.666**
D_{85} (mm)	
D_{90} (mm)	
C_U	**550**
C_C	**23**

Soil Description:

Brown sandy silty slightly clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

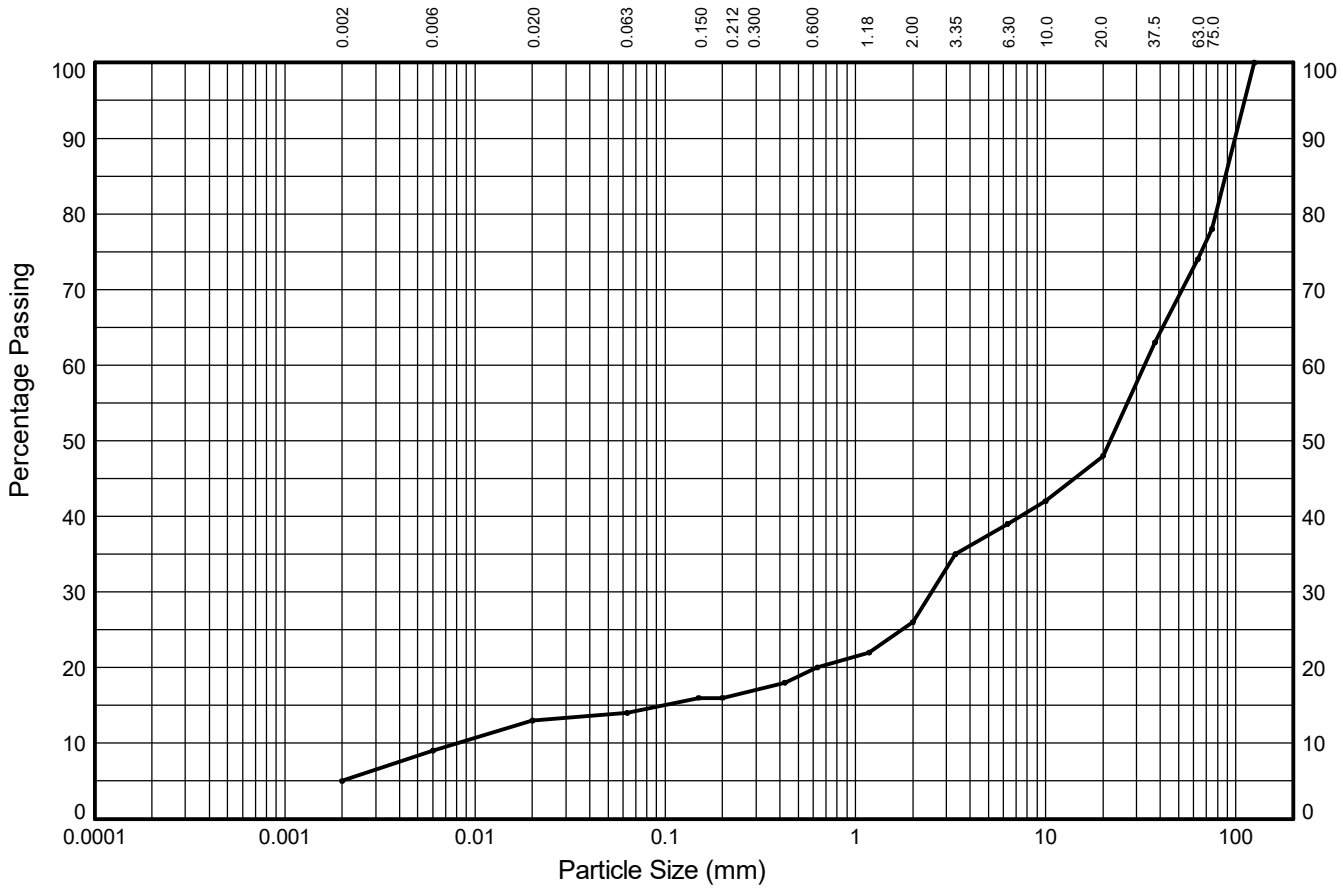
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-117778** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	4%	1%	2%	4%	6%	13%	9%	26%	
	SILT			SAND			GRAVEL			
5%	9%			12%			48%			26%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**78**
63.0	**74**
37.5	**63**
20.0	**48**
10.0	**42**
6.30	**39**
3.35	**35**
2.00	**26**
1.18	**22**
0.630	**20**
0.425	**18**
0.200	**16**
0.150	**16**
0.063	**14**

Particle Diameter (mm)	Percent Passing (%)
0.02	**13**
0.006	**9**
0.002	**5**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.008**
D_{15} (mm)	**0.097**
D_{30} (mm)	**2.515**
D_{50} (mm)	**21.749**
D_{60} (mm)	**33.070**
D_{85} (mm)	**88.237**
D_{90} (mm)	**99.099**
C_U	**4079**
C_C	**24**

Soil Description:

Brown sandy clayey silty GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	02/11/22

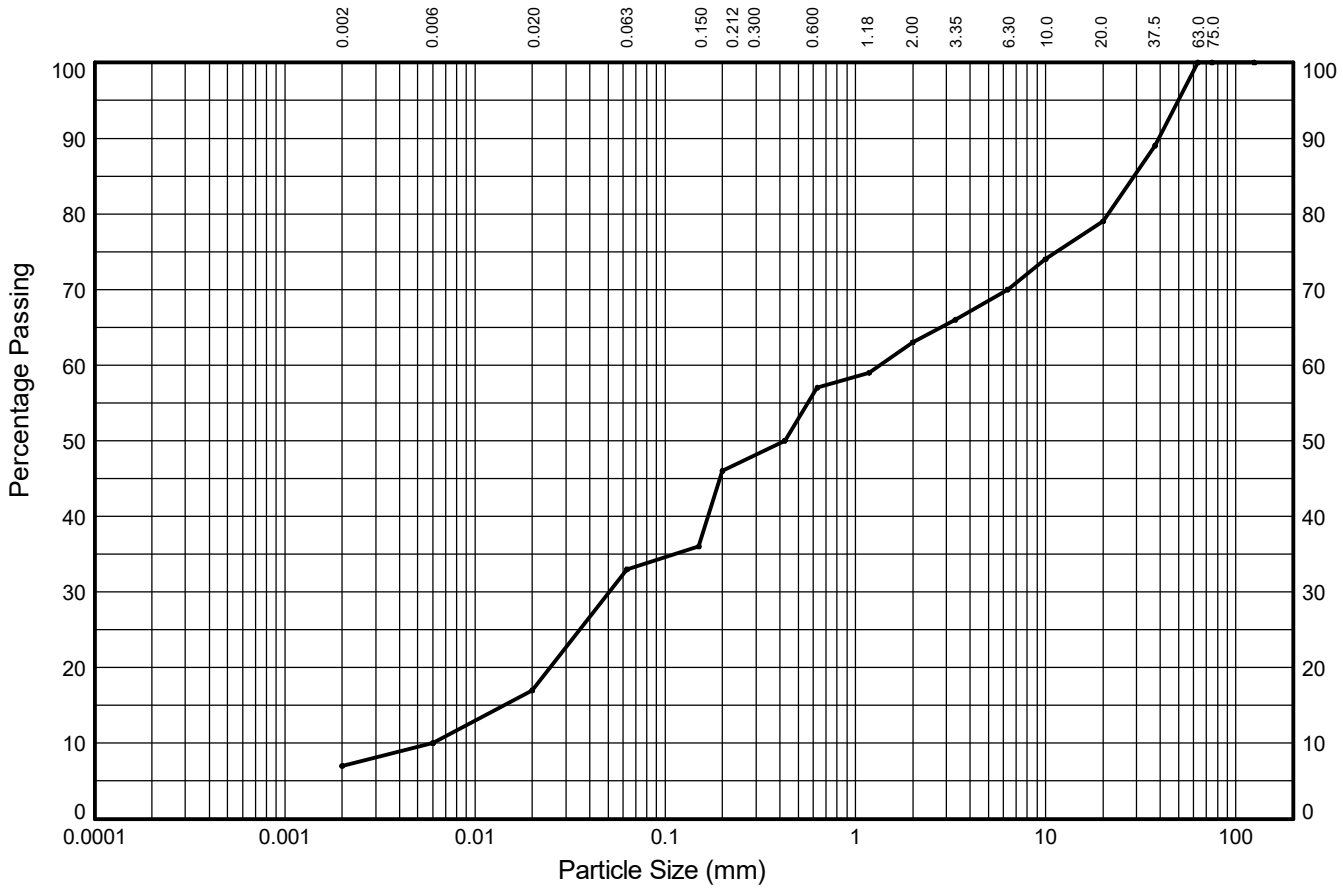
Contract: **Lot 3 Eastern & Midlands WSP**

Contract Ref: **785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-118164** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	7%	16%	13%	11%	6%	7%	9%	21%	
	SILT			SAND			GRAVEL			
7%	26%			30%			37%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**89**
20.0	**79**
10.0	**74**
6.30	**70**
3.35	**66**
2.00	**63**
1.18	**59**
0.630	**57**
0.425	**50**
0.200	**46**
0.150	**36**
0.063	**33**

Particle Diameter (mm)	Percent Passing (%)
0.02	**17**
0.006	**10**
0.002	**7**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.006**
D_{15} (mm)	**0.014**
D_{30} (mm)	**0.051**
D_{50} (mm)	**0.425**
D_{60} (mm)	**1.346**
D_{85} (mm)	**29.163**
D_{90} (mm)	**39.311**
C_U	**224**
C_C	**0.32**

Soil Description:

Brown very sandy clayey very silty GRAVEL with organic material

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

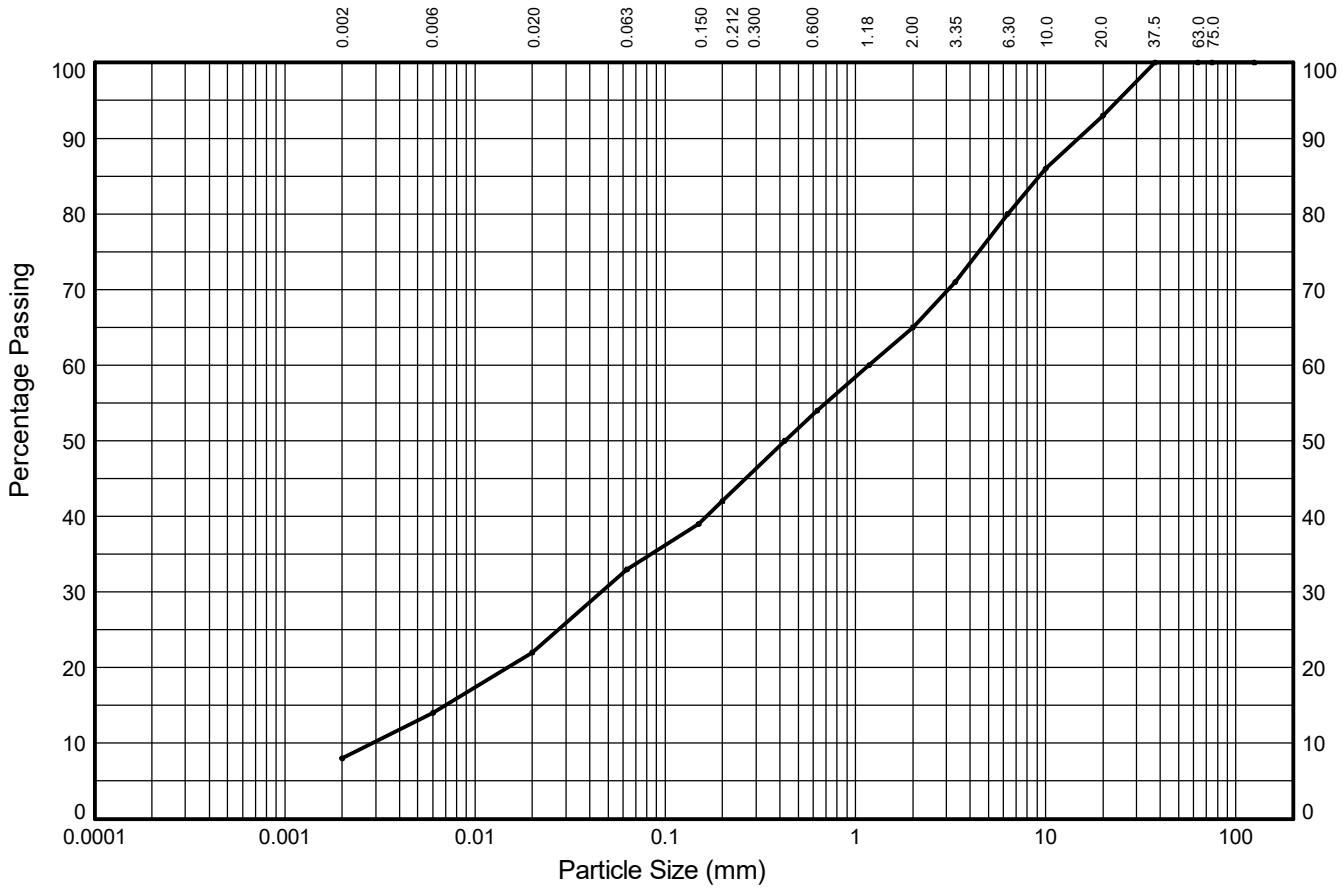
Compiled By	Date
LAURA SCHRAMM	02/11/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-118375** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	8%	11%	9%	12%	11%	15%	13%	7%	
	SILT			SAND			GRAVEL			
8%	25%			32%			35%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**93**
10.0	**86**
6.30	**80**
3.35	**71**
2.00	**65**
1.18	**60**
0.630	**54**
0.425	**50**
0.200	**42**
0.150	**39**
0.063	**33**

Particle Diameter (mm)	Percent Passing (%)
0.02	**22**
0.006	**14**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.007**
D_{30} (mm)	**0.046**
D_{50} (mm)	**0.425**
D_{60} (mm)	**1.180**
D_{85} (mm)	**9.259**
D_{90} (mm)	**14.860**
C_U	**409**
C_C	**0.62**

Soil Description:

Brown very sandy clayey very silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

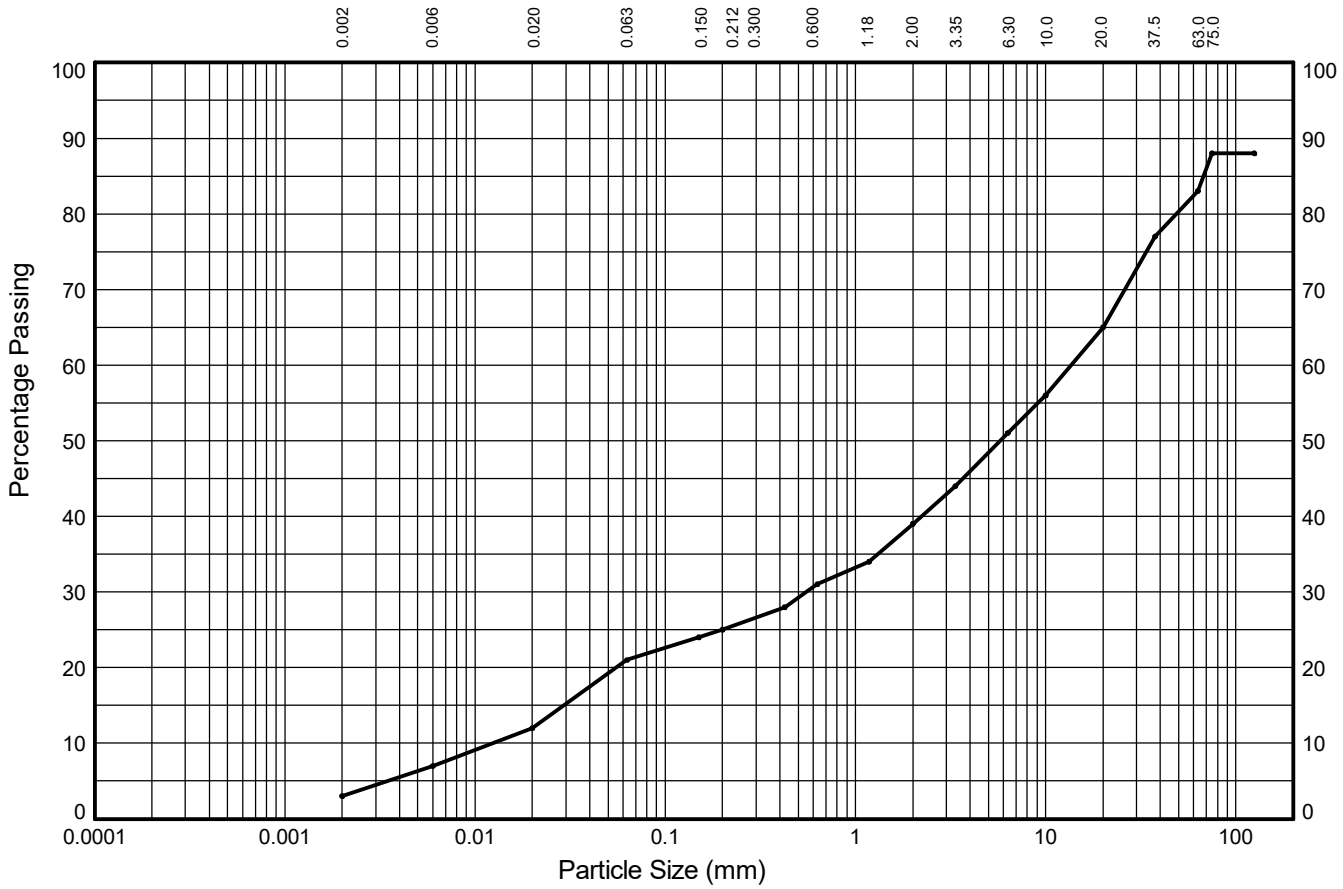
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-118987** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	5%	9%	4%	6%	8%	12%	14%	18%	
	SILT			SAND			GRAVEL			
3%	18%			18%			44%			17%

Test Sieve (mm)	Percent Passing (%)
125.0	**88**
75.0	**88**
63.0	**83**
37.5	**77**
20.0	**65**
10.0	**56**
6.30	**51**
3.35	**44**
2.00	**39**
1.18	**34**
0.630	**31**
0.425	**28**
0.200	**25**
0.150	**24**
0.063	**21**

Particle Diameter (mm)	Percent Passing (%)
0.02	**12**
0.006	**7**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.012**
D_{15} (mm)	**0.029**
D_{30} (mm)	**0.553**
D_{50} (mm)	**5.756**
D_{60} (mm)	**13.608**
D_{85} (mm)	**67.551**
D_{90} (mm)	
C_U	**1101**
C_C	**2**

Soil Description:

Brown sandy slightly clayey silty GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

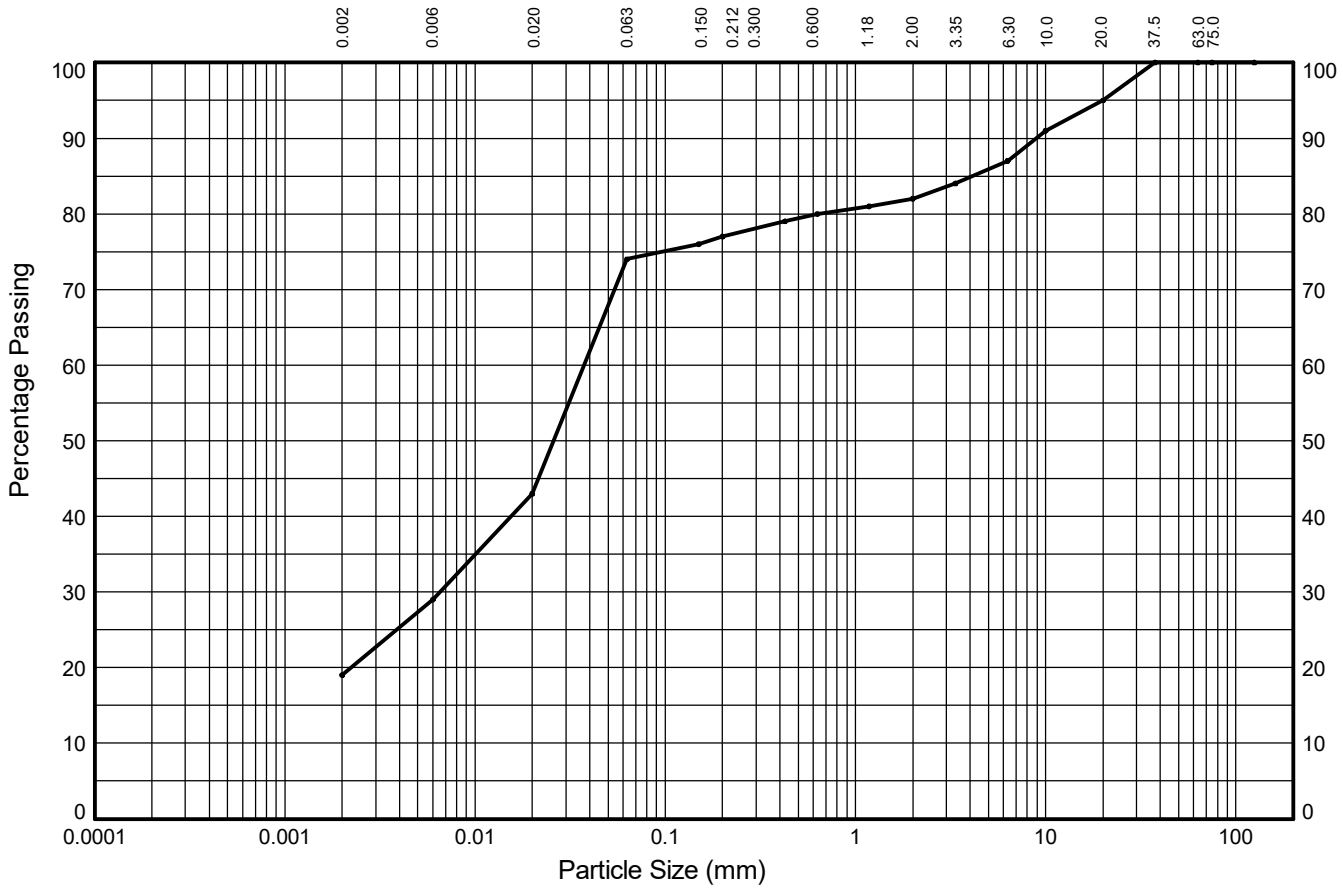
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-119542** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	14%	31%	3%	3%	2%	5%	8%	5%	
	SILT			SAND			GRAVEL			
19%	55%			8%			18%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**95**
10.0	**91**
6.30	**87**
3.35	**84**
2.00	**82**
1.18	**81**
0.630	**80**
0.425	**79**
0.200	**77**
0.150	**76**
0.063	**74**

Particle Diameter (mm)	Percent Passing (%)
0.02	**43**
0.006	**29**
0.002	**19**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.007**
D_{50} (mm)	**0.026**
D_{60} (mm)	**0.038**
D_{85} (mm)	**4.135**
D_{90} (mm)	**8.909**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

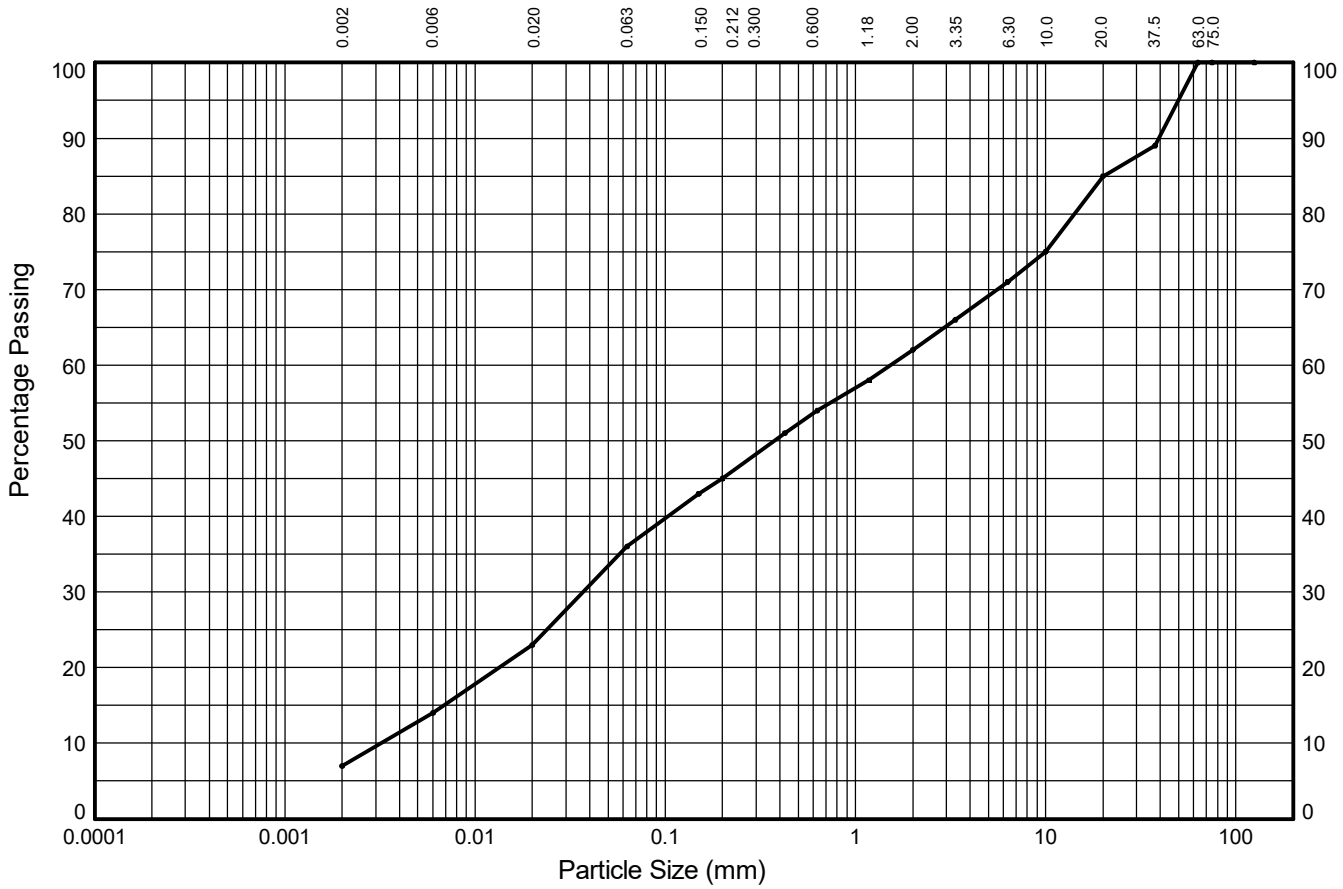
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-119542** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	7%	9%	13%	9%	9%	8%	9%	14%	15%	
	SILT			SAND			GRAVEL			
7%	29%			26%			38%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**89**
20.0	**85**
10.0	**75**
6.30	**71**
3.35	**66**
2.00	**62**
1.18	**58**
0.630	**54**
0.425	**51**
0.200	**45**
0.150	**43**
0.063	**36**

Particle Diameter (mm)	Percent Passing (%)
0.02	**23**
0.006	**14**
0.002	**7**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.007**
D_{30} (mm)	**0.037**
D_{50} (mm)	**0.375**
D_{60} (mm)	**1.536**
D_{85} (mm)	**20.000**
D_{90} (mm)	**39.311**
C_U	**480**
C_C	**0.28**

Soil Description:

Brown slightly sandy gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

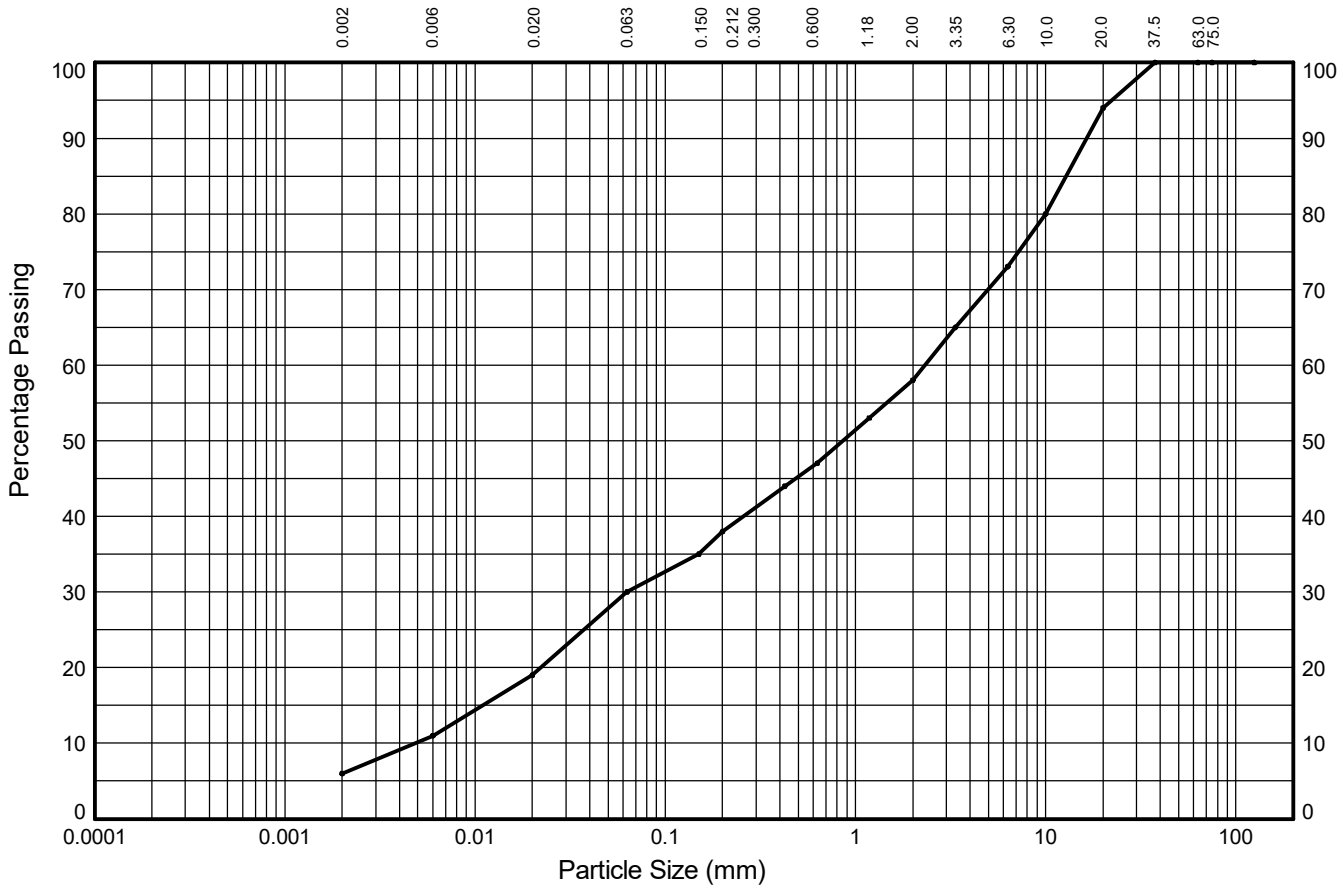
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-119737** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	8%	11%	8%	9%	11%	15%	21%	6%	
	SILT			SAND			GRAVEL			
6%	24%			28%			42%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**94**
10.0	**80**
6.30	**73**
3.35	**65**
2.00	**58**
1.18	**53**
0.630	**47**
0.425	**44**
0.200	**38**
0.150	**35**
0.063	**30**

Particle Diameter (mm)	Percent Passing (%)
0.02	**19**
0.006	**11**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.005**
D_{15} (mm)	**0.011**
D_{30} (mm)	**0.063**
D_{50} (mm)	**0.862**
D_{60} (mm)	**2.318**
D_{85} (mm)	**12.809**
D_{90} (mm)	**16.407**
C_U	**481**
C_C	**0.36**

Soil Description:

Brown very sandy clayey very silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-119737** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	9%	11%	11%	13%	17%	14%	
	SILT			SAND			GRAVEL			
25%				31%			44%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**97**
20.0	**86**
10.0	**78**
6.30	**69**
3.35	**61**
2.00	**56**
1.18	**51**
0.630	**45**
0.425	**42**
0.200	**34**
0.150	**31**
0.063	**25**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.130**
D_{50} (mm)	**1.063**
D_{60} (mm)	**3.022**
D_{85} (mm)	**18.340**
D_{90} (mm)	**25.136**
C_U	**NA**
C_C	**NA**

Soil Description:

Dark brown very sandy very silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

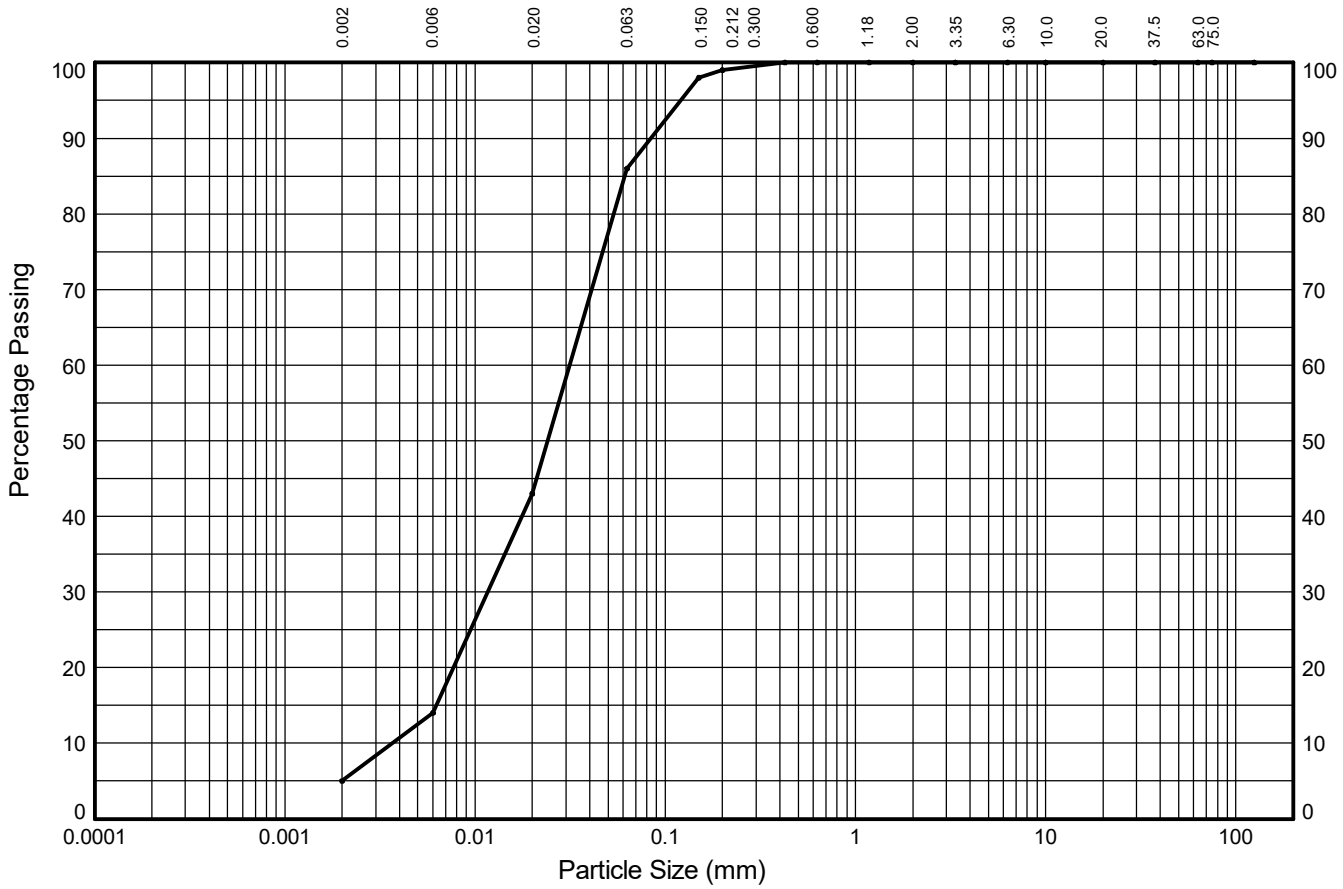
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-121326** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	28%	43%	13%	1%	0%	0%	0%	0%	
	SILT			SAND			GRAVEL			
5%	81%			14%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**100**
0.630	**100**
0.425	**100**
0.200	**99**
0.150	**98**
0.063	**86**

Particle Diameter (mm)	Percent Passing (%)
0.02	**43**
0.006	**14**
0.002	**5**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.004**
D_{15} (mm)	**0.006**
D_{30} (mm)	**0.012**
D_{50} (mm)	**0.024**
D_{60} (mm)	**0.031**
D_{85} (mm)	**0.061**
D_{90} (mm)	**0.084**
C_U	**8.5**
C_C	**1.2**

Soil Description:

Grey slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

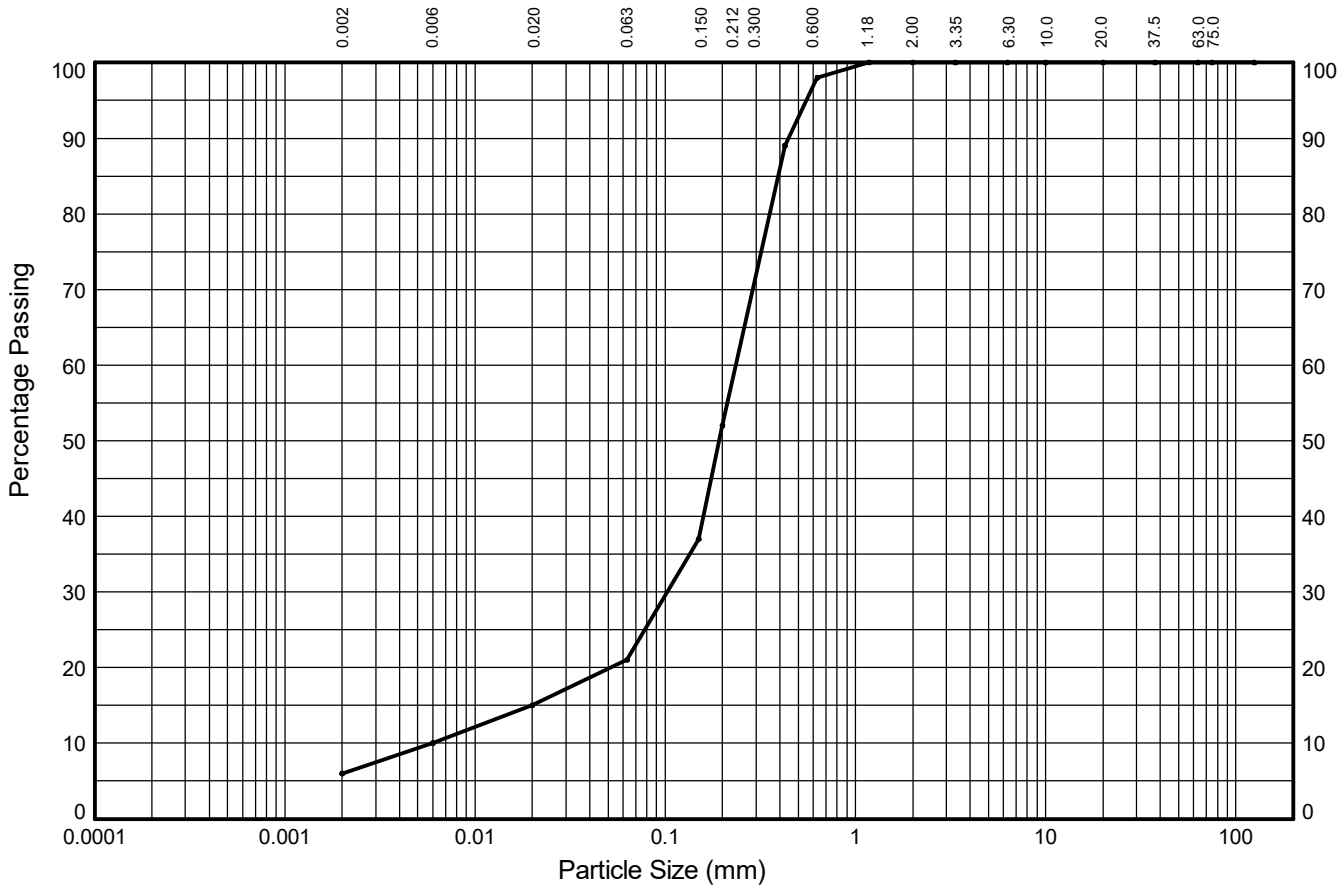
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-121326** Sample Ref: **16** Sample Type: **B** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	5%	6%	31%	46%	2%	0%	0%	0%	
	SILT			SAND			GRAVEL			
6%	15%			79%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**100**
0.630	**98**
0.425	**89**
0.200	**52**
0.150	**37**
0.063	**21**

Particle Diameter (mm)	Percent Passing (%)
0.02	**15**
0.006	**10**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.006**
D_{15} (mm)	**0.020**
D_{30} (mm)	**0.103**
D_{50} (mm)	**0.192**
D_{60} (mm)	**0.235**
D_{85} (mm)	**0.392**
D_{90} (mm)	**0.444**
C_U	**39**
C_C	**7**

Soil Description:

Grey clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

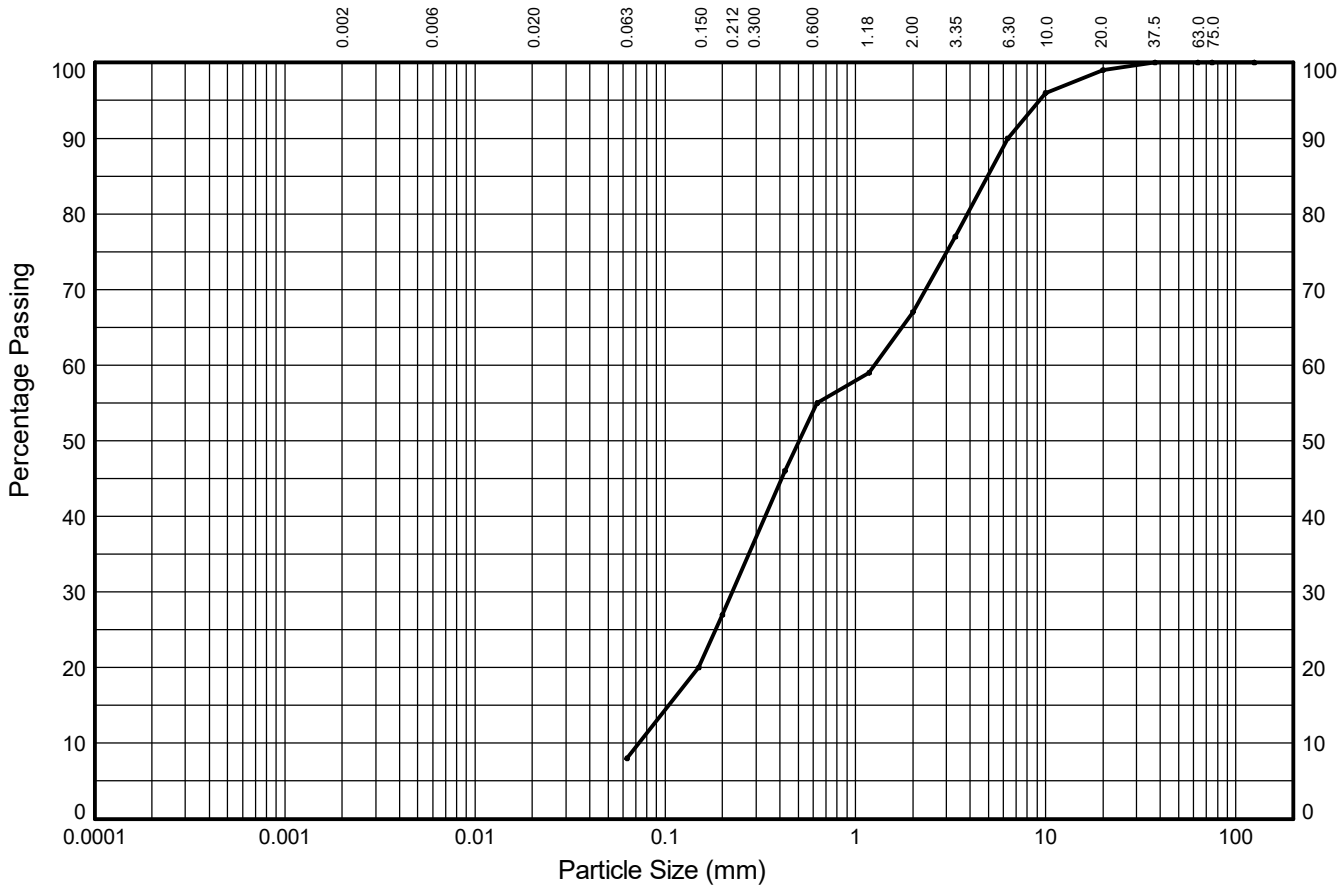
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-121326** Sample Ref: **25** Sample Type: **B** Depth (m): **9.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	19%	28%	12%	23%	9%	1%	
	SILT			SAND			GRAVEL			
8%				59%			33%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**96**
6.30	**90**
3.35	**77**
2.00	**67**
1.18	**59**
0.630	**55**
0.425	**46**
0.200	**27**
0.150	**20**
0.063	**8**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.073**
D_{15} (mm)	**0.104**
D_{30} (mm)	**0.225**
D_{50} (mm)	**0.506**
D_{60} (mm)	**1.260**
D_{85} (mm)	**4.941**
D_{90} (mm)	**6.300**
C_U	**17**
C_C	**0.55**

Soil Description:

Dark grey very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

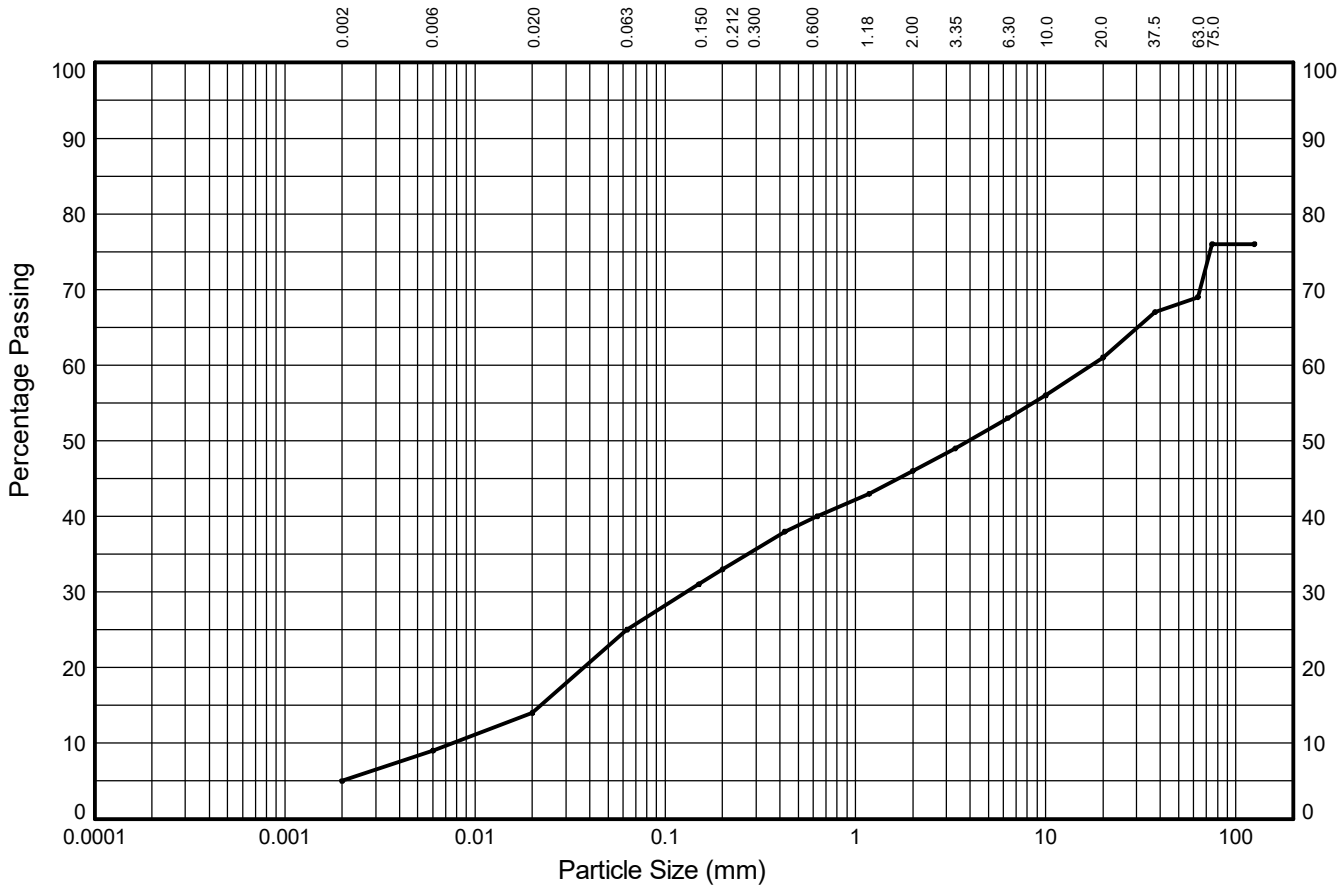
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-135774** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	5%	11%	8%	7%	6%	7%	8%	8%	
	SILT			SAND			GRAVEL			
5%	20%			21%			23%			31%

Test Sieve (mm)	Percent Passing (%)
125.0	**76**
75.0	**76**
63.0	**69**
37.5	**67**
20.0	**61**
10.0	**56**
6.30	**53**
3.35	**49**
2.00	**46**
1.18	**43**
0.630	**40**
0.425	**38**
0.200	**33**
0.150	**31**
0.063	**25**

Particle Diameter (mm)	Percent Passing (%)
0.02	**14**
0.006	**9**
0.002	**5**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.008**
D_{15} (mm)	**0.022**
D_{30} (mm)	**0.130**
D_{50} (mm)	**3.923**
D_{60} (mm)	**17.411**
D_{85} (mm)	
D_{90} (mm)	
C_U	**2281**
C_C	**0.13**

Soil Description:

Brown grey COBBLES with much very sandy clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

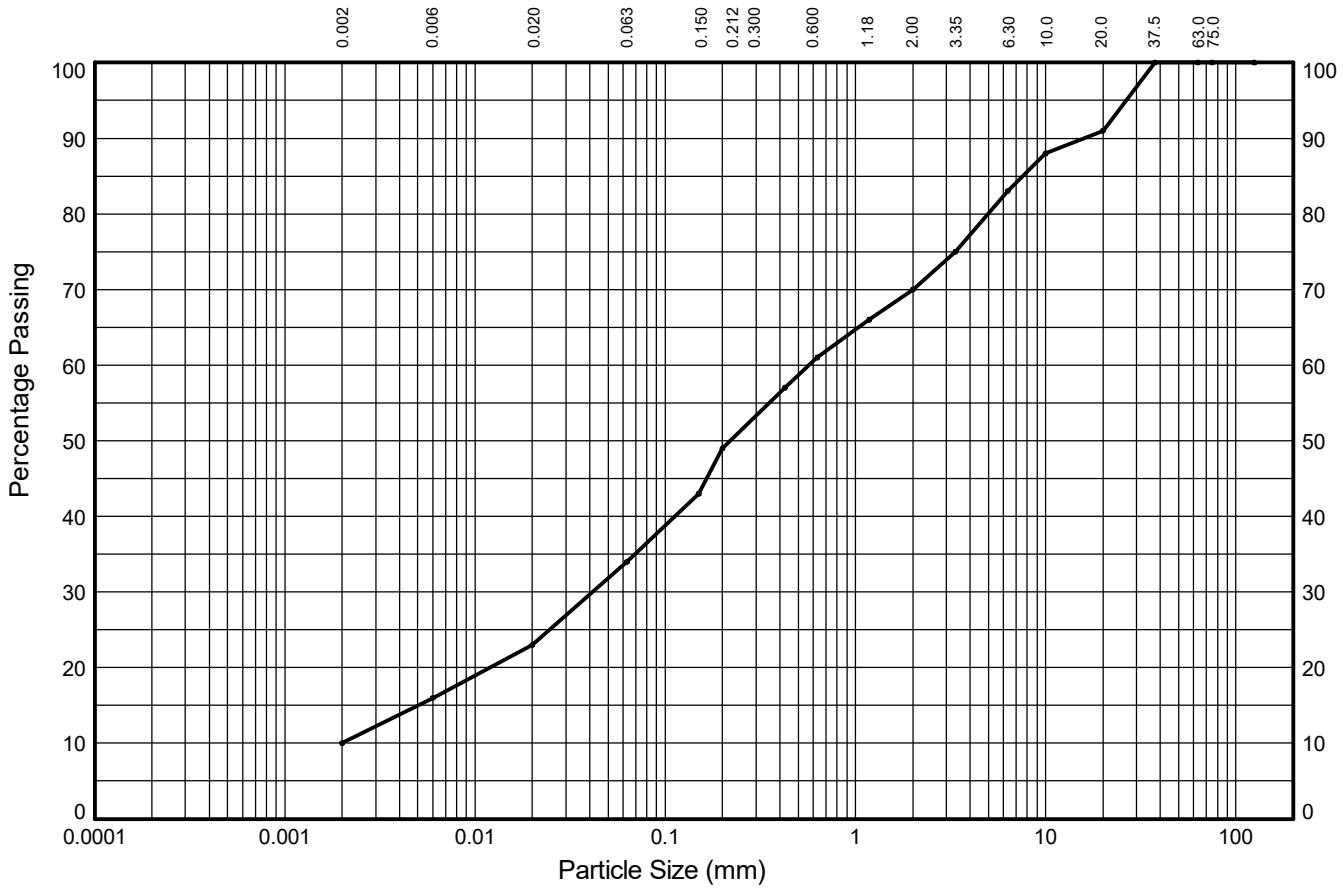
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-135774** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	7%	11%	15%	12%	9%	13%	8%	9%	
	SILT			SAND			GRAVEL			
10%	24%			36%			30%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**91**
10.0	**88**
6.30	**83**
3.35	**75**
2.00	**70**
1.18	**66**
0.630	**61**
0.425	**57**
0.200	**49**
0.150	**43**
0.063	**34**

Particle Diameter (mm)	Percent Passing (%)
0.02	**23**
0.006	**16**
0.002	**10**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.005**
D_{30} (mm)	**0.042**
D_{50} (mm)	**0.220**
D_{60} (mm)	**0.571**
D_{85} (mm)	**7.579**
D_{90} (mm)	**15.874**
C_U	**285**
C_C	**2**

Soil Description:

Brown very gravelly clayey very silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-135905** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	8%	10%	18%	9%	11%	8%	10%	8%	11%	
	SILT			SAND			GRAVEL			
7%	36%			28%			29%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**89**
10.0	**86**
6.30	**81**
3.35	**76**
2.00	**71**
1.18	**67**
0.630	**63**
0.425	**59**
0.200	**52**
0.150	**48**
0.063	**43**

Particle Diameter (mm)	Percent Passing (%)
0.02	**25**
0.006	**15**
0.002	**7**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.006**
D_{30} (mm)	**0.028**
D_{50} (mm)	**0.173**
D_{60} (mm)	**0.469**
D_{85} (mm)	**9.117**
D_{90} (mm)	**21.176**
C_U	**155**
C_C	**0.53**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-136080** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	11%	15%	13%	13%	11%	9%	6%	5%	4%	
	SILT			SAND			GRAVEL			
13%	39%			33%			15%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**96**
10.0	**94**
6.30	**91**
3.35	**88**
2.00	**85**
1.18	**81**
0.630	**76**
0.425	**73**
0.200	**65**
0.150	**61**
0.063	**52**

Particle Diameter (mm)	Percent Passing (%)
0.02	**39**
0.006	**24**
0.002	**13**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.002**
D_{30} (mm)	**0.010**
D_{50} (mm)	**0.053**
D_{60} (mm)	**0.136**
D_{85} (mm)	**2.000**
D_{90} (mm)	**5.104**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

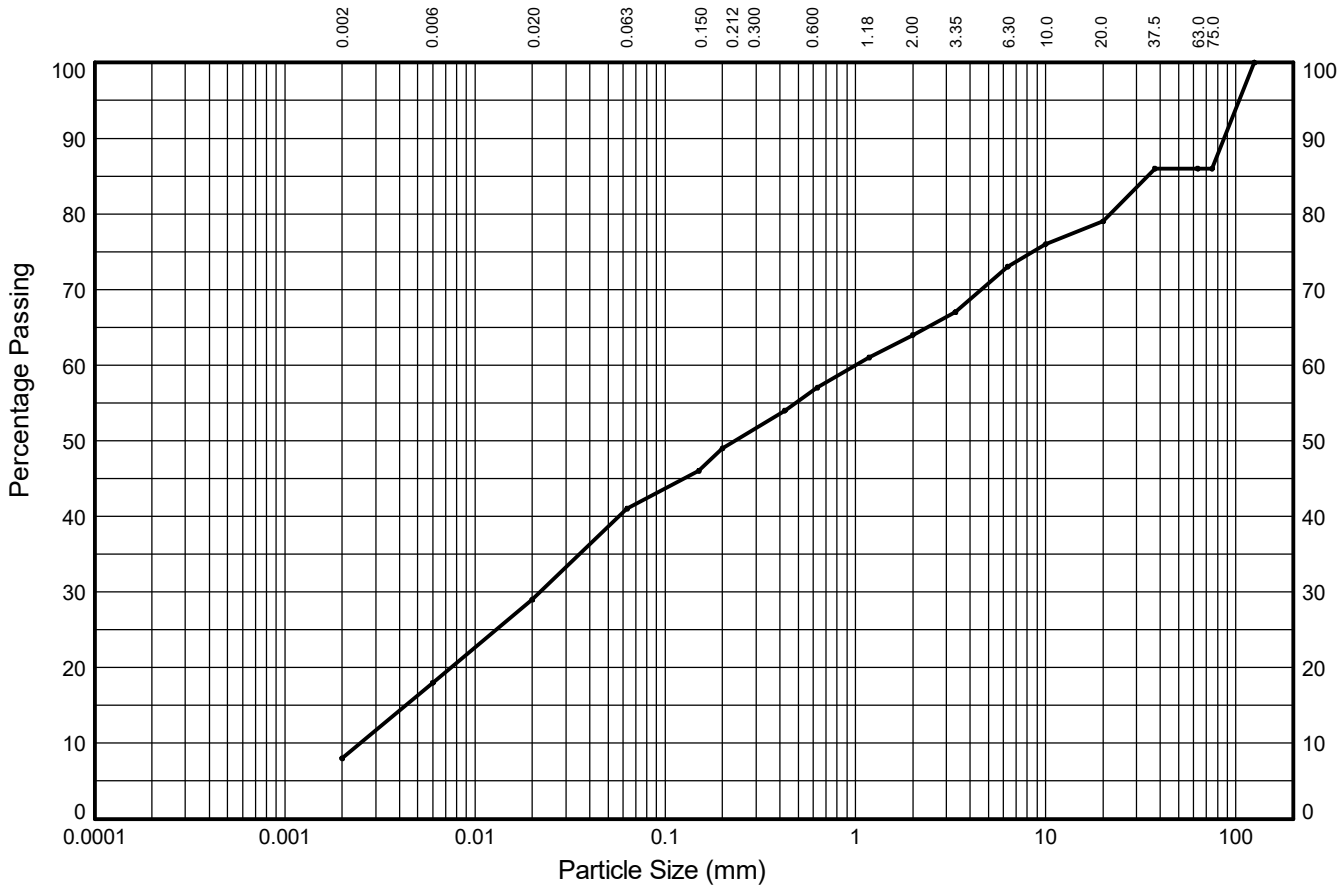
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-136209** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	11%	12%	8%	8%	7%	9%	6%	7%	
	SILT			SAND			GRAVEL			
8%	33%			23%			22%			14%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**86**
63.0	**86**
37.5	**86**
20.0	**79**
10.0	**76**
6.30	**73**
3.35	**67**
2.00	**64**
1.18	**61**
0.630	**57**
0.425	**54**
0.200	**49**
0.150	**46**
0.063	**41**

Particle Diameter (mm)	Percent Passing (%)
0.02	**29**
0.006	**18**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.004**
D_{30} (mm)	**0.022**
D_{50} (mm)	**0.233**
D_{60} (mm)	**1.009**
D_{85} (mm)	**34.279**
D_{90} (mm)	**86.785**
C_U	**405**
C_C	**0.19**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

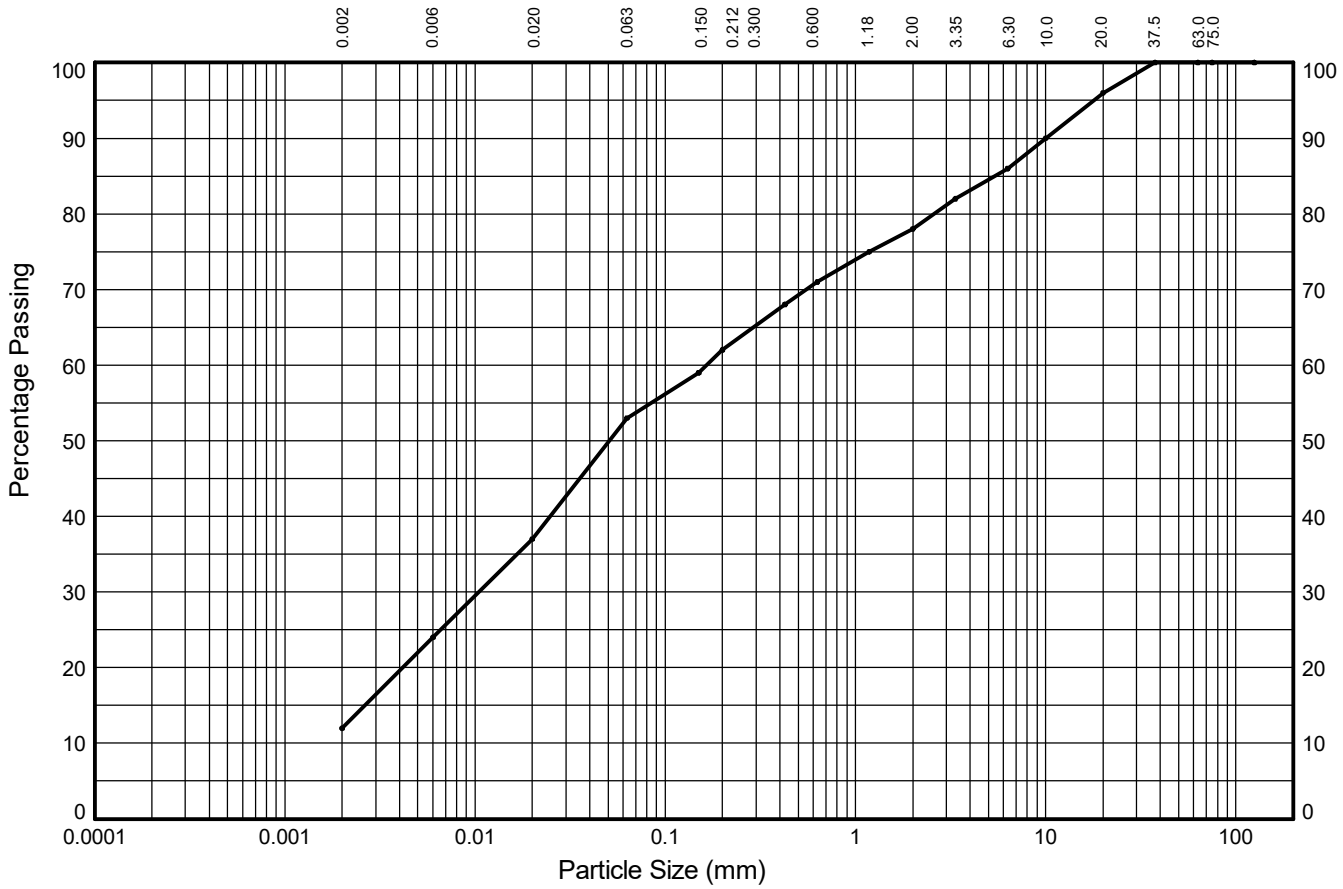
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-136548** Sample Ref: **4** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	12%	13%	16%	9%	9%	7%	8%	10%	4%	
	SILT			SAND			GRAVEL			
12%	41%			25%			22%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**96**
10.0	**90**
6.30	**86**
3.35	**82**
2.00	**78**
1.18	**75**
0.630	**71**
0.425	**68**
0.200	**62**
0.150	**59**
0.063	**53**

Particle Diameter (mm)	Percent Passing (%)
0.02	**37**
0.006	**24**
0.002	**12**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.010**
D_{50} (mm)	**0.051**
D_{60} (mm)	**0.165**
D_{85} (mm)	**5.380**
D_{90} (mm)	**10.000**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

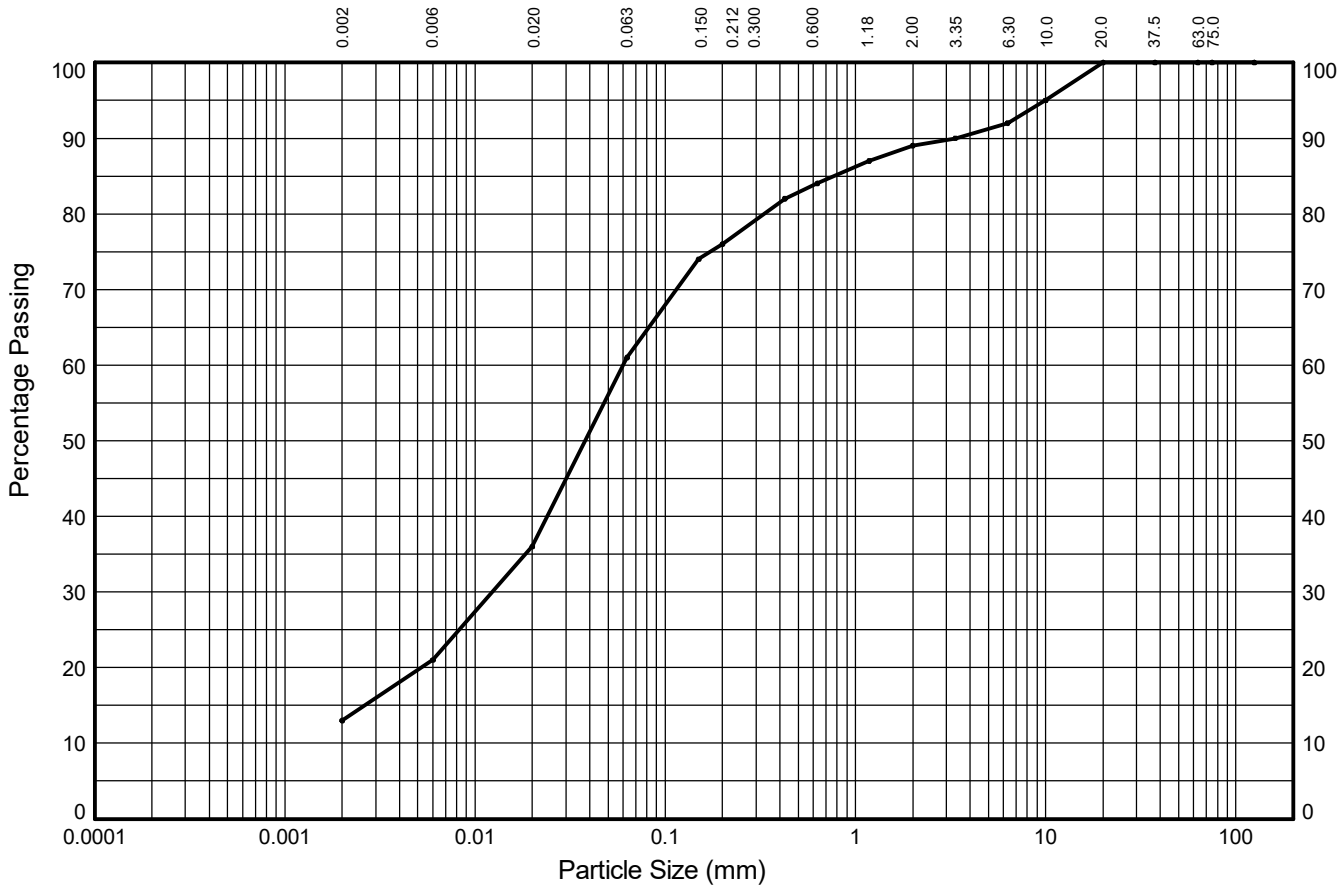
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143428** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	8%	15%	25%	15%	8%	5%	3%	8%	0%	
	SILT			SAND			GRAVEL			
13%	48%			28%			11%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**95**
6.30	**92**
3.35	**90**
2.00	**89**
1.18	**87**
0.630	**84**
0.425	**82**
0.200	**76**
0.150	**74**
0.063	**61**

Particle Diameter (mm)	Percent Passing (%)
0.02	**36**
0.006	**21**
0.002	**13**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.012**
D_{50} (mm)	**0.038**
D_{60} (mm)	**0.060**
D_{85} (mm)	**0.777**
D_{90} (mm)	**3.350**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown grey slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

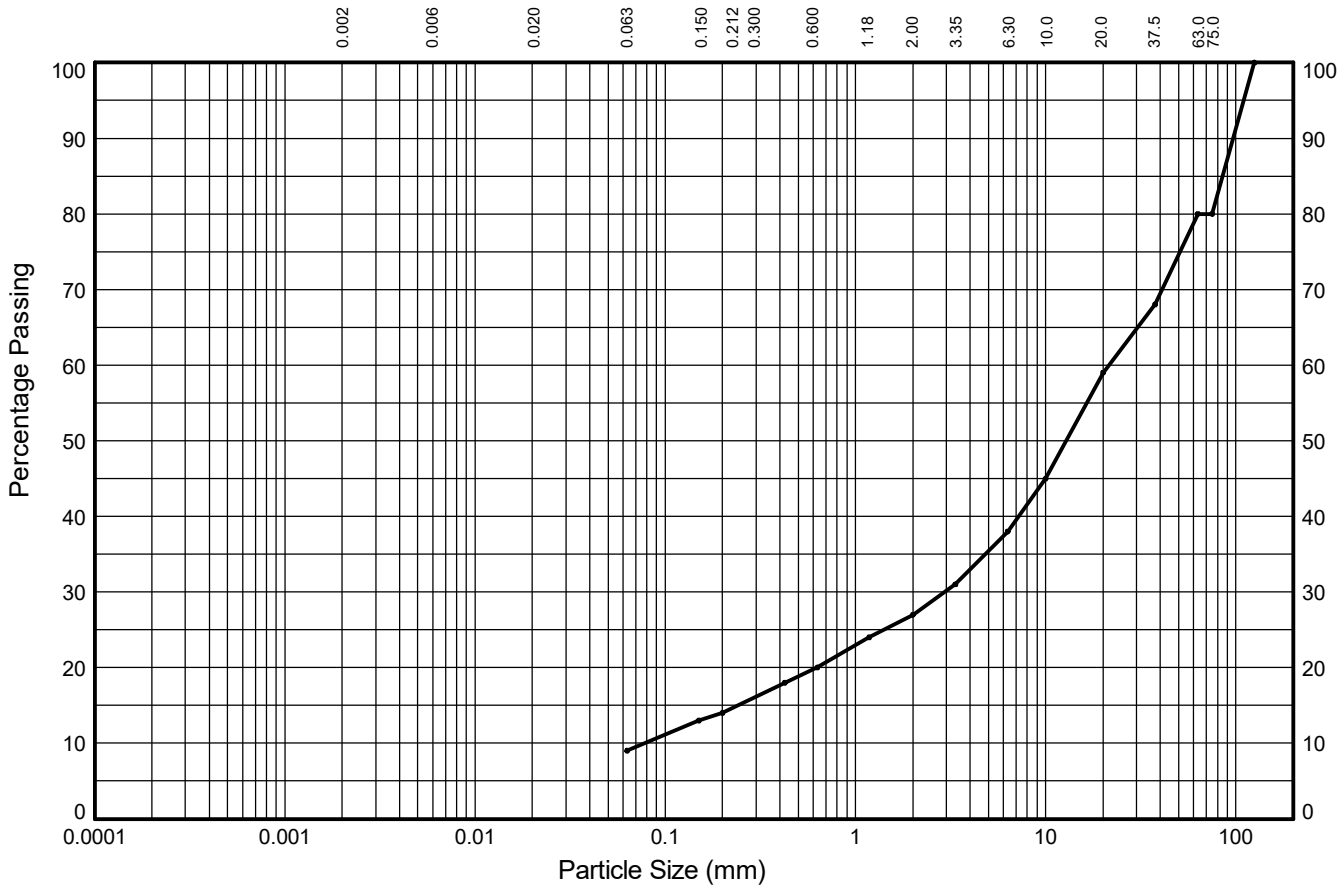
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143428** Sample Ref: **16** Sample Type: **B** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	5%	6%	7%	11%	21%	21%	
	SILT			SAND			GRAVEL			
9%				18%			53%			20%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**80**
63.0	**80**
37.5	**68**
20.0	**59**
10.0	**45**
6.30	**38**
3.35	**31**
2.00	**27**
1.18	**24**
0.630	**20**
0.425	**18**
0.200	**14**
0.150	**13**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.078**
D_{15} (mm)	**0.241**
D_{30} (mm)	**2.945**
D_{50} (mm)	**12.809**
D_{60} (mm)	**21.447**
D_{85} (mm)	**85.216**
D_{90} (mm)	**96.825**
C_U	**274**
C_C	**5**

Soil Description:

Brown sandy silty/clayey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

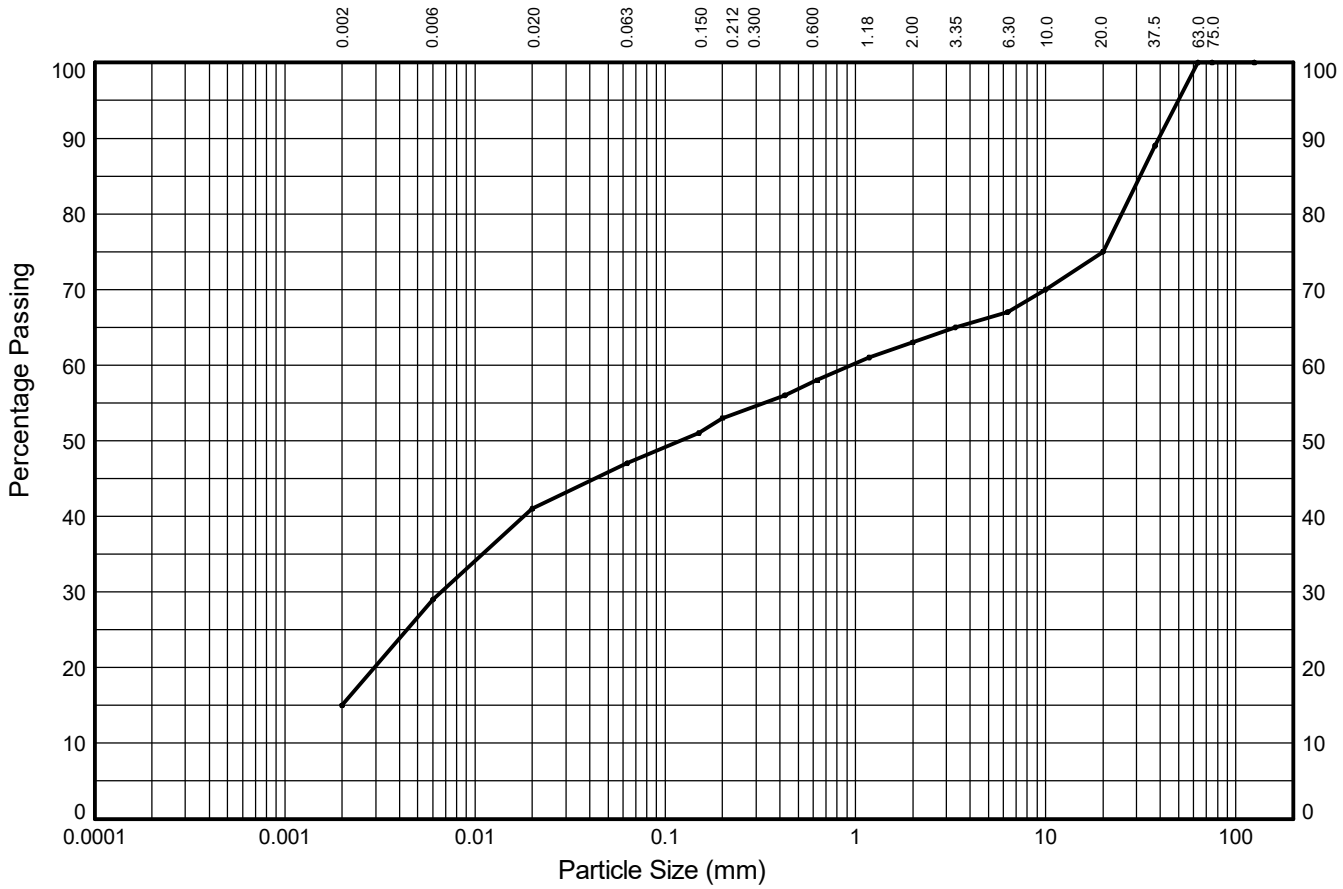
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143428** Sample Ref: **22** Sample Type: **B** Depth (m): **7.10**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	14%	12%	6%	6%	5%	5%	4%	8%	25%	
	SILT			SAND			GRAVEL			
15%	32%			16%			37%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**89**
20.0	**75**
10.0	**70**
6.30	**67**
3.35	**65**
2.00	**63**
1.18	**61**
0.630	**58**
0.425	**56**
0.200	**53**
0.150	**51**
0.063	**47**

Particle Diameter (mm)	Percent Passing (%)
0.02	**41**
0.006	**29**
0.002	**15**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.002**
D_{30} (mm)	**0.007**
D_{50} (mm)	**0.121**
D_{60} (mm)	**0.957**
D_{85} (mm)	**31.335**
D_{90} (mm)	**39.311**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly sandy gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

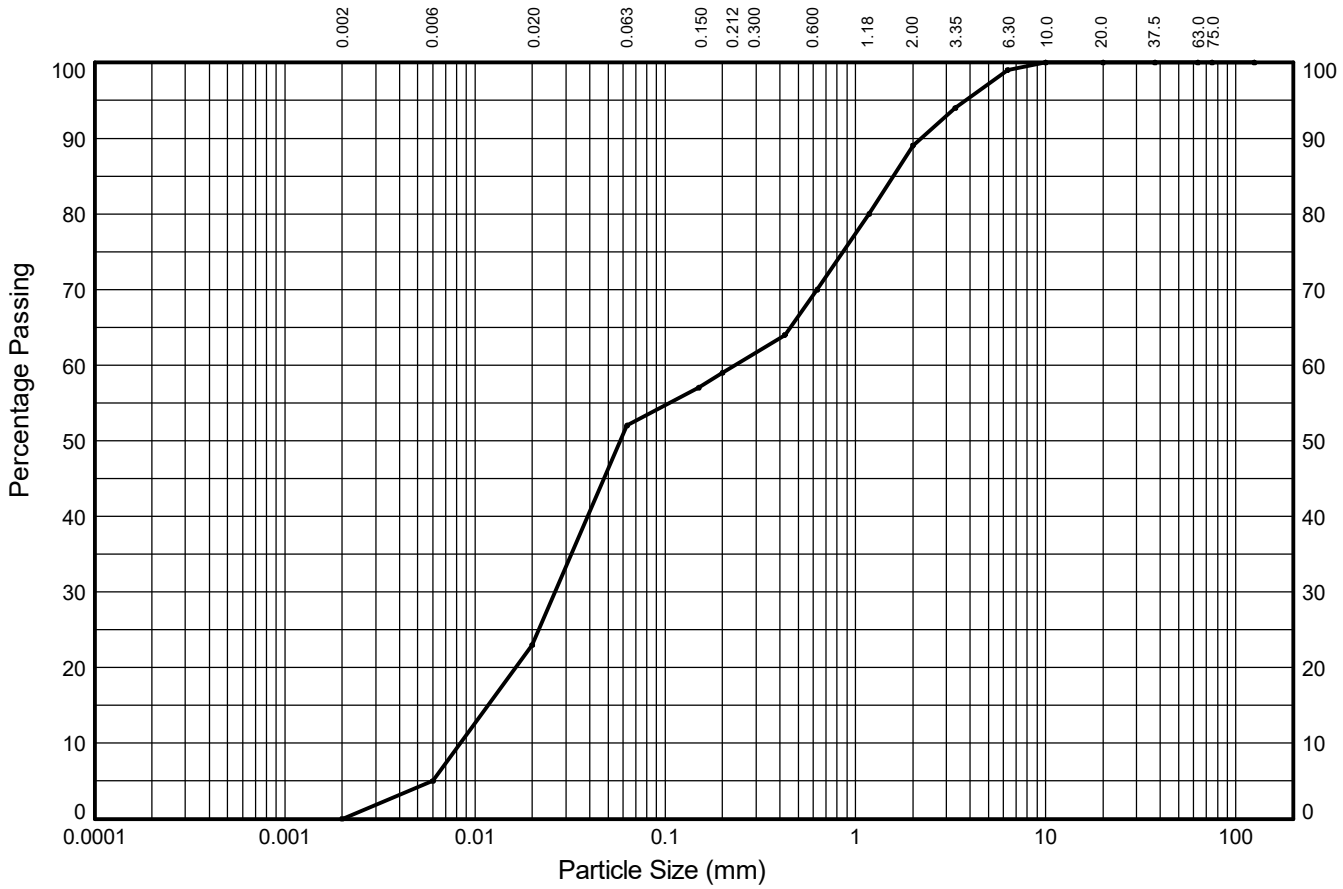
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143591** Sample Ref: **13** Sample Type: **B** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	18%	29%	7%	11%	19%	10%	1%	0%	
	SILT			SAND			GRAVEL			
0%	52%			37%			11%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**94**
2.00	**89**
1.18	**80**
0.630	**70**
0.425	**64**
0.200	**59**
0.150	**57**
0.063	**52**

Particle Diameter (mm)	Percent Passing (%)
0.02	**23**
0.006	**5**
0.002	**0**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.008**
D_{15} (mm)	**0.012**
D_{30} (mm)	**0.026**
D_{50} (mm)	**0.058**
D_{60} (mm)	**0.233**
D_{85} (mm)	**1.582**
D_{90} (mm)	**2.217**
C_U	**28**
C_C	**0.36**

Soil Description:

Brown slightly gravelly sandy SILT with organic material

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LUKE FISHER	26/10/22

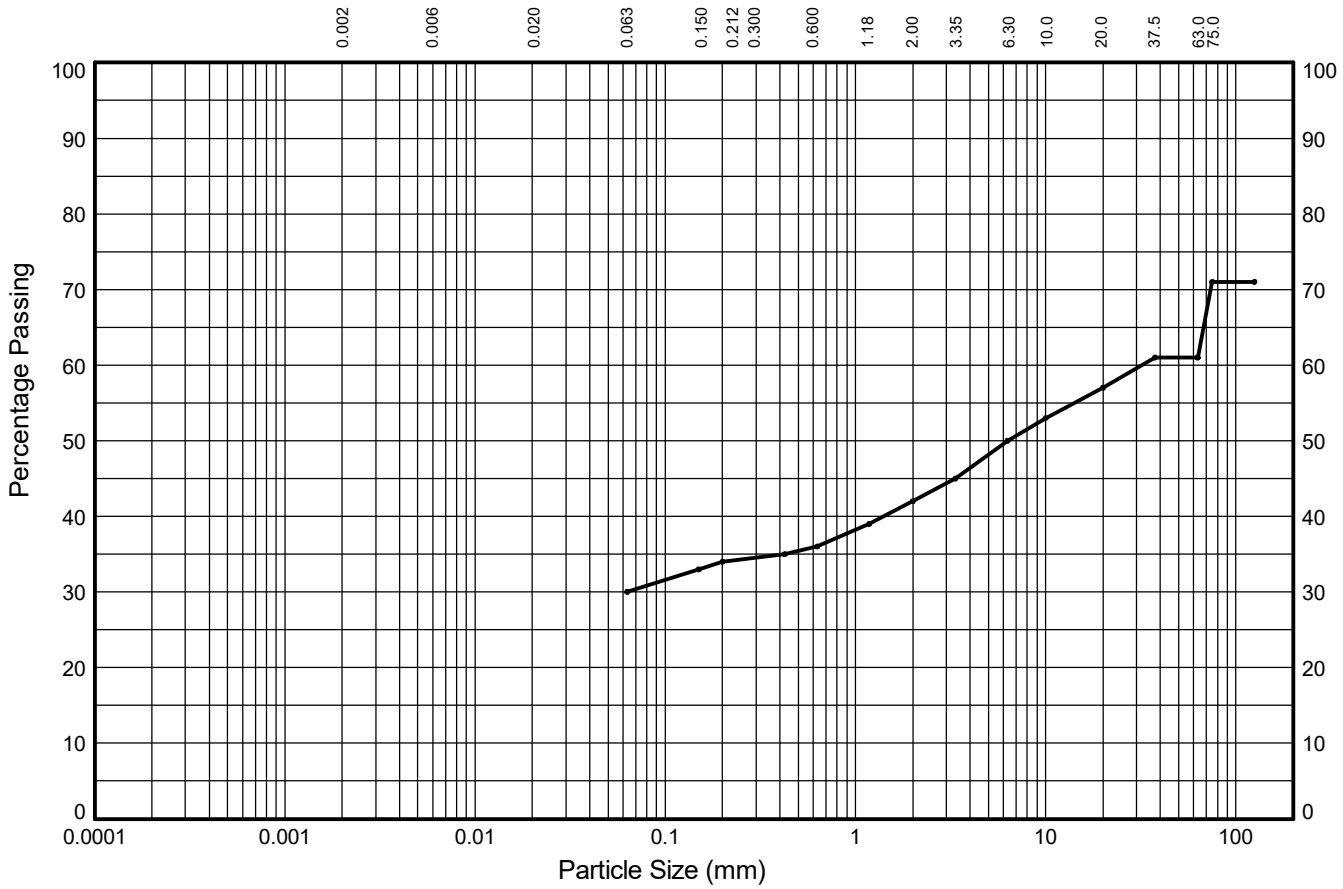
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143591** Sample Ref: **16** Sample Type: **B** Depth (m): **4.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	4%	2%	6%	8%	7%	4%	
	SILT			SAND			GRAVEL			
30%				12%			19%			39%

Test Sieve (mm)	Percent Passing (%)
125.0	**71**
75.0	**71**
63.0	**61**
37.5	**61**
20.0	**57**
10.0	**53**
6.30	**50**
3.35	**45**
2.00	**42**
1.18	**39**
0.630	**36**
0.425	**35**
0.200	**34**
0.150	**33**
0.063	**30**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.063**
D_{50} (mm)	**6.300**
D_{60} (mm)	**32.047**
D_{85} (mm)	
D_{90} (mm)	
C_U	**NA**
C_C	**NA**

Soil Description:

Grey brown COBBLES with much slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

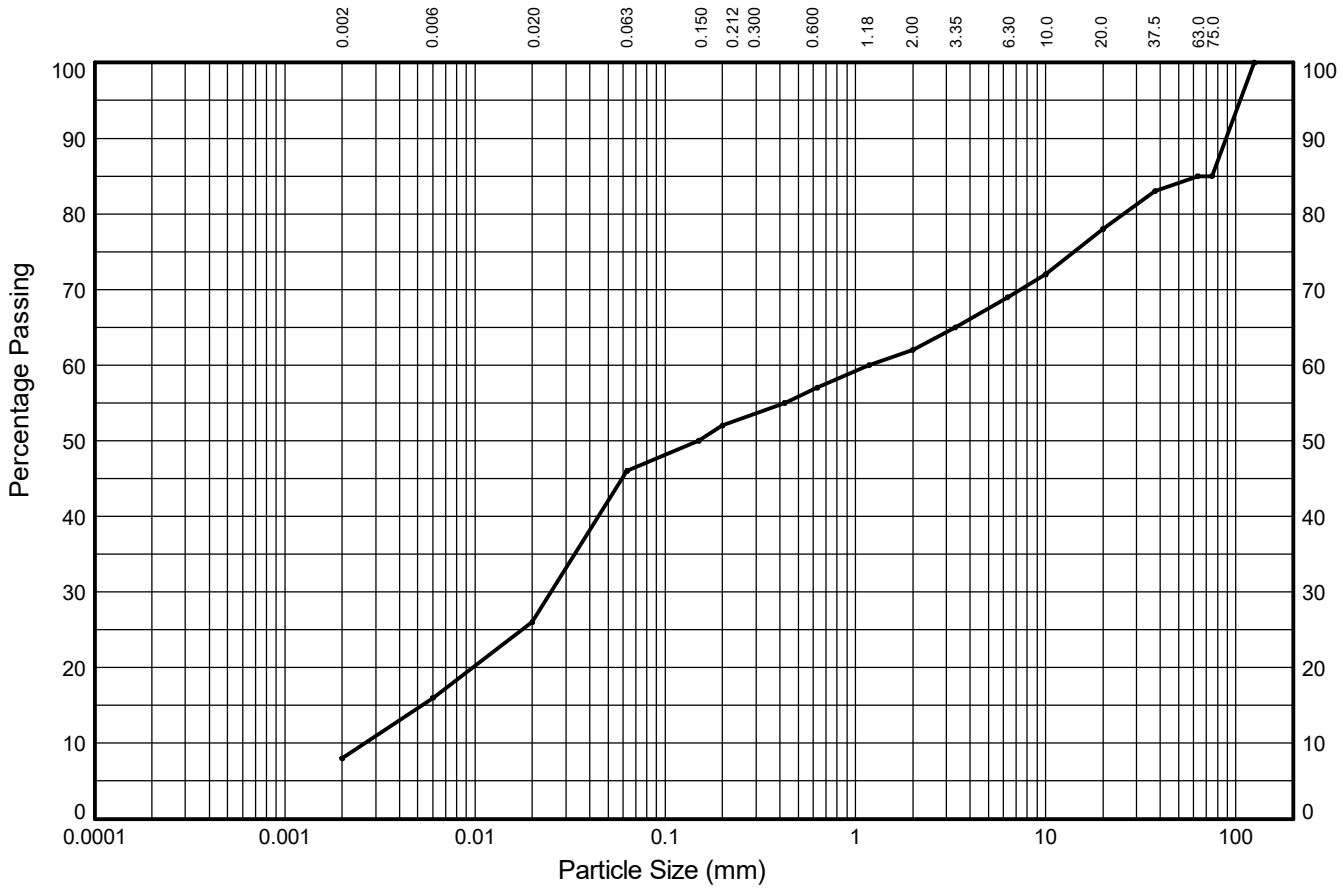
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143591** Sample Ref: **25** Sample Type: **B** Depth (m): **8.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	8%	10%	20%	6%	5%	5%	7%	9%	7%	
	SILT			SAND			GRAVEL			
8%	38%			16%			23%			15%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**85**
63.0	**85**
37.5	**83**
20.0	**78**
10.0	**72**
6.30	**69**
3.35	**65**
2.00	**62**
1.18	**60**
0.630	**57**
0.425	**55**
0.200	**52**
0.150	**50**
0.063	**46**

Particle Diameter (mm)	Percent Passing (%)
0.02	**26**
0.006	**16**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.005**
D_{30} (mm)	**0.025**
D_{50} (mm)	**0.150**
D_{60} (mm)	**1.180**
D_{85} (mm)	**63.000**
D_{90} (mm)	**88.922**
C_U	**448**
C_C	**0.20**

Soil Description:

Grey slightly sandy slightly gravelly clayey SILT with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143998** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	15%	22%	14%	14%	15%	10%	0%	0%	0%	
	SILT			SAND			GRAVEL			
10%	51%			39%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**97**
0.630	**90**
0.425	**84**
0.200	**75**
0.150	**71**
0.063	**61**

Particle Diameter (mm)	Percent Passing (%)
0.02	**47**
0.006	**25**
0.002	**10**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.008**
D_{50} (mm)	**0.026**
D_{60} (mm)	**0.058**
D_{85} (mm)	**0.454**
D_{90} (mm)	**0.630**
C_U	**29**
C_C	**0.54**

Soil Description:

Grey brown sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

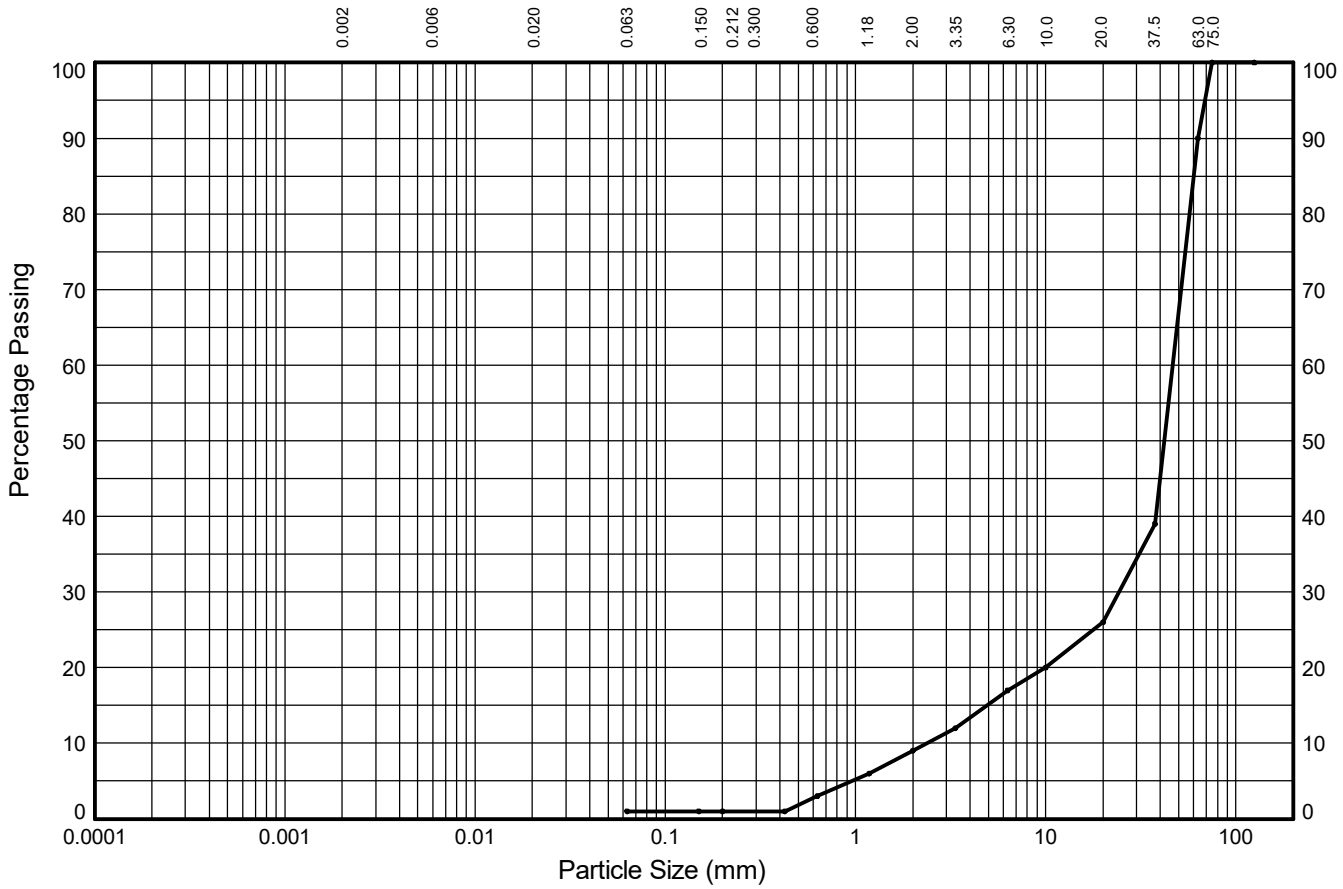
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143998** Sample Ref: **21** Sample Type: **B** Depth (m): **6.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	2%	6%	8%	9%	64%	
	SILT			SAND			GRAVEL			
1%				8%			81%			10%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**90**
37.5	**39**
20.0	**26**
10.0	**20**
6.30	**17**
3.35	**12**
2.00	**9**
1.18	**6**
0.630	**3**
0.425	**1**
0.200	**1**
0.150	**1**
0.063	**1**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**2.375**
D_{15} (mm)	**4.894**
D_{30} (mm)	**24.268**
D_{50} (mm)	**41.940**
D_{60} (mm)	**46.431**
D_{85} (mm)	**59.876**
D_{90} (mm)	**63.000**
C_U	**20**
C_C	**5**

Soil Description:

Grey sandy slightly silty/clayey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

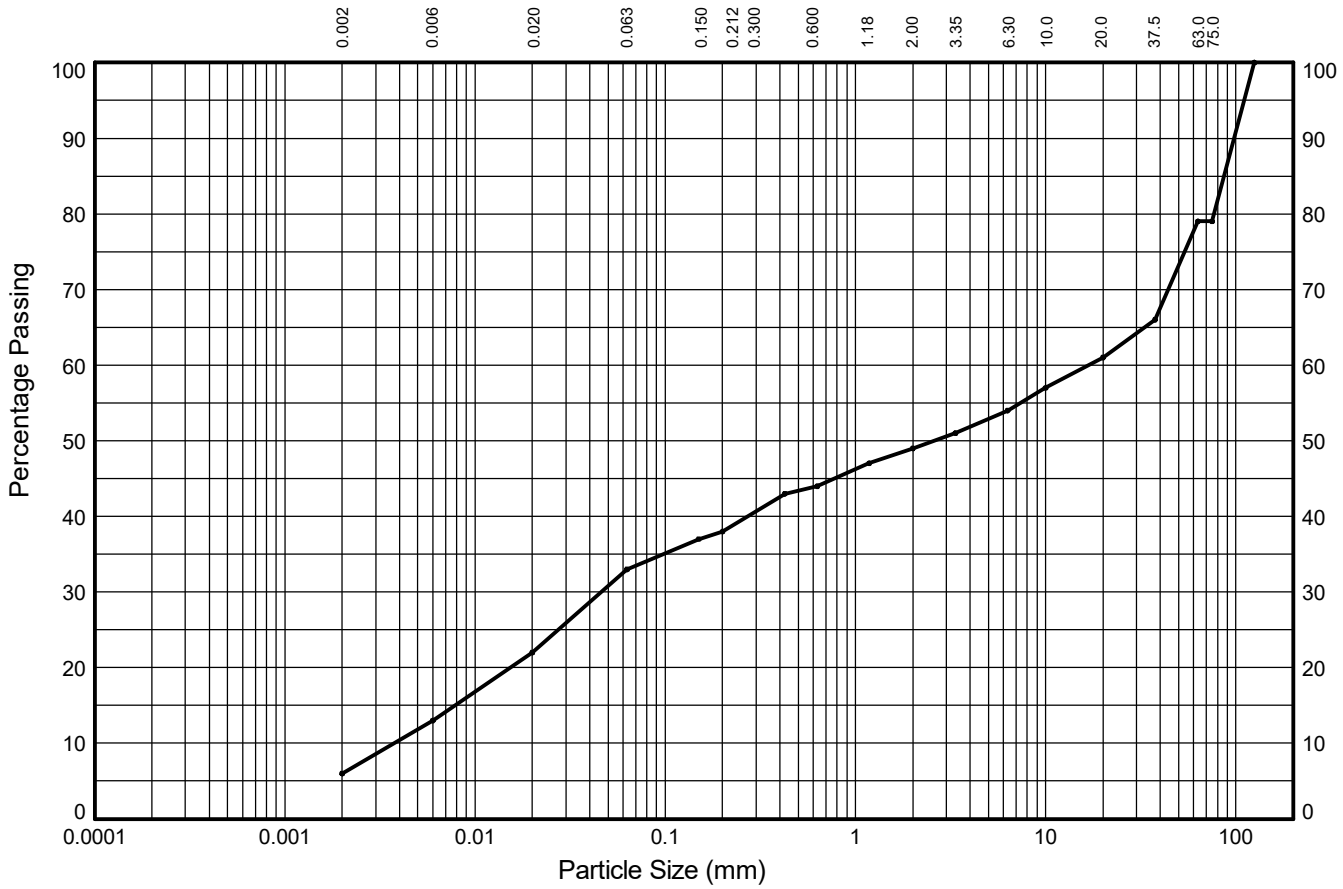
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-143998** Sample Ref: **27** Sample Type: **B** Depth (m): **9.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	7%	9%	11%	5%	6%	5%	5%	7%	18%	
	SILT			SAND			GRAVEL			
6%	27%			16%			30%			21%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**79**
63.0	**79**
37.5	**66**
20.0	**61**
10.0	**57**
6.30	**54**
3.35	**51**
2.00	**49**
1.18	**47**
0.630	**44**
0.425	**43**
0.200	**38**
0.150	**37**
0.063	**33**

Particle Diameter (mm)	Percent Passing (%)
0.02	**22**
0.006	**13**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.004**
D_{15} (mm)	**0.008**
D_{30} (mm)	**0.046**
D_{50} (mm)	**2.588**
D_{60} (mm)	**16.818**
D_{85} (mm)	**86.785**
D_{90} (mm)	**98.009**
C_U	**4489**
C_C	**0.03**

Soil Description:

Grey sandy clayey very silty GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

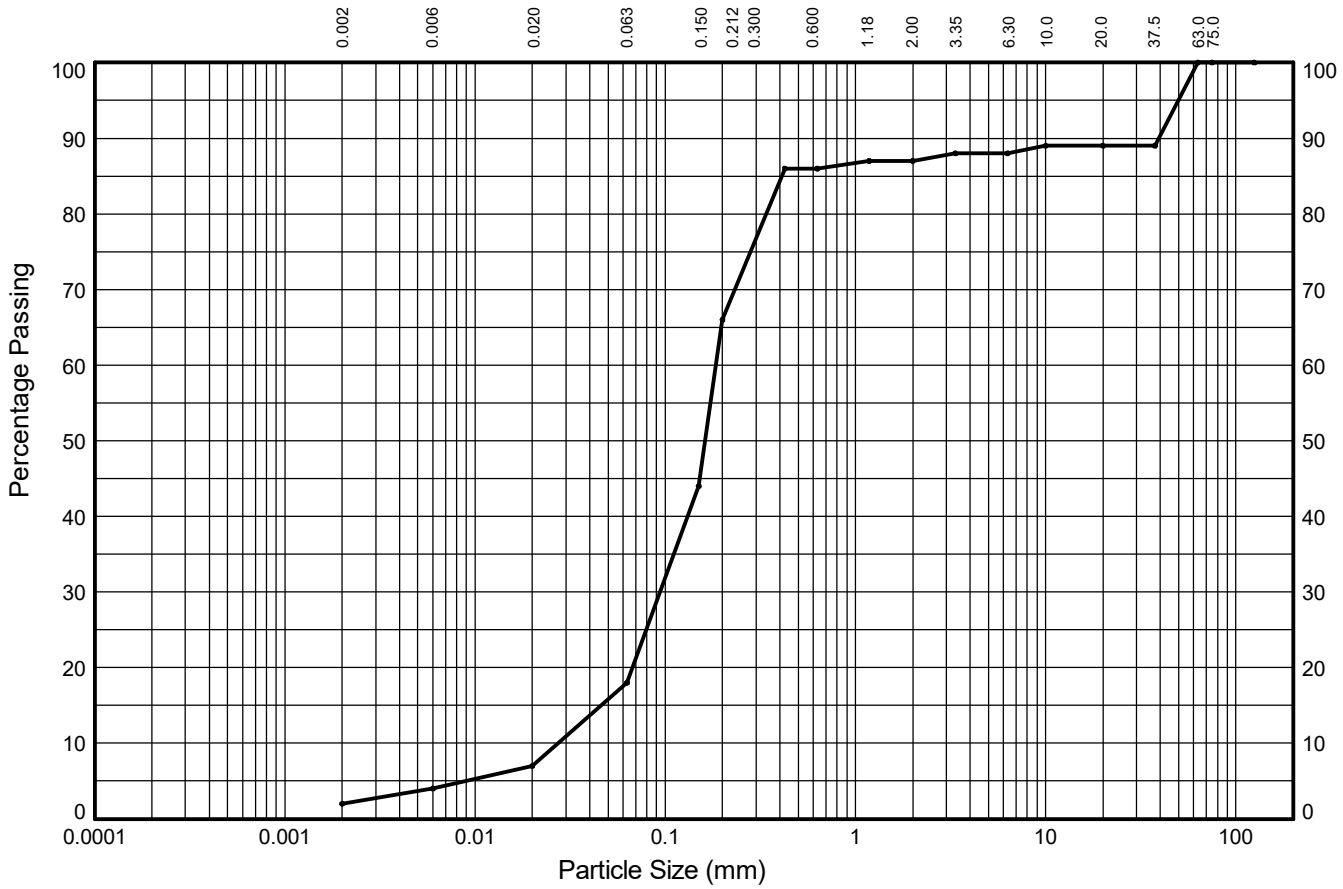
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-144109** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	3%	11%	48%	20%	1%	1%	1%	11%	
	SILT			SAND			GRAVEL			
2%	16%			69%			13%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**89**
20.0	**89**
10.0	**89**
6.30	**88**
3.35	**88**
2.00	**87**
1.18	**87**
0.630	**86**
0.425	**86**
0.200	**66**
0.150	**44**
0.063	**18**

Particle Diameter (mm)	Percent Passing (%)
0.02	**7**
0.006	**4**
0.002	**2**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.027**
D_{15} (mm)	**0.046**
D_{30} (mm)	**0.094**
D_{50} (mm)	**0.162**
D_{60} (mm)	**0.185**
D_{85} (mm)	**0.409**
D_{90} (mm)	**39.311**
C_U	**6.8**
C_C	**1.7**

Soil Description:

Brown grey gravelly slightly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

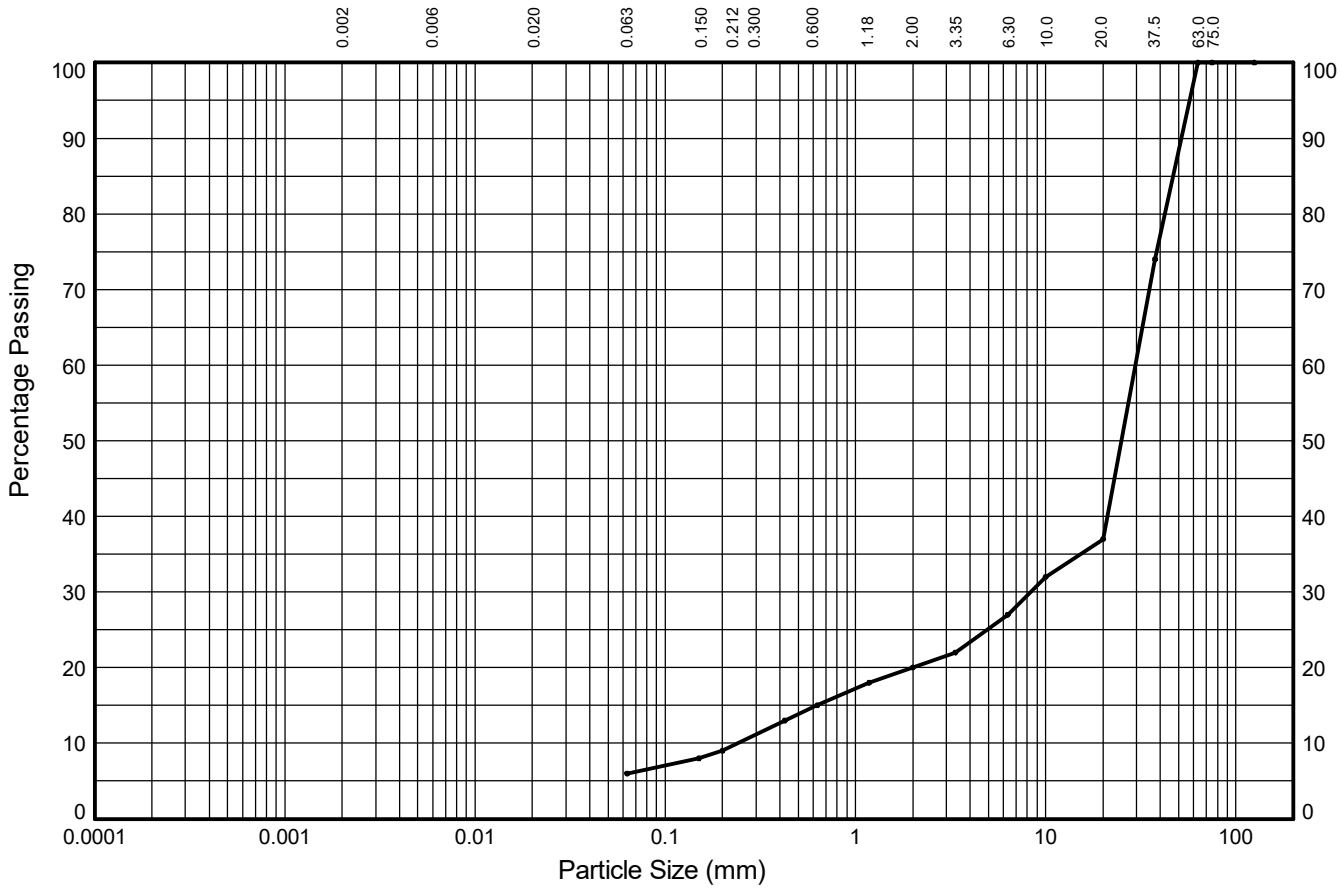
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145414** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	3%	6%	5%	7%	10%	63%	
	SILT			SAND			GRAVEL			
6%				14%			80%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**74**
20.0	**37**
10.0	**32**
6.30	**27**
3.35	**22**
2.00	**20**
1.18	**18**
0.630	**15**
0.425	**13**
0.200	**9**
0.150	**8**
0.063	**6**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.241**
D_{15} (mm)	**0.630**
D_{30} (mm)	**8.313**
D_{50} (mm)	**24.943**
D_{60} (mm)	**29.562**
D_{85} (mm)	**46.704**
D_{90} (mm)	**51.604**
C_U	**122**
C_C	**10**

Soil Description:

Black dark grey sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

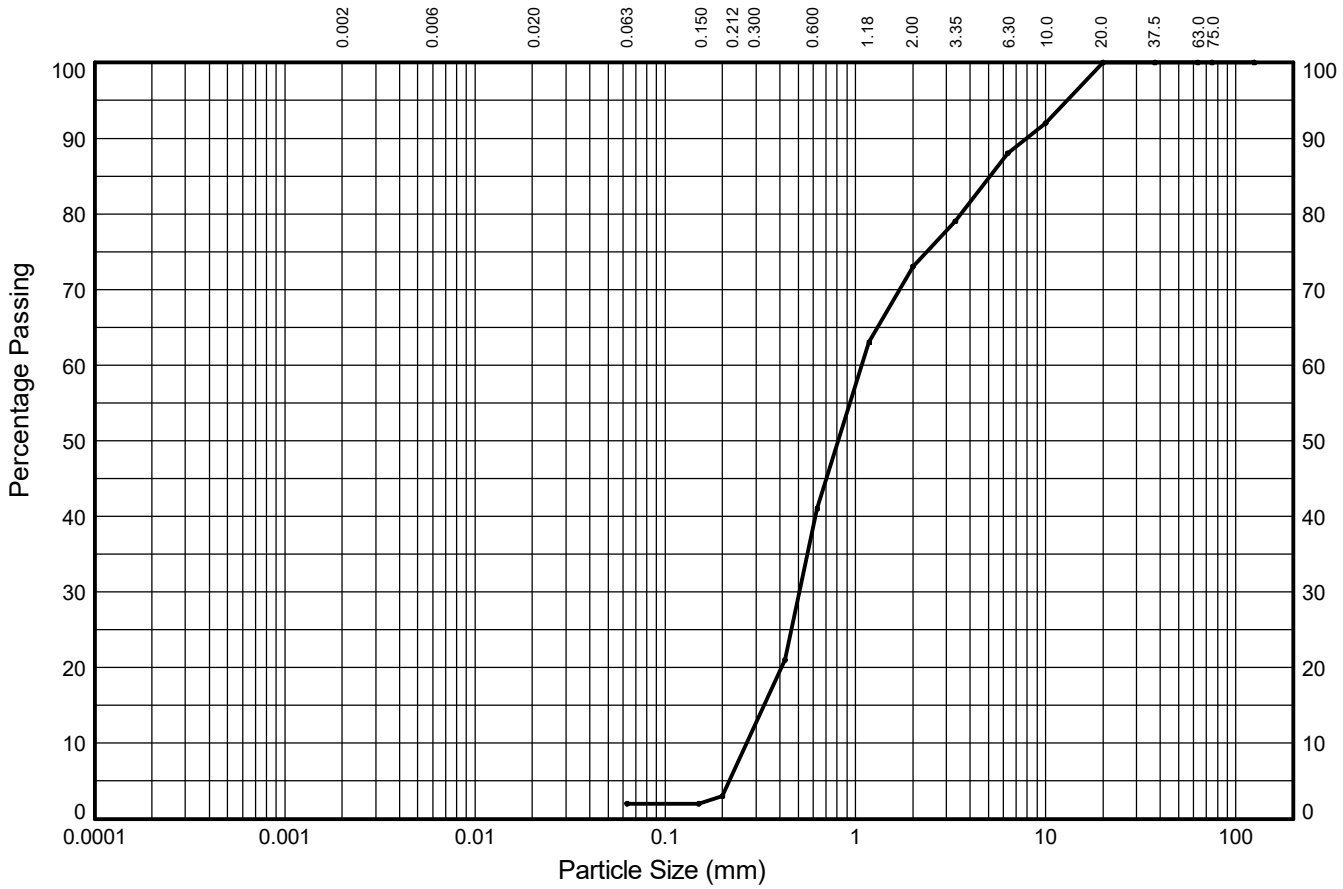
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145414** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	38%	32%	15%	12%	0%	
	SILT			SAND			GRAVEL			
2%				71%			27%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**92**
6.30	**88**
3.35	**79**
2.00	**73**
1.18	**63**
0.630	**41**
0.425	**21**
0.200	**3**
0.150	**2**
0.063	**2**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.268**
D_{15} (mm)	**0.331**
D_{30} (mm)	**0.507**
D_{50} (mm)	**0.814**
D_{60} (mm)	**1.083**
D_{85} (mm)	**5.104**
D_{90} (mm)	**7.937**
C_U	**4.0**
C_C	**0.89**

Soil Description:

Grey very gravelly slightly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

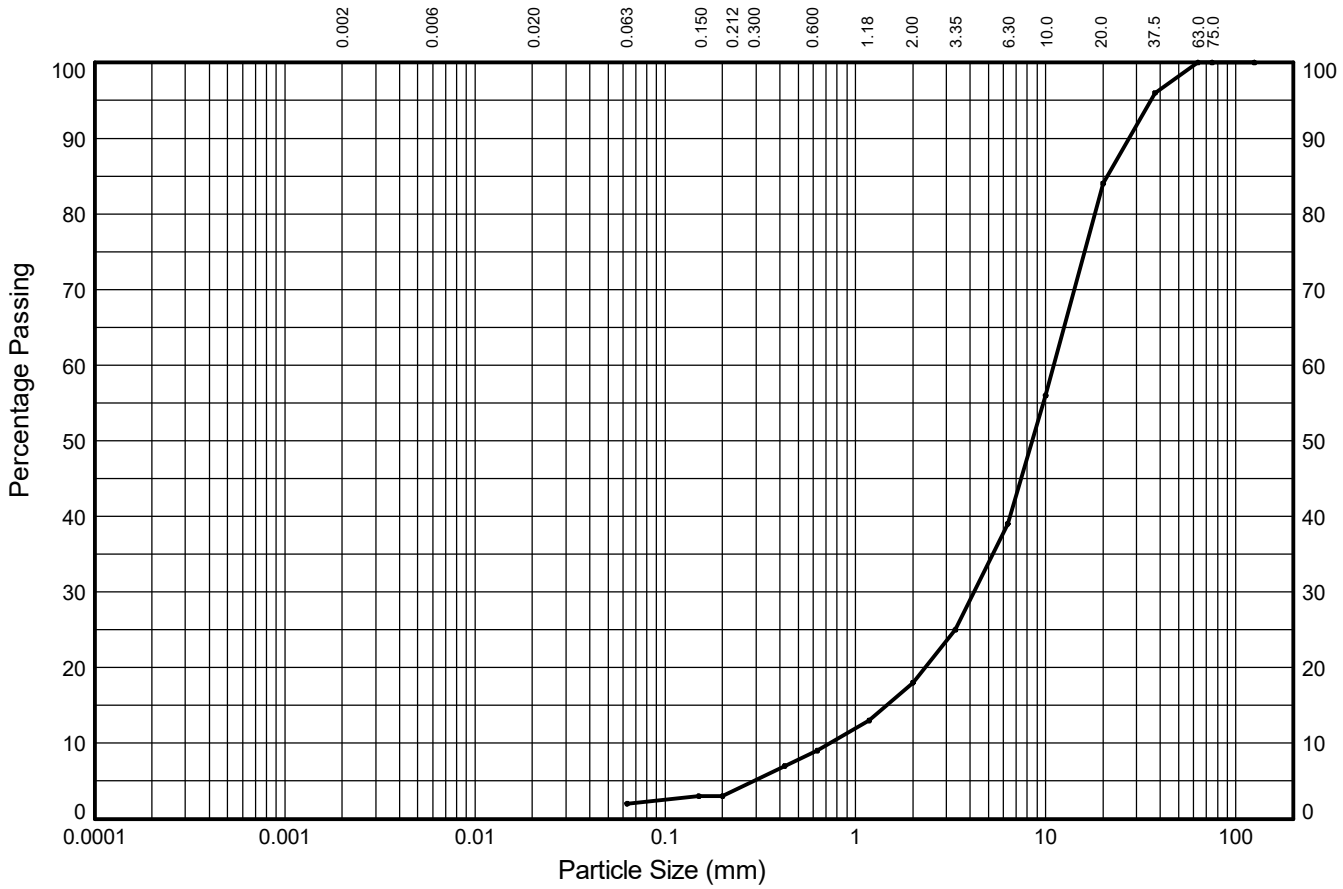
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145414** Sample Ref: **19** Sample Type: **B** Depth (m): **6.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	6%	9%	21%	45%	16%	
	SILT			SAND			GRAVEL			
2%				16%			82%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**96**
20.0	**84**
10.0	**56**
6.30	**39**
3.35	**25**
2.00	**18**
1.18	**13**
0.630	**9**
0.425	**7**
0.200	**3**
0.150	**3**
0.063	**2**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.737**
D_{15} (mm)	**1.457**
D_{30} (mm)	**4.198**
D_{50} (mm)	**8.495**
D_{60} (mm)	**11.041**
D_{85} (mm)	**21.076**
D_{90} (mm)	**27.386**
C_U	**15**
C_C	**2**

Soil Description:

Dark brown sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

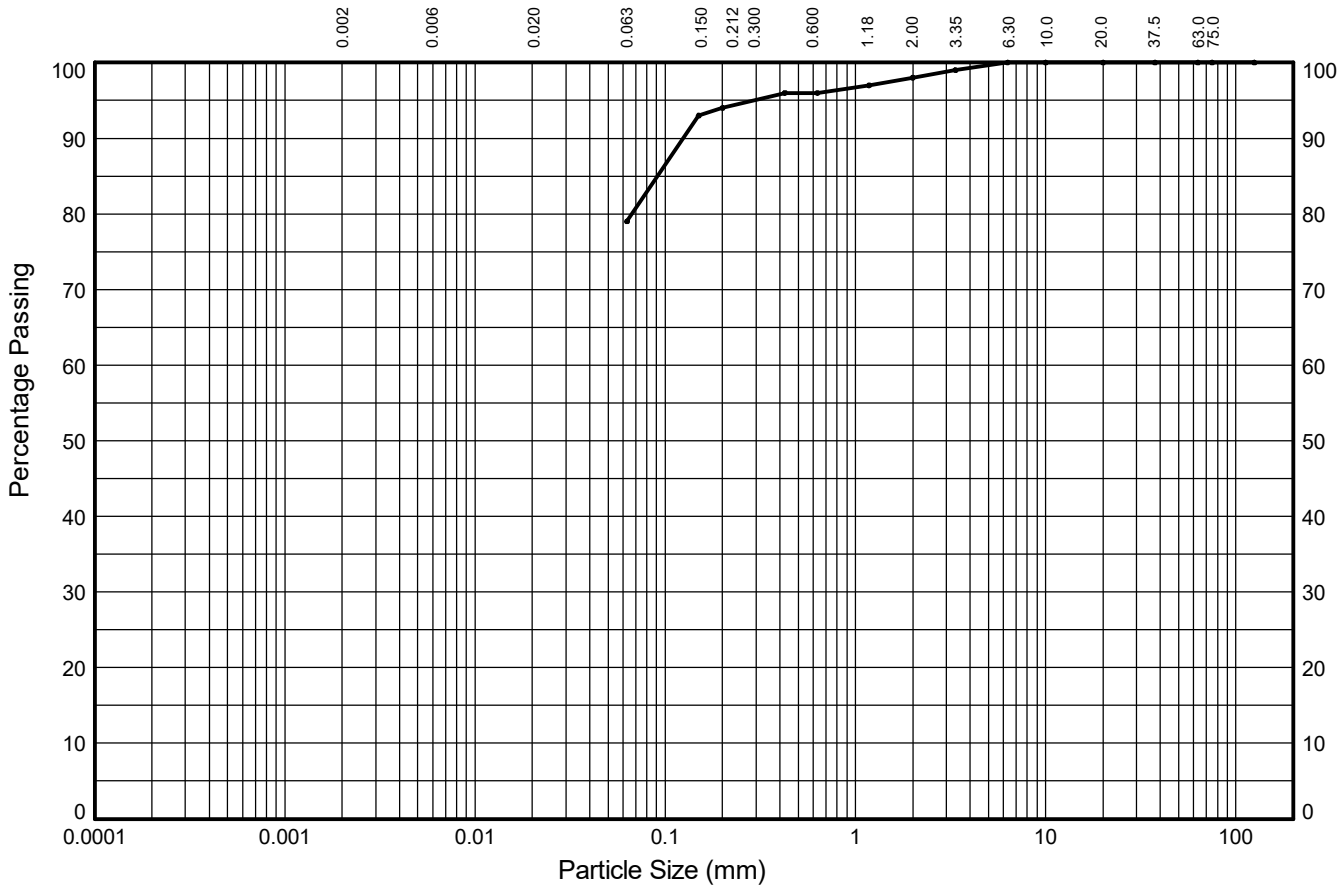
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145414** Sample Ref: **22** Sample Type: **B** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	15%	2%	2%	2%	0%	0%	
	SILT			SAND			GRAVEL			
79%				19%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**98**
1.18	**97**
0.630	**96**
0.425	**96**
0.200	**94**
0.150	**93**
0.063	**79**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**NA**
D_{60} (mm)	**NA**
D_{85} (mm)	**0.091**
D_{90} (mm)	**0.125**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	26/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145703** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	18%	23%	16%	9%	9%	7%	1%	0%	0%	
	SILT			SAND			GRAVEL			
17%	57%			25%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**99**
1.18	**96**
0.630	**92**
0.425	**89**
0.200	**83**
0.150	**81**
0.063	**74**

Particle Diameter (mm)	Percent Passing (%)
0.02	**58**
0.006	**34**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.005**
D_{50} (mm)	**0.013**
D_{60} (mm)	**0.023**
D_{85} (mm)	**0.257**
D_{90} (mm)	**0.485**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-145703** Sample Ref: **16** Sample Type: **B** Depth (m): **5.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	30%	21%	12%	2%	1%	0%	0%	0%	0%	
	SILT			SAND			GRAVEL			
34%	63%			3%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**100**
0.630	**100**
0.425	**99**
0.200	**99**
0.150	**99**
0.063	**97**

Particle Diameter (mm)	Percent Passing (%)
0.02	**85**
0.006	**64**
0.002	**34**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.004**
D_{60} (mm)	**0.005**
D_{85} (mm)	**0.020**
D_{90} (mm)	**0.032**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146387** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	31%	22%	13%	2%	2%	1%	1%	0%	0%	
	SILT			SAND			GRAVEL			
28%	66%			5%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**99**
1.18	**99**
0.630	**98**
0.425	**97**
0.200	**96**
0.150	**96**
0.063	**94**

Particle Diameter (mm)	Percent Passing (%)
0.02	**81**
0.006	**59**
0.002	**28**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.002**
D_{50} (mm)	**0.004**
D_{60} (mm)	**0.006**
D_{85} (mm)	**0.028**
D_{90} (mm)	**0.044**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

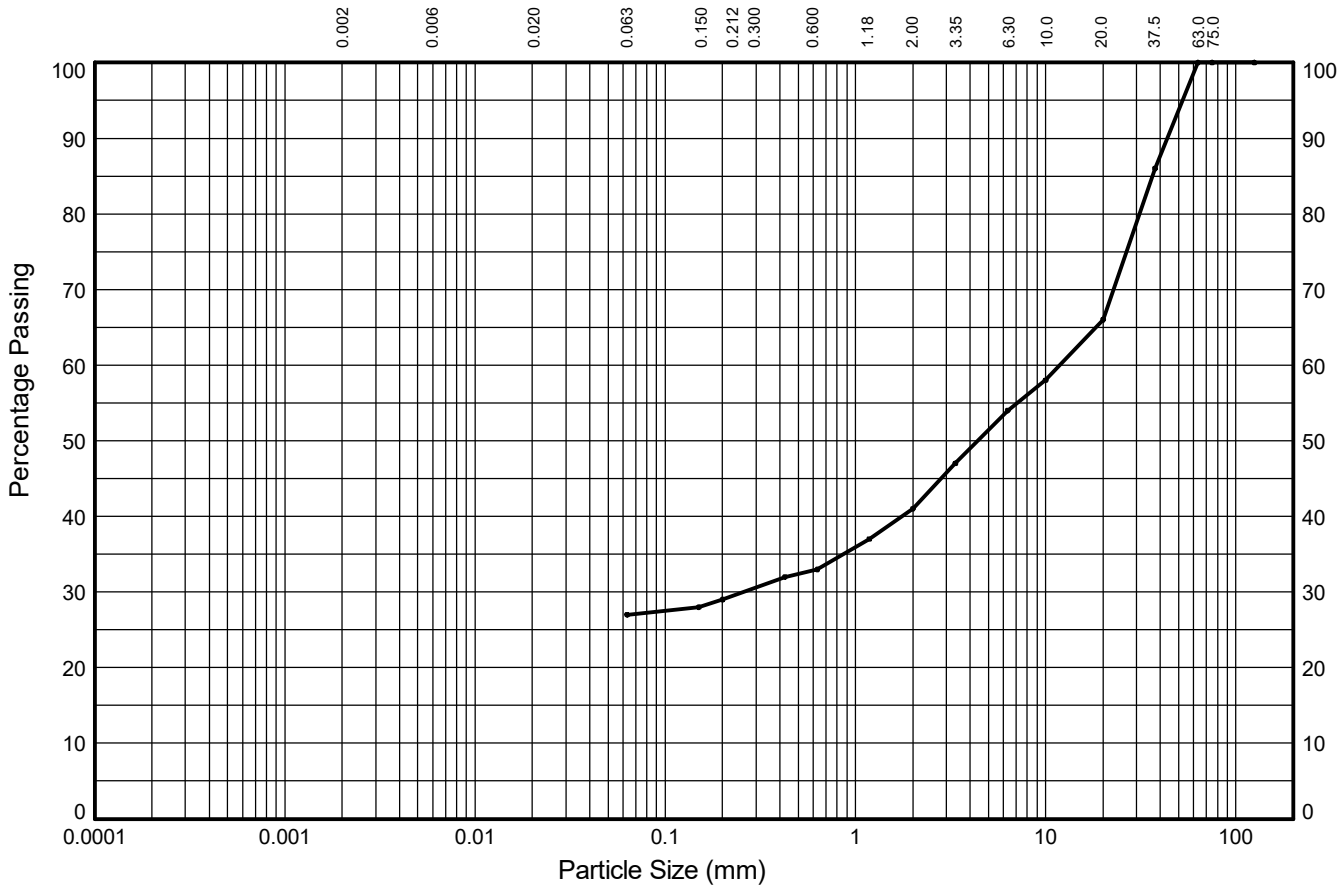
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146387** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	4%	8%	13%	12%	34%	
	SILT			SAND			GRAVEL			
27%				14%			59%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**86**
20.0	**66**
10.0	**58**
6.30	**54**
3.35	**47**
2.00	**41**
1.18	**37**
0.630	**33**
0.425	**32**
0.200	**29**
0.150	**28**
0.063	**27**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.257**
D_{50} (mm)	**4.391**
D_{60} (mm)	**11.892**
D_{85} (mm)	**36.340**
D_{90} (mm)	**43.492**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey sandy very silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	26/10/22

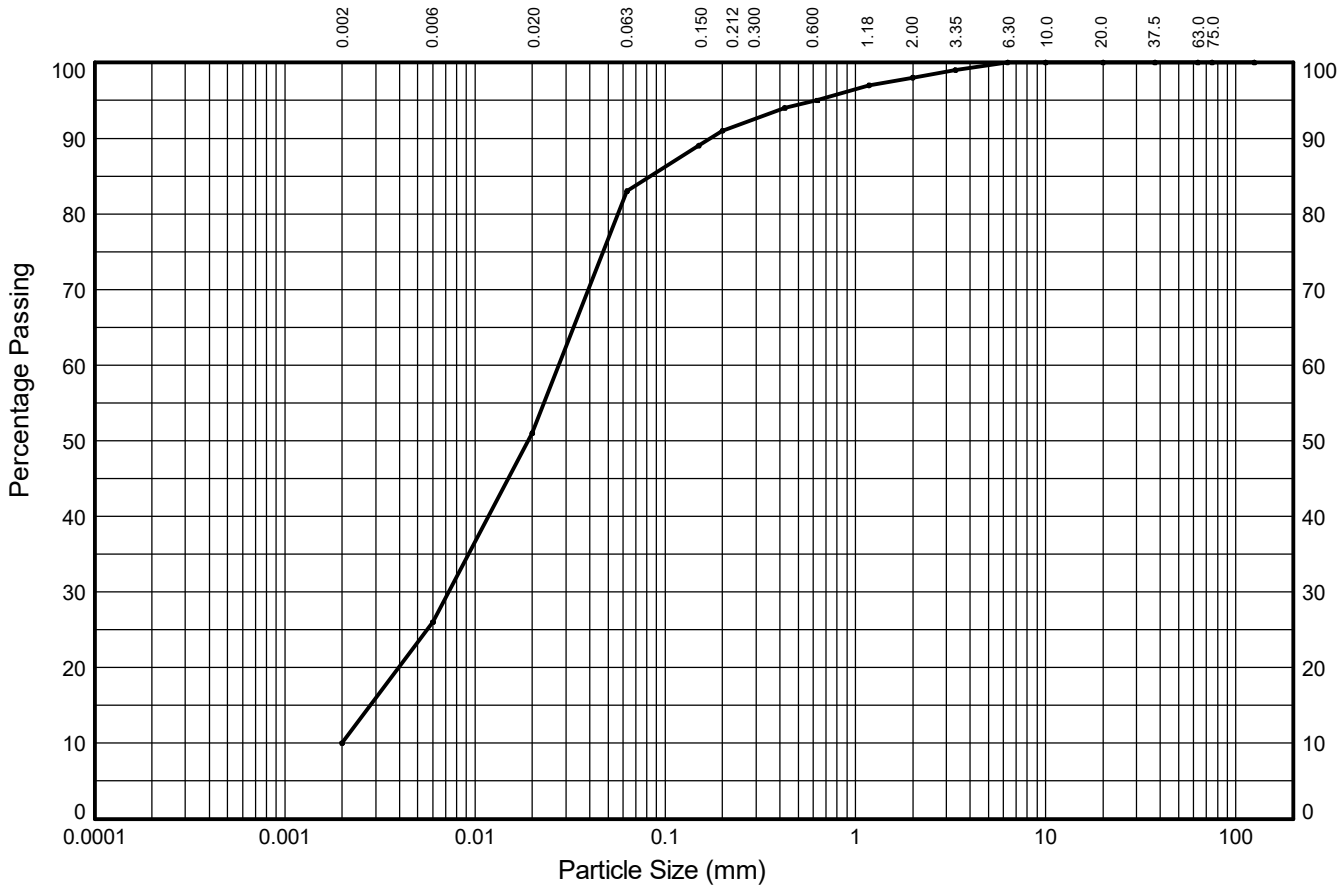
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146437** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	17%	24%	32%	8%	4%	3%	2%	0%	0%	
	SILT			SAND			GRAVEL			
10%	73%			15%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**98**
1.18	**97**
0.630	**95**
0.425	**94**
0.200	**91**
0.150	**89**
0.063	**83**

Particle Diameter (mm)	Percent Passing (%)
0.02	**51**
0.006	**26**
0.002	**10**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.007**
D_{50} (mm)	**0.019**
D_{60} (mm)	**0.028**
D_{85} (mm)	**0.084**
D_{90} (mm)	**0.173**
C_U	**14**
C_C	**0.96**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

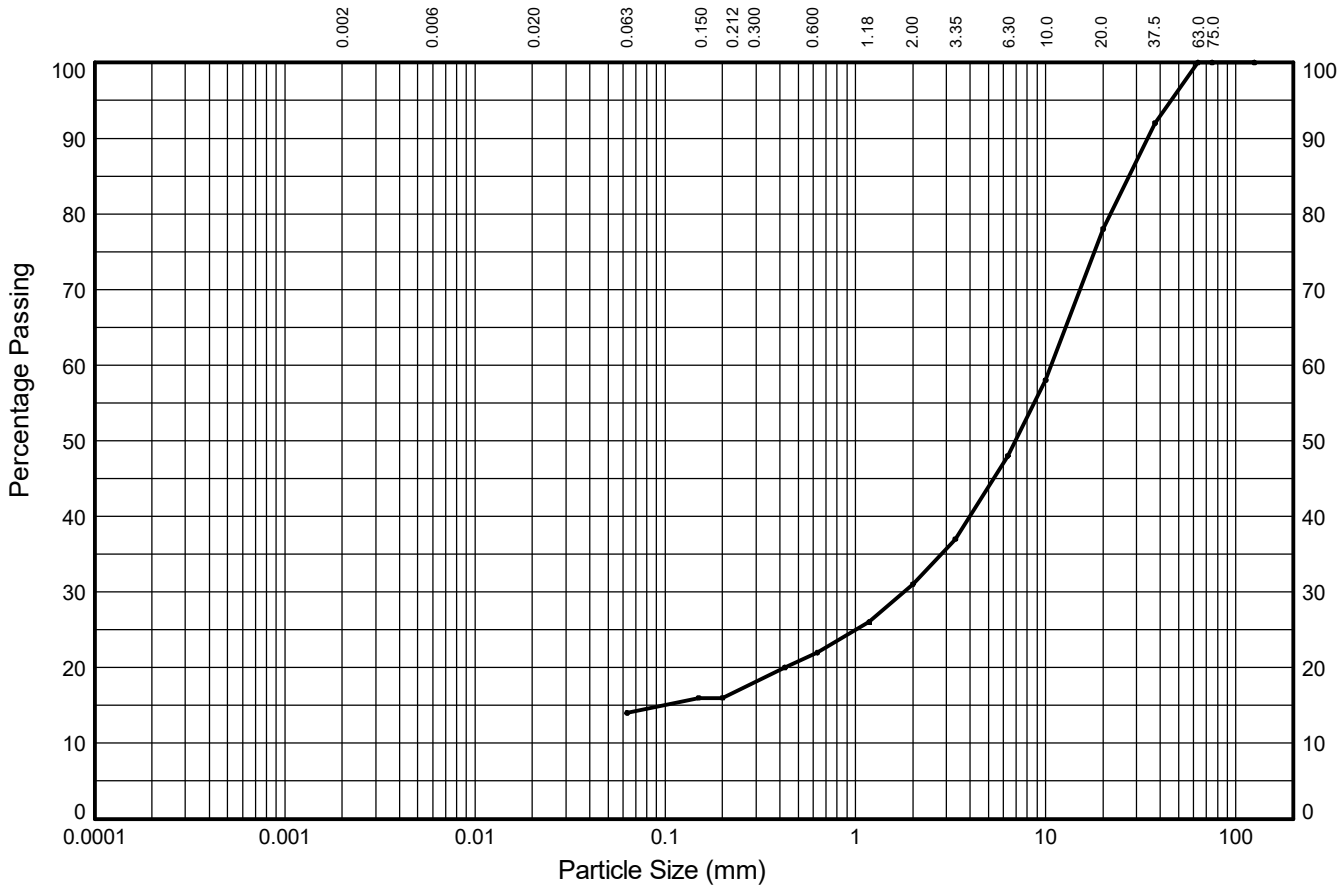
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146437** Sample Ref: **19** Sample Type: **B** Depth (m): **6.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	6%	9%	17%	30%	22%	
	SILT			SAND			GRAVEL			
14%				17%			69%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**92**
20.0	**78**
10.0	**58**
6.30	**48**
3.35	**37**
2.00	**31**
1.18	**26**
0.630	**22**
0.425	**20**
0.200	**16**
0.150	**16**
0.063	**14**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.097**
D_{30} (mm)	**1.800**
D_{50} (mm)	**6.910**
D_{60} (mm)	**10.718**
D_{85} (mm)	**27.386**
D_{90} (mm)	**34.279**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

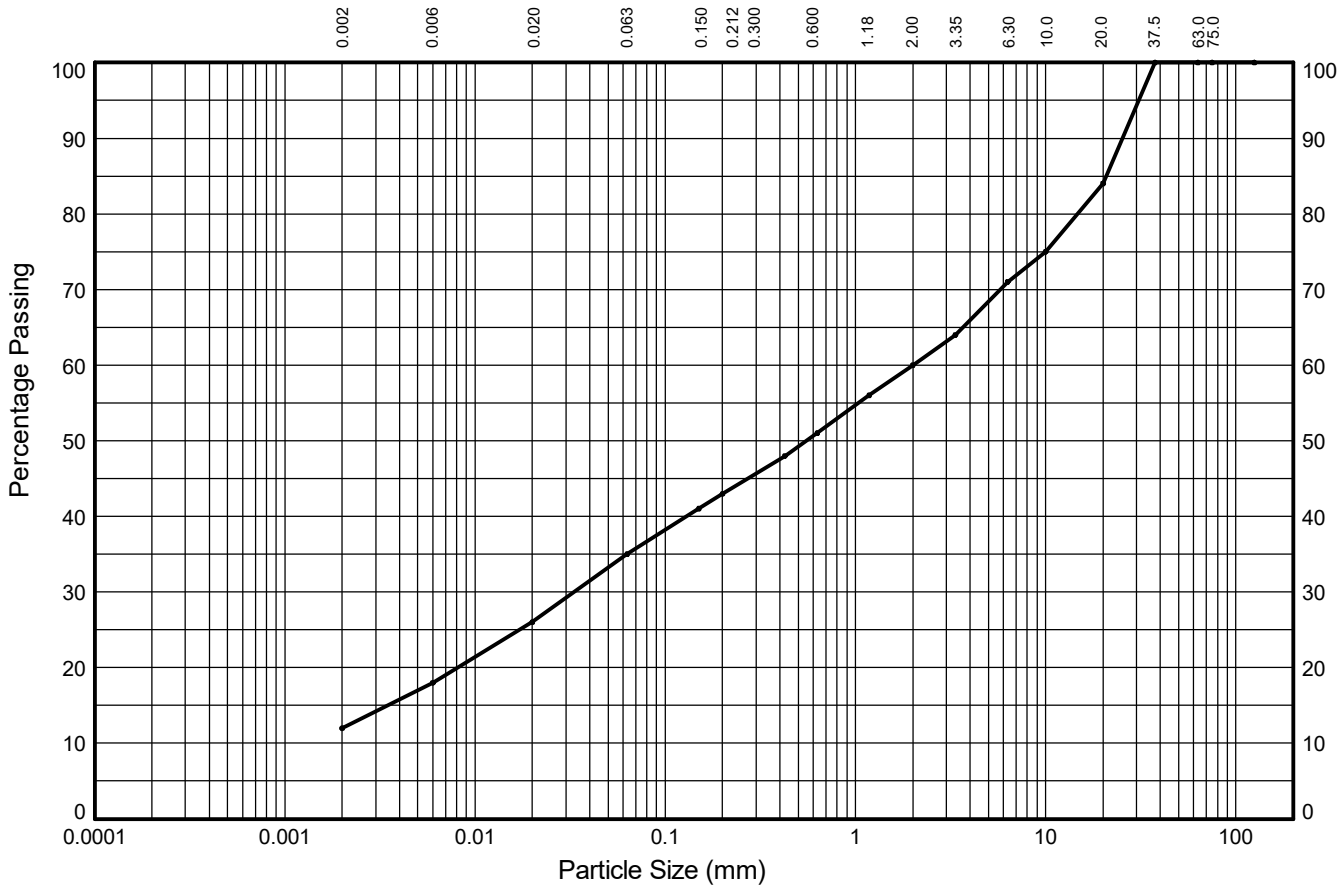
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146605** Sample Ref: **1** Sample Type: **B** Depth (m): **0.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	8%	9%	8%	8%	9%	11%	13%	16%	
	SILT			SAND			GRAVEL			
12%	23%			25%			40%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**84**
10.0	**75**
6.30	**71**
3.35	**64**
2.00	**60**
1.18	**56**
0.630	**51**
0.425	**48**
0.200	**43**
0.150	**41**
0.063	**35**

Particle Diameter (mm)	Percent Passing (%)
0.02	**26**
0.006	**18**
0.002	**12**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.033**
D_{50} (mm)	**0.553**
D_{60} (mm)	**2.000**
D_{85} (mm)	**20.801**
D_{90} (mm)	**25.317**
C_U	**NA**
C_C	**NA**

Soil Description:

Dark brown very sandy very silty clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

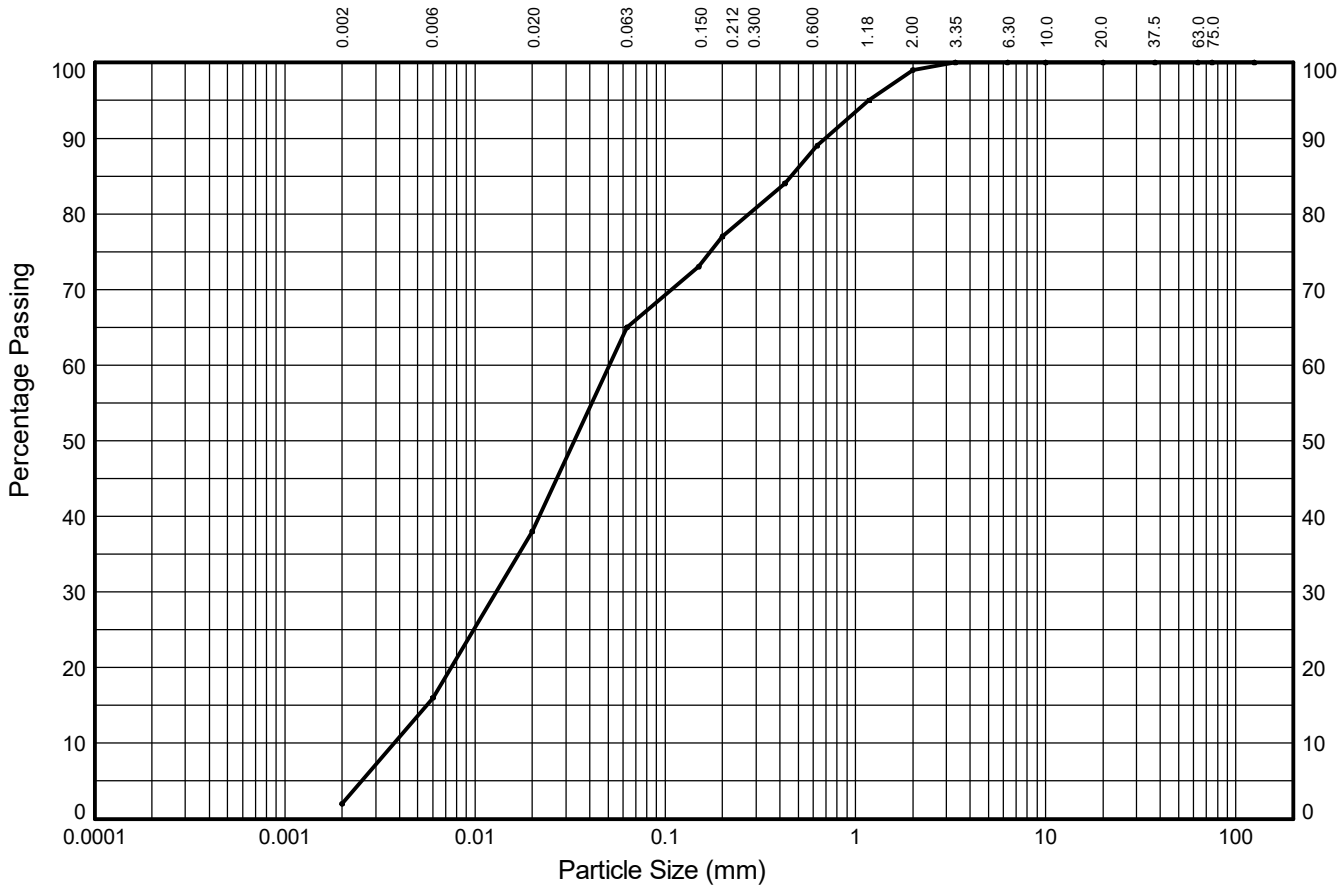
Compiled By	Date
LORNA WHITWORTH	25/10/22

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146605** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	14%	22%	27%	12%	12%	10%	1%	0%	0%	
	SILT			SAND			GRAVEL			
2%	63%			34%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**99**
1.18	**95**
0.630	**89**
0.425	**84**
0.200	**77**
0.150	**73**
0.063	**65**

Particle Diameter (mm)	Percent Passing (%)
0.02	**38**
0.006	**16**
0.002	**2**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.004**
D_{15} (mm)	**0.006**
D_{30} (mm)	**0.013**
D_{50} (mm)	**0.033**
D_{60} (mm)	**0.051**
D_{85} (mm)	**0.460**
D_{90} (mm)	**0.699**
C_U	**14**
C_C	**0.87**

Soil Description:

Brown grey slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

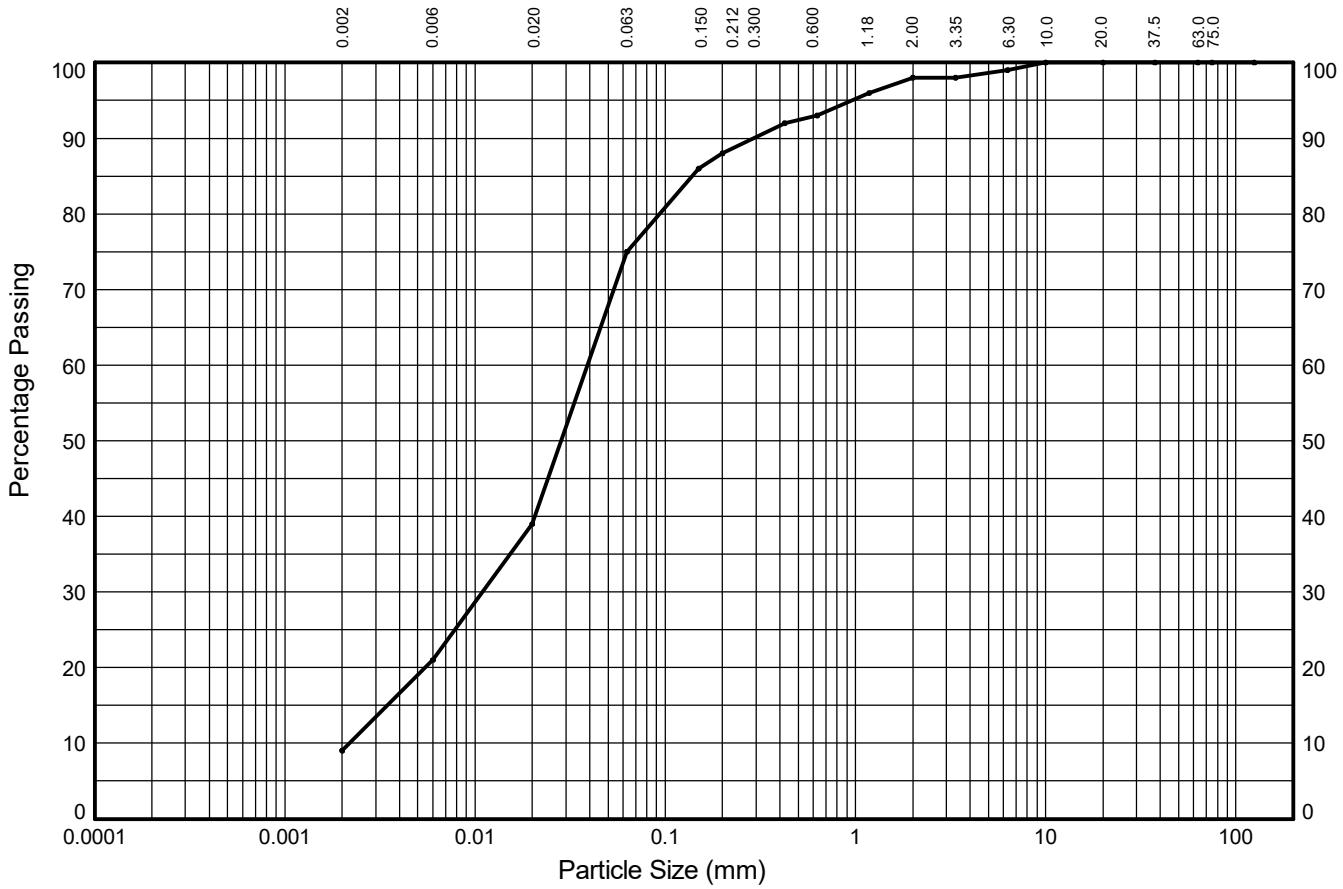
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146605** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	12%	18%	36%	13%	5%	5%	1%	1%	0%	
	SILT			SAND			GRAVEL			
9%	66%			23%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**98**
2.00	**98**
1.18	**96**
0.630	**93**
0.425	**92**
0.200	**88**
0.150	**86**
0.063	**75**

Particle Diameter (mm)	Percent Passing (%)
0.02	**39**
0.006	**21**
0.002	**9**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.011**
D_{50} (mm)	**0.028**
D_{60} (mm)	**0.039**
D_{85} (mm)	**0.139**
D_{90} (mm)	**0.292**
C_U	**18**
C_C	**1**

Soil Description:

Grey slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

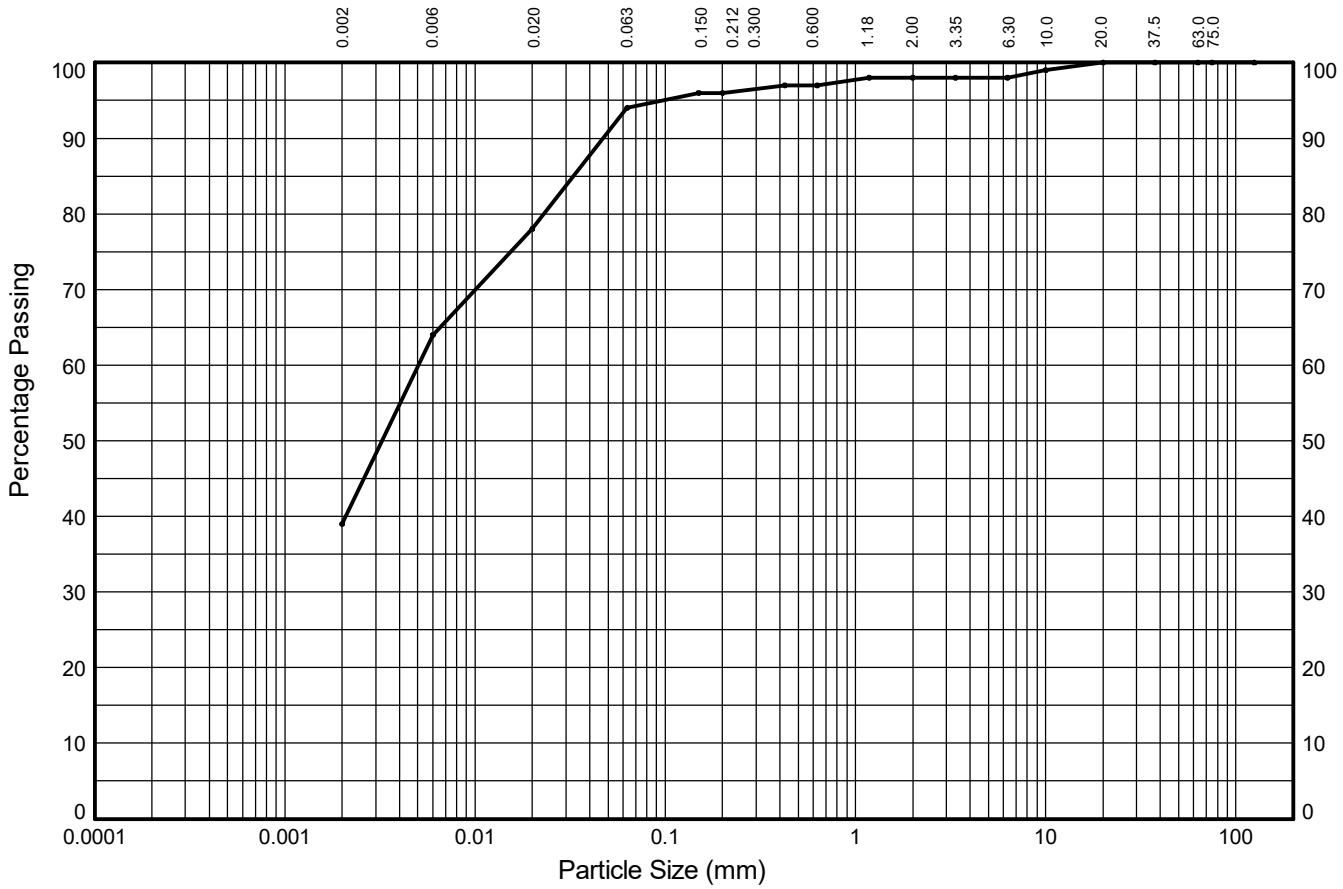
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-146605** Sample Ref: **22** Sample Type: **B** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	25%	14%	16%	2%	1%	1%	0%	2%	0%	
	SILT			SAND			GRAVEL			
39%	55%			4%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**98**
3.35	**98**
2.00	**98**
1.18	**98**
0.630	**97**
0.425	**97**
0.200	**96**
0.150	**96**
0.063	**94**

Particle Diameter (mm)	Percent Passing (%)
0.02	**78**
0.006	**64**
0.002	**39**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.003**
D_{60} (mm)	**0.005**
D_{85} (mm)	**0.033**
D_{90} (mm)	**0.047**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown grey slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	25/10/22

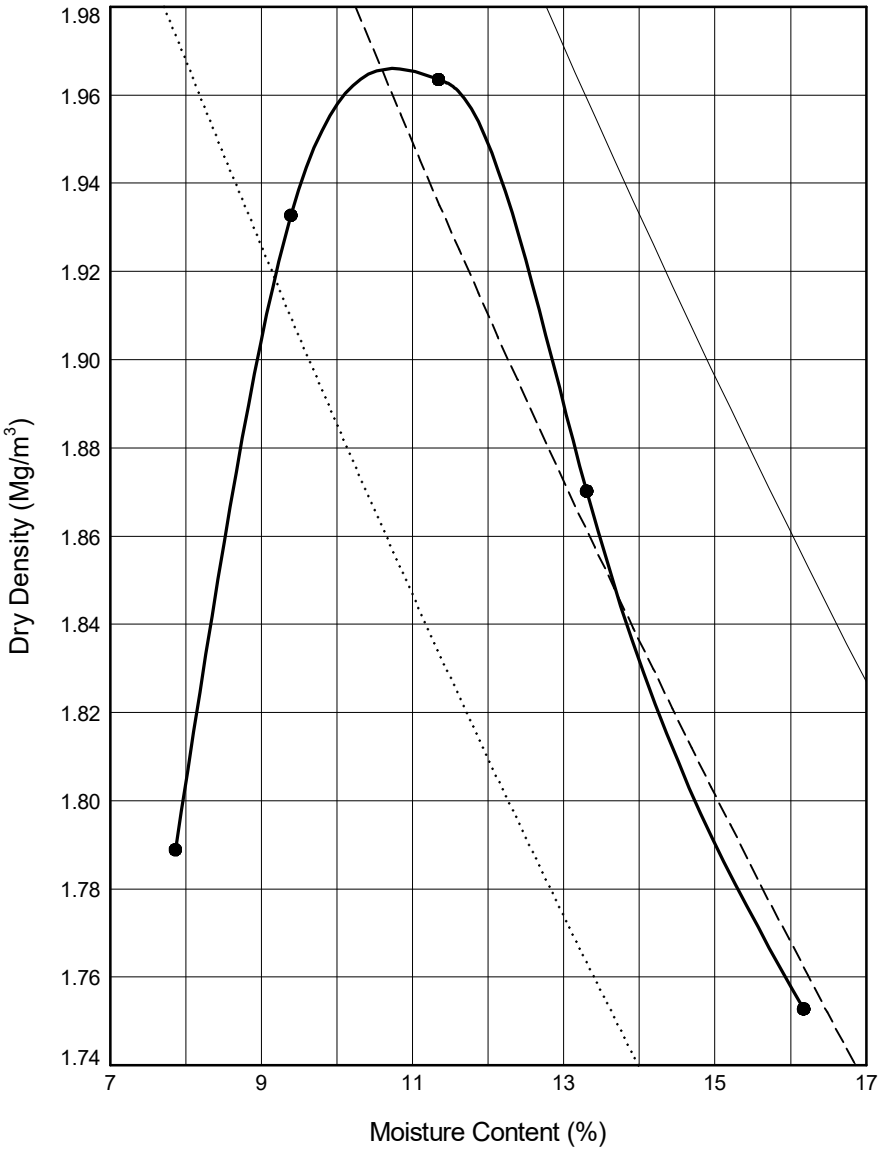
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Borehole: **BH-118375** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



Initial Sample Conditions			Test Details			Test Results		
Initial Moisture Content (%)	:	**11**	Compaction Type	:	**Light**	Maximum Dry Density (Mg/m^3)	:	**1.96**
% Retained on 37.5mm BS Sieve	:	**8**	Mass of Rammer (kg):		**2.5**	Optimum Moisture Content (%)	:	**11**
% Retained on 20.0mm BS Sieve	:	**10**	Type of Mould	:	**CBR**	Method Used: **Clause 3.4**		
Particle Density - assumed (Mg/m^3)	:	**2.65**				Remarks:		
Size of Soil Pieces	:	**<20mm**	Single sample was used.					

Sample Description	Key to Air Voids Lines		
Brown slightly silty slightly sandy gravelly CLAY	——— 0%	– – – – 5%	····· 10%

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

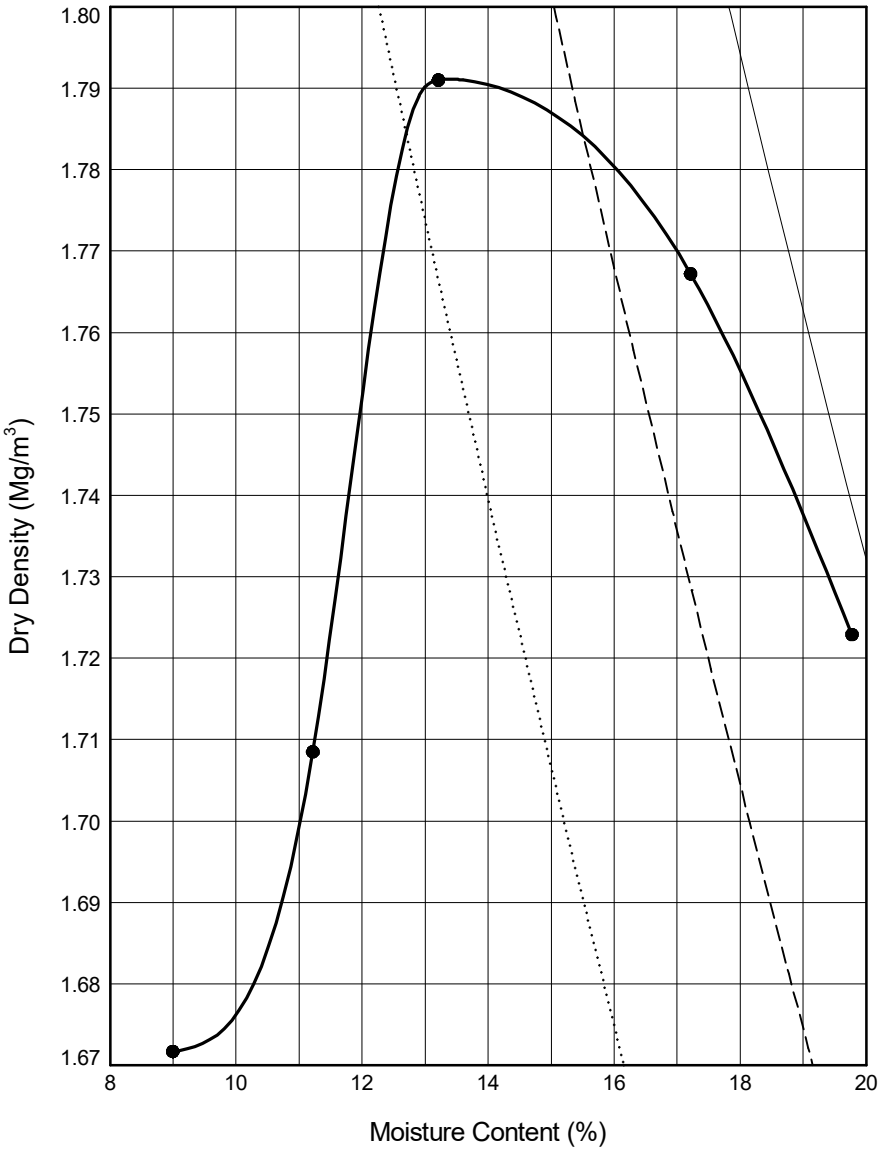
Compiled By		Date
	LAURA SCHRAMM	**27/10/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Borehole: **BH-119737** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



Initial Sample Conditions			Test Details			Test Results		
Initial Moisture Content (%)	:	**17**	Compaction Type	:	**Light**	Maximum Dry Density (Mg/m^3)	:	**1.79**
% Retained on 37.5mm BS Sieve	:	**2**	Mass of Rammer (kg):		**2.5**	Optimum Moisture Content (%)	:	**13**
% Retained on 20.0mm BS Sieve	:	**6**	Type of Mould	:	**CBR**	Method Used: **Clause 3.4**		
Particle Density - assumed (Mg/m^3)	:	**2.65**				Remarks:		
Size of Soil Pieces	:	**<20mm**	Single sample was used.					

Sample Description	Key to Air Voids Lines		
Brown slightly silty slightly gravelly CLAY	——— 0%	– – – – 5%	····· 10%

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

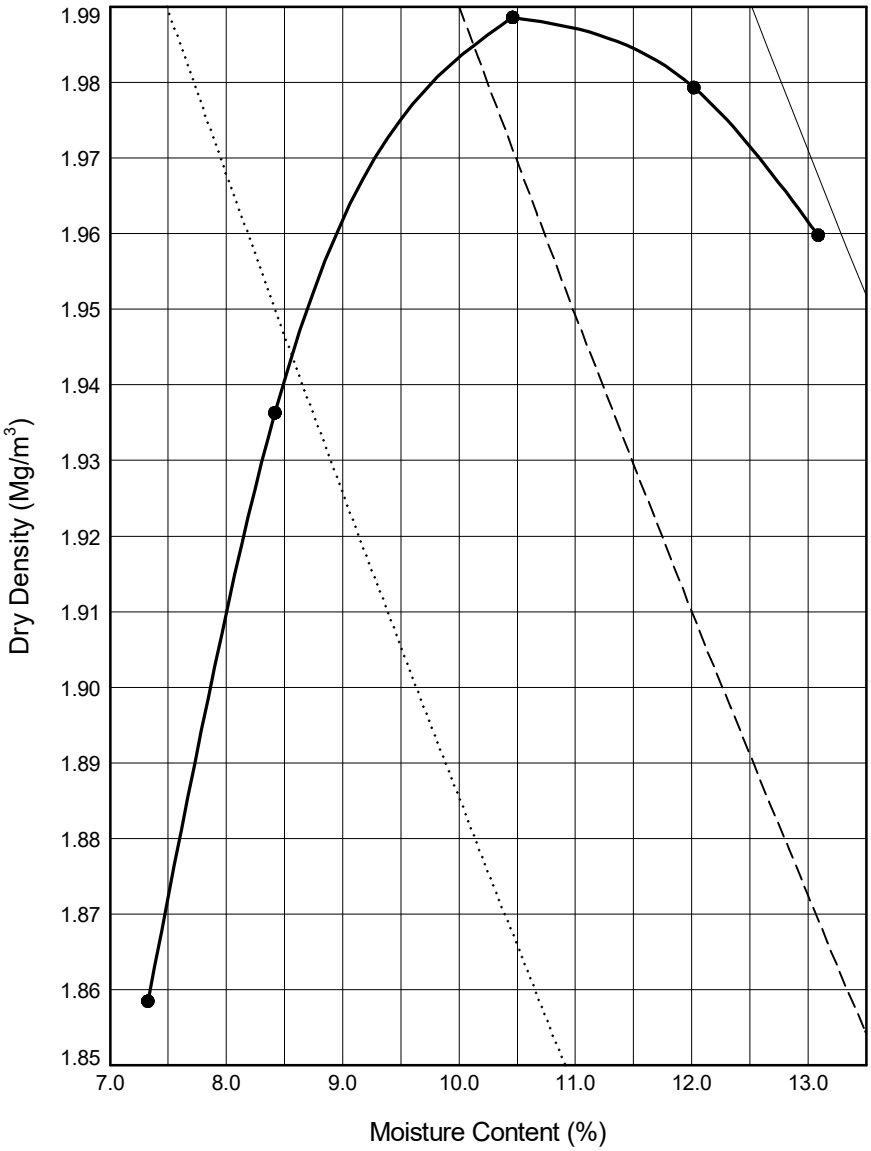
Compiled By		Date
	LAURA SCHRAMM	**27/10/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Borehole: **BH-135905** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**8.4**	Compaction Type	: **Light**	Maximum Dry Density (Mg/m^3)	:	**1.99**
% Retained on 37.5mm BS Sieve	:	**12**	Mass of Rammer (kg):	**2.5**	Optimum Moisture Content (%)	:	**10**
% Retained on 20.0mm BS Sieve	:	**5**	Type of Mould	: **1 LITRE**	Method Used:		**Clause 3.3**
Particle Density - assumed (Mg/m^3)	:	**2.65**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Brown slightly gravelly sandy CLAY	——— 0%	– – – – 5%	····· 10%

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

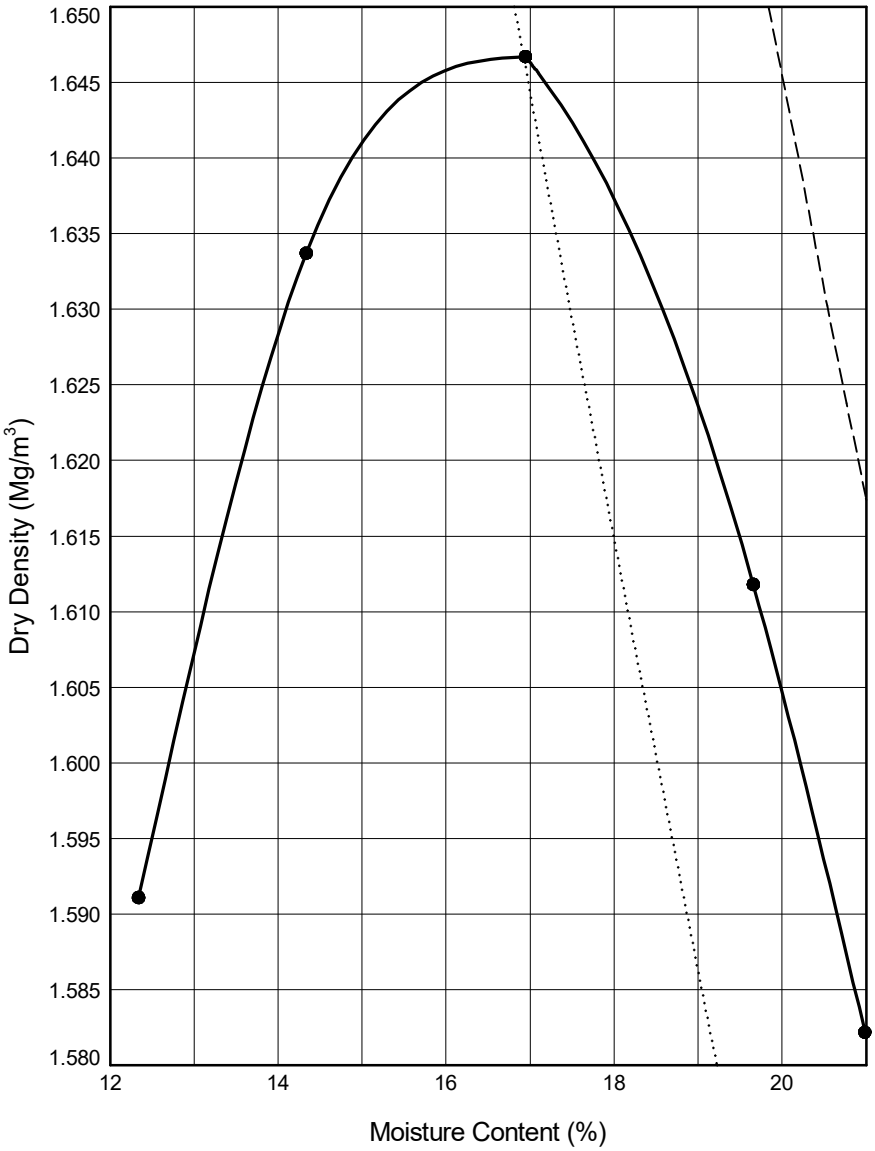
Compiled By		Date
	LAURA SCHRAMM	**05/11/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Borehole: **BH-144109** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**20**	Compaction Type	: **Light**	Maximum Dry Density (Mg/m^3)	:	**1.65**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**2.5**	Optimum Moisture Content (%)	:	**17**
% Retained on 20.0mm BS Sieve	:	**1**	Type of Mould	: **1 LITRE**	Method Used: **Clause 3.3**		
Particle Density - assumed (Mg/m^3)	:	**2.65**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Single sample was used.				

Sample Description	Key to Air Voids Lines		
Brown grey gravelly slightly clayey silty SAND	——— 0%	– – – – 5%	····· 10%

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

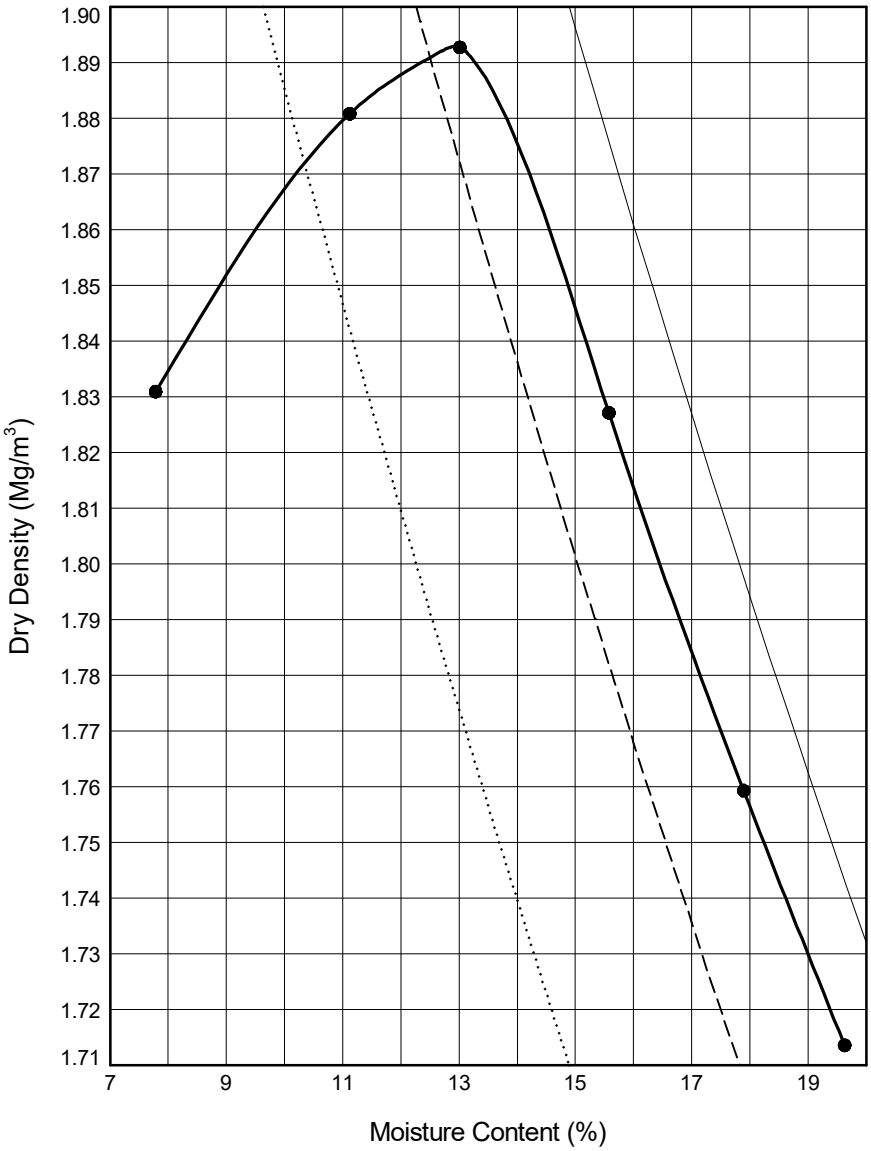
Compiled By		Date
	LAURA SCHRAMM	**27/10/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Borehole: **BH-146437** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**20**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**1.89**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**13**
% Retained on 20.0mm BS Sieve	:	**0**	Type of Mould	: **1 LITRE**	Method Used:		**Clause 3.5**
Particle Density - assumed (Mg/m^3)	:	**2.65**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Single sample was used.				

Sample Description	Key to Air Voids Lines		
Brown slightly clayey slightly gravelly SILT	——— 0%	– – – – 5%	····· 10%

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	**27/10/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

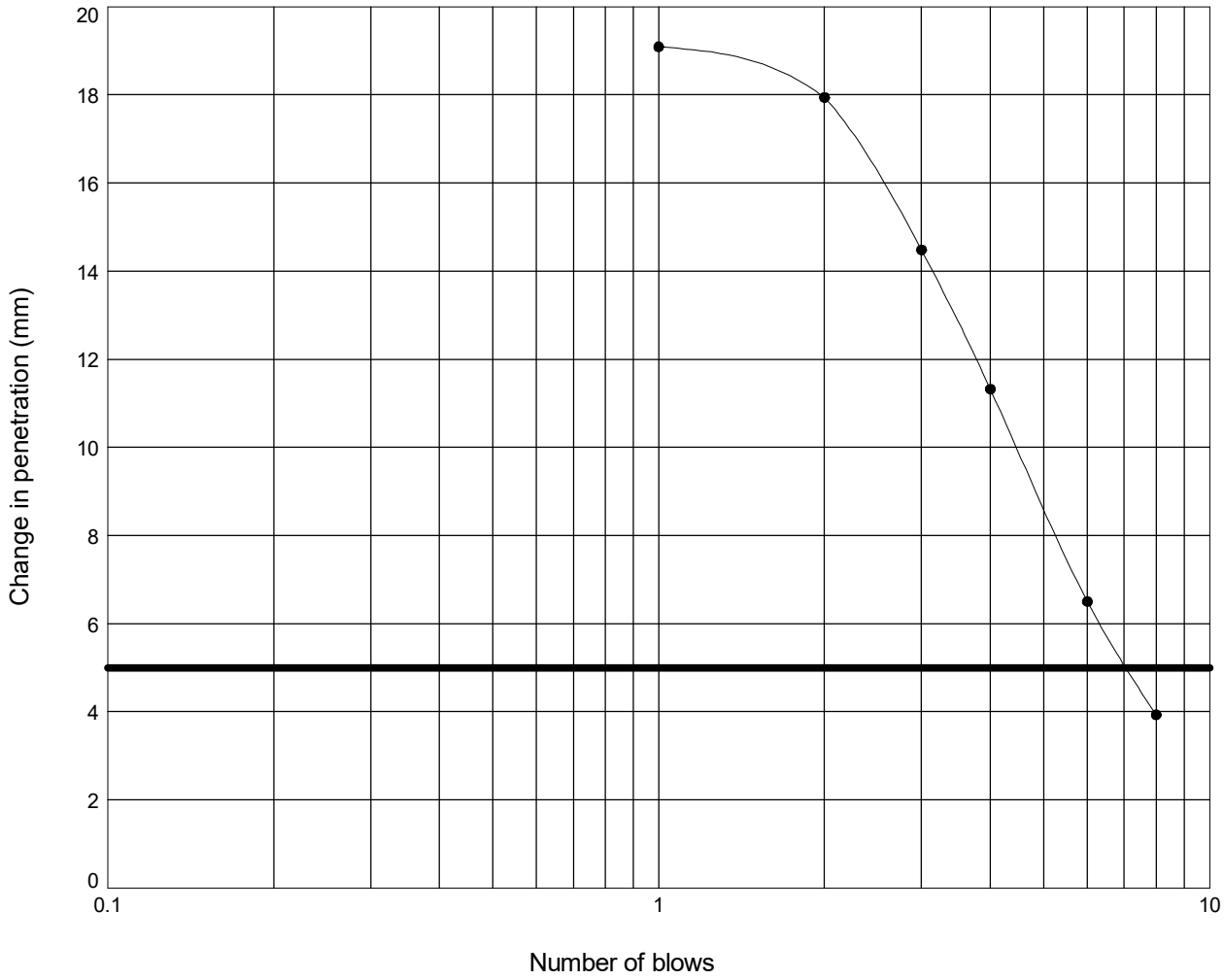
MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Borehole: **BH-117542** Sample Ref: **7** Sample Type: **B** Depth (m): **2.00**

Description : **Brown slightly gravelly CLAY**

Non-standard notes : **Test done as non-standard due to percent retained on the 20mm sieve**



Moisture Content :	=	13	%
Percentage retained on 20 mm sieve :	=	29	%
Moisture Condition Value :	=	8.5	
Interpretation of curve:	=	Steepest straight line - Fig 9	

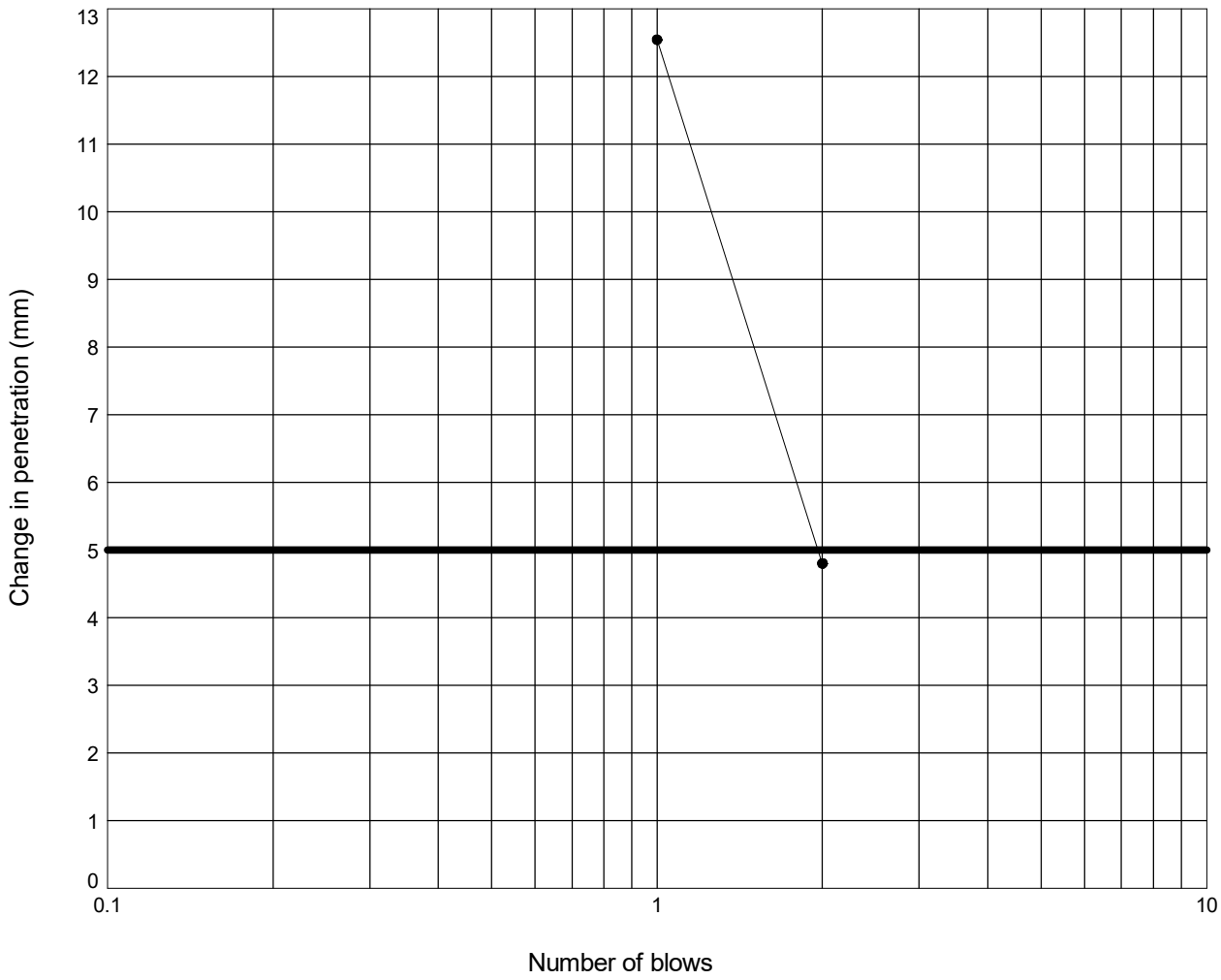
STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By		Date
	lauSchra	**LAURA SCHRAMM**	**27/10/22**
	Contract **Lot 3 Eastern & Midlands WSP**		Contract Ref: **785305**

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Borehole: **BH-145703** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**

Description : **Brown slightly gravelly clayey SILT**



Moisture Content :	=	29.5	%
Percentage retained on 20 mm sieve :	=	0	%
Moisture Condition Value :	=	2.9	
Interpretation of curve:	=	Steepest straight line - Fig 9	

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: LAURA SCHRAMM	Date: 27/10/22
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS)

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-121326** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**

Sample Condition: **Recompacted**

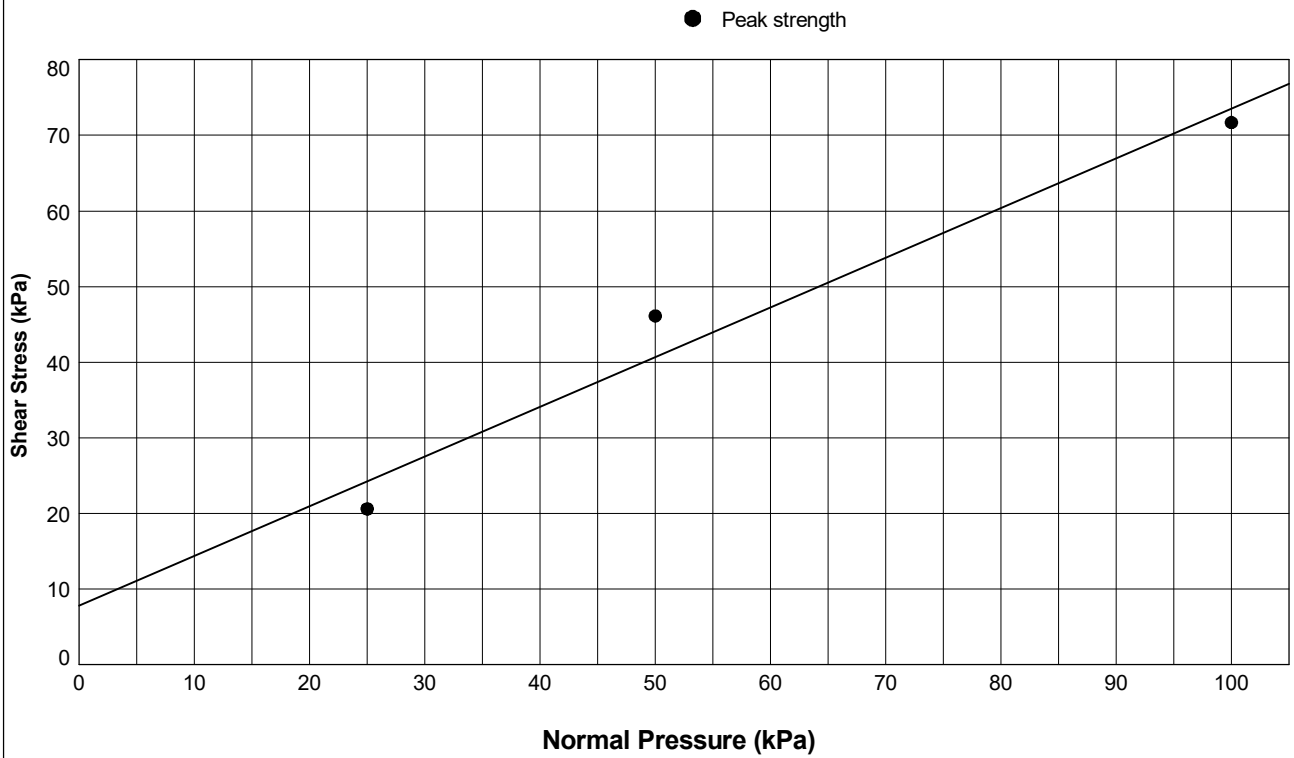
Particle Density (Assumed): **2.65** Mg/m^3

Description: **Grey SILT**

Start Date: **19/10/2022**

End Date: **24/10/2022**

	SPECIMEN NUMBER		1	2	3
PROPERTIES	Initial Water Content	(%)	**21.6**	**20.7**	**19.7**
	Initial Length (L_1)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Width (L_2)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Bulk Density	(Mg/m^3)	**2.03**	**2.03**	**2.03**
	Initial Dry Density	(Mg/m^3)	**1.67**	**1.68**	**1.69**
	Initial Voids Ratio		**0.5857**	**0.5762**	**0.5656**
CONSOLIDATION	Normal Pressure	(kPa)	**25**	**50**	**100**
	Initial Height	(mm)	**23.108**	**23.072**	**23.042**
	Consolidated Height	(mm)	**22.937**	**22.703**	**22.156**
SHEAR	Rate of Horizontal Displacement	**(mm/min)**	**0.0111**	**0.0183**	**0.0841**
	Horizontal Displacement at Peak Shear Stress	**(mm)**	**5.4**	**3.0**	**1.6**
	Peak Shear Stress	**(kPa)**	**21**	**46**	**72**
PEAK STRENGTH	Effective Cohesion (**C'**) **8**	(kPa)	Effective Angle of Friction (**ϕ'**)	**33.5**	(deg)

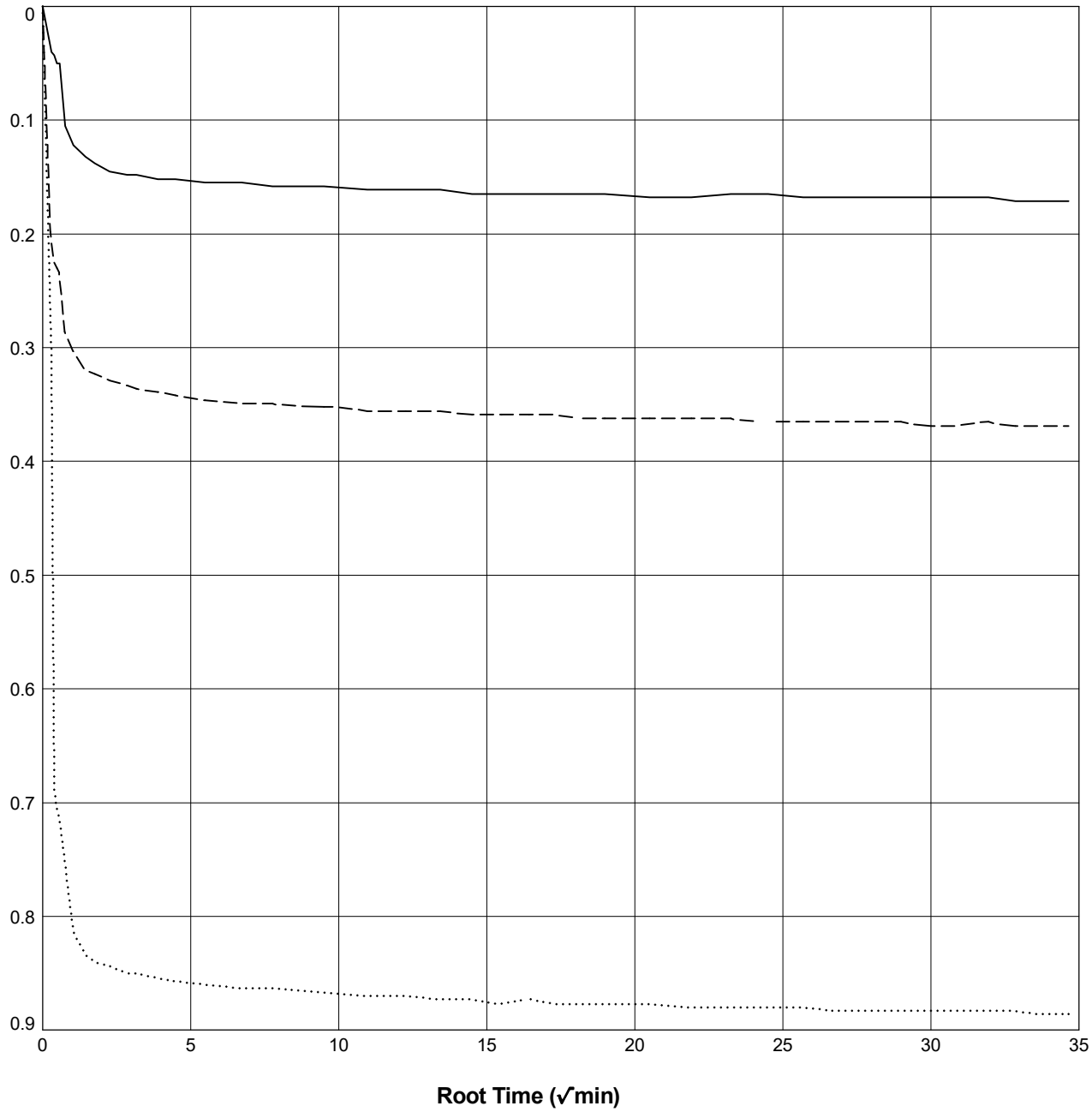


STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By		Date
		LORNA WHITWORTH	**15/11/22**
	Contract **Lot 3 Eastern & Midlands WSP**		Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS) CONSOLIDATION GRAPH

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-121326** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



KEY :

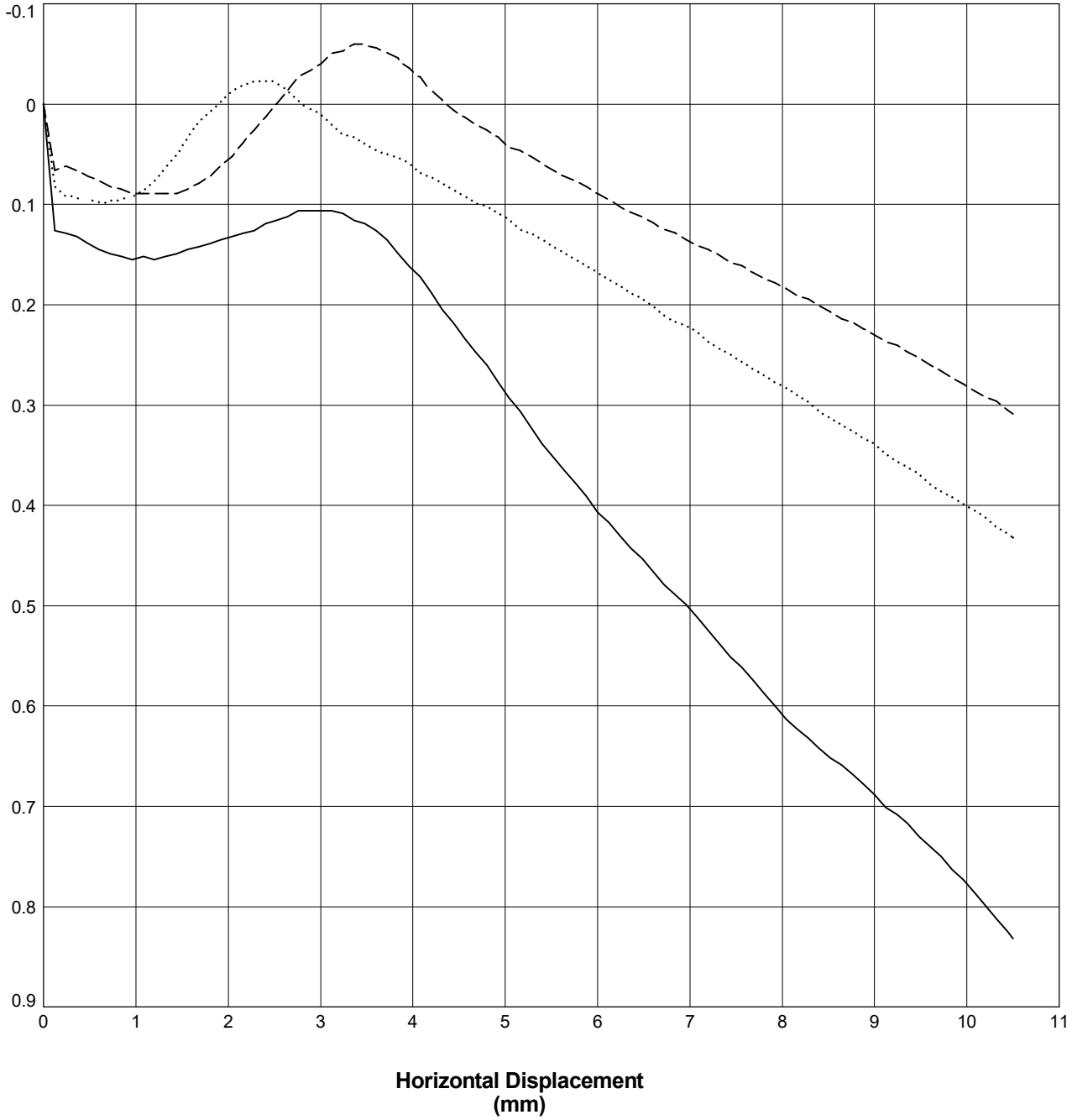
Solid Line = Specimen 1 (**25** kPa), *Dashed Line* = Specimen 2 (**50** kPa), *Dotted Line* = Specimen 3 (**100** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **15/11/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
HEIGHT CHANGE vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-121326** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



KEY :

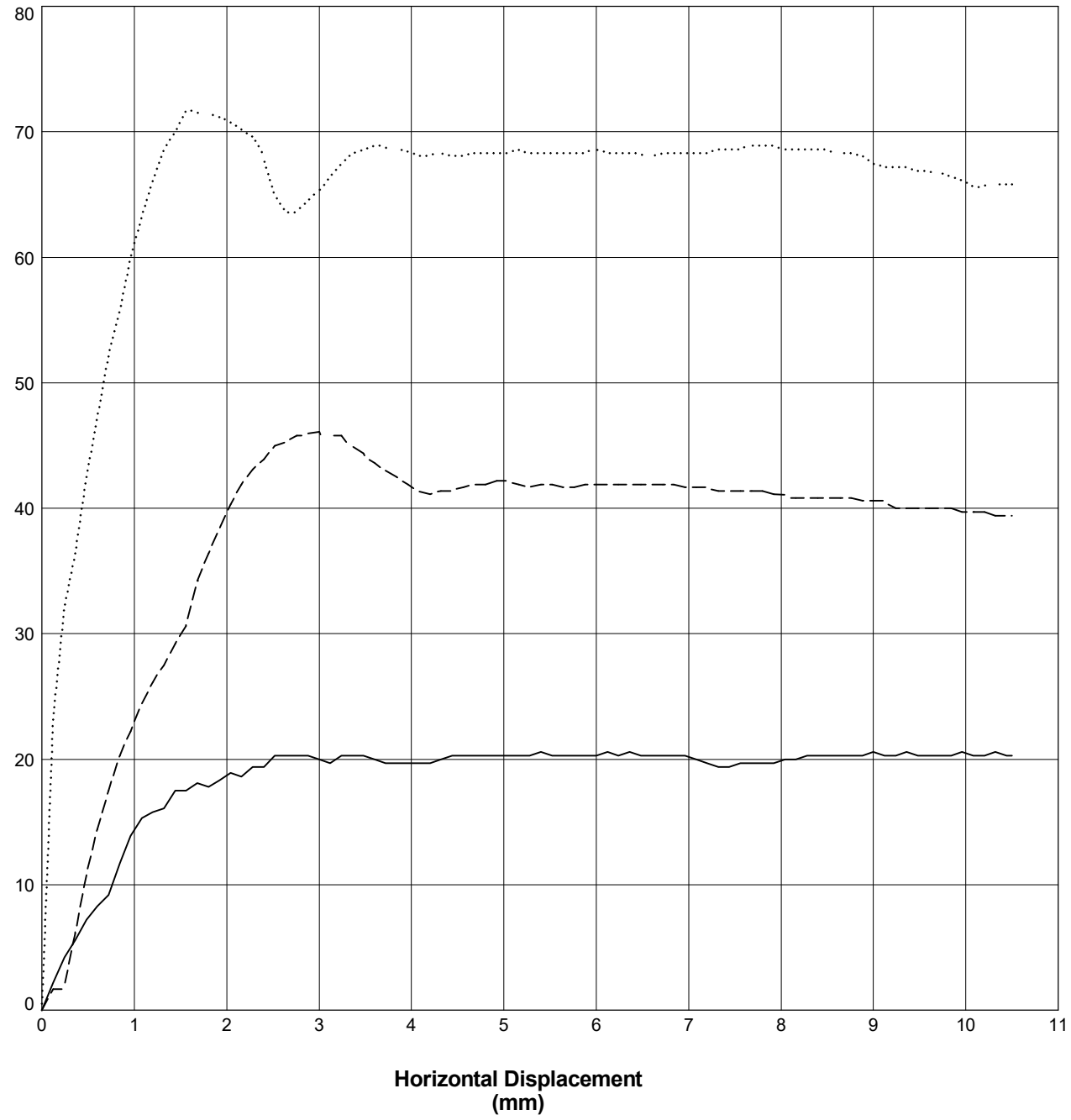
Solid Line = Specimen 1 (**25** kPa), *Dashed Line* = Specimen 2 (**50** kPa), *Dotted Line* = Specimen 3 (**100** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **15/11/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
SHEAR STRESS vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-121326** Sample Ref: **10** Sample Type: **B** Depth (m): **3.00**



KEY :

Solid Line = Specimen 1 (**25** kPa), *Dashed Line* = Specimen 2 (**50** kPa), *Dotted Line* = Specimen 3 (**100** kPa).

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LORNA WHITWORTH	**15/11/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS)

In accordance with BS EN ISO 17892:Part 10:2018

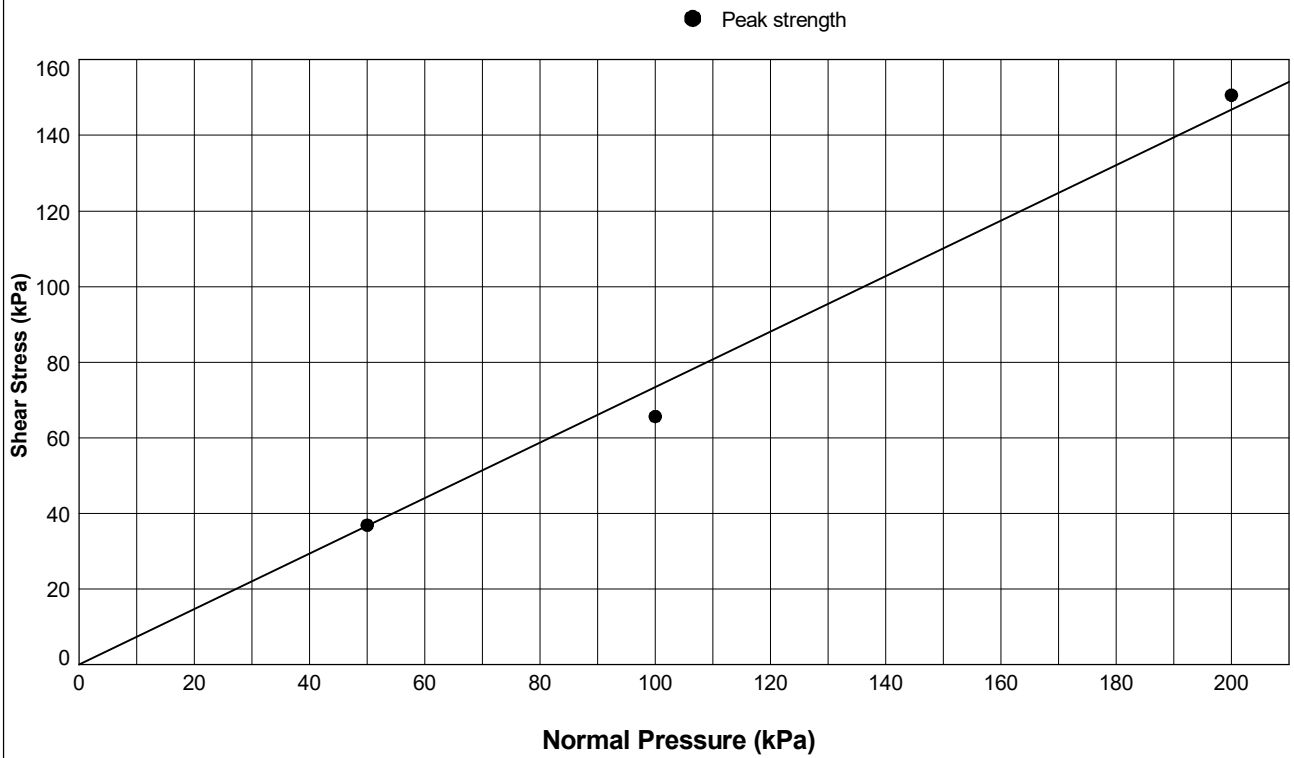
Borehole: **BH-143998** Sample Ref: **21** Sample Type: **B** Depth (m): **6.50**

Sample Condition: **Recompacted** Particle Density (Assumed): **2.65** Mg/m^3

Description: **Grey sandy slightly silty/clayey GRAVEL with medium cobble content** Start Date: **05/10/2022**

End Date: **05/10/2022**

	SPECIMEN NUMBER		1	2	3
PROPERTIES	Initial Water Content	(%)	**20.1**	**20.7**	**19.8**
	Initial Length (L_1)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Width (L_2)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Bulk Density	(Mg/m^3)	**1.83**	**1.83**	**1.83**
	Initial Dry Density	(Mg/m^3)	**1.52**	**1.52**	**1.52**
	Initial Voids Ratio		**0.7414**	**0.7489**	**0.7393**
TEST CONDITIONS	Specimen Conditions		**Submerged**	**Submerged**	**Submerged**
	Stage Duration	(days)	**1**	**1**	**1**
CONSOLIDATION	Normal Pressure	(kPa)	**50**	**100**	**200**
	Initial Height	(mm)	**23.477**	**23.802**	**23.856**
	Consolidated Height	(mm)	**23.220**	**23.349**	**23.502**
SHEAR	Rate of Horizontal Displacement	**(mm/min)**	**0.4000**	**0.4000**	**0.4000**
	Horizontal Displacement at Peak Shear Stress	**(mm)**	**4.2**	**10.0**	**7.0**
	Peak Shear Stress	**(kPa)**	**37**	**66**	**151**
PEAK STRENGTH	Effective Cohesion (**C'**) **0**	(kPa)	Effective Angle of Friction (**ϕ'**)	**36.5**	(deg)

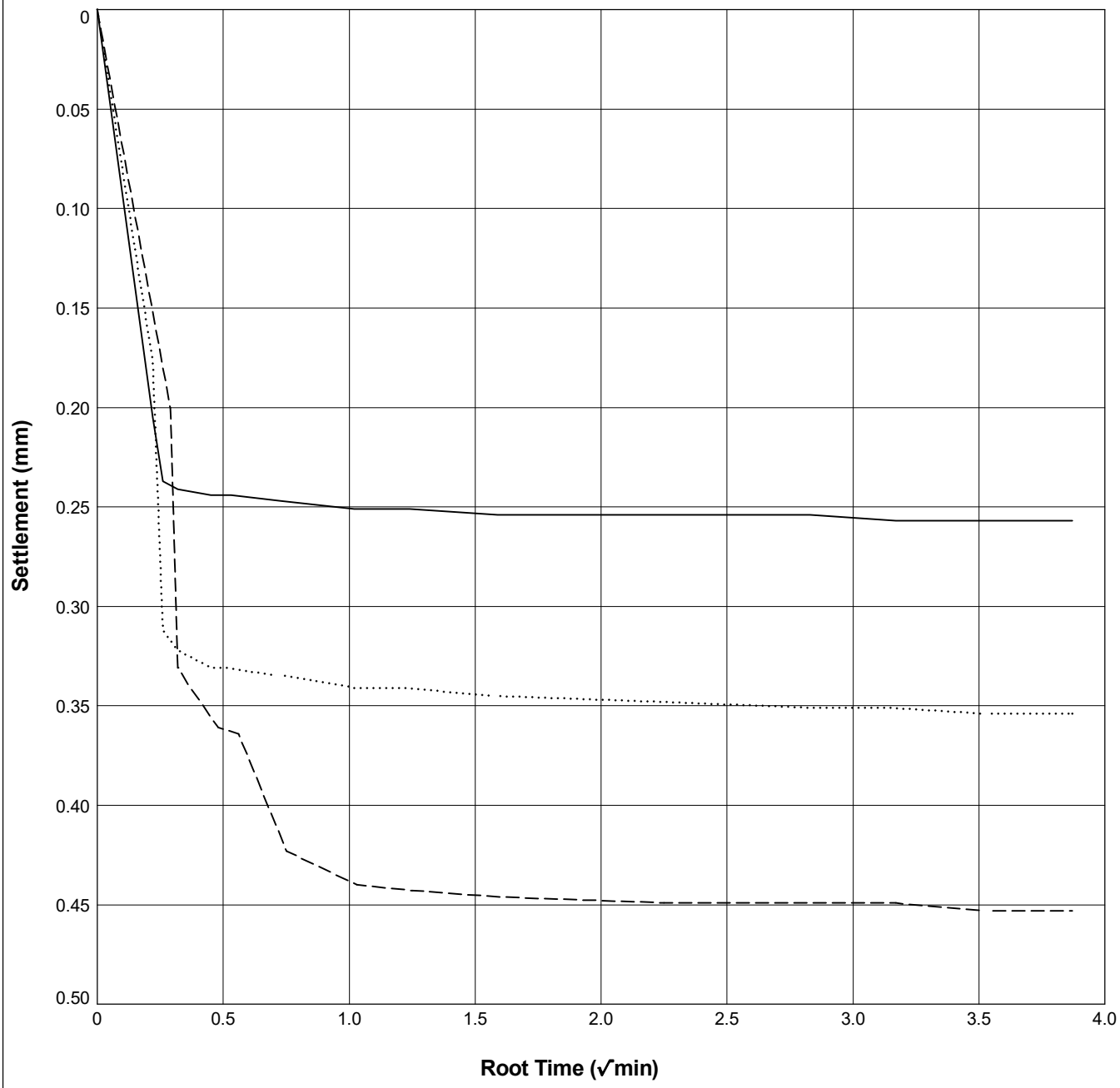


STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By		Date
		LORNA WHITWORTH	**25/10/22**
	Contract **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**	

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS) CONSOLIDATION GRAPH

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-143998** Sample Ref: **21** Sample Type: **B** Depth (m): **6.50**



KEY :

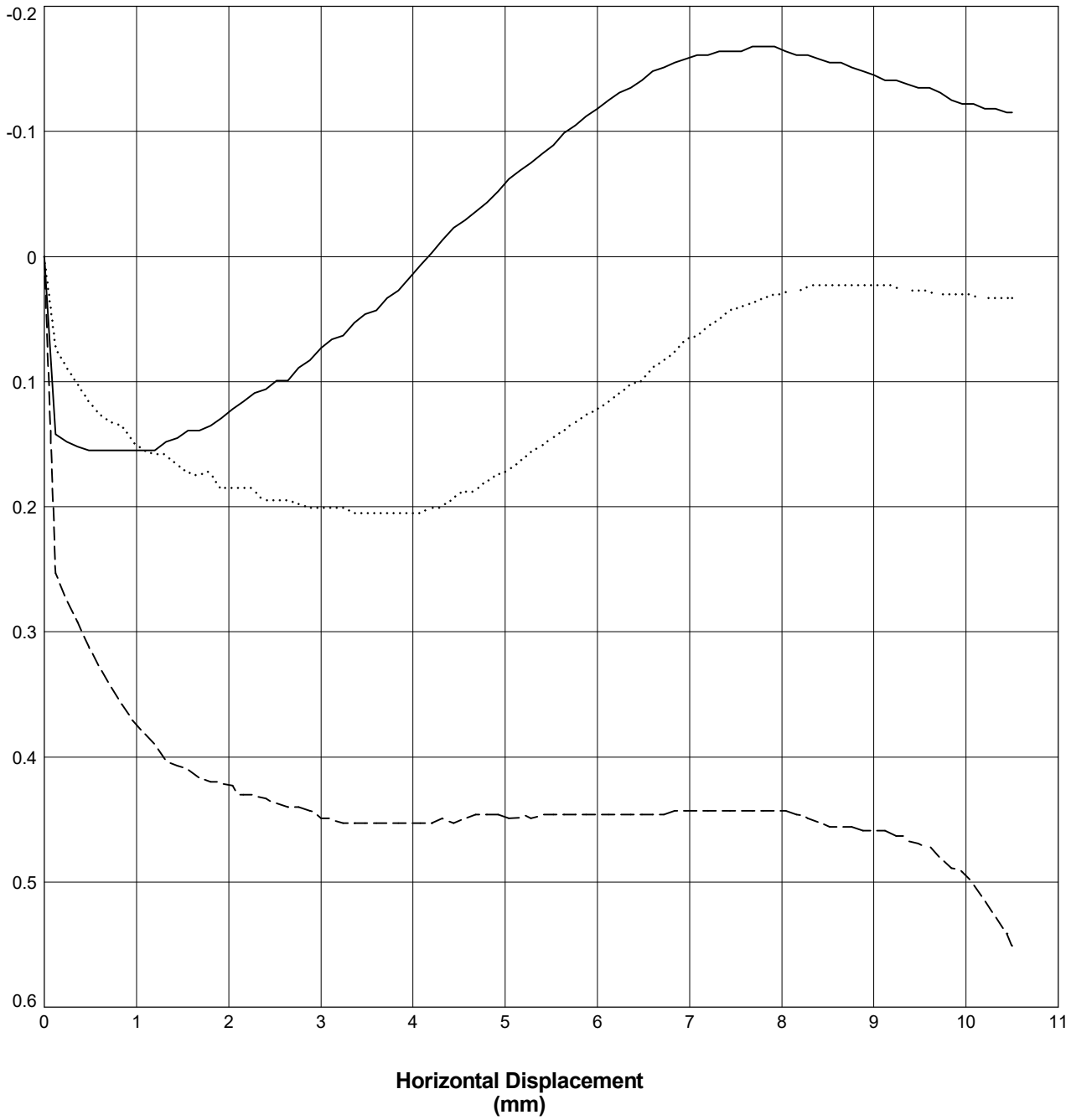
Solid Line = Specimen 1 (**50** kPa), *Dashed Line* = Specimen 2 (**100** kPa), *Dotted Line* = Specimen 3 (**200** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **25/10/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
HEIGHT CHANGE vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-143998** Sample Ref: **21** Sample Type: **B** Depth (m): **6.50**



KEY :

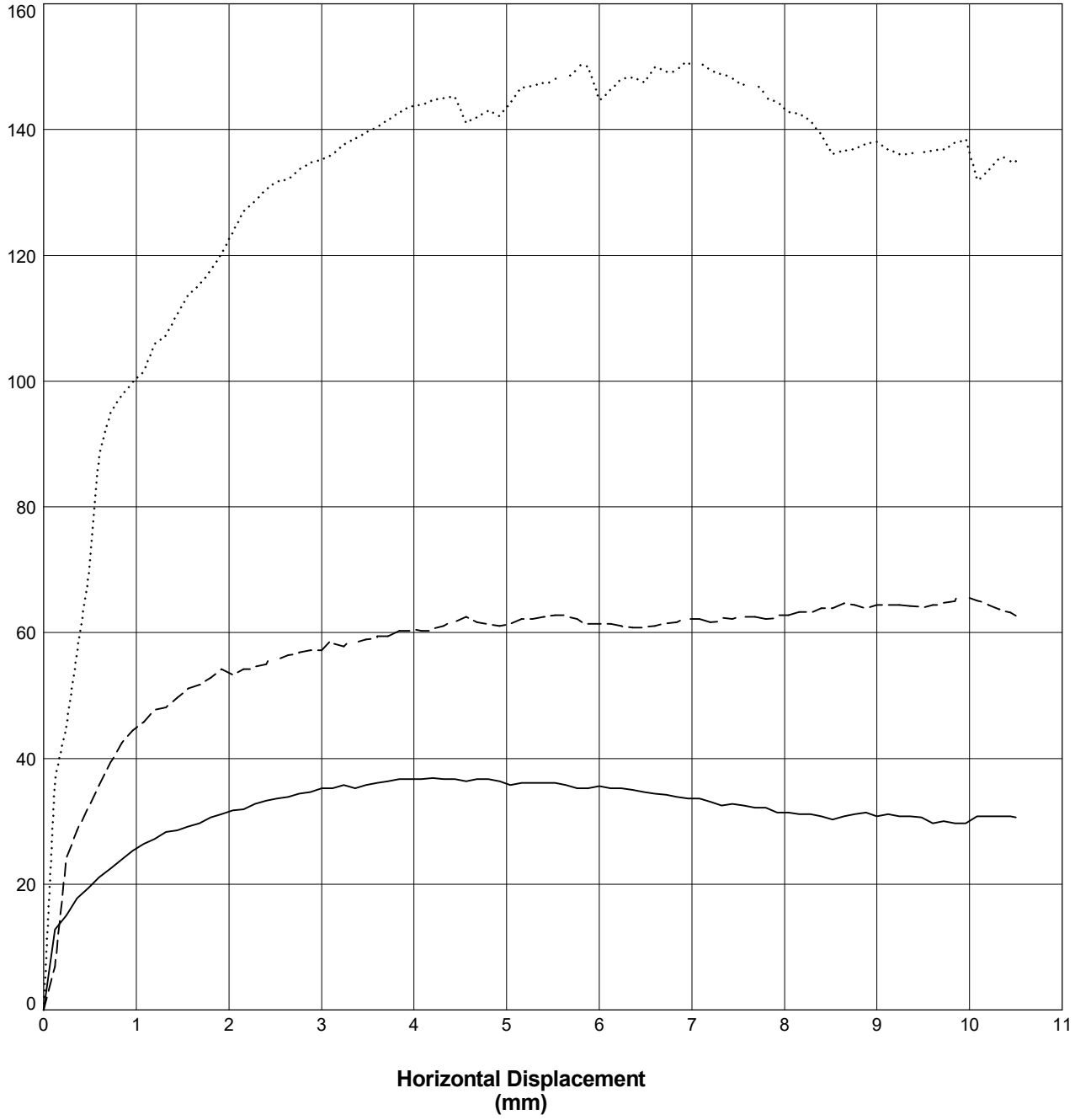
Solid Line = Specimen 1 (**50** kPa), *Dashed Line* = Specimen 2 (**100** kPa), *Dotted Line* = Specimen 3 (**200** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **25/10/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
SHEAR STRESS vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-143998** Sample Ref: **21** Sample Type: **B** Depth (m): **6.50**



KEY :

Solid Line = Specimen 1 (**50** kPa), *Dashed Line* = Specimen 2 (**100** kPa), *Dotted Line* = Specimen 3 (**200** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **25/10/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS)

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-145414** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**

Sample Condition: **Recompacted**

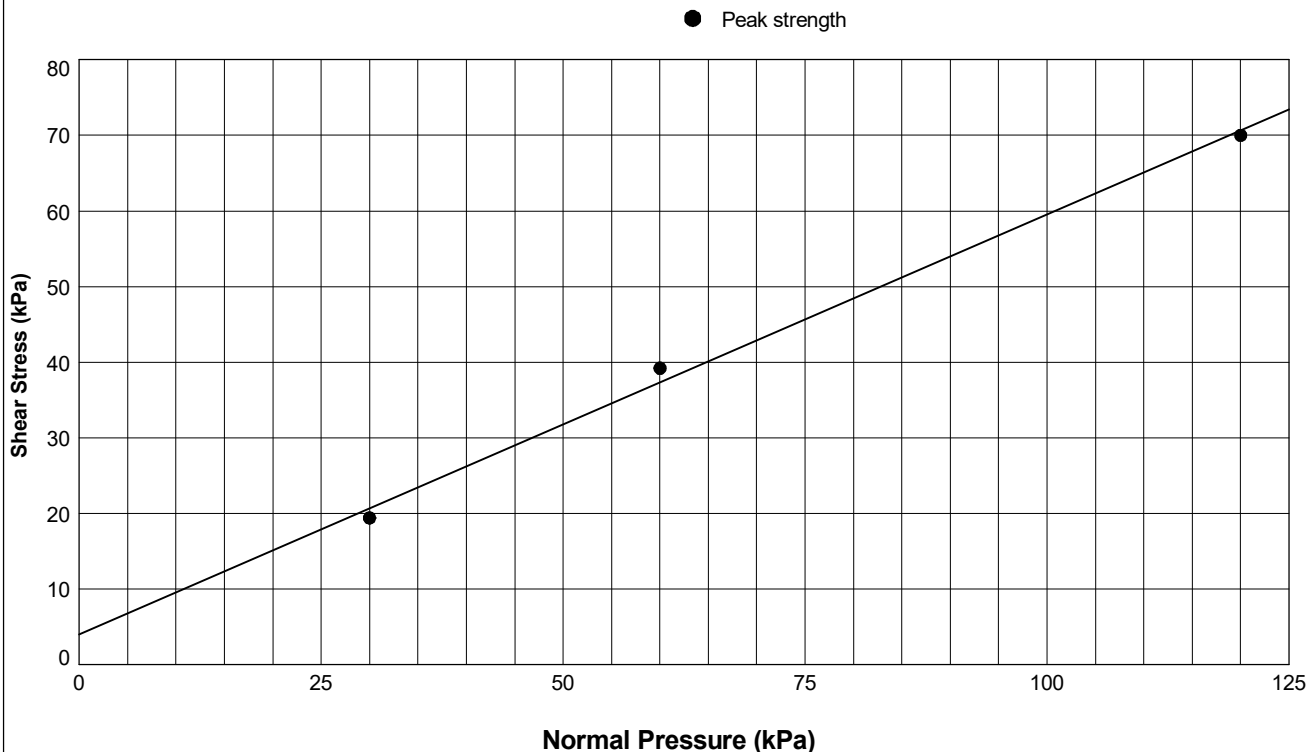
Particle Density (Assumed): **2.65** Mg/m^3

Description: **Black very gravelly SAND**

Start Date: **04/10/2022**

End Date: **04/10/2022**

	SPECIMEN NUMBER		1	2	3
PROPERTIES	Initial Water Content	(%)	**24.4**	**25.2**	**25.1**
	Initial Length (L_1)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Width (L_2)	(mm)	**60.000**	**60.000**	**60.000**
	Initial Bulk Density	(Mg/m^3)	**1.64**	**1.64**	**1.64**
	Initial Dry Density	(Mg/m^3)	**1.32**	**1.31**	**1.31**
	Initial Voids Ratio		**1.0074**	**1.0200**	**1.0198**
TEST CONDITIONS	Specimen Conditions		**Submerged**	**Submerged**	**Submerged**
	Stage Duration	(days)	**1**	**1**	**1**
CONSOLIDATION	Normal Pressure	(kPa)	**30**	**60**	**120**
	Initial Height	(mm)	**23.170**	**23.278**	**23.300**
	Consolidated Height	(mm)	**22.708**	**22.666**	**22.289**
SHEAR	Rate of Horizontal Displacement	**(mm/min)**	**0.4000**	**0.4000**	**0.4000**
	Horizontal Displacement at Peak Shear Stress	**(mm)**	**5.0**	**9.5**	**4.3**
	Peak Shear Stress	**(kPa)**	**19**	**39**	**70**
PEAK STRENGTH	Effective Cohesion (**C'**) **4**	(kPa)	Effective Angle of Friction (**ϕ'**)	**29**	(deg)

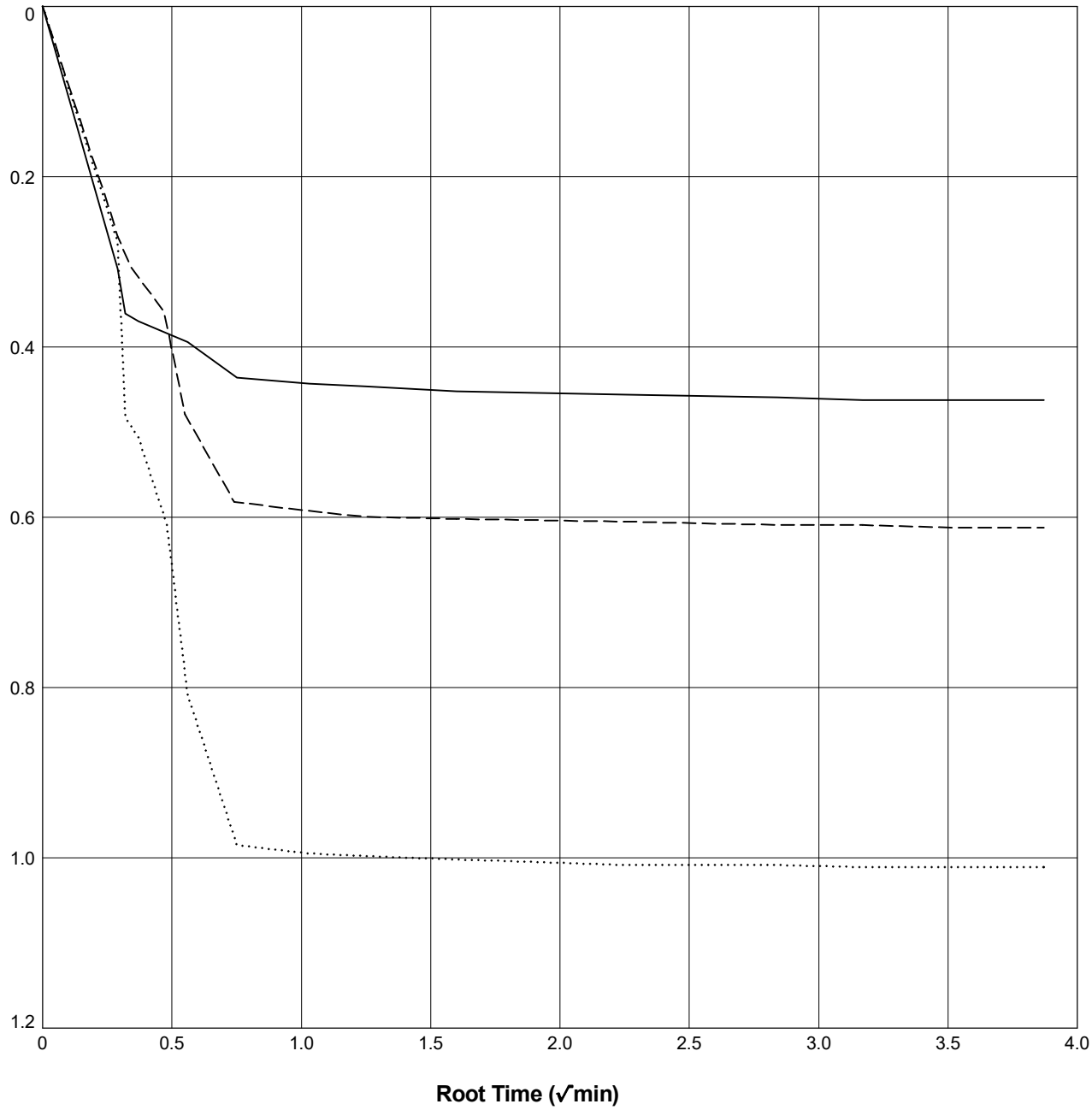


STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By		Date
		LORNA WHITWORTH	**25/10/22**
	Contract **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**	

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEAR BOX APPARATUS) CONSOLIDATION GRAPH

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-145414** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



KEY :

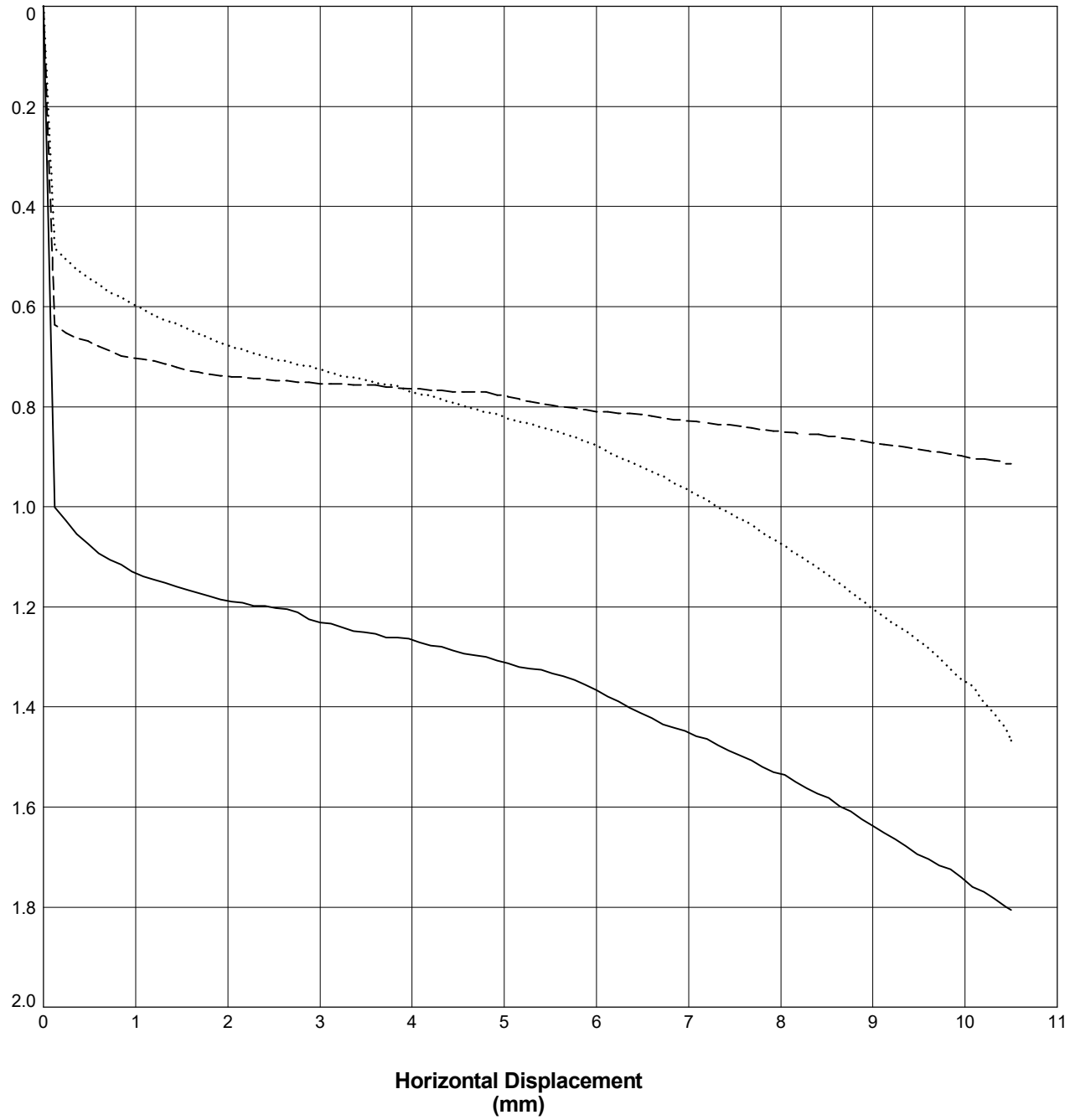
Solid Line = Specimen 1 (**30** kPa), *Dashed Line* = Specimen 2 (**60** kPa), *Dotted Line* = Specimen 3 (**120** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By	Date
	LORNA WHITWORTH	**25/10/22**
	Contract **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
HEIGHT CHANGE vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-145414** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



KEY :

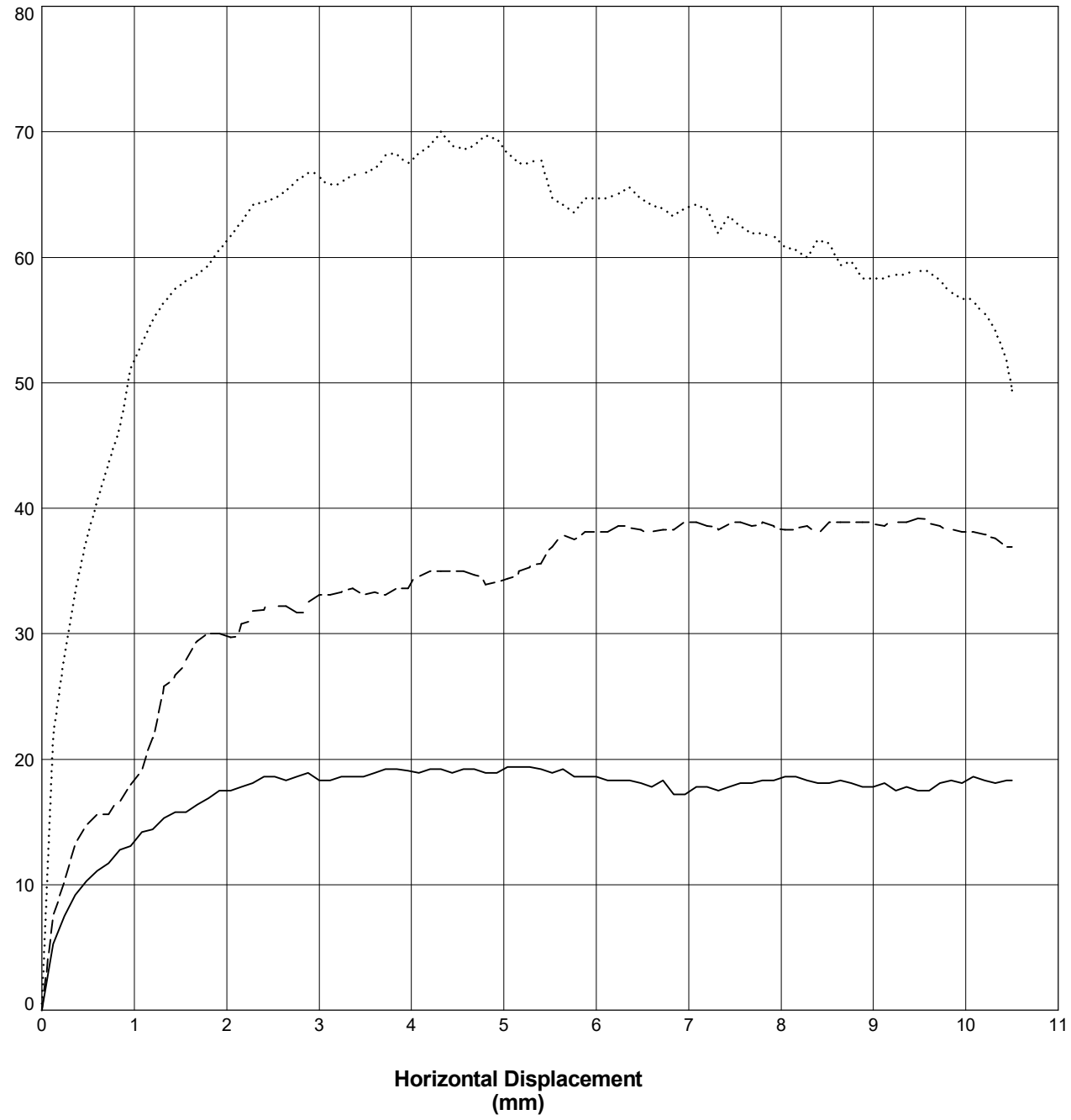
Solid Line = Specimen 1 (**30** kPa), *Dashed Line* = Specimen 2 (**60** kPa), *Dotted Line* = Specimen 3 (**120** kPa).

STRUCTURAL SOILS The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By: **LORNA WHITWORTH**	Date: **25/10/22**
	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR
(SMALL SHEAR BOX APPARATUS)
SHEAR STRESS vs HORIZONTAL DISPLACEMENT

In accordance with BS EN ISO 17892:Part 10:2018

Borehole: **BH-145414** Sample Ref: **13** Sample Type: **B** Depth (m): **4.00**



KEY :

Solid Line = Specimen 1 (**30** kPa), *Dashed Line* = Specimen 2 (**60** kPa), *Dotted Line* = Specimen 3 (**120** kPa).

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LORNA WHITWORTH	**25/10/22**

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **15/11/2022 13:31:46**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 22/09645/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 22/09645
Issue Number: 2 **Date:** 24 October, 2022

Client:
Structural Soils Limited (Castleford)
The Potteries
Pottery Street
Castleford
West Yorkshire
UK
WF10 1NJ

Project Manager: Jessica Robertson/Luke Fisher
Project Name: LOT 3, EASTERN & MIDLANDS WSP
Project Ref: 785305
Order No: N/A
Date Samples Received: 03/10/22
Date Instructions Received: 03/10/22
Date Analysis Completed: 21/10/22

Approved by:

Richard Wong
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 22/09645

Client Project Name: LOT 3, EASTERN & MIDLANDS WSP

Client Project Ref: 785305

Lab Sample ID	22/09645/1	22/09645/2	22/09645/3	22/09645/4	22/09645/5	22/09645/6	22/09645/7	Units	Limit of Detection	Method ref
Client Sample No	5	8	8	2	11	23	5			
Client Sample ID	BH117542	BH118375	BH119542	BH121236	BH121236	BH121236	BH135774			
Depth to Top	1.50	2.50	2.50	1.00	3.50	8.50	1.50			
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6A	5A	5A	6E	4	4A	5A			
% Stones >10mm$_A$	32.4	31.8	8.7	<0.1	<0.1	<0.1	28.8	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	7.98	8.29	8.33	6.52	7.86	8.60	8.38	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	145	82	37	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	-	<0.02	0.36	-	0.04	0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01	-	<0.01	0.39	-	0.14	0.02	% w/w	0.01	A-T-024s
Loss on ignition (550degC)$_D$$^{M\#}$	-	-	-	67.0	-	-	-	% w/w	0.6	A-T-030s
Organic Matter$_D$$^{M\#}$	-	-	-	59.7	-	-	-	% w/w	0.1	A-T-032 OM

Envirolab Job Number: 22/09645

Client Project Name: LOT 3, EASTERN & MIDLANDS WSP

Client Project Ref: 785305

Lab Sample ID	22/09645/8	22/09645/9	22/09645/10	22/09645/11	22/09645/12	22/09645/13	22/09645/14	Units	Limit of Detection	Method ref
Client Sample No	5	2	8	17	5	2	11			
Client Sample ID	BH136209	BH143428	BH143428	BH143428	BH143591	BH143998	BH143998			
Depth to Top	1.50	1.00	2.50	5.50	1.50	1.00	3.50			
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	5A	6	6	4A	6	6AE	6			
% Stones >10mm$_A$	17.1	<0.1	<0.1	9.4	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.51	7.14	7.09	8.24	7.49	7.91	7.96	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	437	171	12	285	70	159	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	-	0.21	-	-	0.19	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	-	0.27	-	-	0.17	-	-	% w/w	0.01	A-T-024s
Loss on ignition (550degC)$_D$$^{M\#}$	-	72.9	90.5	-	78.9	13.6	-	% w/w	0.6	A-T-030s
Organic Matter$_D$$^{M\#}$	-	41.8	29.4	-	18.5	8.3	-	% w/w	0.1	A-T-032 OM

Envirolab Job Number: 22/09645

Client Project Name: LOT 3, EASTERN & MIDLANDS WSP

Client Project Ref: 785305

Lab Sample ID	22/09645/15	22/09645/16	22/09645/17	22/09645/18	22/09645/19	22/09645/20	22/09645/21	Units	Limit of Detection	Method ref
Client Sample No	19	5	2	14	2	2	11			
Client Sample ID	BH143998	BH144109	BH145414	BH145414	BH145703	BH146387	BH146387			
Depth to Top	5.60	1.50	1.00	4.50	1.00	1.00	3.50			
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4A	6AE	4AE	4A	6AE	6A	6AE			
% Stones >10mm$_A$	23.0	<0.1	7.1	29.3	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.62	7.04	6.20	7.78	7.22	6.79	7.79	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	45	93	43	28	384	2360	104	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.03	-	0.20	0.02	-	1.25	-	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.05	-	0.19	0.01	-	0.88	-	% w/w	0.01	A-T-024s
Loss on ignition (550degC)$_D$$^{M\#}$	-	77.3	51.6	-	62.7	86.5	-	% w/w	0.6	A-T-030s
Organic Matter$_D$$^{M\#}$	-	32.5	39.5	-	46.5	36.1	-	% w/w	0.1	A-T-032 OM

Envirolab Job Number: 22/09645

Client Project Name: LOT 3, EASTERN & MIDLANDS WSP

Client Project Ref: 785305

Lab Sample ID	22/09645/22	22/09645/23	22/09645/24					Units	Limit of Detection	Method ref
Client Sample No	2	5	8							
Client Sample ID	BH146605	BH146605	BH146605							
Depth to Top	1.00	1.50	2.50							
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6AE	6A							
% Stones >10mm$_A$	22.0	<0.1	<0.1					% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	7.86	-	7.93					pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	363	-	243					mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.10	-	0.21					% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.09	-	0.27					% w/w	0.01	A-T-024s
Organic Matter$_D$$^{M\#}$	-	48.1	-					% w/w	0.1	A-T-032 OM

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Castleford), The Potteries, Pottery Street, Castleford, West Yorkshire, UK, WF10 1NJ

Project: LOT 3, EASTERN & MIDLANDS WSP

Clients Project No: 785305

Project No: 22/09645

Date Received: 03/10/2022 (am)

Cool Box Temperatures (°C): 10.8, 11.2, 11.4, 11.4

Lab Sample ID	22/09645/1	22/09645/2	22/09645/3	22/09645/4	22/09645/5	22/09645/6	22/09645/7	22/09645/8	22/09645/9	22/09645/10	22/09645/11	22/09645/12
Client Sample No	5	8	8	2	11	23	5	5	2	8	17	5
Client Sample ID/Depth	BH117542 1.50m	BH118375 2.50m	BH119542 2.50m	BH121236 1.00m	BH121236 3.50m	BH121236 8.50m	BH135774 1.50m	BH136209 1.50m	BH143428 1.00m	BH143428 2.50m	BH143428 5.50m	BH143591 1.50m
Date Sampled												
Deviation Code												
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Lab Sample ID	22/09645/13	22/09645/14	22/09645/15	22/09645/16	22/09645/17	22/09645/18	22/09645/19	22/09645/20	22/09645/21	22/09645/22	22/09645/23	22/09645/24
Client Sample No	2	11	19	5	2	14	2	2	11	2	5	8
Client Sample ID/Depth	BH143998 1.00m	BH143998 3.50m	BH143998 5.60m	BH144109 1.50m	BH145414 1.00m	BH145414 4.50m	BH145703 1.00m	BH146387 1.00m	BH146387 3.50m	BH146605 1.00m	BH146605 1.50m	BH146605 2.50m
Date Sampled												
Deviation Code												
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key
E (no date) *No sampling date provided (all results affected if not provided)*

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/09645/1	22/09645/2	22/09645/3	22/09645/4	22/09645/5	22/09645/6	22/09645/7	22/09645/8	22/09645/9	22/09645/10	22/09645/11	22/09645/12
Client Sample No	5	8	8	2	11	23	5	5	2	8	17	5
Client Sample ID/Depth	BH117542 1.50m	BH118375 2.50m	BH119542 2.50m	BH121236 1.00m	BH121236 3.50m	BH121236 8.50m	BH135774 1.50m	BH136209 1.50m	BH143428 1.00m	BH143428 2.50m	BH143428 5.50m	BH143591 1.50m
Date Sampled												
A-T-024s	07/10/2022		07/10/2022	07/10/2022		07/10/2022	07/10/2022		07/10/2022			07/10/2022
A-T-026s	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022
A-T-028s	07/10/2022		07/10/2022	07/10/2022		07/10/2022	07/10/2022		07/10/2022			07/10/2022
A-T-030s				21/10/2022					21/10/2022	21/10/2022		21/10/2022
A-T-031s	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022
A-T-032 OM				06/10/2022					06/10/2022	06/10/2022		06/10/2022
A-T-044	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022

Lab Sample ID	22/09645/13	22/09645/14	22/09645/15	22/09645/16	22/09645/17	22/09645/18	22/09645/19	22/09645/20	22/09645/21	22/09645/22	22/09645/23	22/09645/24
Client Sample No	2	11	19	5	2	14	2	2	11	2	5	8
Client Sample ID/Depth	BH143998 1.00m	BH143998 3.50m	BH143998 5.60m	BH144109 1.50m	BH145414 1.00m	BH145414 4.50m	BH145703 1.00m	BH146387 1.00m	BH146387 3.50m	BH146605 1.00m	BH146605 1.50m	BH146605 2.50m
Date Sampled												
A-T-024s			07/10/2022		07/10/2022	07/10/2022		07/10/2022		07/10/2022		07/10/2022
A-T-026s	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022		07/10/2022
A-T-028s			07/10/2022		07/10/2022	07/10/2022		07/10/2022		07/10/2022		07/10/2022
A-T-030s	21/10/2022			21/10/2022	21/10/2022		21/10/2022	21/10/2022				
A-T-031s	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022		07/10/2022
A-T-032 OM	06/10/2022			06/10/2022	06/10/2022		06/10/2022	06/10/2022			07/10/2022	
A-T-044	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
RC-117542		C	1.50	0.7	NP	NP	NP	12	Brown slightly gravelly slightly sandy SILT
RC-118164		C	5.60	1.0	25	16	9	23	Light brown sandy slightly clayey silty GRAVEL
RC-118375		C	7.20	0.5	25	17	8	38	Light brown sandy clayey very silty GRAVEL
RC-118375		C	8.60	0.9	25	8.6	16	100	Brown gravelly sandy CLAY
RC-119542		C	5.60	1.0	26	17	9	50	Brown slightly sandy gravelly clayey SILT
RC-135905		C	1.40	0.6	22	16	6	36	Light brown slightly sandy gravelly clayey SILT
RC-135905		C	4.10	1.1	21	15	6	38	Light brown slightly gravelly slightly sandy silty CLAY
RC-135905		C	8.50	1.2	31	18	13	46	Brown slightly gravelly slightly sandy CLAY

SYMBOLS: * denotes BS 1377

STRUCTURAL SOILS LTD

Contract:

Lot 3 Eastern & Midlands WSP

Contract Ref:

785305

AGS

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

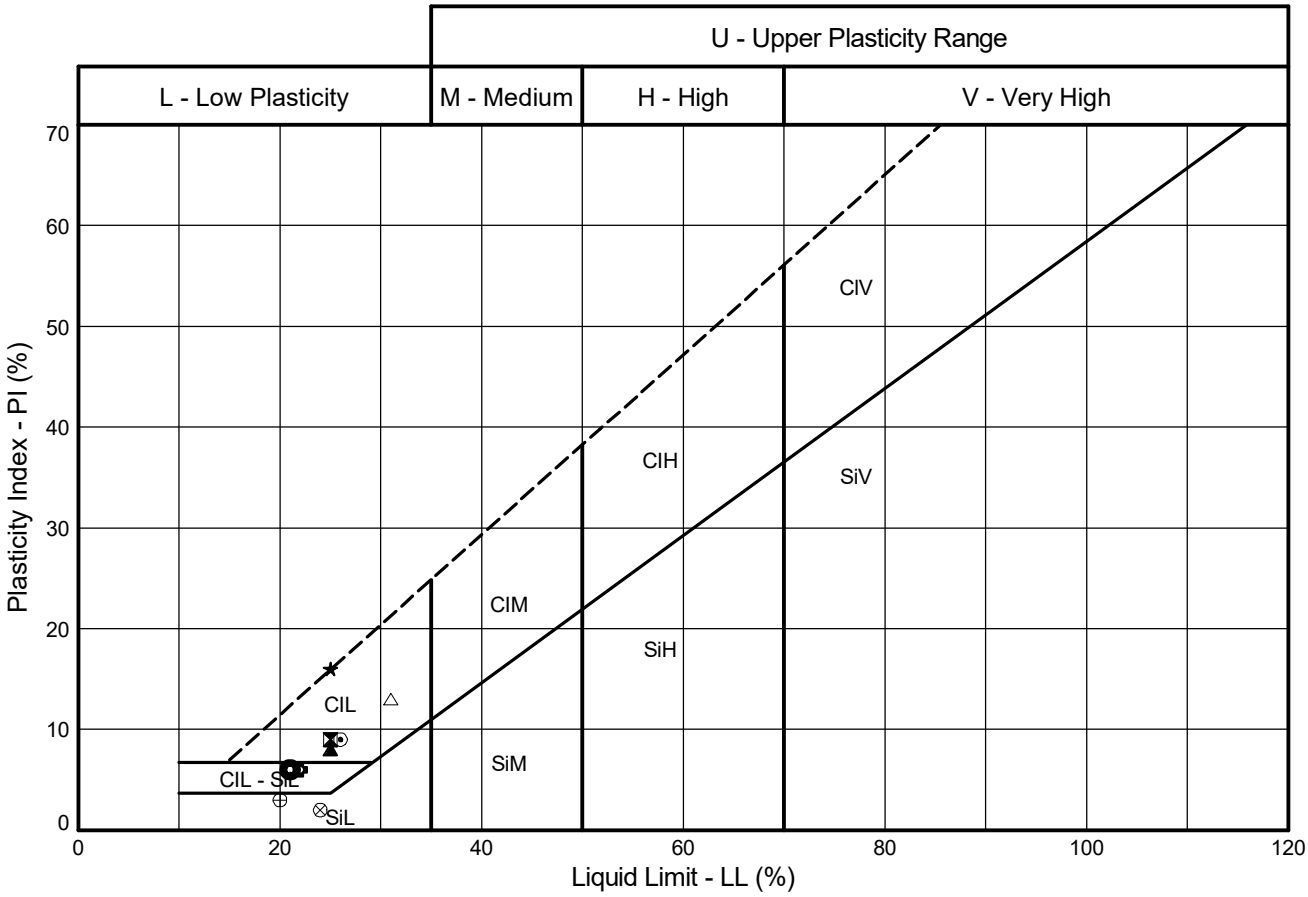
Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
RC-144109		C	0.00	0.8	24	22	2	50	Grey very gravelly slightly clayey silty SAND
RC-144109		C	8.00	0.8	20	17	3	68	Grey slightly gravelly sandy SILT
RC-146387		C	3.00	0.6	NP	NP	NP	97	Grey clayey silty SAND

SYMBOLS: * denotes BS 1377

STRUCTURAL SOILS LTD	Contract: **Lot 3 Eastern & Midlands WSP**	Contract Ref: **785305**

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC %	LL %	PL %	PI %	<425µm %	Lab location	Notes
	Exploratory Position ID	Sample	Depth (m)									
	RC-117542	C	1.50	5.3/5.5/6.5	5.2.7	0.7	NP	NP	NP	12	C	
⊠	RC-118164	C	5.60	5.3.14/5.5/6.5	5.2.7	1.0	25	16	9	23	C	
▲	RC-118375	C	7.20	5.3.14/5.5/6.5	5.2.7	0.5	25	17	8	38	C	
★	RC-118375	C	8.60	5.3/5.5/6.5	5.2.7	0.9	25	8.6	16	100	C	
⊙	RC-119542	C	5.60	5.3/5.5/6.5	5.2.7	1.0	26	17	9	50	C	
✿	RC-135905	C	1.40	5.3.14/5.5/6.5	5.2.7	0.6	22	16	6	36	C	
●	RC-135905	C	4.10	5.3.14/5.5/6.5	5.2.7	1.1	21	15	6	38	C	
△	RC-135905	C	8.50	5.3.14/5.5/6.5	5.2.7	1.2	31	18	13	46	C	
⊗	RC-144109	C	0.00	5.3.14/5.5/6.5	5.2.7	0.8	24	22	2	50	C	
⊕	RC-144109	C	8.00	5.3/5.5/6.5	5.2.7	0.8	20	17	3	68	C	
	RC-146387	C	3.00	5.3.14/5.5/6.5	5.2.7	0.6	NP	NP	NP	97	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

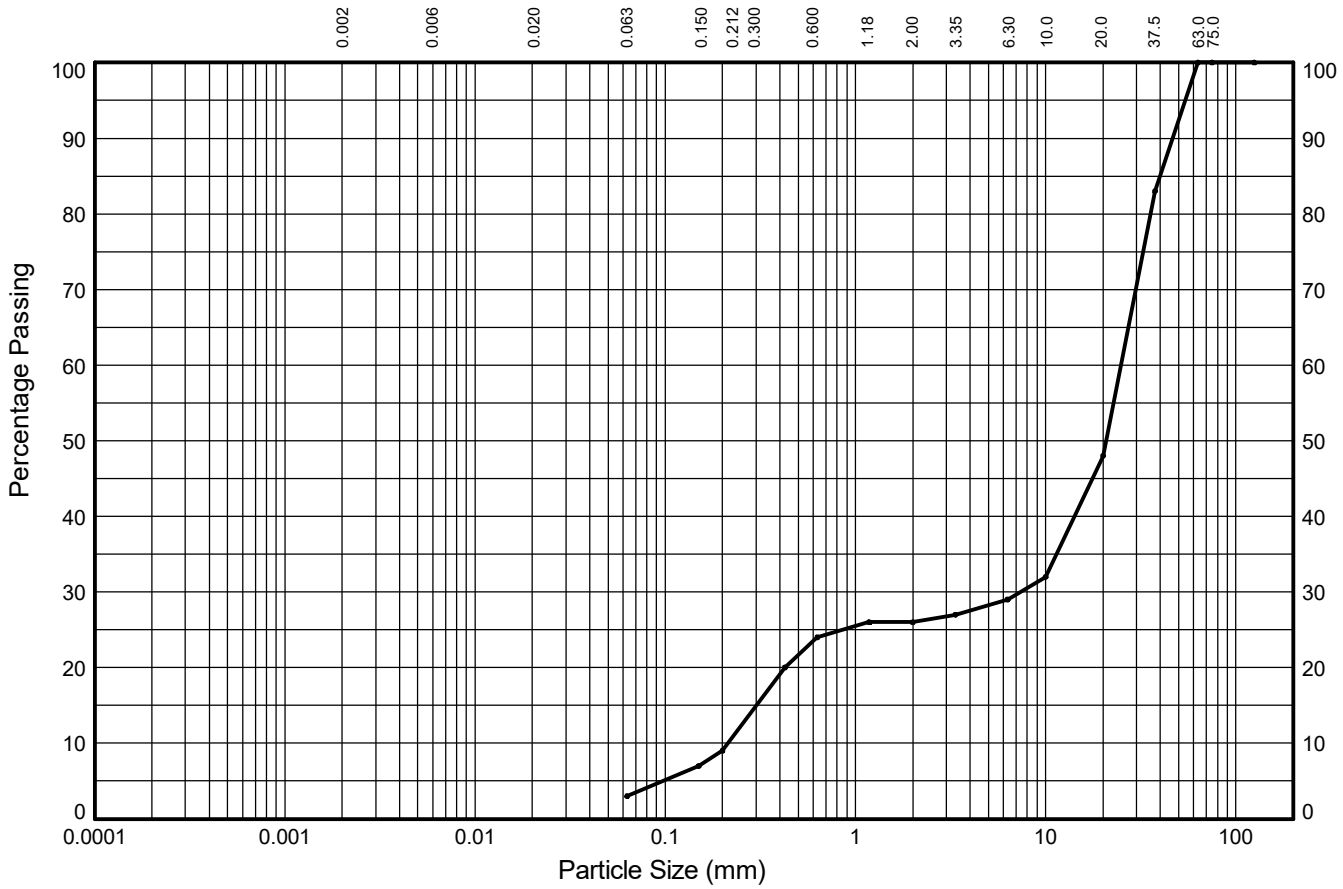
Compiled By		Date
	LAURA SCHRAMM	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-117542** Sample Ref: Sample Type: **C** Depth (m): **7.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	6%	15%	2%	3%	19%	52%	
	SILT			SAND			GRAVEL			
3%				23%			74%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**83**
20.0	**48**
10.0	**32**
6.30	**29**
3.35	**27**
2.00	**26**
1.18	**26**
0.630	**24**
0.425	**20**
0.200	**9**
0.150	**7**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.214**
D_{15} (mm)	**0.302**
D_{30} (mm)	**7.349**
D_{50} (mm)	**20.731**
D_{60} (mm)	**24.810**
D_{85} (mm)	**39.860**
D_{90} (mm)	**46.431**
C_U	**116**
C_C	**10**

Soil Description:

Light brown very sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

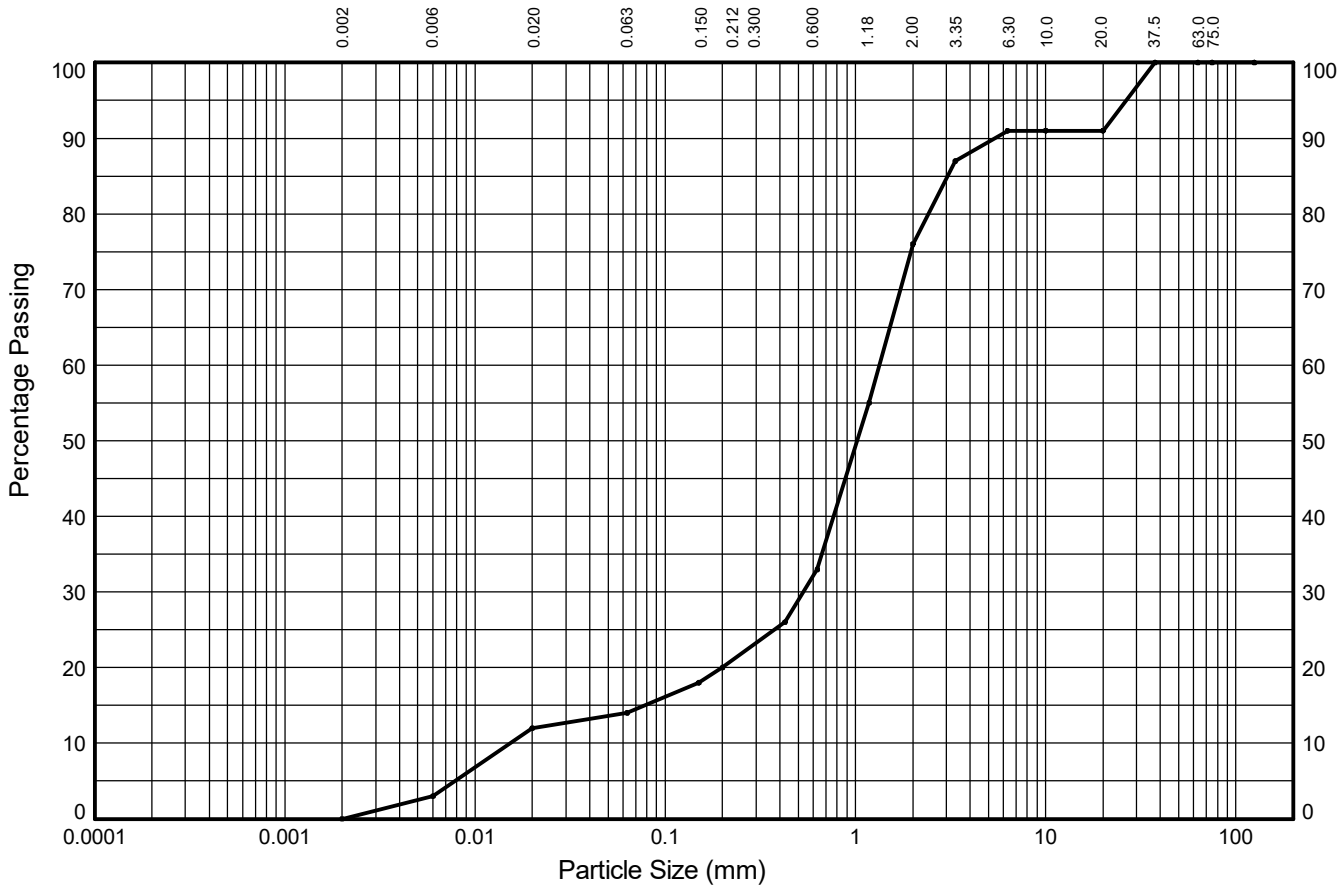
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-117728** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	9%	2%	6%	13%	43%	15%	0%	9%	
	SILT			SAND			GRAVEL			
0%	14%			62%			24%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**91**
10.0	**91**
6.30	**91**
3.35	**87**
2.00	**76**
1.18	**55**
0.630	**33**
0.425	**26**
0.200	**20**
0.150	**18**
0.063	**14**

Particle Diameter (mm)	Percent Passing (%)
0.02	**12**
0.006	**3**
0.002	**0**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.015**
D_{15} (mm)	**0.078**
D_{30} (mm)	**0.532**
D_{50} (mm)	**1.023**
D_{60} (mm)	**1.338**
D_{85} (mm)	**3.050**
D_{90} (mm)	**5.380**
C_U	**87**
C_C	**14**

Soil Description:

Brown very gravelly silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	**17/01/23**

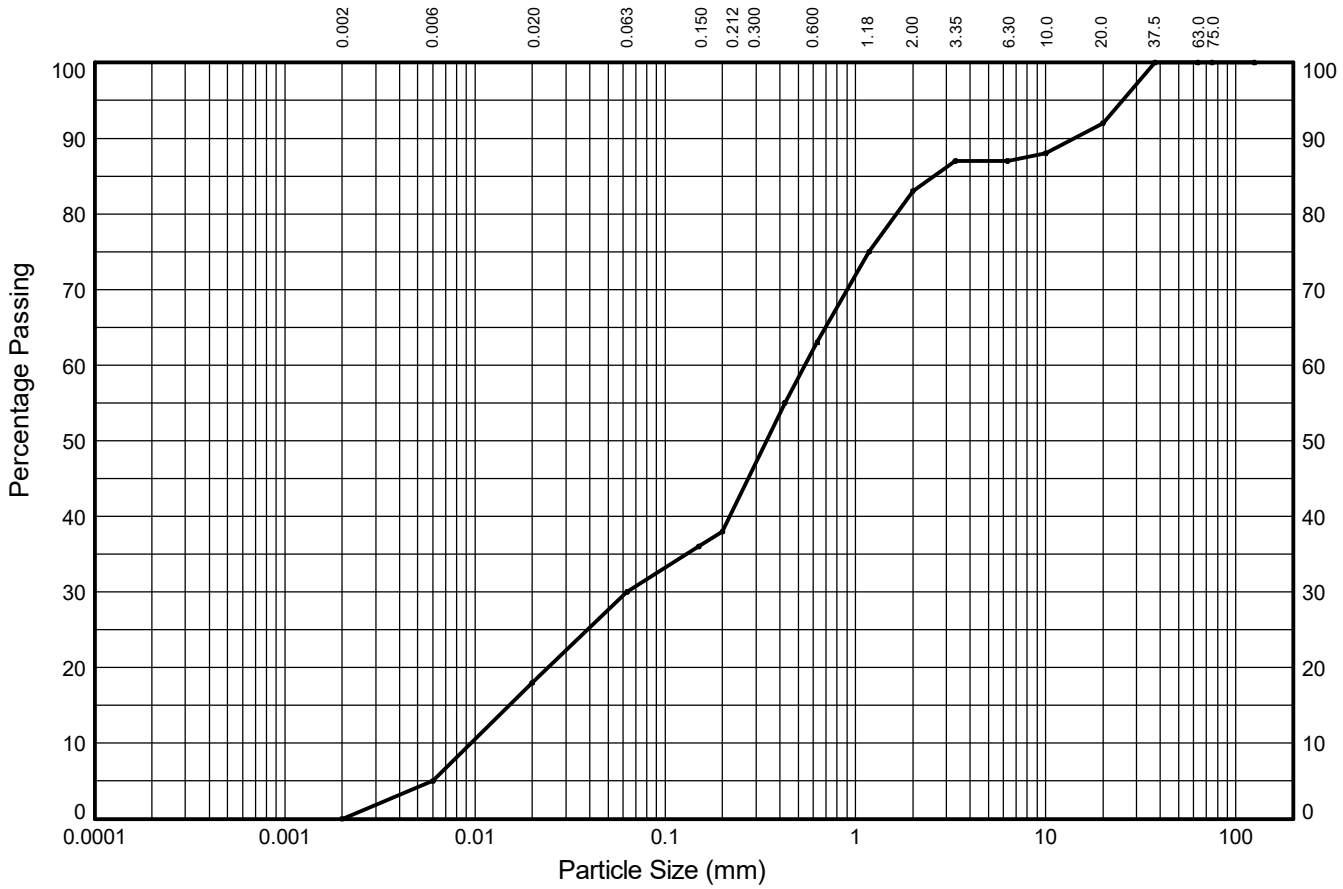
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-117728** Sample Ref: Sample Type: **C** Depth (m): **6.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	13%	12%	8%	25%	20%	4%	5%	8%	
	SILT			SAND			GRAVEL			
0%	30%			53%			17%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**92**
10.0	**88**
6.30	**87**
3.35	**87**
2.00	**83**
1.18	**75**
0.630	**63**
0.425	**55**
0.200	**38**
0.150	**36**
0.063	**30**

Particle Diameter (mm)	Percent Passing (%)
0.02	**18**
0.006	**5**
0.002	**0**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.010**
D_{15} (mm)	**0.015**
D_{30} (mm)	**0.063**
D_{50} (mm)	**0.340**
D_{60} (mm)	**0.544**
D_{85} (mm)	**2.588**
D_{90} (mm)	**14.142**
C_U	**57**
C_C	**0.77**

Soil Description:

Brown gravelly very silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

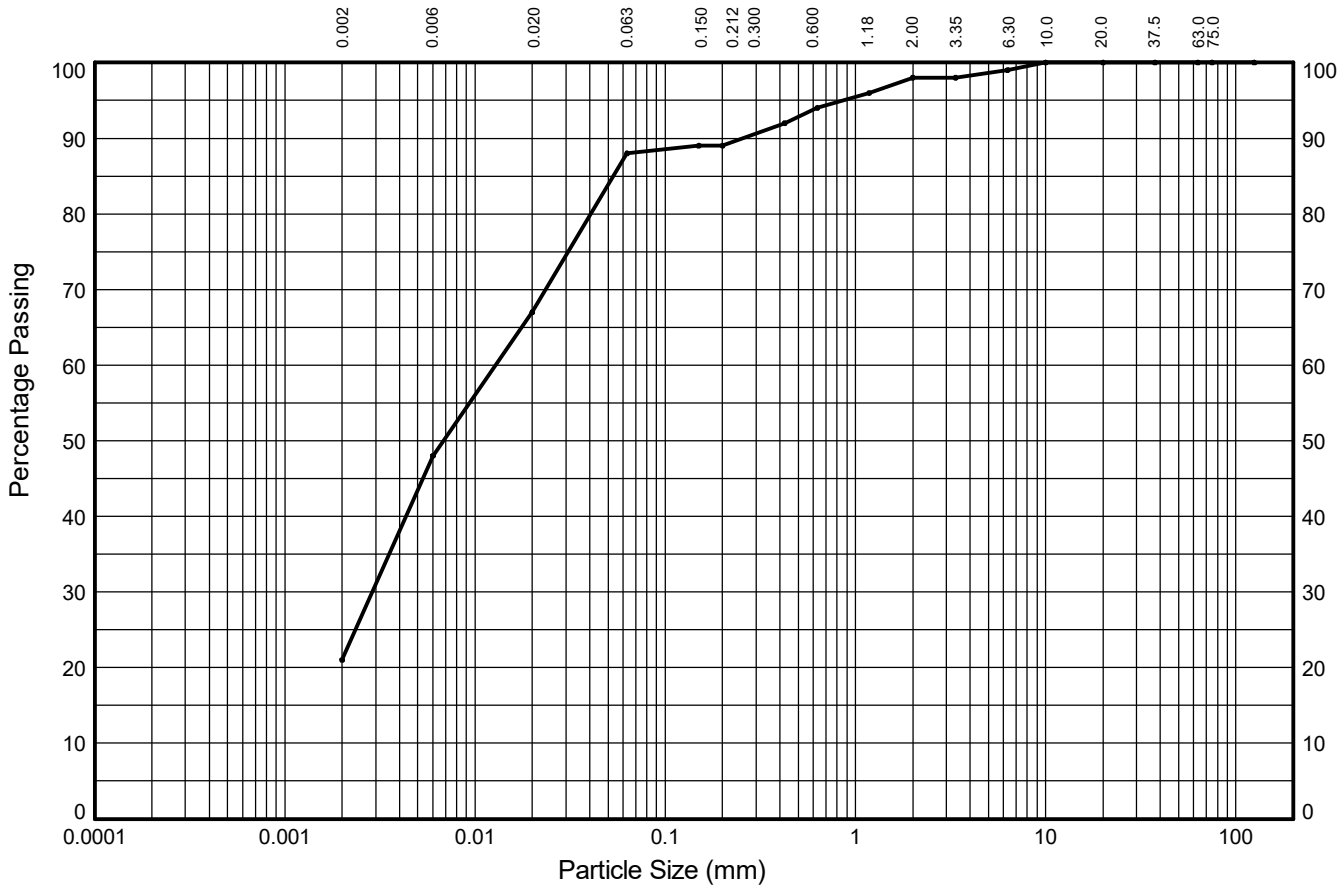
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-117778** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	27%	19%	21%	1%	5%	4%	1%	1%	0%	
	SILT			SAND			GRAVEL			
21%	67%			10%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**98**
2.00	**98**
1.18	**96**
0.630	**94**
0.425	**92**
0.200	**89**
0.150	**89**
0.063	**88**

Particle Diameter (mm)	Percent Passing (%)
0.02	**67**
0.006	**48**
0.002	**21**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.007**
D_{60} (mm)	**0.013**
D_{85} (mm)	**0.053**
D_{90} (mm)	**0.257**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

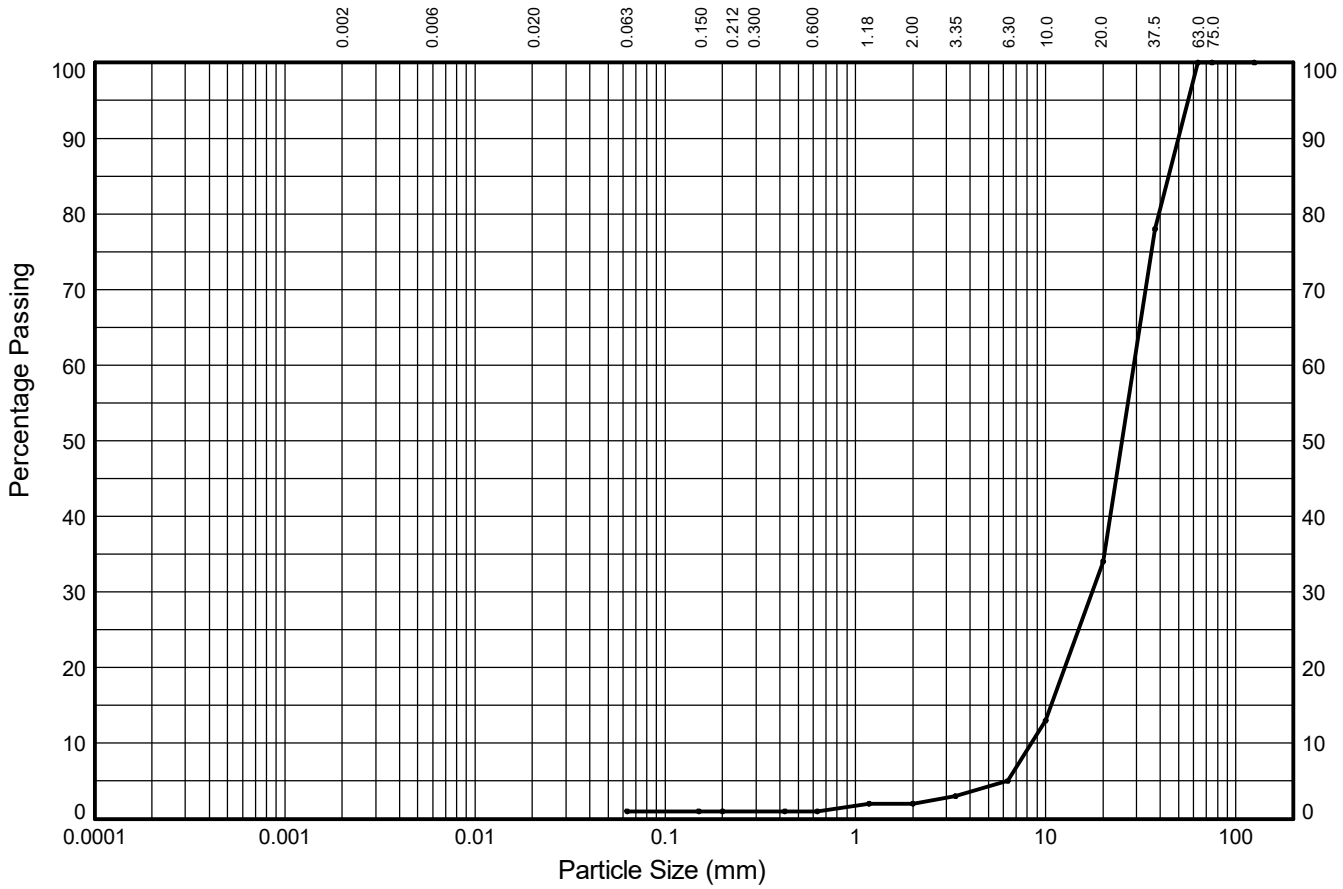
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-117778** Sample Ref: Sample Type: **C** Depth (m): **6.90**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	1%	3%	29%	66%	
	SILT			SAND			GRAVEL			
1%				1%			98%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**78**
20.0	**34**
10.0	**13**
6.30	**5**
3.35	**3**
2.00	**2**
1.18	**2**
0.630	**1**
0.425	**1**
0.200	**1**
0.150	**1**
0.063	**1**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**8.409**
D_{15} (mm)	**10.682**
D_{30} (mm)	**17.526**
D_{50} (mm)	**25.136**
D_{60} (mm)	**28.997**
D_{85} (mm)	**44.230**
D_{90} (mm)	**49.765**
C_U	**3.4**
C_C	**1.3**

Soil Description:
Black and greyish yellow slightly sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

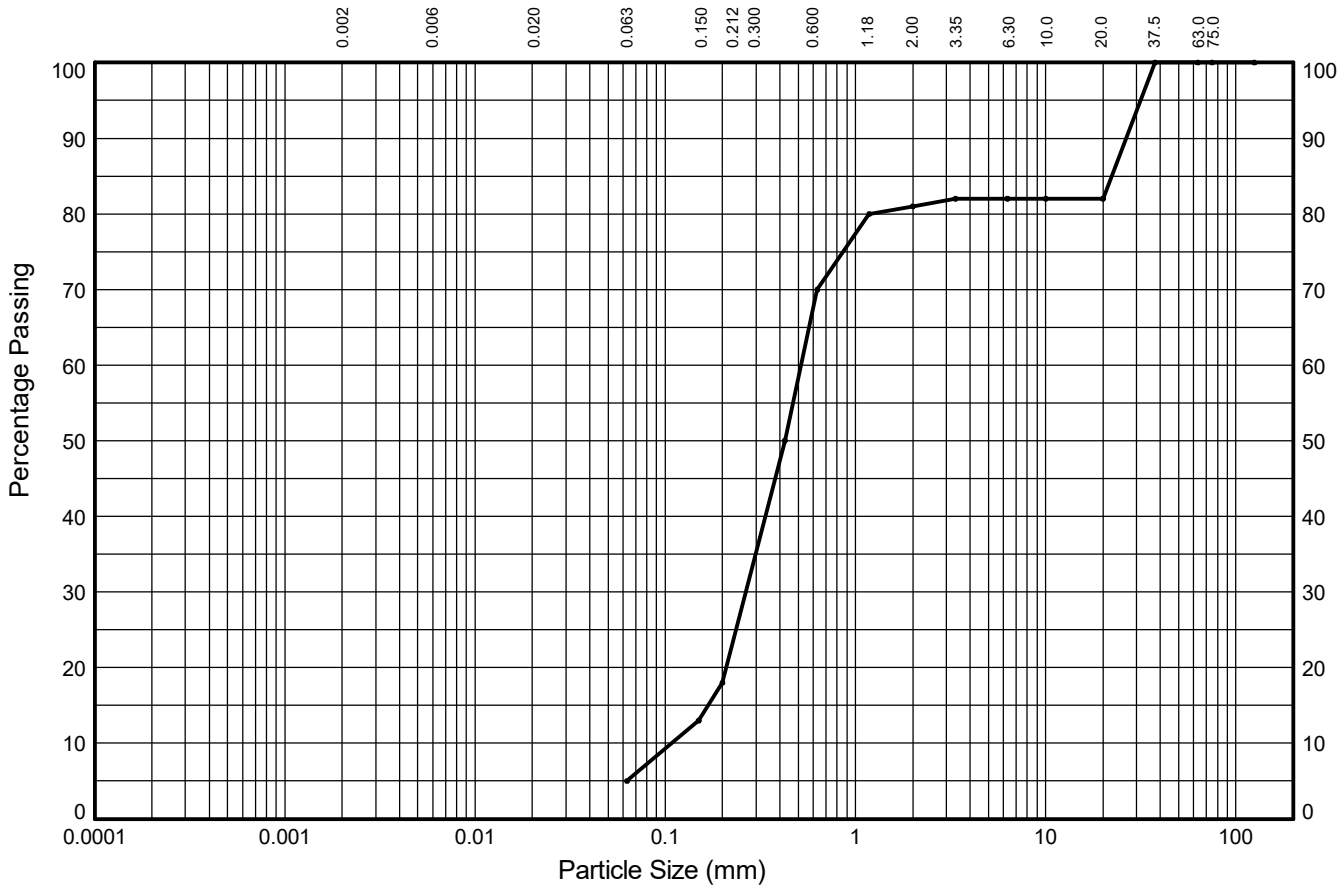
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-117778** Sample Ref: Sample Type: **C** Depth (m): **9.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	13%	52%	11%	1%	0%	18%	
	SILT			SAND			GRAVEL			
5%				76%			19%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**82**
10.0	**82**
6.30	**82**
3.35	**82**
2.00	**81**
1.18	**80**
0.630	**70**
0.425	**50**
0.200	**18**
0.150	**13**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.108**
D_{15} (mm)	**0.168**
D_{30} (mm)	**0.265**
D_{50} (mm)	**0.425**
D_{60} (mm)	**0.517**
D_{85} (mm)	**22.209**
D_{90} (mm)	**26.446**
C_U	**4.8**
C_C	**1.3**

Soil Description:

Brown gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

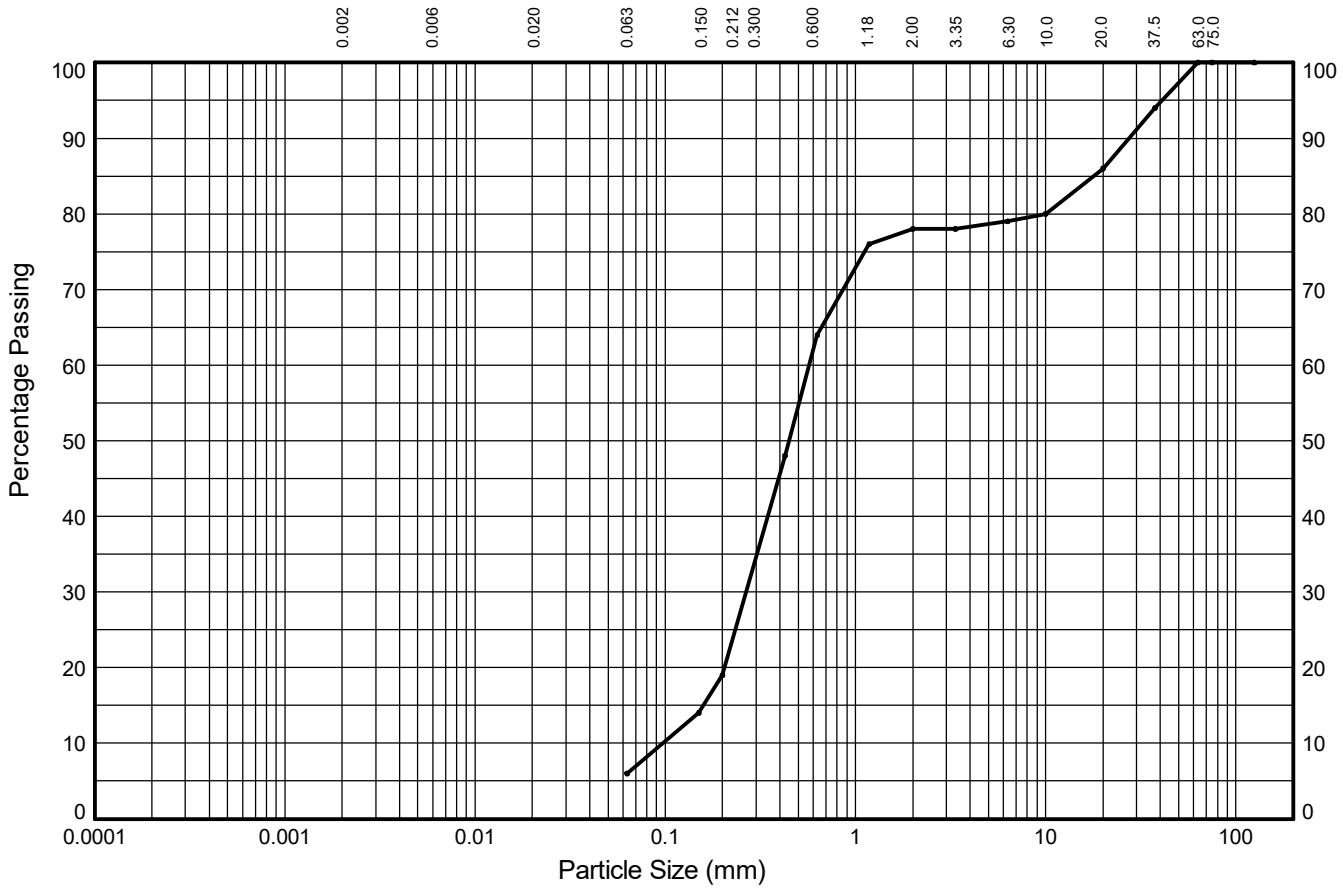
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118164** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	13%	45%	14%	1%	7%	14%	
	SILT			SAND			GRAVEL			
6%				72%			22%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**94**
20.0	**86**
10.0	**80**
6.30	**79**
3.35	**78**
2.00	**78**
1.18	**76**
0.630	**64**
0.425	**48**
0.200	**19**
0.150	**14**
0.063	**6**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.097**
D_{15} (mm)	**0.159**
D_{30} (mm)	**0.266**
D_{50} (mm)	**0.446**
D_{60} (mm)	**0.571**
D_{85} (mm)	**17.818**
D_{90} (mm)	**27.386**
C_U	**5.9**
C_C	**1.3**

Soil Description:

Brown very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

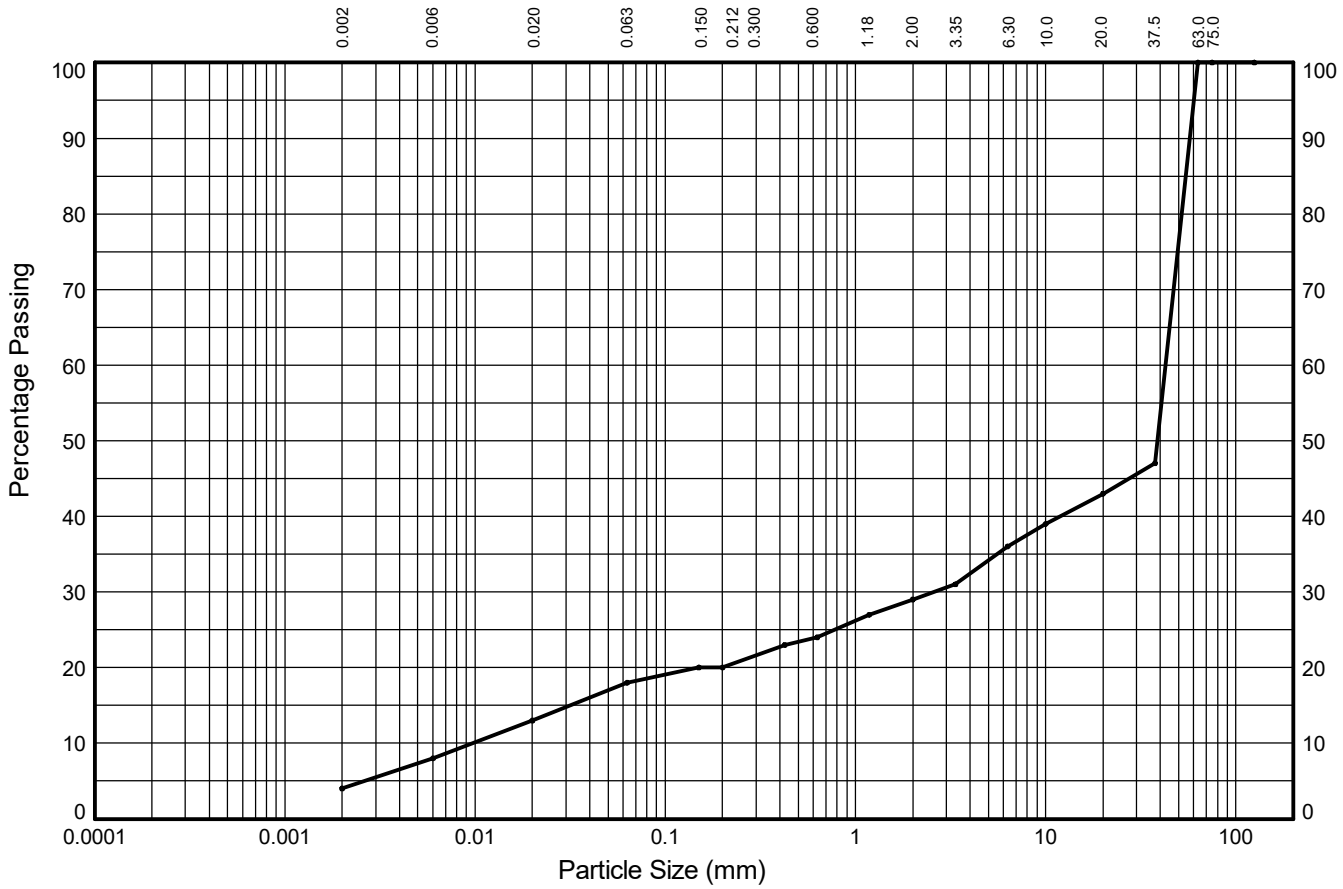
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118164** Sample Ref: Sample Type: **C** Depth (m): **5.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	5%	5%	2%	4%	5%	7%	7%	57%	
	SILT			SAND			GRAVEL			
4%	14%			11%			71%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**47**
20.0	**43**
10.0	**39**
6.30	**36**
3.35	**31**
2.00	**29**
1.18	**27**
0.630	**24**
0.425	**23**
0.200	**20**
0.150	**20**
0.063	**18**

Particle Diameter (mm)	Percent Passing (%)
0.02	**13**
0.006	**8**
0.002	**4**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.010**
D_{15} (mm)	**0.032**
D_{30} (mm)	**2.588**
D_{50} (mm)	**38.618**
D_{60} (mm)	**42.589**
D_{85} (mm)	**54.397**
D_{90} (mm)	**57.125**
C_U	**4385**
C_C	**16**

Soil Description:

Light brown sandy slightly clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

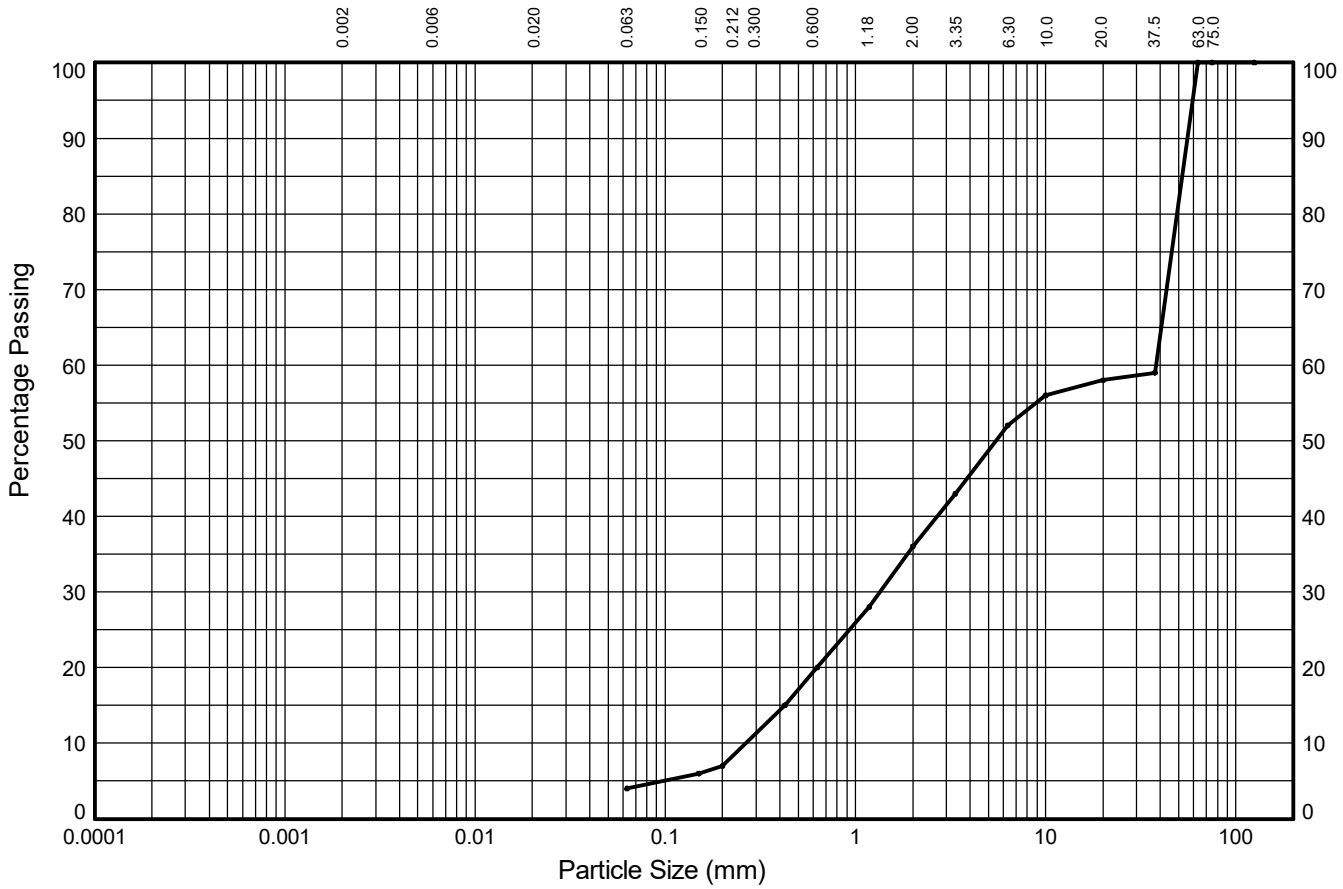
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118375** Sample Ref: Sample Type: **C** Depth (m): **2.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	3%	13%	16%	16%	6%	42%	
	SILT			SAND			GRAVEL			
4%				32%			64%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**59**
20.0	**58**
10.0	**56**
6.30	**52**
3.35	**43**
2.00	**36**
1.18	**28**
0.630	**20**
0.425	**15**
0.200	**7**
0.150	**6**
0.063	**4**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.265**
D_{15} (mm)	**0.425**
D_{30} (mm)	**1.346**
D_{50} (mm)	**5.475**
D_{60} (mm)	**37.978**
D_{85} (mm)	**52.109**
D_{90} (mm)	**55.512**
C_U	**143**
C_C	**0.18**

Soil Description:

Brown very sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

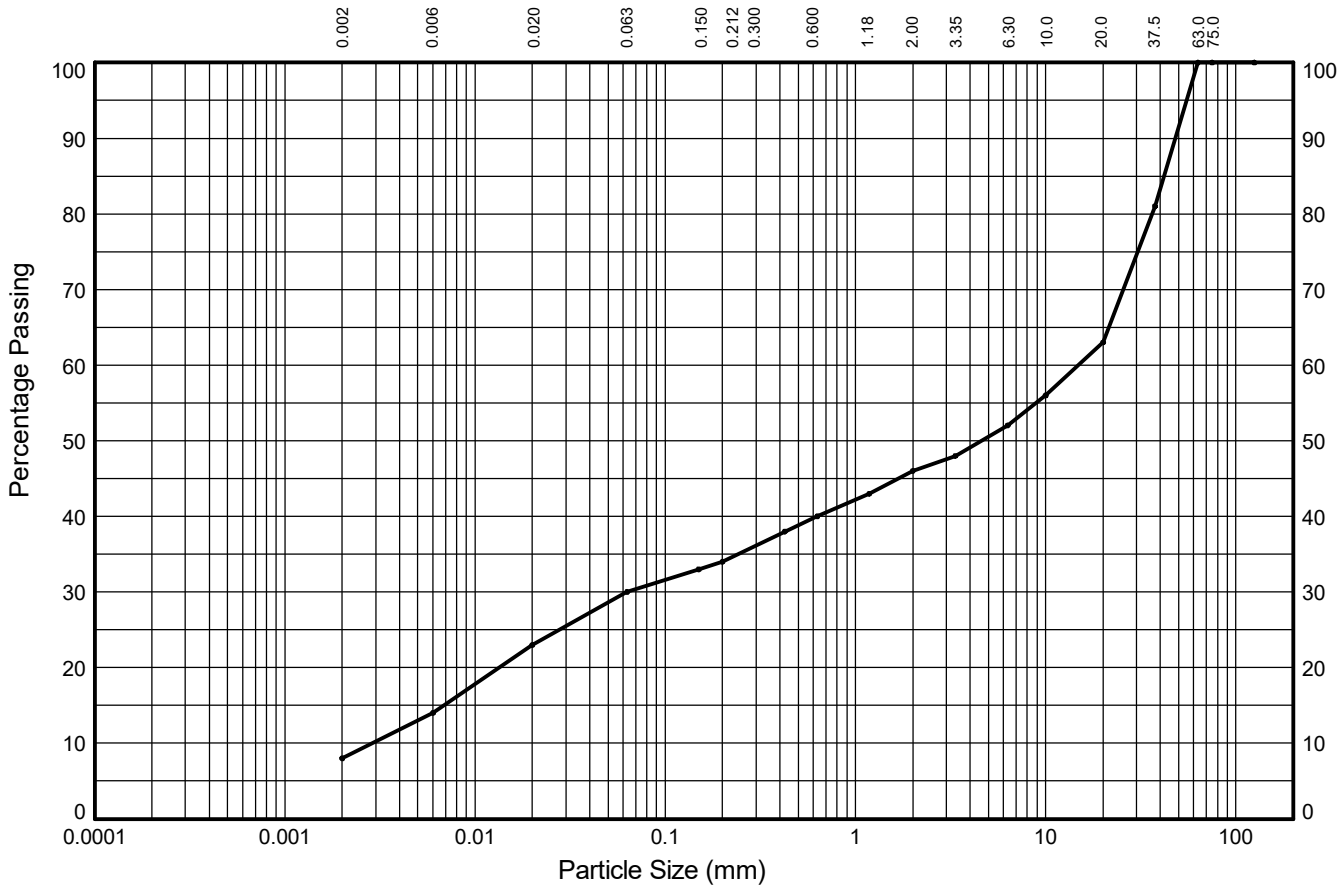
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118375** Sample Ref: Sample Type: **C** Depth (m): **7.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	9%	7%	4%	6%	6%	6%	11%	37%	
	SILT			SAND			GRAVEL			
8%	22%			16%			54%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**81**
20.0	**63**
10.0	**56**
6.30	**52**
3.35	**48**
2.00	**46**
1.18	**43**
0.630	**40**
0.425	**38**
0.200	**34**
0.150	**33**
0.063	**30**

Particle Diameter (mm)	Percent Passing (%)
0.02	**23**
0.006	**14**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.007**
D_{30} (mm)	**0.063**
D_{50} (mm)	**4.594**
D_{60} (mm)	**14.860**
D_{85} (mm)	**41.828**
D_{90} (mm)	**47.946**
C_U	**5152**
C_C	**0.09**

Soil Description:

Light brown sandy clayey very silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

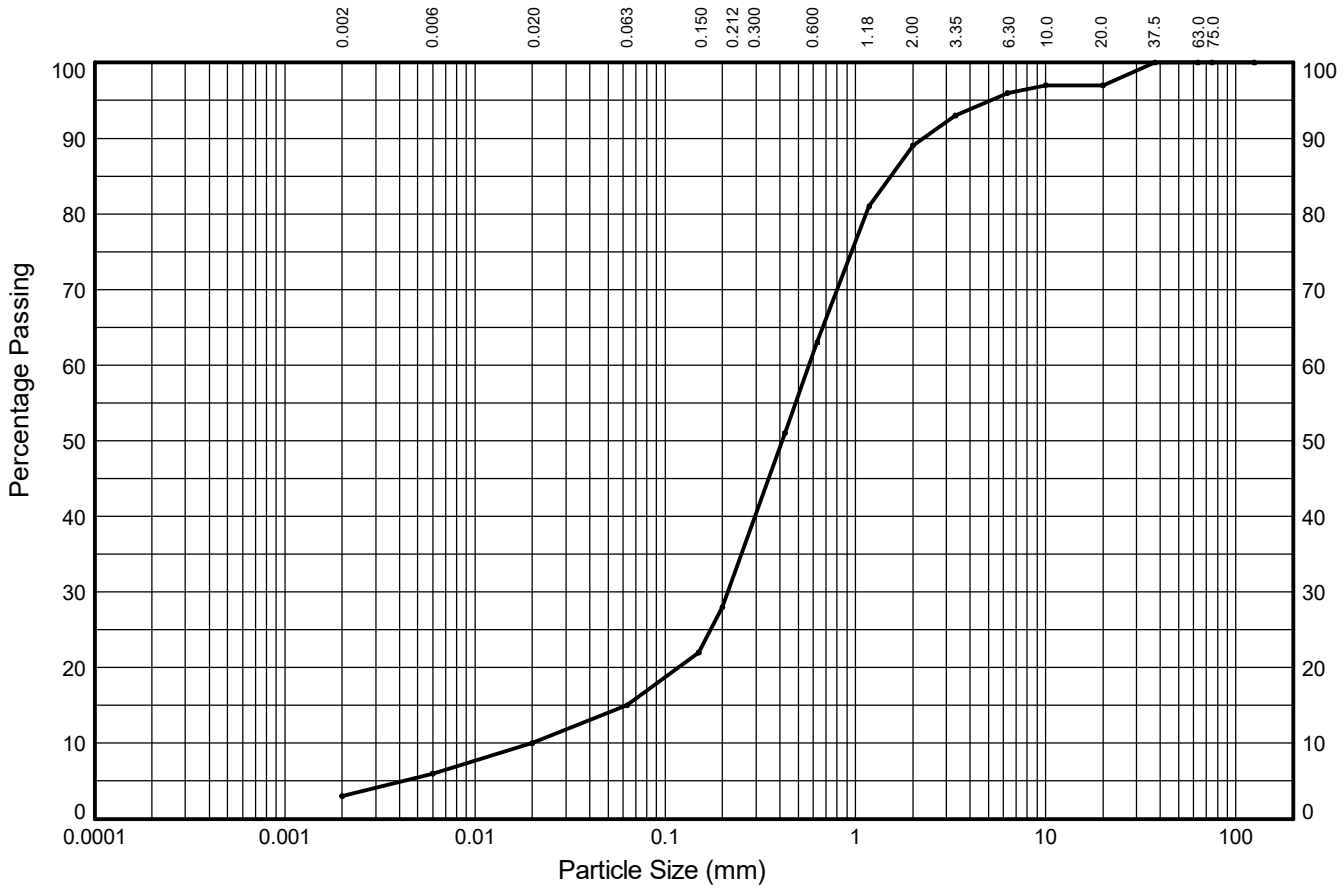
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118987** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	4%	5%	13%	35%	26%	7%	1%	3%	
	SILT			SAND			GRAVEL			
3%	12%			74%			11%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**97**
10.0	**97**
6.30	**96**
3.35	**93**
2.00	**89**
1.18	**81**
0.630	**63**
0.425	**51**
0.200	**28**
0.150	**22**
0.063	**15**

Particle Diameter (mm)	Percent Passing (%)
0.02	**10**
0.006	**6**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.020**
D_{15} (mm)	**0.063**
D_{30} (mm)	**0.214**
D_{50} (mm)	**0.411**
D_{60} (mm)	**0.571**
D_{85} (mm)	**1.536**
D_{90} (mm)	**2.275**
C_U	**29**
C_C	**4**

Soil Description:

Brown gravelly slightly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

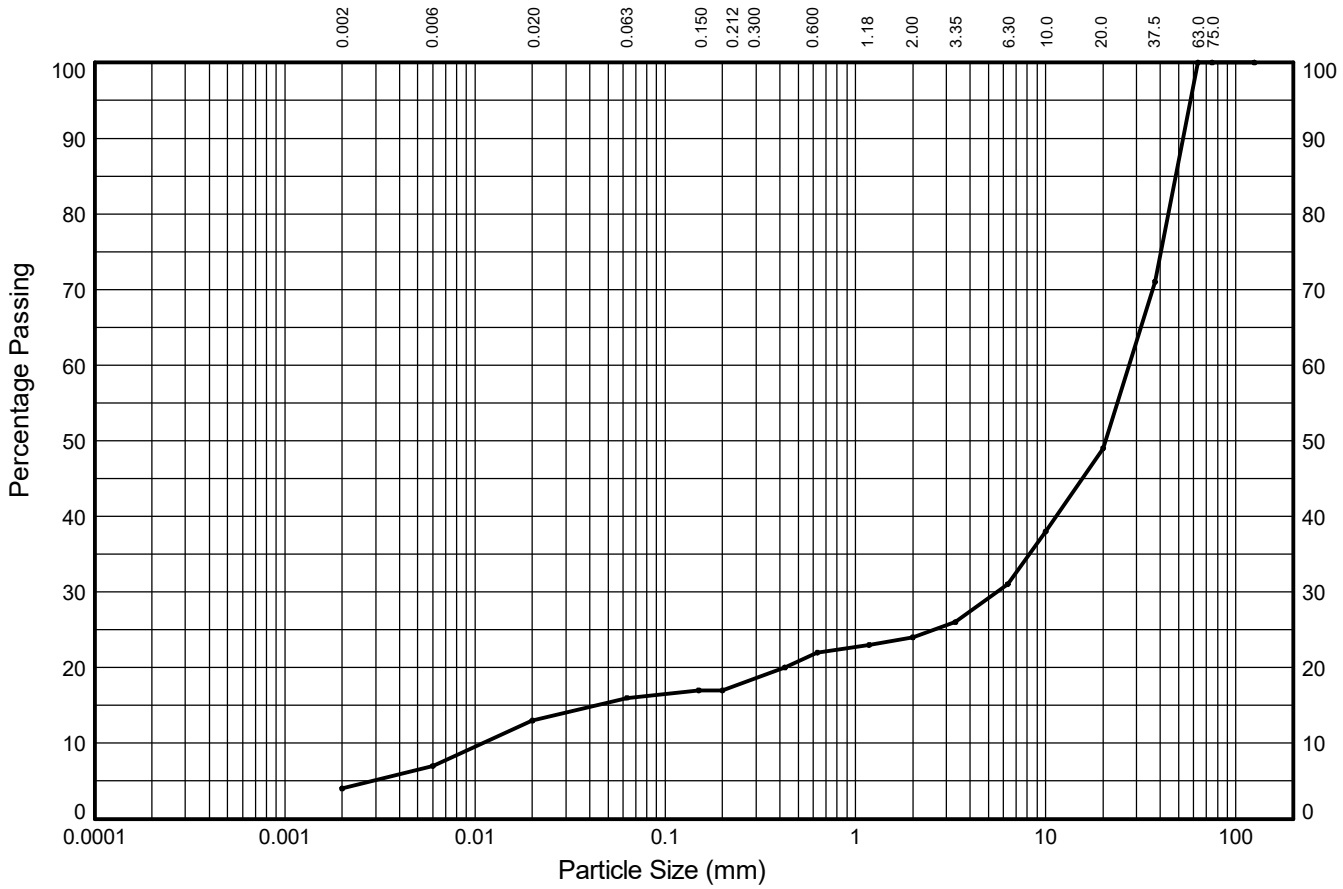
Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118987** Sample Ref: Sample Type: **C** Depth (m): **4.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	6%	3%	1%	5%	2%	7%	18%	51%	
	SILT			SAND			GRAVEL			
4%	12%			8%			76%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**71**
20.0	**49**
10.0	**38**
6.30	**31**
3.35	**26**
2.00	**24**
1.18	**23**
0.630	**22**
0.425	**20**
0.200	**17**
0.150	**17**
0.063	**16**

Particle Diameter (mm)	Percent Passing (%)
0.02	**13**
0.006	**7**
0.002	**4**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.011**
D_{15} (mm)	**0.043**
D_{30} (mm)	**5.552**
D_{50} (mm)	**20.580**
D_{60} (mm)	**27.386**
D_{85} (mm)	**48.173**
D_{90} (mm)	**52.680**
C_U	**2500**
C_C	**103**

Soil Description:

Brown sandy slightly clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

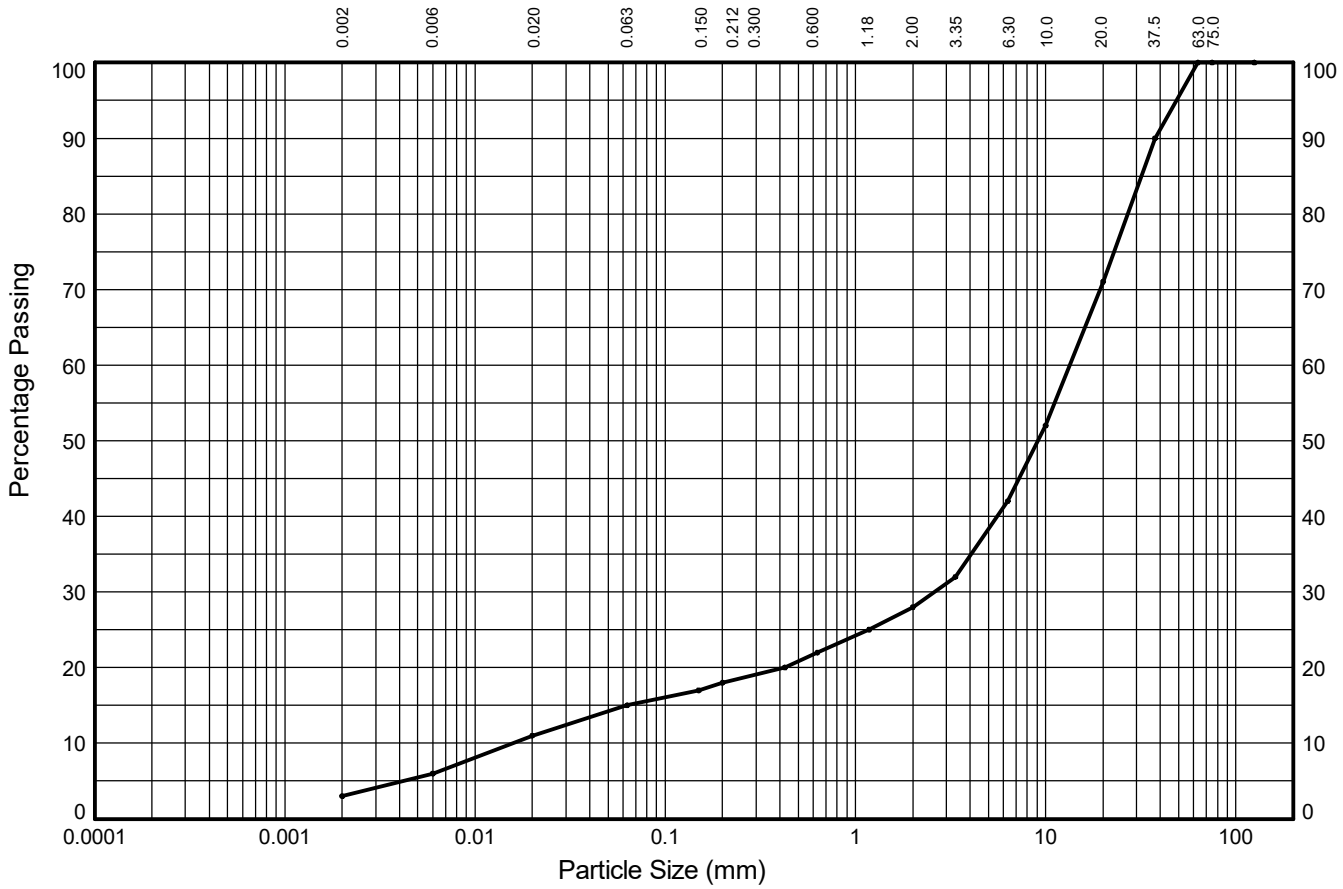
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-118987** Sample Ref: Sample Type: **C** Depth (m): **8.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	5%	4%	3%	4%	6%	14%	29%	29%	
	SILT			SAND			GRAVEL			
3%	12%			13%			72%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**90**
20.0	**71**
10.0	**52**
6.30	**42**
3.35	**32**
2.00	**28**
1.18	**25**
0.630	**22**
0.425	**20**
0.200	**18**
0.150	**17**
0.063	**15**

Particle Diameter (mm)	Percent Passing (%)
0.02	**11**
0.006	**6**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.016**
D_{15} (mm)	**0.063**
D_{30} (mm)	**2.588**
D_{50} (mm)	**9.117**
D_{60} (mm)	**13.389**
D_{85} (mm)	**31.783**
D_{90} (mm)	**37.500**
C_U	**852**
C_C	**32**

Soil Description:

Light brown sandy slightly clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

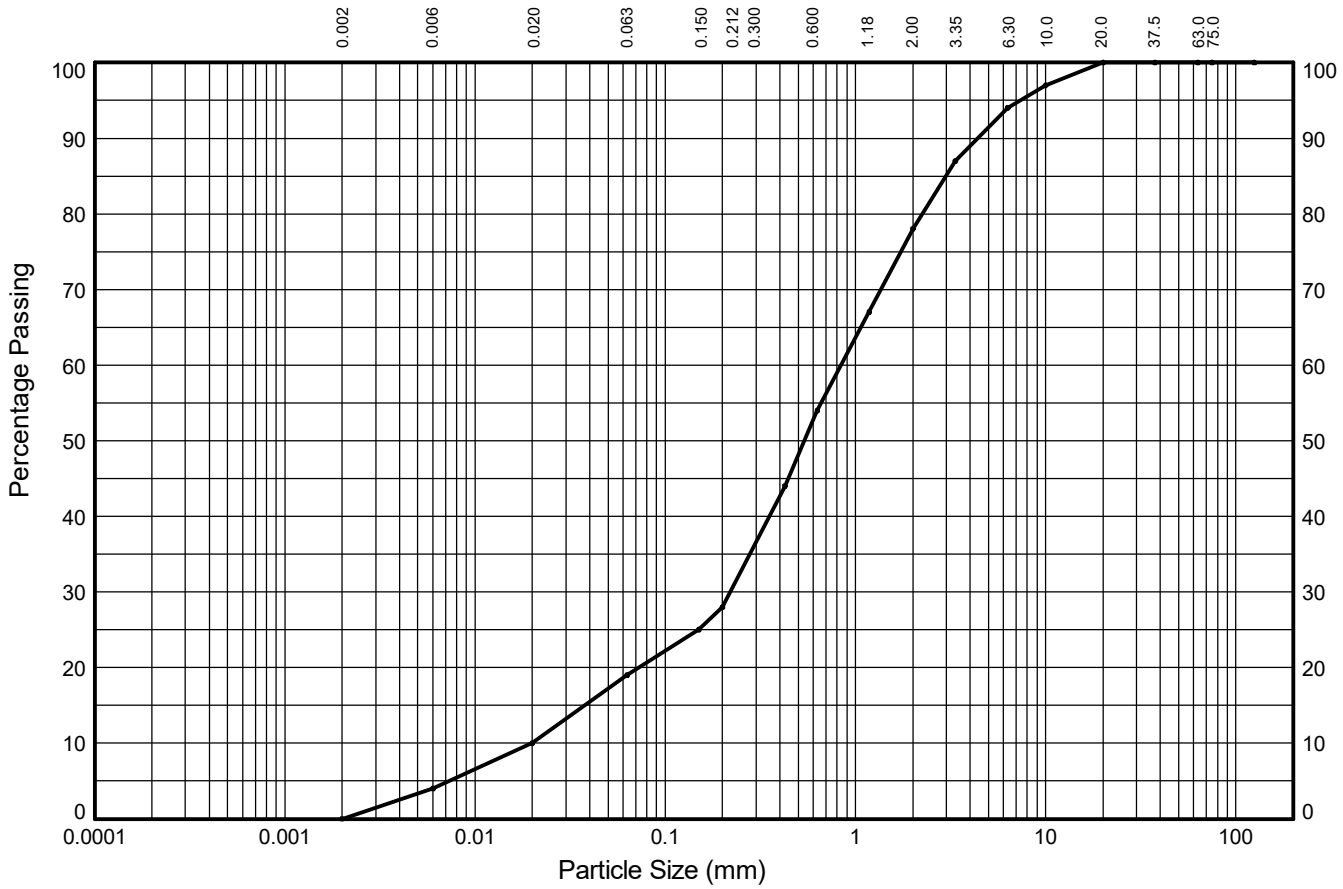
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-119542** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	6%	9%	9%	26%	24%	16%	6%	0%	
	SILT			SAND			GRAVEL			
0%	19%			59%			22%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**97**
6.30	**94**
3.35	**87**
2.00	**78**
1.18	**67**
0.630	**54**
0.425	**44**
0.200	**28**
0.150	**25**
0.063	**19**

Particle Diameter (mm)	Percent Passing (%)
0.02	**10**
0.006	**4**
0.002	**0**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.020**
D_{15} (mm)	**0.038**
D_{30} (mm)	**0.220**
D_{50} (mm)	**0.538**
D_{60} (mm)	**0.842**
D_{85} (mm)	**2.987**
D_{90} (mm)	**4.391**
C_U	**42**
C_C	**3**

Soil Description:

Brown very gravelly silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

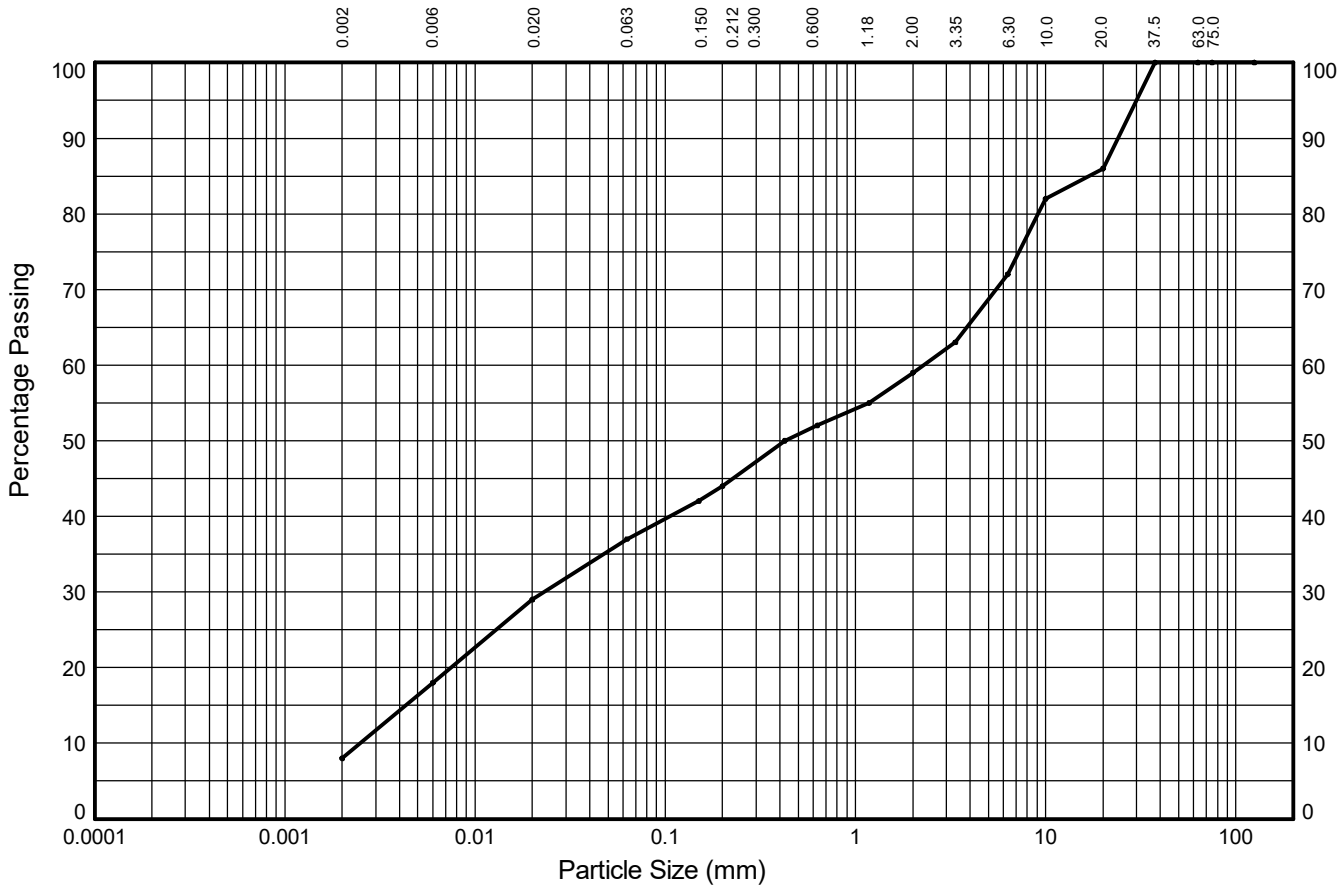
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-119542** Sample Ref: Sample Type: **C** Depth (m): **5.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	11%	8%	7%	8%	7%	13%	14%	14%	
	SILT			SAND			GRAVEL			
8%	29%			22%			41%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**86**
10.0	**82**
6.30	**72**
3.35	**63**
2.00	**59**
1.18	**55**
0.630	**52**
0.425	**50**
0.200	**44**
0.150	**42**
0.063	**37**

Particle Diameter (mm)	Percent Passing (%)
0.02	**29**
0.006	**18**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.004**
D_{30} (mm)	**0.023**
D_{50} (mm)	**0.425**
D_{60} (mm)	**2.275**
D_{85} (mm)	**16.818**
D_{90} (mm)	**23.935**
C_U	**913**
C_C	**0.09**

Soil Description:

Brown slightly sandy gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

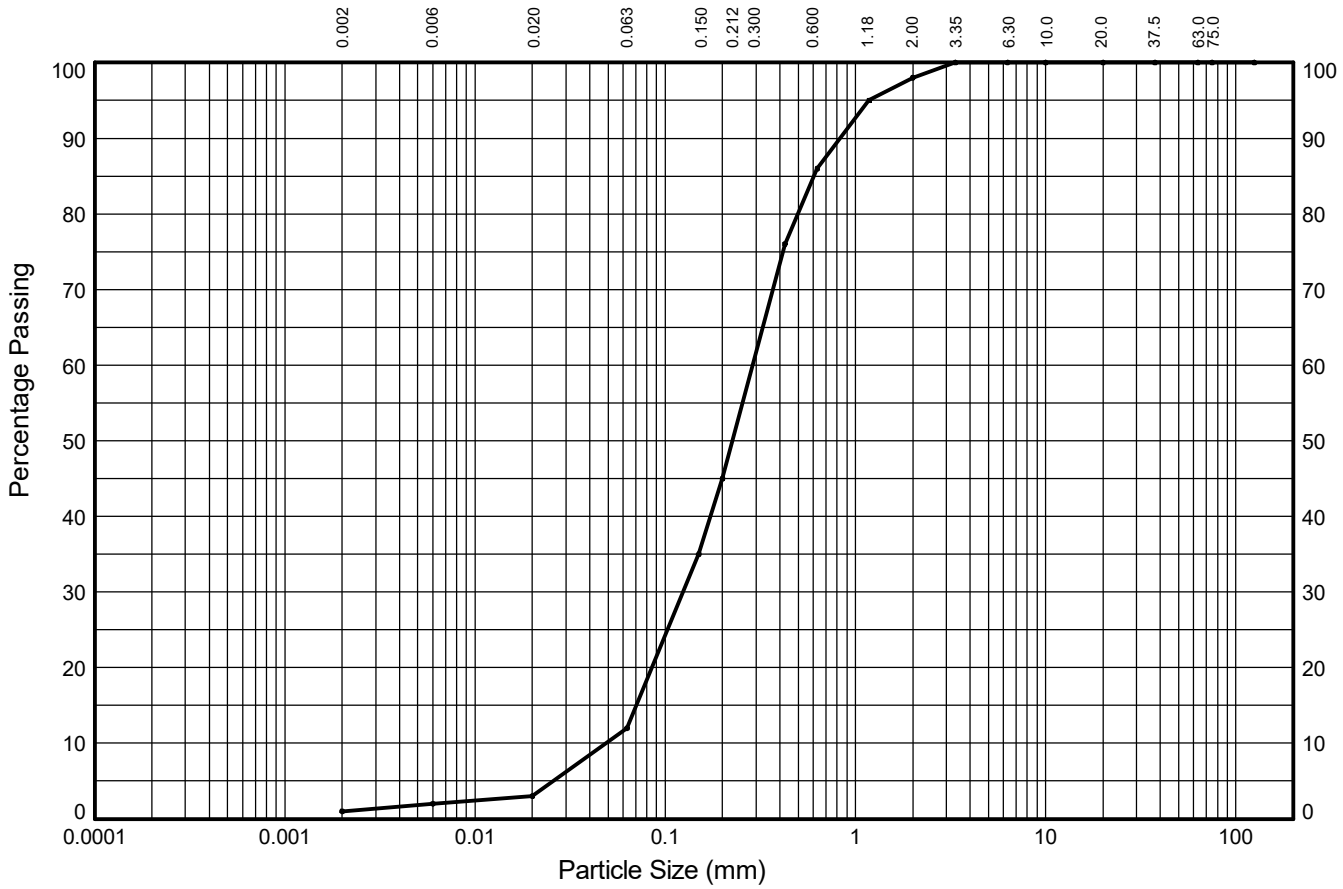
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-119542** Sample Ref: Sample Type: **C** Depth (m): **8.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	1%	1%	9%	33%	41%	12%	2%	0%	0%	
	SILT			SAND			GRAVEL			
1%	11%			86%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**98**
1.18	**95**
0.630	**86**
0.425	**76**
0.200	**45**
0.150	**35**
0.063	**12**

Particle Diameter (mm)	Percent Passing (%)
0.02	**3**
0.006	**2**
0.002	**1**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.049**
D_{15} (mm)	**0.071**
D_{30} (mm)	**0.124**
D_{50} (mm)	**0.226**
D_{60} (mm)	**0.288**
D_{85} (mm)	**0.606**
D_{90} (mm)	**0.833**
C_U	**5.9**
C_C	**1.1**

Soil Description:

Brown slightly gravelly slightly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

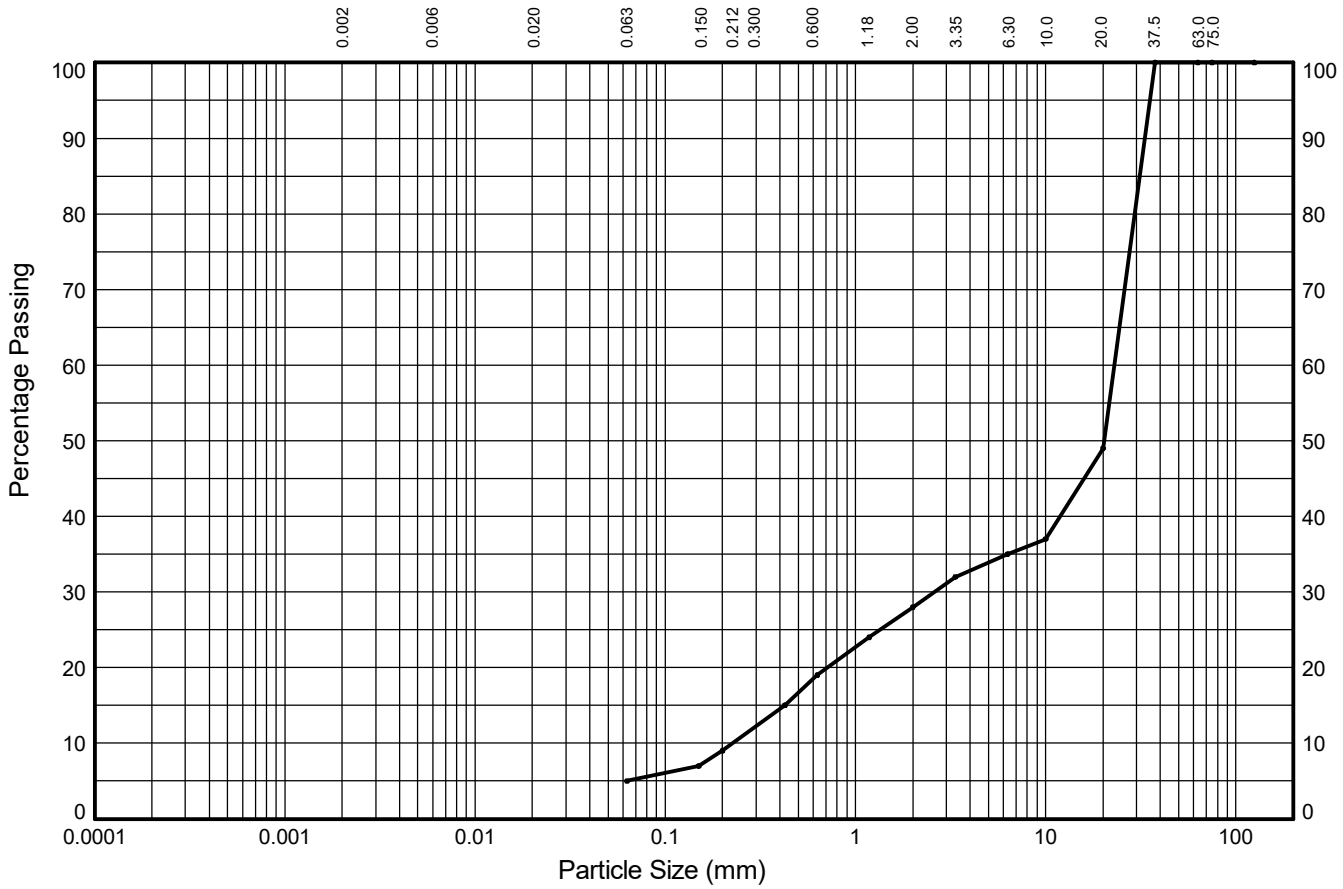
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-119737** Sample Ref: Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	4%	10%	9%	7%	14%	51%	
	SILT			SAND			GRAVEL			
5%				23%			72%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**49**
10.0	**37**
6.30	**35**
3.35	**32**
2.00	**28**
1.18	**24**
0.630	**19**
0.425	**15**
0.200	**9**
0.150	**7**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.227**
D_{15} (mm)	**0.425**
D_{30} (mm)	**2.588**
D_{50} (mm)	**20.248**
D_{60} (mm)	**22.904**
D_{85} (mm)	**31.170**
D_{90} (mm)	**33.151**
C_U	**101**
C_C	**1**

Soil Description:

Light brown very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

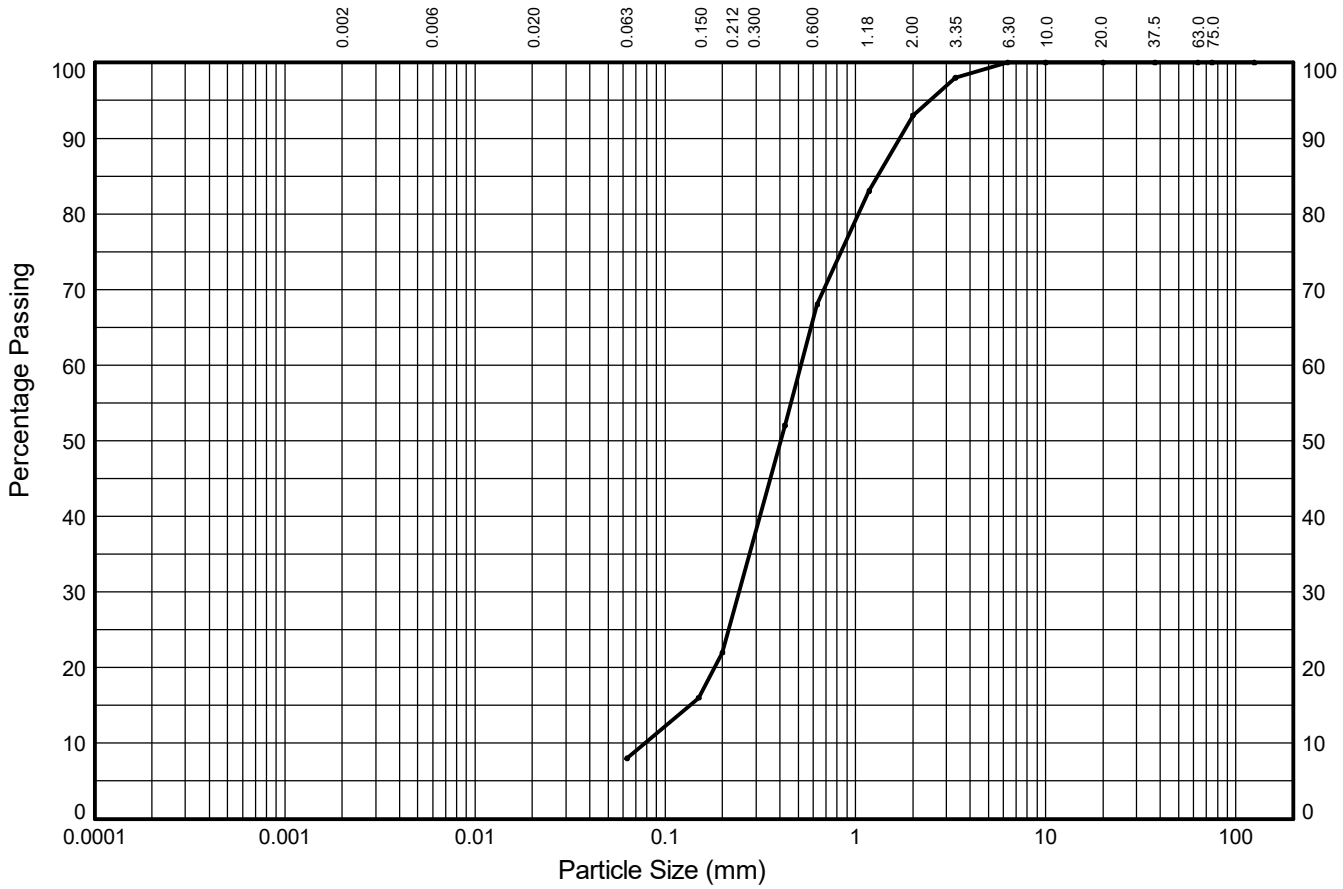
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-119737** Sample Ref: Sample Type: **C** Depth (m): **8.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	14%	46%	25%	7%	0%	0%	
	SILT			SAND			GRAVEL			
8%				85%			7%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**98**
2.00	**93**
1.18	**83**
0.630	**68**
0.425	**52**
0.200	**22**
0.150	**16**
0.063	**8**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.078**
D_{15} (mm)	**0.135**
D_{30} (mm)	**0.245**
D_{50} (mm)	**0.404**
D_{60} (mm)	**0.517**
D_{85} (mm)	**1.311**
D_{90} (mm)	**1.707**
C_U	**6.6**
C_C	**1.5**

Soil Description:

Brown gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

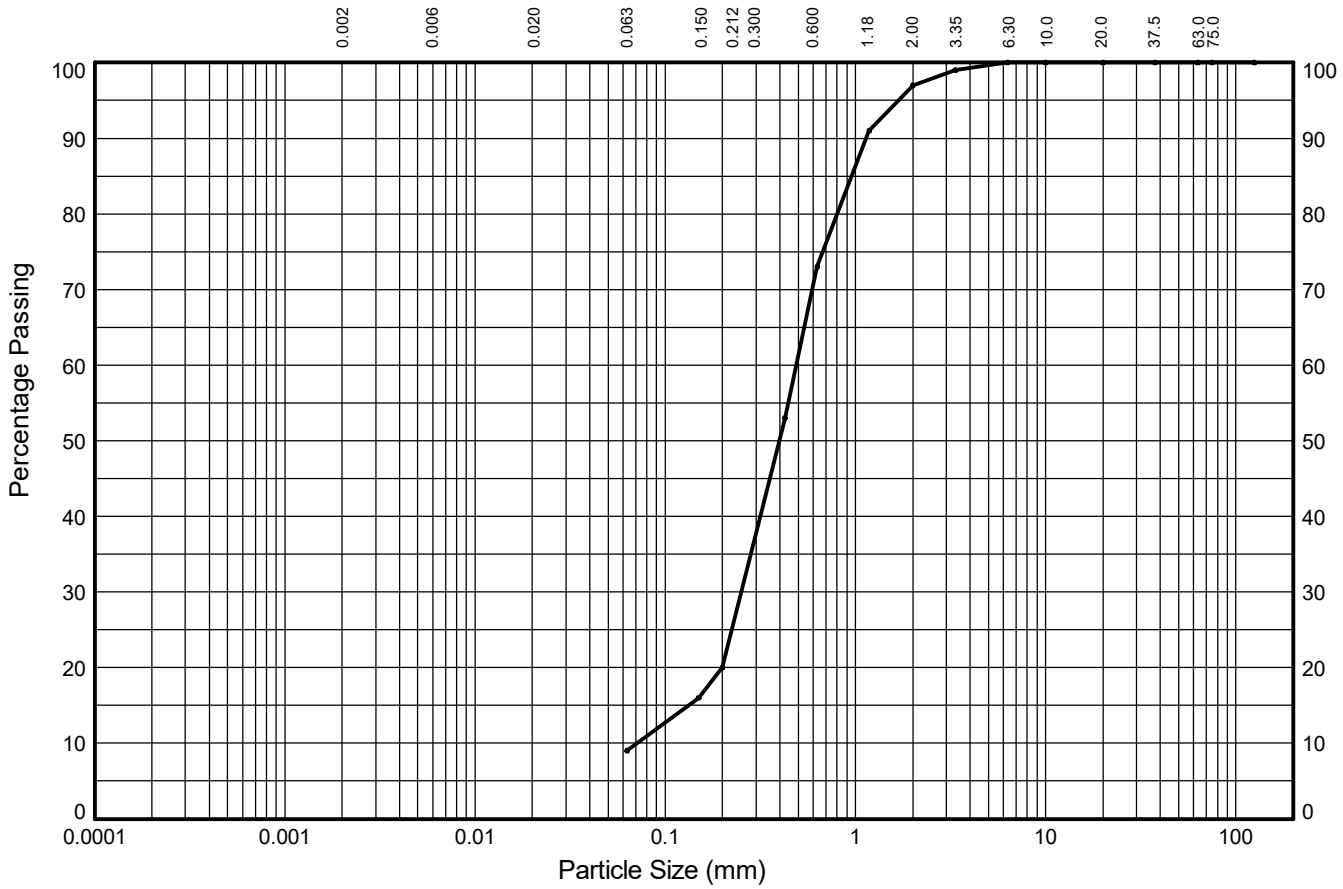
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-135774** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	11%	53%	24%	3%	0%	0%	
	SILT			SAND			GRAVEL			
9%				88%			3%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**97**
1.18	**91**
0.630	**73**
0.425	**53**
0.200	**20**
0.150	**16**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.071**
D_{15} (mm)	**0.133**
D_{30} (mm)	**0.251**
D_{50} (mm)	**0.397**
D_{60} (mm)	**0.488**
D_{85} (mm)	**0.957**
D_{90} (mm)	**1.140**
C_U	**6.8**
C_C	**1.8**

Soil Description:

Brown slightly gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

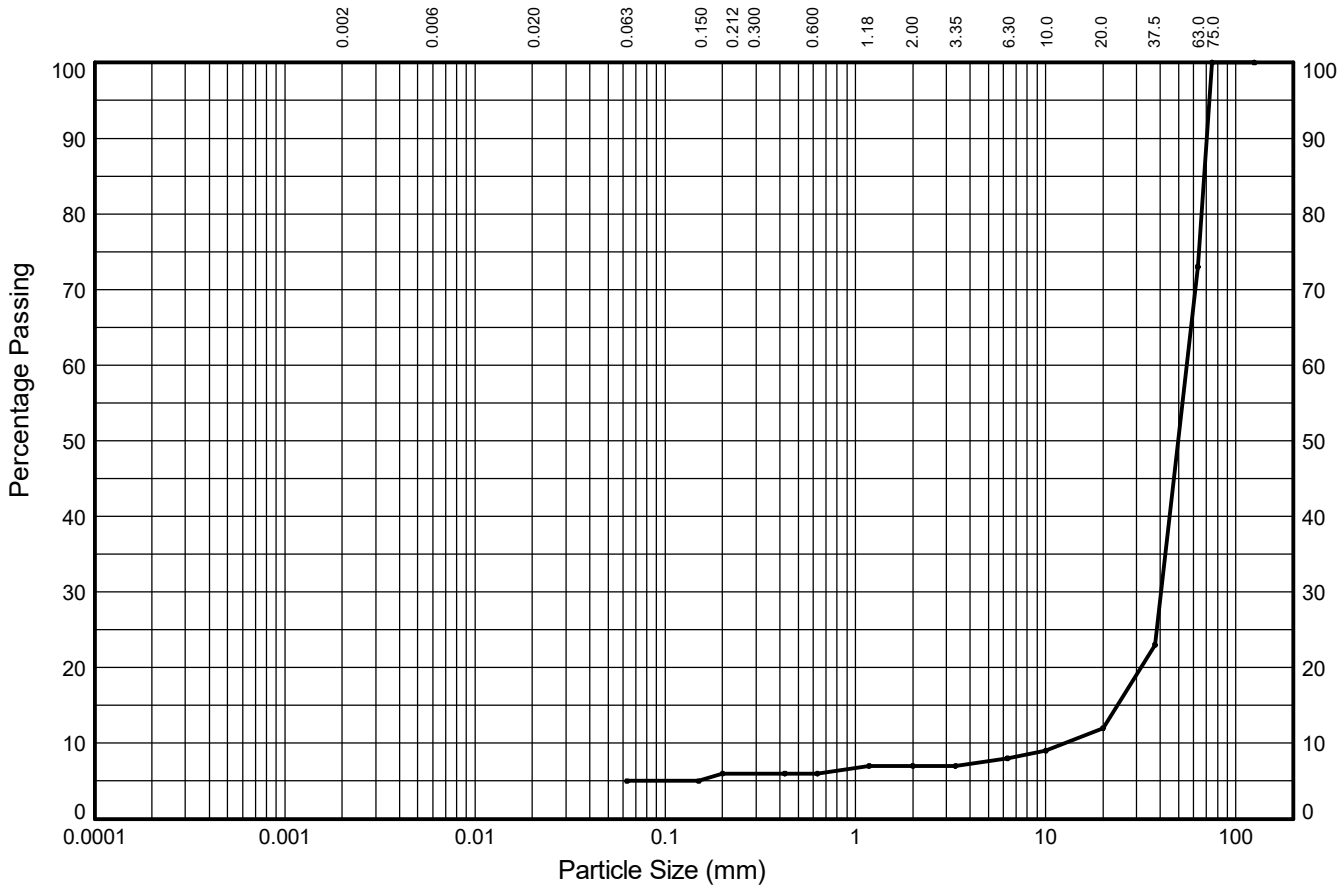
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-135774** Sample Ref: Sample Type: **C** Depth (m): **4.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	0%	1%	1%	4%	61%	
	SILT			SAND			GRAVEL			
5%				2%			66%			27%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**73**
37.5	**23**
20.0	**12**
10.0	**9**
6.30	**8**
3.35	**7**
2.00	**7**
1.18	**7**
0.630	**6**
0.425	**6**
0.200	**6**
0.150	**5**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**12.599**
D_{15} (mm)	**23.740**
D_{30} (mm)	**40.325**
D_{50} (mm)	**49.625**
D_{60} (mm)	**55.050**
D_{85} (mm)	**68.076**
D_{90} (mm)	**70.310**
C_U	**4.4**
C_C	**2.3**

Soil Description:
Light brown slightly sandy silty/clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

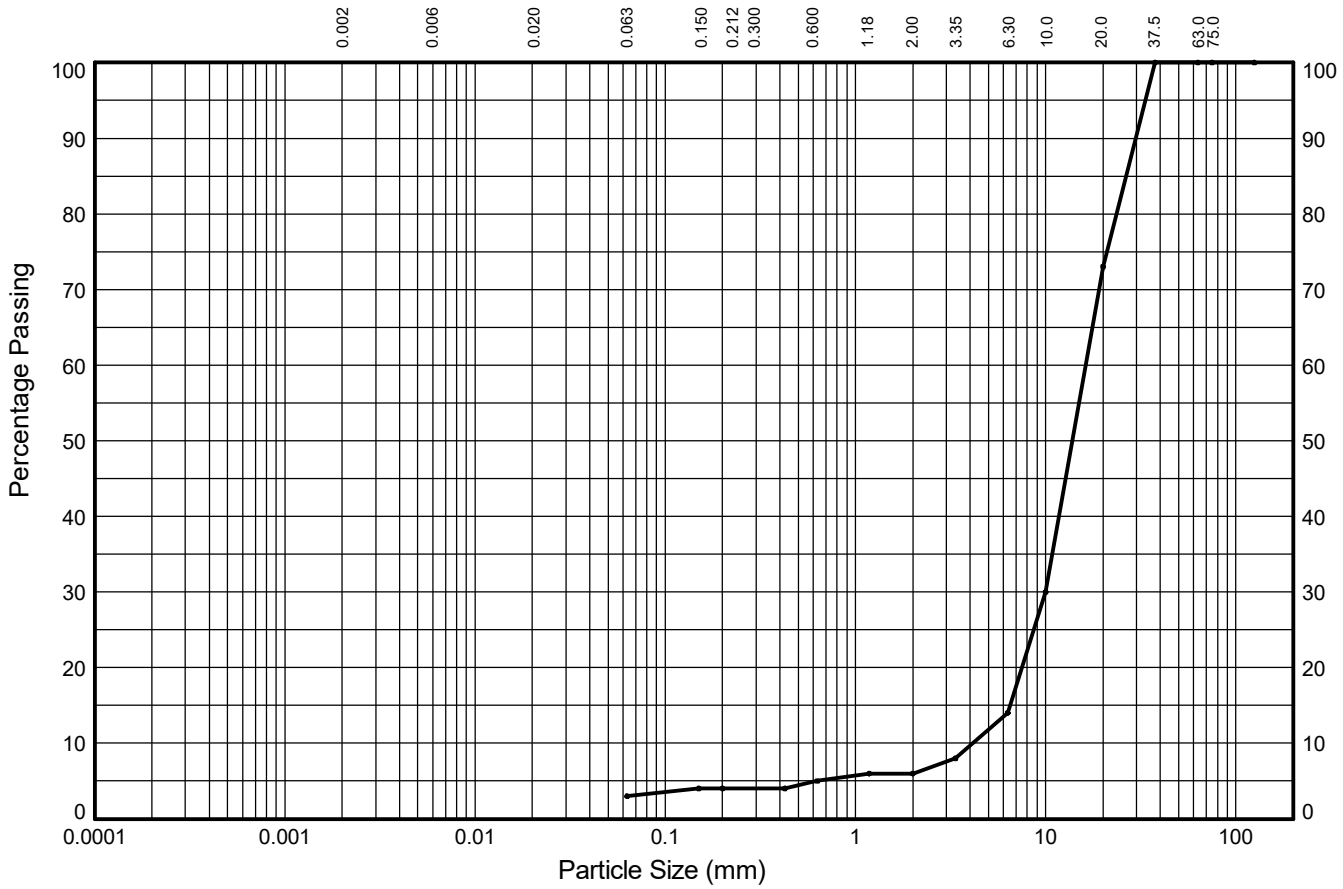
Contract: **Lot 3 Eastern & Midlands WSP**

Contract Ref: **785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-135774** Sample Ref: Sample Type: **C** Depth (m): **8.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	1%	1%	8%	59%	27%	
	SILT			SAND			GRAVEL			
3%				3%			94%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**73**
10.0	**30**
6.30	**14**
3.35	**8**
2.00	**6**
1.18	**6**
0.630	**5**
0.425	**4**
0.200	**4**
0.150	**4**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**4.135**
D_{15} (mm)	**6.485**
D_{30} (mm)	**10.000**
D_{50} (mm)	**13.804**
D_{60} (mm)	**16.219**
D_{85} (mm)	**26.446**
D_{90} (mm)	**29.711**
C_U	**3.9**
C_C	**1.5**

Soil Description:

White slightly sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

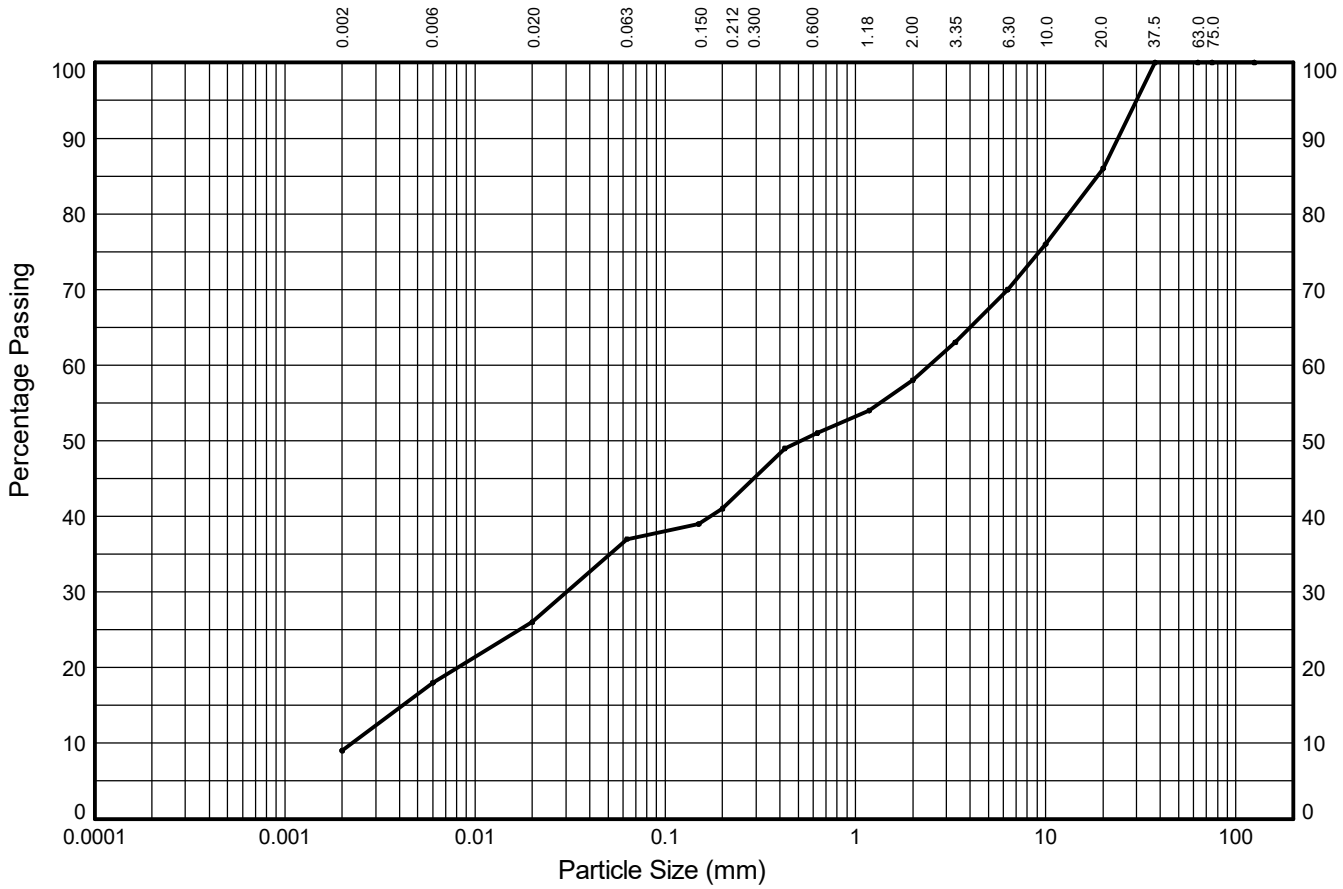
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-135905** Sample Ref: Sample Type: **C** Depth (m): **1.40**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	9%	8%	11%	4%	10%	7%	12%	16%	14%	
	SILT			SAND			GRAVEL			
9%	28%			21%			42%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**86**
10.0	**76**
6.30	**70**
3.35	**63**
2.00	**58**
1.18	**54**
0.630	**51**
0.425	**49**
0.200	**41**
0.150	**39**
0.063	**37**

Particle Diameter (mm)	Percent Passing (%)
0.02	**26**
0.006	**18**
0.002	**9**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.004**
D_{30} (mm)	**0.030**
D_{50} (mm)	**0.517**
D_{60} (mm)	**2.458**
D_{85} (mm)	**18.661**
D_{90} (mm)	**23.935**
C_U	**1088**
C_C	**0.17**

Soil Description:

Light brown slightly sandy gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

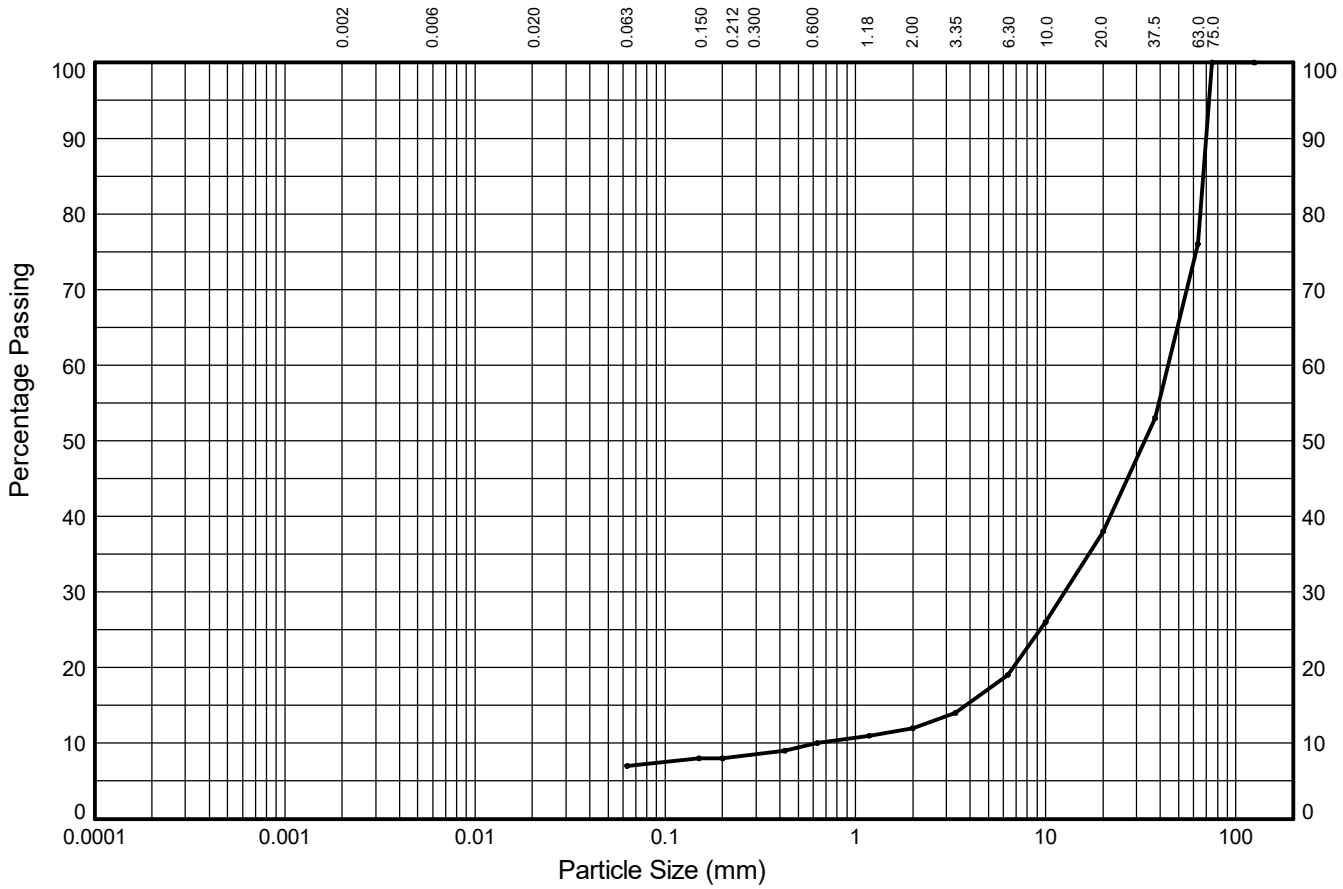
Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-136080** Sample Ref: Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	2%	2%	7%	19%	38%	
	SILT			SAND			GRAVEL			
7%				5%			64%			24%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**76**
37.5	**53**
20.0	**38**
10.0	**26**
6.30	**19**
3.35	**14**
2.00	**12**
1.18	**11**
0.630	**10**
0.425	**9**
0.200	**8**
0.150	**8**
0.063	**7**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.630**
D_{15} (mm)	**3.801**
D_{30} (mm)	**12.599**
D_{50} (mm)	**33.070**
D_{60} (mm)	**43.914**
D_{85} (mm)	**67.257**
D_{90} (mm)	**69.745**
C_U	**70**
C_C	**6**

Soil Description:

Light brown sandy silty/clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

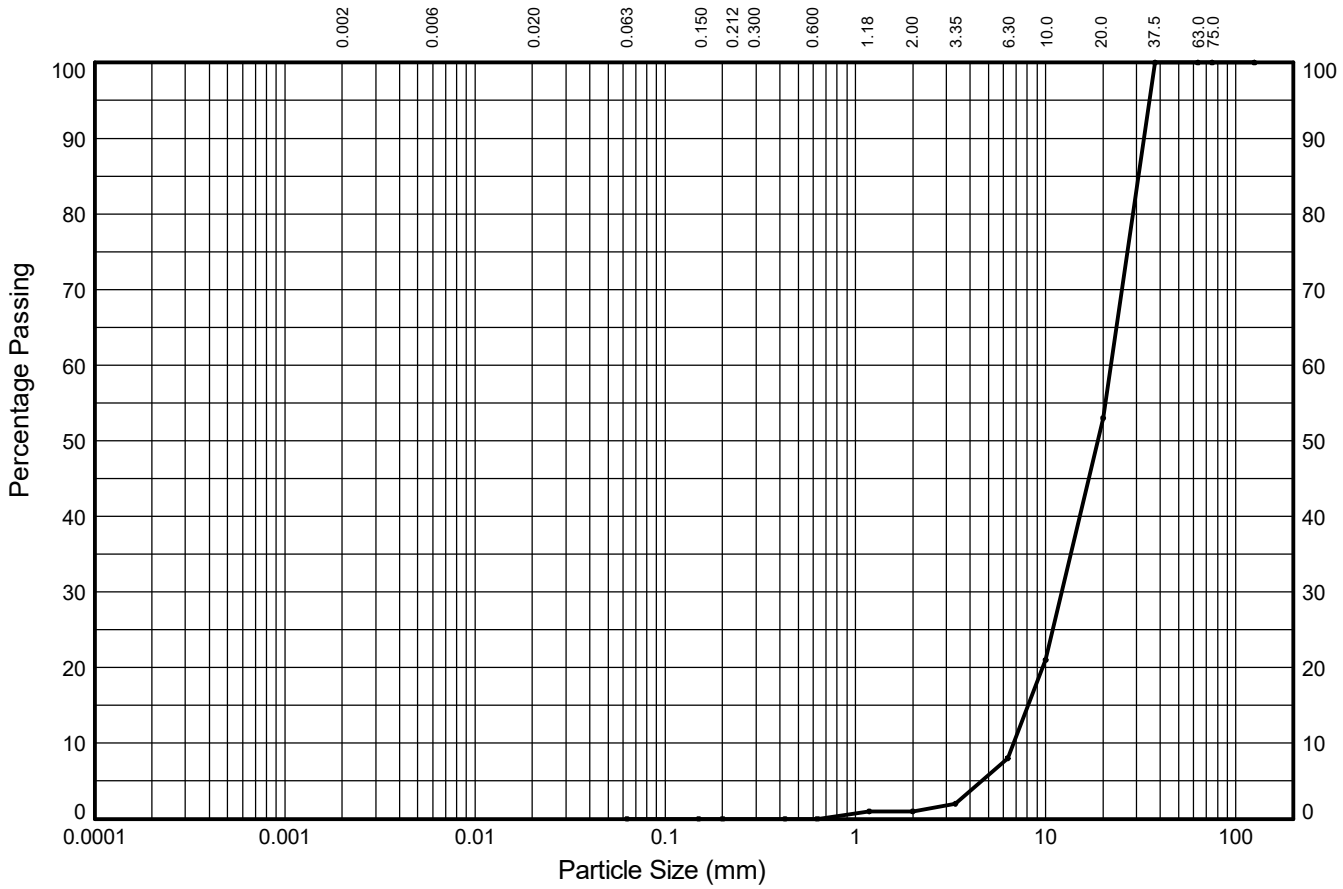
AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

NON-STANDARD TEST

Position ID: **RC-136548** Sample Ref: Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	1%	7%	45%	47%	
	SILT			SAND			GRAVEL			
0%				1%			99%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**53**
10.0	**21**
6.30	**8**
3.35	**2**
2.00	**1**
1.18	**1**
0.630	**0**
0.425	**0**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**6.764**
D_{15} (mm)	**8.080**
D_{30} (mm)	**12.152**
D_{50} (mm)	**18.742**
D_{60} (mm)	**21.963**
D_{85} (mm)	**30.683**
D_{90} (mm)	**32.805**
C_U	**3.2**
C_C	**0.99**

Soil Description:

Grey slightly sandy GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

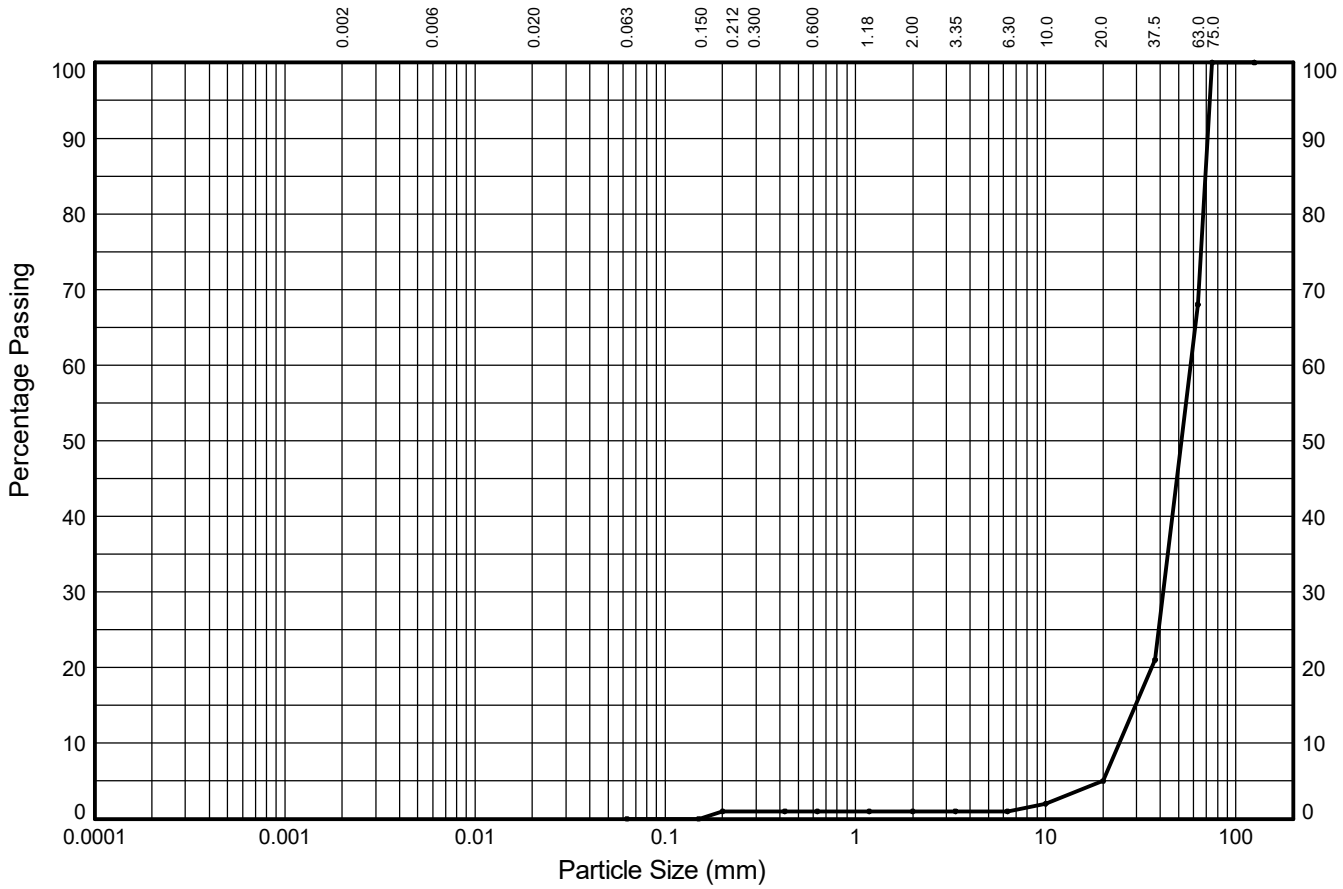
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-136548** Sample Ref: Sample Type: **C** Depth (m): **7.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	0%	0%	0%	4%	63%	
	SILT			SAND			GRAVEL			
0%				1%			67%			32%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**68**
37.5	**21**
20.0	**5**
10.0	**2**
6.30	**1**
3.35	**1**
2.00	**1**
1.18	**1**
0.630	**1**
0.425	**1**
0.200	**1**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**24.341**
D_{15} (mm)	**29.625**
D_{30} (mm)	**41.417**
D_{50} (mm)	**51.648**
D_{60} (mm)	**57.675**
D_{85} (mm)	**69.114**
D_{90} (mm)	**71.023**
C_U	**2.4**
C_C	**1.2**

Soil Description:

Light brown slightly sandy GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

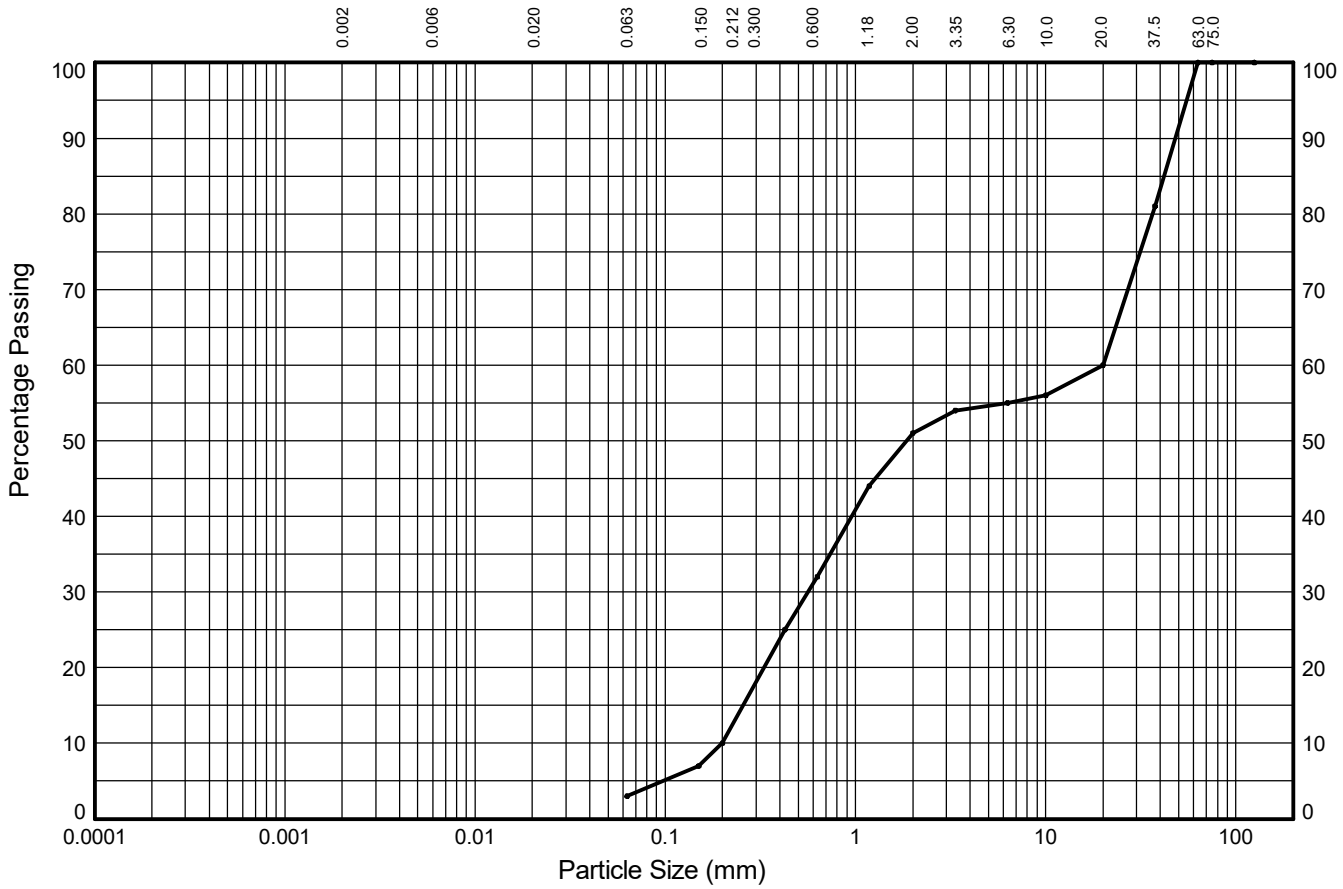
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-143428** Sample Ref: Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	7%	22%	19%	4%	5%	40%	
	SILT			SAND			GRAVEL			
3%				48%			49%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**81**
20.0	**60**
10.0	**56**
6.30	**55**
3.35	**54**
2.00	**51**
1.18	**44**
0.630	**32**
0.425	**25**
0.200	**10**
0.150	**7**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.200**
D_{15} (mm)	**0.257**
D_{30} (mm)	**0.563**
D_{50} (mm)	**1.855**
D_{60} (mm)	**20.000**
D_{85} (mm)	**41.828**
D_{90} (mm)	**47.946**
C_U	**100**
C_C	**0.08**

Soil Description:

Brown very sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

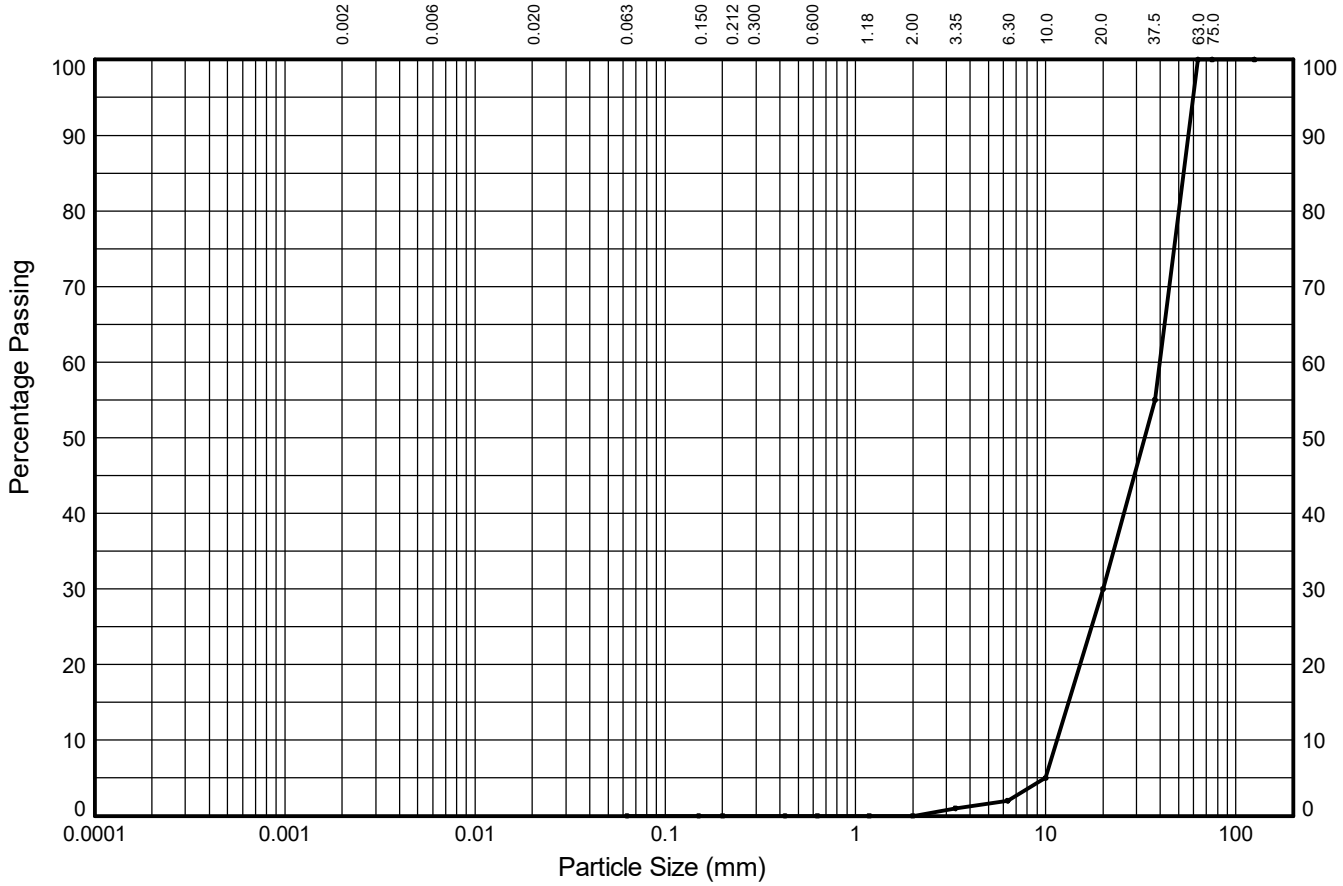
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-143428** Sample Ref: Sample Type: **C** Depth (m): **11.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	2%	28%	70%	
	SILT			SAND			GRAVEL			
0%				0%			100%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**55**
20.0	**30**
10.0	**5**
6.30	**2**
3.35	**1**
2.00	**0**
1.18	**0**
0.630	**0**
0.425	**0**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**11.487**
D_{15} (mm)	**13.195**
D_{30} (mm)	**20.000**
D_{50} (mm)	**33.070**
D_{60} (mm)	**39.725**
D_{85} (mm)	**52.995**
D_{90} (mm)	**56.140**
C_U	**3.5**
C_C	**0.88**

Soil Description:
Black and grey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

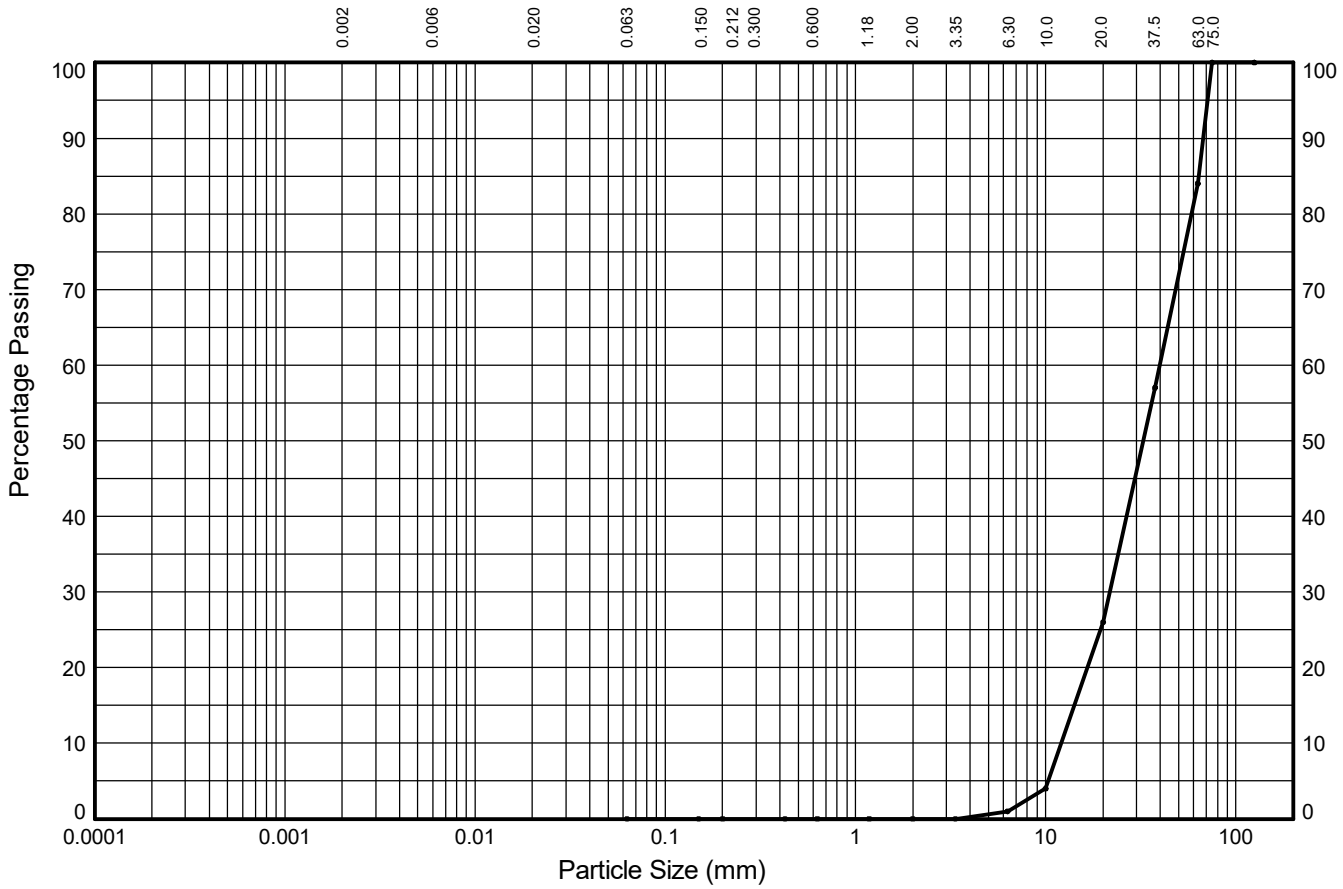
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-143998** Sample Ref: Sample Type: **C** Depth (m): **12.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	1%	25%	58%	
	SILT			SAND			GRAVEL			
0%				0%			84%			16%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**84**
37.5	**57**
20.0	**26**
10.0	**4**
6.30	**1**
3.35	**0**
2.00	**0**
1.18	**0**
0.630	**0**
0.425	**0**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**12.081**
D_{15} (mm)	**14.142**
D_{30} (mm)	**21.690**
D_{50} (mm)	**32.538**
D_{60} (mm)	**39.725**
D_{85} (mm)	**63.690**
D_{90} (mm)	**67.257**
C_U	**3.3**
C_C	**0.98**

Soil Description:

Black and grey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	**17/01/23**

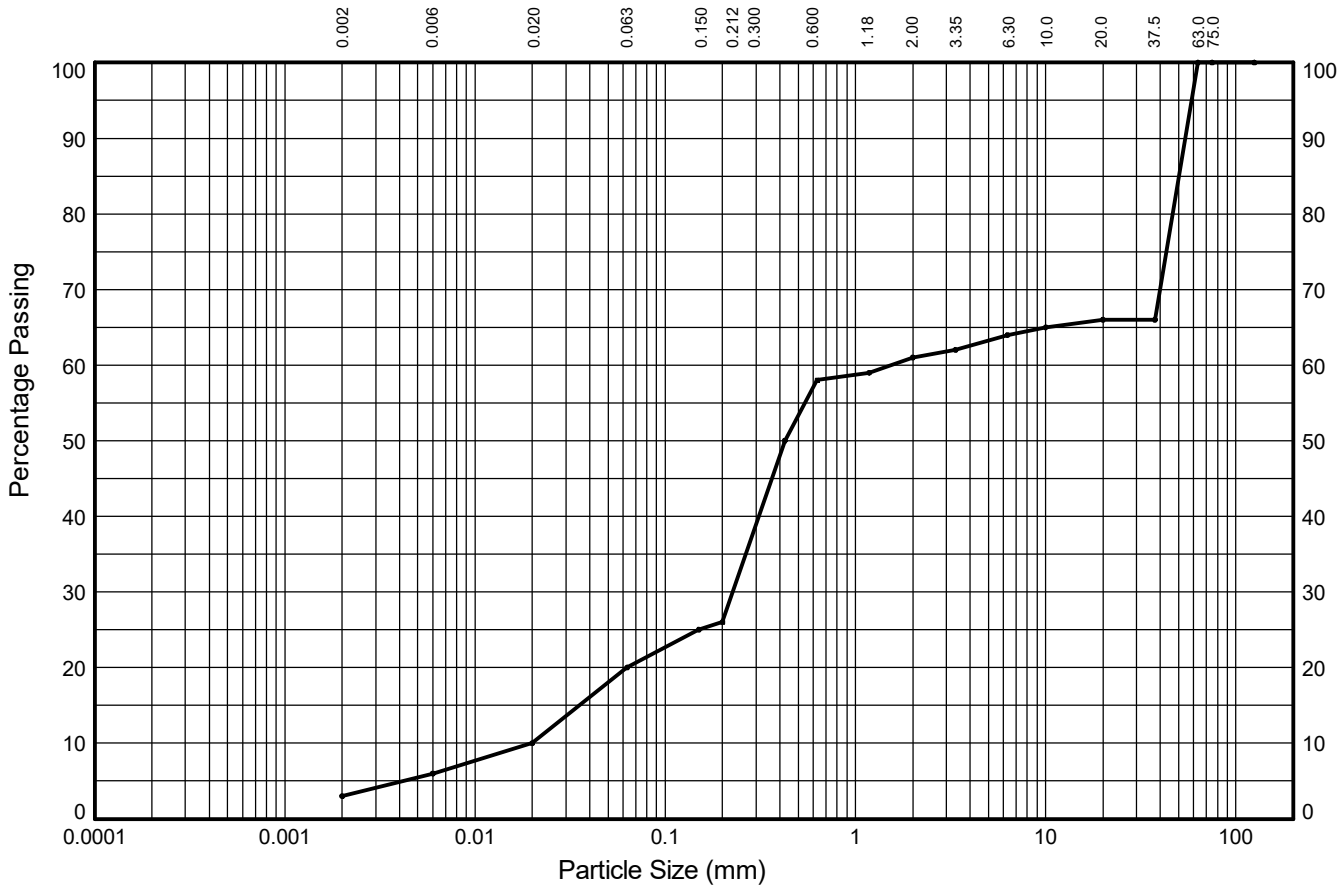
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-144109** Sample Ref: Sample Type: **C** Depth (m): **0.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	4%	10%	6%	32%	3%	3%	2%	34%	
	SILT			SAND			GRAVEL			
3%	17%			41%			39%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**66**
20.0	**66**
10.0	**65**
6.30	**64**
3.35	**62**
2.00	**61**
1.18	**59**
0.630	**58**
0.425	**50**
0.200	**26**
0.150	**25**
0.063	**20**

Particle Diameter (mm)	Percent Passing (%)
0.02	**10**
0.006	**6**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.020**
D_{15} (mm)	**0.035**
D_{30} (mm)	**0.227**
D_{50} (mm)	**0.425**
D_{60} (mm)	**1.536**
D_{85} (mm)	**50.112**
D_{90} (mm)	**54.085**
C_U	**77**
C_C	**2**

Soil Description:

Grey very gravelly slightly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

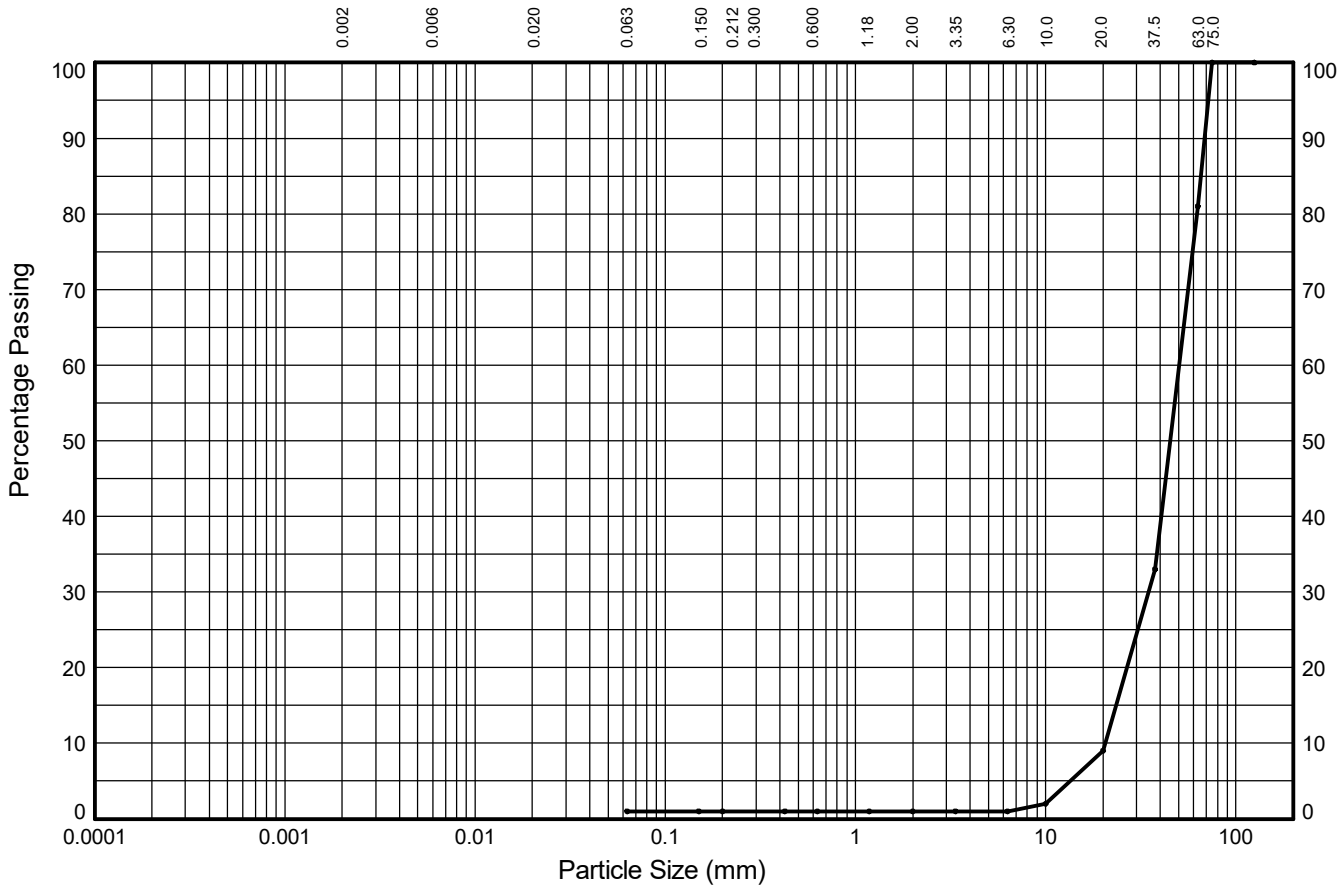
Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-144109** Sample Ref: Sample Type: **C** Depth (m): **11.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	0%	8%	72%	
	SILT			SAND			GRAVEL			
1%				0%			80%			19%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**81**
37.5	**33**
20.0	**9**
10.0	**2**
6.30	**1**
3.35	**1**
2.00	**1**
1.18	**1**
0.630	**1**
0.425	**1**
0.200	**1**
0.150	**1**
0.063	**1**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**20.531**
D_{15} (mm)	**23.403**
D_{30} (mm)	**34.666**
D_{50} (mm)	**45.064**
D_{60} (mm)	**50.207**
D_{85} (mm)	**65.355**
D_{90} (mm)	**68.424**
C_U	**2.4**
C_C	**1.2**

Soil Description:

Black and grey slightly silty/clayey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

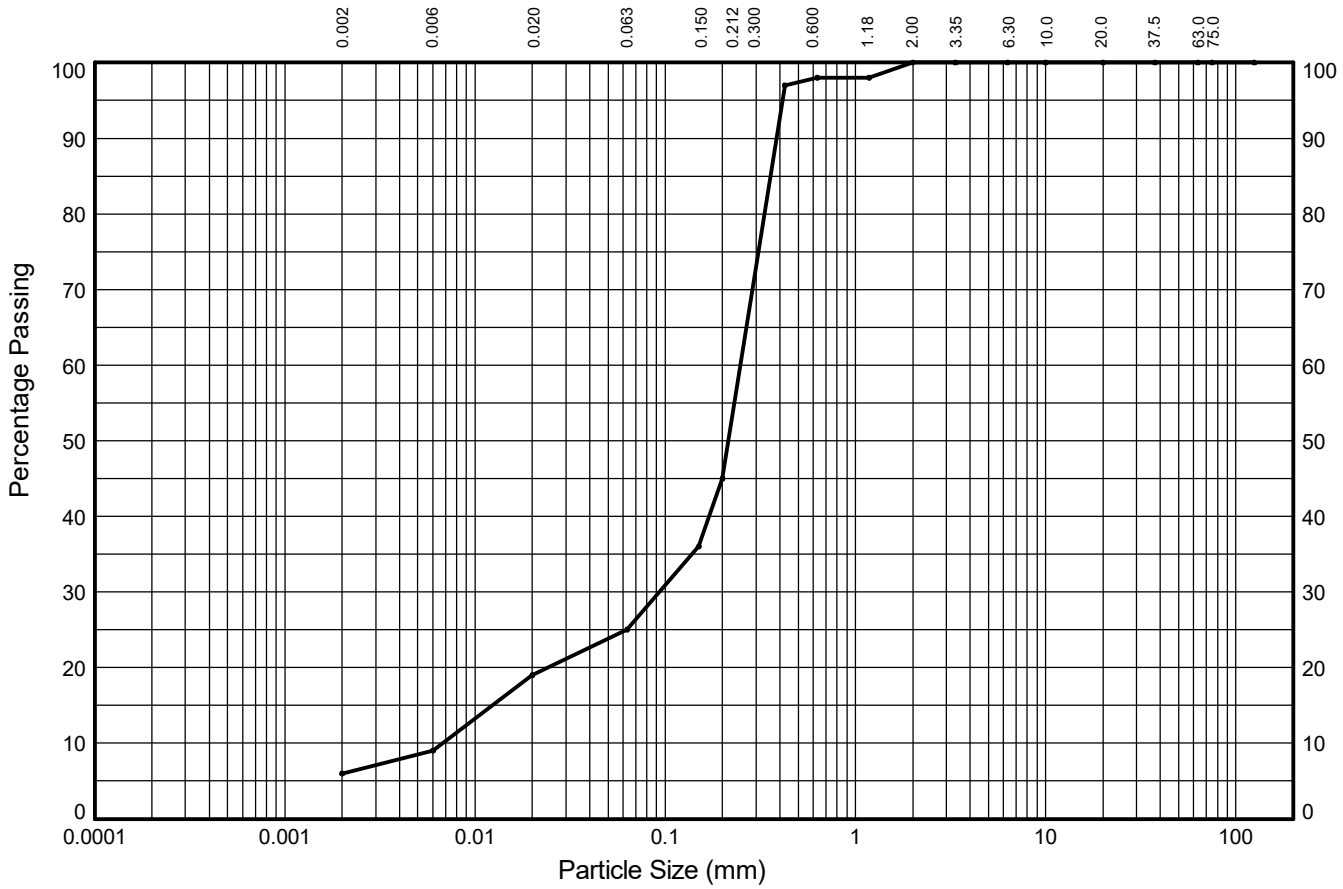
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-146387** Sample Ref: Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	10%	6%	20%	53%	2%	0%	0%	0%	
	SILT			SAND			GRAVEL			
6%	19%			75%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**98**
0.630	**98**
0.425	**97**
0.200	**45**
0.150	**36**
0.063	**25**

Particle Diameter (mm)	Percent Passing (%)
0.02	**19**
0.006	**9**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.007**
D_{15} (mm)	**0.012**
D_{30} (mm)	**0.093**
D_{50} (mm)	**0.215**
D_{60} (mm)	**0.249**
D_{85} (mm)	**0.357**
D_{90} (mm)	**0.384**
C_U	**37**
C_C	**5**

Soil Description:

Grey clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

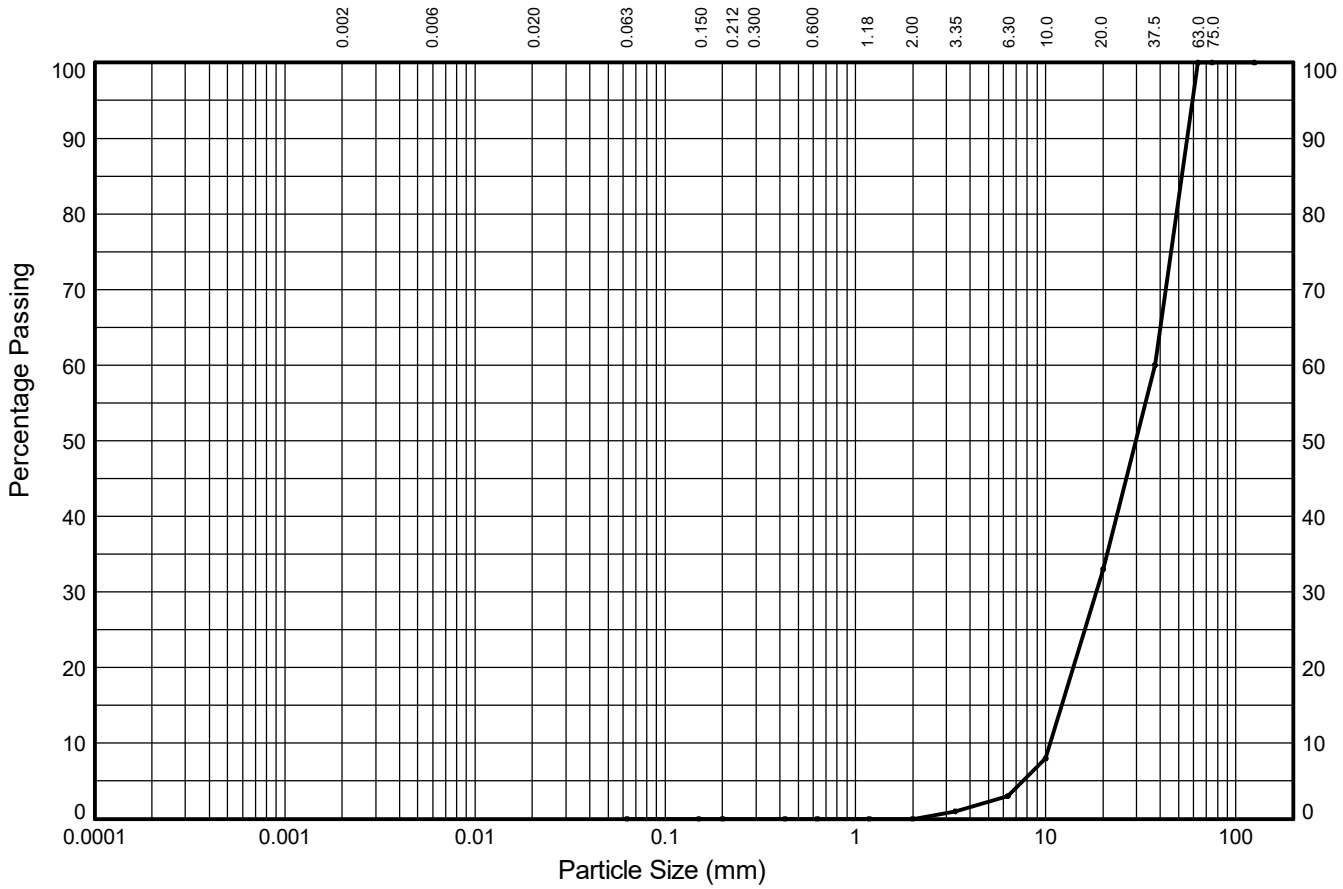
Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **RC-146387** Sample Ref: Sample Type: **C** Depth (m): **6.80**



CLAY										
	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	3%	30%	67%	
	SILT			SAND			GRAVEL			
0%				0%			100%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**60**
20.0	**33**
10.0	**8**
6.30	**3**
3.35	**1**
2.00	**0**
1.18	**0**
0.630	**0**
0.425	**0**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**10.570**
D_{15} (mm)	**12.142**
D_{30} (mm)	**18.404**
D_{50} (mm)	**29.711**
D_{60} (mm)	**37.500**
D_{85} (mm)	**51.862**
D_{90} (mm)	**55.337**
C_U	**3.5**
C_C	**0.85**

Soil Description:
Black and grey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	17/01/23

Contract: **Lot 3 Eastern & Midlands WSP**

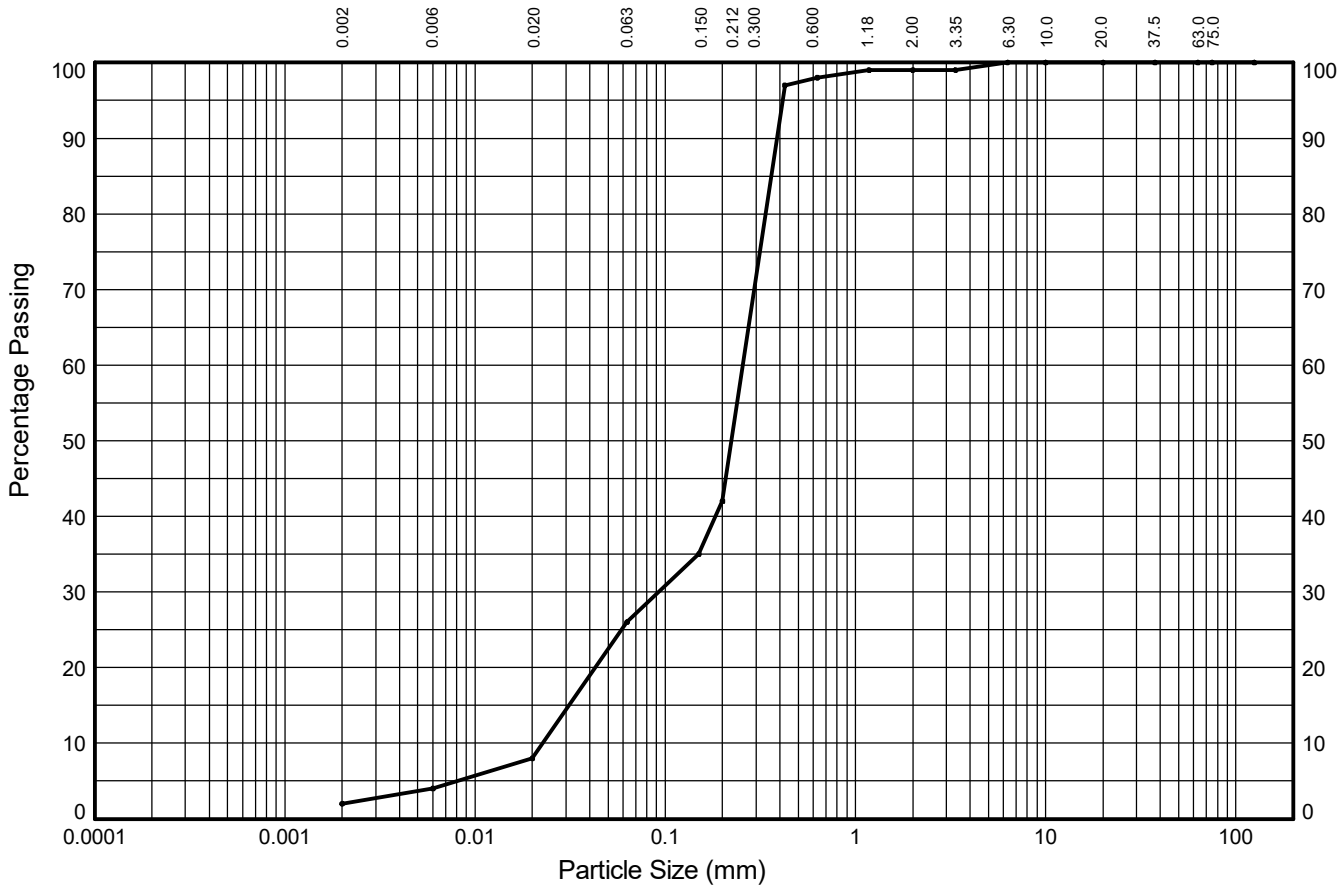
Contract Ref: **785305**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Position ID: **RC-146437** Sample Ref: Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	4%	18%	16%	56%	1%	1%	0%	0%	
	SILT			SAND			GRAVEL			
2%	24%			73%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**99**
1.18	**99**
0.630	**98**
0.425	**97**
0.200	**42**
0.150	**35**
0.063	**26**

Particle Diameter (mm)	Percent Passing (%)
0.02	**8**
0.006	**4**
0.002	**2**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.023**
D_{15} (mm)	**0.031**
D_{30} (mm)	**0.093**
D_{50} (mm)	**0.223**
D_{60} (mm)	**0.256**
D_{85} (mm)	**0.361**
D_{90} (mm)	**0.386**
C_U	**11**
C_C	**1**

Soil Description:

Brown slightly gravelly slightly clayey very silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	17/01/23

Contract	Contract Ref:
Lot 3 Eastern & Midlands WSP	**785305**

AGS

IDL

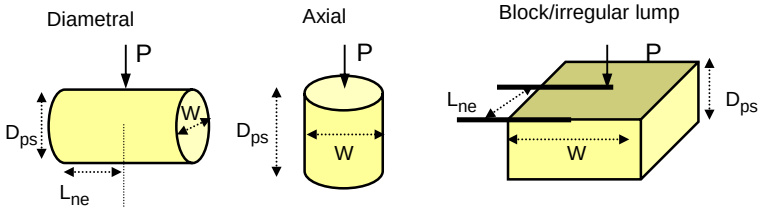
Point Load Strength Index Tests
Summary of Results

Project No.: 2022KE103

Project Name: Lot 3, Eastern & Midlands WSP

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
RC-118164	8.60	10.1	C	9.2	9.40		D	U	YES		63.4		63.4	13.7	63.4	3.4	3.8	Strong
RC-118164	8.60	10.1	C	9.6	9.75		D	U	YES		63.4		63.4	19.6	63.4	4.9	5.4	Very Strong
RC-136080	8.60	10.1	C	9.6	9.75		D	U	YES		63.4		63.4	14.8	63.4	3.7	4.1	Very Strong
RC-136209	7.30	8.8	C	7.4	7.50		D	U	YES		63.4		63.4	5.5	63.4	1.4	1.5	Medium Strong
RC-136209	8.80	10.1	C	8.6	8.70		D	U	YES		63.4		63.4	6.4	63.4	1.6	1.8	Medium Strong
RC-136209	8.80	10.1	C	9.4	9.50		D	U	YES		63.4		63.4	4.7	63.4	1.2	1.3	Medium Strong
RC-136548	8.50	10.1	C	8.5	8.62		D	U	YES		63.4		63.4	14.7	63.4	3.7	4.1	Very Strong
RC-136548	8.50	10.1	C	9.6	9.80		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
RC-146387	12.50	13.9	C	13	13.20		D	U	YES		63.4		63.4	16.4	63.4	4.1	4.5	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 15/11/2022

Approved By: DCD

Table 1 sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY OF RESULTS

Project No.: 2022KE103

Project Name: Lot 3, Eastern & Midlands WSP

Hole No.	Sample				Specimen Depth (m)	Specimen Dimensions2			Bulk Density2	Water Content 1	Uniaxial Compression3				Remarks
	Ref	Top	Base	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
RC-118164		8.60	10.10	C	8.9-9.2	63.4	170.7	2.7	2.68		as received	0.4869	AC	93.0	Strong
RC-136080		8.60	10.10	C	8.6-8.8	63.4	167.5	2.6	2.60		as received	0.5065	AC	95.7	Strong
RC-136209		8.80	10.10	C	9.5-9.73	63.4	167.6	2.6	2.65		as received	0.3641	F	75.7	Strong
RC-136548		8.50	10.10	C	9.8-10.1	63.4	170.0	2.7	2.68		as received	0.5647	AC	98.3	Strong
RC-146387		9.80	11.00	C	11.26-11.5	63.4	140.3	2.2	2.70		as received	0.6734	F	147.0	Very Strong

Notes

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Test Specification: International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

Date Printed: 15/11/2022

Approved By: DCD

Table: 1 sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	12 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221003-59
Your Reference:	2022KE103
Location:	Lot3, Eastern and Midlands WSP
Report No:	664373
Order Number:	11740

We received 15 samples on Monday October 03, 2022 and 15 of these samples were scheduled for analysis which was completed on Wednesday October 12, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26961770	RC-117542	C1	1.50 - 3.00	02/08/2022
26961774	RC-117728	C1	6.50 - 8.00	11/08/2022
26961778	RC-118164	C1	1.50 - 3.00	29/07/2022
26961780	RC-118375	C1	2.60 - 4.20	10/08/2022
26961783	RC-118375	C1	8.60	10/08/2022
26961794	RC-118987	C1	4.20 - 5.80	04/08/2022
26961818	RC-119737	C1	3.00 - 4.20	09/08/2022
26961820	RC-135774	C1	4.70 - 5.80	19/07/2022
26961830	RC-135905	C1	4.10 - 4.80	18/07/2022
26961832	RC-136080	C1	1.50 - 2.20	20/07/2022
26961834	RC-136548	C1	7.30 - 8.50	22/07/2022
26961836	RC-143428	C1	3.00 - 4.50	25/07/2022
26961838	RC-144109	C1	0.00 - 5.00	21/07/2022
26961840	RC-146387	C1	3.00 - 4.50	26/07/2022
26961772	RC-146437	C1	3.00 - 4.50	27/07/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26961770	RC-117542	C1	1.50 - 3.00	1kg TUB with Handle (ALE260)	S
			26961774	RC-117728	C1	6.50 - 8.00	1kg TUB with Handle (ALE260)	S
			26961778	RC-118164	C1	1.50 - 3.00	1kg TUB with Handle (ALE260)	S
			26961780	RC-118375	C1	2.60 - 4.20	1kg TUB with Handle (ALE260)	S
			26961783	RC-118375	C1	8.60	1kg TUB with Handle (ALE260)	S
			26961794	RC-118987	C1	4.20 - 5.80	1kg TUB with Handle (ALE260)	S
			26961818	RC-119737	C1	3.00 - 4.20	1kg TUB with Handle (ALE260)	S
			26961820	RC-135774	C1	4.70 - 5.80	1kg TUB with Handle (ALE260)	S
			26961830	RC-135905	C1	4.10 - 4.80	1kg TUB with Handle (ALE260)	S
			26961832	RC-136080	C1	1.50 - 2.20	1kg TUB with Handle (ALE260)	S
			26961834	RC-136548	C1	7.30 - 8.50	1kg TUB with Handle (ALE260)	S
			26961836	RC-143428	C1	3.00 - 4.50	1kg TUB with Handle (ALE260)	S
			26961838	RC-144109	C1	0.00 - 5.00	1kg TUB with Handle (ALE260)	S
			26961840	RC-146387	C1	3.00 - 4.50	1kg TUB with Handle (ALE260)	S
			26961772	RC-146437	C1	3.00 - 4.50	1kg TUB with Handle (ALE260)	S
Anions in soil by IC	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26961770	RC-117542	1.50 - 3.00	Light Brown	Sand	Stones	Vegetation
26961774	RC-117728	6.50 - 8.00	Dark Brown	Silty Sand	Stones	None
26961778	RC-118164	1.50 - 3.00	Light Brown	Sand	Stones	None
26961780	RC-118375	2.60 - 4.20	Light Brown	Sand	Vegetation	None
26961783	RC-118375	8.60	Light Brown	Clay	Stones	Vegetation
26961794	RC-118987	4.20 - 5.80	Light Brown	Sand	Stones	None
26961818	RC-119737	3.00 - 4.20	Light Brown	Sand	Stones	None
26961820	RC-135774	4.70 - 5.80	Light Brown	Silty Clay	Stones	Vegetation
26961830	RC-135905	4.10 - 4.80	Beige	Clay	Stones	Vegetation
26961832	RC-136080	1.50 - 2.20	Light Brown	Stone/Soil	Stones	Vegetation
26961834	RC-136548	7.30 - 8.50	Light Brown	Stone/Soil	Stones	Vegetation
26961836	RC-143428	3.00 - 4.50	Grey	Loamy Sand	Stones	Vegetation
26961838	RC-144109	0.00 - 5.00	Light Brown	Stone/Soil	Stones	Vegetation
26961840	RC-146387	3.00 - 4.50	Light Brown	Sandy Loam	Stones	Vegetation
26961772	RC-146437	3.00 - 4.50	Light Brown	Silty Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RC-117542	RC-117728	RC-118164	RC-118375	RC-118375	RC-118987
			Depth (m)	1.50 - 3.00	6.50 - 8.00	1.50 - 3.00	2.60 - 4.20	8.60	4.20 - 5.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	02/08/2022	11/08/2022	29/07/2022	10/08/2022	10/08/2022	04/08/2022
			Sample Time	-	-	-	-	-	-
			Date Received	03/10/2022	03/10/2022	03/10/2022	03/10/2022	03/10/2022	03/10/2022
			SDG Ref	221003-59	221003-59	221003-59	221003-59	221003-59	221003-59
			Lab Sample No.(s)	26961770	26961774	26961778	26961780	26961783	26961794
			AGS Reference	C1	C1	C1	C1	C1	C1
Moisture Content Ratio (% of as received sample)	%	PM024		0.21	17	0.15	0.35	0.28	0.18
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0105	0.0117	0.0085	0.0117	0.00848	0.0193
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	0.0378 @ #	0.0224 @ #	0.0217 @ #	<0.02 @ #	0.027 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06	0.113	0.0672	0.0651	0.06	0.081
pH	1 pH Units	TM133		9.03 @ M	8.59 @ M	9 @ M	9.01 @ M	8.92 @ M	8.86 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		<0.0048 M	0.0126 M	0.00989 M	0.0143 M	0.00874 M	0.0165 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RC-119737	RC-135774	RC-135905	RC-136080	RC-136548	RC-143428
			Depth (m)	3.00 - 4.20	4.70 - 5.80	4.10 - 4.80	1.50 - 2.20	7.30 - 8.50	3.00 - 4.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/08/2022	19/07/2022	18/07/2022	20/07/2022	22/07/2022	25/07/2022
			Sample Time	-	-	-	-	-	-
			Date Received	03/10/2022	03/10/2022	03/10/2022	03/10/2022	03/10/2022	03/10/2022
			SDG Ref	221003-59	221003-59	221003-59	221003-59	221003-59	221003-59
			Lab Sample No.(s)	26961818	26961820	26961830	26961832	26961834	26961836
			AGS Reference	C1	C1	C1	C1	C1	C1
Moisture Content Ratio (% of as received sample)	%	PM024		0.17	0.57	0.35	0.13	0.28	0.046
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0138	0.0125	0.0112	0.0108	0.0145	0.0456
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	0.0335 @ #	0.0516 @ #	0.0309 @ #	<0.02 @ #	0.127 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06	0.101	0.155	0.0927	0.06	0.381
pH	1 pH Units	TM133		8.85 @ M	8.89 @ M	9.1 @ M	8.94 @ #	8.76 @ #	8.19 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.00829 M	<0.0048 M	0.027 M	0.0251 #	<0.0048 #	0.068 M

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RC-144109	RC-146387	RC-146437			
			Depth (m)	0.00 - 5.00	3.00 - 4.50	3.00 - 4.50			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	21/07/2022	26/07/2022	27/07/2022			
			Sample Time	-	-	-			
			Date Received	03/10/2022	03/10/2022	03/10/2022			
			SDG Ref	221003-59	221003-59	221003-59			
			Lab Sample No.(s)	26961838	26961840	26961772			
			AGS Reference	C1	C1	C1			
Moisture Content Ratio (% of as received sample)	%	PM024		0.41	0.028	0.13			
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0375	0.12	0.129			
Sulphur, Total	<0.02 %	TM132		0.0522 @ #	0.354 @ #	0.438 @ #			
Sulphate, Total potential	<0.06 %	TM132		0.157	1.06	1.31			
pH	1 pH Units	TM133		8.14 @ #	8.6 @ M	8.65 @ M			
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0122 #	0.0631 M	0.0792 M			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221003-59 **Report Number:** 664373 **Superseded Report:**
Client Ref.: 2022KE103 **Location:** Lot3, Eastern and Midlands WSP

Test Completion Dates

Lab Sample No(s)	26961770	26961774	26961778	26961780	26961783	26961794	26961818	26961820	26961830	26961832
Customer Sample Ref.	RC-117542	RC-117728	RC-118164	RC-118375	RC-118375	RC-118987	RC-119737	RC-135774	RC-135905	RC-136080
AGS Ref.	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
Depth	1.50 - 3.00	6.50 - 8.00	1.50 - 3.00	2.60 - 4.20	8.60	4.20 - 5.80	3.00 - 4.20	4.70 - 5.80	4.10 - 4.80	1.50 - 2.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022
pH	06-Oct-2022	06-Oct-2022	05-Oct-2022	06-Oct-2022	06-Oct-2022	06-Oct-2022	05-Oct-2022	06-Oct-2022	06-Oct-2022	06-Oct-2022
Sample description	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022
Total Sulphate	07-Oct-2022	07-Oct-2022	10-Oct-2022	10-Oct-2022	06-Oct-2022	10-Oct-2022	10-Oct-2022	07-Oct-2022	10-Oct-2022	06-Oct-2022
Total Sulphur	10-Oct-2022	10-Oct-2022	10-Oct-2022	10-Oct-2022	07-Oct-2022	10-Oct-2022	10-Oct-2022	10-Oct-2022	10-Oct-2022	07-Oct-2022

Lab Sample No(s)	26961834	26961836	26961838	26961840	26961772
Customer Sample Ref.	RC-136548	RC-143428	RC-144109	RC-146387	RC-146437
AGS Ref.	C1	C1	C1	C1	C1
Depth	7.30 - 8.50	3.00 - 4.50	0.00 - 5.00	3.00 - 4.50	3.00 - 4.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022
pH	06-Oct-2022	06-Oct-2022	06-Oct-2022	06-Oct-2022	05-Oct-2022
Sample description	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022	04-Oct-2022
Total Sulphate	07-Oct-2022	06-Oct-2022	07-Oct-2022	07-Oct-2022	10-Oct-2022
Total Sulphur	10-Oct-2022	07-Oct-2022	10-Oct-2022	10-Oct-2022	10-Oct-2022

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix 11I
Photographs
Part 1: Rotary Core


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 117542
Box 1.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 117728
Box 1. 2. 3.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 117778
Box 1. 2.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 118164
Box 1. 2.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 118375
Box 1. 2.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 118987
Box 1.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 119542
Box
1. 2.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 119737
Box
1.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 135774
Box
1. 2.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 135905
Box
1.2.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 136080
Box
1.2.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 136209
Box
1. 2. 3.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 136548
Box
1. 2. 3.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 143428
Box
1. 2.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 143998
Box
1.
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 144109
Box
1. 2.


WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 146387
Box
1.2.
3M
4.5M
6M
6.8M
7.6M
8.8M
9.8M
11M
12.5M
13.9M
15M
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
WSP
Lot 3, Eastern & Midlands
Co Kildare
2022 KE 103
BH 146437
Box
1.
3M
4.5M
5.7M
7.1M
8.6M
10.1M
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

Appendix 11J
Groundwater Level Data

Groundwater Levels

Contract:	WSP Lot 3 Pipeline	*Test carried out by:*	**Irish Drilling Ltd.**
Location:	Lot 3 pIpeline	*Operators:*	DOR
Client:	Irish Water		
Engineer:	Mott MacDonald	*Date:*	18.11.2022

Standpipes	02/08/2022 m +/-(gl)	17/08/2022 m +/-(gl)	06-08/08/2022 m +/-(gl)	27/10/2022 m +/-(gl)	mO.D. Ground Level
BH 117150		2.44(71.75mOD)	2.65(71.54mOD)	2.65(71.54mOD)	74.19
BH 118375		3.60(71.15mOD)	DRY	DRY	74.75
BH 118987		DRY	DRY	DRY	76.63
BH 119542		DRY	DRY	DRY	75.57
BH 119737		3.03(69.68mOD)	DRY	DRY	72.71
BH 121326		1.82(65.43mOD)	1.50(65.75mOD)	1.41(65.84mOD)	67.25
BH 135774	1.17(80.54mOD	1.47(80.24mOD)	2.13(79.58mOD)	0.80(80.91mOD)	81.71
BH 136209	2.00(82.56mOD)	2.13(82.43mOD)	2.53(82.03mOD)	1.20(83.36mOD)	84.56
BH 136548	1.32(83.51mOD)	1.64(83.19mOD)	1.86(82.97mOD)	0.59(84.24mOD)	84.83
BH 143428	1.02(73.31mOD)	1.13(73.20mOD)	1.18(73.15mOD)	0.78(73.55mOD)	74.33
BH 145414	1.21(72.72mOD)	1.28(72.65mOD)	1.44(72.49mOD)	0.86(73.07mOD)	73.93
BH 147850		2.15(81.75mOD)	2.65(81.25mOD)	No Access	83.9

REMARKS:

Data Logger installed in following boreholes on August 6th and 8th 2022:

BH 117150
BH 121326
BH 135774
BH 136209
BH 136548
BH 143428
BH 145414
BH 147850

Appendix 11K
Drawings

1

2

RC117728
(RC)

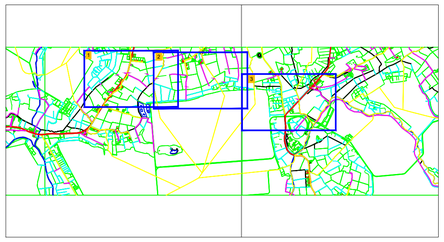
BH117778
(CP)

BH118164
(CP+RC)

BH117542
(CP+RC)

BH118375
(CP+RC)

BH117150
(CP+RC)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
1 of 7

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-PLR-01	1	1 of 7

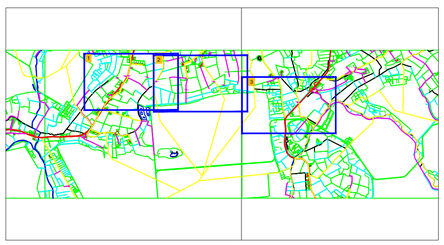
2

BH118375
(CP+RC)

BH119542
(CP+RC)

BH119737
(CP+RC)

BH118987
(CP+RC)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
2 of 7

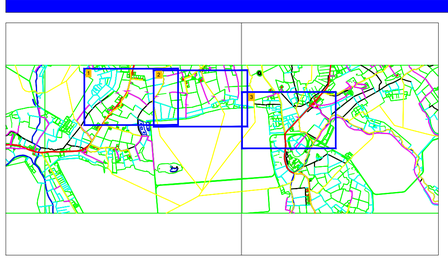
Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-PLR-02	1	2 of 7

3

BH121236
(CP)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
3 of 7

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 10/11/2022
Checked By. RK 10/11/2022
Approved By.

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No. IDL-PLR-03
Revision. 1
Sheet 3 of 7

4

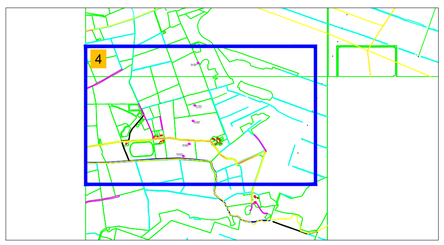
BH136548
(CP+RC)

BH136209
(CP+RC)

BH136080
(CP+RC)

BH135905
(CP+RC)

BH135774
(CP+RC)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
4 of 7

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No. IDL-PLR-04 | Revision. 1 | Sheet 4 of 7

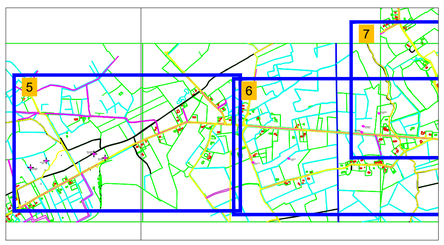
5

BH143998
(CP+RC)

BH144109
(CP+RC)

BH143591
(CP)

BH143428
(CP+RC)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
5 of 7

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-PLR-05	1	5 of 7

6

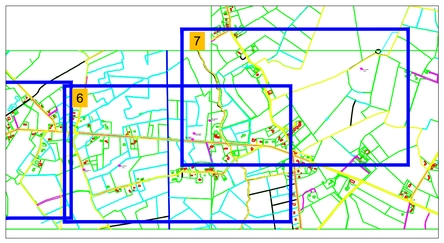
BH145703
(CP)

BH145414
(CP)

BH146605
(CP)

BH146437
(CP+RC)

BH146387
(CP+RC)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

	REVISION	By	Date	Chk'd
IDL1		MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
6 of 7

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-PLR-06	1	6 of 7

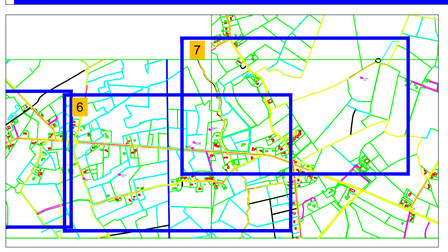
7

BH146605
(CP)

BH146437
(CP+RC)

BH146387
(CP+RC)

BH147850
(CP)



LEGEND

SOILS/ROTARY CORE BOREHOLE LOCATION
RC= Rotary Core
CP=Cable Percussion

BH

REVISION	By	Date	Chk'd
IDL1	MM	10/11/22	RK

Client: IRISH WATER

Title: Eastern and Midlands Water Supply Project(Lot 3)
7 of 7

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	10/11/2022
Checked By.	RK	10/11/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No. IDL-PLR-07 | Revision. 1 | Sheet 7 of 7