

APPENDIX 5C

GROUND INVESTIGATION AT UNAUTHORISED LANDFILL SITES

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Ground Investigation
IGSL Report No. 8669
Roadstone Quarry, Blessington
On Behalf Of
John Barnett & Associates
Consulting Engineers

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**Site Investigation Works
on
Roadstone Quarry Landfill Site
at
Blessington,
Co. Wicklow**

**Final Ground Investigation Report
(Factual)**

**Client: Roadstone
Engineer: John Barnett & Associates Ltd.**

March 2003

Irish Geotechnical Services Limited

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FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

General.

Recommendations made, and opinions expressed in the report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held for conditions which have not been revealed by exploratory work, or which occur between exploratory hole locations. Whilst the report may suggest the likely configuration of strata, both between exploratory hole locations, or below the maximum depth of the investigation, this is only indicative, and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

Boring Procedures.

Unless otherwise stated, the 'Shell and Auger' technique of soft ground boring has been employed. All boring operations sampling and/or logging of soils and in-situ testing complies with the recommendations of the British Standard Code of Practice BS 5930 (1999), 'Site Investigation' and BS 1377:1990, 'Methods of test for soils for civil engineering purposes'.

Whilst the technique allows the maximum data to be obtained in soft ground, some disturbance and variation of soft and layered soils is unavoidable. Attention is drawn to this condition, whenever it is suspected. Where cobbles and boulders are recorded, no conclusion should be drawn concerning the size, presence, lithological nature, or numbers per unit volume of ground.

Where peat has been encountered during siteworks, samples have been logged in accordance with BS 5930:1999 Part 6 Identification and description of soils,

Routine Sampling.

Undisturbed samples of soils, predominantly cohesive in nature are obtained unless otherwise stated by a 104mm diameter open-drive tube sampler. In granular soils, and where undisturbed sampling is inappropriate, disturbed samples are collected.

Smaller disturbed samples are also recovered at intervals to allow a visual examination of the full strata section.

In-Situ Testing.

Standard penetration tests, utilising either the standard split spoon sampler or solid cone and automatic trip-hammer are conducted unless otherwise where required by instruction. Subsequent to a seating drive of 150mm, a summation for the number of blows for 300mm penetration is recorded on the boring records together with the blow count for each 75mm penetration. In cases where incomplete penetration is obtained, the number of blows for the recorded value of penetration are noted. In coarse granular soils, a cone end is fitted to the sampler and a similar procedure adopted.

Groundwater.

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level.

Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage condition, tidal variation or other causes.

Retention of Samples.

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material is discarded.

Unless a period of retention of samples is agreed, it is our normal practice to discard all soil samples one month after submission of our final report.

**REPORT ON A GROUND INVESTIGATION
AT
ROADSTONE QUARRIES, GLENDING, CO. WICKLOW
ON BEHALF OF
JOHN BARNETT & ASSOCIATES
CONSULTING ENGINEERS**

REPORT NO. 8669

MAY 2003

1.INTRODUCTION

The site is located in the Roadstone Quarry at Glending, Blessington, Co. Wicklow.

An investigation of sub-soil conditions was ordered by the projects consulting engineers, John Barnett & Associates, on behalf of their clients, Roadstone Limited

The programme of the investigation included,

- ✓ The construction of thirteen exploratory boreholes to establish stratification. During the course of boring in-situ tests were performed at regular intervals and representative soil samples were recovered for visual examination and laboratory analysis.
- ✓ The installation of combined gas and groundwater monitoring standpipes at selected borehole locations.
- ✓ The carrying out of in situ gas monitoring at the standpipe locations at intervals specified by the projects engineers.
- ✓ The carrying out of laboratory soils testing (Geotechnical) as specified by the projects engineers.

This report deals with the factual findings of the ground investigation works.

II. FIELDWORK

The site is referred to as the Roadstone Glending site. The locations of all of the investigation points were marked on site by a representative of the projects engineers and are not included in this report.

The methods utilised during the course of the field investigations are outlined in the following sections .

Cable Tool Boreholes.

Conventional cable tool techniques (shell and auger) were employed at thirteen locations across the site . All field work was carried out in accordance with BS5930.

Sampling and in - situ testing were performed to BS1377. Disturbed and undisturbed soil samples were taken at regular intervals or at changes in stratification while standard penetration tests (SPT's) were also carried out to establish relative in - situ soil strength.

Full details of stratification, testing, sampling, comments on groundwater and notes on any obstructions to normal boring encountered are given in the detailed borehole records enclosed in Appendix I to this report. It should be noted that the ground conditions necessitated the use of a considerable amount of hard strata boring and in places required the casing diameters to be increased from 200mm to 250mm.

Groundwater standpipes were installed in selected boreholes. Standpipes were installed to the specifications of the projects engineers. Where standpipes were not installed the boreholes were grouted with a cement bentonite based grout material.

At each location the borehole equipment was steam cleaned prior to drilling commencing. This was carried out to ensure that no cross contamination occurred between borehole positions.

III. TESTING

During the course of the investigation samples of the sub soils were taken from the boreholes and were returned to IGSL's laboratory where a programme of testing was scheduled by the projects engineers.

Geotechnical Testing – Soils

All of the geotechnical test data is included in Appendix II to this report.

Tests carried out included

- ✓ Moisture Content Tests
- ✓ Atterburg Limits (Classification tests).
- ✓ Particle Size Distribution Tests (Wet Sieve)
- ✓ Sedimentation Analysis (by Hydrometer).

In Situ Tests

1. Standard Penetration Tests

The relative in-situ strength of the sub-soils was established at intervals by cone penetration test . A solid conical point is hammered into the soil and the blow count for 300mm of penetration is recorded in four 75mm increments. Results are presented in the right - hand column of the boring and coring records.

2. Gas Monitoring

Gas monitoring was carried out over a period of site visits using a GA2000 infra red gas detector.

This equipment monitors for Methane, Carbon Dioxide, Hydrogen Sulphide and Oxygen. Monitoring results are detailed in Appendix III to this report.

Appendix 1
Cable Percussion Borehole Logs

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REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/10
 Sheet 1 of 3

CLIENT : Roadstone GROUND LEVEL (mOD) 237.80 DATE STARTED: 10/03/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 13/03/2003

CO-ORDINATES : E 298123.00 BOREHOLE DEPTH (m) 27.50 BORED BY: J Quinn
 N 216147.00 CASING DEPTH (m) 27.50

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of stiff dark brown sandy very gravelly clay with some cobbles also with brick, concrete	[Cross-hatched pattern]			531	B	0.50		
1					532	B	1.00	N=22	
2	MADE GROUND consisting of stiff mottled grey/brown sandy gravelly clay with some cobbles also with wood	[Dotted pattern]	235.60	2.20	533	B	2.20		
3					534	B	2.50	N=R	
4					535	B	2.80		
5	MADE GROUND consisting of dark brown sandy very gravelly clay with some cobbles also with brick	[Cross-hatched pattern]	234.80	3.00	536	B	3.20		
6					537	B	4.00	N=24	
7	Medium dense brown slightly sandy gravelly clay with bricks, glass, plastic, metal, wood, paper, cloth	[Dotted pattern]	232.60	5.20	538	B	5.20		
8					539	B	5.60	N=62	
9					540	B	6.30		
10					541	B	6.70		
11					542	B	7.00	N=50/75mm	
12	Medium dense brown sandy very clayey fine to coarse GRAVEL with cobbles	[Dotted pattern]	229.40	8.40	543	B	7.40		
13					544	B	8.50	N=18	
14	Grey brown gravelly medium to coarse SAND with some cobbles and boulders	[Dotted pattern]	228.80	9.00	545	B	9.50		
15					546	B	10.00		
16	Continued next sheet								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
2.20	2.50	0.75	.
2.50	2.80	1.00	.
2.80	3.60	1.50	.
6.30	7.00	2.00	.
7.00	7.40	1.00	.
7.40	7.70	1.00	.
11.50	11.80	0.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
13/03/2003	11.00	8.60	11.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH1/10
Sheet 2 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 237.80
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 27.50
CASING DEPTH (m) 27.50

DATE STARTED: 10/03/2003
DATE COMPLETED: 13/03/2003

CO-ORDINATES : E 298123.00
N 216147.00

BORED BY: J Quinn

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS		
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)				
0	Grey brown gravelly medium to coarse SAND with some cobbles and boulders	[Pattern]	225.80	12.00				N=22	[]		
11					547	B	11.50				
12	Medium dense grey/brown coarse SAND with occasional gravel				548	B	12.50	N=28			
13					549	B	13.50				
14	Dense grey/brown very sandy GRAVEL with cobbles				223.55	14.25	550	B	14.50	N=34	
15					222.55	15.25	551	B	15.50		
15	Grey/brown very sandy GRAVEL with cobbles	[Pattern]	221.80	16.00	552	B	16.20	N=8			
16	Loose brown silty fine SAND				553	B	18.00				
17					554	B	19.00	N=5			
18					555	B	20.00				
19											
20	Continued next sheet										

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
2.20	2.50	0.75	.
2.50	2.80	1.00	.
2.80	3.60	1.50	.
6.30	7.00	2.00	.
7.00	7.40	1.00	.
7.40	7.70	1.00	.
11.50	11.80	0.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
13/03/2003	11.00	8.60	11.00	SP

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/10
 Sheet 3 of 3

CLIENT : Roadstone GROUND LEVEL (mOD) 237.80 DATE STARTED: 10/03/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 13/03/2003

CO-ORDINATES : E 298123.00 BOREHOLE DEPTH (m) 27.50 BORED BY: J Quinn
 N 216147.00 CASING DEPTH (m) 27.50

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
20	Loose brown silty fine SAND	[Patterned Legend]							
21					556	B	21.00	N=6	
22	Stiff brown sandy gravelly to very gravelly CLAY with cobbles and boulders		216.30	21.50	557	B	21.60	N=30	
					558	B	21.80		
					559	B	22.00		
23					560	B	22.70	N=29	
					561	B	23.00		
	Medium dense brown very clayey sandy GRAVEL with cobbles		214.50	23.30					
24	Dense to very dense grey/brown sandy fine to coarse GRAVEL with cobbles and some clay		214.05	23.75					
25					562	B	24.00	N=R	
				563	B	24.70			
				564	B	25.00			
				565	B	25.30			
				566	B	25.50			
26				567	B	26.50			
27	Very dense fine to coarse GRAVEL with cobbles	211.00	26.80						
				568	B	27.10	N=R		
				569	B	27.30			
	End of Borehole at 27.50 m	210.30	27.50						

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
2.20	2.50	0.75	.
2.50	2.80	1.00	.
2.80	3.60	1.50	.
6.30	7.00	2.00	.
7.00	7.40	1.00	.
7.40	7.70	1.00	.
11.50	11.80	0.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
13/03/2003	11.00	8.60	11.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill		BOREHOLE NO: BH1/11 Sheet 1 of 1	
CLIENT : Roadstone	GROUND LEVEL (mOD)	235.90	DATE STARTED: 13/02/2003
ENGINEER : John Barnett & Associates	BOREHOLE DIAMETER (mm)	200	DATE COMPLETED: 13/02/2003
CO-ORDINATES : E 298188.00 N 216151.00	BOREHOLE DEPTH (m)	2.60	BORED BY: J. Quinn
	CASING DEPTH (m)	2.60	

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of brown sandy gravelly clay with cobbles and boulders		235.70	0.20	508	B	0.00		
1	MADE GROUND consisting of hard grey sandy gravelly clay with cobbles and boulders				509	U	0.50		
					510	D	1.05		
					511	B	1.10		
					512	B	1.50	N=50/40mm	
2	MADE GROUND consisting of sandy clay bricks, timber, plastic		234.10	1.80	513	B	1.80		
					514	B	2.40	N=R	
	End of Borehole at 2.60 m		233.30	2.60					
3									
4									
5									
6									
7									
8									
9									
10									

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From (m)	To (m)	Hours	Comments
1.10	1.50	1.00	.
1.50	1.80	0.75	.
1.80	2.20	1.00	.
2.20	2.60	1.00	.

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Date	Tip Depth	RZ Top	RZ Base	Type

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH1/11A
Sheet 1 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) -
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 15.70
CASING DEPTH (m) 15.70

DATE STARTED: 13/02/2003
DATE COMPLETED: 18/02/2003

CO-ORDINATES : E -
N -

BORED BY: J. Quinn

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of brown sandy clay	[Cross-hatch pattern]		0.20					
0.20	MADE GROUND consisting of firm black/brown sandy gravelly clay with cobbles also with concrete, wood, brick	[Dotted pattern]							
2.00					515	B	2.00		
2.30					516	U	2.30		
2.80					517	B	2.80	N=19	
3.50					518	B	3.50		
3.80					519	B	3.80	N=28	
5.00	MADE GROUND consisting of stiff brown slightly silty fine to medium sand with wood, paper, plastic, bricks, concrete	[Cross-hatch pattern]							
5.00					520	U	5.00		
5.55					521	D	5.55		
5.70					522	B	5.70		
6.00					523	B	6.00		
6.50					524	B	6.50	N=5	
7.20					525	D	7.20		
7.50					526	B	7.50		
7.50					527	B	7.50	N=50/ 119mm	
8.30	4 water samples taken				528	D	8.30		
8.50					529	B	8.50	N=2	
9.90	Reduced hole to 150mm, Falling Head Test Continued next sheet				530	D	9.90	N=26	

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.70	2.00	1.00	.
3.50	3.80	0.75	.
7.20	7.50	1.00	.
11.60	11.80	0.50	.
13.40	13.70	0.75	.
13.70	14.00	1.00	.
14.00	14.30	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
10.00	10.00	-	8.10	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
18/02/2003	12.00	10.00	12.00	SP

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/11A
 Sheet 2 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) - DATE STARTED: 13/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 18/02/2003

CO-ORDINATES : E - BOREHOLE DEPTH (m) 15.70 BORED BY: J. Quinn
 N - CASING DEPTH (m) 15.70

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
10.00	Stiff brown sandy CLAY with occasional gravel and occasional cobbles :	[Pattern]			601	B	10.00		
11.00	10.00m - 13.20m : Interlaminated with grey sandy SILTS and CLAYS and fine SANDS				602	D	11.00	N=52	
					603	B			
					604	B	11.50		
					605	U	12.00		
					606	B	12.50	N=5	
13.20	Dense to very dense grey/brown sandy fine to coarse GRAVEL with cobbles				607	D	13.30		
					608	B	13.40		
					609	B	13.70	N=75/ 119mm	
					610	B	14.00		
	Falling head test			611	B	14.50	N=45		
				611	B	15.20			
				611	D				
				611	B	15.50	N=R		
15.70	End of Borehole at 15.70 m								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.70	2.00	1.00	.
3.50	3.80	0.75	.
7.20	7.50	1.00	.
11.60	11.80	0.50	.
13.40	13.70	0.75	.
13.70	14.00	1.00	.
14.00	14.30	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
10.00	10.00	-	8.10	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
18/02/2003	12.00	10.00	12.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT: Roadstone Quarry Landfill

BOREHOLE NO: BH1/12
Sheet 1 of 3

CLIENT: Roadstone
ENGINEER: John Barnett & Associates

GROUND LEVEL (mOD) 238.80
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 20.10
CASING DEPTH (m) 20.10

DATE STARTED: 18/02/2003
DATE COMPLETED: 21/02/2003

CO-ORDINATES: E 298111.00
N 216112.00

BORED BY: J. Quinn

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of very soft brown/black sandy gravelly clay with some cobbles with concrete,bricks,				615	B	0.50		
1					616	B	1.50		
2					617	B	2.00	N=2	
3					618	B	2.50		
4					619	B	3.00	N=4	
5					620	B	3.70		
6					621	B	4.00	N=5	
7					622	D	4.70		
8					623	B	5.00	N=7	
9					625	W	5.10		
5	Falling Head Test 6 water samples taken								
6	MADE GROUND consisting of medium dense dark brown sandy very clayey GRAVEL with cobbles		232.80	6.00	626	B	6.00	N=15	
7					627	B	6.70		
8					628	B	7.00	N=18	
8	MADE GROUND consisting of medium dense sandy very clayey fine to medium gravel with some cobbles also with wood Water sample taken		230.60	8.20	629	B	8.00		
9					630	B	8.20	N=R	
9					631	B	8.50		
9					634	W	8.70		
9					632	B	9.00	N=24	
10	Continued next sheet		229.05	9.75	633	B	10.00	N=15	

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.70	2.00	0.75	.
5.60	5.90	0.75	.
6.70	7.00	1.00	.
8.00	8.20	0.50	.
8.20	8.50	1.00	.
8.50	8.70	1.00	.
11.50	11.70	1.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
5.80	5.80	-	5.10	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
21/02/2003	14.00	12.00	14.00	SP

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/12
 Sheet 2 of 3

CLIENT : Roadstone GROUND LEVEL (mOD) 238.80 DATE STARTED: 18/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 21/02/2003

CO-ORDINATES : E 298111.00 BOREHOLE DEPTH (m) 20.10 BORED BY: J. Quinn
 N 216112.00 CASING DEPTH (m) 20.10

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	Firm brown sandy very gravelly CLAY								
11	Medium dense brown sandy very clayey fine to coarse GRAVEL		228.05	10.75	635	B	11.00	N=23	
					636	B	11.50		
			227.10	11.70	637	B	11.70		
12	Hard brown gravelly sandy CLAY				638	U	12.00		
					639	D	12.55		
					640	U	13.00		
			225.30	13.50	641	B	13.50	N=R	
	Very dense brown slightly clayey very sandy fine to coarse GRAVEL with cobbles				642	B	13.70		
			224.55	14.25	643	D	14.40	N=16	
	Medium dense grey/brown medium to coarse SAND				644	D	14.50		
					645	B			
			223.55	15.25	646	D	15.30	N=27	
	Dense grey/brown fine to medium SAND				647	D	15.50		
					648	B			
					649	D	16.40	N=23	
					650	D	16.50		
					651	B			
					651	D	17.50	N=34	
					652	B			
					653	B	18.50		
					654	D	19.30		
					655	D	19.60	N=33	
					656	B			
20	Continued next sheet								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.70	2.00	0.75	.
5.60	5.90	0.75	.
6.70	7.00	1.00	.
8.00	8.20	0.50	.
8.20	8.50	1.00	.
8.50	8.70	1.00	.
11.50	11.70	1.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
5.80	5.80	-	5.10	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
21/02/2003	14.00	12.00	14.00	SP

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/12
 Sheet 3 of 3

CLIENT : Roadstone GROUND LEVEL (mOD) 238.80 DATE STARTED: 18/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 21/02/2003

CO-ORDINATES : E 298111.00 BOREHOLE DEPTH (m) 20.10 BORED BY: J. Quinn
 N 216112.00 CASING DEPTH (m) 20.10

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
20.10	Dense grey/brown fine to medium SAND End of Borehole at 20.10 m		218.70	20.10					
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.70	2.00	0.75	.
5.60	5.90	0.75	.
6.70	7.00	1.00	.
8.00	8.20	0.50	.
8.20	8.50	1.00	.
8.50	8.70	1.00	.
11.50	11.70	1.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
5.80	5.80	-	5.10	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
21/02/2003	14.00	12.00	14.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT: Roadstone Quarry Landfill

BOREHOLE NO: BH1/13
Sheet 1 of 3

CLIENT: Roadstone
ENGINEER: John Barnett & Associates

GROUND LEVEL (mOD) 239.40
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 24.70
CASING DEPTH (m) 24.70

DATE STARTED: 03/03/2003
DATE COMPLETED: 07/03/2003

CO-ORDINATES: E 298158.00
N 216087.00

BORED BY: J Quinn

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS				
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)						
0	MADE GROUND consisting of stiff dark brown sandy gravelly clay with cobbles also with blacktop, concrete Grass roots	[Cross-hatched pattern]			8152	B	0.50						
1					8153	B	1.00	N=50/ 150mm					
					8154	B	1.40						
					8155	B	1.70	N=R					
2					8156	B	2.30						
3					8157	B	3.00	N=22					
4					8158	B	4.00						
5					8159	B	5.00	N=18					
6					MADE GROUND consisting of firm to stiff mottled brown/grey/orange sandy gravelly clay with plastic, wood	[Dotted pattern]	233.65	5.75	8160	B	6.00		
									8161	B	6.60		
7	MADE GROUND consisting of dense brown very sandy very clayey fine to coarse gravel	[Cross-hatched pattern]	232.40	7.00	8162	B	7.00	N=32					
	MADE GROUND consisting of brown very sandy fine to coarse gravel	[Cross-hatched pattern]	231.90	7.50	8163	B	7.50						
8	MADE GROUND consisting of dense brown silty very sandy fine to coarse gravel with tarmac	[Cross-hatched pattern]	231.60	7.80	8164	B	8.00	N=30					
9	MADE GROUND consisting of brown silty fine sand with some gravel, cobbles, boulders	[Cross-hatched pattern]	230.65	8.75	8165	B	9.00						
10	Continued next sheet				8166	B	10.00	N=1					

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.40	1.70	0.75	.
1.70	2.00	1.00	.
2.30	2.60	1.00	.
6.60	6.90	1.25	.
7.50	7.80	1.00	.
12.60	12.80	0.50	.
12.80	13.00	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
12.90	13.60	-	12.70	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
07/03/2003	14.00	9.50	14.00	SP

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH1/13
Sheet 2 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 239.40
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 24.70
CASING DEPTH (m) 24.70

DATE STARTED: 03/03/2003
DATE COMPLETED: 07/03/2003

CO-ORDINATES : E 298158.00
N 216087.00

BORED BY: J Quinn

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
9	MADE GROUND consisting of brown silty fine sand with some gravel, cobbles, boulders								
11					8167	B	11.00		
					8173	W	11.40		
12	Made Ground consisting of medium dense brown sandy clayey gravel with some cobbles		227.60	11.80	8168	B	12.00	N=12	
13	MADE GROUND consisting of loose to medium dense brown fine sand with plastic, cloth, metal, wood		226.80	12.60	8169	B	12.60	N=R	
					8170	W	12.70		
					8171	B	12.80		
					8172	B	13.00		
					8173	B	13.30		
	8174	B	13.60						
14					8175	B	14.50		
					8176	B	14.80		
15	Medium dense grey/brown medium SAND		224.10	15.30	8177	B	15.50	N=13	
16	Medium dense brown fine SAND with some silt		223.15	16.25	8178	B	16.50	N=8	
					8179	B	17.50		
					8180	B	18.50		
					8181	B	19.50		
17									
18									
19									
20	Continued next sheet								

Consent of client owner required for any other use.

Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.40	1.70	0.75	.
1.70	2.00	1.00	.
2.30	2.60	1.00	.
6.60	6.90	1.25	.
7.50	7.80	1.00	.
12.60	12.80	0.50	.
12.80	13.00	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
12.90	13.60	-	12.70	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
07/03/2003	14.00	9.50	14.00	SP

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH1/13
Sheet 3 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 239.40
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 24.70
CASING DEPTH (m) 24.70

DATE STARTED: 03/03/2003
DATE COMPLETED: 07/03/2003

CO-ORDINATES : E 298158.00
N 216087.00

BORED BY: J Quinn

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS		
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)				
20	Medium dense brown fine SAND with some silt	[Pattern]	218.25	21.15	8182	B	20.50	N=44			
21	Very stiff brown gravelly sandy CLAY with sandy silt inclusions				8183	B	21.30				
					8184	B	21.50				
22	Very dense brown clayey sandy fine to coarse GRAVEL with cobbles and boulders				8184	B	22.20				
					8184	B	22.50				
23					8184	B	22.80				
					8184	B	23.50				
24	End of Borehole at 24.70 m				8184	B	24.20			N=71	
25					214.70	24.70					

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.40	1.70	0.75	.
1.70	2.00	1.00	.
2.30	2.60	1.00	.
6.60	6.90	1.25	.
7.50	7.80	1.00	.
12.60	12.80	0.50	.
12.80	13.00	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
12.90	13.60	-	12.70	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
07/03/2003	14.00	9.50	14.00	SP

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH1/14
Sheet 1 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 237.70
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 21.20
CASING DEPTH (m) 21.20

DATE STARTED: 22/02/2003
DATE COMPLETED: 23/02/2003

CO-ORDINATES : E 298227.00
N 216055.00

BORED BY: J. Quinn

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of soft to firm brown slightly gravelly sandy CLAY				657	B	0.50		
1					658	B	1.00	N=10	
2	MADE GROUND consisting of medium dense mottled black/brown slightly gravelly very clayey sandd with wood, paper, plastic,glass, rubber,rope		235.70	2.00	659	D	2.20		
3					660	B	2.50	N=13	
4					661	B	3.40		
5					662	B	4.00	N=21	
6	Loose brown slightly silty fine SAND		232.70	5.00	663	D	5.50		
7					664	B	6.00	N=5	
8					665	B	7.20		
9	Interlaminated brown fine SANDS, grey CLAYS and brown SILTS		230.70	7.00	666	U	7.50		
10					667	D	8.05		
11	Very dense grey/brown very sandy fine to coarse GRAVEL with cobbles and boulders		229.10	8.60	668	D	8.60		
12					669	D	8.90		
13					670	B	9.20	N=R	
14					671	B	9.40		
15	Continued next sheet		228.00	9.70	672	B	9.70		
16					673	B	10.00	N=20	

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.80	1.30	1.50	.
3.40	4.00	2.00	.
9.20	9.40	1.00	.
9.40	9.60	1.00	.
17.10	17.30	0.50	.
19.30	19.50	0.50	.
19.70	19.90	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
26/02/2003	11.50	9.50	11.50	SP

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH1/14
 Sheet 2 of 3

CLIENT : Roadstone GROUND LEVEL (mOD) 237.70 DATE STARTED: 22/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 23/02/2003

CO-ORDINATES : E 298227.00 BOREHOLE DEPTH (m) 21.20 BORED BY: J. Quinn
 N 216055.00 CASING DEPTH (m) 21.20

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS			
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)					
10	Dense brown fine SAND											
11					674	B	11.00					
12					675 676	D B	12.00	N=34				
13					677	B	13.00					
14					678 679	D B	14.00	N=35				
15					Inter laminated dark brown SILT and grey CLAY		223.70	14.60	680	B	14.70	
16					Dense brown sandy very clayey fine to coarse GRAVEL with cobbles		222.50	15.20	681	B	15.50	N=31
17					Brown slightly gravelly CLAY		221.40	16.30	682	B	16.60	
18					Dense grey /brown very sandy fine to coarse GRAVEL with some cobbles		220.60	17.10	683	B	17.10	
19									684	B	17.50	N=34
19	685	B	18.50									
20	686	B	19.30									
20	Very dense grey clayey sandy fine to coarse GRAVEL		218.55	19.15	687	B	19.50	N=59/ 125mm				
20	Very dense grey/brown very sandy fine to coarse		218.20	19.50	688	B	19.90					
20	Continued next sheet		217.80	19.90								

Consent of the Protection Authority is required for any other use.

Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.80	1.30	1.50	.
3.40	4.00	2.00	.
9.20	9.40	1.00	.
9.40	9.60	1.00	.
17.10	17.30	0.50	.
19.30	19.50	0.50	.
19.70	19.90	0.50	.

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
26/02/2003	11.50	9.50	11.50	SP

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: EH1/14
Sheet 3 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 237.70
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 21.20
CASING DEPTH (m) 21.20

DATE STARTED: 22/02/2003
DATE COMPLETED: 23/02/2003

CO-ORDINATES : E 298227.00
N 216055.00

BORED BY: J. Quinn

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
19.50m - 19.90m	GRAVEL with cobbles				689	B	20.30		
					690	B	20.50	N=R	
19.90m - 20.70m	Very dense brown clayey sandy fine to coarse GRAVEL		217.00	20.70	691	B	20.70		
			216.70	21.00	692	B	21.00	N=R	
	Very dense grey/brown sandy GRAVEL with cobbles		216.50	21.20					
	Very dense grey/brown slightly clayey sandy fine to medium GRAVEL								
	End of Borehole at 21.20 m								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.80	1.30	1.50	.
3.40	4.00	2.00	.
9.20	9.40	1.00	.
9.40	9.60	1.00	.
17.10	17.30	0.50	.
19.30	19.50	0.50	.
19.70	19.90	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
26/02/2003	11.50	9.50	11.50	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH4/10
 Sheet 1 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) 220.10 DATE STARTED: 04/03/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 05/03/2003

CO-ORDINATES : E 297470.00 BOREHOLE DEPTH (m) 15.00 BORED BY: C.Carrington
 N 215935.00 CASING DEPTH (m) 15.00

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	Brown slightly gravelly silty SAND with roots								
1									
2	Brown gravelly sandy SILT		218.10	2.00					
3	Very dense mottled grey/brown silty fine SAND with some gravel		217.35	2.75					
	Brown slightly sandy fine to coarse GRAVEL with cobbles		216.90	3.20	3301 3309	B D	3.00	N=30/ 225mm	
					3302 3310	B D	3.40		
4	Dense brown very sandy medium to coarse GRAVEL		216.10	4.00					
	Dense grey/brown medium SAND		215.50	4.60	3303 3304 3311 3305	B B D D	4.50 4.70 5.00	N=46 N=31	
5									
6	Medium dense grey/brown fine SAND		214.60	5.50					
7					3306	B	6.50		
					3307 3312	D	7.00	N=23	
8									
9	6 water samples taken				3308	B	8.50		
					3313 3314 3315	D W D	9.00	N=25	
10	Continued next sheet								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
3.80	4.10	1.00	.
12.70	12.90	0.50	.
13.00	13.15	0.50	.
13.50	13.70	0.50	.
14.60	14.80	1.00	.
15.00	15.00	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
3.80	9.00	-	3.00	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
05/03/2003	5.00	2.00	5.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
05/03/2003	9.00	9.00	7.10	

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH4/10
 Sheet 2 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) 220.10 DATE STARTED: 04/03/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 05/03/2003

CO-ORDINATES : E 297470.00 BOREHOLE DEPTH (m) 15.00 BORED BY: C.Carrington
 N 215935.00 CASING DEPTH (m) 15.00

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
10	Medium dense grey/brown fine SAND	[Pattern]			3316	B	10.50		
11					3317 3323	D	11.00		
12	Hard grey/brown sandy gravelly CLAY with some cobbles	[Pattern]	208.45	11.65	3318	B	11.80	N=67	
					3324	D	12.00		
					3319	D			
13					3325	D	13.00		
14					3320	B	13.50		
					3321	B	14.00	N=130/ 225mm	
15	End of Borehole at 15.00 m		205.10	15.00	3322 3326	B D	15.00		
16									
17									
18									
19									
20									

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
3.80	4.10	1.00	.
12.70	12.90	0.50	.
13.00	13.15	0.50	.
13.50	13.70	0.50	.
14.60	14.80	1.00	.
15.00	15.00	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
3.80	9.00	-	3.00	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
05/03/2003	5.00	2.00	5.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
05/03/2003	9.00	9.00	7.10	

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH4/10A
Sheet 1 of 1


CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) -
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 3.00
CASING DEPTH (m) 3.00

DATE STARTED: 03/03/2003
DATE COMPLETED: 03/03/2003

CO-ORDINATES : E -
N -

BORED BY: C.Carrington

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of loose brown silty sandy gravel, cobbles and boulders				4084	B	0.00	N=6	
1					4085	B	1.00		
2					4086	B	2.50		
3	Large BOULDER obstruction End of Borehole at 3.00 m			2.95 3.00					
4									
5									
6									
7									
8									
9									
10									

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
3.00	3.00	1.00	

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH4/11
 Sheet 1 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) 222.10 DATE STARTED: 02/03/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 03/03/2003

CO-ORDINATES : E 297422.00 BOREHOLE DEPTH (m) 12.50 BORED BY: C.Carrington
 N 215891.00 CASING DEPTH (m) 12.50

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of loose to medium dense brown silty gravelly fine sand with some cobbles	[Cross-hatch pattern]			4070	B	0.00		
1					4071 4072	D B	1.00	N=10	
2	MADE GROUND consisting of brown silty fine sand with some gravel and cobbles also with silt lenses	[Dotted pattern]	220.10	2.00	4073	B	2.50		
3	Medium dense brown slightly silty gravelly medium sand with some cobbles	[Cross-hatch pattern]	219.35	2.75	4074 4075	D B	3.00	N=10	
4	Made Ground consisting of mottled black/brown silty sand with rubber, paper, plastic, glass	[Dotted pattern]	218.10	4.00	4076 4077	B D	4.15		
5	Very dense grey/brown slightly silty gravelly medium SAND with some cobbles	[Dotted pattern]	217.45	4.65	4077 4078	D B	5.00	N=62	
6	Medium dense grey/brown medium SAND	[Dotted pattern]	216.35	5.75	4079 4080	D B	6.00		
7					4081 4082	D	7.00	N=12	
8	Medium dense grey/brown slightly gravelly medium SAND with some brown SILT layers	[Dotted pattern]	214.10	8.00	4083	B	8.50		
9					4085 4086	D	9.00	N=15	
10	Hard mottled orange/brown sandy gravelly to Continued next sheet	[Cross-hatch pattern]	212.60	9.50	4087	B	10.00	N=47	

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.60	0.90	1.00	.
1.20	1.50	1.00	.
10.40	10.70	1.00	.
11.20	11.40	1.00	.
11.80	11.90	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
6.00	9.00	-	5.50	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
03/03/2003	10.00	6.00	10.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH4/11
Sheet 2 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 222.10
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 12.50
CASING DEPTH (m) 12.50

DATE STARTED: 02/03/2003
DATE COMPLETED: 03/03/2003

CO-ORDINATES : E 297422.00
N 215891.00

BORED BY: C.Carrington

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS	
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)			
0	very gravelly CLAY with some cobbles :	[Pattern]	209.60	12.50	4088					
10.00m - 10.00m										
	10.00m - 10.00m : 6 water samples taken									
11					4089	B	11.50			
12					4090	B	12.00	N=98/ 150mm		
	End of Borehole at 12.50 m									
13										
14										
15										
16										
17										
18										
19										
20										

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.60	0.90	1.00	.
1.20	1.50	1.00	.
10.40	10.70	1.00	.
11.20	11.40	1.00	.
11.80	11.90	0.50	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
6.00	9.00	-	5.50	20	Medium

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
03/03/2003	10.00	6.00	10.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH4/12
Sheet 1 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (MOD) 220.70
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 14.30
CASING DEPTH (m) 14.30

DATE STARTED: 28/02/2003
DATE COMPLETED: 01/03/2003

CO-ORDINATES : E 297469.00
N 215891.00

BORED BY: C.Carrington

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (MOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS	
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)			
0	MADE GROUND consisting of loose brown slightly gravelly silty fine to medium sand				4043	B	0.00			
1					4044 4045	D B	1.00	N=11		
2	MADE GROUND consisting of loose grey/brown sand with plastic, wood, wire		218.70	2.00	4046	B	2.50			
3					4047 4048	D B	3.00			
4										
5	MADE GROUND consisting of very dense silt with plastic, concrete, wood		215.95	4.75	4049	B	4.50			
6					4050 4051 4052	B D B	5.00	N=9		
7										
8	very dense brown medium SAND with some silt 6 water samples taken		213.95	6.75	4053	B	6.50			
9					4055 4056 4057	D W B	7.00	N=54		
10										
					4058 4059 4060	B D	8.50	N=60		
					4061	B	9.50			
	Continued next sheet									

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.60	0.80	0.66	.
2.70	2.80	0.50	.
6.00	7.00	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
01/03/2003	14.30	14.30	12.00	

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
01/03/2003	13.00	6.00	10.00	SP

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH4/12
Sheet 2 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 220.70
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 14.30
CASING DEPTH (m) 14.30

DATE STARTED: 28/02/2003
DATE COMPLETED: 01/03/2003

CO-ORDINATES : E 297469.00
N 215891.00

BORED BY: C.Carrington

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	very dense brown medium SAND with some silt	[Pattern]			4062 4063	D	10.50	N=1	
11					4064	B	11.50		
12	Very loose brown silty fine SAND with some gravel Some lenses of grey/brown CLAY	[Pattern]	208.70	12.00	4065 4066	D	12.50	N=1	
13									
	Brown slightly sandy SILT with some gravel	[Pattern]	207.20	13.50					
14					4067 4068 4069 4068	B U B D	14.00 14.30 14.45		
	Grey/brown sandy very gravelly CLAY	[Pattern]	206.55 206.40	14.15 14.30					
	End of Borehole at 14.30 m								

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
0.60	0.80	0.66	.
2.70	2.80	0.50	.
6.00	7.00	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
01/03/2003	13.00	6.00	10.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
01/03/2003	14.30	14.30	12.00	

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH6/10
Sheet 1 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 214.10
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 15.60
CASING DEPTH (m) 15.60

DATE STARTED: 20/02/2003
DATE COMPLETED: 21/02/2003

CO-ORDINATES : E 298157.00
N 215177.00

BORED BY: T. McCarthy

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of stiff brown silty fine sand Some finely laminated sandy silt	[Cross-hatched pattern]	211.10	3.00	1697	B	0.00		
1					1698	B	1.00	N=28	
2					1699	B	2.00		
3	MADE GROUND consisting of stiff brown silty fine sand with some gravel and cobbles	[Dotted pattern]	209.10	5.00	1700	B	3.00	N=24	
4					801	D	3.30		
5					802				
6					803	B	4.00		
5	MADE GROUND consisting of mottled black/brown/grey clayey fine to coarse gravel with wood plastic, paper, metal	[Cross-hatched pattern]	209.10	5.00	804	B	5.00	N=6	
6					805	D	5.10		
7					806				
6	MADE GROUND consisting of medium dense brown sandy fine to coarse gravel with cobbles also with some scrap metal, ceramic Falling Head Test	[Cross-hatched pattern]	207.35	6.75	807	B	6.00		
7					808	B	7.00	N=23	
8	MADE GROUND consisting of soft brown fine sandy silt/clay with some plastic	[Dotted pattern]	206.35	7.75	809				
8					810	B	8.00		
9					811	D	8.30		
9					812	B	9.00	N=9	
10	Continued next sheet				813				
					814	B	10.00		

Consent of the landowner is required for any other use.

Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
3.40	3.50	0.25	
5.60	5.80	0.50	
7.30	7.30	0.75	
7.70	7.90	0.50	
8.10	8.30	0.75	
11.90	12.20	0.75	
13.80	14.00	0.50	

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
7.10	7.10	-	6.40	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH6/10
 Sheet 2 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) 214.10 DATE STARTED: 20/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 21/02/2003

CO-ORDINATES : E 298157.00 BOREHOLE DEPTH (m) 15.60 BORED BY: T. McCarthy
 N 215177.00 CASING DEPTH (m) 15.60

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
9	MADE GROUND consisting of soft brown fine sandy silt/clay with some plastic	[Pattern]			815	B	11.00	N=7	
11					816				
12	MADE GROUND consisting of stiff brown silty fine sand	[Pattern]	202.35	11.75	817	B	12.00		
13	Very soft brown slightly sandy CLAY	[Pattern]	201.35	12.75	818	B	13.00	N=1	
14					819				
15	Stiff brown sandy gravelly CLAY	[Pattern]	199.35	14.75	820	B	14.00	N=26	
15					821	U	14.50		
15					823	B	15.00		
15					822	D	15.05		
16	End of Borehole at 15.60 m		198.50	15.60	824	B	15.10		

Consent of the patent owner is required for any other use.

Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
3.40	3.50	0.25	
5.60	5.80	0.50	
7.30	7.30	0.75	
7.70	7.90	0.50	
8.10	8.30	0.75	
11.90	12.20	0.75	
13.80	14.00	0.50	

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
7.10	7.10	-	6.40	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669 **GEOTECHNICAL BORING RECORD** **IGSL**

CONTRACT : Roadstone Quarry Landfill BOREHOLE NO: BH6/11
 Sheet 1 of 2

CLIENT : Roadstone GROUND LEVEL (mOD) 214.50 DATE STARTED: 16/02/2003
 ENGINEER : John Barnett & Associates BOREHOLE DIAMETER (mm) 200 DATE COMPLETED: 22/02/2003

CO-ORDINATES : E 298187.00 BOREHOLE DEPTH (m) 17.50 BORED BY: C.Carrington
 N 215205.00 CASING DEPTH (m) 17.40

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	Made Ground consisting of medium dense slightly gravelly silty fine sand	[Cross-hatch pattern]			5167	B	0.00		
0.5					5168	B	0.50	N=15	
1	Sample J1		213.30	1.20	5169	D	1.20		
1.5	Made Ground consisting of dense brown silty fine sand	[Dotted pattern]			5170	B	1.40	N=R	
1.5					5171	B	1.50		
2					5172	D	2.20		
2.5	Made Ground consisting of dense grey/brown silty fine sand with cobbles Large amount of waste including latex gloves, plastic, wire	[Cross-hatch pattern]	212.00	2.50	5173	B	2.40	N=34	
2.5					5174	B	2.50		
2.5					5175	B	2.70		
3	Sample J2				5176	D	3.20		
3.5	Made Ground consisting of grey/brown silty very fine sand with some gravel also with large amounts of waste including wood, plastic, rope	[Dotted pattern]	211.00	3.50	5177	B	3.40	N=37	
3.5					5178	B	3.50		
4					5179	D	4.20		
4.5	Pushed obstruction from 4.5m to 7.0m. No test @ 6.5m as instructed				5180	B	4.40	N=12	
4.5					5181	B	4.50		
5	Sample J3				5182	D	5.20		
5.5					5183	B	5.40	N=R	
5.5					5184	B	5.50		
6					5185	D	6.20		
6.5					5186	B	6.40		
7	Sample J4				5187	B	7.00		
7.2					5188	D	7.20		
7.5					5189	B	7.50	N=R	
7.7	Medium dense grey brown silty very fine SAND becoming silty fine SAND with occasional cobbles	[Dotted pattern]	206.80	7.70	5190	B	8.00		
8.2					5191	D	8.20		
8.4					5192	B	8.40	N=27	
8.5					5193	B	8.50		
8.5					5194	D			
9	Sample J5				4003	B	9.00		
9.2					4001	D	9.20		
9.4					4002	D	9.40		
9.5	Medium dense to dense brown very sandy fine to	[Dotted pattern]	205.00	9.50					
10	Continued next sheet				4004	B	10.00	N=17	

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
4.70	5.00	0.66	.
5.00	5.50	0.80	.
5.50	6.00	0.75	.
6.00	6.50	0.58	.
6.50	7.00	0.50	.
15.60	17.60	4.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
10.70	10.70	-	9.70	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
19/02/2003	15.00	15.00	14.10	
22/02/2003	15.60	15.60	10.90	

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
19/02/2003	12.00	10.00	12.00	SP

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH6/11
Sheet 2 of 2

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 214.50
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 17.50
CASING DEPTH (m) 17.40

DATE STARTED: 16/02/2003
DATE COMPLETED: 22/02/2003

CO-ORDINATES : E 298187.00
N 215205.00

BORED BY: C.Carrington

DEPTH (M)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
10	coarse GRAVEL with some cobbles :	[Pattern]	202.00	12.50	4005	D		N=41	[Grid]
					4006	B			
	10.00m - 10.00m : Sample J6				4007	B	10.50		
	Water samples S1- S6								
11	Sample J7				4008	B	11.00		
					4009	D	11.50		
					4010	B	12.00		
12									
	Very Dense grey/brown gravelly very sandy COBBLES								
13	Sample J8				4011	B	13.00		
		4012	B	14.00					
		4013	D	14.20					
14									
	Sample J9	4014	B	15.00	N=30/ 50mm				
		4015							
	Pushing obstruction from 15.6m to 17.5m								
15									
	Dense grey silty SAND Sample J10	198.50	16.00	1748	D	16.00	N=31		
16									
17	End of Borehole at 17.50 m		197.00	17.50					
18									
19									
20									

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Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
4.70	5.00	0.66	.
5.00	5.50	0.80	.
5.50	6.00	0.75	.
6.00	6.50	0.58	.
6.50	7.00	0.50	.
15.60	17.50	4.75	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
10.70	10.70	-	9.70	20	Medium




Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
19/02/2003	12.00	10.00	12.00	SP

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments
19/02/2003	15.00	15.00	14.10	
22/02/2003	15.60	15.60	10.90	

REPORT NO: 8669		GEOTECHNICAL BORING RECORD		IGSL	
CONTRACT : Roadstone Quarry Landfill				BOREHOLE NO: BH6/12 Sheet 1 of 3	
CLIENT : Roadstone		GROUND LEVEL (mOD) 215.20		DATE STARTED: 23/02/2003	
ENGINEER : John Barnett & Associates		BOREHOLE DIAMETER (mm) 200		DATE COMPLETED: 27/02/2003	
CO-ORDINATES : E 298140.00 N 215216.00		BOREHOLE DEPTH (m) 21.00		BORED BY: C Jones +C Car	
		CASING DEPTH (m) 21.00			

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	MADE GROUND consisting of firm brown silty fine sand with some gravel				1749	B	0.50	N=12	
1					1750 1751	B D	1.00		
2	MADE GROUND consisting of firm grey/brown sandy gravelly clay with some cobbles also with plastic, wood		213.70	1.50	1752	B	1.50	N=17	
3					1753	B	2.00		
4					1754	B	2.50		
5					1755 1756	B D	3.00		
6					1757	B	3.50		
7					1758	B	4.00		
8					1759	B	4.50		
9					1760 1761	B D	5.00		
10					1762	B	5.50		
11					1763	B	6.00		
12	1764	B	6.50						
13	1765	B D	7.00						
14	1766	B	7.50						
15	1767	B	8.00						
16	1768	B	8.50						
17	1769 1770	B D	9.00						
18	7 water samples taken								
19	Very soft brown sandy SILT Clay inclusions		205.95	9.25	4017	B	10.00	N=16	
20	Continued next sheet								

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Hard Strata Boring / Chiselling			
From (m)	To (m)	Hours	Comments
1.65	1.85	0.75	.
3.70	3.90	0.50	.
4.35	4.50	0.50	.
6.30	6.45	0.50	.
7.60	7.80	0.75	.
17.50	18.00	1.00	.
17.60	17.80	1.00	.

Standpipe Installation Details				
Date	Tip Depth	RZ Top	RZ Base	Type
27/02/2003	10.00	8.00	10.00	SP

Water Strike Details					
Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
8.85	8.85	-	8.60	20	Medium

Groundwater Observations				
Date	Hole Depth	Casing Depth	Depth to Water	Comments

REPORT NO: 8669

GEOTECHNICAL BORING RECORD

IGSL

CONTRACT : Roadstone Quarry Landfill

BOREHOLE NO: BH6/12
Sheet 2 of 3

CLIENT : Roadstone
ENGINEER : John Barnett & Associates

GROUND LEVEL (mOD) 215.20
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 21.00
CASING DEPTH (m) 21.00

DATE STARTED: 23/02/2003
DATE COMPLETED: 27/02/2003

CO-ORDINATES : E 298140.00
N 215216.00

BORED BY: C Jones +C Car

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
0	Very soft brown sandy SILT				4018				
11					4019	B	11.00	N=1	
					4020	D			
					4021				
12					4022	B	12.00	N=1	
					4023	D			
13					4024	B	13.00		
					4025	D			
14					4026	D	14.00	N=1	
15					4027	B	15.00		
	4028	D							
16	4029	D	16.00	N=4					
17	Very dense brown slightly clayey sandy fine to coarse GRAVEL				4030	U	17.00		
					4033	D			
					4032	B	17.40		
					4034	D	17.45		
					4031	D			
18	4035	B	18.00	N=103					
19	Medium dense brown slightly silty medium SAND				4036	D	19.00	N=25	
					4037	D			
					4038	D			
					4039	W	19.50		
20	Continued next sheet		195.20	20.00					

Consent of the copyright owner required for any other use.

Hard Strata Boring / Chiselling

From (m)	To (m)	Hours	Comments
1.65	1.85	0.75	.
3.70	3.90	0.50	.
4.35	4.50	0.50	.
6.30	6.45	0.50	.
7.60	7.80	0.75	.
17.50	18.00	1.00	.
17.60	17.80	1.00	.

Water Strike Details

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
8.85	8.85	-	8.60	20	Medium

Groundwater Observations

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Standpipe Installation Details

Date	Tip Depth	RZ Top	RZ Base	Type
27/02/2003	10.00	8.00	10.00	SP

REPORT NO: 8669		GEOTECHNICAL BORING RECORD		IGSL	
CONTRACT : Roadstone Quarry Landfill				BOREHOLE NO: BH6/12 Sheet 3 of 3	
CLIENT : Roadstone		GROUND LEVEL (mOD) 215.20		DATE STARTED: 23/02/2003	
ENGINEER : John Barnett & Associates		BOREHOLE DIAMETER (mm) 200		DATE COMPLETED: 27/02/2003	
CO-ORDINATES : E 298140.00 N 215216.00		BOREHOLE DEPTH (m) 21.00		BORED BY: C Jones +C Car	
		CASING DEPTH (m) 21.00			

DEPTH (m)	DESCRIPTION	LEGEND	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	STAND PIPE DETAILS
					REF. NUMBER	SAMPLE TYPE	DEPTH (m)		
20	Very dense brown sandy GRAVEL	[Pattern]	194.20	21.00	4040	B	20.30	N=129/ 225mm	
4041					D	20.50			
4042					B				
21	End of Borehole at 21.00 m								
22									
23									
24									
25									
26									
27									
28									
29									
30									

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From (m)	To (m)	Hours	Comments
1.65	1.85	0.75	.
3.70	3.90	0.50	.
4.35	4.50	0.50	.
6.30	6.45	0.50	.
7.60	7.80	0.75	.
17.50	18.00	1.00	.
17.60	17.80	1.00	.

Water Strike	Casing Depth	Sealed At	Rise To	Time	Comments
8.85	8.85	-	8.60	20	Medium

Date	Tip Depth	RZ Top	RZ Base	Type
27/02/2003	10.00	8.00	10.00	SP

Date	Hole Depth	Casing Depth	Depth to Water	Comments

Appendix 2

Falling Head Test Results

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Variable Head Permeability Test Report Sheet

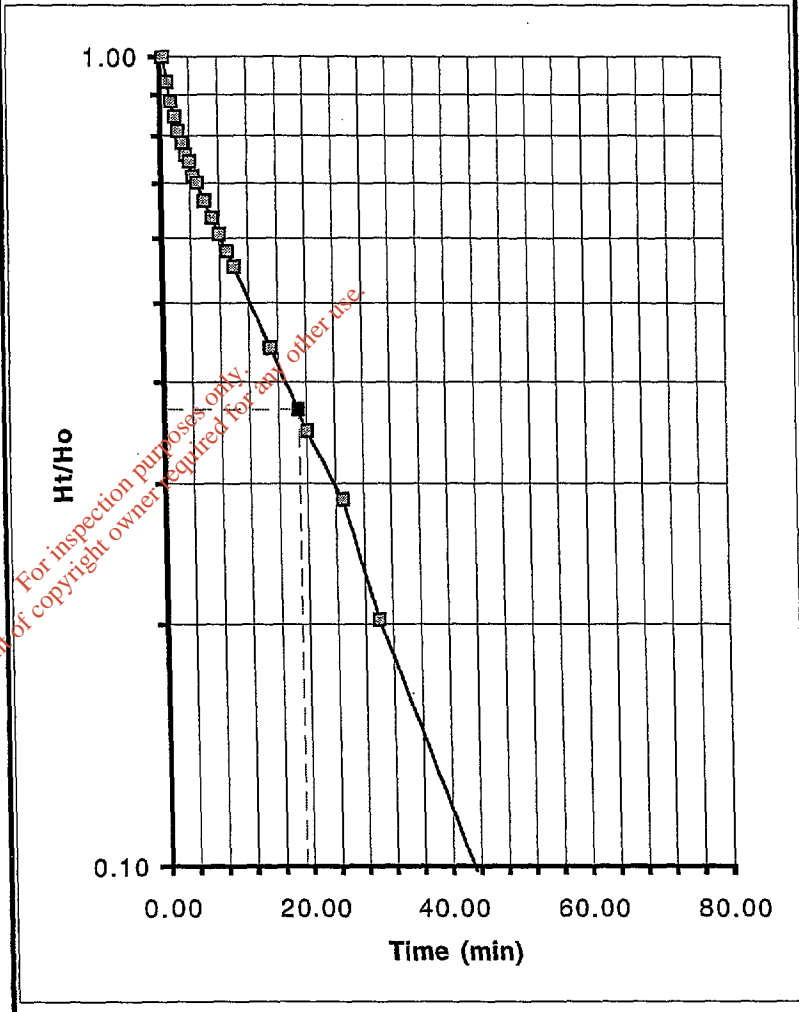
IGSL(F4B)

Contract: Blessington Landfill
Number: 8669
Client: Roadstone
Engineer: John Barnett & Assoc.
Location: Blessington
Hole No.: BH1/11a
Test No.: 1
Date: 17.2.03

TEST RESPONSE ZONE DETAILS:

Top (mbgl):	14.50
Bottom (mbgl):	15.50
Length (m):	1.00
*** Diameter (m):	0.015
Initial Standing Water Level (m below top of casing):	13.90
Height of casing or standpipe : above ground level (m)	1.00
Falling or Rising Head Test?	Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0.50	1.70	1.00
1	2.53	0.93
1.5	3.15	0.88
2	3.60	0.84
2.5	4.00	0.81
3	4.33	0.78
3.5	4.64	0.76
4	4.80	0.75
4.5	5.17	0.72
5	5.35	0.70
6	5.78	0.67
7	6.15	0.64
8	6.50	0.61
9	6.85	0.58
10	7.15	0.55
15	8.53	0.44
20	9.65	0.35
25	10.40	0.29
30	11.43	0.20
45	12.80	0.09
60	13.89	0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00



**Diameter of standpipe/borehole (m)		0.015
** X-sectional area of BH/Standpipe	A=	0.00018
Shape Factor (note 5)	F=	1.46807
Time to reach Ht/Ho = 0.37 (sec)	T=	1.29
Extrapolated Yes/No		No
Coefficient of Permeability (A/FT) (m/s)	K=	1.07E-07

Notes

* Depth of water below top of casing/standpipe

** 'A' is calculated from the standpipe or piezometer tube, or the borehole casing diameter if the test is carried out during the course of boring operations.

*** This is normally the diameter of the borehole since the response zone includes the gravel surround

Time lag is taken as the elapsed time corresponding to a value of Ht/Ho = 0.37. If Ht/Ho does not reach 0.37, it will be necessary to extrapolate the graph and assess the time.

Variable Head Permeability Test Report Sheet

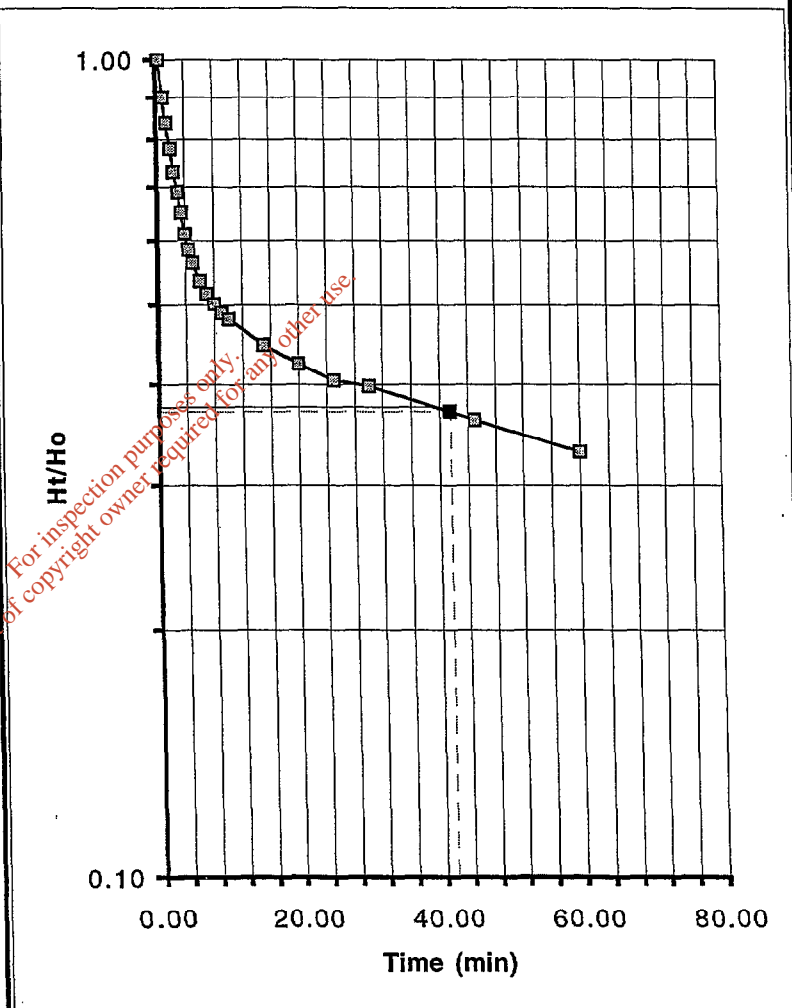
IGSL(F4B)

Contract: Blessington Landfill
 Number 8669.00
 Client: Roadstone
 Engineer: John Barnett & Assoc.
 Location: Blessington
 Hole No. BH1/12
 Test No. 1.00
 Date 19.2.03

TEST RESPONSE ZONE DETAILS:

Top (mbgl): 5.00
 Bottom (mbgl): 6.00
 Length (m): 1.00
 *** Diameter (m): 0.020
 Initial Standing Water Level (m below top of casing): 5.10
 Height of casing or standpipe : above ground level (m) 1.00
 Falling or Rising Head Test? Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0.50	0.40	1.00
1	0.87	0.90
1.5	1.16	0.84
2	1.43	0.78
2.5	1.67	0.73
3	1.86	0.69
3.5	2.04	0.65
4	2.22	0.61
4.5	2.35	0.59
5	2.45	0.56
6	2.58	0.54
7	2.67	0.52
8	2.74	0.50
9	2.8	0.49
10	2.84	0.48
15	3	0.45
20	3.11	0.42
25	3.2	0.40
30	3.23	0.40
45	3.4	0.36
60	3.55	0.33
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00



**Diameter of standpipe/borehole (m) 0.02
 ** X-sectional area of BH/Standpipe A= 0.00031
 Shape Factor (note 5) F= 1.55836
 Time to reach Ht/Ho = 0.37 (sec) T= 249.4
 Extrapolated Yes/No NO
 Coefficient of Permeability (A/FT) (m/s) K= 8.08E-08

Notes
 * Depth of water below top of casing/standpipe
 ** 'A' is calculated from the standpipe or piezometer tube, or the borehole casing diameter if the test is carried out during the course of boring operations.
 *** This is normally the diameter of the borehole since the response zone includes the gravel surround
 Time lag is taken as the elapsed time corresponding to a value of H/Ho = 0.37. If H/Ho does not reach 0.37, it will be necessary to extrapolate the graph and assess the time.

Variable Head Permeability Test Report Sheet

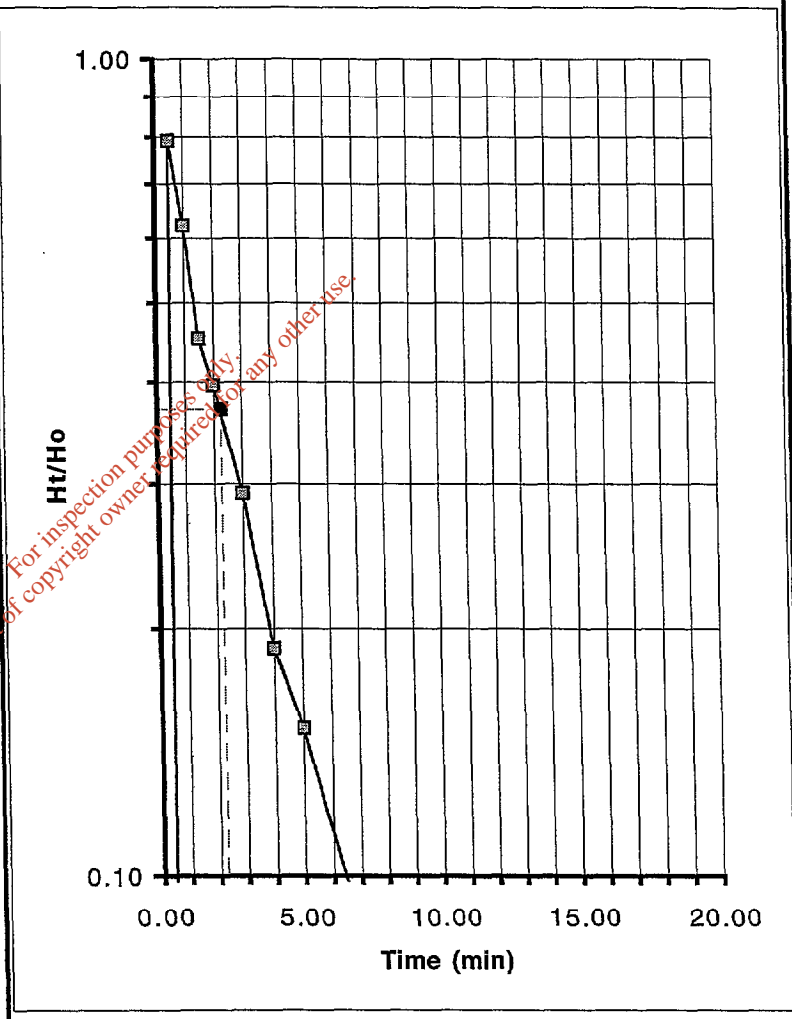
IGSL(F4B)

Contract: Blessington Landfill
Number: 8669
Client: Roadstone
Engineer: John Barnett & Assoc.
Location: Blessington
Hole No.: BH6/11
Test No.: 1
Date: 18.2.03

TEST RESPONSE ZONE DETAILS:

Top (mbgl):	10.00
Bottom (mbgl):	11.00
Length (m):	1.00
*** Diameter (m):	0.020
Initial Standing Water Level (m below top of casing):	9.70
Height of casing or standpipe : above ground level (m)	1.00
Falling or Rising Head Test?	Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0.00	4.40	0.00
0.5	5.5	0.79
1	6.4	0.62
1.5	7.3	0.45
2	7.6	0.40
3	8.15	0.29
4	8.7	0.19
5	8.9	0.15
7	9.25	0.08
10	9.6	0.02
15	9.65	0.01
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
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		0.00
		0.00
		0.00
		0.00
		0.00
		0.00



**Diameter of standpipe/borehole (m)	0.02
** X-sectional area of BH/Standpipe	A= 0.00031
Shape Factor (note 5)	F= 1.55836
Time to reach Ht/Ho = 0.37 (sec)	T= 1.35
Extrapolated Yes/No	NO
Coefficient of Permeability (A/FT) (m/s)	K= 1.49E-06

- Notes**
- * Depth of water below top of casing/standpipe
 - ** 'A' is calculated from the standpipe or piezometer tube, or the borehole casing diameter if the test is carried out during the course of boring operations.
 - *** This is normally the diameter of the borehole since the response zone includes the gravel surround
- Time lag is taken as the elapsed time corresponding to a value of H/Ho = 0.37. If H/Ho does not reach 0.37, it will be necessary to extrapolate the graph and assess the time.

**Appendix 3
Gas Readings**

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Gas Monitoring Report- Boreholes

Client : Roadstone Consultant Engineers: John Barnett & Associates Contract No: 8669

Location: Hallmark, Roadstone Quarry, Blessington Date: 6/03/03

Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
GW 1/2	0.0	0.1	19.5	0.0	0.0	992	-1.1	
BH 1/14	0.0	0.0	20.0	0.0	0.0	992	-1.1	
BH 1/11	20.2	9.7	1.5	0.0	0.0	992	-1.1	
GW 1/1	-	-	-	-	-	992	-1.1	Borehole Locked
BH 1/12	0.0	0.0	19.6	0.0	0.0	992	-1.1	
GW 1/4	-	-	-	-	-	992	-1.1	Borehole Locked
GW 1/3	-	-	-	-	-	992	-1.1	Borehole Locked
BH 1/13	-	-	-	-	-	992	-1.1	Borehole incomplete

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement, CO and H₂S in ppm and O₂ in % by internal electrochemical cell measurement.

IGSL

Gas Monitoring Report- Site 1 Line A

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
1A1	0.0	0.3	19.6	0.0	0.0	992	-1.1	
1A2	0.0	0.0	19.8	0.0	0.0	992	-1.1	
1A3	0.0	0.3	19.7	0.0	0.0	992	-1.1	
1A4	0.0	0.1	19.8	0.0	0.0	992	-1.1	
1A5	0.9	0.9	18.0	0.0	0.0	992	-1.1	
1A6	0.1	0.1	19.6	0.0	0.0	992	-1.1	
1A7	0.1	0.0	19.8	0.0	0.0	992	-1.1	
1A8	0.0	0.0	19.8	0.0	0.0	992	-1.1	
1A9	3.6	0.3	19.4	0.0	0.0	992	-1.1	
1A10	1.9	0.1	18.6	0.0	0.0	992	-1.1	
1A11	0.0	0.0	19.5	0.0	0.0	992	-1.1	
1A12	0.0	0.0	19.7	0.0	0.0	992	-1.1	
1A13	0.1	0.0	19.6	0.0	0.0	992	-1.1	
1A14	0.1	0.0	19.6	0.0	0.0	992	-1.1	
1A15	0.0	0.0	19.6	0.0	0.0	992	-1.1	
1A16	0.0	0.2	19.4	0.0	0.0	992	-1.1	
1A17	0.0	0.1	19.6	0.0	0.0	992	-1.1	

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Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH ₄ and CO ₂ in % by Infra-red measurement, CO and H ₂ S in ppm and O ₂ in % by internal electrochemical cell measurement.	IGSL
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Gas Monitoring Report- Site 1 Line B

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
1B1	0.0	0.0	19.9	0.0	0.0	992	-1.1	
1B2	0.0	0.0	19.9	0.0	0.0	992	-1.1	
1B3	0.0	0.1	19.7	0.0	0.0	992	-1.1	
1B4	0.0	0.1	19.8	0.0	0.0	992	-1.1	
1B5	0.1	0.0	19.8	0.0	0.0	992	-1.1	
1B6	0.1	0.0	19.9	0.0	0.0	992	-1.1	
1B7	0.0	0.0	19.7	0.0	0.0	992	-1.1	
1B8	0.0	0.0	19.9	0.0	0.0	992	-1.1	
1B9	0.2	0.3	19.5	0.0	0.0	992	-1.1	
1B10	0.0	0.0	19.8	0.0	0.0	992	-1.1	
1B11	0.0	0.0	19.8	0.0	0.0	992	-1.1	
1B12	0.0	0.2	19.8	0.0	0.0	992	-1.1	
1B13	0.0	1.1	19.3	0.0	0.0	992	-1.1	
1B14	0.0	0.9	19.7	0.0	0.0	992	-1.1	

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH ₄ and CO ₂ in % by Infra-red measurement, CO and H ₂ S in ppm and O ₂ in % by internal electrochemical cell measurement.	IGSL
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Gas Monitoring Report- Site 1 Line C

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
1C1	0.0	0.0	19.9	0.0	0.0	988	-1.1	
1C2	0.0	0.2	19.2	0.0	0.0	988	-1.1	
1C3	0.0	0.0	19.9	0.0	0.0	988	-1.1	
1C4	0.0	0.0	19.9	0.0	0.0	988	-1.1	
1C5	0.0	0.0	19.7	0.0	0.0	988	-1.1	
1C6	0.2	0.0	19.8	0.0	0.0	988	-1.1	
1C7	0.0	0.0	19.9	0.0	0.0	988	-1.1	
1C8	0.0	0.1	19.9	0.0	0.0	988	-1.1	
1C9	0.2	0.4	19.4	0.0	0.0	988	-1.1	
1C10	0.1	0.0	19.9	0.0	0.0	988	-1.1	
1C11	0.0	0.0	19.8	0.0	0.0	988	-1.1	
1C12	0.0	0.3	19.7	0.0	0.0	988	-1.1	
1C13	0.0	0.3	19.5	0.0	0.0	988	-1.1	
1C14	0.0	0.2	19.6	0.0	0.0	988	-1.1	

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement, CO and H₂S in ppm and O₂ in % by internal electrochemical cell measurement.

IGSL

Gas Monitoring Report- Site 6 Line A

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
6A1	0.0	0.2	19.9	0.0	0.0	992	-1.1	
6A2	0.0	0.5	19.5	0.0	0.0	992	-1.1	
6A3	0.0	1.5	19.1	0.0	0.0	992	-1.1	
6A4	0.0	0.5	19.1	0.0	0.0	992	-1.1	
6A5	0.0	0.0	19.7	0.0	0.0	992	-1.1	
6A6	0.0	0.1	19.7	0.0	0.0	992	-1.1	
6A7	0.0	0.1	19.7	0.0	0.0	992	-1.1	
6A8	0.0	0.1	19.6	0.0	0.0	992	-1.1	
6A9	0.0	0.1	19.7	0.0	0.0	992	-1.1	
6A10	0.0	0.0	19.8	0.0	0.0	992	-1.1	

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH ₄ and CO ₂ in % by Infra-red measurement, CO and H ₂ S in ppm and O ₂ in % by internal electrochemical cell measurement.	IGSL
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Gas Monitoring Report- Site 6 Line B

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
6B1	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6B2	0.0	0.0	19.9	0.0	0.0	992	-1.1	
6B3	0.0	0.0	19.9	0.0	0.0	992	-1.1	
6B4	0.0	0.0	19.9	0.0	0.0	992	-1.1	
6B5	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6B6	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6B7	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6B8	0.0	0.0	19.7	0.0	0.0	992	-1.1	
6B9	0.0	0.0	19.6	0.0	0.0	992	-1.1	
6B10	0.0	0.2	19.6	0.0	0.0	992	-1.1	
6B11	0.0	0.3	19.8	0.0	0.0	992	-1.1	
6B12	0.0	0.3	19.8	0.0	0.0	992	-1.1	

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH ₄ and CO ₂ in % by Infra-red measurement, CO and H ₂ S in ppm and O ₂ in % by internal electrochemical cell measurement.	IGSL
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Gas Monitoring Report- Site 6 Line C

Client :	Roadstone	Consultant Engineers:	John Barnett & Associates	Contract No:	8669
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Location:	Hallmark, Roadstone Quarry, Blessington	Date: 6/03/03
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Test No.	METHANE % CH ₄	CARBON DIOXIDE % CO ₂	OXYGEN % O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)	Remarks
6C1	0.0	0.2	19.8	0.0	0.0	992	-1.1	
6C2	0.0	0.0	19.9	0.0	0.0	992	-1.1	
6C3	0.0	0.0	19.9	0.0	0.0	992	-1.1	
6C4	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6C5	0.0	0.1	19.8	0.0	0.0	992	-1.1	
6C6	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6C7	0.0	0.1	19.7	0.0	0.0	992	-1.1	
6C8	0.0	0.0	19.7	0.0	0.0	992	-1.1	
6C9	0.0	0.1	19.6	0.0	0.0	992	-1.1	
6C10	0.0	0.2	19.7	0.0	0.0	992	-1.1	
6C11	0.0	0.0	19.8	0.0	0.0	992	-1.1	
6C12	0.0	1.2	19.4	0.0	0.0	992	-1.1	

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH ₄ and CO ₂ in % by Infra-red measurement, CO and H ₂ S in ppm and O ₂ in % by internal electrochemical cell measurement.	IGSL
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GAS MONITORING FOR; Roadstone Quarry, Blessington
DATE; 21/3/03

BOREHOLE	METHANE CH ₄	CARBON DIOXIDE CO ₂	OXYGEN O ₂	CARBON MONOXIDE CO (ppm)	HYDROGEN SULPHIDE H ₂ S (ppm)	BAROMETRIC PRESSURE (mb)	RELATIVE PRESSURE (mb)
BH 6/11	0	7.6	7.4	0	0	999	-2.7
BH 6/10	30.3	15.1	5.0	0	0	999	-2.7
BH 6/12	1.4	0.1	13.8	0	0	999	-2.7
GW 6/3	0	1.7	14.4	0	0	998	-2.5
GW 6/1	0	1.1	18.0	0	0	998	-2.5
GW 6/2	0	2.2	16.0	0	0	998	-2.5
GW 4/3	0	5.1	9.7	0	0	998	-2.5
BH 4/10	0	0.1	19.4	0	0	998	-2.5
GW 1/1	0	1.4	17.6	0	0	998	-2.5
BH 1/10	12.2	8.7	3.3	0	0	998	-2.5
BH 1/12	2	0	17.6	0	0	995	-2.3
BH 1/13	63.8	11.2	0.5	0	0	995	-2.3
BH 1/14	0.2	3.1	5.0	0	0	994	-2.3
BH 1/11	6	11.9	8.1	0	0	995	-2.2
GW 1/2	0	0	20.0	0	0	995	-2.2

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement, CO and H₂S in ppm and O₂ in % by internal electrochemical cell measurement.

GAS MONITORING FOR; Blessington Roadstone Quarry
DATE; 14/4/03

BOREHOLE	METHANE CH ₄ %	CARBON DIOXIDE CO ₂ %	OXYGEN O ₂ %	CO ppm	H ₂ S ppm	BAROMETRIC PRESSURE (mb)	Flow rate L/hr	LEL %
BH 1/11	6.0	3.7	13.6	n/a	n/a	980	see note	> 100
GW 1/1	0.0	0.0	21.2	n/a	n/a	977	0	0
BH 1/10	0.0	0.0	21.3	n/a	n/a	978	0	0
BH 1/12	1.7	0.0	18.2	n/a	n/a	979	see note	34
BH 1/13	63.0	11.0	2.4	n/a	n/a	977	0.2	> 100
GW 1/4	0.0	0.1	20.5	n/a	n/a	981	n/a	0
GW 1/3	0.0	0.5	19.2	0	0	981	n/a	0
BH 1/14	0.0	0.0	20.7	0	0	981	n/a	0
GW 1/2	0.0	0.1	20.3	0	0	981	n/a	0
GW 1/4	0.0	0.1	20.5	0	0	981	n/a	0
BH 4/12	1.2	0.6	20.1	4	0	981	n/a	24
BH 4/11	0.9	0.8	19.5	70	0	982	n/a	18
BH 4/10	0.0	0.0	20.7	0	0	982	n/a	0
GW 4/4	0.0	0.2	19.7	0	0	982	n/a	0
GW 4/3	0.0	0.2	20.5	0	0	982	n/a	0
GW 6/3	0.0	0.0	20.9	0	0	982	n/a	0
BH 6/11	0.1	0.0	20.9	1	0	982	n/a	2
BH 6/10	17.1	9.0	12.8	1	0	987	n/a	> 100
BH 6/12	1.2	0.0	18.2	0	0	982	n/a	24
GW 6/1	0.0	1.7	16.7	1	0	982	n/a	0
GW 6/2	0.0	0.1	20.9	2	0	982	n/a	0

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement, CO and H₂S in ppm and O₂ in % by internal electrochemical cell measurement.

For results with a low rate the gas detection was employed by a GA1.1 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement and was last calibrated on the 14/02/03

note: BH 1/11 the flow rate reading began at 0.7 l/h and after 5 seconds leveled off at 0 l/h
 BH 1/12 the flow rate reading began at 0.6 l/h and after 5 seconds leveled off at 0.2 l/h

GAS MONITORING FOR; Blessington Roadstone Quarry
 DATE; 21/5/03

BOREHOLE	METHANE CH ₄ %	CARBON DIOXIDE CO ₂ %	OXYGEN O ₂ %	CO ppm	H ₂ S ppm	BAROMETRIC PRESSURE (mb)	Flow rate L/hr	LEL %
BH 1/1	1.1	2.4	9.8	0	0	988	0	22
GW 1/4	0	0	20.2	0	0	984	0	0
BH 1/2	64	9.5	2.6	-	-	987	1.7	<<<100
BH 1/3	20	0.5	13.5	-	-	987	1	<<<100
GW 1/4	0	1.1	17.1	-	-	985	0	0
BH 1/4	3	5.2	8.7	-	-	987	0.2	60
BH 1/5	8.8	5.8	8	-	-	986	0	<<<100
GW 1/2	0	0.1	20.6	0	0	990	0	0
BH 4/1	54.3	16.6	2	0	0	992	-	<<<100
BH 4/2	0.3	0.2	20.5	0	0	991	-	6
BH 4/3	0.1	0.8	16.8	0	0	991	-	2
GW 4/4	0	0.2	20.1	0	0	990	-	0
GW 1/3	0.1	3	15.8	0	0	991	-	2
GW 6/3	0	0	20.8	0	0	992	-	0
BH 6/1	0.1	0.1	20.4	0	0	992	0	2
BH 6/2	14.9	7.8	15.5	0	0	991	0	<<<100
BH6/3	6.5	1	2	0	0	991	0	<<<100

Gas detection employed by a GA2000 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement, CO and H₂S in ppm and O₂ in % by internal electrochemical cell measurement.

For results with a low flow rate the gas detection was employed by a GA1.1 Landfill Gas Analyser which measures CH₄ and CO₂ in % by Infra-red measurement and was last calibrated on the 14/02/03

Appendix 4
Laboratory Testing

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Client:	Roadstone	Schedule No.:	2901/04
Project Name:	Blessington Landfill	Sheet No.:	1 of 14
Lab project No.:	8669	Date Required By:	URGENT
Date:	14/4/03		

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atter berg limts	Sieve	Hydro	MCV	CER	Comp	CBR	MCV	MCV \$ point	Consol	Triax U	Triax CU	Lab Vane	SO3	pH	Organic Content	Shear Box	Remarks
BH6/10	0.00	1.00	B	1697																			
	1.00	1.45	B	1698																			
	2.00	2.50	B	1699	X	X	X	X															A03/0543
	3.00	3.00	B	1700																			
	3.00	3.45	B	B01																			
	3.90	3.90	D	B02																			
	4.00	4.50	B	B03	X	X	X	X															A03/0544
	5.00	5.00	B	B04																			
	5.00	5.45	B	B05																			
	5.10	5.10	D	B06																			
	6.00	6.50	B	B07																			
	7.00	7.00	B	B08																			
	7.00	7.45	B	B09																			
	8.00	8.50	B	B10	X	X	X	X															A03/0545
	8.30	8.30	D	B11																			
	9.00	9.00	B	B12																			
	9.00	9.45	B	B13																			
	10.00	10.50	B	B14	X	X	X	X															A03/0546
	11.00	11.00	B	B15																			
	11.00	11.45	B	B16																			
	12.00	12.50	B	B17	X	X	X	X															A03/0547
	13.00	13.00	B	B18																			
	13.00	13.45	B	B19																			
	14.00	14.50	B	B20																			
	14.50	14.95	U	B21																			
	15.05	15.05	D	B22																			
	15.00	15.00	D	B23																			
	15.10	15.55	B	B24																			
BH6/12	0.50	0.50	D	1749																			
	1.00	1.00	B	1750	X	X	X	X															A03/0548
	1.00	1.00	D	1751																			

Soil Testing Schedule

IGSL Laboratories

Client:	Roadstone	Schedule No.:	2901/04
Project Name:	Blossington Landfill	Sheet No.:	2 of 14
Lab project No.:	0869	Date required By:	URGENT
Date:	11/4/03		

Special Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Sieve	Hydro	MCV	CBR	Comp.	CBR	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vana	SO3	pH	Organic Content	Shear Box	Remarks
BH/12	1.50	1.50	B	1752																			
	2.00	2.00	B	1753																			
	2.50	2.50	B	1754																			
	3.00	3.00	B	1755																			
	3.00	3.00	D	1756																			
	3.50	3.50	B	1757																			
	4.00	4.00	B	1758																			
	4.50	4.50	B	1759																			
	5.00	5.00	B	1760																			
	5.00	5.00	D	1761																			
	5.50	5.50	B	1762																			
	6.00	6.00	B	1763																			
	6.50	6.50	B	1764																			
	7.00	7.00	B	1765																			
	7.00	7.00	D	1765																			
	7.50	7.50	B	1766																			
	8.00	8.00	B	1767																			
	8.50	8.50	B	1768																			
	8.00	8.00	B	1769																			
	9.00	9.00	D	1770																			
	10.00	10.00	B	4017																			
	10.00	10.50	B	4018	X	X	X	X															AGB/0869A
	11.00	11.00	B	4019																			
	11.00	11.00	D	4020																			
	11.00	11.50	D	4021																			
	12.00	12.00	B	4022																			
	12.00	12.50	D	4023																			
	13.00	13.00	B	4024																			
	13.00	13.00	D	4025																			
	14.00	14.50	D	4026	X	X	X	X															AGB/0869D
	15.00	15.00	B	4027																			

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Client:	Roadstone	Schedule No.:	2901 / 04
Project Name:	Blossington Landfill	Sheet No.:	3 OF 14
Lab project No.:	B669	Date Required By:	URGENT
Date:	14/4/03		

Specific Instructions:

BH/P No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Slend	Hydro	MCV	CEM	Comp	CEM	MCV	MCV	Consol	Triax U	Triax CU	Lab Vane	SCG	pH	Organic Content	Shear Box	Remarks	
BH6/12	15.00	15.00	D	4028																				
	16.00	16.50	D	4029																				
	17.00	17.45	U	4030																				
	17.45	17.60	D	4031																				
	17.40	17.40	B	4032																				
	17.00	17.00	U	4033																				
	17.40	17.40	D	4034																				
	18.00	18.50	B	4035																				
	19.00	19.00	D	4036																				
	19.00	19.00	B	4037																				
	19.00	19.50	D	4038																				
	19.50	19.50	W	4039																				
	20.30	20.30	B	4040																				
	20.30	20.30	D	4041																				
20.50	21.00	B	4042																					
BH1/11	0.00	0.50	B	508																				
	0.50	0.95	U	509																				
	1.05	1.05	D	510																				
	1.10	1.50	B	511																				
	1.50	1.80	B	512																				
	1.60	2.20	B	513																				
	2.40	2.60	B	514																				
BH1/11a	2.00	2.30	B	515																				
	2.30	2.70	U	516																				
	2.90	3.30	B	517																				
	3.50	3.80	B	518																				
	3.80	4.30	B	519																				
	5.00	5.45	U	520																				
	5.55	5.55	D	521																				
	5.70	6.00	B	522																				
	6.00	6.50	D	523																				

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No Bulk

A03/0391

No Bulk

A03/0392

Soil Testing Schedule

IGSL Laboratories

Client: Roadstone
 Project Name: Blessington Landfill
 Lab project No.: 8689
 Date: 14/4/03

Schedule No.: 2901/04
 Sheet No.: 4 OF 14
 Date Required By: URGENT

Specific Instructions:

BH/P No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Rel	Moisture Content	Alter berg limits	Sieve	Hydro	MCV	CEA	Comp	CEA	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SCC	pH	Organic Content	Shear Box	Remarks
BH1/11a	6.50	7.00	B	524																			
	7.20	7.20	D	525																			
	7.20	7.50	B	526																			
	7.50	7.90	B	527																			
	8.30	8.30	D	528																			
	8.50	9.00	B	529																			
	9.80	9.90	B	530																			
	10.00	10.50	B	501																			
	11.00	11.45	D	602																			
	11.00	11.50	B	603																			
	11.50	12.00	B	604																			
	12.00	12.30	U	605																			
	12.60	13.00	B	606		X	X	X	X														A03/0593
	13.30	13.30	D	607																			
	13.40	13.70	B	608																			
	13.70	14.00	B	609																			
14.00	14.30	B	610																				
14.50	15.00	B	611		X	X	X	X														A03/0594	
15.20	15.20	D																					
15.20	15.50	B																					
15.50	15.70	B																					
BH1/12	0.50	1.00	B	615																			
	1.50	2.00	B	616																			
	2.00	2.50	B	617																			
	2.50	3.00	B	618																			
	3.00	3.50	B	619																			
	3.70	4.00	B	620																			
	4.00	4.50	B	621		X	X	X	X														A03/0595
	4.70	4.70	D	622																			
5.00	5.50	B	623																				
5.60	5.90	B	624																				

Soil Testing Schedule

IGSL Laboratories

Client:
 Project Name:
 Lab project No.:
 Date:

Roadstone
 Blessington Lardmill
 8069
 14/4/03

Schedule No.:
 Sheet No.:
 Data Required By:

2901/04
 5 OF 14
 URGENT

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Alter bog limits	Sieve	Hydro	MCV	CBR	Comp	CBR	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SO3	pH	Organic Content	Shear Box	Remarks
BH1/12	5.10	5.10	W	625																			
	6.00	6.50	B	626																			
	6.70	7.00	B	627																			
	7.00	7.50	B	628																			
	8.00	8.20	B	629																			
	8.20	8.50	B	630																			
	8.50	8.70	B	631																			
	9.00	9.50	B	632																			
	10.00	10.50	B	633																			
	8.70	8.70	W	634																			
	11.00	11.50	B	635																			
	11.50	11.70	B	636																			
	11.70	12.00	B	637	X	X	X	X															
	12.00	12.45	U	638																			
	12.55	12.55	D	639																			
	13.00	13.40	U	640																			
	13.50	13.70	B	641																			
	13.70	14.00	B	642																			
	14.40	14.40	D	643																			
	14.50	14.95	D	644																			
	14.50	15.00	B	645																			
	15.30	15.30	D	646																			
	15.50	15.95	D	647																			
	15.50	16.00	B	648																			
	16.40	16.40	D	649																			
	16.50	16.95	D	650																			
	16.50	17.00	B	651	X		X	X															
	17.50	17.95	D																				
	17.50	18.00	B	652																			
	18.50	19.00	D	653																			
	19.30	19.30	D	654																			

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Soil Testing Schedule

IGSL Laboratories

Client:	Roadstone	Schedule No.:	2701/04
Project Name:	Blessington Landfill	Sheet No.:	6 OF 14
Lab project No.:	8559	Date Required By:	URGENT
Date:	14/4/03		

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (Bot)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Sieve	Hydro	MCV	CBR	Comp	CER	MCV	MCV @ point	Consol	Triax U	Triax CU	Lab Vanc	SO3	pH	Organic Content	Shear Box	Remarks
BH1/12	19.60	20.05	D	655																			
	19.60	20.10	B	658																			
BH1/14	0.50	1.00	B	657																			
	1.00	1.50	B	658																			
	2.20	2.20	O	659																			
	2.50	3.00	B	660																			
	3.40	4.00	B	661																			
	4.00	4.50	B	662																			
	5.50	5.50	D	663																			
	6.00	6.50	B	664																			
	7.20	7.50	B	665		X	X	X	X														1703/0398
	7.50	7.95	B	666																			
	8.05	8.05	D	667																			
	8.60	8.60	D	668																			
	8.90	8.90	D	669																			
	9.20	9.40	B	670																			
	9.40	9.80	B	671																			
	9.70	10.00	B	672																			
	10.00	10.50	B	673																			
	11.00	11.50	B	674																			
	12.00	12.45	D	675																			
	12.00	12.50	B	676																			
	13.00	13.50	B	677																			
	14.00	14.45	D	678																			
	14.00	14.50	B	679		X	X	X	X														1703/0399
	14.70	15.20	B	680																			
	15.50	16.00	D	681																			
	16.60	17.00	B	682																			
	17.40	17.50	B	683																			
	17.50	18.00	B	684																			
	18.50	19.00	B	685																			

Soil Testing Schedule

IGSL Laboratories

Client:		Roadstone										Schedule No.:		2901 / 04										
Project Name:		Bassington Landfill										Sheet No.:		7 OF 14										
Lab project No.:		8659										Data Required By:		URGENT										
Date:		14/4/03																						
Specific Instructions:																								
BMTP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Sieve	Hydro	MCV	OCR	Comp	OCR	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SO3	pH	Organic Content	Shear Box	Remarks	
BH1/14	19.30	19.50	B	686																				
	19.50	19.90	B	687																				
	19.90	20.30	B	688																				
	20.30	20.50	B	689																				
	20.50	20.70	B	690																				
	20.70	21.00	B	691																				
BH4/12	0.00	1.00	B	4043																				
	1.00	1.00	D	4044																				
	1.00	1.50	B	4045	X	X	X	X															A03/0600	
	2.50	2.50	B	4046																				
	3.00	3.00	D	4047																				
	3.00	3.50	B	4048																				
	4.50	4.50	B	4049																				
	5.00	5.00	B	4050																				
	5.00	5.00	D	4051																				
	5.00	5.50	B	4052																				
	6.50	6.50	B	4053																				
	7.00	7.00	D	4055																				
	7.00	7.50	W	4056																				
	7.00	7.50	B	4057	X		X	X															A03/0601	
	8.50	8.50	B	4058																				
	8.50	8.50	D	4059																				
	8.50	9.00	D	4060																				
	9.50	9.50	B	4061																				
	10.50	10.50	D	4062																				
	10.50	11.00	D	4063																				
11.50	11.50	B	4064	X		X	X															A03/0602		
12.50	12.50	D	4065																					
12.50	13.00	D	4066																					
14.00	14.00	B	4067																					

Soil Testing Schedule

IGSL Laboratories

Client:	Roadstone	Schedule No.:	2901/D4
Project Name:	Glossington Landfill	Sheet No.:	8 OF 14
Lab project No.:	8889	Date Required By:	URGENT
Date:	14/4/03		

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg Limits	Sieve	Hydro	MCV	CBR	Comp	CBR	MCV	MCV 5 point	Consol	Tdax U	Triax CU	Lab Vane	SO3	pH	Organic Content	Shear Box	Remarks	
BH4/12	14.00	14.45	U	4068																				
	14.45	14.60	D	4068																				
	14.30	14.30	B	4069																				
BH1/10	0.50	1.00	B	531																				
	1.00	1.50	B	532	X	X	X	X															NO Bulk	
	2.20	2.50	B	533																				
	2.50	2.80	B	534																				
	2.80	3.20	B	535																				
	3.20	3.60	B	536																				
	4.00	4.50	B	537																				
	5.20	5.60	B	538																				
	5.80	6.10	B	539																				
	6.30	6.70	B	540																				
	6.70	7.00	S	541																				
	7.00	7.40	B	542																				
	7.40	7.70	B	543																				
	8.50	9.60	B	544	X	X	X	X																A03/01604
	9.50	10.00	B	545																				
	10.00	11.00	B	546																				
	11.50	11.80	B	547																				
	12.50	13.00	B	548	X	X	X	X																A03/01603
	13.50	14.00	B	549																				
	14.50	15.00	B	550																				
15.50	16.00	B	551																					
16.20	16.70	B	552																					
18.00	18.50	B	553																					
19.00	19.50	B	554																					
20.00	20.50	B	555																					
21.00	21.50	B	556																					
21.80	21.80	B	557																					
21.80	22.00	B	558																					

Client: Roadstone
 Project Name: Blessington Landfill
 Lab project No.: 8859
 Date: 14/4/03

Schedule No.: 0901/04
 Sheet No.: 9 of 14
 Date Required By: URGENT

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Sewa	Hydro	NCV	CEA	Comp	CEA	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SO3	pH	Organic Content	Shear Box	Remarks
BH1/10	22.00	22.50	B	559																			
	22.70	23.00	B	560																			
	23.00	23.50	B	561																			
	24.00	24.50	B	562																			
	24.70	25.00	B	563																			
	25.00	25.30	B	564																			
	25.50	25.60	B	565																			
	25.50	26.00	B	566																			
	26.50	27.00	B	567																			
	27.10	27.30	B	568																			
27.30	27.50	B	569																				
BH4/11	0.00	1.00	B	4070																			
	1.00	1.00	D	4071																			
	1.00	1.50	B	4072	X	X	X	X															A05/0606
	2.50	2.50	B	4073																			
	3.00	3.00	D	4074																			
	3.00	3.50	B	4075																			
	4.15	4.30	B	4076																			
	4.15	4.30	D	4077																			
	5.00	5.00	D	4077																			
	5.00	5.50	B	4078																			
	6.00	6.00	D	4079																			
	6.00	6.00	B	4080	X		X	X															A08/0607
	7.00	7.00	D	4081																			
	7.00	7.50	D	4082																			
	8.50	8.50	B	4083																			
9.00	9.00	D	4085																				
9.00	9.50	D	4086																				
10.00	10.00	B	4087																				
10.00	10.50	B	4088	X	X	X	X																A03/0608
11.50	11.50	B	4089																				

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Soil Testing Schedule

IGSL Laboratories

Client: Roadstone
 Project Name: Blassington Landfill
 Lab project No.: 3669
 Date: 11/4/03

Schedule No.: 2901/04
 Sheet No.: 10 OF 14
 Data Required By: URGENT

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (blm)	Sample Type	Sample Rel	Moisture Content	Atter berg limits	Slave	Hydro	MCV	CER	Comp	CER	MCV	MCV 5 point	Consol	Triax li	Triax CU	Lab Vana	SO3	pH	Organic Content	Shear Box	Remarks	
	12.00	12.50	B	4090																				
BH4/10	9.00	3.50	B	3301																				
	9.40	3.40	B	3302																				
	4.50	5.00	B	3303	X	X																	A03/0609	
	4.70	4.70	B	3304																				
	5.00	5.50	D	3305																				
	6.50	6.50	B	3306																				
	7.00	7.50	D	3307																				
	8.50	8.50	B	3308	X	X	X	X																A03/0610
	3.00	3.00	D	3309																				
	3.40	3.40	D	3310																				
	4.70	4.70	D	3311																				
	7.00	7.00	D	3312																				
	9.00	9.00	D	3313																				
	9.00	9.00	W	3314																				
	9.00	9.50	D	3315																				
	10.50	10.50	B	3318																				
	11.00	11.50	D	3317																				
	11.80	11.80	B	3318	X	X	X	X																A03/0611
	12.00	12.50	D	3319																				
	13.50	13.50	B	3320																				
	14.00	14.50	B	3321																				
	15.00	15.00	B	3322																				
	11.00	11.00	D	3323																				
	11.80	11.80	D	3324																				
	13.00	13.00	D	3325																				
	15.00	15.00	D	3326																				
BH4/10a	0.00	1.00	B	4084																				
	1.00	1.50	B	4085																				
	2.50	2.50	B	4086																				
BH1/13	0.50	1.00	B	8152																				

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Soil Testing Schedule

IGSL Laboratories

Client:	Roadstone	Schedule No.:	2901 / 04
Project Name:	Blossington Landfill	Sheet No.:	11 OF 14
Lab project No.:	8689	Date Required By:	URGENT
Date:	11/4/03		

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (Btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Slieve	Hydro	MCV	CBR	Comp.	CBR	MCV	MCV 5 point	Consol	Trial U	Trial CU	Lab Vana	SO3	pH	Organic Content	Shear Box	Remarks
BH1/13	1.00	1.40	B	8153																			
	1.40	1.70	B	8154																			
	1.70	2.00	B	8155																			
	2.30	2.50	B	8156																			
	3.00	3.50	B	8157	X	X	X	X															A03/0612
	4.00	4.50	B	8158																			
	5.00	5.50	B	8159																			
	6.00	6.50	B	8160																			
	6.60	6.90	B	8161																			
	7.00	7.50	B	8162																			
	7.50	7.80	B	8163																			
	8.00	8.50	B	8164																			
	9.00	9.50	B	8165																			
	10.00	10.50	B	8166																			
	11.00	11.50	B	8167																			
	12.00	12.50	B	8168																			
	12.60	12.80	B	8169																			
	12.70	12.70	W	8170																			
	12.80	13.00	B	8171																			
	13.00	13.30	B	8172																			
	13.30	13.60	B	8173																			
	11.40	11.40	W																				
	13.60	14.00	B	8174																			
	14.50	14.60	B	8175																			
	14.80	15.10	B	8176																			
	15.50	16.00	B	8177	X		X	X															A03/0613
	16.50	17.00	B	8178																			
	17.50	18.00	B	8179																			
	18.50	19.00	B	8180																			
	19.50	20.00	B	8181																			
	20.50	21.00	B	8182																			

Soil Testing Schedule

IGSL Laboratories

Client: **Roadstone**
 Project Name: **Blessington Landfill**
 Lab project No.: **8669**
 Date: **14/4/03**

Schedule No.: **2901/04**
 Sheet No.: **12 OF 14**
 Date Required By: **URGENT**

Specific Instructions:

BH/TP No.	Sample Depth (Top)	Sample Depth (blm)	Sample Type	Sample Ref	Moisture Content	Atter berg limits	Slava	Hydro	MCV	CBR	Comp	CBR	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SO ₃	pH	Organic Content	Shear Box	Remarks
BH1/13	21.30	21.50	B	B1B3																			
	21.50	22.00	B	B1B4	XXXX	XXXX	XXXX	XXXX															ACB/06/14
	22.20	22.50	B																				
	22.50	22.80	B																				
	22.80	23.00	B																				
	23.50	24.00	B																				
	24.20	24.50	B																				

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Soil Testing Schedule

IGSL Laboratories

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Client: Hoodlone
 Project Name: Blossington Landfill
 Lab project No.: 8669
 Date: 14/4/03

Schedule No.: 2901/04
 Sheet No.: 13 of 14
 Date Required By: URGENT

Specific Instructions:

BH/P No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg Limits	Shave	Hydro	MCV	CBR	Comp	CBR	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lab Vane	SCG	pH	Organic Content	Shear Box	Remarks
BH6/11	0.00	0.50	B	5167																			
	0.50	1.00	B	5168																			
	1.20	1.20	D	5169																			
	1.40	1.40	B	5170																			
	1.50	2.00	B	5171	X	X	X	X															
	2.20	2.20	D	5172																			
	2.40	2.40	B	5173																			
	2.50	3.00	B	5174																			
	2.70	2.70	B	5175																			
	3.20	3.20	D	5176																			
	3.40	3.40	B	5177																			
	3.50	4.00	B	5178																			
	4.20	4.20	D	5179																			
	4.40	4.40	B	5180																			
	4.50	5.00	B	5181																			
	5.20	5.20	D	5182																			
	5.40	5.40	B	5183																			
	5.50	6.00	B	5184																			
	6.20	6.20	D	5185																			
	6.40	6.40	B	5186																			
	7.00	7.00	B	5187																			
	7.20	7.20	D	5188																			
	7.50	8.00	B	5189																			
	8.00	8.00	B	5190																			
	8.20	8.20	D	5191																			
	8.40	8.40	B	5192																			
	8.50	8.50	B	5193	X	X	X	X															
	8.50	9.00	D	5194																			
	9.20	9.20	D	4001																			
	9.40	9.40	D	4002																			
	9.00	10.00	B	4003																			

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A02/0615

A02/0616

NO RESULT

Soil Testing Schedule

IGSL Laboratories

Client:		Roadstone														Schedule No.:		2901/04					
Project Name:		Blossington Landfill														Sheet No.:		14 OF 14					
Lab project No.:		8889														Data Required By:		URGENT					
Date:		14/A/03																					
Specific Instructions:																							
BH/TP No.	Sample Depth (Top)	Sample Depth (btm)	Sample Type	Sample Ref	Moisture Content	Atterberg limits	Slave	Hydro	MCV	CER	Comp	CER	MCV	MCV 5 point	Consol	Triax U	Triax CU	Lsh Vane	SO3	pH	Organic Content	Shear Box	Remarks
BH6/11	10.00	10.00	B	4004																			
	10.00	10.00	D	4005																			
	10.00	10.50	B	4006																			
	10.50	11.00	B	4007																			
	11.00	11.50	B	4008																			
	11.50	12.00	D	4009																			
	12.00	12.00	B	4010																			1A02/017
	13.00	13.50	B	4011																			
	14.00	14.00	B	4012																			
	14.20	14.20	D	4013																			
	15.00	15.50	B	4014																			
	15.00	18.00	B	4015																			
	16.00	16.00	D	1748																			
	1.00	1.00	Jar	J1																			
	3.00	3.00	Jar	J2																			
	5.00	5.00	Jar	J3																			
	7.00	7.00	Jar	J4																			
	9.00	9.00	Jar	J5																			
	10.00	10.00	Jar	J6																			
	11.00	11.00	Jar	J7																			
	13.00	13.00	Jar	J8																			
	15.00	15.00	Jar	J9																			
	16.00	16.00	Jar	J10																			
	10.70	10.70	W	S1																			
	10.70	10.70	W	S2																			
	10.70	10.70	W	S3																			
	10.70	10.70	W	S4																			
	10.70	10.70	W	S5																			
	10.70	10.70	W	S6																			
Soil Testing Schedule																IGSL Laboratories							

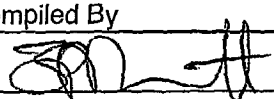
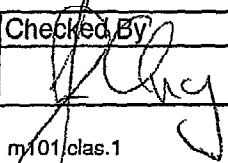
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Summary of Classification Tests

BS1377:Part 2:1990, clauses 3.2, 4.3, 5.3 & 5.4

BH No.	Sample No.	Depth (m)	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	<425µm %	Preparation	Description	Classification	
MG	1/10	532	1.00	B	26	41	20	21	39	WS	Brown slightly sandy gravelly CLAY	CI
S/G	1/10	544	8.50	B	13	41	24	17	32	WS	Brown slightly sandy gravelly CLAY	CI
S/G	1/10	548	12.50	B	17						Grey clayey/silty SAND	
MG	1/11a	515	2.00	B	18	40	22	18	46	WS	Brown slightly sandy gravelly CLAY	CI
BS	1/11a	606	12.50	B	16	26	NP	NP	60	WS	Brown slightly sandy gravelly SILT	
S/G	1/11a	611	14.50	B	13						Brown slightly sandy slightly gravelly SILT/CLAY	
MG	1/12	621	4.00	B	13	42	21	21	40	WS	Brown slightly sandy gravelly CLAY	CI
BS	1/12	637	11.70	B	9.8	44	21	23	15	WS	Brown slightly sandy very gravelly CLAY	CI
S/G	1/12	651	18.50	B	22						Brown clayey/silty SAND	
MG	1/13	8157	3.00	B	24	49	25	24	62	WS	Brown slightly sandy slightly gravelly CLAY	CI
S/G	1/13	8177	15.50	B	18						Grey silty SAND	
S/G	1/13	8184	21.50	B	2.9	25	NP	NP	7	WS	Grey slightly clayey/silty sandy GRAVEL	
MG	1/14	665	1.40	B	26	36	17	19	100	WS	Brown slightly sandy CLAY	CI
MG	1/14	679	4.50	B	23	27	NP	NP	99	WS	Brown slightly sandy slightly gravelly SILT	
S/G	4/10	3303	4.50	B	12						Brown sandy gravelly CLAY	
S/G	4/10	3308	8.50	B	21	27	NP	NP	99	WS	Brown very sandy SILT	
GT	4/10	3318	11.80	B	20	28	16	12	88	WS	Brown slightly sandy slightly gravelly CLAY	CL
MG	4/11	4072	1.00	B	16	35	20	15	88	WS	Brown sandy slightly gravelly CLAY	CL

Notes: NAT - tested as received WS - Wet sieved (425µm) NP - Non Plastic

IGSL	Contract Blessington Landfill				Contract No. M101 / 8669	
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		20/5/03		20/5/03	of	


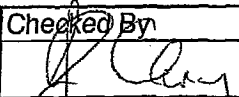
Summary of Classification Tests

BS1377:Part 2:1990, clauses 3.2, 4.3, 5.3 & 5.4

BH No.	Sample No.	Depth (m)	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	<425µm %	Preparation	Description	Classification	
S/G	4/11	4080	6.00	B	20					Brown clayey slightly gravelly SAND		
GT	4/11	4088	10.00	B	14	35	21	14	49	WS	Brown slightly sandy gravelly CLAY	C L
MG	4/12	4045	1.00	B	22	27	NP	NP	96	WS	Brown sandy slightly gravelly SILT	
S/G	4/12	4057	7.00	B	25					Grey very sandy slightly gravelly SILT		
S/G	4/12	4064	11.50	B	24					Grey silty SAND		
MG	6/10	1699	2.00	B	21	28	NP	NP	100	WS	Brown slightly sandy SILT	
MG	6/10	803	4.00	B	12	37	NP	NP	38	WS	Brown sandy gravelly SILT	
MG	6/10	810	8.00	B	27	24	NP	NP	96	WS	Brown slightly sandy slightly gravelly SILT	
MG	6/10	814	10.00	B	33	35	19	16	100	WS	Brown slightly sandy CLAY	C L
MG	6/10	817	12.00	B	22	26	NP	NP	100	WS	Brown sandy SILT	
MG	6/11	5171	1.50	B	22	29	NP	NP	100	WS	Brown sandy SILT	
S/G	6/11	5193	8.50	B	21	26	NP	NP	86	WS	Brown slightly sandy slightly gravelly SILT	
S/G	6/11	4010	12.00	B	4.0						Grey slightly sandy very gravelly SILT/CLAY	
MG	6/12	1750	1.00	B	21						Brown slightly sandy slightly gravelly SILT	
BS	6/12	4018	10.00	B	24	28	NP	NP	99	WS	Brown slightly sandy SILT	
BS	6/12	4026	14.00	B	27	26	NP	NP	98	WS	Brown slightly sandy slightly gravelly SILT	
S/G	6/12	4035	18.00	B	1.9						Brown slightly silty sandy GRAVEL	

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Notes: NAT - tested as received WS - Wet sieved (425µm) NP - Non Plastic

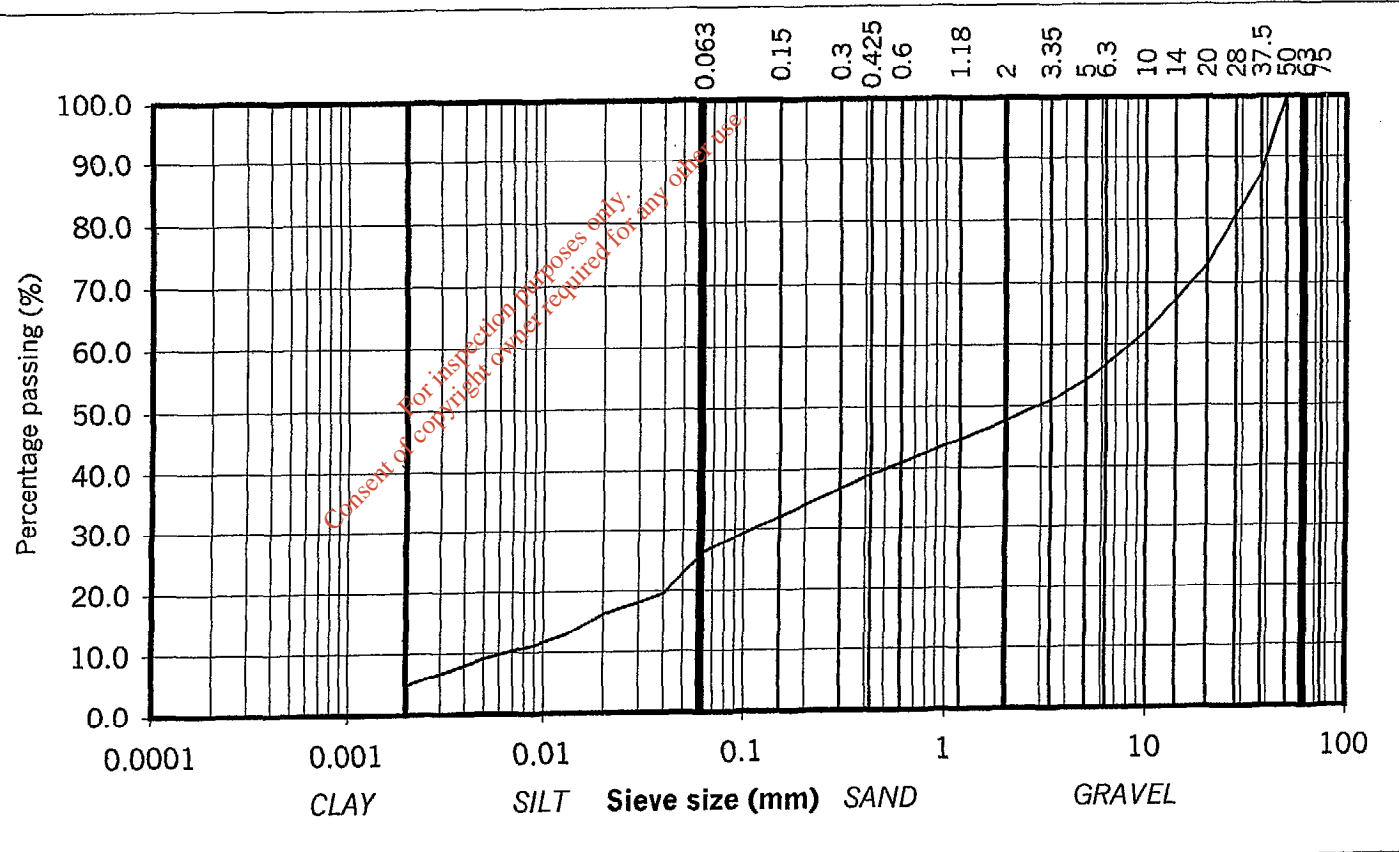
IGSL	Contract Blessington Landfill				Contract No. M101 / 8669	
	Compiled By	Date	Checked By	Date	Page	
		20/5/03		24/5/03	of	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	87.4	GRAVEL
28	80.7	
20	72.8	
14	67.4	
10	62.1	
6.3	56.5	
5	54.2	
3.35	51.0	SAND
2	47.6	
1.18	44.7	
0.6	40.8	
0.425	38.9	
0.3	36.6	SILT/CLAY
0.15	32.0	
0.063	26.2	
0.04	19.5	
0.03	18.0	
0.02	16.2	
0.013	12.8	
0.009	11.1	
0.005	9.1	
0.002	4.9	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/10
 Sample No. H0532 Lab. Sample No. A03/0603
 Depth (m): 1.00-1.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, CLAY



IGSL	Compiled by:	Date:	Checked by:	Date:	Page no:
	Hugh Byrne	8/5/03	<i>[Signature]</i>	08/09/03	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

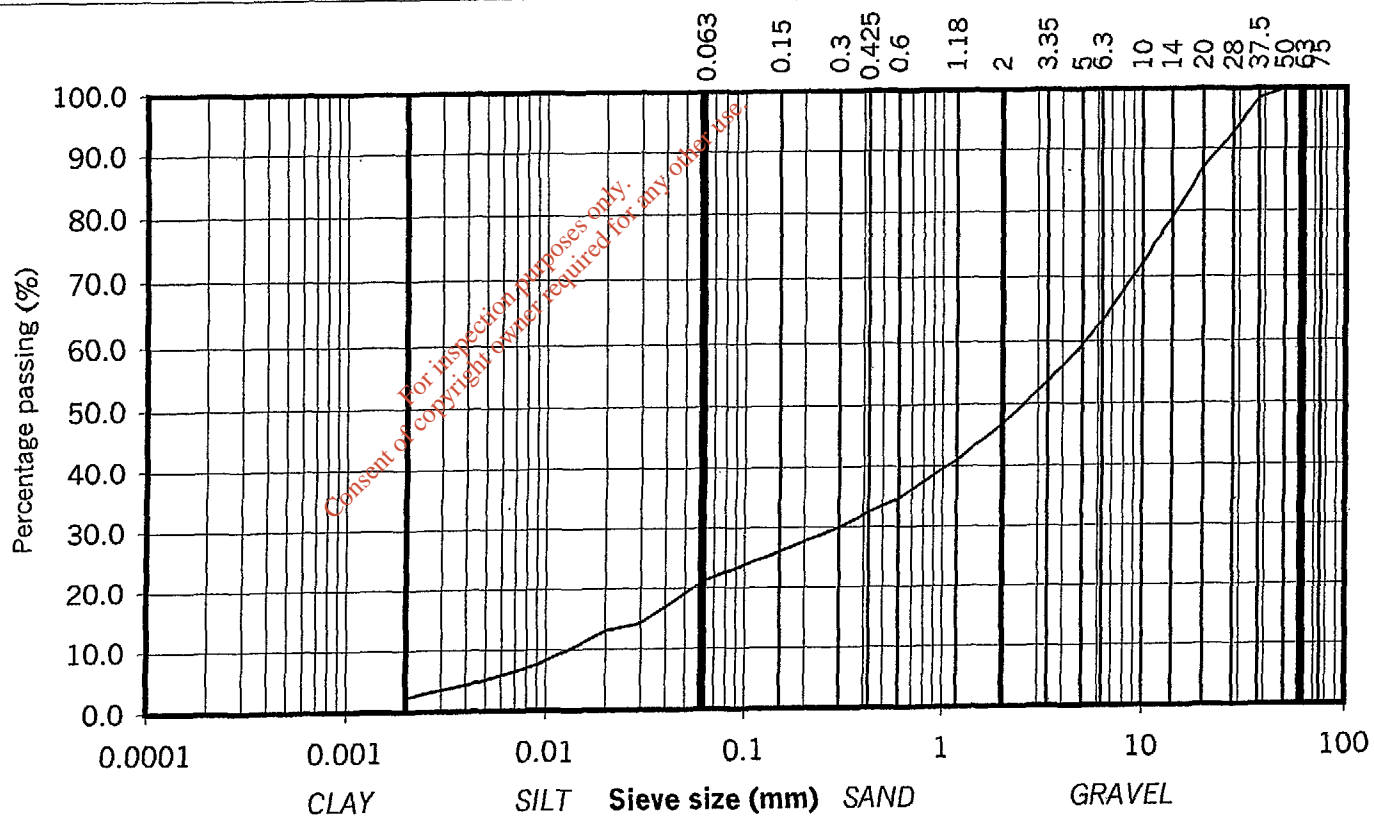
particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	98.4	
28	92.7	
20	86.9	
14	79.1	
10	72.2	
6.3	63.2	
5	59.4	
3.35	53.7	
2	46.7	
1.18	41.1	
0.6	34.6	
0.425	32.3	
0.3	29.9	
0.15	26.0	
0.063	21.4	
0.04	16.9	
0.03	14.2	
0.02	13.0	
0.013	9.9	
0.009	7.5	
0.005	5.0	
0.002	2.3	

GRAVEL

SAND

SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/10
 Sample No. H0544 Lab. Sample No. A03/0604
 Depth (m): 8.50-9.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, CLAY



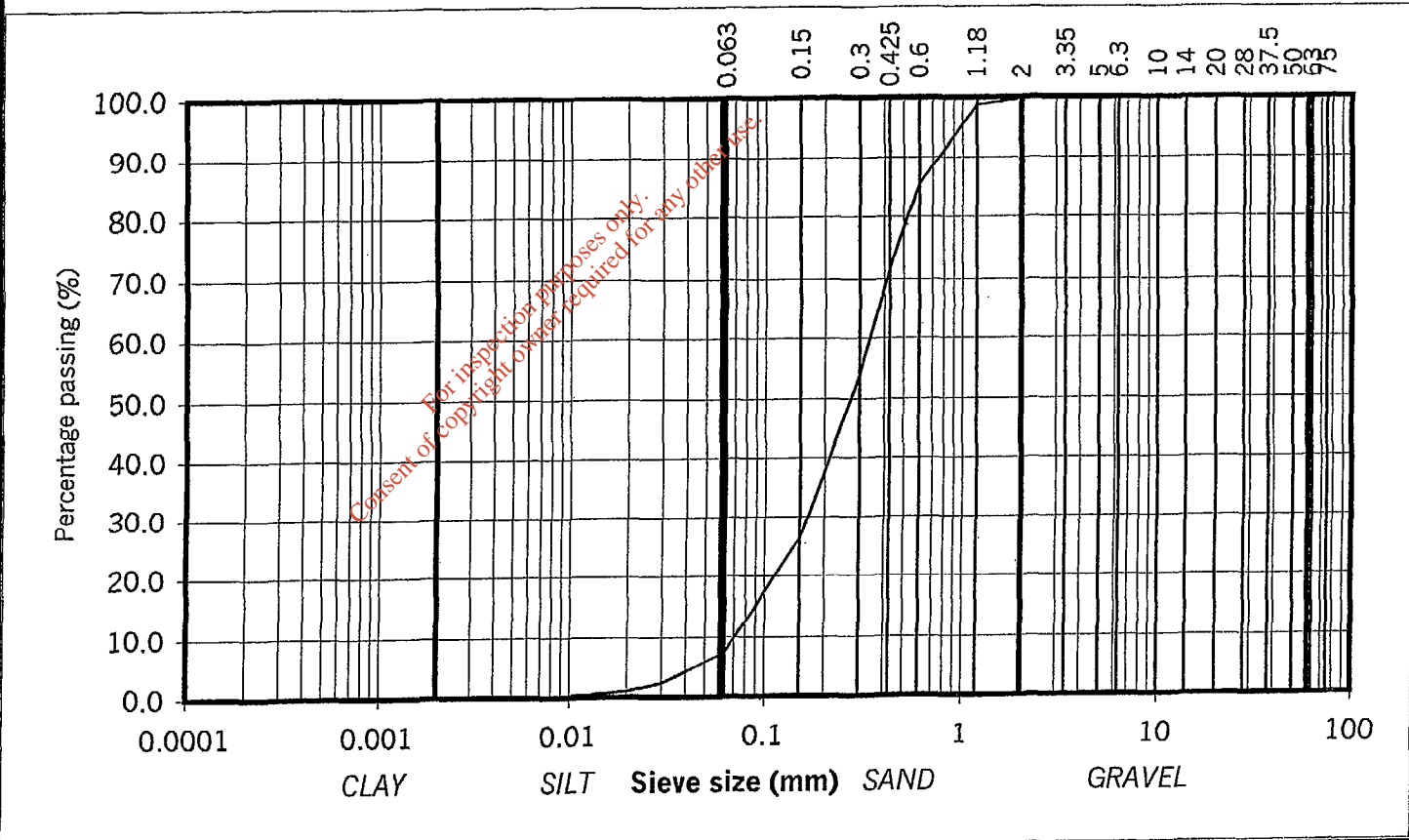
IGSL	Compiled by:	Date:	Checked by:	Date:	Page no:
	Hugh Byrne	8/5/03	J. L. ...	08/05/03	

Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	GRAVEL
14	100.0	
10	100.0	
6.3	100.0	
5	99.9	
3.35	99.9	
2	99.9	
1.18	98.6	
0.6	85.5	
0.425	71.5	
0.3	54.0	
0.15	26.4	
0.063	7.5	
0.04	4.1	
0.03	2.3	SILT/CLAY
0.02	1.0	
0.013	0.5	
0.009	0.2	
0.005	0.0	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/10
 Sample No. H0548 Lab. Sample No. A03/0605
 Depth (m): 12.50-13.00
 Test Method: Wet sieve and hydrometer
 Description: Grey clayey/silty, SAND



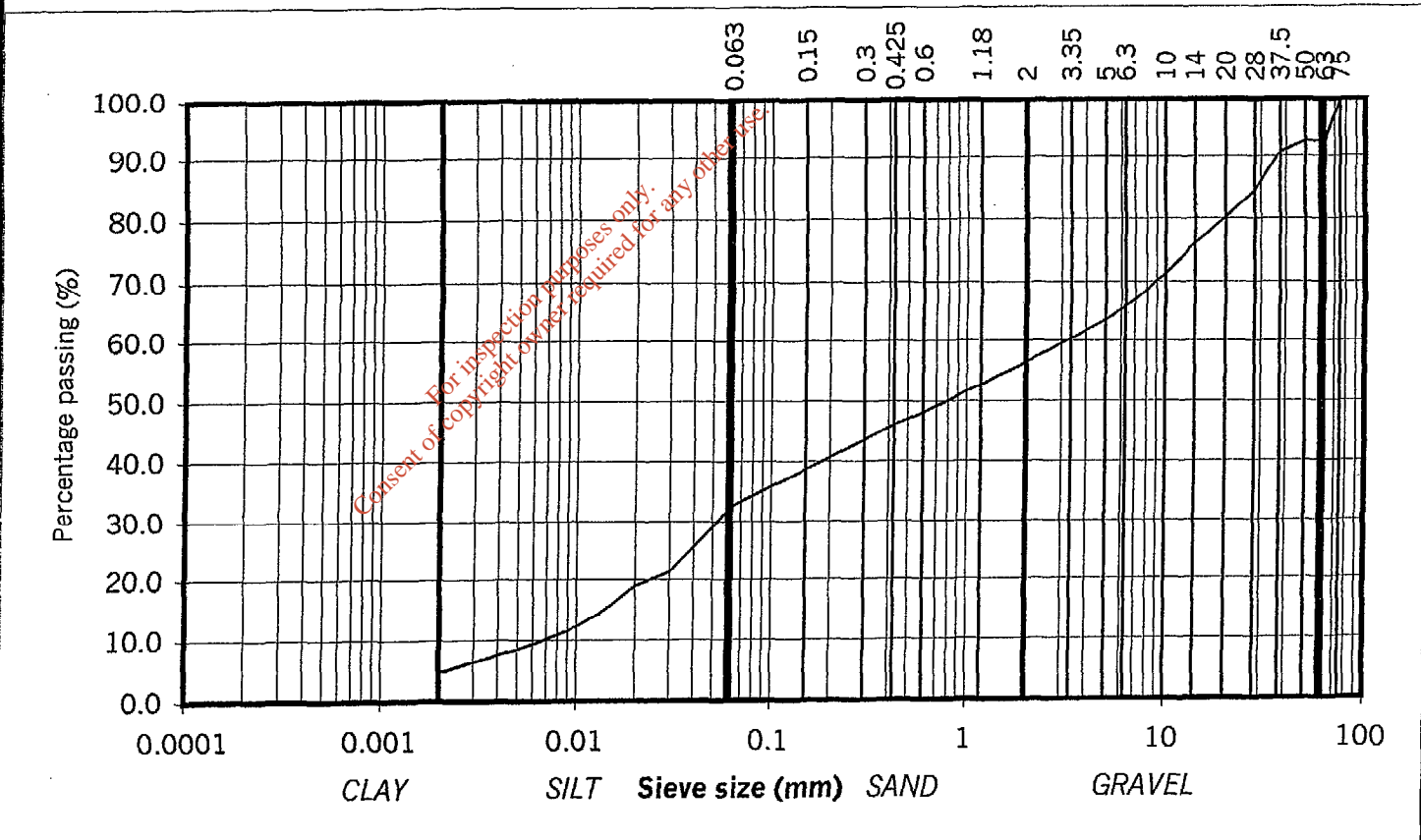
IGSL	Compiled by:	Date:	Checked by:	Date:	Page no:
	J. Langley	12/05/03	[Signature]	12/5/03	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	92.7	
50	92.7	GRAVEL
37.5	90.9	
28	84.5	
20	80.2	
14	75.9	
10	71.3	
6.3	65.8	
5	63.6	
3.35	60.3	
2	56.4	
1.18	52.7	
0.6	48.1	
0.425	46.0	
0.3	43.5	
0.15	38.6	SILT/CLAY
0.063	32.5	
0.04	25.7	
0.03	21.3	
0.02	18.9	
0.013	14.4	
0.009	11.5	
0.005	8.3	
0.002	4.6	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/11A
 Sample No. C0515 Lab. Sample No. A03/0592
 Depth (m): 2.00-2.30
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, CLAY with some cobbles



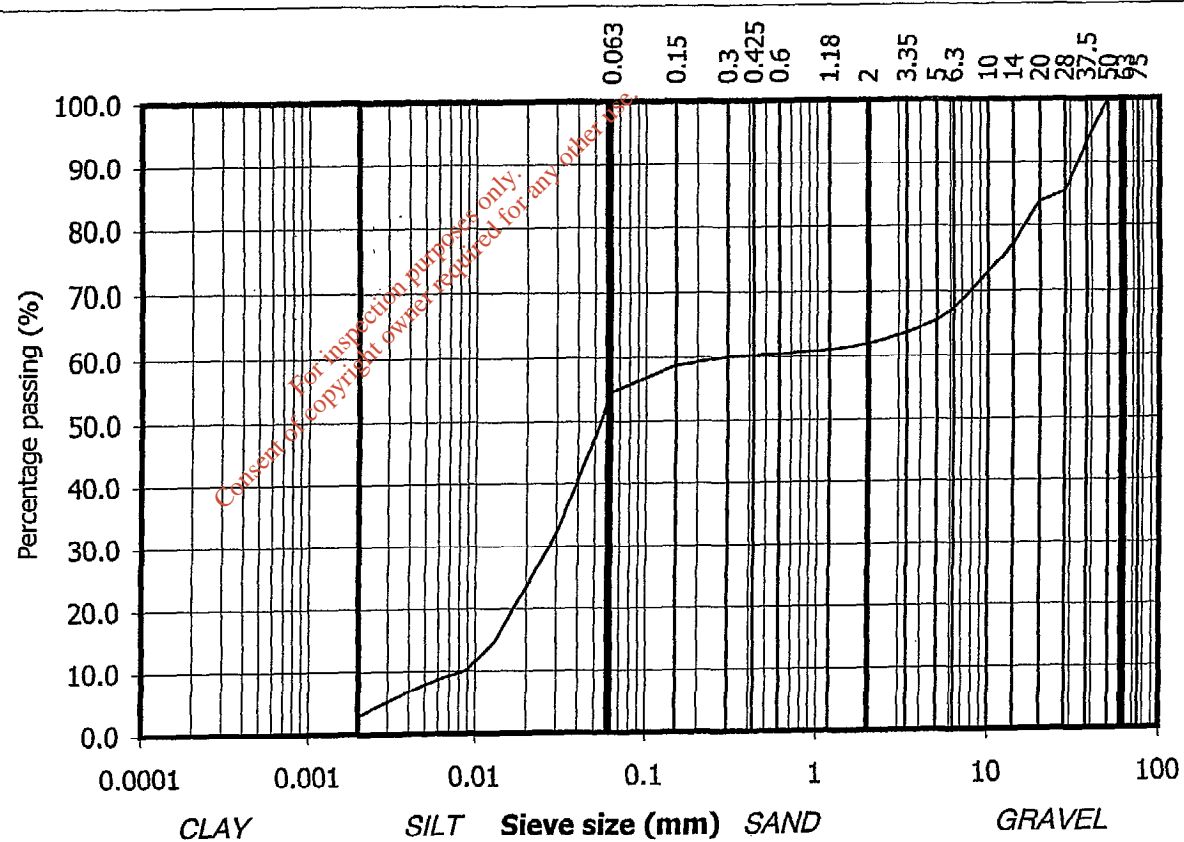
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Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	93.1		
28	85.3		
20	83.8		
14	77.0		
10	72.9		
6.3	67.3		
5	65.4		GRAVEL
3.35	63.5		
2	61.9		
1.18	61.0		
0.6	60.4		
0.425	60.2		
0.3	60.0		
0.15	58.7		
0.063	54.7		
0.04	40.4	SAND	
0.03	32.0		
0.02	23.5		
0.013	14.7		
0.009	10.2		
0.005	7.9		
0.002	2.8		
			SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/11a
 Sample No. H0606 Lab. Sample No. A03/0593
 Depth (m): 12.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, SILT



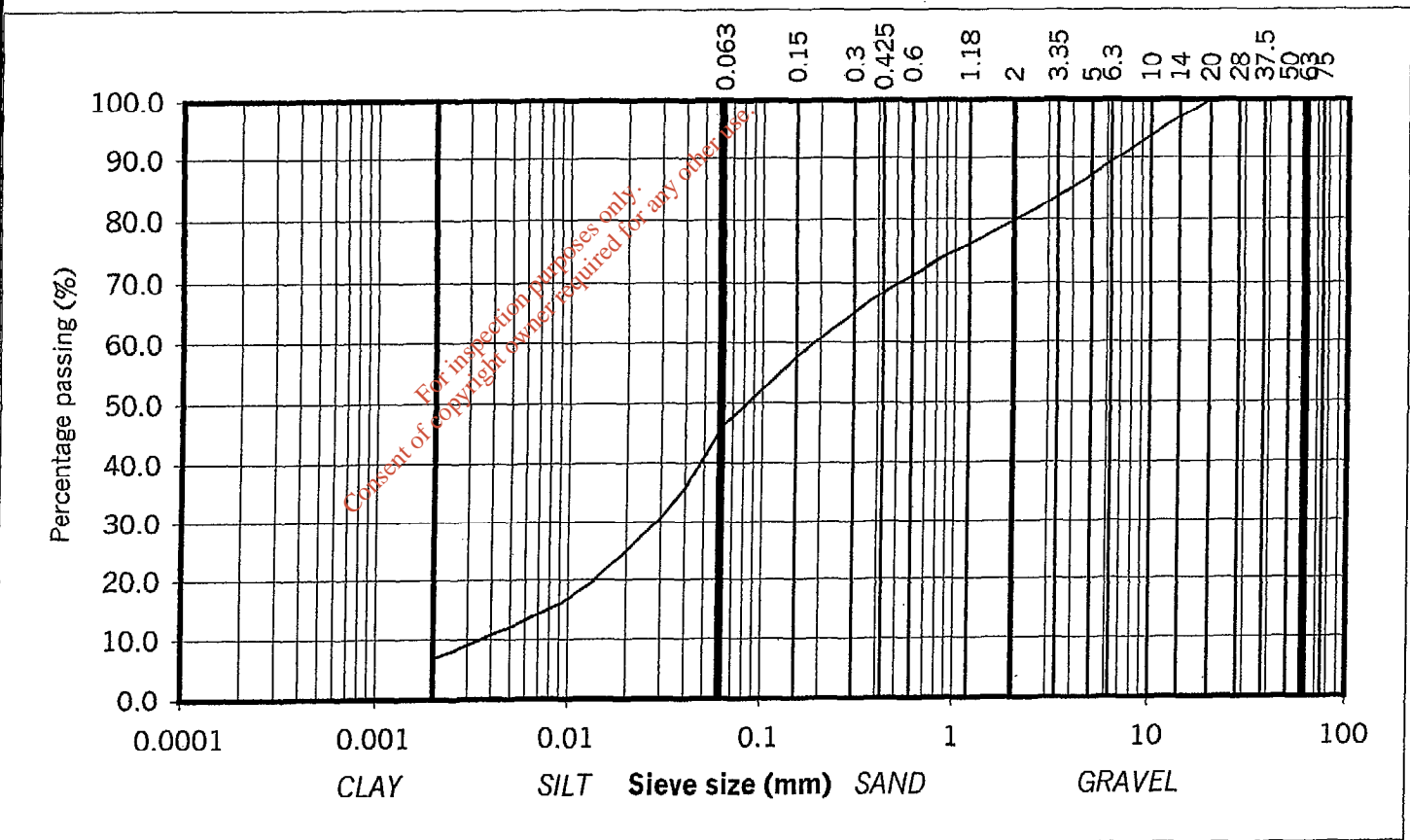
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	96.9	
10	93.8	
6.3	89.3	
5	87.2	
3.35	83.8	GRAVEL
2	79.8	
1.18	75.9	
0.6	71.2	
0.425	68.4	
0.3	65.2	
0.15	57.6	
0.063	46.3	
0.04	35.7	
0.03	30.6	
0.02	25.0	SAND
0.013	19.3	
0.009	16.0	
0.005	12.0	
0.002	6.7	
		SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/11A
 Sample No. 611 Lab. Sample No. A03/0594
 Depth (m): 14.50-15.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT/CLAY



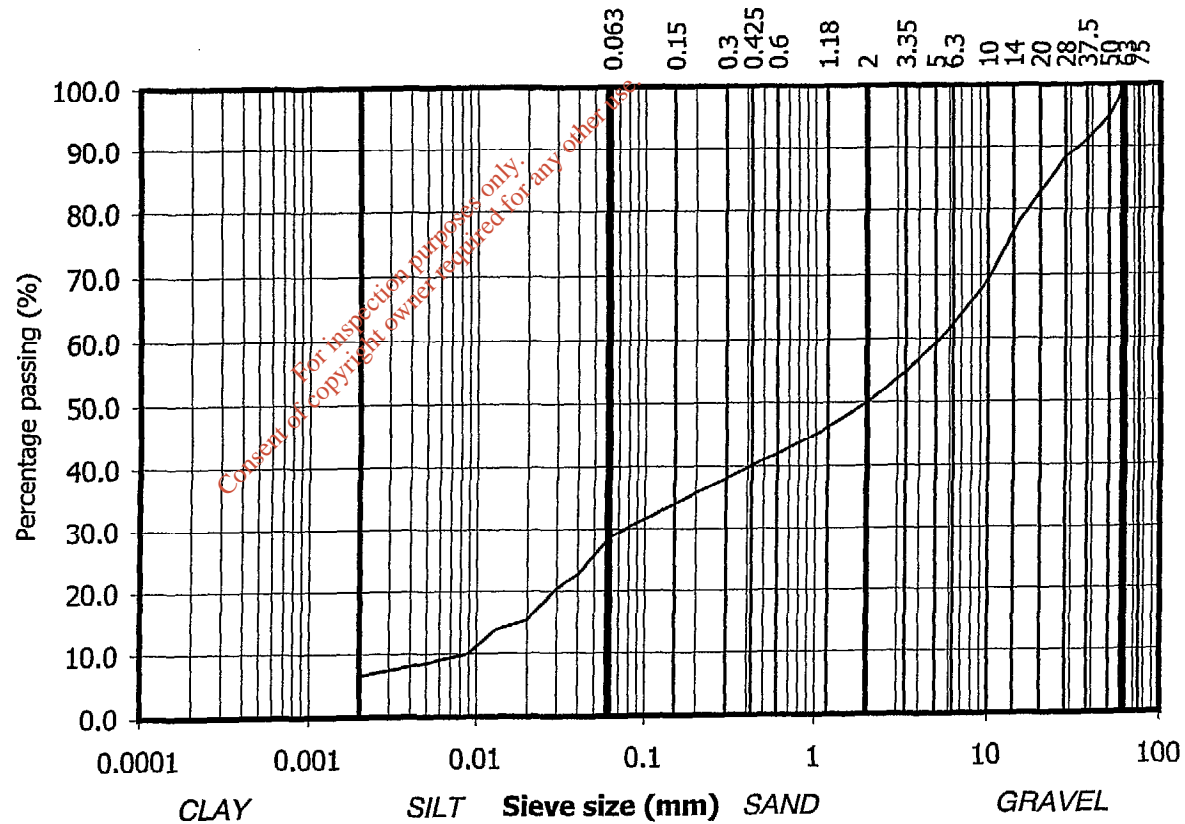
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	94.8	GRAVEL
37.5	91.1	
28	88.2	
20	82.9	
14	76.6	
10	69.2	
6.3	62.2	
5	59.2	
3.35	54.7	
2	49.9	
1.18	46.2	
0.6	41.9	
0.425	40.1	
0.3	38.1	
0.15	34.0	SILT/CLAY
0.063	28.8	
0.04	22.8	
0.03	20.4	
0.02	15.4	
0.013	13.8	
0.009	10.0	
0.005	8.5	
0.002	6.6	

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH1/12
 Sample No. H0621 Lab. Sample No. A03/0595
 Depth (m): 4.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, CLAY



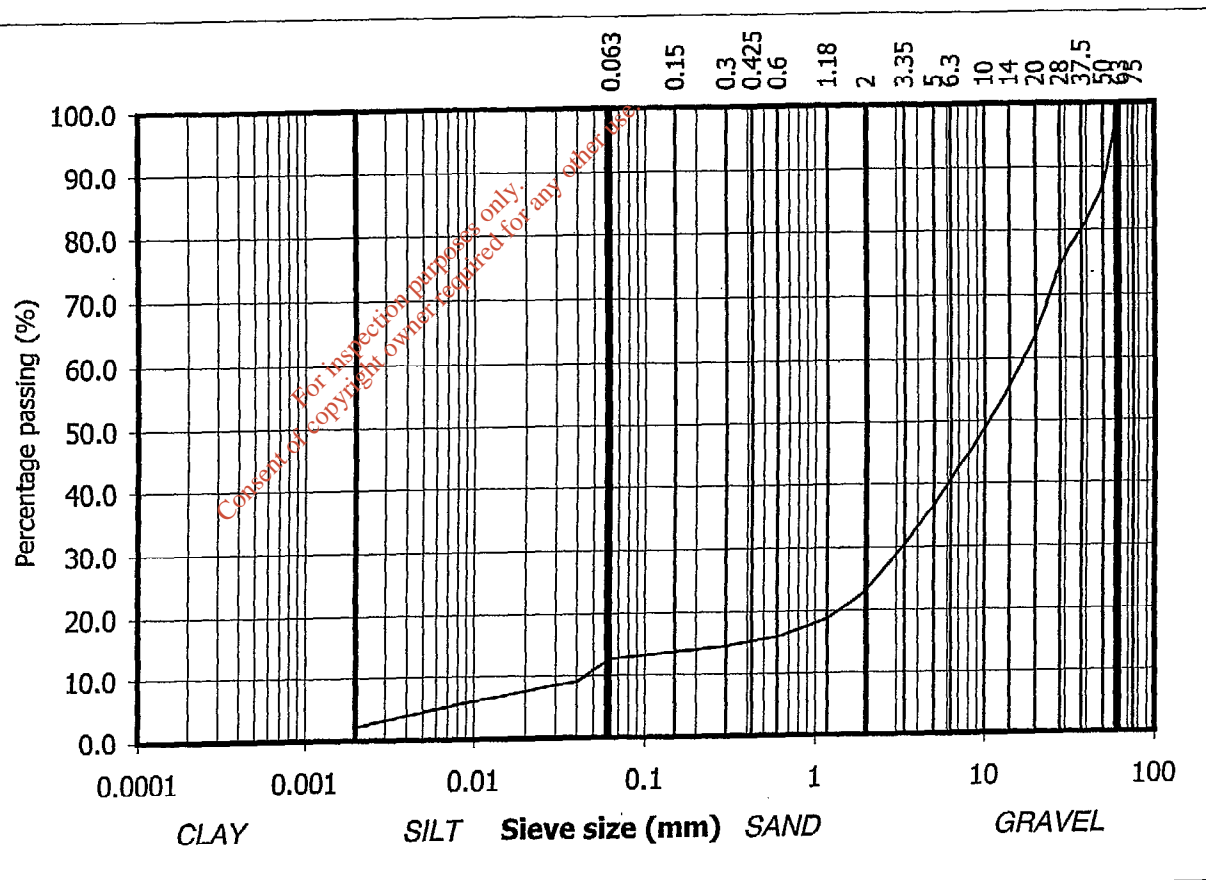
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	86.7	GRAVEL
37.5	80.1	
28	74.9	
20	63.7	
14	55.6	
10	48.9	
6.3	40.6	
5	36.6	SAND
3.35	30.3	
2	23.1	
1.18	18.7	
0.6	16.0	
0.425	15.3	SILT/CLAY
0.3	14.6	
0.15	13.8	
0.063	12.7	
0.04	9.0	
0.03	8.5	
0.02	7.5	
0.013	6.5	
0.009	5.7	
0.005	4.3	
0.002	2.0	

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH1/12
 Sample No. C0637 Lab. Sample No. A03/0596
 Depth (m): 11.70
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, very gravelly, CLAY



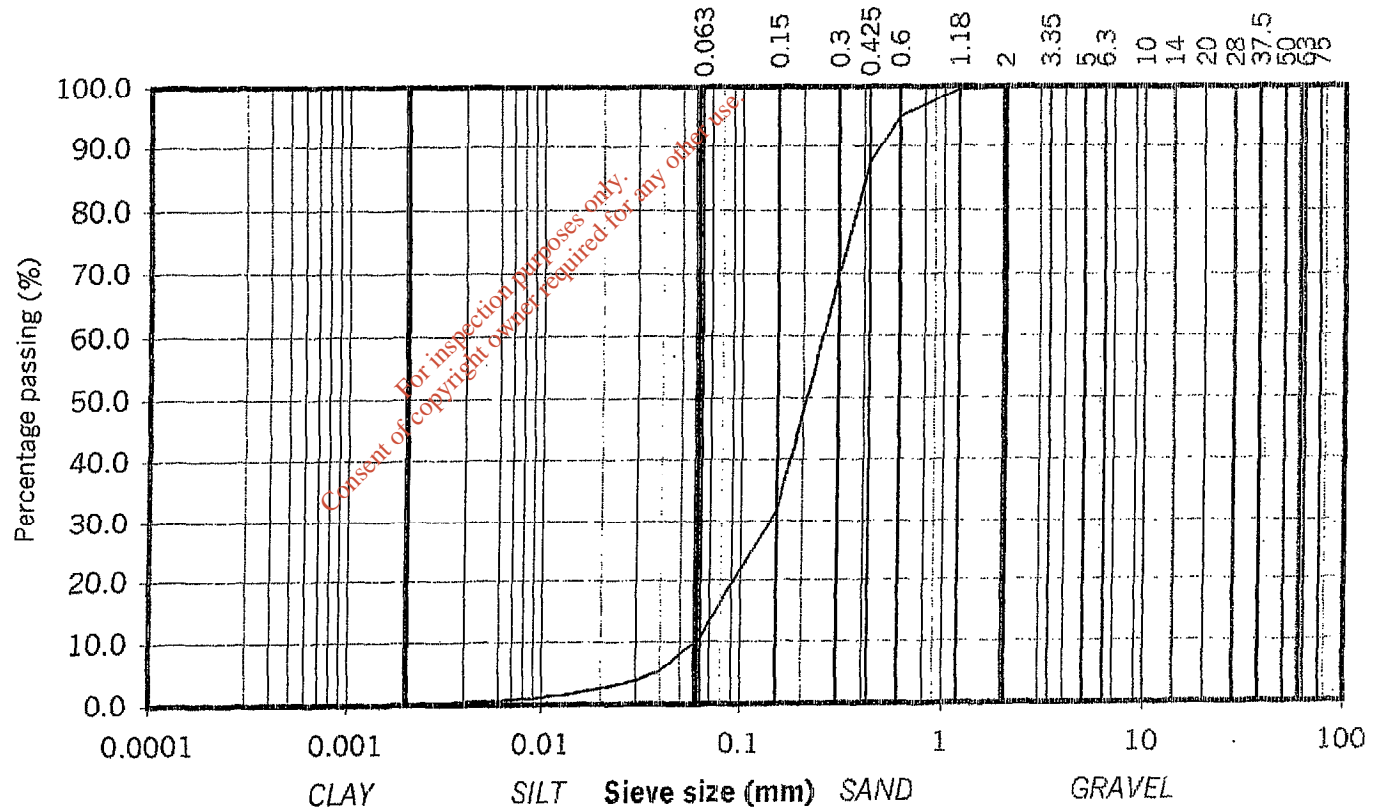
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Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	
3.35	100.0	
2	99.9	
1.18	99.5	
0.6	94.8	
0.425	87.2	
0.3	69.7	
0.15	31.8	SILT/CLAY
0.063	10.7	
0.04	5.3	
0.03	3.8	
0.02	2.6	
0.013	1.5	
0.009	1.0	
0.005	0.5	
0.002	0.1	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/12
 Sample No. C0651 Lab. Sample No. A03/0597
 Depth (m): 16.50-17.00
 Test Method: Wet sieve and hydrometer
 Description: Brown clayey/silty, SAND



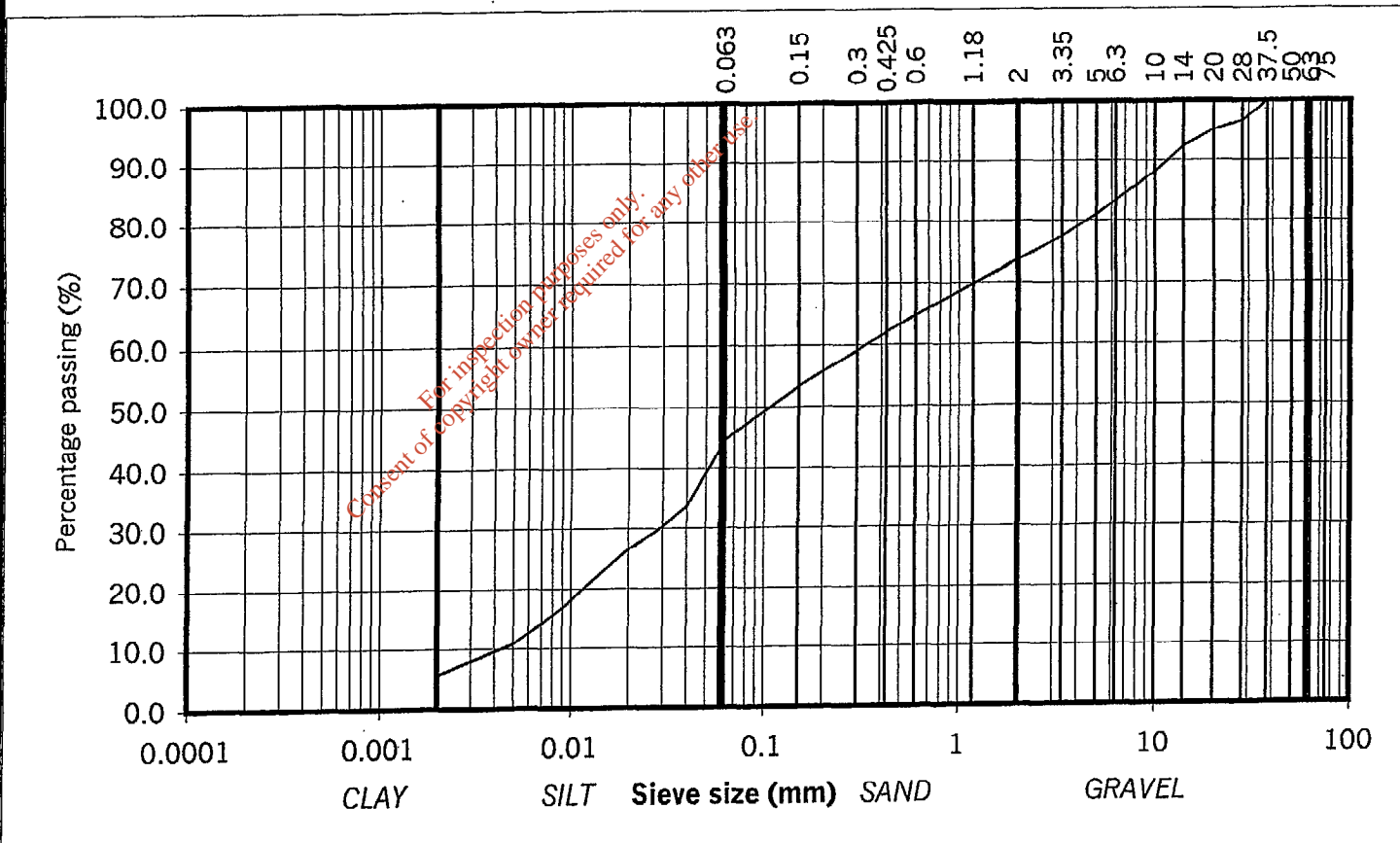
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	<i>J. Maguire</i>	12/05/03	<i>J. Maguire</i>	12/15/03	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	100.0		
28	96.6		
20	94.9		
14	92.3		
10	88.1		
6.3	83.2		
5	80.9		
3.35	77.4	GRAVEL	
2	73.6		
1.18	69.8		
0.6	64.7		
0.425	62.1		
0.3	59.1		
0.15	53.4		
0.063	44.7		
0.04	33.7		
0.03	30.2		
0.02	26.5	SAND	
0.013	21.5		
0.009	16.8		
0.005	10.7		
0.002	5.7		
			SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/13
 Sample No. 8157 Lab. Sample No. A03/0612
 Depth (m): 3.00-3.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, CLAY



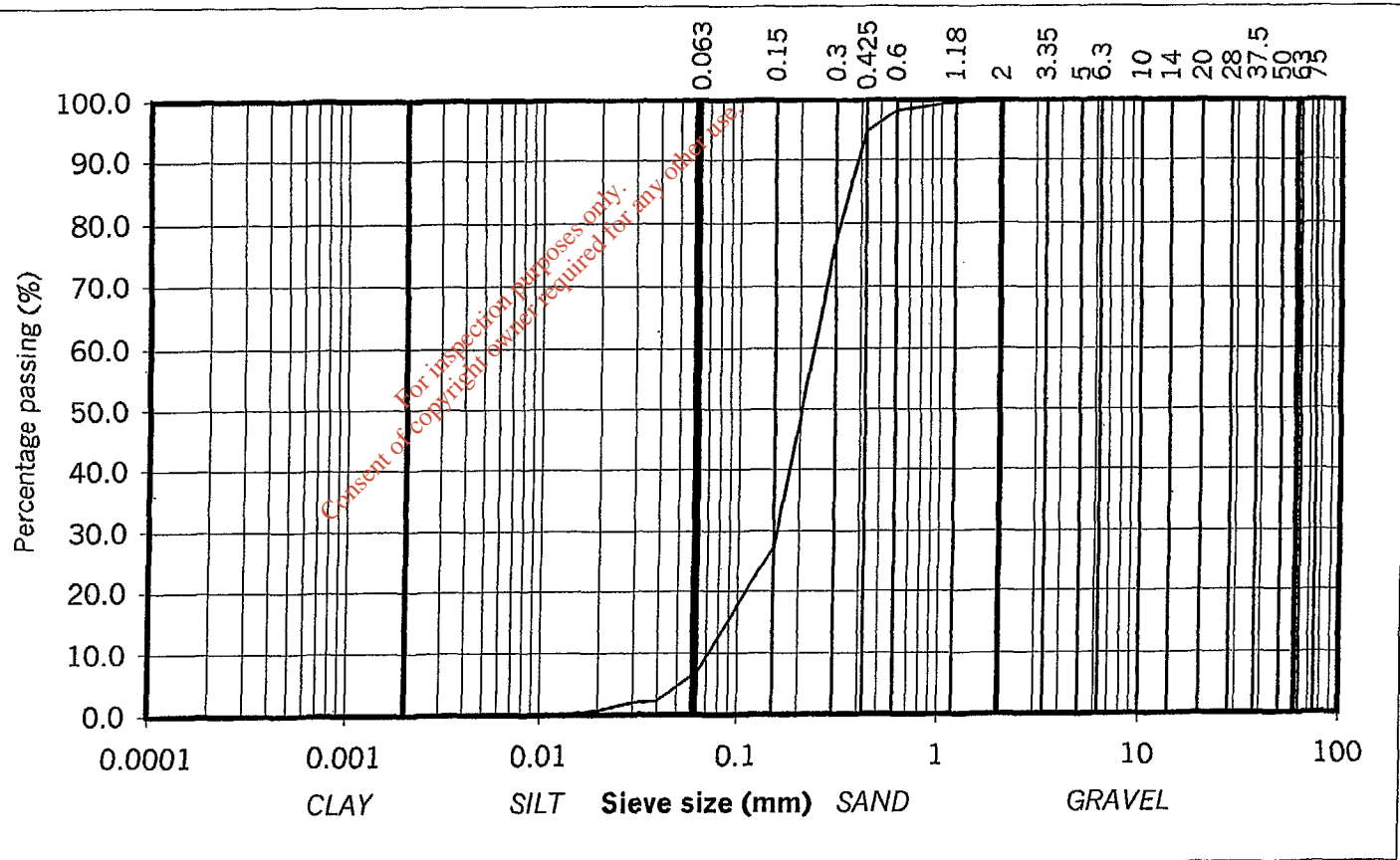
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	100.0		
28	100.0		
20	100.0		
14	100.0		
10	100.0		
6.3	99.9		
5	99.9		
3.35	99.9	GRAVEL	
2	99.7		
1.18	99.5		
0.6	98.2		
0.425	94.6		
0.3	77.5		
0.15	27.3		
0.063	6.9		
0.04	2.2		
0.03	1.9		
0.02	0.7	SAND	
0.013			
0.009			
0.005			
0.002			
			SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/13
 Sample No. G8177 Lab. Sample No. A03/0613
 Depth (m): 15.50-16.00
 Test Method: Wet sieve and hydrometer
 Description: Grey silty, SAND



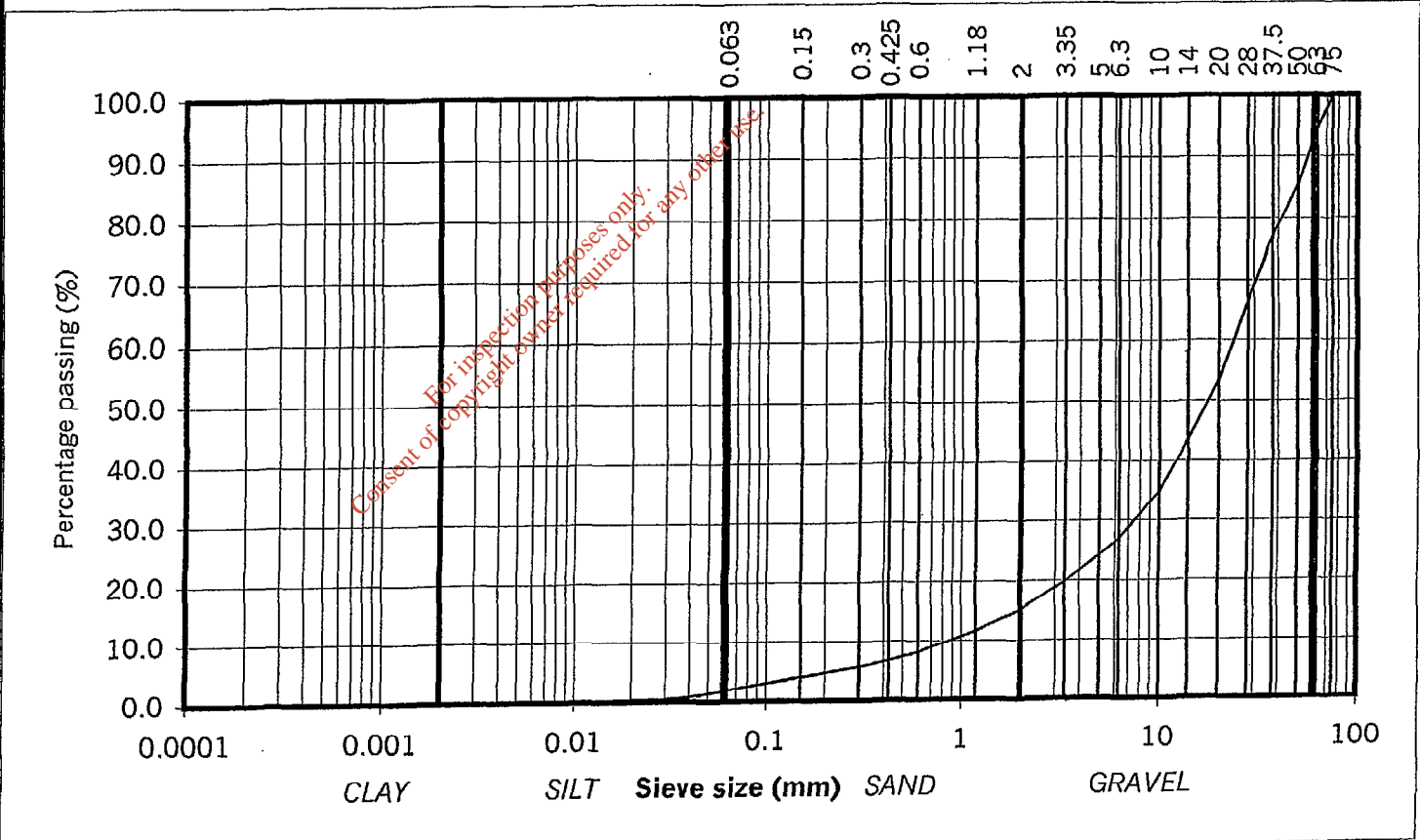
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	94.4	
50	85.3	GRAVEL
37.5	77.1	
28	66.6	
20	53.3	
14	43.5	
10	34.8	
6.3	26.9	
5	24.1	
3.35	19.8	
2	15.1	
1.18	11.6	
0.6	8.0	
0.425	6.7	
0.3	5.7	SILT/CLAY
0.15	4.1	
0.063	1.9	
0.04	0.8	
0.03	0.5	
0.02	0.3	
0.013	0.1	
0.009	0.1	
0.005		
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/13
 Sample No. 8184 Lab. Sample No. A03/0614
 Depth (m): 21.50-22.00
 Test Method: Wet sieve and hydrometer
 Description: Grey slightly clayey/silty, sandy, GRAVEL with some cobbles



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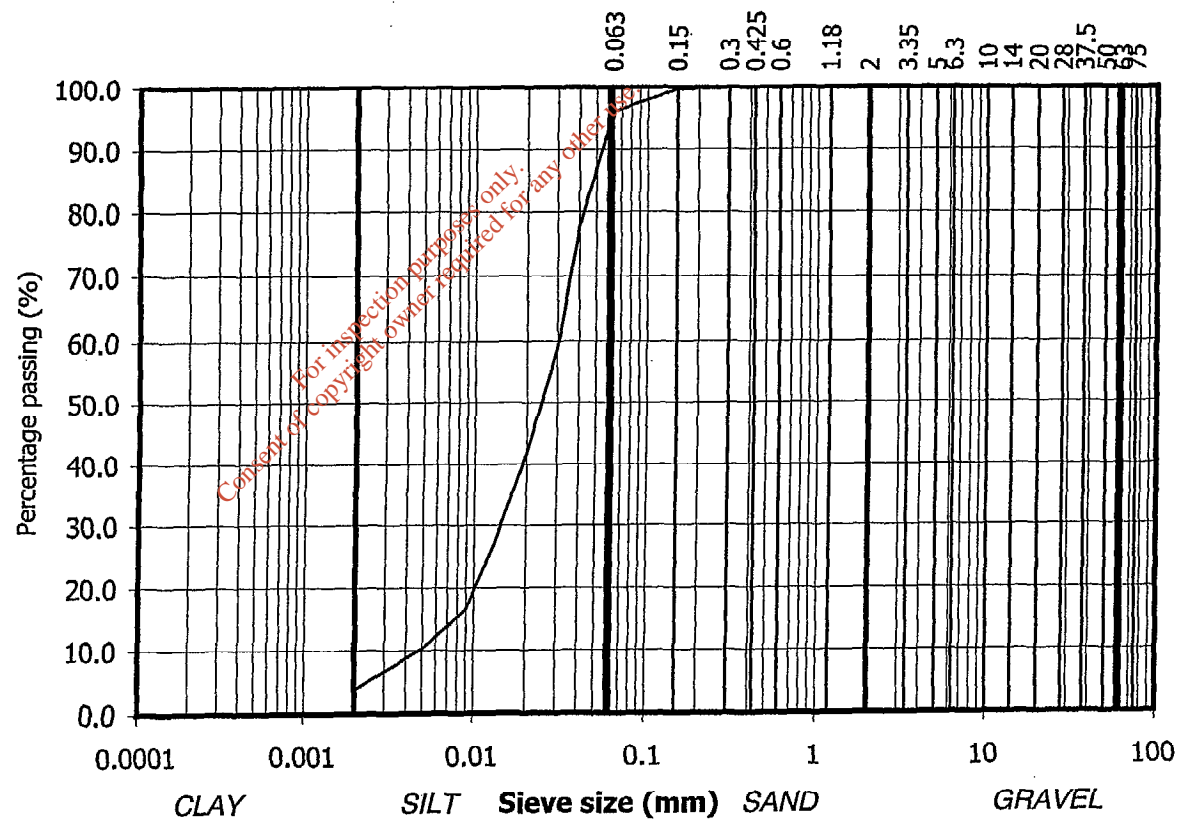
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	100.0		
28	100.0		
20	100.0		
14	100.0		GRAVEL
10	100.0		
6.3	100.0		
5	100.0		
3.35	100.0		
2	100.0		
1.18	99.9	SAND	
0.6	99.9		
0.425	99.8		
0.3	99.8		
0.15	99.6		
0.063	96.1		
0.04	77.5		SILT/CLAY
0.03	58.7		
0.02	41.7		
0.013	26.9		
0.009	16.4		
0.005	10.2		
0.002	3.7		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/14
 Sample No. H0655 Lab. Sample No. A03/0598
 Depth (m): 7.20
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, CLAY



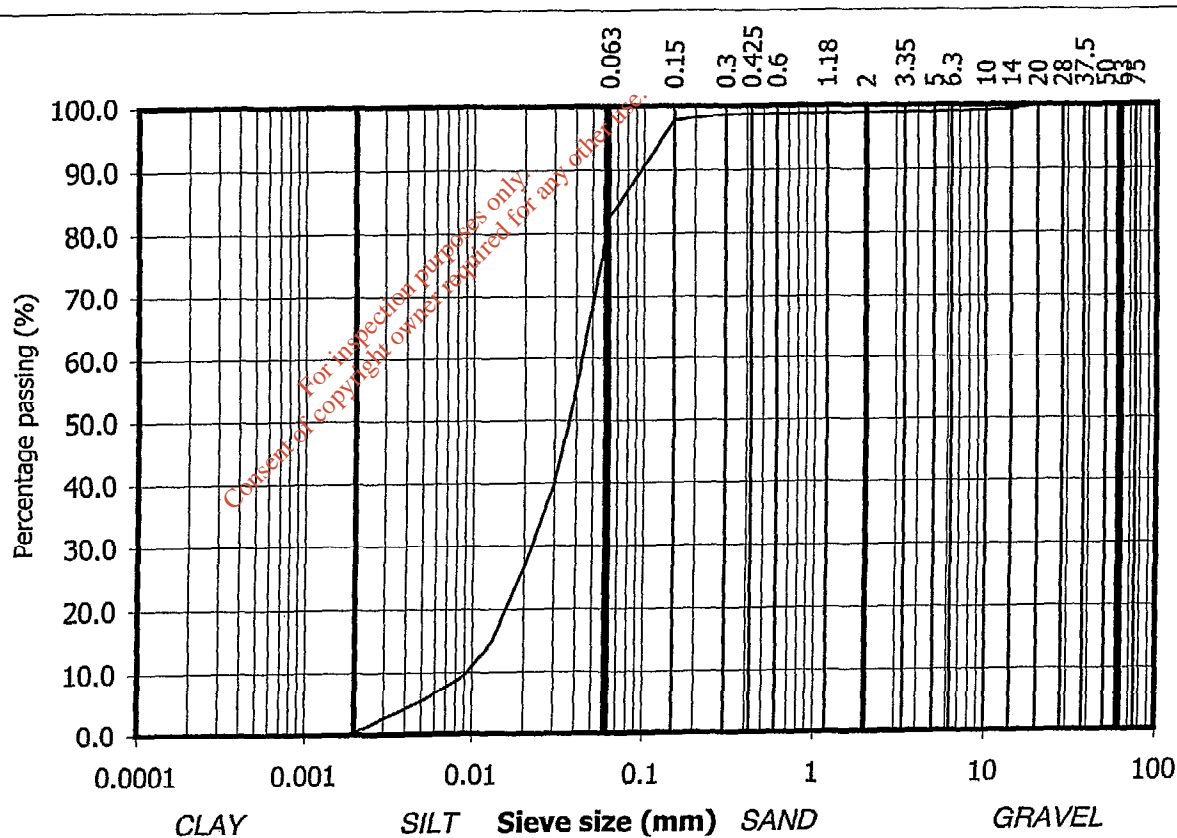
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	99.3	GRAVEL
10	99.2	
6.3	99.0	
5	98.9	
3.35	98.9	
2	98.9	
1.18	98.8	SAND
0.6	98.7	
0.425	98.7	
0.3	98.6	
0.15	97.7	
0.063	82.6	
0.04	54.9	SILT/CLAY
0.03	39.8	
0.02	26.5	
0.013	14.8	
0.009	9.5	
0.005	5.3	
0.002	0.3	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH1/14
 Sample No. H0679 Lab. Sample No. A03/0599
 Depth (m): 14.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT



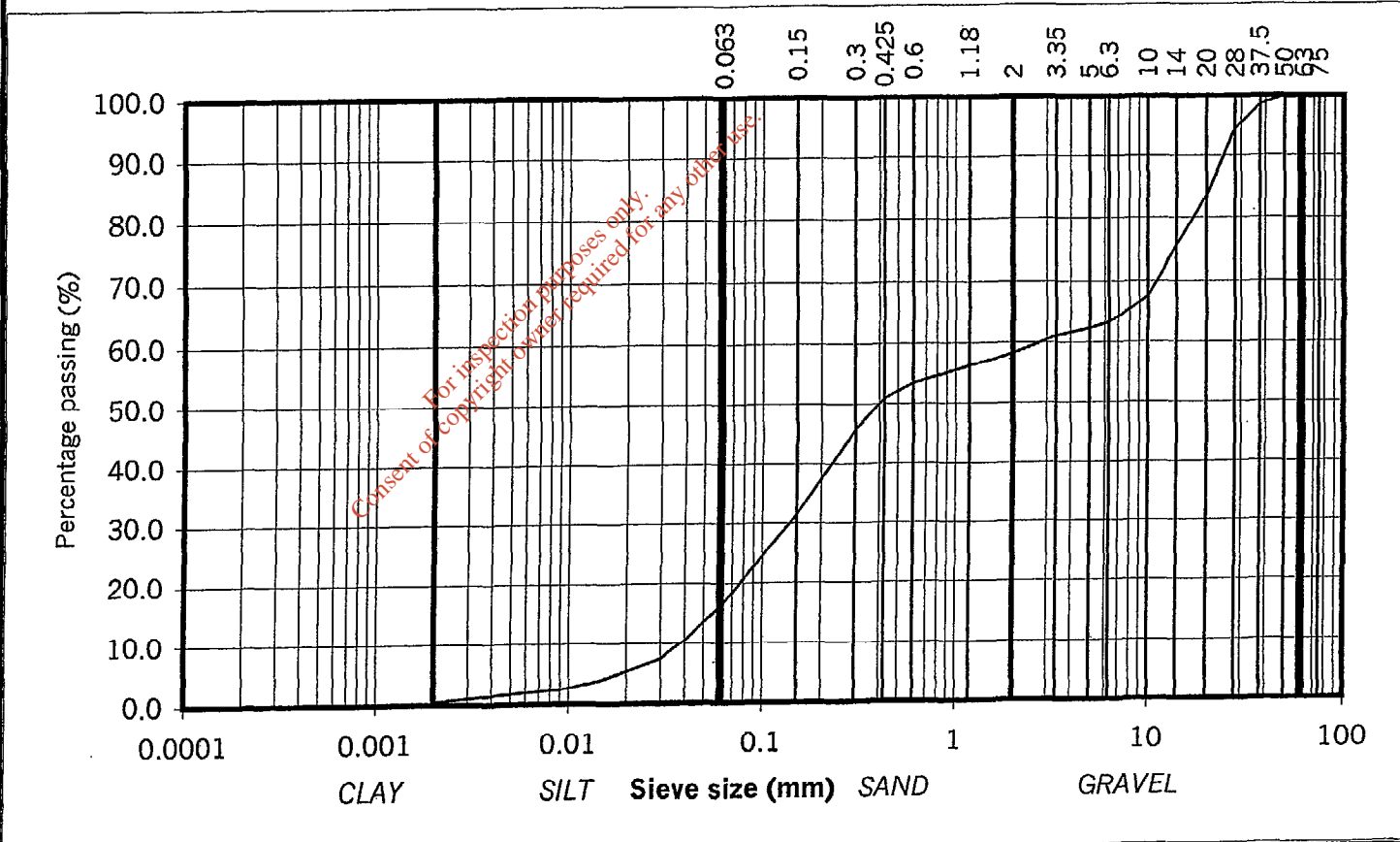
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Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	98.6		
28	94.3		
20	83.5		
14	75.5		
10	67.5		
6.3	63.2		
5	62.3		
3.35	61.1	GRAVEL	
2	58.2		
1.18	56.2		
0.6	53.3		
0.425	50.9		
0.3	45.8		
0.15	31.4		
0.063	16.5		
0.04	10.5		
0.03	7.5		
0.02	5.3	SAND	
0.013	3.5		
0.009	2.4		
0.005	1.7		
0.002	0.5		
			SILT/CLAY

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/10
 Sample No. H3303 Lab. Sample No. A03/0609
 Depth (m): 4.50-5.00
 Test Method: Wet sieve and hydrometer
 Description: Brown sandy, gravelly, CLAY



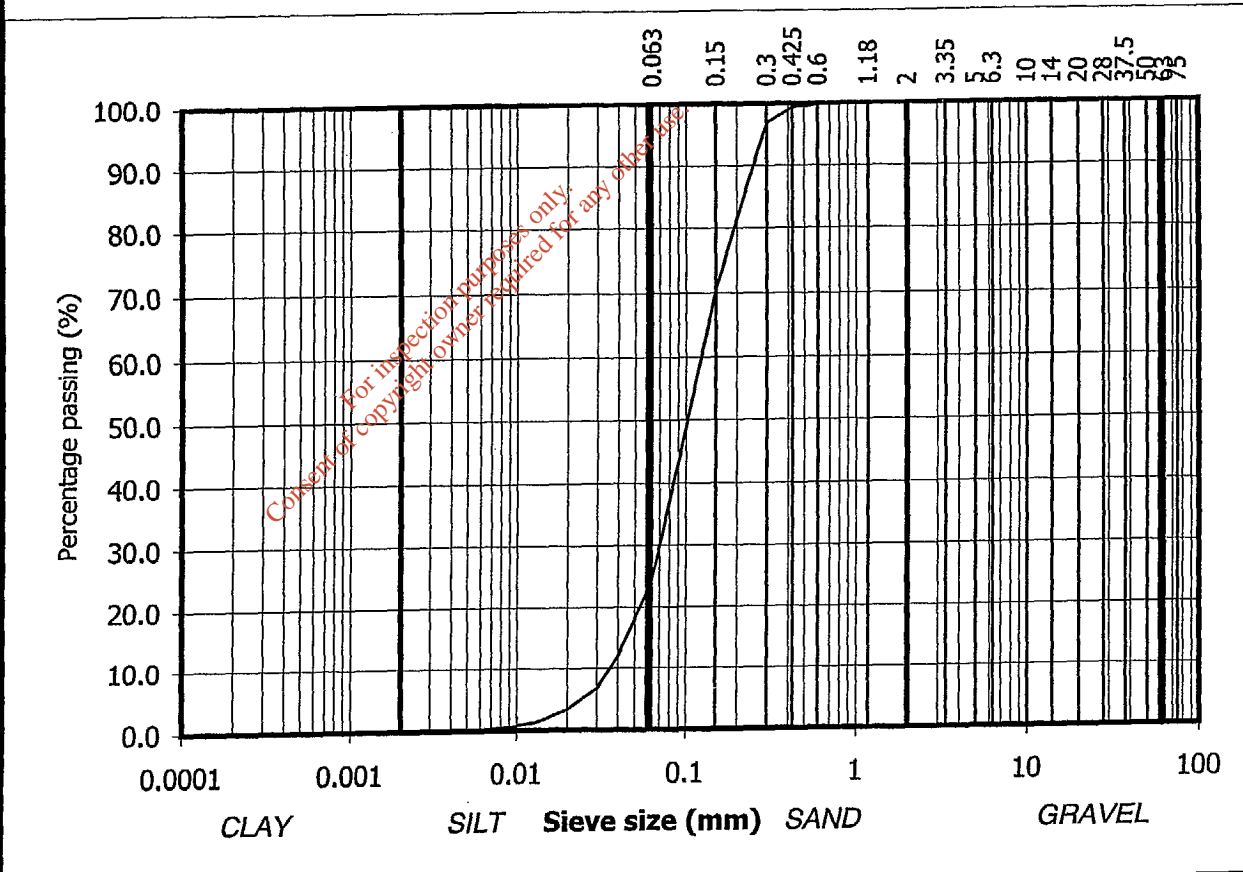
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	
3.35	100.0	
2	100.0	
1.18	99.9	
0.6	99.7	
0.425	99.2	
0.3	96.9	
0.15	70.4	SILT/CLAY
0.063	24.2	
0.04	12.0	
0.03	6.6	
0.02	3.2	
0.013	1.2	
0.009	0.5	
0.005	0.1	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/10
 Sample No. 3308 Lab. Sample No. A03/0610
 Depth (m): 8.50
 Test Method: Wet sieve and hydrometer
 Description: Brown very sandy, SILT



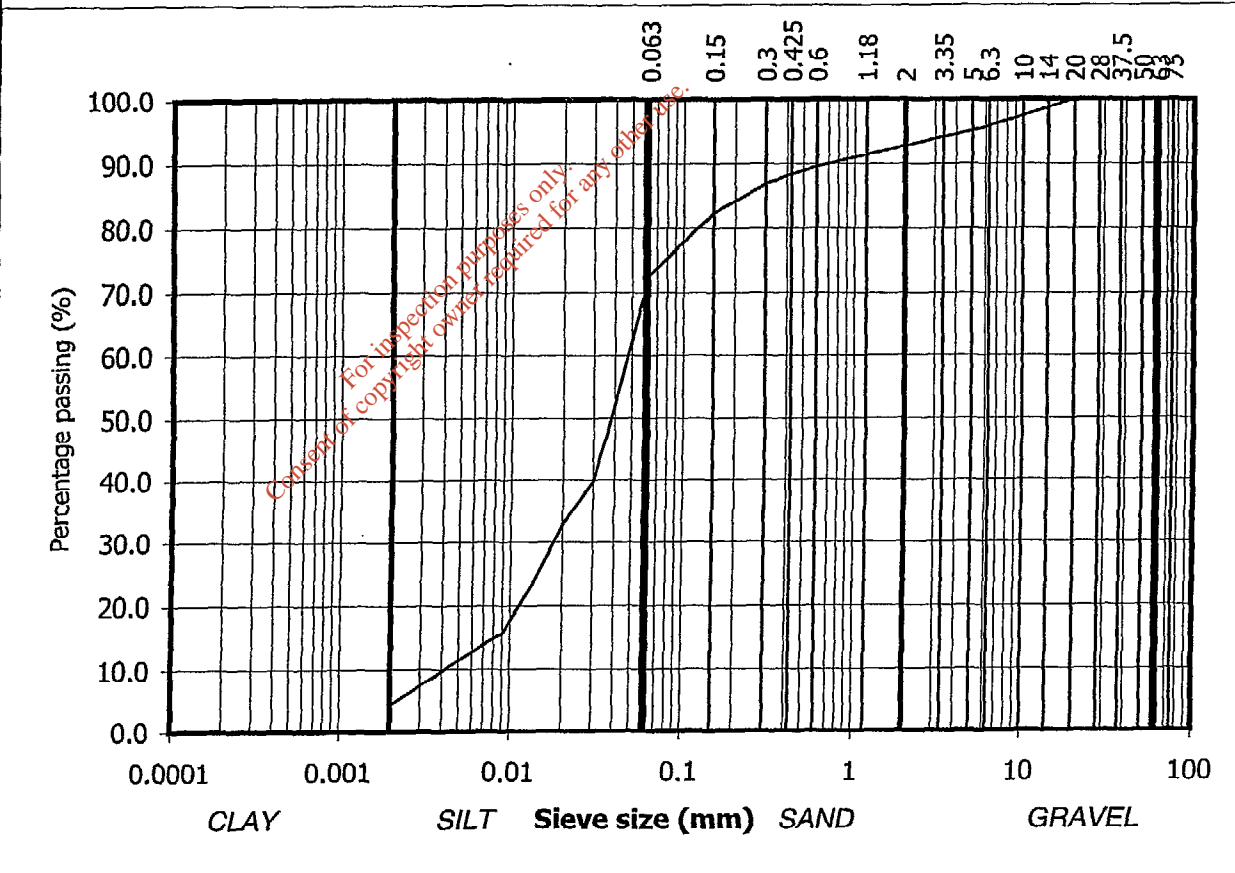
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Irish Geotechnical Services Ltd., Industrial Estate, Newbridge, Co Kildare					PSD V3.1 12.01

Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	GRAVEL
28	100.0	
20	100.0	
14	98.7	
10	97.4	
6.3	95.9	
5	95.1	SAND
3.35	94.2	
2	92.8	
1.18	91.4	
0.6	89.5	
0.425	88.4	
0.3	86.9	SILT/CLAY
0.15	82.3	
0.063	72.7	
0.04	52.0	
0.03	39.7	
0.02	32.7	
0.013	22.6	
0.009	15.6	
0.005	11.4	
0.002	4.2	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/10
 Sample No. 3318 Lab. Sample No. A03/0611
 Depth (m): 11.80
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, CLAY



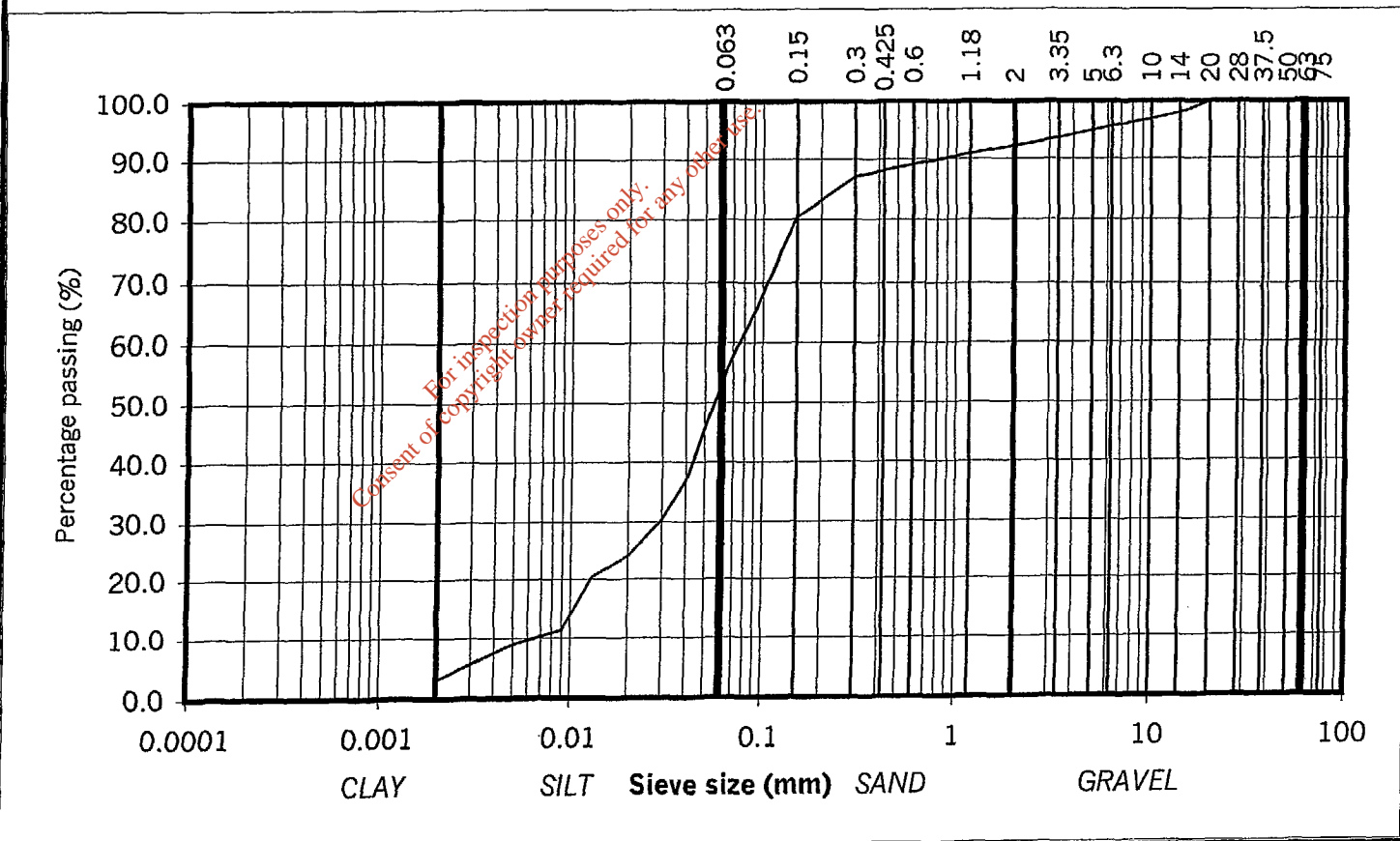
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	97.9	
10	96.8	
6.3	95.5	
5	94.8	
3.35	93.5	
2	92.2	
1.18	90.9	SAND
0.6	89.1	
0.425	88.1	
0.3	87.1	
0.15	80.5	
0.063	54.5	SILT/CLAY
0.04	36.8	
0.03	30.3	
0.02	24.0	
0.013	20.5	
0.009	11.4	
0.005	8.9	
0.002	3.0	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/11
 Sample No. H4072 Lab. Sample No. A03/0606
 Depth (m): 1.0-1.50
 Test Method: Wet sieve and hydrometer
 Description: Brown sandy, slightly gravelly, CLAY



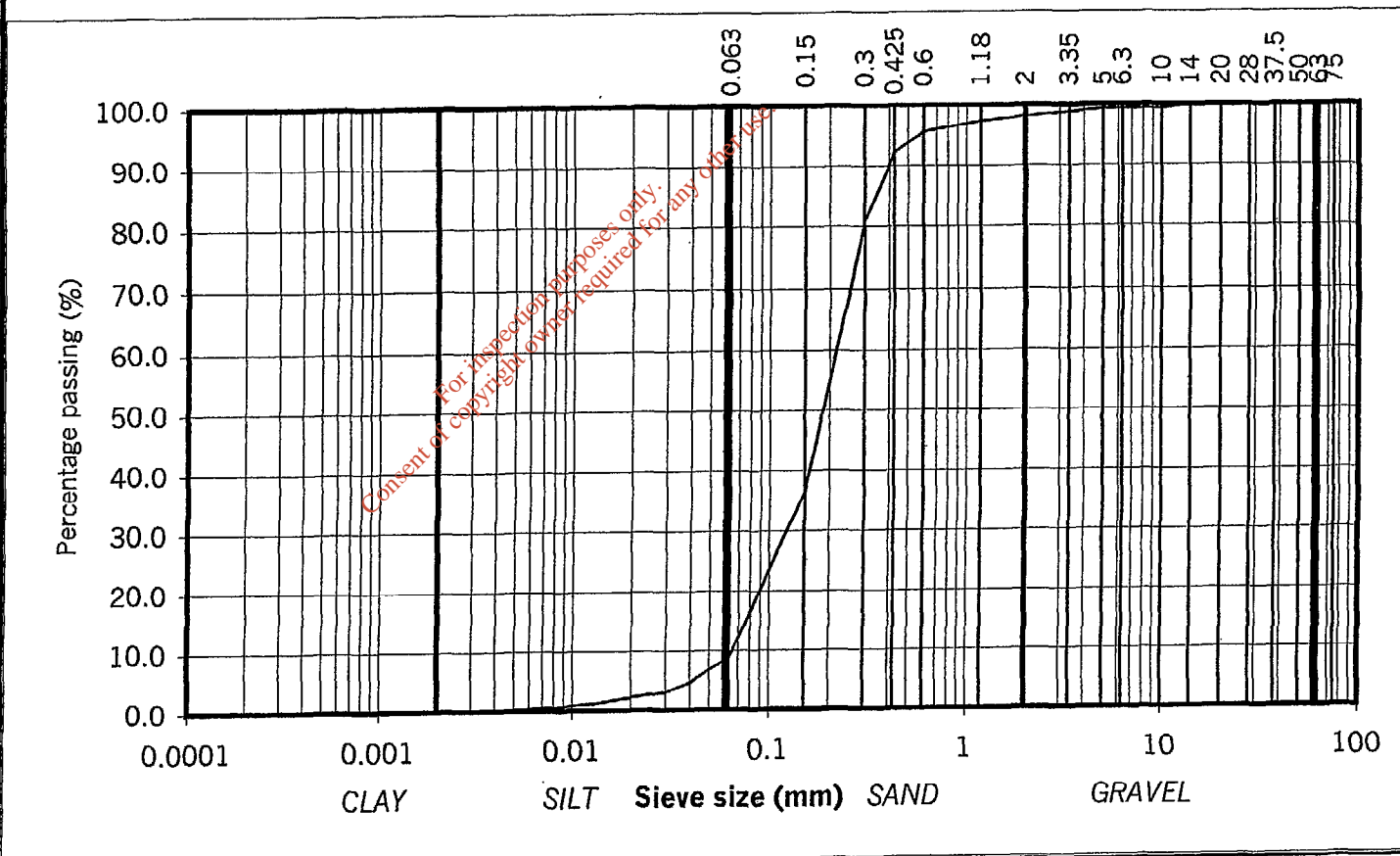
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	<i>Hugh Byrne</i>	<i>8/5/03</i>	<i>J. Lough</i>	<i>08/08/03</i>	

Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	GRAVEL
10	99.3	
6.3	99.3	
5	99.3	
3.35	98.8	
2	98.0	
1.18	97.2	SAND
0.6	95.4	
0.425	92.2	
0.3	80.7	
0.15	36.6	
0.063	8.7	
0.04	4.8	SILT/CLAY
0.03	2.9	
0.02	2.1	
0.013	1.2	
0.009	0.7	
0.005	0.3	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/11
 Sample No. H4080 Lab. Sample No. A03/0607
 Depth (m): 6.00-6.00
 Test Method: Wet sieve and hydrometer
 Description: Brown clayey, slightly gravelly, SAND



IGSL

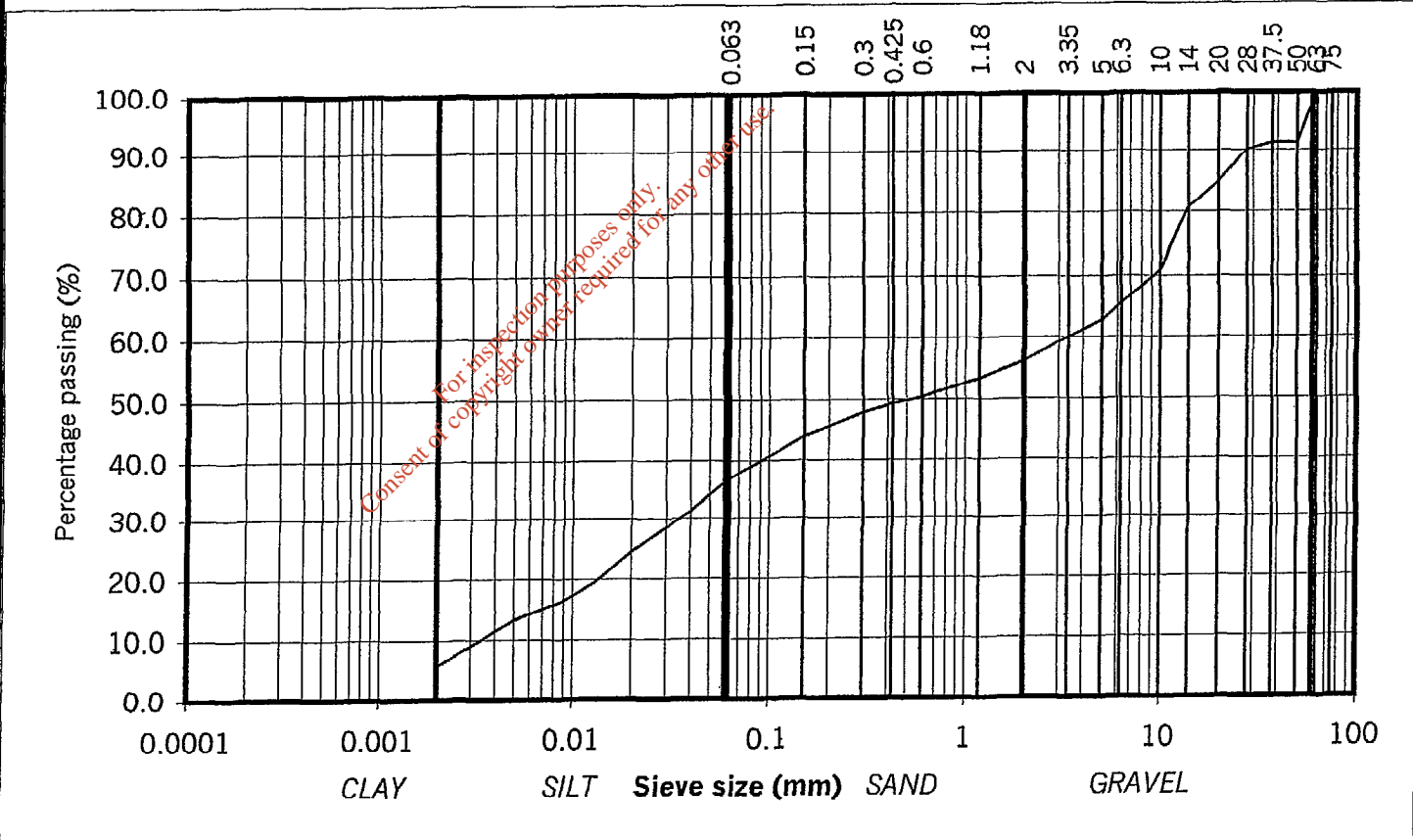
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	91.2	GRAVEL
37.5	91.2	
28	90.1	
20	84.8	
14	80.8	
10	70.9	
6.3	65.6	
5	62.9	SAND
3.35	60.0	
2	56.2	
1.18	53.4	
0.6	50.4	
0.425	49.3	SILT/CLAY
0.3	47.9	
0.15	43.9	
0.063	36.9	
0.04	31.3	
0.03	28.4	
0.02	24.5	
0.013	19.4	
0.009	16.3	
0.005	13.1	
0.002	5.7	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/11
 Sample No. H4088 Lab. Sample No. A03/0608
 Depth (m): 10.00-10.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, gravelly, CLAY



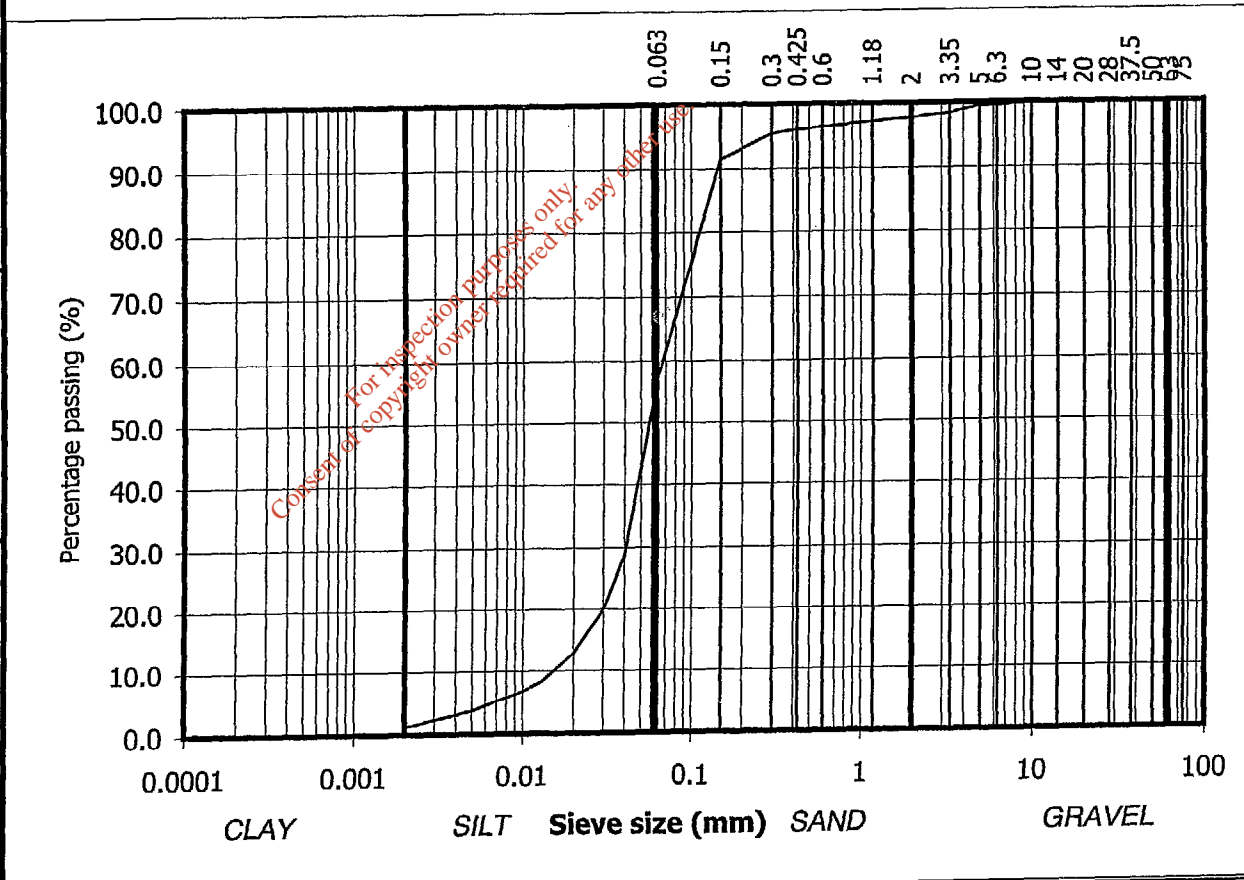
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	Hugh Byrne	8/5/03	J. Langley	08/05/03	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing		
75	100.0	COBBLES	
63	100.0		
50	100.0		
37.5	100.0		
28	100.0		
20	100.0		
14	100.0		GRAVEL
10	100.0		
6.3	99.5		
5	99.5		
3.35	98.4		
2	97.7		
1.18	97.2	SAND	
0.6	96.4		
0.425	96.0		
0.3	95.4		
0.15	91.5		
0.063	57.3		
0.04	28.6		SILT/CLAY
0.03	19.9		
0.02	12.9		
0.013	8.2		
0.009	6.2		
0.005	3.6		
0.002	1.1		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/12
 Sample No. H4045 Lab. Sample No. A03/0600
 Depth (m): 1.00
 Test Method: Wet sieve and hydrometer
 Description: Brown sandy, slightly gravelly, SILT



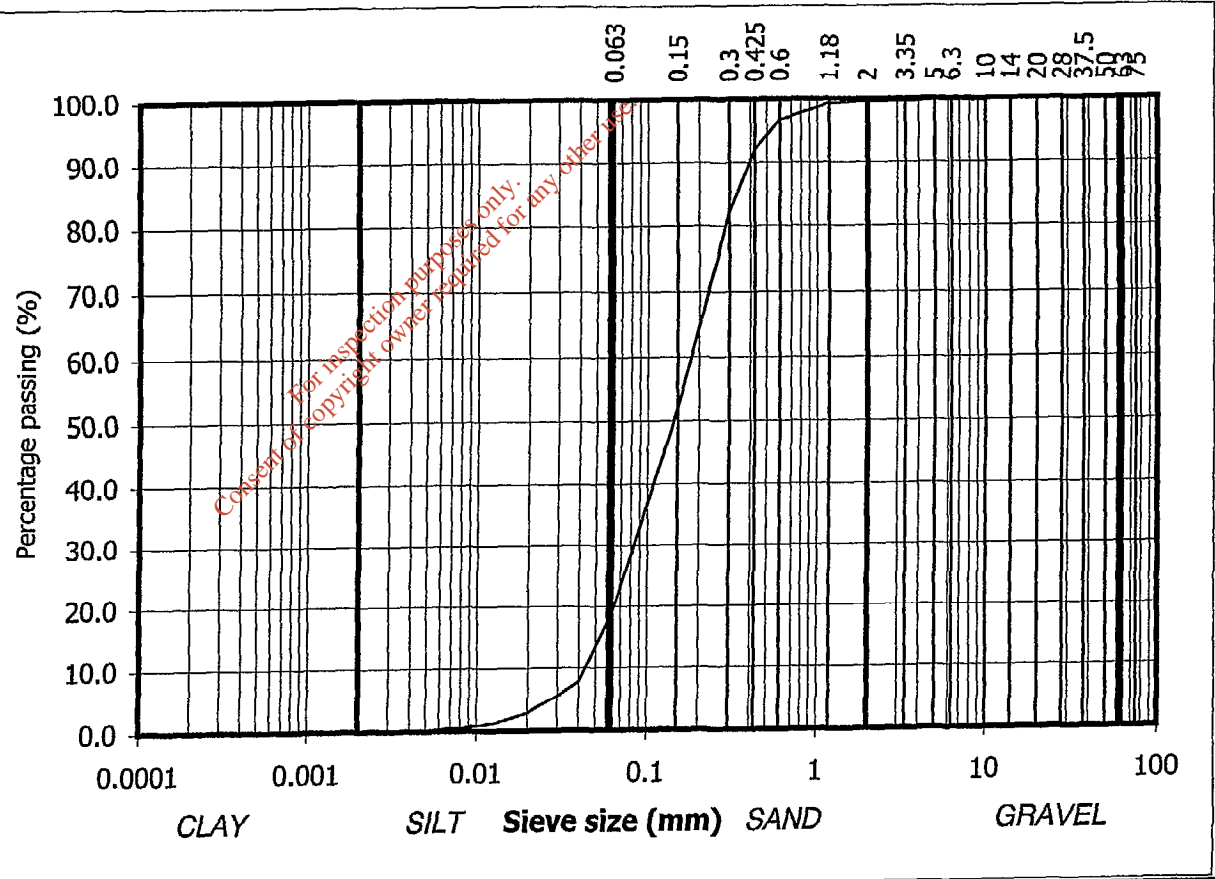
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	99.7	
6.3	99.7	
5	99.7	
3.35	99.5	
2	99.5	
1.18	99.2	SAND
0.6	96.7	
0.425	92.0	
0.3	82.2	
0.15	52.1	
0.063	19.2	SILT/CLAY
0.04	7.8	
0.03	5.5	
0.02	2.8	
0.013	1.2	
0.009	0.6	
0.005	0.1	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/12
 Sample No. 4057 Lab. Sample No. A03/0601
 Depth (m): 7.00
 Test Method: Wet sieve and hydrometer
 Description: Grey very sandy, slightly gravelly, SILT



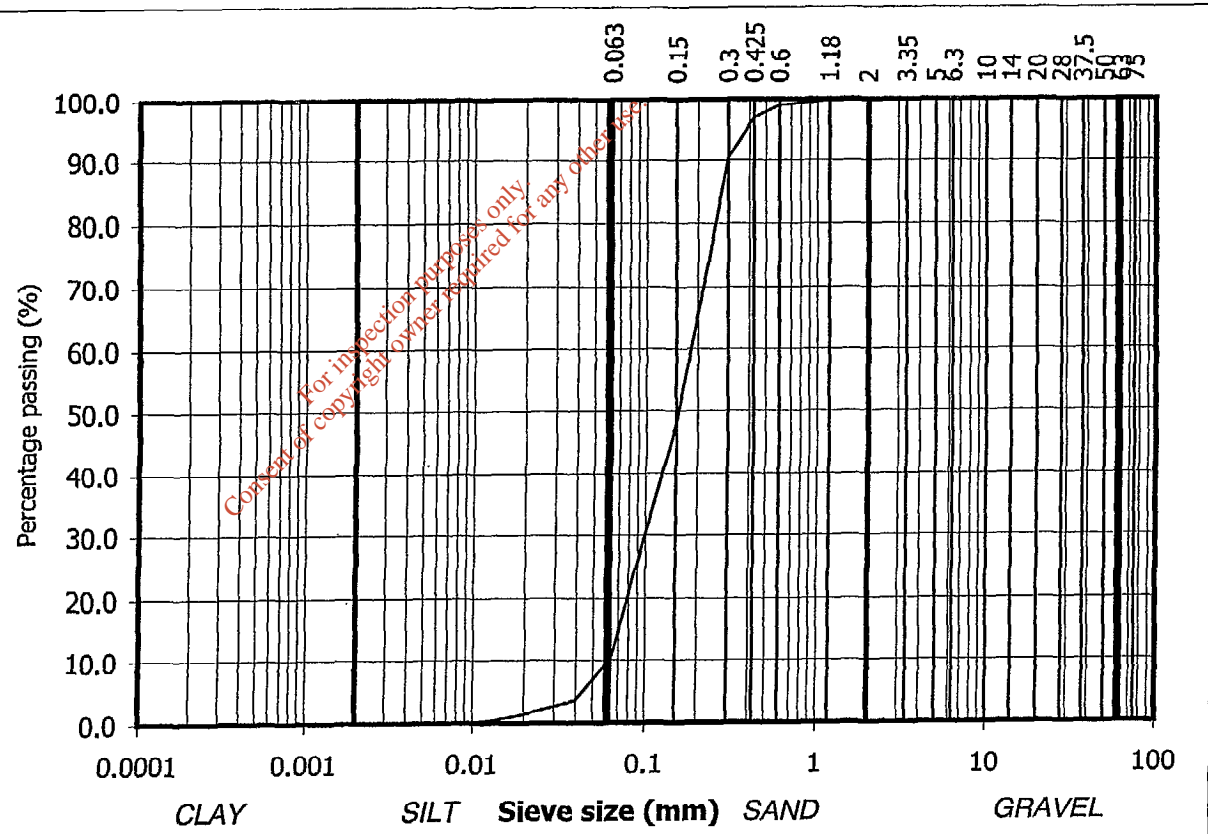
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	
3.35	100.0	
2	99.9	
1.18	99.8	
0.6	99.0	
0.425	97.0	
0.3	90.4	
0.15	48.0	SILT/CLAY
0.063	10.1	
0.04	3.7	
0.03	2.7	
0.02	1.4	
0.013	0.4	
0.009	0.2	
0.005		
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH4/12
 Sample No. 4064 Lab. Sample No. A03/0602
 Depth (m): 11.50
 Test Method: Wet sieve and hydrometer
 Description: Grey silty, SAND



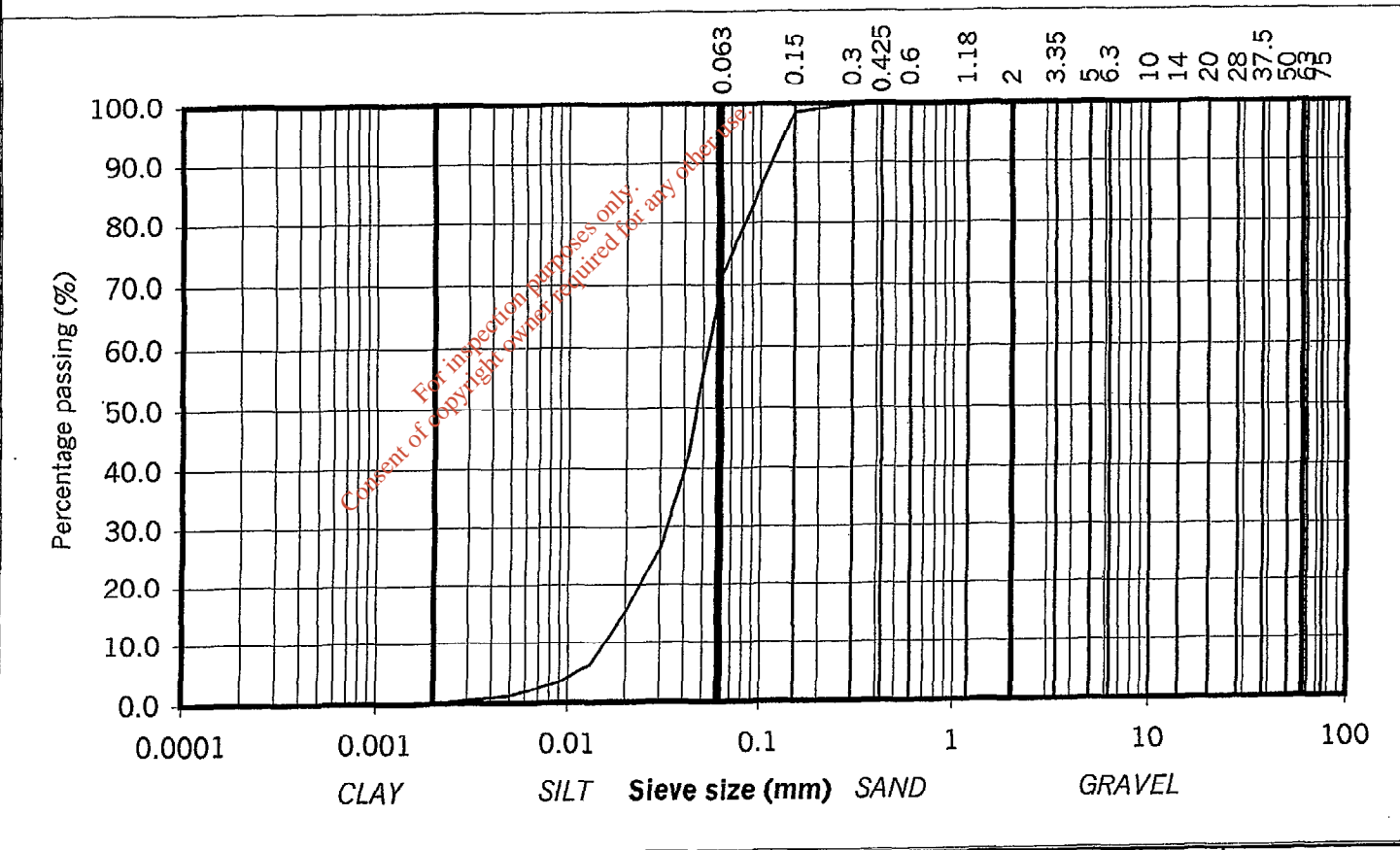
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	
3.35	100.0	GRAVEL
2	100.0	
1.18	99.9	
0.6	99.9	
0.425	99.9	
0.3	99.8	
0.15	98.5	
0.063	71.6	
0.04	39.0	
0.03	26.2	
0.02	15.1	SILT/CLAY
0.013	6.2	
0.009	3.4	
0.005	1.1	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/10
 Sample No. C1699 Lab. Sample No. A03/0583
 Depth (m): 2.00-2.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, SILT



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	Hugh Byrne	8/5/03	J. Coughlan	08/05/03	

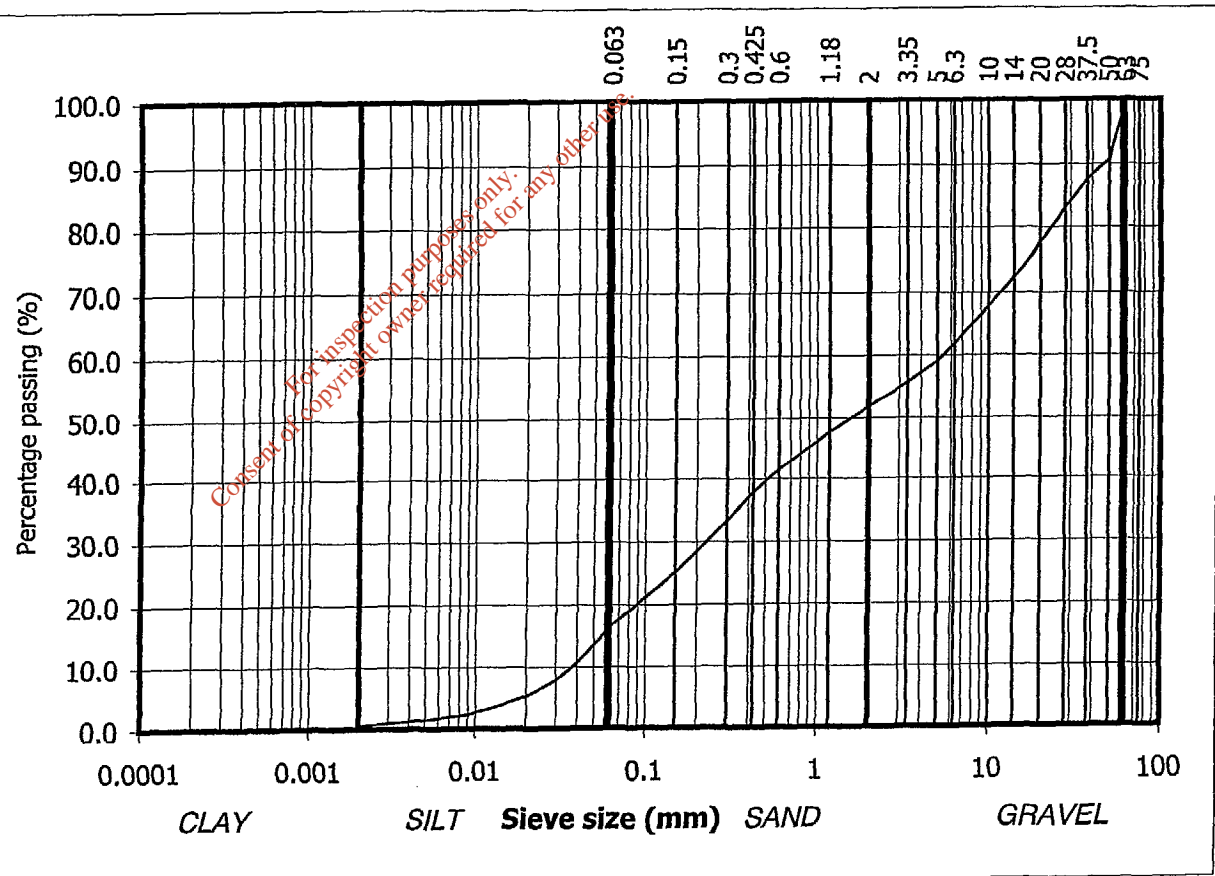
Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing
75	100.0
63	100.0
50	90.7
37.5	87.6
28	82.9
20	77.7
14	72.4
10	67.8
6.3	61.8
5	59.1
3.35	55.8
2	51.9
1.18	47.7
0.6	41.5
0.425	37.9
0.3	33.2
0.15	25.0
0.063	16.6
0.04	10.6
0.03	7.8
0.02	5.2
0.013	3.4
0.009	2.3
0.005	1.4
0.002	0.5

COBBLES
GRAVEL
SAND
SILT/CLAY

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH6/10
 Sample No. C0803 Lab. Sample No. A03/0584
 Depth (m): 4.00
 Test Method: Wet sieve and hydrometer
 Description: Brown sandy, gravelly, SILT



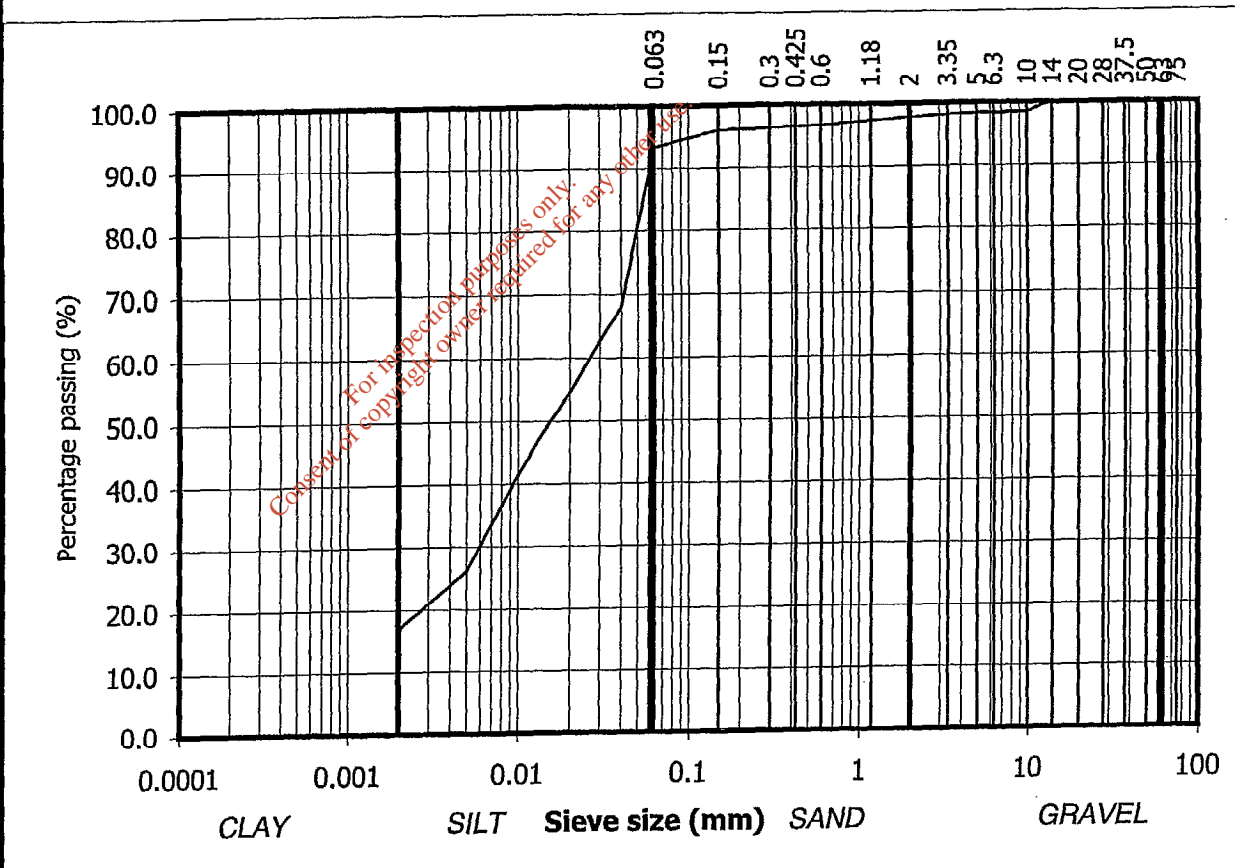
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	98.5	
6.3	98.4	
5	98.4	
3.35	98.2	GRAVEL
2	97.8	
1.18	97.3	
0.6	96.7	
0.425	96.5	
0.3	96.3	
0.15	96.0	SAND
0.063	93.3	
0.04	68.0	
0.03	62.6	
0.02	54.5	SILT/CLAY
0.013	47.0	
0.009	39.2	
0.005	26.1	
0.002	16.8	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/10
 Sample No. C0810 Lab. Sample No. A03/0585
 Depth (m): 8.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT



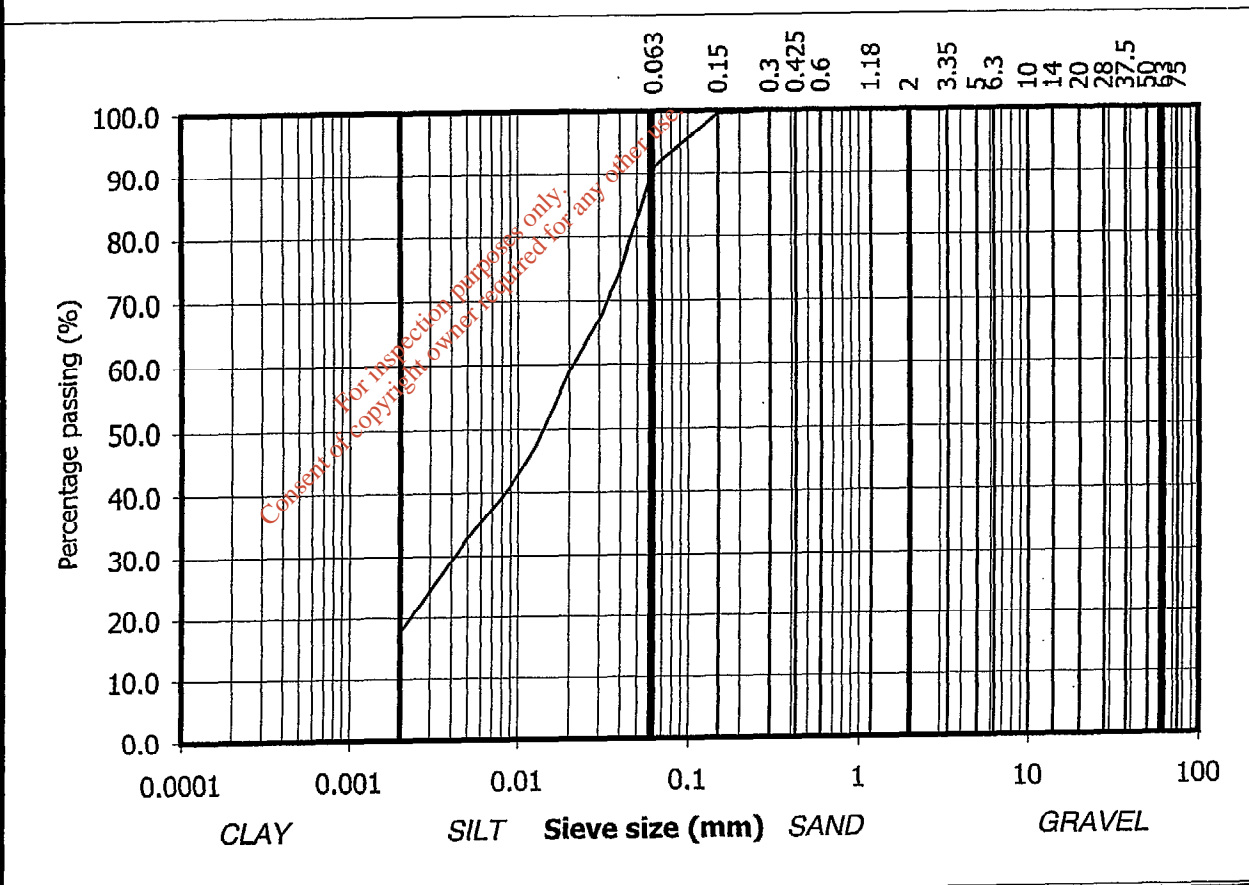
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	SAND
3.35	100.0	
2	99.9	
1.18	99.9	
0.6	99.8	
0.425	99.8	SILT/CLAY
0.3	99.8	
0.15	99.6	
0.063	91.1	
0.04	74.6	
0.03	67.0	
0.02	58.8	
0.013	48.0	
0.009	41.0	
0.005	32.8	
0.002	17.6	

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH6/10
 Sample No. C0814 Lab. Sample No. A03/0586
 Depth (m): 10.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, CLAY



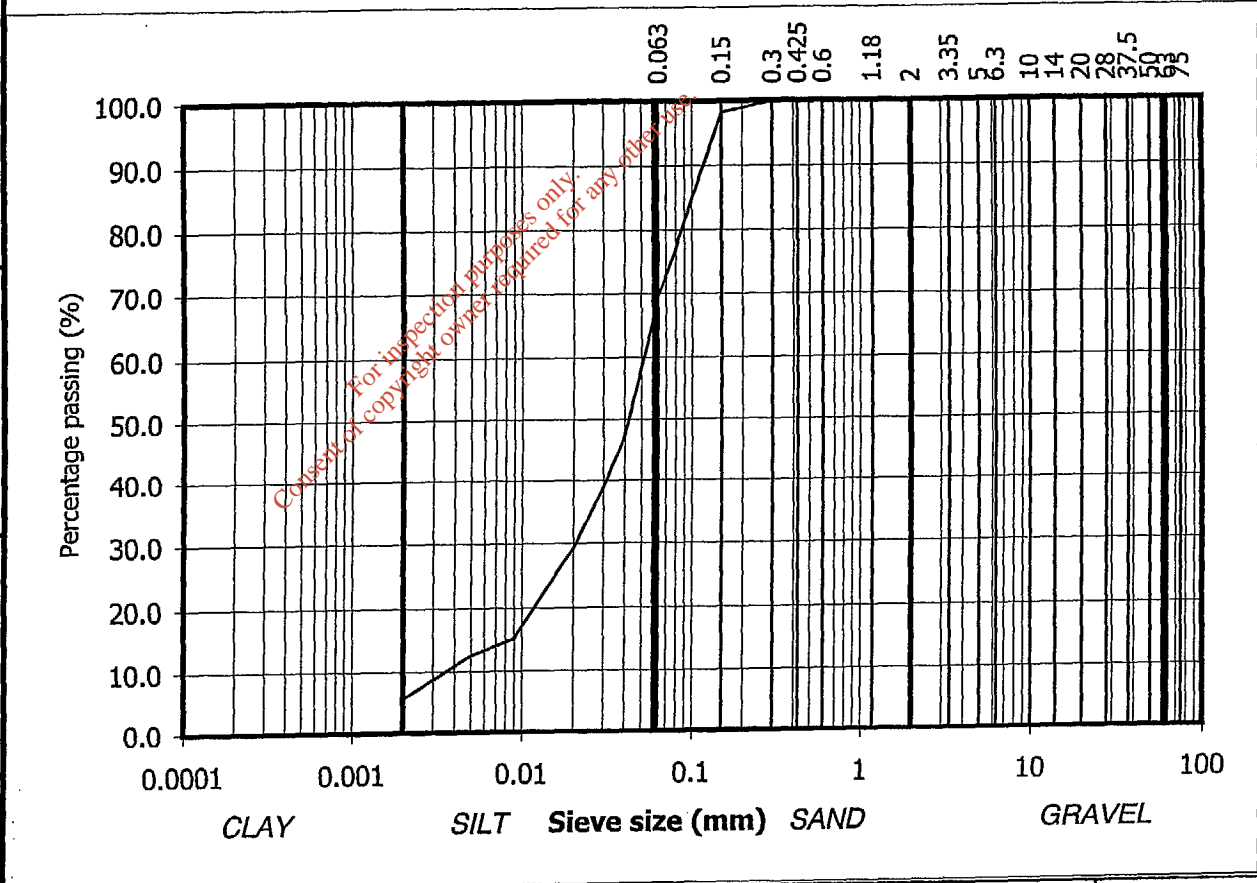
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Irish Geotechnical Services Ltd., Industrial Estate, Newbridge, Co kildare					PSD V3.1 12.01

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	99.9	
3.35	99.9	
2	99.9	
1.18	99.9	
0.6	99.9	
0.425	99.9	
0.3	99.9	
0.15	98.2	
0.063	69.4	
0.04	47.2	SAND
0.03	38.8	
0.02	29.2	
0.013	21.8	
0.009	15.2	
0.005	12.5	
0.002	5.6	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH/10
 Sample No. C0817 Lab. Sample No. A03/0587
 Depth (m): 12.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, SILT



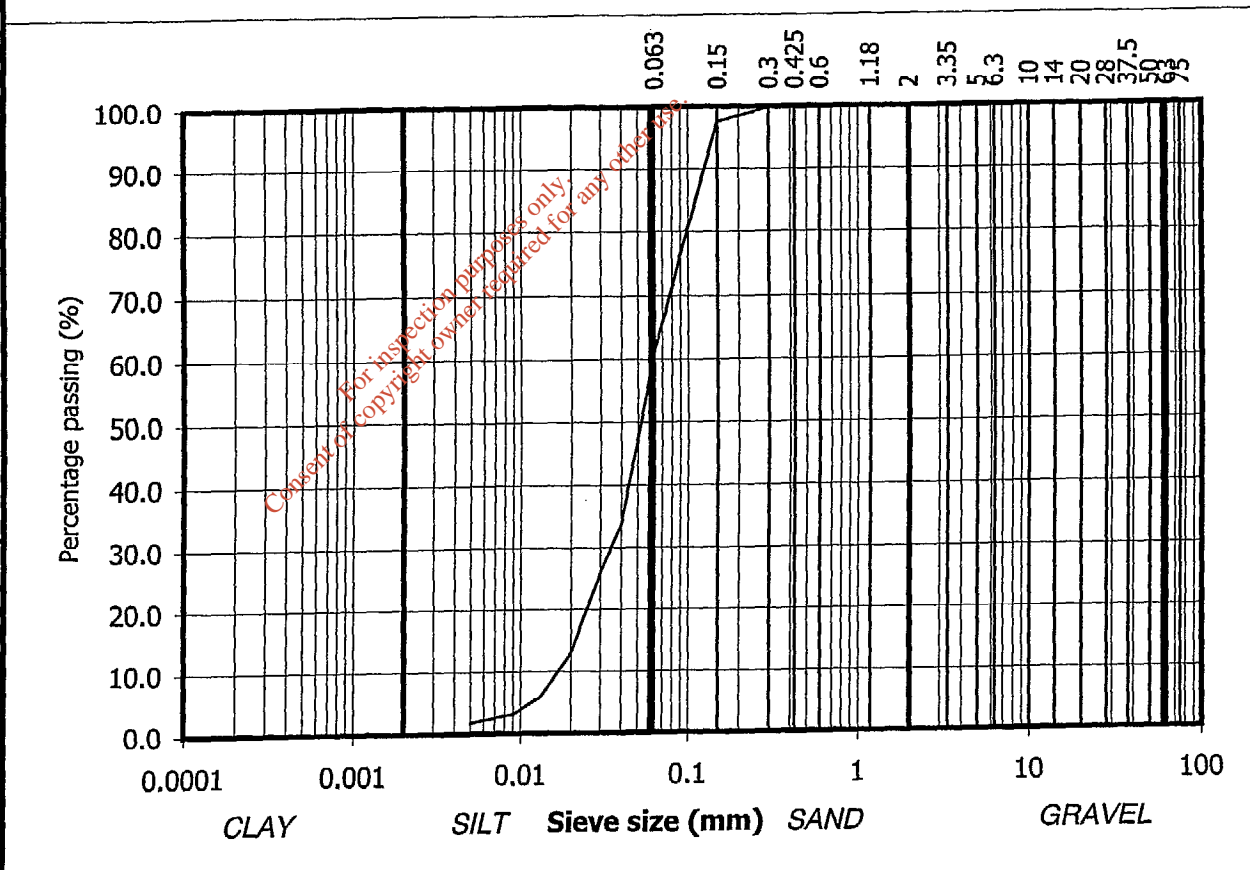
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	100.0	GRAVEL
20	100.0	
14	100.0	
10	100.0	
6.3	100.0	
5	100.0	
3.35	99.9	SAND
2	99.9	
1.18	99.9	
0.6	99.9	
0.425	99.9	
0.3	99.8	
0.15	97.6	SILT/CLAY
0.063	61.3	
0.04	33.7	
0.03	25.8	
0.02	13.0	
0.013	5.7	
0.009	3.0	
0.005	1.6	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/11
 Sample No. 5171 Lab. Sample No. A03/0615
 Depth (m): 1.50
 Test Method: Wet sieve and hydrometer
 Description: Brown sandy, SILT



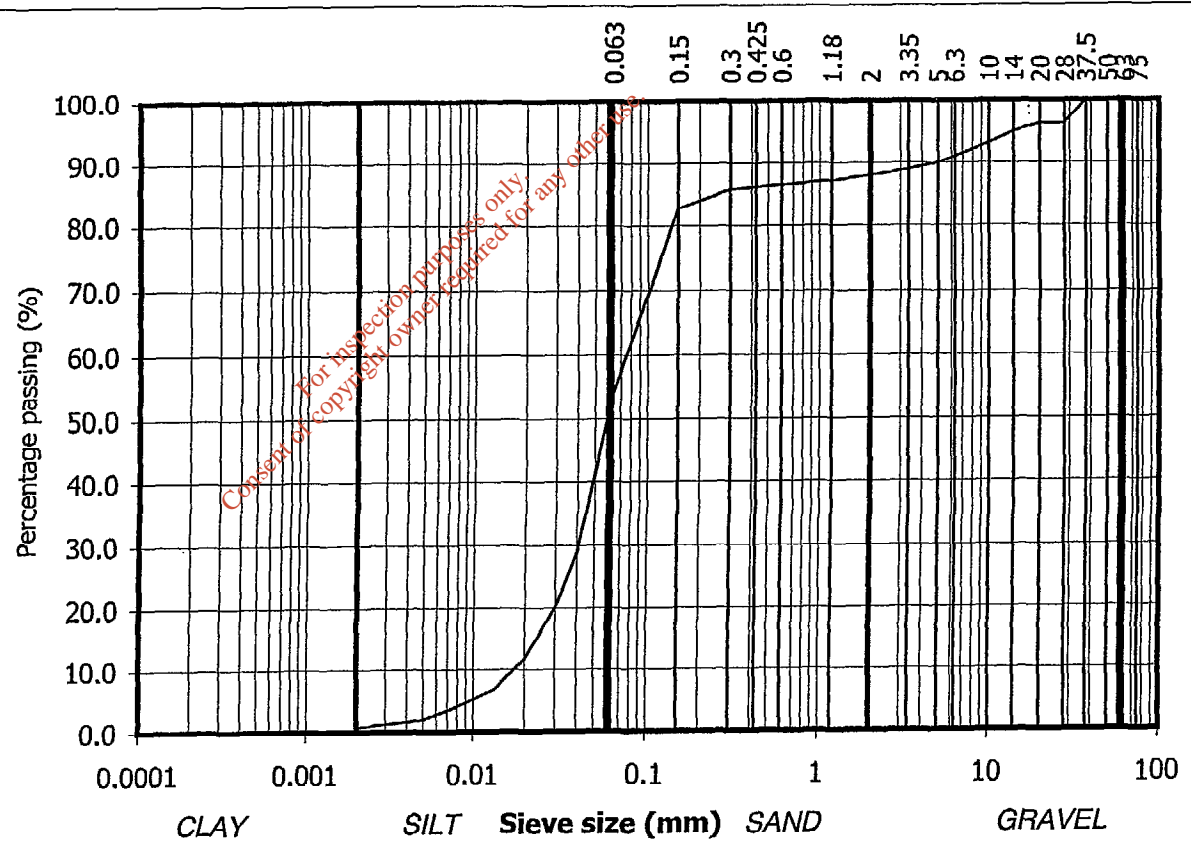
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	100.0	
28	96.3	GRAVEL
20	96.3	
14	95.0	
10	93.2	
6.3	91.1	
5	90.0	
3.35	89.0	
2	88.0	SAND
1.18	87.2	
0.6	86.5	
0.425	86.2	
0.3	85.8	SILT/CLAY
0.15	82.7	
0.063	53.9	
0.04	28.8	
0.03	20.1	
0.02	11.6	
0.013	6.6	
0.009	4.5	
0.005	1.9	
0.002	0.7	

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH6/11
 Sample No. 5193 Lab. Sample No. A03/0616
 Depth (m): 8.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT



IGSL

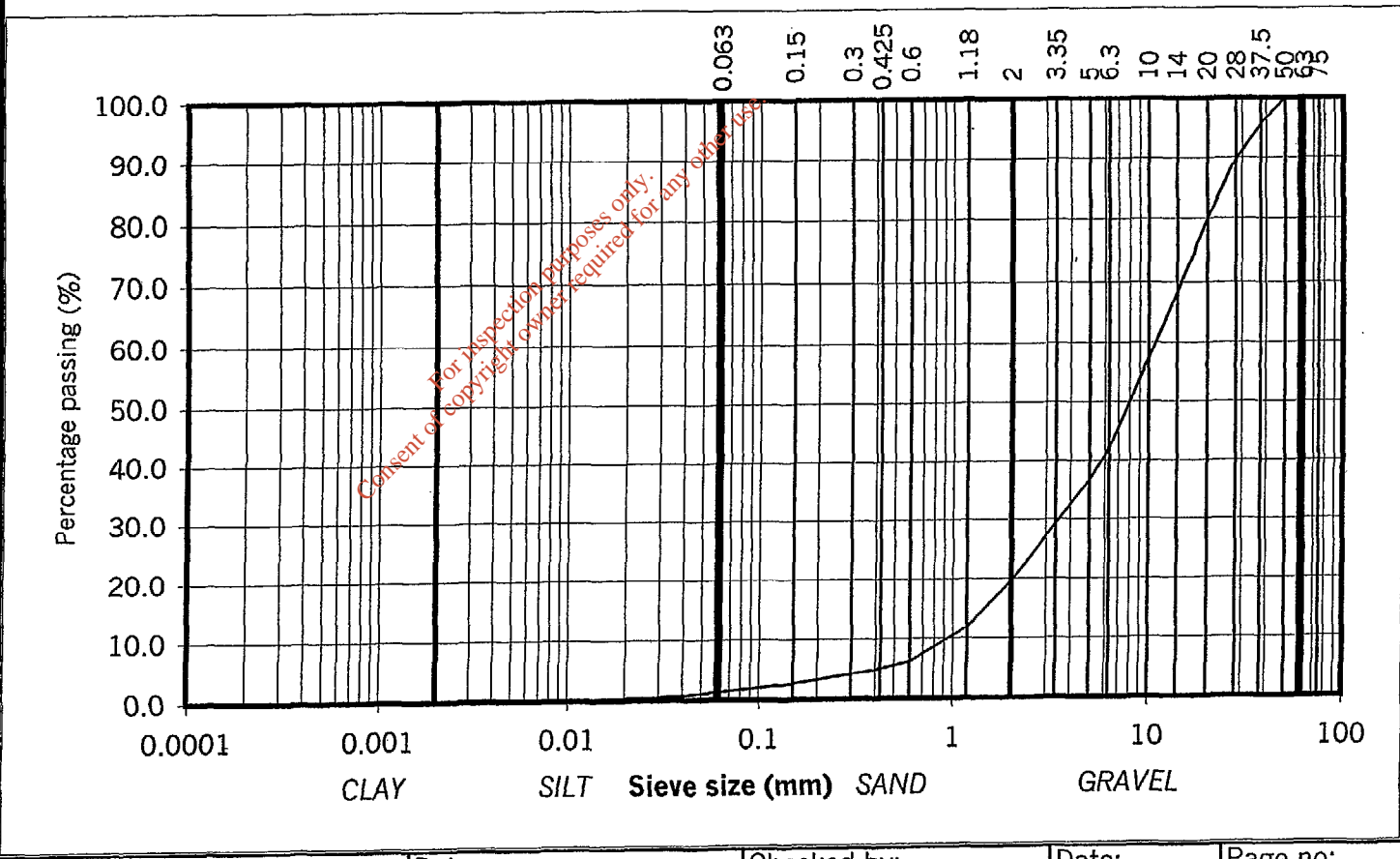
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	
37.5	95.4	
28	89.7	
20	80.1	
14	68.4	
10	57.3	
6.3	42.2	
5	36.6	
3.35	29.2	
2	19.5	
1.18	11.8	
0.6	6.2	
0.425	5.1	
0.3	4.2	
0.15	2.6	
0.063	1.4	
0.04	0.7	
0.03	0.5	
0.02	0.3	
0.013	0.2	
0.009	0.1	
0.005	0.0	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/11
 Sample No. C4010 Lab. Sample No. A03/0617
 Depth (m): 12.00
 Test Method: Wet sieve and hydrometer
 Description: Grey slightly sandy, very gravelly, SILT/CLAY



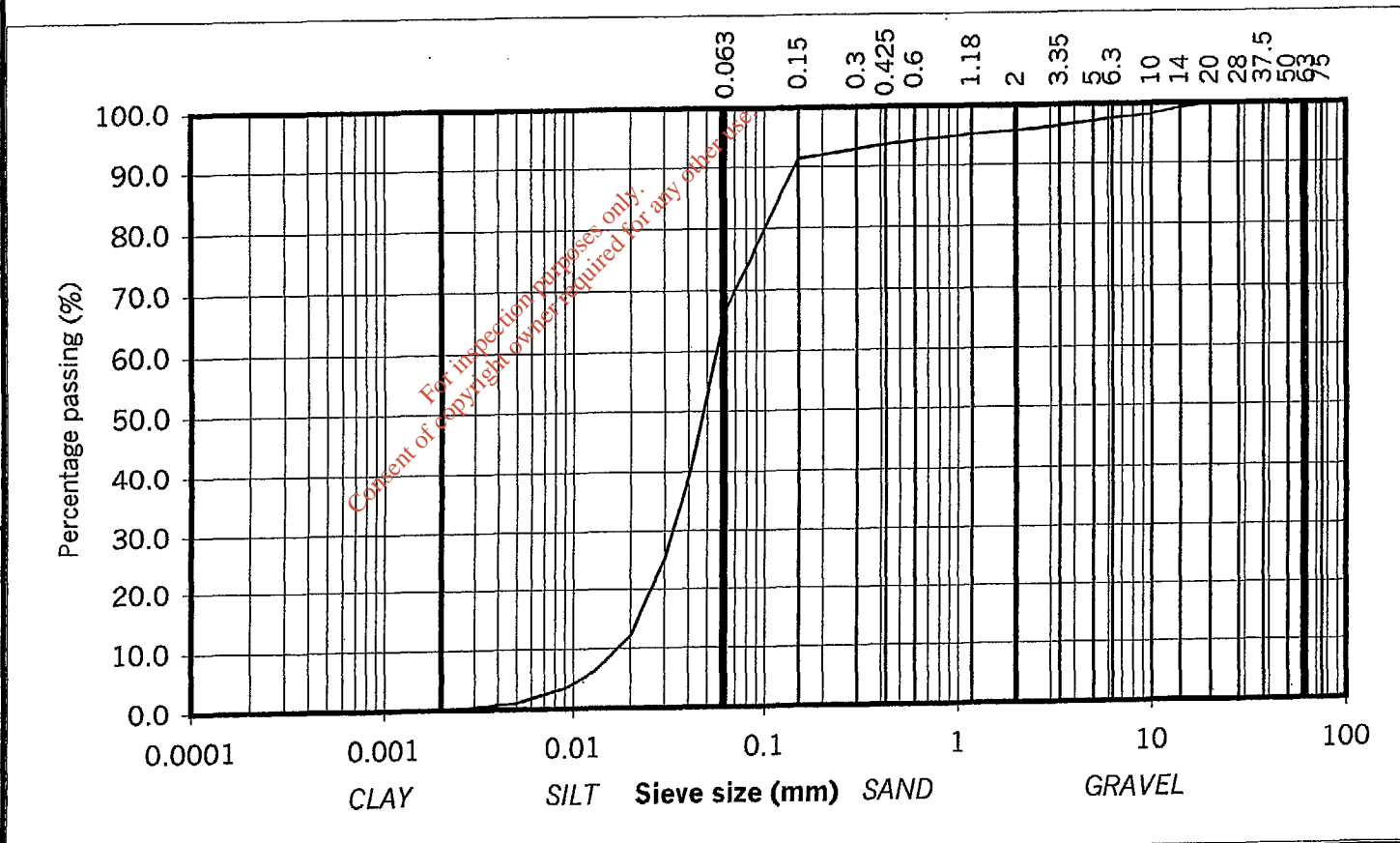
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	Hugh Byrne	8/5/03	J. Maguire	02/04/03	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	99.3	
10	98.2	
6.3	97.4	
5	96.9	SAND
3.35	96.3	
2	95.6	
1.18	95.0	
0.6	94.1	
0.425	93.6	SILT/CLAY
0.3	92.9	
0.15	91.3	
0.063	67.0	
0.04	38.7	
0.03	25.2	
0.02	12.1	
0.013	6.2	
0.009	3.4	
0.005	1.1	
0.002		

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/12
 Sample No. C1750 Lab. Sample No. A03/0588
 Depth (m): 1.00-1.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT



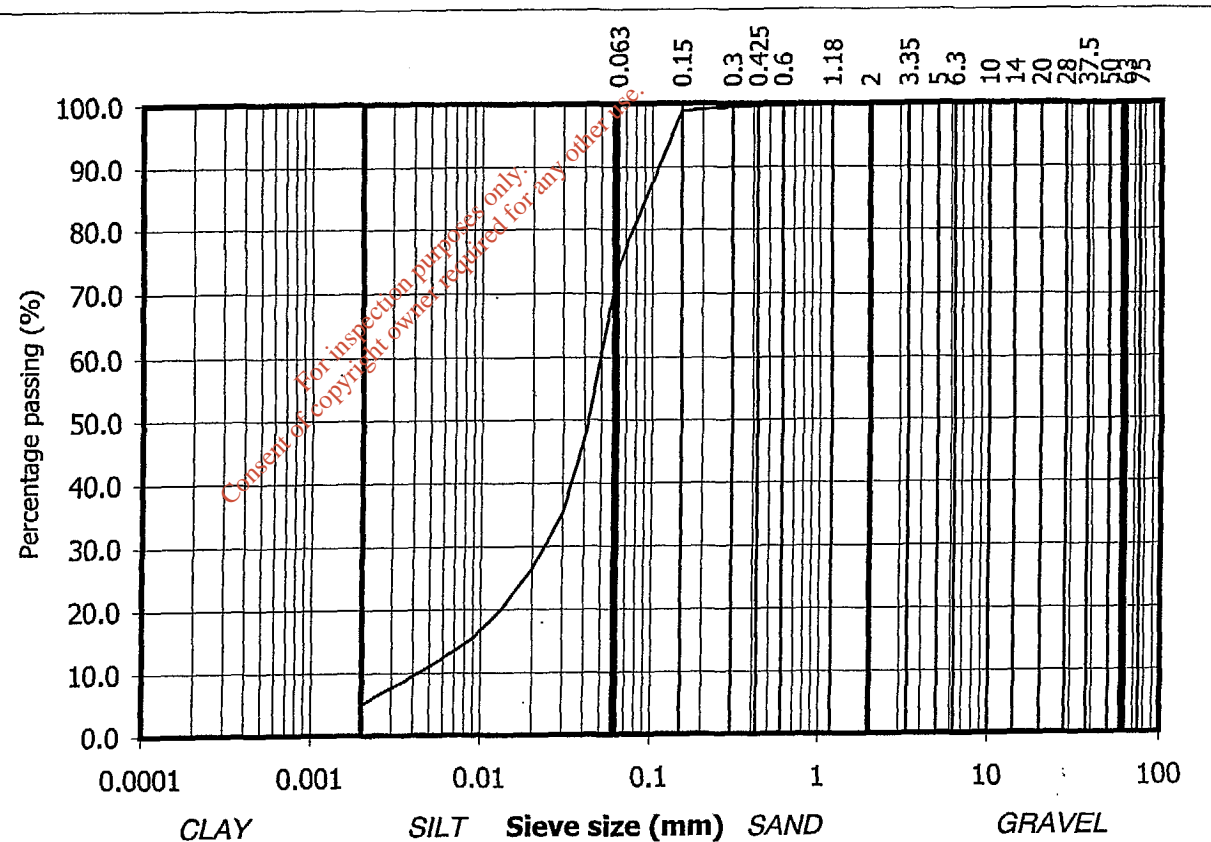
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	<i>J. Maguire</i>	12/05/03	<i>[Signature]</i>	12/5/03	

Determination of Particle Size Distribution

BS1377:Part2:1990, clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	99.8	SAND
5	99.8	
3.35	99.8	
2	99.8	
1.18	99.8	
0.6	99.7	
0.425	99.6	SILT/CLAY
0.3	99.5	
0.15	98.9	
0.063	74.2	
0.04	46.9	
0.03	35.2	
0.02	26.4	
0.013	19.8	
0.009	15.5	
0.005	11.0	
0.002	5.0	

Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/12
 Sample No. 4018 Lab. Sample No. A03/0589
 Depth (m): 10.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, SILT



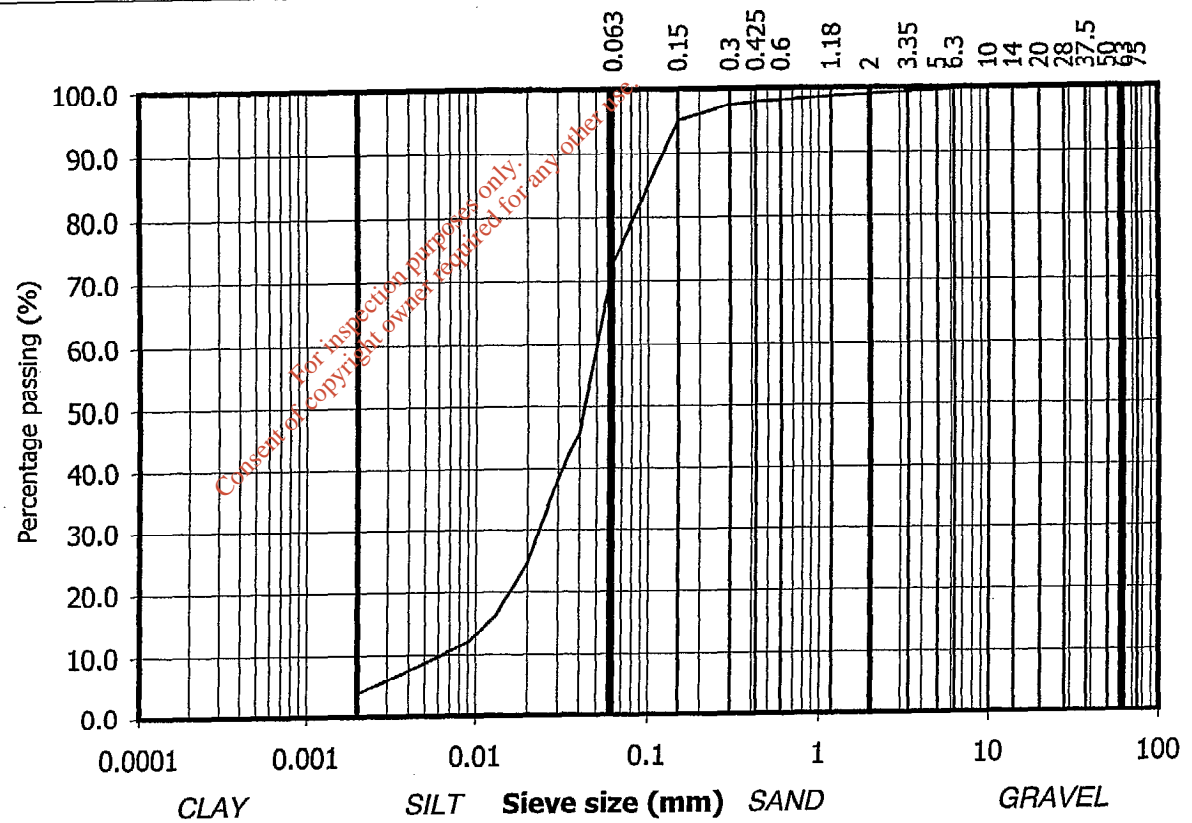
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Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2, 9.5

particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	100.0	GRAVEL
37.5	100.0	
28	100.0	
20	100.0	
14	100.0	
10	100.0	
6.3	99.7	
5	99.5	
3.35	99.3	
2	99.0	
1.18	98.7	
0.6	98.2	
0.425	97.9	
0.3	97.5	SILT/CLAY
0.15	95.0	
0.063	73.1	
0.04	46.0	
0.03	38.3	
0.02	24.6	
0.013	16.2	
0.009	12.0	
0.005	8.7	
0.002	3.8	

Contract No: M101
 Contract: Blessigton Landfill
 BH: BH6/12
 Sample No. 4028 Lab. Sample No. A03/0590
 Depth (m): 14.00
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly sandy, slightly gravelly, SILT



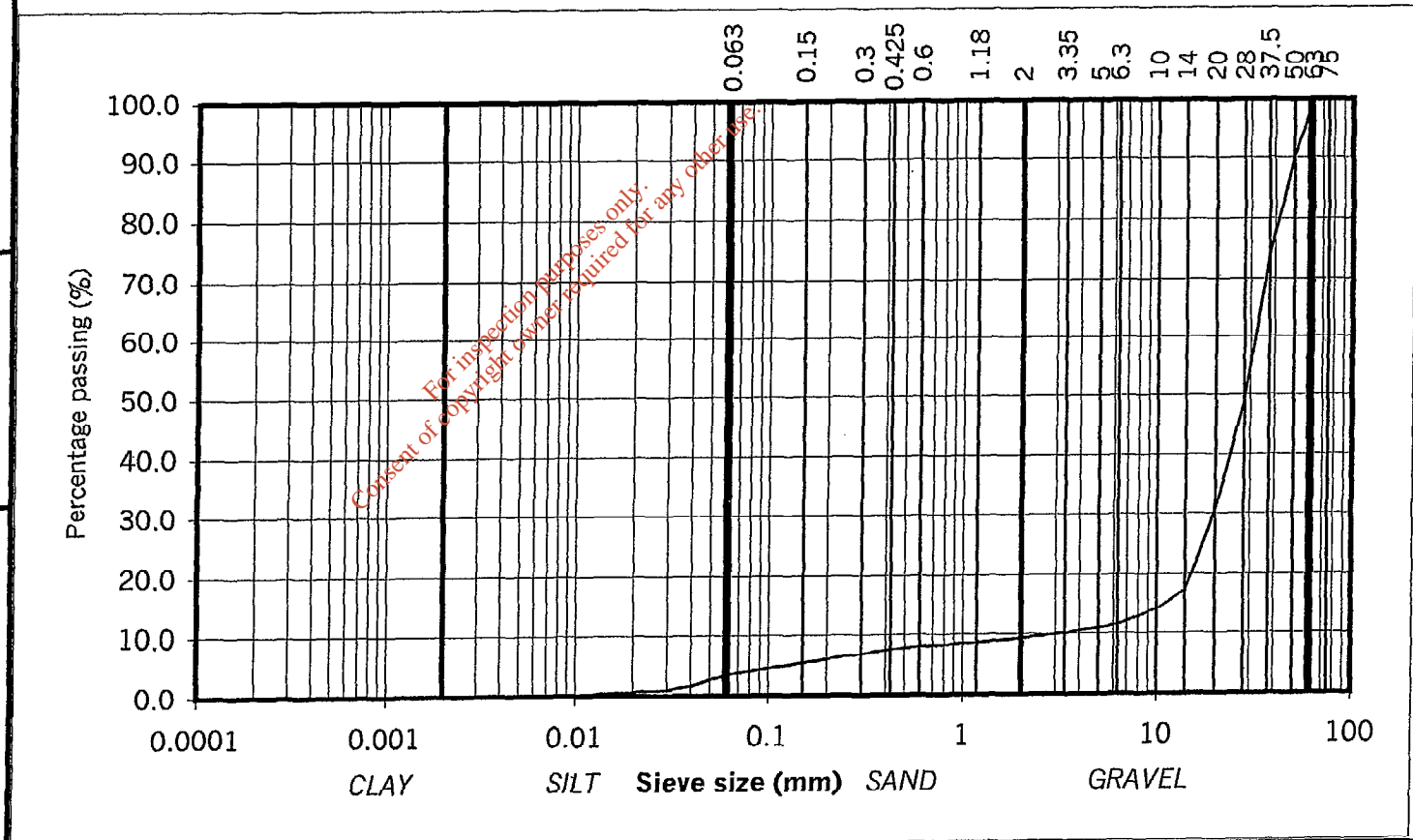
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Determination of Particle Size Distribution

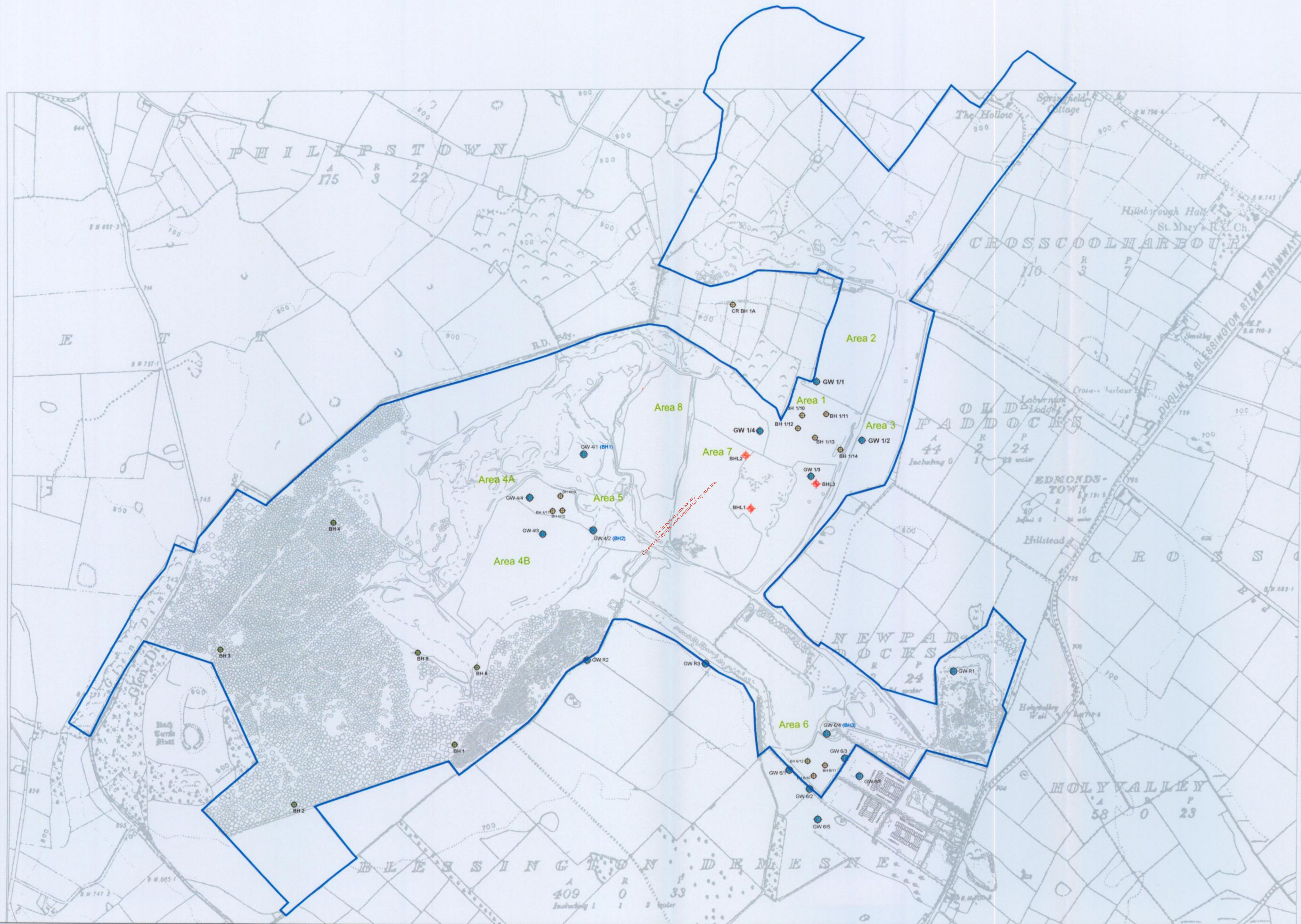
BS1377:Part2:1990 , clauses 9.2, 9.5


particle size	% passing	
75	100.0	COBBLES
63	100.0	
50	90.0	GRAVEL
37.5	73.9	
28	49.0	
20	30.5	
14	17.2	
10	13.9	
6.3	11.4	
5	10.8	
3.35	10.1	
2	9.2	
1.18	8.6	
0.6	8.0	
0.425	7.5	
0.3	6.8	
0.15	5.4	SILT/CLAY
0.063	3.6	
0.04	1.7	
0.03	1.1	
0.02	0.7	
0.013	0.5	
0.009	0.3	
0.005	0.2	
0.002	0.1	

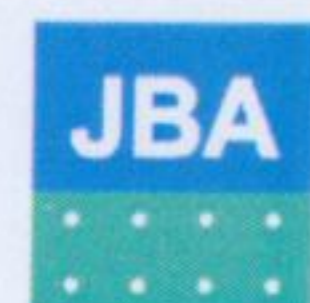
Contract No: M101
 Contract: Blessington Landfill
 BH: BH6/12
 Sample No. H4035 Lab. Sample No. A03/0591
 Depth (m): 18.00-18.50
 Test Method: Wet sieve and hydrometer
 Description: Brown slightly silty, sandy, GRAVEL

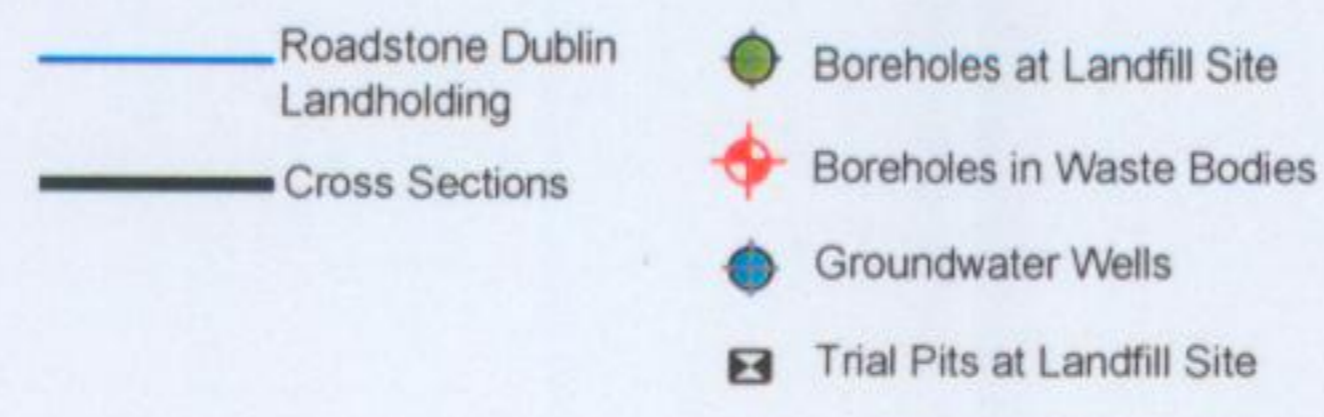


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	<i>J. Langley</i>	12/05/03	<i>[Signature]</i>	12/5/03	




roadstone
 ROADSTONE DUBLIN LTD.
 FORTUNESTOWN
 TALLAGHT
 DUBLIN 24


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 Roadstone Dublin Landholding
 Cross Sections
 Boreholes at Landfill Site
 Boreholes in Waste Bodies
 Groundwater Wells
 Trial Pits at Landfill Site
Ordnance Survey Ireland Licence No. SU 0000703 (c) Government of Ireland

Rev.	Date	By	Description
0	Dec 03	SMD/PM	

Site: Lands at Blessington, Co. Wicklow
 Project: Remediation of Unauthorised Landfill Sites
 Title: Boreholes / Trial Pit / Groundwater Well Locations
 Drawn: SMD/PM
 Scale: 1:10,000
 Job. No: 2901/09
 Date: Dec 2003
APP. 5C