

Appendix 7.2 Site Investigation Report



Report on a Site Investigation
For
Corkagh Grange Housing
Clondalkin
On behalf of
South Dublin County Council
Report No. 12838

Contents

- 1.0 Introduction
- 2.0 Fieldwork
- 3.0 Laboratory Testing
- 4.0 Discussion

Appendices

- 1 Boring Records
- 2 Rotary Records
- 3 Laboratory Test Results (Geotechnical)
- 4 Laboratory Test Results (Environmental)
- 5 Site Plan

Report on a Site Investigation
For
Corkagh Grange Housing
Clondalkin
On behalf of
South Dublin County Council

Report No. 12838

Date October 2007

1.0 Introduction

It is understood that Corkagh Grange lands in Clondalkin are to be developed for housing purposes.

An investigation of ground conditions was carried out to ascertain foundation requirements for the proposed structures, roads and services.

The programme of the investigation included boreholes and rotary coring.

This report contains the boring and coring records together with the associated geotechnical and environmental laboratory test results. Also included is a discussion of ground conditions in relation to the development.

2.0 Fieldwork

This is a green field site with some minor undulations. While there is a network of drainage ditches over the site area, these were not functioning at the time of the investigation, and much of the site was waterlogged.

2.1 Boreholes

Boreholes were constructed in a total of twenty locations, as shown on the enclosed plans. The descriptions and depths of the various soils encountered are shown on the boring records enclosed in appendix 1. Also shown on these records are the depths at which samples were recovered, the results of in-situ standard penetration tests, and the groundwater conditions observed during the course of boring operations. The enclosed summary sheet contains details of achieved depths, groundwater conditions, and installations.

The boreholes revealed a thin topsoil layer overlying brown sandy gravelly clay which is generally in a firm to stiff, or stiff condition. The boreholes were terminated on obstructions, at depths ranging from 1.5 metres to 3.6 metres.

Of most significance are the instances of water strikes, which are generally in association with the obstructions. In several locations, water ingress was rapid, rising as high as 200mm below present ground level. Standpipes were installed in five locations to permit long-term monitoring of water levels.

2.2 Rotary Coring

Rotary techniques were employed in a total of twenty locations, to ascertain the presence, depth, composition and condition of bedrock.

The records include a detailed description of the bedrock including the rock structure, strength, and degree of weathering. In accordance with BS 5930: 1999, the records include the total core recovery (TCR), solid core recovery (SCR) and the rock quality designation (RQD). Also shown graphically is the fracture spacing.

The records show that the bedrock is grey-black argillaceous Limestone. While the upper 200mm to 300mm appears to be highly weathered, the main body of rock is generally strong and fresh, with some moderate weathering which tends to be localised. Some thinly bedded or laminated zones were noted. In addition, some of the rock core was heavily fractured.

Standpipes were installed in five locations, as indicated on the summary sheet, to facilitate long-term monitoring of water levels.

3.0 Laboratory Testing

3.1 Geotechnical Testing

3.1.1 Particle Size Distributions

The particle size distributions of samples of the sub-soils were determined by sieve analysis and, for the finer soils, hydrometer analysis. The results are presented in both graphical and tabular format.

The grading curves indicate that the sub-soils are well-graded although the fines content varies from less than 30% to nearly 90%.

3.1.2 Index Properties

The results of plastic and liquid limit tests classify the fine soils as clays of low to medium plasticity. Only the upper organic soil in BH17 exhibited high plasticity characteristics.

3.1.3 Chemical Analysis

The test specimens show very low concentrations of soluble sulphates and slightly alkaline pH values. No special precautions will, therefore, be required to protect good quality foundation concrete from sulphate attack.

3.2 Environmental

A suite of environmental testing was performed by Alcontrol Laboratories (Dublin) to determine the presence and concentrations of contaminants in the sub-soils. In the absence of any local standards, the results have been compared with the Dutch guidelines which are frequently adopted. The table quotes 'Target Values' and 'Intervention Values'. Where the measured results are below the target values the site can be regarded as uncontaminated. Where concentrations exceed the 'Intervention Values' remedial measures will be required. None of the results approach intervention levels

It should be emphasised that the services of environmental specialists should be sought as to the significance of the results in relation to the proposed works.

4.0 Discussion

The investigation revealed a thin mantle of glacial till, composed of gravelly sandy clay which is generally in a firm to stiff condition, becoming stiff to very stiff in places. This material overlies the argillaceous Limestone bedrock. However, in some areas the till is heavily weathered and in a soft condition.

The depth to the weathered rock horizon varies from 1.8 metres to 3.6 metres. While the main body of rock is strong and fresh, it is laminated or thinly bedded. As a result, some of the rock core was non-intact.

The site is badly drained and water ingress was noted, generally in association with the rock horizon. In several locations, water ingress was rapid, rising to within a metre of the surface. Since the relatively short duration of boring and coring operations does not permit an accurate measurement of the standing water level, standpipes were installed in several boreholes and core-holes to permit long-term monitoring.

From the aspect of structural foundations the glacial till will provide a stable, and relatively incompressible founding medium. The firm to stiff soils will readily support foundation pressures of the order of 150 kN/m². This can be increased to 200 kN/m² in the stiff material. Heavier loads can be supported by the bedrock. While the bearing capacity of thinly bedded Limestone should be assessed visually, it would be reasonable to assume an allowable bearing pressure of the order of 1000 kN/m².

Because there are some areas where soft upper soils directly overlie the bedrock (BH9, BH17), it is possible that some structures may be founded partially on clay and partially on rock. For this reason, it would be advisable to reinforce foundation concrete to minimise the effects of any differential settlement.

The prime consideration on this site will be control of groundwater, particularly from the aspect of roads, and excavations for services. Restoration of the existing land drainage system should be a priority, to ensure the stability of access roads.

Corkagh Grange - Summary

12838

BH No.	Depth achieved	Water struck (mbgl)	Rose to	Rate of ingress	Standpipe Depth (m)
BH1	2.40	2.20	0.40	Rapid	2.70
BH2	2.70	2.70	2.30	slow	
BH3	2.60	2.60	0.20	Rapid	2.10
BH4	2.10	1.90	0.30	Rapid	
BH5	1.60	1.40	0.20	Rapid	
BH6	2.40	2.40	2.40	seepage	
BH7	2.60	2.00	1.50	seepage	2.30
BH8	1.60	none	1.20		
BH9	2.00	2.00	2.00	seepage	
BH10	2.30	2.30	0.80	Rapid	
BH11	2.10	2.10	0.30	Rapid	
BH12	2.60	1.50	0.40	Rapid	
BH13	2.10	2.00	1.60	moderate	
BH14	2.10	2.00	1.80	seepage	
BH15	1.60	1.50	0.70	moderate	
BH16	3.60	3.50	1.80	Rapid	
BH17	2.10	2.00	1.00	Rapid	2.10
BH18	3.10	3.00	2.00	Rapid	
BH19	1.60	1.30	1.00	moderate	
BH20	1.50	none			

RC No.	Depth to weathered rock (presumed) (m)	Depth to structured Rock (m)	Terminal Depth (m)	Standpipe Depth (m)
RC01	3.60	3.80	5.80	6.30
RC02	2.70	2.80	5.40	
RC03	2.90	3.00	6.00	
RC04	2.30	2.50	5.10	
RC05	3.40	3.70	6.30	
RC06	3.50	3.70	6.30	
RC07	2.20	2.40	5.20	
RC08	3.30	4.20	6.60	
RC09	2.70	2.80	5.90	
RC10	2.60	2.80	5.80	
RC11	1.90	2.10	5.10	
RC12	2.80	2.90	5.90	
RC13	2.60	2.80	5.80	
RC14	3.20	3.40	5.90	
RC15	2.40	2.60	5.20	
RC16	2.00	2.20	5.20	
RC17	1.80	2.00	5.00	
RC18	1.80	2.10	5.10	

Appendix 1 Boring Records



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH1
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 09/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 09/08/2007
CLIENT South Dublin County Council		BORED BY M. Connolly
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.40		
CASING DEPTH (m) 2.40		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
	Firm brown sandy gravelly CLAY			0.30	AB 0261	B	0.50	N = 16 (2, 2, 5, 3, 4, 4)	
					AB 0262	B	1.50		
	Obstruction. Possible ROCK			2.20				N = 62/225 mm (6, 9, 12, 25, 25)	
	End of Borehole at 2.40 m			2.40					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.2	2.4	0.5		2.20	2.20		0.40		Rapid

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH2
		SHEET Sheet 1 of 1
CO-ORDINATES(_)	GROUND LEVEL (m)	DATE STARTED 09/08/2007
	BOREHOLE DIAMETER (mm) 200	DATE COMPLETED 09/08/2007
CLIENT ENGINEER South Dublin County Council Mr. Eddie Conroy	BOREHOLE DEPTH (m) 2.90	BORED BY M. Connolly PROCESSED BY Taras
	CASING DEPTH (m) 2.90	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL			0.20					
	Firm to stiff brownish grey sandy gravelly CLAY				AB 0254	B	0.50	N = 19 (5, 4, 4, 5, 3, 7)	
1					AB 0255	B	1.50		
2	Stiff grey sandy gravelly CLAY			2.20					
3	Obstruction. Possible ROCK End of Borehole at 2.90 m			2.70	AB 0256	B	2.70	N = 29 (7, 5, 9, 6, 6, 8)	
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.7	2.9	0.5		2.70	2.70		2.30		Slow

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
09/08/2007	2.90	1.00	2.90	50mm SP					

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH3
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 08/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 08/08/2007
CLIENT South Dublin County Council		BORED BY M. Connolly
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.80		
CASING DEPTH (m) 2.80		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
0	Stiff brown sandy gravelly CLAY			0.20	AB 0250	B	0.50	N = 32 (4, 6, 6, 12, 9, 5)	
1					AB 0251	B	1.50		
2								N = 36 (7, 9, 7, 11, 8, 10)	
2.60	Obstruction. Possible ROCK End of Borehole at 2.80 m			2.60					
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.6	2.8	0.5		2.60	2.60		0.20		Rapid

GROUNDWATER DETAILS					INSTALLATION DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments	Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH3A
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 09/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 09/08/2007
CLIENT South Dublin County Council		BORED BY M. Connolly
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 1.60		
CASING DEPTH (m) 1.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL			0.20					
	Firm brown sandy gravelly CLAY				AB 0259	B	0.50	N = 18 (4, 3, 6, 3, 5, 4)	
1									
	Obstruction. Possible ROCK			1.40	AB 0260	B	1.40	N = 37/100 mm (12, 25)	
	End of Borehole at 1.60 m			1.60					
2									
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.4	1.6	0.5		1.40	1.40		0.20		Rapid

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH4
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 09/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 09/08/2007
CLIENT South Dublin County Council		BORED BY M. Connolly
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.10		
CASING DEPTH (m) 2.10		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
0.30	Firm brownish grey sandy gravelly CLAY			0.30	AB 0257	B	0.50	N = 17 (2, 3, 3, 6, 4, 4)	
1.50				1.50	AB 0258	B	1.50		
1.90	Obstruction. Possible ROCK		1.90						
2.10	End of Borehole at 2.10 m		2.10					N = 44/100 mm (19, 25)	

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.9	2.1	0.5		1.90	1.90		0.30		Rapid

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
09/08/2007	2.10	1.00	2.10	50mm SP					

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH6
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 08/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 08/08/2007
CLIENT South Dublin County Council		BORED BY M. Connolly
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.60		
CASING DEPTH (m) 2.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
	Firm to hard brown sandy gravelly CLAY			0.30	AB 0252	B	0.50	N = 19 (6, 6, 4, 6, 5, 4)	
					AB 0253	B	1.50		
	Obstruction. Possible ROCK End of Borehole at 2.60 m			2.40				N = 60 (8, 6, 10, 14, 19, 17)	

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.4	2.6	0.5		2.40	2.40		2.40		Seepage

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH7
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 18/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 18/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 2.60		
CASING DEPTH (m) 2.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL Firm brown sandy CLAY/SILT			0.10					
1	Firm to stiff grey sandy gravelly CLAY			1.00	374	B	1.00	N = 14 (2, 2, 3, 3, 4, 4)	
2				2.00	375	B	2.00	N = 28 (4, 4, 6, 6, 7, 9)	
2.50	OBSTRUCTION			2.50					
2.60	End of Borehole at 2.60 m			2.60					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.5	2.6	2.00		2.00 2.50	2.00 2.50				Seepage Seepage

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					18-07-07	2.60	0.00	1.50	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH8
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 17/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 17/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 1.60		
CASING DEPTH (m) 1.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL and sub-soil Firm brown sandy SILT/CLAY			0.20	373	B	1.00	N = 22 (3, 4, 5, 5, 6, 6)	
1	Stiff grey sandy CLAY with occasional gravel		0.80						
1.50	OBSTRUCTION End of Borehole at 1.60 m		1.60						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.5	1.6	1.50							No water strike

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
17-07-07					17-07-07	1.60	0.00	1.20	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH9
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 09/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 09/08/2007
CLIENT South Dublin County Council		BORED BY J. O'Hara
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.00		
CASING DEPTH (m) 2.00		


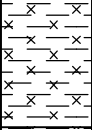
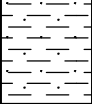
Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
0	Soft brown CLAY			0.20					
1					5151	B	1.00	N = 6 (1, 1, 1, 1, 2, 2)	
2	Obstruction. Possible ROCK			1.80					
2	End of Borehole at 2.00 m			2.00	5152	B	2.00		
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.8	2	1.5		2.00	2.00		2.00		Seepage
INSTALLATION DETAILS				GROUNDWATER DETAILS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					09-08-07	2.00	0.00	2.00	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH10
		SHEET Sheet 1 of 1
CO-ORDINATES (_)	GROUND LEVEL (m)	DATE STARTED 09/08/2007
	BOREHOLE DIAMETER (mm) 200	DATE COMPLETED 09/08/2007
CLIENT ENGINEER South Dublin County Council Mr. Eddie Conroy	BOREHOLE DEPTH (m) 2.50	BORED BY J. O'Hara PROCESSED BY Taras
	CASING DEPTH (m) 2.50	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL			0.20					
	Very soft brownish grey SILT/CLAY				5148	B	1.00	N = 4 (1, 1, 0, 0, 1, 3)	
1	Firm brown sandy CLAY			1.40	5149	B	2.00		
2	Obstruction. Possible ROCK End of Borehole at 2.50 m			2.30	5150	B	2.50	N = 15 (1, 1, 1, 3, 3, 8)	
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.3	2.5	1.5		2.30	2.30		0.80	30	Rapid

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
09/08/2007	2.50	1.00	2.50	50mm SP	09-08-07	2.50	0.00	0.60	End of boring

REMARKS Strong water pressure (possible artesian spring).	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH11
		SHEET Sheet 1 of 1
CO-ORDINATES(_)	GROUND LEVEL (m)	DATE STARTED 08/08/2007
	BOREHOLE DIAMETER (mm) 200	DATE COMPLETED 08/08/2007
CLIENT ENGINEER South Dublin County Council Mr. Eddie Conroy	BOREHOLE DEPTH (m) 2.20	BORED BY M. Connolly PROCESSED BY Taras
	CASING DEPTH (m) 2.20	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
0	Firm greyish brown sandy gravelly CLAY			0.20	AB 0248	B	0.50	N = 18 (3, 6, 5, 4, 4, 5)	
1					AB 0249	B	1.50		
2	End of Borehole at 2.20 m			2.10				N = 70/225 mm (4, 14, 20, 25, 25)	
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.1	2.2	0.5		2.10	2.10		0.30		Rapid

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
08/08/2007	2.20	1.00	2.20	50mm SP					

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH12
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 18/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 18/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 2.60		
CASING DEPTH (m) 2.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
	Firm brown sandy CLAY with occasional gravel			0.20					
1	Stiff to very stiff sandy gravelly CLAY			1.00	376	B	1.10	N = 18 (3, 3, 4, 4, 5, 5)	
2					377	B	2.10	N = 48/225 mm (6, 8, 10, 11, 17, 10)	
	OBSTRUCTION			2.50					
	End of Borehole at 2.60 m			2.60					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2.2	2.60	2		1.50	1.50		0.40	5	Rapid

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
18-07-07					18-07-07	2.60	0.00	0.40	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH13
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 16/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 16/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 2.10		
CASING DEPTH (m) 2.10		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
	Firm brown sandy SILT/CLAY			0.25					
	Stiff grey sandy gravelly CLAY			0.80	369	B	1.00	N = 26 (3, 6, 6, 6, 8, 6)	
2	Obstruction			2.00				N = 50/0 mm (25, 25)	
	End of Borehole at 2.10 m			2.10					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2	2.1	2		2.00	2.00		1.60	5	Moderate

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					16-07-07	2.10	0.00	1.60	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH14
CO-ORDINATES(_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 17/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 17/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 2.10		
CASING DEPTH (m) 2.00		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL Brown sandy CLAY/SILT with occasional gravel			0.15					
1	Stiff brown grey sandy gravelly CLAY			1.00	372	B	1.10	N = 26 (3, 3, 6, 6, 7, 7)	
2	OBSTRUCTION End of Borehole at 2.10 m			2.00 2.10				N = 50/20 mm (25, 25)	
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2	2.1	1.75		1.50 2.00	1.50 2.00		1.80	5	Seepage Slow

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type	17-07-07	2.00	0.00	1.80	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL_GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH15
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 17/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 17/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 1.60		
CASING DEPTH (m) 1.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL and sub-soil Firm brown sandy CLAY/SILT			0.20					
1	Stiff grey sandy CLAY with some gravel			0.90	370	B	1.00	N = 26 (4, 6, 6, 6, 7, 7)	
	OBSTRUCTION End of Borehole at 1.60 m			1.50	371	B	1.60		
2				1.60					
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.5	1.6	1.50		1.30 1.50	1.30 1.50		1.10	5	Seepage Moderate

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					17-07-07	1.60	0.00	0.70	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH16
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 19/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 19/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 3.60		
CASING DEPTH (m) 3.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL and sub-soil			0.20					
	Firm brown sandy CLAY								
1	Stiff greyish brown sandy gravelly CLAY with occasional cobbles			1.20	378	B	1.00	N = 24 (2, 2, 3, 3, 8, 10)	
2					379	B	2.00	N = 28 (4, 4, 6, 6, 8, 8)	
3					380	B	3.00	N = 25 (3, 4, 6, 6, 6, 7)	
3.5	OBSTRUCTION			3.50					
4	End of Borehole at 3.60 m			3.60					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.5	3.6	2.00		2.50 3.50	2.50 3.50		2.50	5	Seepage Rapid

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					19-07-07	3.60	0.00	1.80	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH17
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 08/08/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 08/08/2007
CLIENT South Dublin County Council		BORED BY J. O'Hara
ENGINEER Mr. Eddie Conroy		PROCESSED BY Taras
BOREHOLE DEPTH (m) 2.10		
CASING DEPTH (m) 2.10		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL Soft brown peaty CLAY			0.20					
1	Brownish grey SILT/CLAY			1.10	5143	B	1.00	N = 7 (1, 1, 0, 1, 2, 4)	
2	Obstruction. Possible ROCK End of Borehole at 2.10 m			2.00	5144	B	2.00		
				2.10	5145	B	2.10		
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
2	2.1	1.5		2.00	2.00		1.00	30	Rapid

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
08/08/2007	2.10	1.00	2.10	50mm SP					

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH18
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 19/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 19/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 3.10		
CASING DEPTH (m) 3.10		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL and sub-soil Firm brown sandy CLAY/SILT			0.20					
1	Stiff grey sandy CLAY with some gravel			1.00	382	B	1.10	N = 38 (4, 6, 8, 8, 10, 12)	
2	Firm to stiff sandy gravelly CLAY			2.00	383	B	2.00	N = 15 (2, 3, 3, 4, 4, 4)	
3	Obstruction. Possible rock. End of Borehole at 3.10 m			3.00 3.10				N = 60/57 mm (35, 25)	
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.6	1.8	1		3.00	3.00		2.00	5	Rapid
3	3.1	2.00							

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
19-07-07					19-07-07	3.10	0.00	2.00	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH19
CO-ORDINATES (_)		SHEET Sheet 1 of 1
GROUND LEVEL (m)		DATE STARTED 13/07/2007
BOREHOLE DIAMETER (mm) 200		DATE COMPLETED 13/07/2007
CLIENT South Dublin County Council		BORED BY B.McDonnell
ENGINEER Mr. Eddie Conroy		PROCESSED BY Sukhanov
BOREHOLE DEPTH (m) 1.60		
CASING DEPTH (m) 1.60		

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL			0.15					
	Stiff brown sandy CLAY with some gravel and cobbles				368	B	1.00	N = 29 (4, 6, 6, 10, 7, 6)	
	OBSTRUCTION			1.50					
	End of Borehole at 1.60 m			1.60					

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.5	1.6	1		1.30	1.30		1.00	5	Moderate

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					19-07-07	1.60	0.00	1.00	End of boring

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07



GEOTECHNICAL BORING RECORD

REPORT NUMBER

12838

CONTRACT Corkagh Grange Housing Site		BOREHOLE NO. BH20
		SHEET Sheet 1 of 1
CO-ORDINATES (_)	GROUND LEVEL (m)	DATE STARTED 09/08/2007
	BOREHOLE DIAMETER (mm) 200	DATE COMPLETED 09/08/2007
CLIENT ENGINEER South Dublin County Council Mr. Eddie Conroy	BOREHOLE DEPTH (m) 1.50	BORED BY J. O'Hara
	CASING DEPTH (m) 1.50	PROCESSED BY Taras

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples			Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)		
0	TOPSOIL								
0	Very stiff brown CLAY			0.20					
1					5146	B	1.00	N = 43 (1, 1, 5, 7, 11, 20)	
	Obstruction. Possible ROCK			1.40					
	End of Borehole at 1.50 m			1.50	5147	B	1.50		
2									
3									
4									
5									
6									
7									
8									
9									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					Comments
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	
1.4	1.5	1.5							No water strike

INSTALLATION DETAILS					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample
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IGSL BH LOG - 12838.GPJ IGSL.GDT 10/8/07

Appendix 2 Rotary Records



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC01
		SHEET Sheet 1 of 1
CO-ORDINATES(_)		DATE STARTED 20/07/2007
		DATE COMPLETED 20/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING					
1.40								Strong grey limestone boulders. Observed by driller as boulders, gravel and clay.	1.40				
2		25	17	13									
3.00								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay with occasional boulders.	3.00				
3.80		100	0	0				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone.	3.60 3.80	Discontinuities are smooth to planar and locally rough to undulose. Apertures are moderately open to open. Dips are sub-45° to locally sub-70°-90° fractures (3.8m-4.0m, 4.0m-4.3m, 5.2m-5.34m, 5.62m-5.8m).			
4.30								Strong to very locally moderately strong, thin to medium bedded, dark grey (argillaceous) to locally grey, fine grained LIMESTONE (slightly cherty). Fresh to locally slightly to moderately (4.0m-4.3m) weathered. Local calcite veins (4.92m-5.2m). End of Corehole at 5.8 (m)	5.80				
5		100	85	79									
5.80													
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC02
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 20/07/2007
		DATE COMPLETED 20/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay with occasional boulders.					
2.80		67	0	0				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone.	2.70 2.80				
4.00								Moderately weak to weak, thinly bedded and laminated, dark grey-black, clay smeared (dry), fine grained LIMESTONE.	4.00	Discontinuities are rough to smooth and undulose. Apertures are moderately open to open with locally iron oxide stained surfaces. Dips are sub-35° to locally sub-90° fractures (4.26m-4.52m, 4.64m-4.85m).			
5.40		100	52	52				Moderately to highly weathered. Strong to locally moderately strong, thin to medium bedded, dark grey-black (argillaceous) to locally grey (cherty-4.64m-5.4m with calcite veins), fine grained LIMESTONE. Fresh to locally moderately weathered. End of Corehole at 5.4 (m)	5.40				

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07

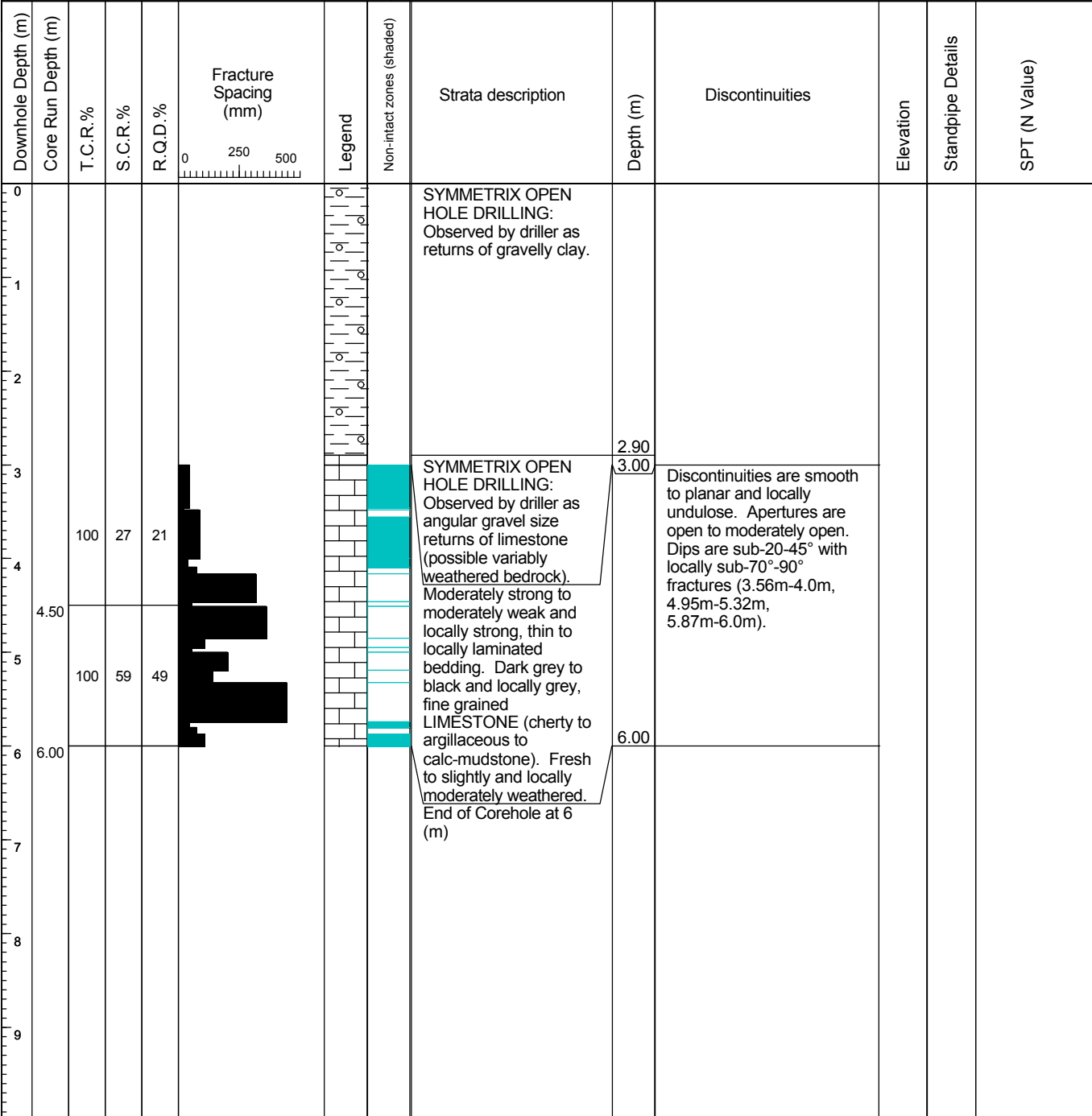


GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC03
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 02/09/2007
		DATE COMPLETED 02/09/2007
CLIENT South Dublin County Council		DRILLED BY Millennium
ENGINEER		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist



REMARKS					INSTALLATION REMARKS				
1 Core box. Move and set up 3hrs.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC04
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 21/07/2007
		DATE COMPLETED 21/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2									2.30				
2.50		100	0	0				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone. Moderately strong to locally strong, thin to locally medium bedded, dark grey-black (argillaceous) to locally grey (slightly cherty - 3.52m-3.67m, 4.5m-4.7m), fine grained LIMESTONE. Slightly to locally moderately weathered. Locally calcite veined 4.06m-4.0m veretical fracture.	2.50	Discontinuities are smooth to planar and locally undulose. Apertures are open with local iron oxide stained surfaces (2.5m-3.5m). Dips are sub-20° with locally sub-70°-90° fractures (4.06m-4.4m).			
3													
3.00		100	22	10									
4													
4.50		100	56	40									
5								End of Corehole at 5 (m)	5.10				
5.00													
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC05
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 21/07/2007
		DATE COMPLETED 21/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2													
3								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of clayey gravel.	2.70				
4								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of limestone.	3.40				
5		100	18	9				Strong (where intact) to moderately strong, thin and laminated to medium bedded, dark grey-black (argillaceous) to locally grey (slightly cherty, local pryite bands-4.65m-4.8m), fine grained	3.70	Discontinuities are smooth to planar and locally rough and undulose. Apertures are open with local iron oxide stained surfaces (3.7m-4.6m). Dips are sub-45° with locally sub-70°-90° fractures (3.7m-4.5m).			
6		100	33	15				LIMESTONE. Fresh to slightly to locally moderately weathered.	6.30				
7								End of Corehole at 6.3 (m)					
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC06
		SHEET Sheet 1 of 1
CO-ORDINATES (_)	GROUND LEVEL (m)	DATE STARTED 21/07/2007
	CORE DIAMETER (mm) 76	DATE COMPLETED 21/07/2007
CLIENT ENGINEER South Dublin County Council	INCLINATION -90	DRILLED BY Millennium
	FLUSH Air/Mist	LOGGED BY IGSL

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2													
3								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of clayey gravel.	2.70				
3.70								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of limestone. Strong to moderately strong, thin and laminated to medium bedded, dark grey-black (argillaceous) to locally grey (slightly cherty-3.7m-4.6m, 5.2m-5.7m, local pyrite bands), fine grained LIMESTONE. Fresh to slightly to locally moderately weathered. Local crystalline calcite veined (3.77m-3.91m). End of Corehole at 6.3 (m)	3.50				
4		100	56	49					3.70	Discontinuities are smooth to planar and locally undulose. Apertures are moderately open to open and locally tight with local clay/gravel (4.28m-4.32m, 4.7m-4.98m). Dips are sub-45° with locally sub-70°-90° fractures (3.77m-3.91m, 4.98m-5.2m).			
5													
6		100	43	25					6.30				
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					
21-07-07	6.30	1.00	6.30	50mm SP					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC07
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 20/07/2007
		DATE COMPLETED 20/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2									2.20				
2.40								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone. Strong to moderately strong, thin to medium bedded, dark grey-black (argillaceous) to locally grey (slightly cherty, local pyrite band-4.9m), fine grained LIMESTONE. Fresh to slightly to locally moderately weathered. Local crystalline calcite veined (3.7m-3.8m). End of Corehole at 5.2 (m)	2.40	Discontinuities are smooth to planar and locally rough and undulose. Apertures are moderately open to open and locally tight. Dips are sub-50°.			
3	100	56	44										
4	100	35	28										
4.80	100	28	0						5.20				
5.20													
6													
7													
8													
9													

REMARKS 1 Core box.					INSTALLATION REMARKS				
					GROUNDWATER DETAILS				
Date		Hole Depth	Casing Depth	Depth to Water	Comments				
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					
20-07-07	5.20	1.20	5.20	50mm SP					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC08
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 19/07/2007
		DATE COMPLETED 19/07/2007
CLIENT South Dublin County Council		DRILLED BY IGSL
ENGINEER		LOGGED BY IGSL
GROUND LEVEL (m)		
CORE DIAMETER (mm) 84		
INCLINATION -90		
FLUSH Air/Mist		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of brown sandy gravelly clay.					
1													
2													
3									3.30				
4								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Moderately strong to locally moderately weak, thin to locally medium bedding. Dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc-mudstone). Fresh to slightly and very locally moderately weathered. Non-intact 4.2m-5.7m.	4.20	Discontinuities are smooth to locally rough, planar to locally undulose. Apertures are open to locally moderately open with commonly slightly clay smeared (dry) surfaces. Dips are sub-45° and common sub-vertical fractures (4.2m-5.7m).			
4.20	100	0	0										
4.90	100	11	0										
5.80	100	94	78										
6.60								End of Corehole at 6.6 (m)	6.60				
7													
8													
9													

REMARKS					INSTALLATION REMARKS									
1 Core box. Move and set up 3hrs.														
					GROUNDWATER DETAILS									
INSTALLATION DETAILS					Date		Hole Depth		Casing Depth		Depth to Water		Comments	
Date	Tip Depth	RZ Top	RZ Base	Type										

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC09
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 01/09/2007
		DATE COMPLETED 01/09/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.80		100	49	29				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Strong to moderately strong, thin to locally laminated bedding. Dark grey to grey, fine grained LIMESTONE (cherty to argillaceous to calc-mudstone). Fresh to slightly and locally moderately weathered.	2.70 2.80	Discontinuities are smooth to planar and locally undulose. Apertures are open to tight with local clay gravel infilling in ni-zones (loss of recovery between 4.3m-4.9m of 0.1m). Dips are sub-30° with locally sub-90° fracture (5.06m-5.18m).			
4.30													
5.90		94	46	16				End of Corehole at 5.9 (m)					
6													
7													
8													
9													

REMARKS 1 Core box.					INSTALLATION REMARKS				
					GROUNDWATER DETAILS				
Date		Hole Depth	Casing Depth	Depth to Water	Comments				
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC10
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 01/09/2007
		DATE COMPLETED 01/09/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.80		100	13	9				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Moderately strong to strong and locally moderately weak, thin to locally medium and locally laminated bedding. Grey to dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc-mudstone). Pyrite at bed contacts. Slightly to moderately weathered and locally fresh.	2.60 2.80	Discontinuities are rough and undulose to locally planar. Apertures are open to locally moderately open. Dips are sub-45° with irregular to variable fracturing and locally sub-90° fracture (4.72m-4.8m).			
4.30								End of Corehole at 5.8 (m)	5.80				

REMARKS 1 Core box					INSTALLATION REMARKS				
					GROUNDWATER DETAILS				
		Date	Hole Depth	Casing Depth	Depth to Water	Comments			
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					
01-09-07	5.80	2.80	5.80	50mm SP					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC11
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 01/09/2007
		DATE COMPLETED 01/09/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 80
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2	2.10							SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Moderately strong to moderately weak and locally strong, thin to locally medium and locally laminated bedding. Dark grey to black and locally grey (2.71m-2.82m) and locally white (calcite-4.79m-4.87m), fine grained LIMESTONE (cherty to argillaceous to calc-mudstone). Slightly to fresh to locally moderately weathered. End of Corehole at 5.1 (m)	1.90 2.10	Discontinuities are smooth and undulose. Apertures are open to locally moderately open with local clay smearing (2.64m-2.71m). Dips are sub-20-45° with locally sub-90° fractures (3.68m-4.04m, 4.98m-5.1m).			
3		100	27	17									
4													
5	5.10	100	27	23					5.10				
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC12
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 01/09/2007
		DATE COMPLETED 01/09/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 80
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.90		100	97	68				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Strong to moderately strong, thin to medium bedding. Dark grey to grey, fine grained LIMESTONE (cherty to argillaceous). Fresh to slightly weathered.	2.80 2.90	Discontinuities are smooth and planar to undulose. Apertures are open to moderately open. Dips are sub-30°.			
4.40													
5.90		100	48	36				End of Corehole at 5.9 (m)	5.90				
6													
7													
8													
9													

REMARKS 1 Core box					INSTALLATION REMARKS				
					GROUNDWATER DETAILS				
		Date	Hole Depth	Casing Depth	Depth to Water	Comments			
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC13
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 31/08/2007
		DATE COMPLETED 31/08/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 80
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2													
2.80									2.60 2.80				
3		100	42	42				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Strong to moderately strong to moderately weak, thin to medium bedding, locally laminated. Grey to dark grey to black, fine grained Limestone (cherty to argillaceous to calc mudstone). Fresh to slightly and locally moderately weathered.		Discontinuities are rough to smooth and planar to undulose. Apertures are tight to open to open. Dips are sub-30-45° to locally sub-90° fracture (4.07m-4.3m).			
4													
4.30													
5		100	18	0									
5.80								End of Corehole at 5.8 (m)	5.80				
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box									
					GROUNDWATER DETAILS				
Date		Hole Depth	Casing Depth	Depth to Water	Comments				
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					
31-08-07	5.80	2.80	5.80	50mm SP					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC14
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 20/07/2007
		DATE COMPLETED 20/07/2007
CLIENT ENGINEER South Dublin County Council		DRILLED BY Millennium
		LOGGED BY IGSL
		GROUND LEVEL (m)
		CORE DIAMETER (mm) 76
		INCLINATION -90
		FLUSH Air/Mist

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1													
2													
3													
3.40								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravel.	2.70				
4	100	49	45					SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone.	3.20	Discontinuities are smooth to planar to undulose and locally rough. Apertures are open to locally moderately open. Dips are sub-45°-30°.			
4.70								Strong to moderately strong, thin to medium bedded, dark grey-black (argillaceous) to locally grey (slightly cherty), fine grained LIMESTONE. Slightly to locally moderately and locally freshly weathered.	3.40				
5	100	38	38					End of Corehole at 5.9 (m)	5.90				
5.90													
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC15
		SHEET Sheet 1 of 1
CO-ORDINATES (_)	GROUND LEVEL (m)	DATE STARTED 21/07/2007
	CORE DIAMETER (mm) 76	DATE COMPLETED 21/07/2007
CLIENT ENGINEER South Dublin County Council	INCLINATION -90	DRILLED BY Millennium
	FLUSH Air/Mist	LOGGED BY IGSL

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of clayey gravel.					
1													
2													
2.60		100	62	62				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone. Moderately strong to locally strong, thin to medium bedded, dark grey (argillaceous) to locally grey (2.6m-3.0m)(slightly cherty), fine grained LIMESTONE. Slightly to locally moderately and locally freshly weathered.	2.40 2.60	Discontinuities are smooth to locally rough and planar to locally undulose. Apertures are open to moderately open with commonly slightly iron oxide stained surfaces. Clay/gravel layer - 3.0m-3.1m. Dips are sub-45° with local sub-vertical fractures (4.2m-4.35m, 5.0m-5.2m).			
3.10		100	12	0									
3.60													
4		100	7	0									
4.50													
5		100	37	14									
5.20								End of Corehole at 5.2 (m)	5.20				
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box.									
					GROUNDWATER DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site

DRILLHOLE NO RC16
SHEET Sheet 1 of 1

CO-ORDINATES(_)

GROUND LEVEL (m)
CORE DIAMETER (mm) 80

DATE STARTED 30/08/2007
DATE COMPLETED 30/08/2007

CLIENT ENGINEER South Dublin County Council

INCLINATION -90
FLUSH Air/Mist

DRILLED BY Millennium
LOGGED BY IGSL

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.20		100	23	18				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Moderately strong to moderately weak and locally strong, thin bedding. Grey to dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc mudstone). Calcite veined (2.4m-3.2m). Moderately to slightly and locally freshly weathered.	2.00 2.20	Discontinuities are rough to smooth and planar to undulose. Apertures are open. Local clay smearing. Dips are sub-45° with irregular fractures and locally sub-90° fracture (4.37m-4.56m).			
3.70		100	22	15				End of Corehole at 5.2 (m)	5.20				

REMARKS
1 Core box

INSTALLATION REMARKS

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
30-08-07	5.20	2.00	5.20	50mm SP

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07

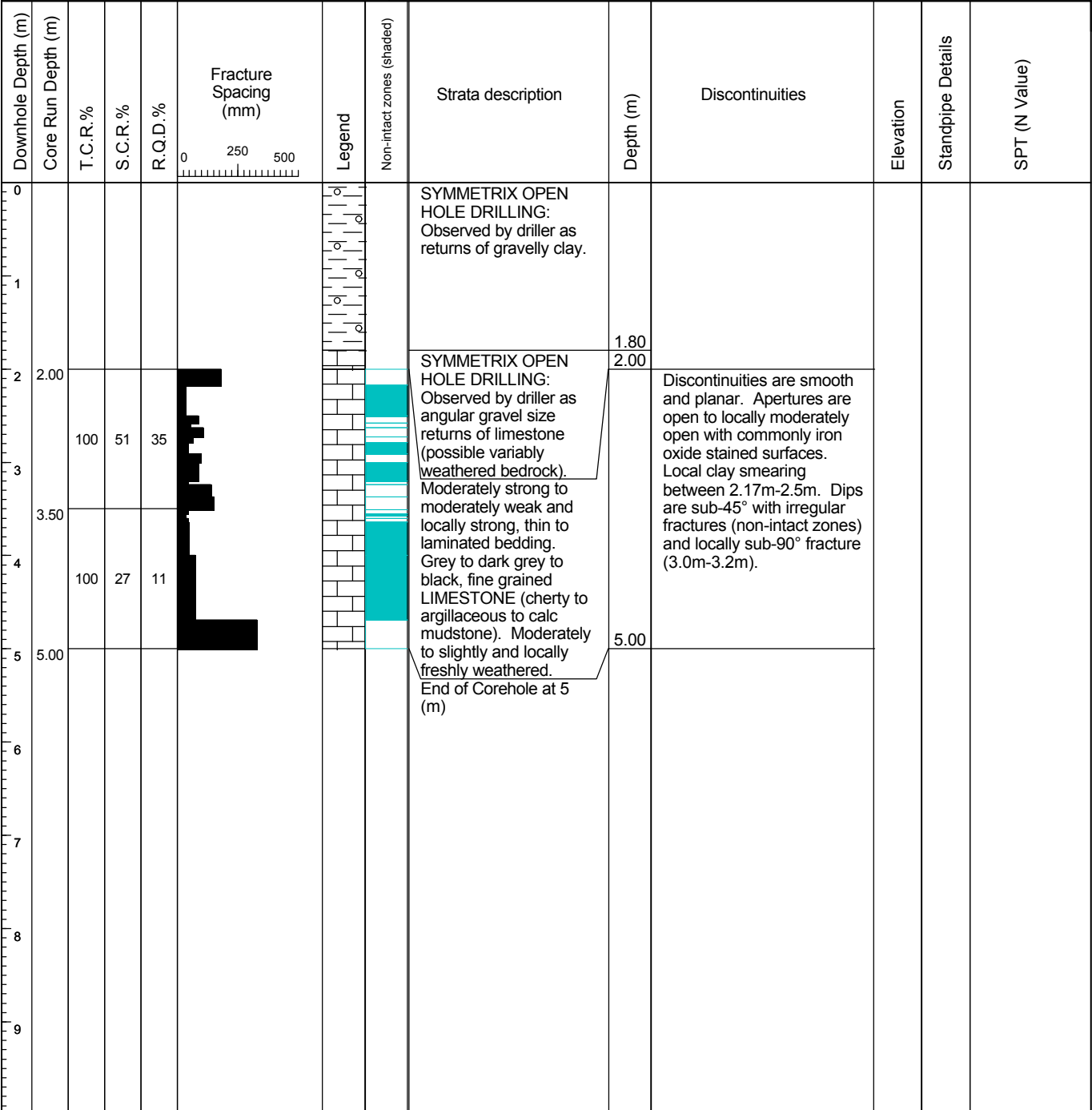


GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC17
		SHEET Sheet 1 of 1
CO-ORDINATES (_)		DATE STARTED 30/08/2007
		DATE COMPLETED 30/08/2007
CLIENT South Dublin County Council		DRILLED BY Millennium
ENGINEER		LOGGED BY IGSL
		INCLINATION -90
		FLUSH Air/Mist



REMARKS					INSTALLATION REMARKS				
1 Core box. Standing 2½hrs - Waiting for ditch to be moved.									
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC18
CO-ORDINATES (_)		SHEET Sheet 1 of 1
CLIENT ENGINEER South Dublin County Council		DATE STARTED 30/08/2007
GROUND LEVEL (m)		DATE COMPLETED 30/08/2007
CORE DIAMETER (mm) 80		DRILLED BY Millennium
INCLINATION -90		LOGGED BY IGSL
FLUSH Air/Mist		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
1									1.80				
2	2.10							SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Moderately strong to strong, thin to locally medium bedding. Grey to dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc mudstone). Pyrite common at bed contacts. Fresh to slightly and locally moderately weathered. End of Corehole at 5.1 (m)	2.10	Discontinuities are smooth and planar to undulose. Apertures are open to moderately open and locally tight. Dips are sub-30°, locally irregular and with local sub-90° fractures (3.49m-3.57m, 4.73m-4.81m).			
3		100	44	33									
4													
5	3.70								5.10				
6		100	79	56									
7													
8													
9													

REMARKS 1 Core box					INSTALLATION REMARKS				
					GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments					
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC19
CO-ORDINATES (_)		SHEET Sheet 1 of 1
CLIENT ENGINEER South Dublin County Council		DATE STARTED 31/08/2007
GROUND LEVEL (m)		DATE COMPLETED 31/08/2007
CORE DIAMETER (mm) 80		DRILLED BY Millennium
INCLINATION -90		LOGGED BY IGSL
FLUSH Air/Mist		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.80		100	53	21				SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Strong to moderately strong to moderately weak, thin to medium bedding and locally laminated. Grey to dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc mudstone). Pyrite common at bed contacts. Fresh to slightly and locally moderately weathered. End of Corehole at 5.8 (m)	2.50 2.80	Discontinuities are rough to smooth and planar to undulose. Apertures are tight to open with local iron oxide stained surfaces. Local clay smearing (4.3m-4.4m). Dips are sub-30-45° with locally sub-90° fractures (4.49m-4.61m, 5.18m-5.42m).			
4.30													
5.80		100	51	41									
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS				
1 Core box									
					GROUNDWATER DETAILS				
Date		Hole Depth	Casing Depth	Depth to Water	Comments				
INSTALLATION DETAILS									
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC NEWLOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

12838

CONTRACT Corcagh Grange Housing Site		DRILLHOLE NO RC20
CO-ORDINATES (_)		SHEET Sheet 1 of 1
CLIENT ENGINEER South Dublin County Council		DATE STARTED 31/08/2007
GROUND LEVEL (m)		DATE COMPLETED 31/08/2007
CORE DIAMETER (mm) 80		DRILLED BY Millennium
INCLINATION -90		LOGGED BY IGSL
FLUSH Air/Mist		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Strata description	Depth (m)	Discontinuities	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay.					
2.10									2.10				
2.40								SYMMETRIX OPEN HOLE DRILLING: Observed by driller as angular gravel size returns of limestone (possible variably weathered bedrock). Strong to moderately strong, thin to medium bedding and locally laminated. Grey to dark grey to black, fine grained LIMESTONE (cherty to argillaceous to calc mudstone). Pyrite common at bed contacts. Fresh to slightly weathered. End of Corehole at 5.4 (m)	2.40	Discontinuities are smooth to locally rough and planar to undulose. Apertures are open to locally moderately open. Local clay smearing (4.01m-4.03m, 5.31m-5.4m). Dips are sub-30-45° with locally sub-90° fractures (2.91m-3.07m, 4.42m-4.5m).			
3	2.40	100	47	34									
4	4.00												
5	5.40	100	61	36					5.40				
6													
7													
8													
9													

REMARKS					INSTALLATION REMARKS					
1 Core box										
					GROUNDWATER DETAILS					
Date	Hole Depth	Casing Depth	Depth to Water	Comments						
INSTALLATION DETAILS										
Date	Tip Depth	RZ Top	RZ Base	Type						

IGSL RC NEW LOG 10M PER PG 12838RC.GPJ IGSL_GDT_3/10/07

Appendix 3 Laboratory Testing (geotechnical)

Summary of Classification Tests

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

BH/TP No.	Sample No.	Depth (m)	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	<425µm %	Preparation	Description	Classification
BH 1	262	1.50	D	15.5	25	16	9	57	WS	Dark brown slightly sandy slightly gravelly CLAY	C L
BH 2	255	1.50	D	13.5	26	16	10	54	WS	Dark brown slightly sandy slightly gravelly CLAY	C L
BH 3A	251	1.50	D	16.2	32	19	13	68	WS	Dark brown grey slightly sandy slightly gravelly CLAY	C L
BH 4	258	1.50	D	17.8	41	22	19	69	WS	Mottled grey slightly sandy slightly gravelly CLAY	C I
BH 6	253	1.50	D	12.5	32	19	13	37	WS	Grey brown slightly sandy gravelly CLAY with many cobbles	C L
BH 7	374	1.00	D	24.4	47	24	23	48	WS	Dark brown slightly sandy gravelly CLAY with root hairs	C I
BH 9	5151	1.00	D	15.4	31	19	12	88	WS	Dark brown slightly sandy slightly gravelly CLAY	C L
BH 10	5149	2.00	D	16.7	33	18	15	75	WS	Dark brown slightly sandy slightly gravelly CLAY	C L
BH 11	249	1.50	D	15.8	37	20	17	66	WS	Mottled grey slightly sandy slightly gravelly CLAY with root hairs	C I
BH 13	369	1.00	D	18.1	32	21	11	72	WS	Dark brown slightly sandy slightly gravelly CLAY	C L
BH 16	379	2.00	D	21.8	39	23	16	87	WS	Grey slightly sandy slightly gravelly CLAY	C I
BH 17	5143	1.00	D	27.9	52	27	25	97	WS	Mottled brown slightly sandy slightly gravelly CLAY	C H
BH 18	382	1.10	D	23.5	42	24	18	62	WS	Dark brown slightly sandy slightly gravelly CLAY	C I
BH 18	383	2.00	D	26.3	39	23	16	94	WS	Grey brown slightly sandy slightly gravelly CLAY with root hairs	C I
BH 19	368	1.00	D	19.8	35	20	15	67	WS	Grey slightly sandy slightly gravelly CLAY	C L
BH 20	5146	1.00	D	25.3	48	24	24	100	WS	Dark brown slightly sandy slightly gravelly CLAY	C I

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

IGSL	Contract							Contract No.	
	CORKAGH GRANGE HOUSING							12838	
	Issued By				Date		Page		
				12/09/2007		of			

Plasticity Chart - Summary of Liquid & Plastic Limit Tests

BS1377:Part 2:1990, clauses 3.2, 4 & 5

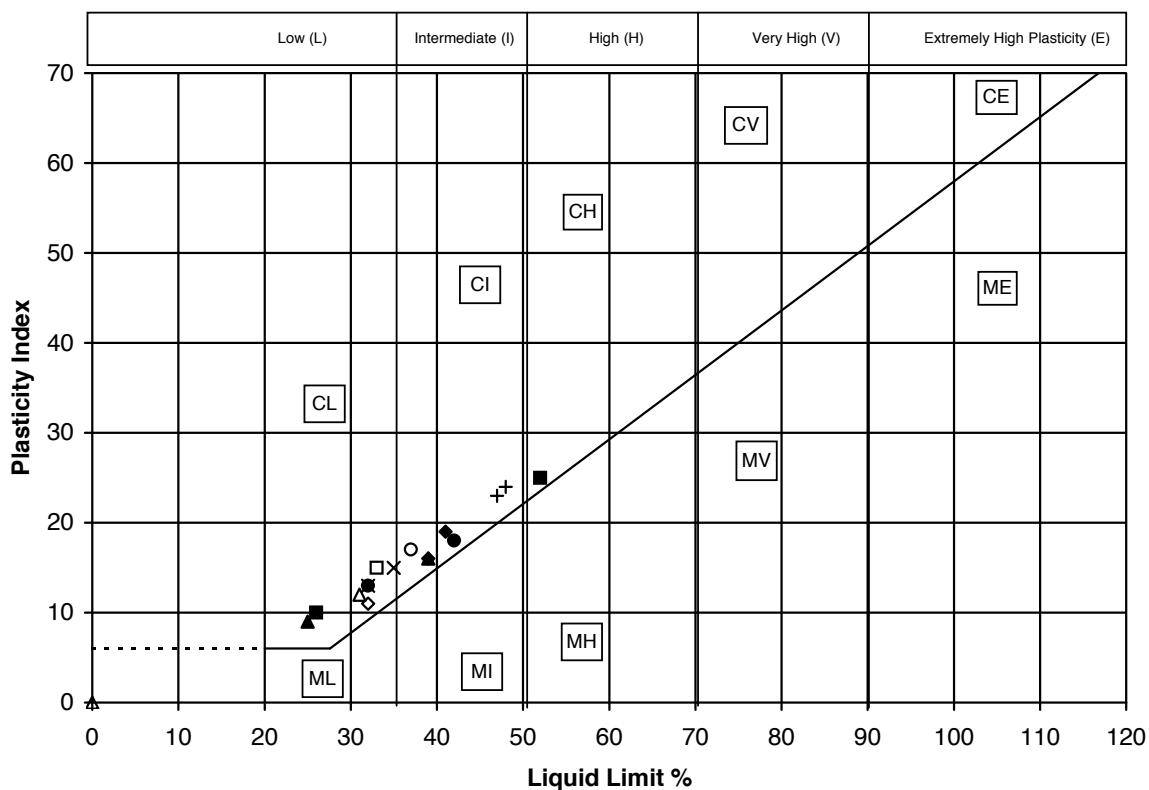
Chart in accordance with BS5930:1999, fig.18

Contract No.

12838

Contract:

CORKAGH GRANGE HOUSING



Code	BH/TP	Sample	Depth (m)	MC%	LL%	PL%	PI%	%<425µm	Description
▲	BH 1	262	1.50	15.5	25	16	9	57	Dark brown slightly sandy slightly gravelly CLAY
■	BH 2	255	1.50	13.5	26	16	10	54	Dark brown slightly sandy slightly gravelly CLAY
●	BH 3A	251	1.50	16.2	32	19	13	68	Dark brown grey slightly sandy slightly gravelly CLAY
◆	BH 4	258	1.50	17.8	41	22	19	69	Mottled grey slightly sandy slightly gravelly CLAY
×	BH 6	253	1.50	12.5	32	19	13	37	Grey brown slightly sandy gravelly CLAY with many cobbles
+	BH 7	374	1.00	24.4	47	24	23	48	Dark brown slightly sandy gravelly CLAY with root hairs
△	BH 9	5151	1.00	15.4	31	19	12	88	Dark brown slightly sandy slightly gravelly CLAY
□	BH 10	5149	2.00	16.7	33	18	15	75	Dark brown slightly sandy slightly gravelly CLAY
○	BH 11	249	1.50	15.8	37	20	17	66	Mottled grey slightly sandy slightly gravelly CLAY with root hairs
◇	BH 13	369	1.00	18.1	32	21	11	72	Dark brown slightly sandy slightly gravelly CLAY
▲	BH 16	379	2.00	21.8	39	23	16	87	Grey slightly sandy slightly gravelly CLAY
■	BH 17	5143	1.00	27.9	52	27	25	97	Mottled brown slightly sandy slightly gravelly CLAY
●	BH 18	382	1.10	23.5	42	24	18	62	Dark brown slightly sandy slightly gravelly CLAY
◆	BH 18	383	2.00	26.3	39	23	16	94	Grey brown slightly sandy slightly gravelly CLAY with root hairs
×	BH 19	368	1.00	19.8	35	20	15	67	Grey slightly sandy slightly gravelly CLAY
+	BH 20	5146	1.00	25.3	48	24	24	100	Dark brown slightly sandy slightly gravelly CLAY
△									

NP denotes specimen is non-plastic.

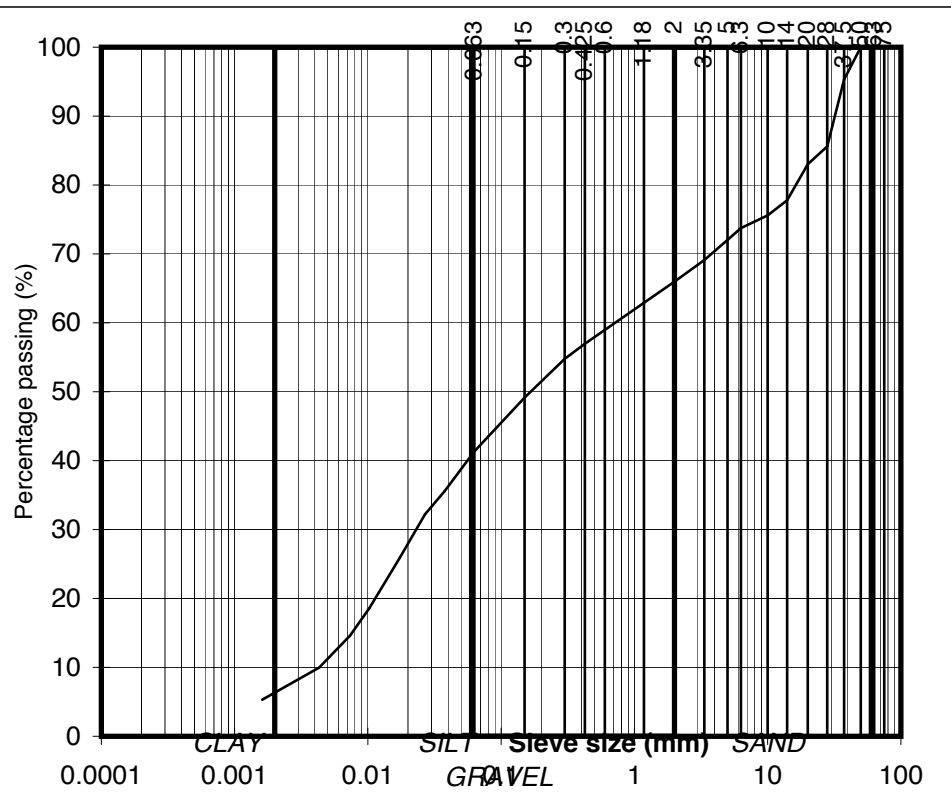
IGSL	Issued by	Date		Page
		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	95	
28	86	
20	83	
14	78	
10	76	
6.3	74	
5	72	SAND
3.35	69	
2	66	
1.18	63	
0.6	59	
0.425	57	SILT/CLAY
0.3	55	
0.15	49	
0.063	41	
0.037	36	
0.027	32	
0.017	26	
0.010	19	
0.007	15	
0.004	10	
0.002	5	

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 1
 SAMPLE No.: 262
 DEPTH (m): 1.50
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Dark brown slightly sandy, slightly gravelly, CLAY



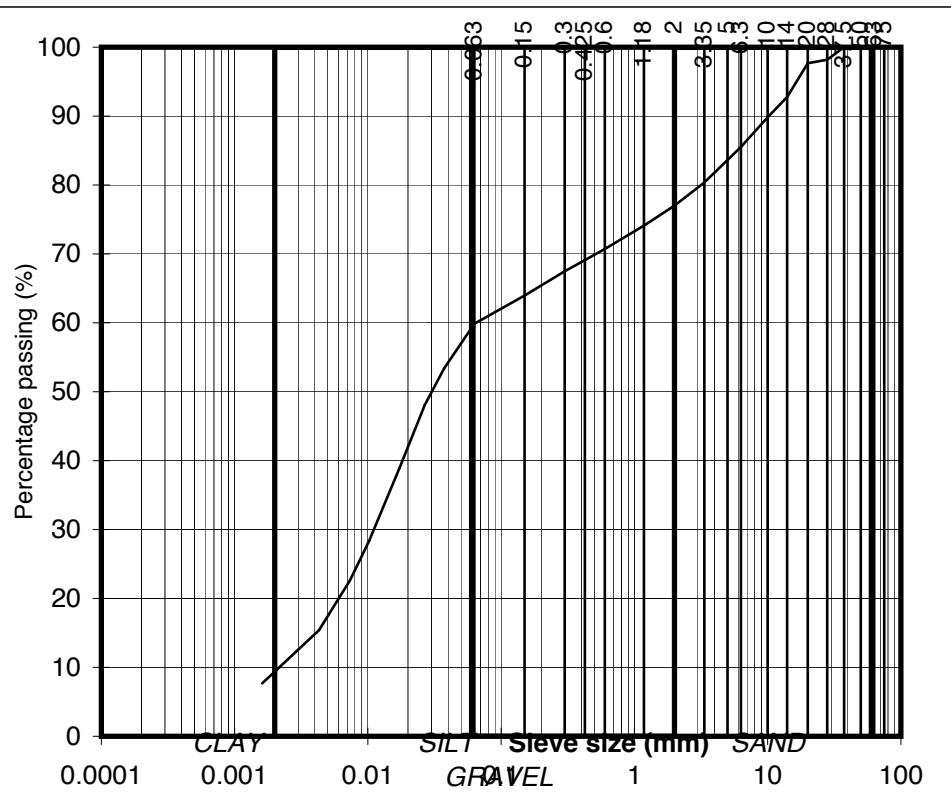
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			12/09/2007	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing	
75	100	COBBLES
63	100	
50	100	
37.5	100	
28	98	
20	98	
14	93	
10	90	
6.3	86	
5	84	
3.35	80	GRAVEL
2	77	
1.18	74	
0.6	71	
0.425	69	
0.3	67	SAND
0.15	64	
0.063	60	
0.037	53	
0.027	48	
0.017	39	SILT/CLAY
0.010	28	
0.007	23	
0.004	15	
0.002	8	

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 4
 SAMPLE No.: 258
 DEPTH (m): 1.50
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Mottled grey slightly sandy, slightly gravelly, CLAY



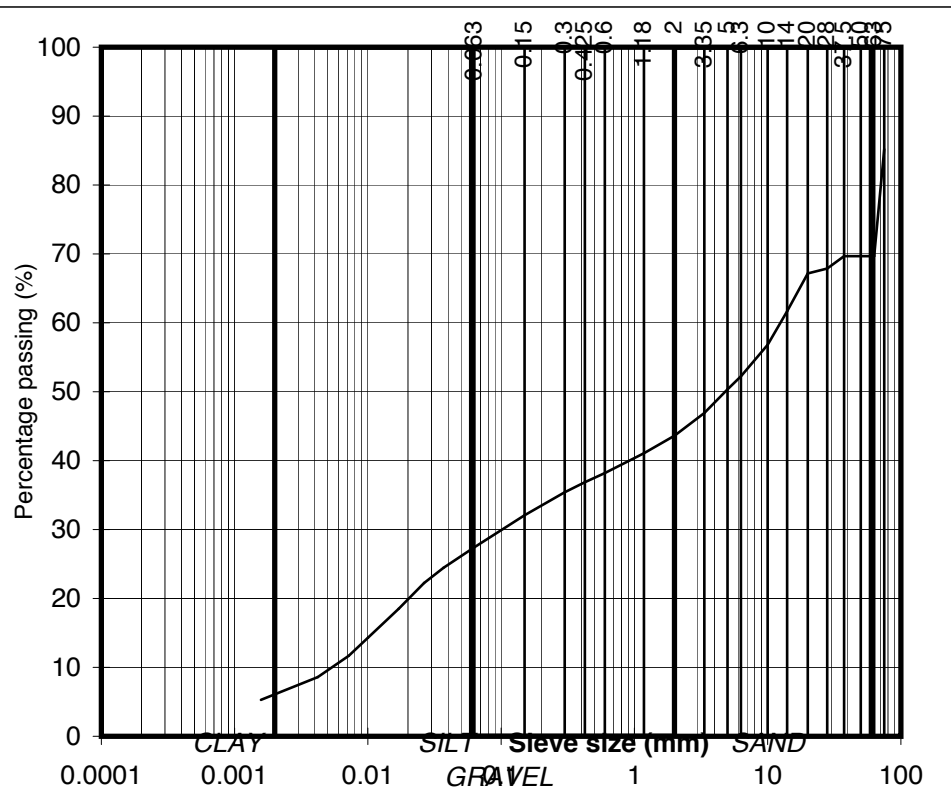
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		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing	
75	85	COBBLES
63	70	GRAVEL
50	70	
37.5	70	
28	68	
20	67	
14	62	
10	57	
6.3	52	
5	50	
3.35	47	
2	44	SAND
1.18	41	
0.6	38	
0.425	37	
0.3	35	
0.15	32	SILT/CLAY
0.063	27	
0.037	24	
0.026	22	
0.017	19	
0.010	14	
0.007	12	
0.004	9	
0.002	5	

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 6
 SAMPLE No.: 253
 DEPTH (m): 1.50
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Grey brown slightly sandy, gravelly, CLAY with many cobbles



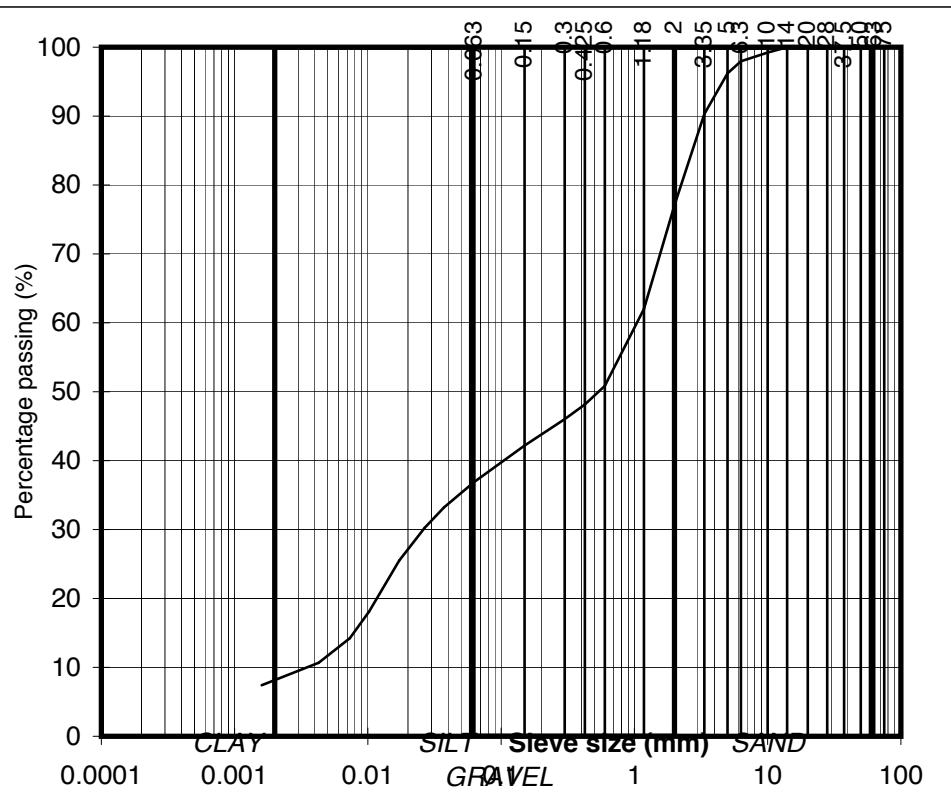
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		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing		
75	100	COBBLES	
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		GRAVEL
10	99		
6.3	98		
5	96		
3.35	90		
2	77	SAND	
1.18	62		
0.6	51		
0.425	48		
0.3	46		
0.15	42	SILT/CLAY	
0.063	37		
0.037	33		
0.027	30		
0.017	26		
0.010	18		
0.007	14		
0.004	11		
0.002	7		

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 7
 SAMPLE No.: 374
 DEPTH (m): 1.00
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Dark brown sandy, slightly gravelly, CLAY with root hairs



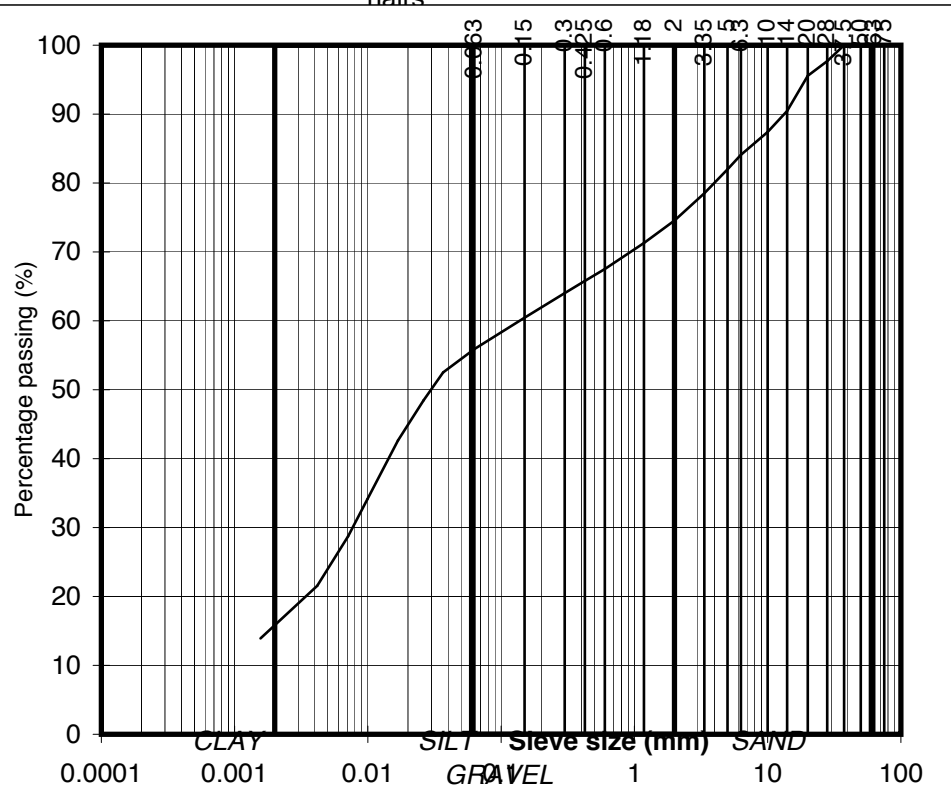
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		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing		
75	100	COBBLES	
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	90		GRAVEL
10	87		
6.3	84		
5	82		
3.35	79		
2	75		
1.18	71	SAND	
0.6	68		
0.425	66		
0.3	64		
0.15	60		
0.063	56		
0.037	53		SILT/CLAY
0.026	48		
0.017	43		
0.010	34		
0.007	29		
0.004	22		
0.002	14		

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 11
 SAMPLE No.: 249
 DEPTH (m): 1.50
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Mottled grey slightly sandy, slightly gravelly, CLAY with root hairs



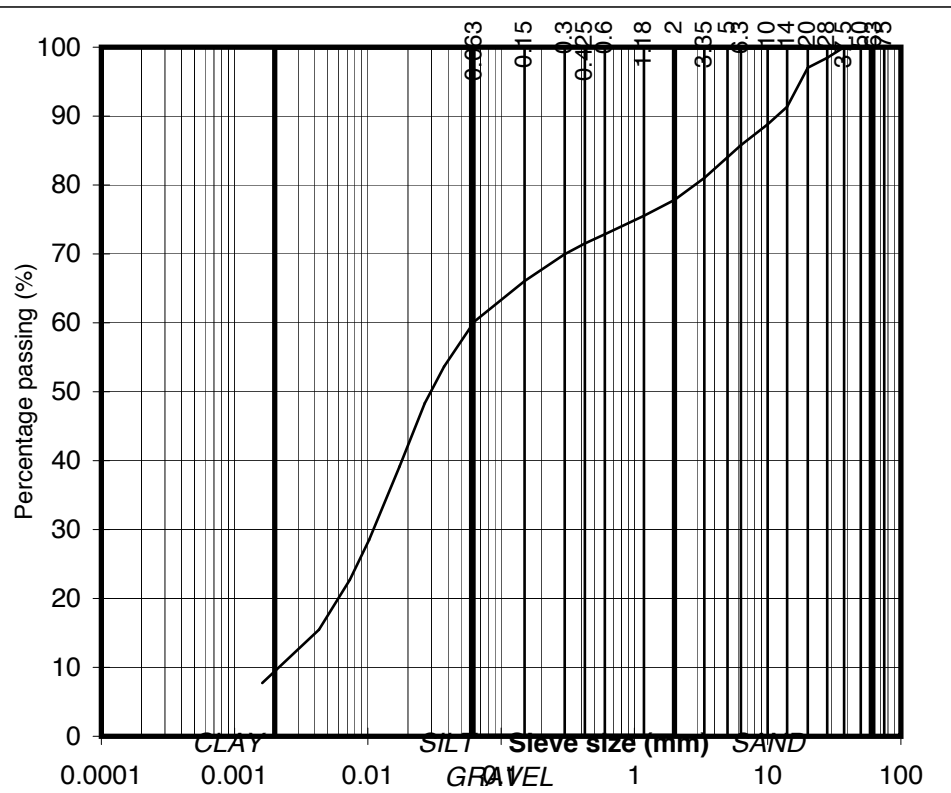
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		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing	
75	100	COBBLES
63	100	GRAVEL
50	100	
37.5	100	
28	98	
20	97	
14	91	
10	89	
6.3	86	
5	84	
3.35	81	
2	78	
1.18	76	
0.6	73	
0.425	72	
0.3	70	SILT/CLAY
0.15	66	
0.063	60	
0.037	54	
0.027	48	
0.017	39	
0.010	29	
0.007	23	
0.004	15	
0.002	8	

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 13
 SAMPLE No.: 369
 DEPTH (m): 1.00
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Dark brown slightly sandy, slightly gravelly, CLAY



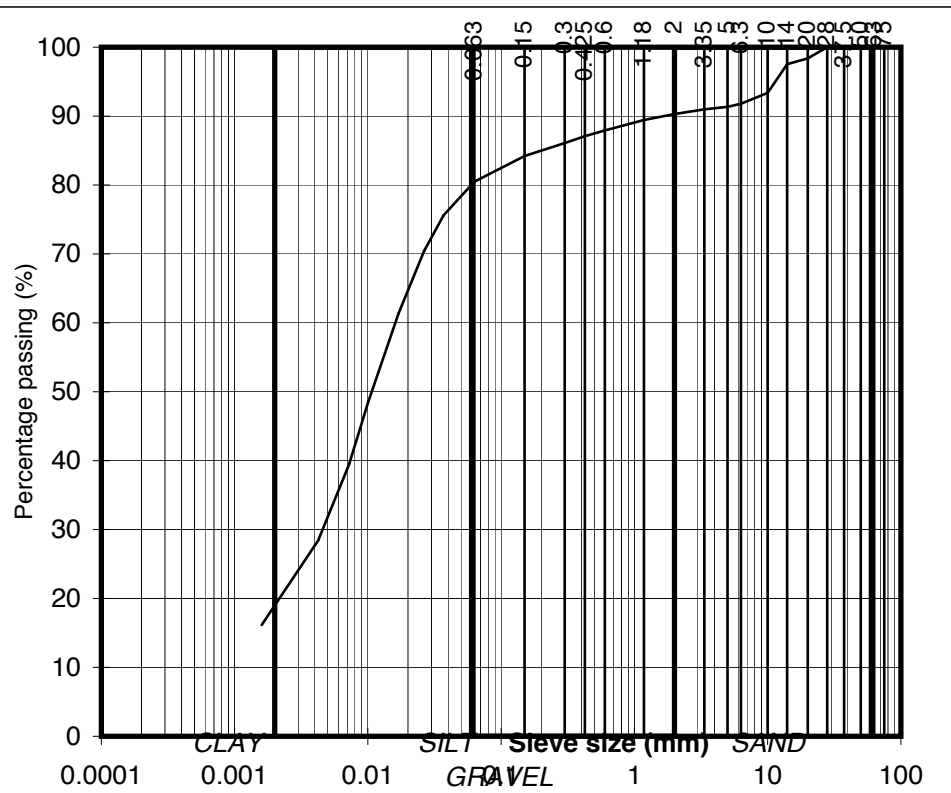
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		12/09/2007		

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing	
75	100	COBBLES
63	100	
50	100	
37.5	100	
28	100	
20	98	GRAVEL
14	98	
10	93	
6.3	92	
5	91	
3.35	91	SAND
2	90	
1.18	89	
0.6	88	
0.425	87	
0.3	86	SILT/CLAY
0.15	84	
0.063	80	
0.037	76	
0.026	70	
0.017	61	
0.010	48	
0.007	39	
0.004	28	
0.002	16	

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 16
 SAMPLE No.: 379
 DEPTH (m): 2.00
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Grey slightly sandy, slightly gravelly, CLAY



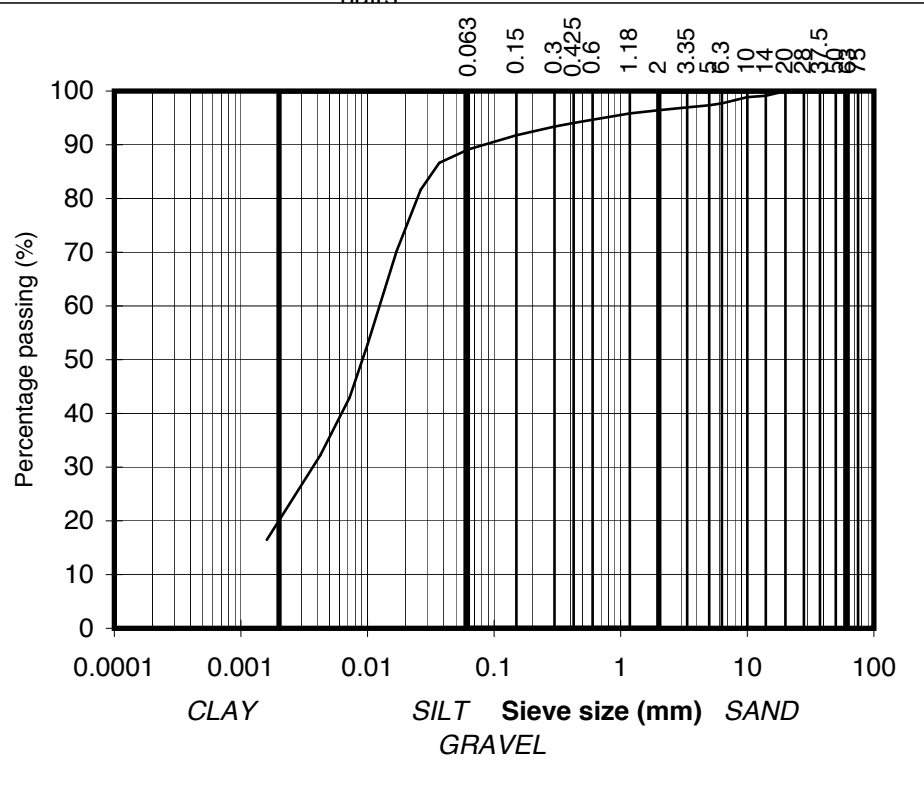
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			12/09/2007	

Determination of Particle Size Distribution

BS1377:Part2:1990 , clauses 9.2

particle size	% passing		
75	100	COBBLES	
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		GRAVEL
10	99		
6.3	98		
5	97		
3.35	97		
2	96	SAND	
1.18	96		
0.6	95		
0.425	94		
0.3	93		
0.15	92		SILT/CLAY
0.063	89		
0.037	87		
0.026	82		
0.017	70		
0.010	53		
0.007	43		
0.004	32		
0.002	16		

Contract No: 12838
 Contract: CORKAGH GRANGE HOUSING
 BH/TP No: BH 18
 SAMPLE No.: 383
 DEPTH (m): 2.00
 TEST METHOD: Wet sieve and hydrometer
 DESCRIPTION: Grey brown slightly sandy, slightly gravelly, CLAY with root hairs



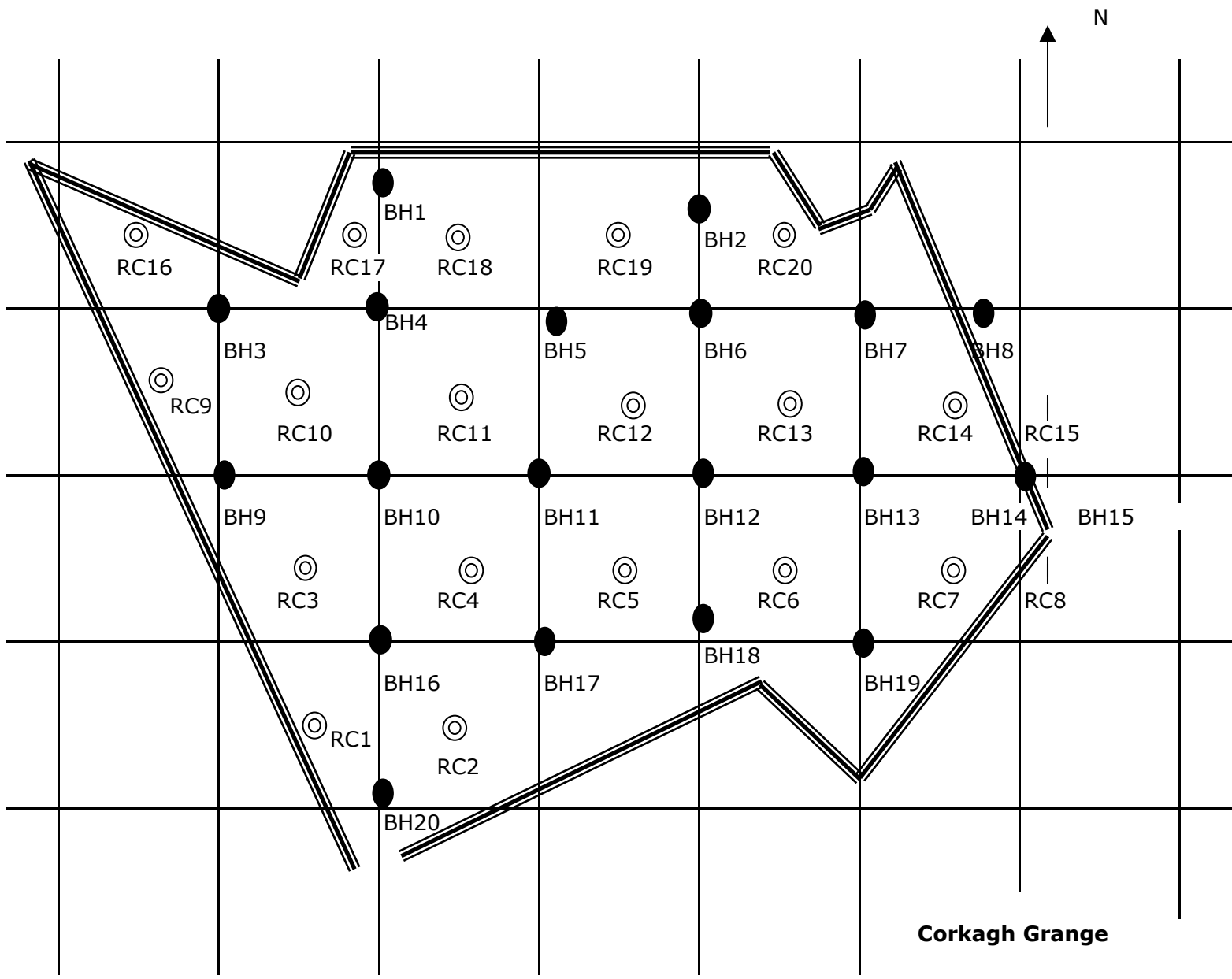
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		12/09/2007		

Appendix 4 Laboratory Testing (Environmental)

REPORT NO. SULPHATE ANALYSIS								IGSL	
CONTRACT: CORKAGH GRANGE HOUSING							CONTRACT NO 12838		
BH/TP NO.	DEPTH (M)	SAMPLE NO.	SAMPLE TYPE	TEST CODE	% Passing 2mm	SULPHUR TRIOXIDE		(so3 X 1.2) TOTAL SOIL so 4 %	pH VALUE
						WATER SO3 g/L	TOTAL SOIL so3 %		
BH 1	1.50	262	D	S	66		0.01	0.01	8.2
BH 7	1.00	374	D	S	77		0.01	0.01	8.1
BH 9	1.00	5151	D	S	73		0.04	0.04	8.3
BH 13	1.00	369	D	S	78		0.01	0.01	8.2
BH 17	1.00	5143	D	S	100		0.01	0.01	7.1
BH 19	1.00	368	D	S	53		0.01	0.01	8.2

TEST CODE W = WATER S = SOIL A = AQUEOUS SOIL EXTRACT(2:1)

Appendix 5 Site Plans





APPROXIMATE LOCATION OF SITE INVESTIGATION BOREHOLES [IGSL 2007 Survey]

OS MAP No: 3326-A, C, 7 & 13


 ARCHITECTS' DEPARTMENT,
 COUNTY HALL, TALLAGHT, DUBLIN 24
 TEL: 01-414 9000, FAX: 01-414 9209
 COUNTY ARCHITECT
 EDDIE CONROY, BA(Hon.), M.Sc(Arch), FRM

No.	DATE	REVISION

SCALE:- 1:4 [Meters]
 DATE:- 18.09.2017
 DRAWN:- SUDHIR

PROJECT TITLE: PROPOSED HOUSING SITE AT CORKAGH / GRANGE, NANGOR ROAD, CLONDALKIN, DUBLIN 22
 DRAWING TITLE: APPROXIMATE LOCATION OF SITE INVESTIGATION BOREHOLES [IGSL 2007 Survey]
 SENIOR ARCHITECT: ANNE LYNCH
 PROJECT ARCHITECT:

DRAWING NO:
07015-1-006
 REV.