

**Attachment 07**

**Borehole Logs & Cross-section**

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**GEOTECHNICAL BORING RECORD** **I.G.S.L.**

REPORT NO.		BOREHOLE NO.: MW 01	
CONTRACT: Monitoring Installations		SHEET: 1 of 1	
CLIENT: Bord Na Mona	BOREHOLE DIAM.(mm) 200	DATE STARTED: 2.4.98	DATE COMPLETED: 2.4.98
LOCATION: Clonbollogue, County Offaly	BOREHOLE DEPTH 4.30	BORED BY: I.G.S.L.	LOGGED BY: I.G.S.L.
	CASING DEPTH (m) 4.30		

DOWNHOLE DEPTH (m)	DESCRIPTION	SYMBOLIC LOG	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS
					REFERENCE NUMBER	SAMPLE TYPE	DEPTH RECOVERED	
0	Soft brown PEAT							Depth N
-1								
-2								
-3	Firm blue grey silty very sandy gravelly CLAY with cobbles			2.60				
-4	Dense fine to coarse sandy GRAVEL with cobbles and boulders			3.60				
-5				4.30				
-6	Refusal							
-7					<i>Installation Details</i>			
-8					1. Slotted from 4.30 - 3.30m 2. Gravel Pack 3.30 - 4.30m 3. Bentonite seals 3.30 - GL 4. Installed Protective covers			
-9								

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Remarks.  
  
Hard Strata Boring  
From 4.20 - 4.30 for 2hrs

Water level observations during boring				
DATE	HOLE DEPTH	CASING DEPTH	DEPTH TO WATER	REMARKS
2.4	3.80	3.80	3.80	Strike
	3.80	3.80	3.60	15 mins
	4.30	Nil	3.40	Bh End

FIELD TEST KEY: U-U100, Db-Disturbed Sample, S-SPT, W-Water Sample, R-Refusal.

REPORT NO.		GEOTECHNICAL BORING RECORD				I.G.S.L.			
CONTRACT: Monitoring Installations				BOREHOLE NO.: MW 02		SHEET: 1 of 1			
CLIENT: Bord Na Mona				BOREHOLE DIAM.(mm) 200		DATE STARTED: 31.3.98			
LOCATION: Clonbollogue, County Offaly				BOREHOLE DEPTH 6.00		DATE COMPLETED: 31.3.98			
				CASING DEPTH (m) 6.00		BORED BY: I.G.S.L.			
						LOGGED BY: I.G.S.L.			
DOWNHOLE DEPTH (m)	DESCRIPTION	SYMBOLIC LOG	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	
					REFERENCE NUMBER	SAMPLE TYPE	DEPTH RECOVERED		
0	Soft brown PEAT			0.50				Depth N	
-1	Firm blue grey silty very sandy gravelly CLAY with cobbles								
-2									
-3									
-4				4.20					
-5	Dense fine to coarse sandy GRAVEL with cobbles and boulders								
-6				6.00					
-7	Refusal								
-8									
-9									
Remarks. Standing from 9.30 - 11.15 (1.75hrs) waiting for access.  Hard Strata Boring  From 4.20 - 4.50 for 1.75hrs From 4.80 - 5.10 for 0.75hrs From 5.90 - 6.00 for 1.25hrs					Water level observations during boring				
					DATE	HOLE DEPTH	CASING DEPTH	DEPTH TO WATER	REMARKS
					31.3	3.30	3.30	3.30	strike
						3.30	3.30	3.30	20 mins
						5.90	5.90	5.90	strike
						5.90	5.90	0.90	20 mins
						6.00	Nil	0.40	Bh End
FIELD TEST KEY: U-U100, Db-Disturbed Sample, S-SPT, W-Water Sample, R-Refusal.									

REPORT NO. **GEOTECHNICAL BORING RECORD** **I.G.S.L.**

CONTRACT:	Monitoring Installations	BOREHOLE NO.:	MW 03
CLIENT:	Bord Na Mona	SHEET:	1 of 1
LOCATION:	Clonbollogue, County Offaly	BOREHOLE DIAM.(mm)	200
		BOREHOLE DEPTH	4.30
		CASING DEPTH (m)	4.30
		DATE STARTED:	1.4.98
		DATE COMPLETED:	1.4.98
		BORED BY:	I.G.S.L.
		LOGGED BY:	I.G.S.L.

DOWNHOLE DEPTH (m)	DESCRIPTION	SYMBOLIC LOG	ELEVATION (mOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS
					REFERENCE NUMBER	SAMPLE TYPE	DEPTH RECOVERED	
0	Soft brown PEAT							Depth N
-1				1.60				
-2	Firm blue grey silty very sandy gravelly CLAY with cobbles			2.50				
-3	Dense fine to coarse sandy GRAVEL with cobbles and boulders			4.00				
-4	Stiff light brown silty gravelly CLAY			4.20				
-4	Cobbles / Boulders / Broken limestone			4.30				
-5	Refusal							
-6								
-7								
-8								
-9								

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- Installation Details*
1. Slotted from 4.30 - 1.10m
  2. Gravel Pack 4.30 - 1.10m
  3. Bentonite seals 1.10 - 0.60m
  4. Installed Protective covers

Remarks.  Hard Strata Boring  From 4.20 - 4.30 for 1.75hrs	Water level observations during boring				
	DATE	HOLE DEPTH	CASING DEPTH	DEPTH TO WATER	REMARKS
	1.4	2.20	2.20	2.20	strike
		2.20	2.20	2.10	20 mins
		4.20	4.20	4.20	strike
		4.20	4.20	2.00	20 mins
	4.30	Nil	2.00	Bh End	

FIELD TEST KEY: U-U100, Db-Disturbed Sample, S-SPT, W-Water Sample, R-Refusal.

REPORT NO.		GEOTECHNICAL BORING RECORD				I.G.S.L.			
CONTRACT: Monitoring Installations		BOREHOLE NO.: MW 04		SHEET: 1 of 1		DATE STARTED: 2.4.98			
CLIENT: Bord Na Mona		BOREHOLE DIAM.(mm) 200		DATE COMPLETED: 2.4.98		BORED BY: I.G.S.L.			
LOCATION: Clonbollogue, County Offaly		BOREHOLE DEPTH 3.50		LOGGED BY: I.G.S.L.		CASING DEPTH (m) 3.50			
DOWNHOLE DEPTH (m)	DESCRIPTION	SYMBOLIC LOG	ELEVATION (MOD)	DEPTH (m)	SAMPLES			FIELD TEST RESULTS	
					REFERENCE NUMBER	SAMPLE TYPE	DEPTH RECOVERED		
0	Soft brown PEAT							Depth N	
-1									
-2				2.20					
-3	Firm blue grey silty very sandy gravelly CLAY with cobbles			3.40					
-4	Dense fine to coarse sandy GRAVEL with fragments of limestone ( presumed cobbles and boulders )			3.50					
-5	Refusal								
-6									
-7									
-8									
-9									
Remarks.  Hard Strata Boring  From 3.40 - 3.50 for 1hr					Installation Details				
					1. Slotted from 3.50 - 1.50m 2. Gravel Pack 3.50 - 1.50m 3. Bentonite seals 1.50 - 0.50m 4. Installed Protective covers				
					Water level observations during boring				
					DATE	HOLE DEPTH	CASING DEPTH	DEPTH TO WATER	REMARKS
					2.4	3.50	Nil	2.10	Bh End
FIELD TEST KEY: U-U100, Db-Disturbed Sample, S-SPT, W-Water Sample, R-Refusal.									

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# Log of Borehole: MW 09

Project No: T320

Project: Clonbullogue Ash Repository Site

Date: December 2001

Client: Bord na Mona Waste

Logged by: Sarah Casey

Site Location: Clonbullogue

SUBSURFACE PROFILE				SAMPLE			Well Data	Remarks
Depth (m)	Symbol	Geological Description	Depth/Elev	Number	Sample Interval	Recovery		
0		Ground Surface						
0		<i>Peat</i> Soft brown peat	0.0					concrete base
1								static water level
2								
2.4		<i>Subsoil</i> Grey/brown gritty clay with some clobbes present; Firm, plastic and sticky clay.	2.4					back fill packing
3.6			3.6					
5.1		<i>Subsoil</i> poorly sorted coarse gravels (cobbles and boulders); clay supported matrix; loose.	5.1					bentonite seal at the bedrock/subsoil interface
6.9		<i>Bedrock</i> Broken weathered Limestone. Calcite veins; traces of clay;	6.9					2-inch uPVC standing pipe
7.8		<i>Bedrock</i> Grey, fine grained LIMESTONE; number of small cavities (20-30cm) present; limestone weathered in places.	7.8					washed pea gravel pack
11.0		<i>Bedrock</i> Dark grey/black LIMESTONE; fine grained; fossils (crinoids) present; from 8.4-9.5 m bands of darker limestone present (20-30 cm apart); 9.5-9.6 m cavity present (evidence of clay)	11.0					2-inch uPVC slotted pipe
15.1		<i>Bedrock</i> Dark grey, fine grained LIMESTONE, very few fossils present; patches of darker/black rock.	15.1					
15.1		End of Borehole	15.1					

Drilled By: Glovers Site Investigations

Hole Size: 100 mm

Drill Method: CQ Wireline/Diamond Rotary coring

Datum: 69.018

Drill Date: 11th September 2001

Sheet: 1 of 1

# Log of Borehole: MW 10

Project No: T320

Project: Clonbullogue Ash Repository Site

Client: Bord na Mona Waste

Site Location: Clonbullogue

Date: December 2001

Logged by: Sarah Casey

SUBSURFACE PROFILE				SAMPLE			Well Data	Remarks
Depth (m)	Symbol	Geological Description	Depth/Elev	Number	Sample Interval	Recovery		
0		Ground Surface	0.0					concrete base  static water level  back filled pack 2-inch uPVC standing pipe Bentonite seal at the bedrock/subsoil interface  2-inch slotted uPVC pip  washed clean pea-gravel pack
0-1	Peat	Soft brown peat						
1-2.6	Subsoil	Greyey gravelly CLAY with clobbes	2.6					
2.6-3.6	Subsoil	Fine grained to Course GRAVELs (cobbles and boulders);	3.6					
3.6-6.4	Bedrock	Broken Weathered LIMESTONE, fine grained and grey in colour	6.4					
6.4-6.9	Bedrock	Broken weathered LIMESTONE. grey; fine grained with Calcite veins & clay matrix present; numerous cavities present; rocks show pock marks;	6.9					
6.9-7.8	Bedrock	Broken weathered LIMESTONE. grey; fine grained with Calcite veins & clay matrix present; numerous cavities present; rocks show pock marks;	7.8					
7.8-10.0	Bedrock	Grey heavily weathered, fine grained LIMESTONE; cavities (20-30cm) present;	10.0					
10.0-11								
11								

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Drilled By: Glovers Site Investigations	Hole Size: 100 mm
Drill Method: CQ Wireline/Diamond Rotary coring	Datum: 70.74
Drill Date: 14th September 2001	Sheet: 1 of 1



# Log of Borehole: MW 04

Project No.: T320

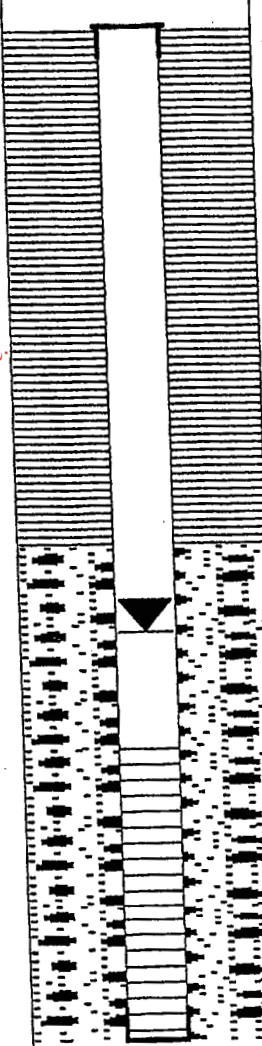

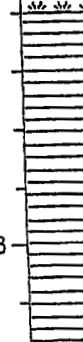
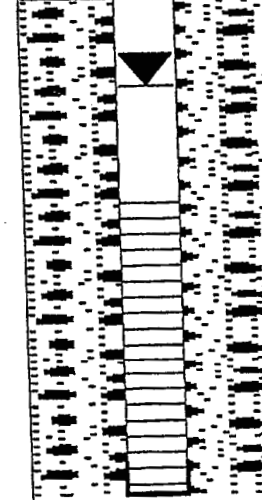

Project: Clonbullogue Ash Repository Site

Client: Bord na Mona Waste

Site Location: Clonbullogue

Date: December 2001

Logged by: Sarah Casey

SUBSURFACE PROFILE				SAMPLE			Well Data	Remarks
Depth (m)	Symbol	Geological Description	Depth/Elev	Number	Sample Interval	Recovery		
0		Ground Surface	0.0					bentonite seal at top of casing
0		<i>Peat</i> Soft brown peat						
2		<i>Subsoil</i> Grey/brown coloured gritty clay with few cobbles present; Firm, plastic and sticky to the touch;	2.2					back fill pack
3								
3.4		<i>Subsoil</i> Fine to coarse grained poorly sorted gravels (cobbles and boulders) within a clay supported matrix; loose.	3.5					
4		End of Borehole						

Drilled By: I.G.S.L

Drill Method: Shell and Augur

Drill Date: April 1998

Hole Size: 100 mm

Datum: 71.02

Sheet: 1 of 1

# Log of Borehole: MW 08

Project No.: T320

Project: Clonbullogue Ash Repository Site

Client: Bord na Mona Waste

Site Location: Clonbullogue

Date: December 2001

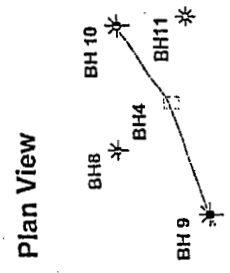
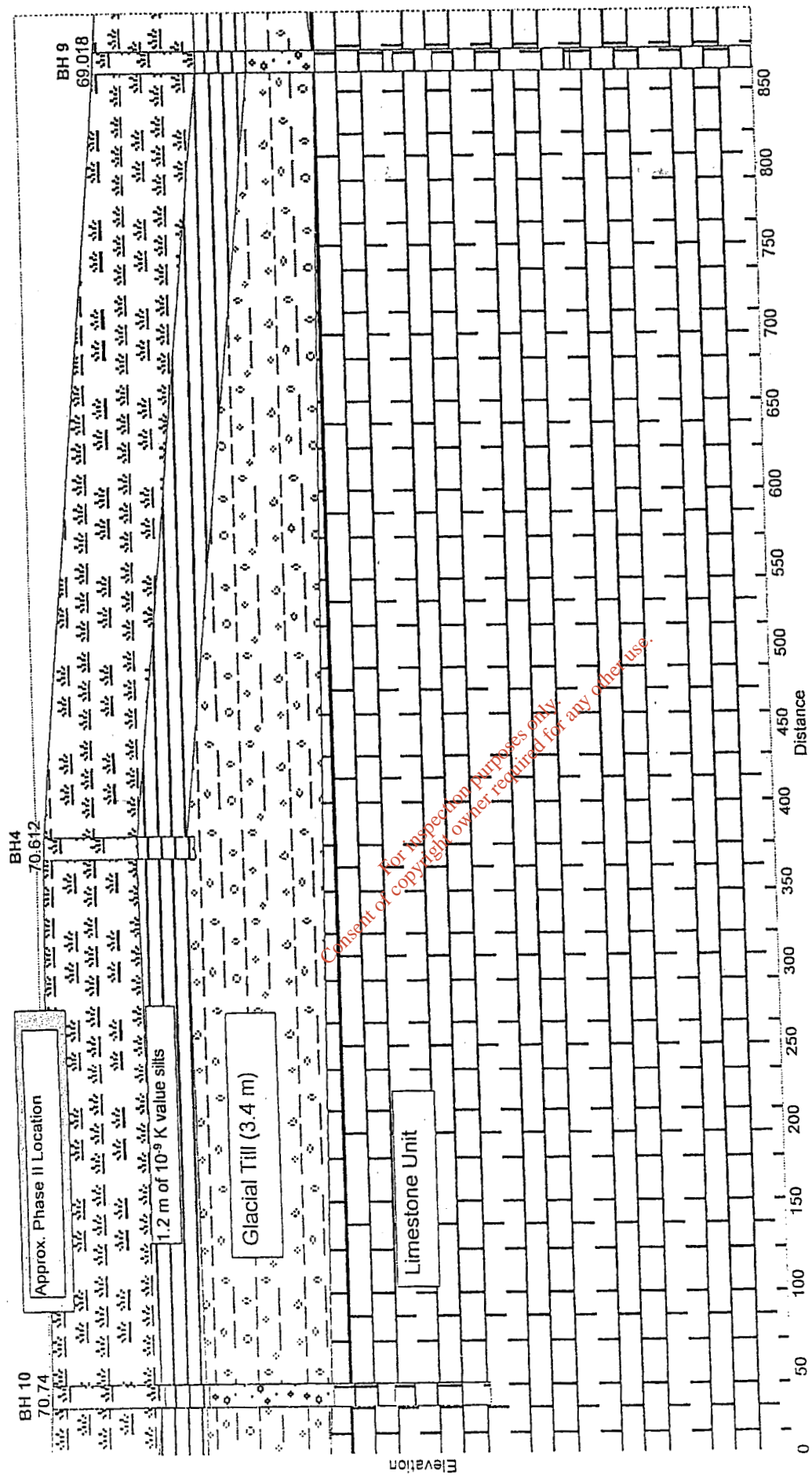
Logged by: Sarah Casey

SUBSURFACE PROFILE				SAMPLE			Well Data	Remarks
Depth (m)	Symbol	Geological Description	Depth/Elev	Number	Sample Interval	Recovery		
0		Ground Surface	0.0				<p>bentonite seal at top of casing</p> <p>2-inch uPVC standing pipe</p> <p>back fill pack</p> <p>static water level</p> <p>bentonite seal at the bedrock- subsoil interface</p> <p>Washed pea gravel pack</p> <p>2-inch uPVC slotted pipe</p>	
0-1		<i>Peat</i> Soft brown peat						
1-1.6		<i>Subsoil</i> Grey/brown coloured gritty clay with few cobbles present; Firm, plastic and sticky to the touch;	1.6					
1.6-2.5		<i>Subsoil</i> Fine to coarse grained poorly sorted gravels (cobbles and boulders) within a clay supported matrix; loose.	2.5					
2.5-4.5		<i>Bedrock</i> Grey, fine to medium grained limestone; weathered in places, cavities present; calcite veins in places	4.5					
4.5-10.0								
10.0		End of Borehole	10.0					

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Drilled By: Glovers Site Investigations  
 Drill Method: CQ Wireline/Diamond Rotary coring  
 Drill Date: 10th September 2001

Hole Size: 100 mm  
 Datum: 70.612  
 Sheet: 1 of 1



- Legend**
- Limestone
  - Tills
  - peat
  - glacial silts
- k = Permeability Co-efficient

**Project: Clonbullogue**  
 Project Number: T320  
 Location: Ash Repository Site  
 Drawn By: S. Casey  
 Date: 2/02/02

Scale Bar  
 0 100

**BORD NA MÓNA**  
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