

A.5.1.1.3

N6 Galway City Outer Bypass Contract 3 Menlough to Garraun North

January to March 2004

A.5.1.1.3

Samples				Earthworks															
Hole	Depth	Type	Description	CBR Top	CBR Base	CBR Top w%	CBR Base w%	CBR Surch kg.	γ_b Mg/m ³	Comp Type	w% (Opt) <Nat>	γ_d (max) Mg/m ³	ρ_s Mg/m ³	% ret 20/37.5 mm	MCV				
TP408	0.50-0.70	B	Silty very sandy GRAVEL	0.2	0.2	49	45	13.6	1.70	2.5kg	(11)	(1.51)	2.65	12/19					
				26	25	13	17	13.6	1.64	2.5kg	<47>	1.15							
				25	15	2.9	3.6	13.6	1.47	2.5kg	15	1.43							
				22	22	8.1	9.1	13.6	1.60	2.5kg	3.2	1.42							
				31	32	12	13	13.6	1.69	2.5kg	8.6	1.47							
									1.63	MCV	13	1.50						31	15.4
									1.67	MCV	16	1.41						31	13.8
									1.71	MCV	2.1	1.63						31	9.8
					1.74	MCV	8.4	1.58			31	9.8							
															12.6				
TP412	0.50-1.00	B	Silty SAND and GRAVEL	0.7	1.0	24	23	13.6	2.02	2.5kg	(14)	(1.81)	2.65	4.0/6.5					
				3.7	2.8	19	18	13.6	2.06	2.5kg	<24>	1.63							
				22	13	15	16	13.6	2.08	2.5kg	19	1.74							
				30	34	11	12	13.6	2.00	2.5kg	15	1.80							
				36	30	7.4	7.3	13.6	2.00	2.5kg	12	1.79							
									1.88	2.5kg	7.4	1.75							
									1.93	MCV	21	1.60						11	3.6
									1.98	MCV	18	1.67						11	7.0
					2.07	MCV	14	1.81			11	12.4							
					2.01	MCV	7.4	1.87			11	16.0							
					1.99	MCV	7.2	1.86			11	14.3							
TP415	0.50-0.70	B	Silty very sandy GRAVEL	0.3	0.3	28	28	13.6	1.97	2.5kg	(17)	(1.82)	2.65	12/9.4					
				3.1	2.8	20	23	13.6	2.04	2.5kg	<28>	1.54							
				23	25	8.8	8.8	13.6	1.73	2.5kg	21	1.68							
				20	22	13	10	13.6	1.92	2.5kg	8.8	1.59							
				19	25	15	16	13.6	1.92	2.5kg	12	1.72							
									2.09	2.5kg	15	1.81							
									1.87	MCV	26	1.49						21	1.8
									2.10	MCV	19	1.77						21	10.7
					1.97	MCV	6.4	1.85			21	17.1							
					2.21	MCV	12	1.98			21	15.9							
					2.09	MCV	13	1.85			21	12.6							
					2.15	MCV	16	1.86			21	10.2							
					2.04	MCV	16	1.75			21	8.2							
TP419	1.00-1.30	B	Clayey very sandy GRAVEL	0.6	1.2	17	17	13.6	2.17	2.5kg	(12)	(1.94)	2.65	8.7/2.7					
				6.8	5.8	14	12	13.6	2.18	2.5kg	<17>	1.86							
				28	28	10	9.0	13.6	2.09	2.5kg	13	1.93							
				30	32	7.0	7.0	13.6	2.02	2.5kg	9.6	1.91							
				31	29	0.7	0.9	13.6	2.02	2.5kg	7.0	1.89							
									1.80	2.5kg	0.8	1.79							
									2.05	MCV	16	1.77						11	1.8
									2.12	MCV	11	1.90						11	8.4
					2.20	MCV	8.6	2.03			11	15.4							
					2.02	MCV	6.3	1.90			11	15.2							
					2.00	MCV	0.8	1.99			11	17.4							

Remarks

Form 6/2


Laboratory - Compaction, CBR & MCV Summary

Project

N6 Galway City Outer Bypass: Contract 3

Contract

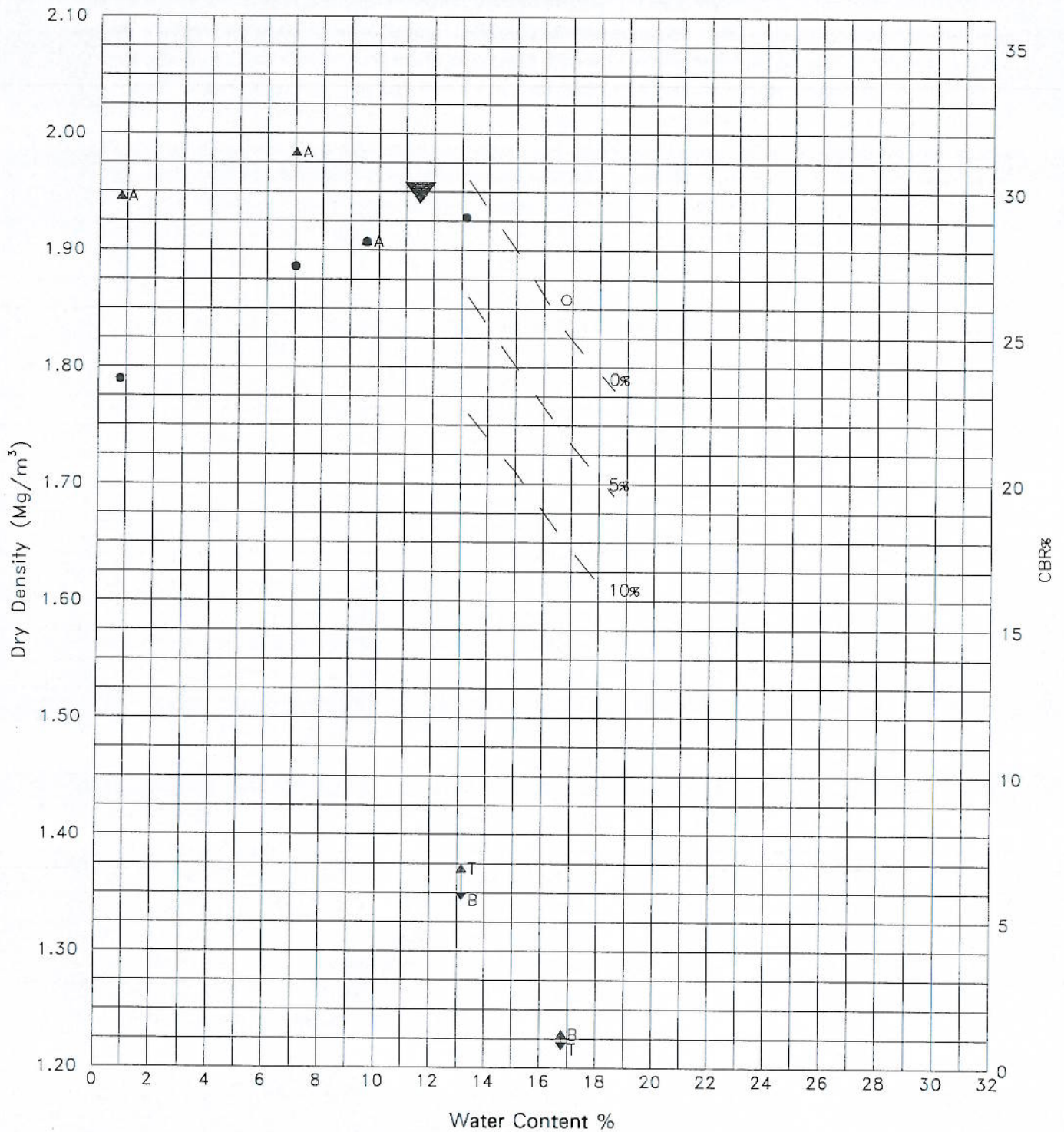
KC3267

 Exploration Associates

Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

Sheet

2



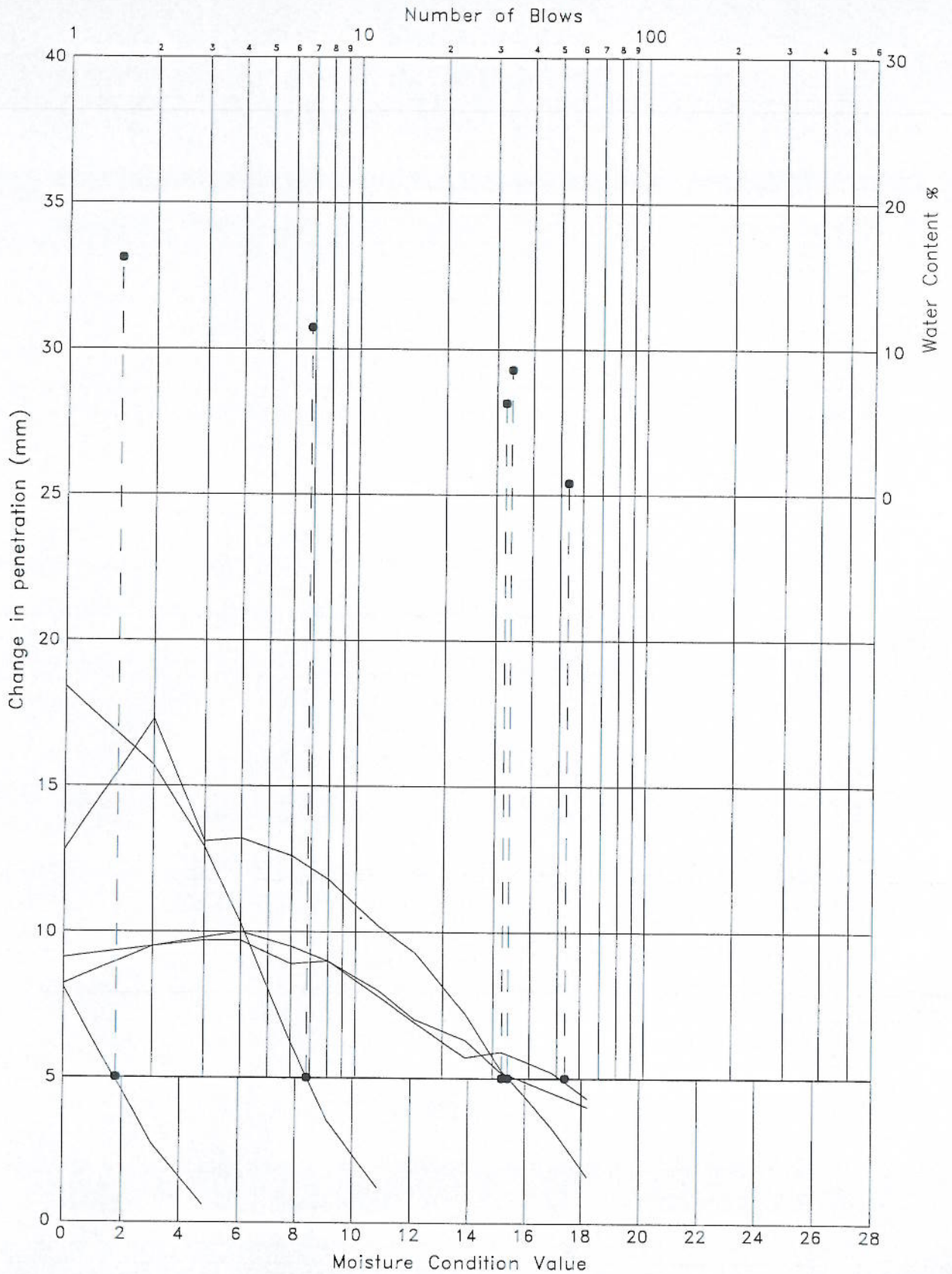
- Moisture Content/Dry Density
- Compaction at Natural Water Content
- ▼ Maximum Dry Density/Optimum Water Content
- ▼ CBR% Top
- ▲ CBR% Bottom
- ▲ CBR% Average (if Top and Bottom are within 10%)


Type of Test/Mould	2.5Kg/CBR	Description Clayey very sandy GRAVEL	Hole	TP419
Particle Density Assumed	2.65 Mg/m ³		Depth	1.00 -1.30
Maximum Dry Density	1.94 Mg/m ³		Type	B
Optimum Water Content	12 %			
% retained 37.5mm sieve	3			
% retained 20mm sieve	9			

Remarks

Laboratory - Moisture Content/ Dry Density Relationship	Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatlewa Galway County Council	Contract KC3267
Exploration Associates		

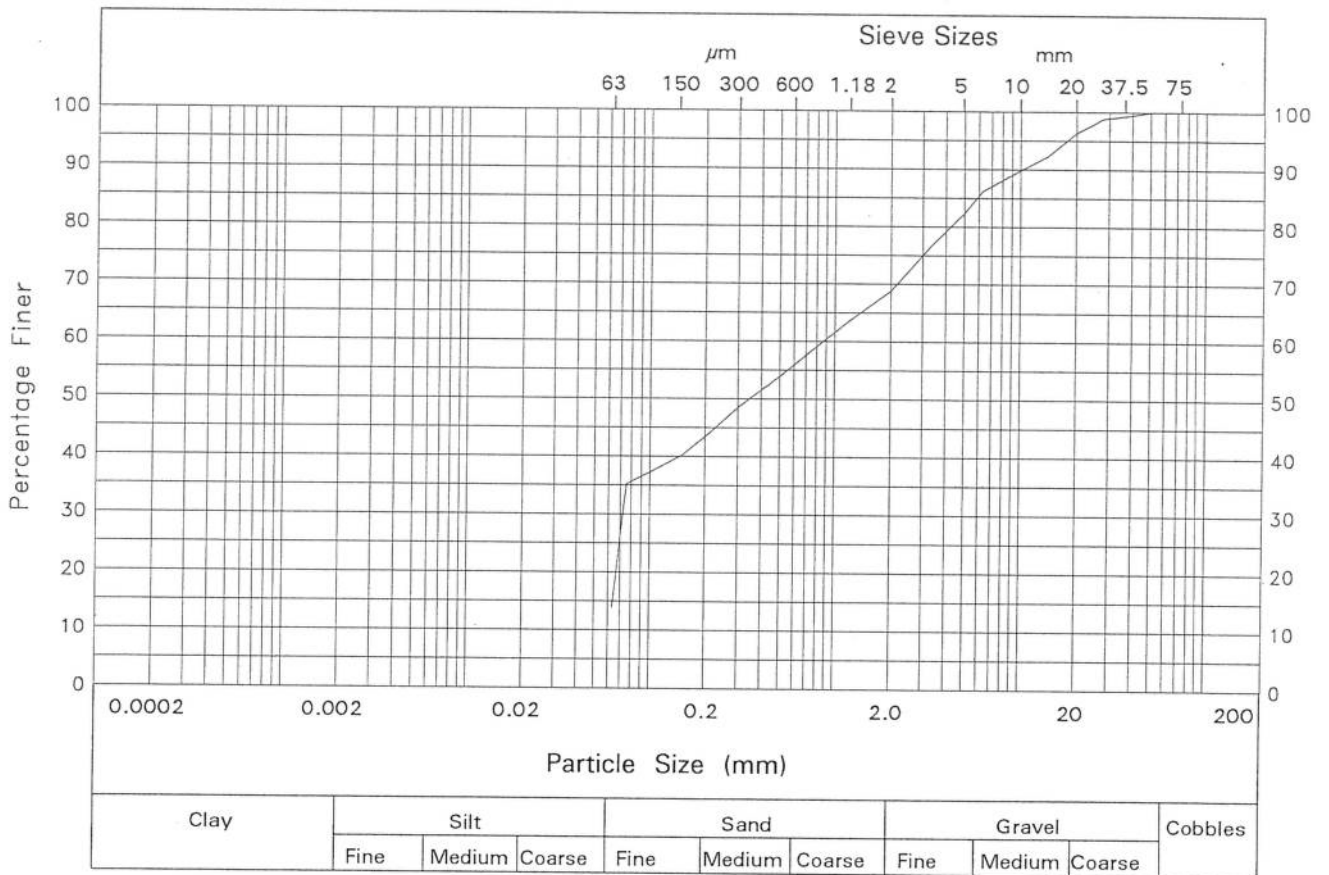
Form 54/0



% retained on 20mm sieve 11	Description Clayey very sandy GRAVEL	Hole TP419 Depth 1.00 -1.30 Type B
Remarks		
Laboratory - MCV  Exploration Associates	Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatlewa Galway County Council	Contract KC3267

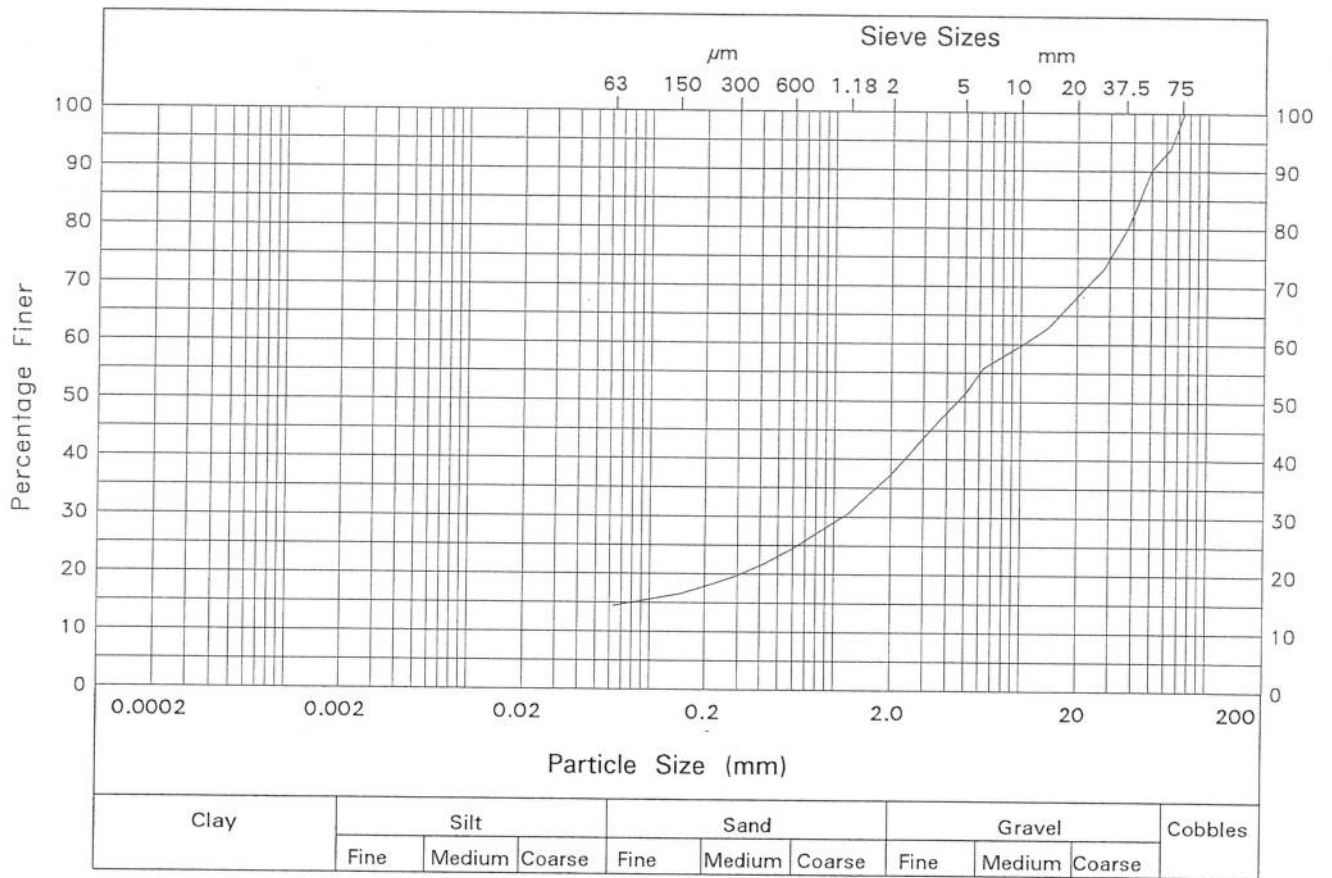
Borehole	Top Depth (mBGL)	Bottom Depth (mBGL)	Rock Description	Test Direction (PL/PD/R)	Core/Lump Diam/Width (mm)	Platen Separation D (initial) D (failure) (mm)	Equip Diam (mm)	Failure Loa (kN)	Is P/De ² Mpa	Correction Factor (De/50) ^{0.45}	Is x F Mpa	Remarks
RC422	3.80	-	Granite	R	68	68	75.6	8.2	1.4	1.1	1.6	good fracture
RC422	4.17	-	Granite	PL	67	67	75.0	3.3	0.6	1.1	0.7	good fracture
RC422	6.35	-	Granite	R	68	68	75.6	9.0	1.6	1.1	1.8	good fracture
RC426	4.35	-	Granite	PL	67	67	73.9	28.0	5.1	1.1	5.9	good fracture possibly following incipient
RC426	8.40	-	Granite	PL	67	67	74.5	24.5	4.4	1.1	5.0	good fracture.
RC428A	2.30	-	Granite	R	67	67	73.9	27.0	4.9	1.1	5.6	good fracture possibly following incipient
RC428A	6.20	-	Granite	PL	67	67	73.9	25.0	4.6	1.1	5.2	good fracture
RC433	3.30	-	Granite	R	67	67	73.3	22.2	4.1	1.1	4.7	chipped fracture
RC435	2.43	-	Granite	R	68	68	71.5	30.2	5.9	1.1	6.8	good fracture.
RC435	7.10	-	Granite	PL	68	68	72.1	46.0	8.9	1.1	10.2	chipped fracture
RC437	2.20	-	Granite	PL	77	77	84.6	6.5	0.9	1.2	1.1	good fracture parallel to subvertical fracture
RC437	7.30	-	Granite	PL	77	77	86.9	50.0	6.6	1.2	8.0	no break
RC439	2.60	-	Granite	PL	79	79	86.9	24.0	3.2	1.2	3.9	good fracture possibly following incipient.
RC439	8.65	-	Granite	PL	76	76	84.0	21.4	3.0	1.2	3.7	good fracture
RC442A	7.53	-	Granite	R	78	78	85.7	12.9	1.8	1.2	2.1	good fracture possibly following incipient.
RC451	2.86	-	Granite	R	77	77	85.2	8.2	1.1	1.2	1.4	chipped fracture
RC451	4.07	-	Granite	R	77	77	85.2	5.0	0.7	1.2	0.8	good fracture
RC451A	1.20	-	Granite	R	76	76	84.6	5.0	0.7	1.2	0.8	good fracture possibly following incipient.
RC451A	3.55	-	Granite	PL	77	77	84.6	36.5	5.1	1.2	6.2	good fracture
RC455A	5.93	-	Granite	PL	78	78	88.0	50.0	6.5	1.2	7.9	no break
RC455A	7.45	-	Granite	PL	76	76	85.8	50.0	6.8	1.2	8.2	no break - slight chipping
RC457	4.64	-	Granite	R	80	80	86.2	9.5	1.3	1.2	1.6	chipped fracture possibly following incipient
RC457	5.54	-	Granite	R	76	76	84.6	20.2	2.8	1.2	3.4	fracture follows incipient fracture
RC464A	6.30	-	Granite	PL	79	79	88.6	4.1	0.5	1.2	0.6	good fracture
RC464A	7.90	-	Granite	PL	79	79	88.6	19.8	2.5	1.2	3.1	good fracture
RC467	2.60	-	Granite	PL	69	69	75.6	1.7	0.3	1.2	0.3	good fracture
RC467	8.25	-	Granite	R	69	69	72.0	39.0	7.5	1.2	8.7	good fracture
RC469	5.95	-	Granite	R	78	78	83.4	31.0	4.5	1.2	5.4	good fracture possibly following incipient

Diametric Tests



Particle Size	% Passing	Particle Size	% Passing
50 mm	100	425 µm	52
37.5 mm	99	300 µm	48
28 mm	99	212 µm	44
20 mm	96	150 µm	40
14 mm	92	75 µm	35
10 mm	90	63 µm	14
6.3 mm	86		
5 mm	82		
3.35 mm	77		
2 mm	69		
1.18 mm	63		
600 µm	56		
Hole BH424	Description Clayey very gravelly SAND		
Depth 0.80 -1.50			
Type B			
Test Performed Wet	Uniformity Coefficient not applicable.		

Form 25/4



Particle Size	% Passing	Particle Size	% Passing
75 mm	100	1.18 mm	31
63 mm	94	600 μm	25
50 mm	90	425 μm	22
37.5 mm	80	300 μm	20
28 mm	73	212 μm	18
20 mm	68	150 μm	17
14 mm	63	75 μm	15
10 mm	60	63 μm	14
6.3 mm	56		
5 mm	51		
3.35 mm	45		
2 mm	37		

Hole TP319A	Description MADE GROUND: Silty very sandy GRAVEL
Depth 0.50 -0.60	
Type B	
Test Performed Wet	Uniformity Coefficient not applicable.

Form 25/4

Laboratory - Particle Size Plot

Project

Contract



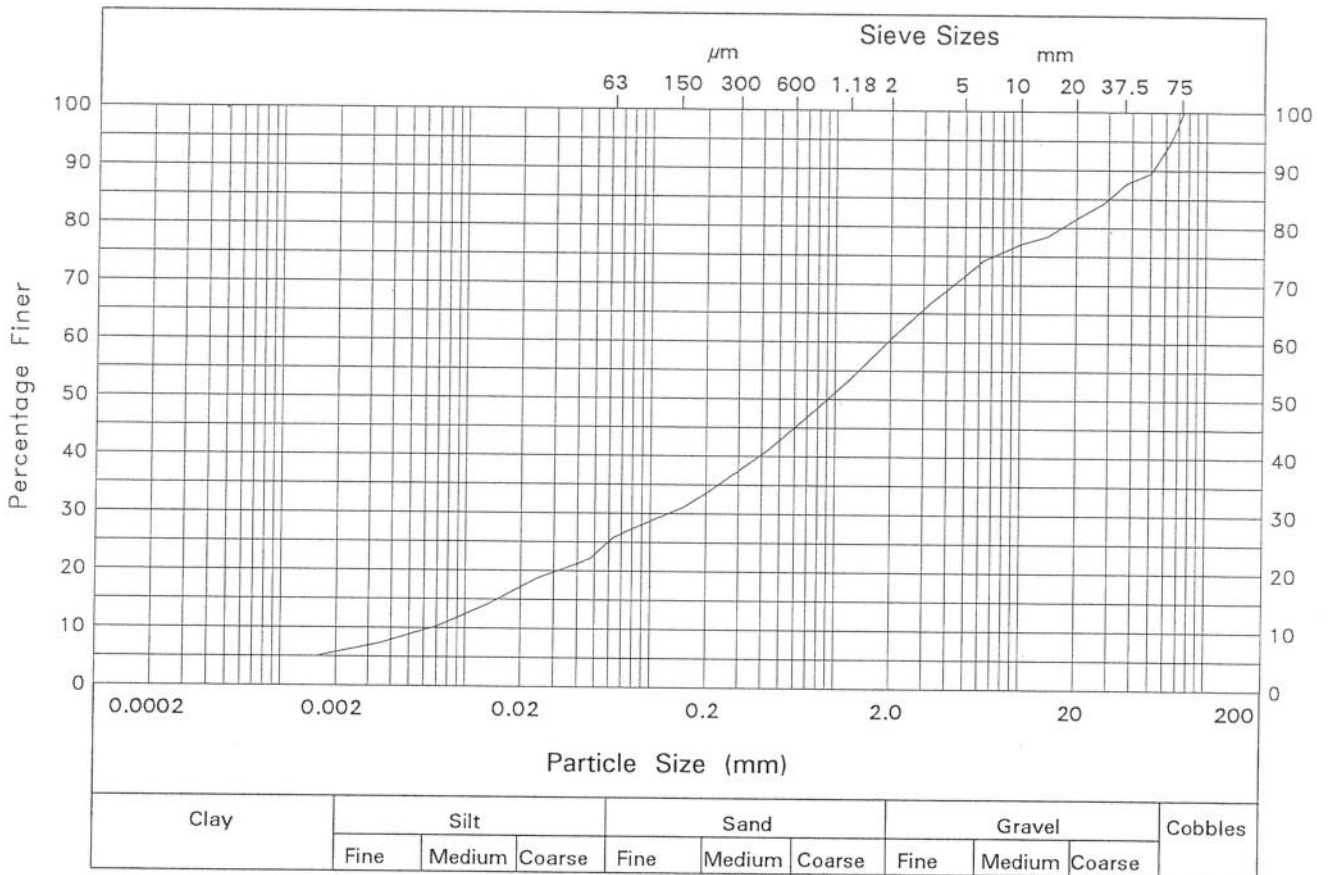
Exploration Associates

N6 Galway City Outer Bypass: Contract 3

KC3267

Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

Sheet



Particle Size	% Passing	Particle Size	% Passing
75 mm	100	1.18 mm	53
63 mm	95	600 µm	45
50 mm	89	425 µm	41
37.5 mm	88	300 µm	37
28 mm	84	212 µm	34
20 mm	82	150 µm	31
14 mm	78	75 µm	27
10 mm	77	63 µm	26
6.3 mm	74	47 µm	22
5 mm	71	25 µm	19
3.35 mm	67	13 µm	14
2 mm	61		

Hole TP324	Description Slightly sandy to sandy gravelly organic CLAY
Depth 0.70 -0.90	
Type B	
Test Performed Dry	Uniformity Coefficient not applicable.

Form 25/4

Laboratory - Particle Size Plot

Project

Contract

N6 Galway City Outer Bypass: Contract 3

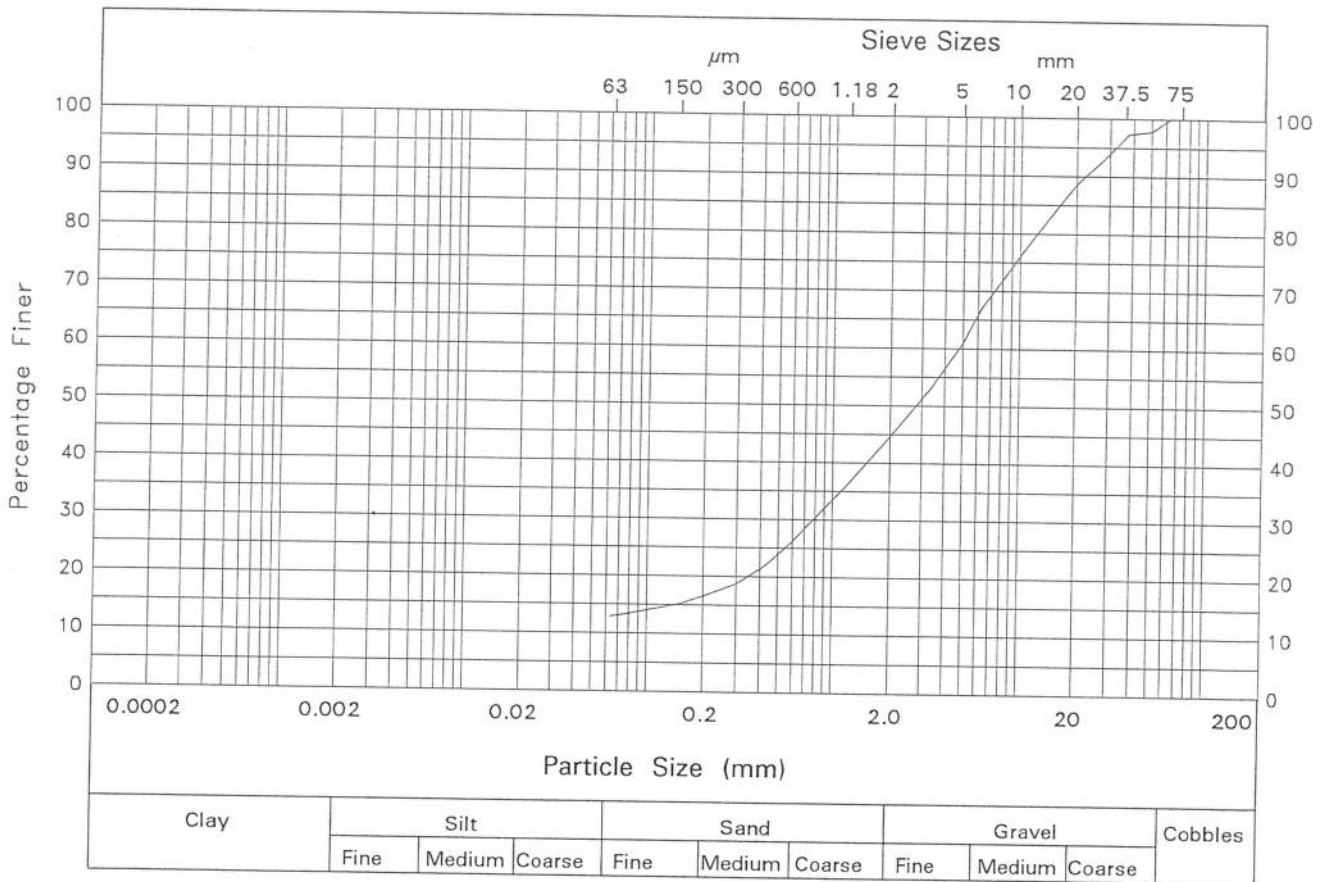
KC3267

Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

Sheet



Exploration Associates



Particle Size	% Passing	Particle Size	% Passing
63 mm	100	600 μ m	26
50 mm	98	425 μ m	22
37.5 mm	97	300 μ m	19
28 mm	93	212 μ m	17
20 mm	89	150 μ m	15
14 mm	82	75 μ m	13
10 mm	76	63 μ m	13
6.3 mm	67		
5 mm	61		
3.35 mm	53		
2 mm	45		
1.18 mm	36		
Hole TP419	Description Clayey very sandy GRAVEL		
Depth 1.00 -1.30			
Type B			
Test Performed Wet	Uniformity Coefficient not applicable.		

Form 25/4

Laboratory - Particle Size Plot

Project

Contract

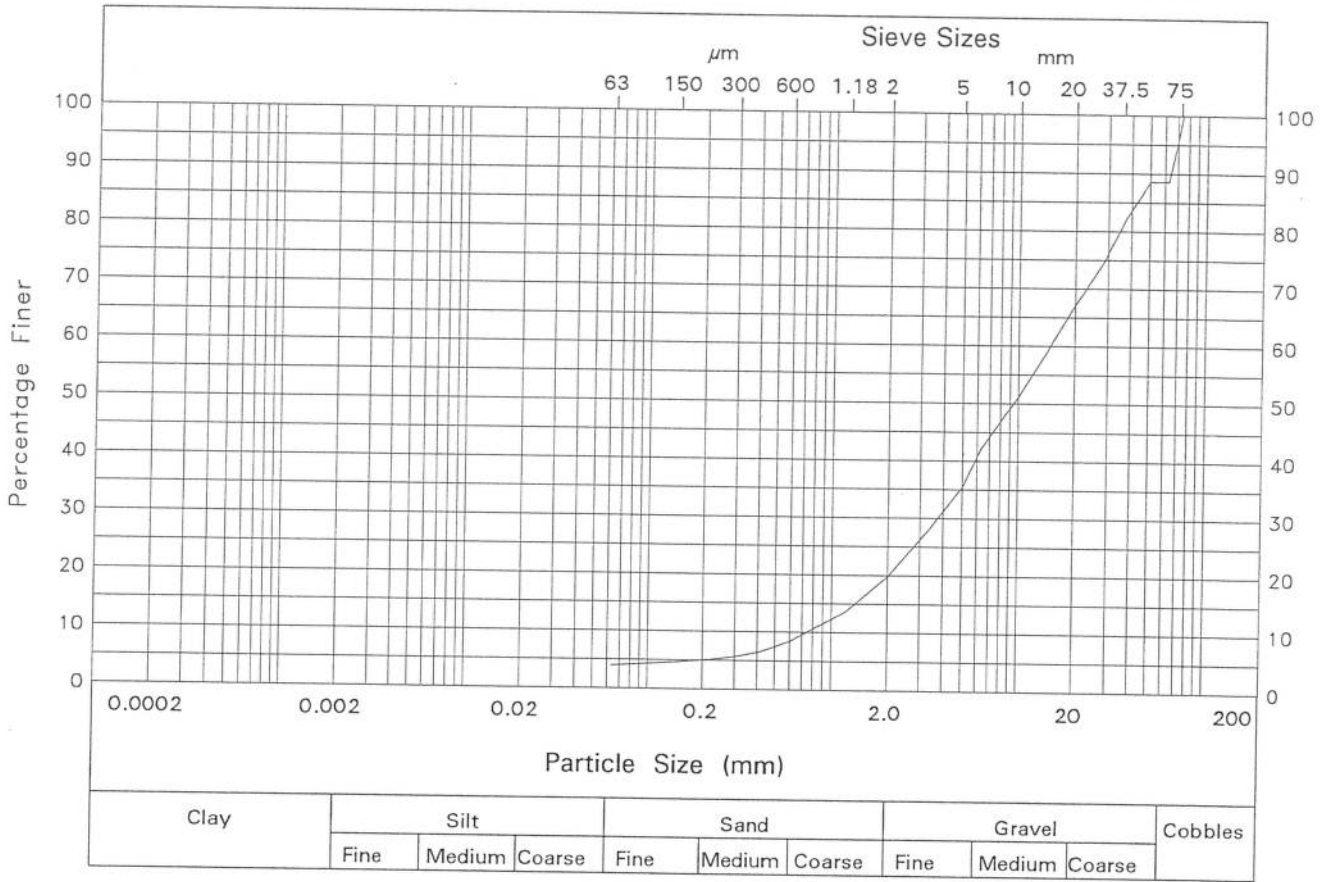


Exploration Associates

N6 Galway City Outer Bypass: Contract 3
Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

KC3267

Sheet



Particle Size	% Passing	Particle Size	% Passing
75 mm	100	1.18 mm	14
63 mm	89	600 μm	8
50 mm	89	425 μm	7
37.5 mm	82	300 μm	6
28 mm	74	212 μm	5
20 mm	67	150 μm	5
14 mm	59	75 μm	4
10 mm	51	63 μm	4
6.3 mm	42		
5 mm	35		
3.35 mm	28		
2 mm	20		
Hole TP423	Description Slightly silty sandy GRAVEL		
Depth 1.00 -1.40			
Type B			
Test Performed Wet	Uniformity Coefficient = 19		

Form 25/4

Laboratory - Particle Size Plot

Project

N6 Galway City Outer Bypass: Contract 3

Contract

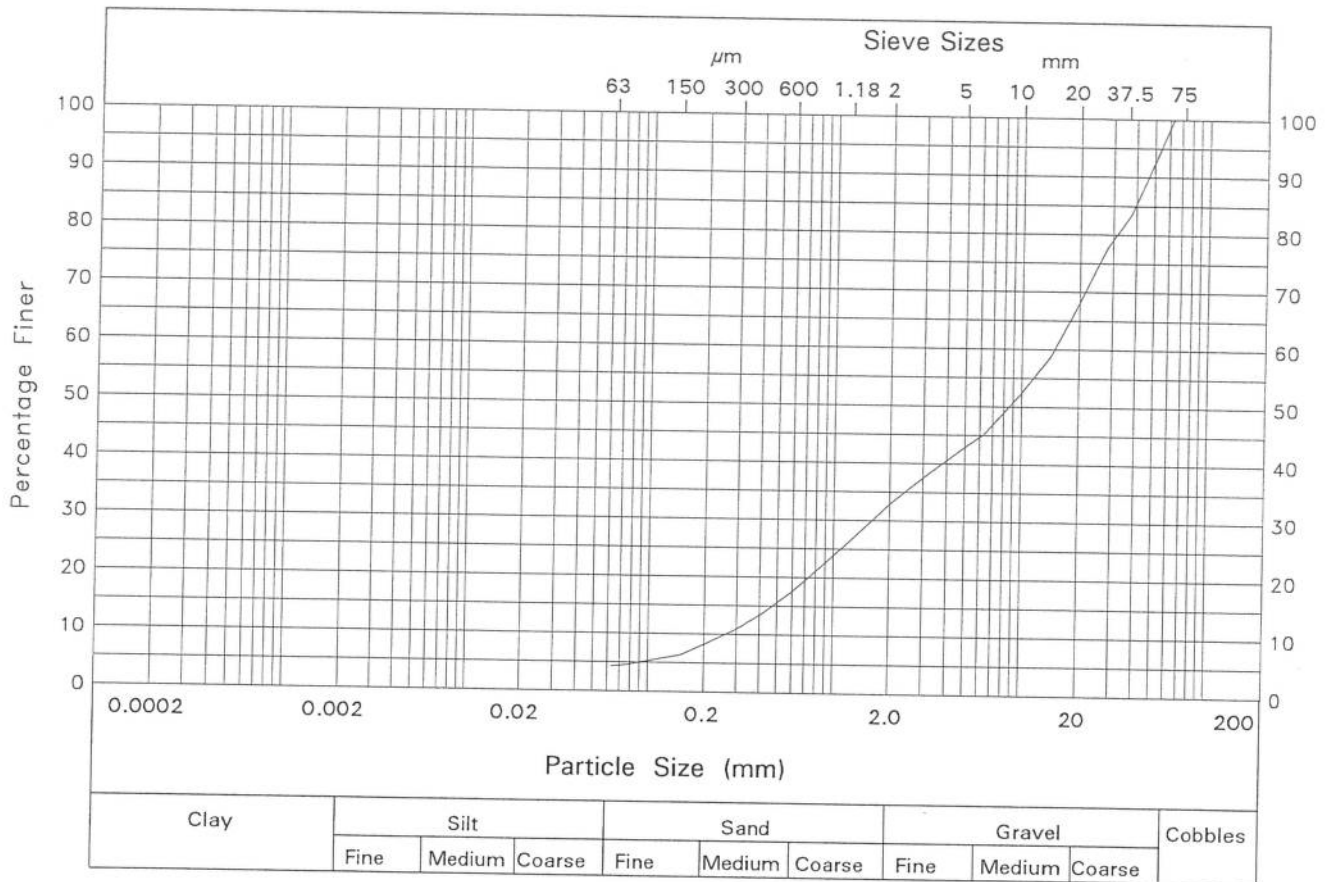
KC3267



Exploration Associates

Ground Investigation: Forramoyle West to Gortatlewa
Galway County Council

Sheet



Particle Size	% Passing	Particle Size	% Passing
63 mm	100	600 μm	18
50 mm	92	425 μm	14
37.5 mm	84	300 μm	11
28 mm	78	212 μm	9
20 mm	68	150 μm	6
14 mm	59	75 μm	5
10 mm	52	63 μm	4
6.3 mm	45		
5 mm	43		
3.35 mm	39		
2 mm	33		
1.18 mm	26		
Hole TP425	Description Silty very sandy GRAVEL		
Depth 0.10 -0.30			
Type B			
Test Performed Wet	Uniformity Coefficient = 57		

Samples				Classification					Strength			Other Tests
Hole	Depth	Type	Description	<425 I _p	Prep w _L	w _p	Water %	γ _{b3} Mg/m ³	Test	σ ₃ kPa	C kPa	
BH358	1.20	D	PEAT				994					pH = 4.8 SO ₃ (2:1) = 0.60g/l Passing 2mm = 77%
BH358	1.50 - 1.95	D	PEAT				1051					
BH358	2.20	D	PEAT				1044					
BH358	2.85 - 3.30	D	Slightly sandy gravelly CLAY				18					
BH424	0.20	D	PEAT				144					Org = 6.8% Passing 2mm = 51%
BH424	0.80 - 1.50	B	Clayey very gravelly SAND									pH = 7.0 Particle Size analysis SO ₃ (2:1) = 0.10g/l Passing 2mm = 64%
BH424	1.00	D	Clayey very gravelly SAND				11					
BH424	1.20	D	Clayey very gravelly SAND				23					
TP319A	0.50	D	MADE GROUND: Silty very sandy GRAVEL				37					
TP319A	0.50 - 0.60	B	MADE GROUND: Silty very sandy GRAVEL	57 29	425μ 95	Sieve 66						Particle Size analysis
TP321	0.10	D	TOPSOIL: Slightly sandy CLAY				117					
TP322A	0.30 - 0.60	B	Slightly silty sandy GRAVEL	52 56	425μ 132	Sieve 76						pH = 5.4 Particle Size analysis SO ₃ (2:1) = 0.11g/l Passing 2mm = 40%
TP322A	0.30 - 0.60	B	Slightly silty sandy GRAVEL				28					
TP323	0.50	D	PEAT				1094					
TP323	1.00	D	PEAT				701					Org = 6.8% Passing 2mm = 53% pH = 3.5 SO ₃ (2:1) = 0.75g/l Passing 2mm = 53%
TP324	0.50	D	PEAT				318					
TP324	0.70 - 0.90	B	Slightly sandy to sandy gravelly organic CLAY	68 22	425μ 67	Sieve 45						Particle Size analysis

Remarks

Form 10/2

Laboratory - Results Summary

Project

N6 Galway City Outer Bypass: Contract 3
Ground Investigation: Fonnamoyle West to Gortalla
Galway County Council

Contract

KC3267



Exploration Associates

Sheet

1

Samples				Classification					Strength			Other Tests
Hole	Depth	Type	Description	<425 I _p	Prep w _L	w _p	Water %	γ _b ₃ Mg/m	Test	σ ₃ kPa	C kPa	
TP324	0.70	D	Slightly sandy to sandy gravelly organic CLAY				30					
TP325A	0.50	D	PEAT				883					
TP326	0.50	D	PEAT				1373					
TP326	1.00	D	Slightly sandy gravelly organic CLAY				75					
TP326	1.00 - 1.20	B	Slightly sandy gravelly organic CLAY	67 63	425μ 128	Sieve 65						Particle Size analysis
TP327	0.50	D	PEAT				1019					
TP328	0.50	D	PEAT				1305					
TP328	0.50 - 1.00	B	PEAT									Org = 11.0% Passing 2mm = 77% pH = 5.4 SO ₃ (2:1) = 0.46g/L Passing 2mm = 77%
TP328	1.50	D	PEAT				1008					
TP328A	0.50	D	PEAT				1028					
TP328A	1.50	D	PEAT				990					
TP328A	1.50 - 2.00	B	PEAT									pH = 5.2 Ps = 1.08 measured SO ₃ (2:1) = 0.59g/L Passing 2mm = 53%
TP328A	2.50	D	PEAT				1133					
TP330A	1.00	D	PEAT				813					
TP330A	1.00	B	PEAT									Org = 11.7% Passing 2mm = 57%
TP330A	2.00	D	PEAT				1306					
TP332	1.00	D	PEAT				851					
TP332	2.00	D	Very clayey SAND and GRAVEL				18					
TP332	2.00	B	Very clayey SAND and GRAVEL									Particle Size analysis
TP334	0.50	D	PEAT				1286					

Remarks

Form 10/2

Laboratory - Results Summary

Project

N6 Galway City Outer Bypass: Contract 3
Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

Contract

KC3267



Exploration Associates

Sheet

2

Samples				Classification					Strength			Other Tests
Hole	Depth	Type	Description	< 425 I _p	Prep w _L	w _p	Water %	γ _{b3} Mg/m	Test	σ ₃ kPa	C kPa	
TP413	0.30	D	PEAT				46					
TP413A	0.50	D	Clayey SAND and GRAVEL				18					
TP413A	1.50	B	Clayey SAND and GRAVEL									pH = 6.6 Particle Size analysis SO ₃ (2:1) = 0.07g/l Passing 2mm = 56%
TP413A	1.50	D	Clayey SAND and GRAVEL				7.7					
TP413B	0.70	D	Very clayey peaty GRAVEL				33					
TP413B	1.50	B	Clayey very sandy GRAVEL									Particle Size analysis Water soluble chloride content = 0.011%
TP413B	1.50	D	Clayey very sandy GRAVEL				21					
TP415	0.50	D	Silty very sandy GRAVEL				17					
TP415	0.50 - 0.70	B	Silty very sandy GRAVEL	49 13	425μ 44	Sieve 31						w% / Dry Density MCV pH = 6.0 Particle Size analysis SO ₃ (2:1) = 0.06g/l Passing 2mm = 55%
TP415	1.50	D	Sandy slightly gravelly CLAY				27					
TP417	0.20 - 0.40	B	Clayey sandy GRAVEL	47	425μ 56	Sieve NP						Particle Size analysis
TP417	0.30	D	Clayey sandy GRAVEL				18					
TP419	0.40 - 0.60	B	TOPSOIL: Slightly sandy slightly gravelly slightly organic CLAY									Org = 3.5% Passing 2mm = 62%
TP419	0.60	D	TOPSOIL: Slightly sandy slightly gravelly slightly organic CLAY				24					
TP419	1.00	D	Clayey very sandy GRAVEL				13					
TP419	1.00 - 1.30	B	Clayey very sandy GRAVEL	30 10	425μ 33	Sieve 23						w% / Dry Density MCV Particle Size analysis
TP423	0.40	D	TOPSOIL: Slightly sandy CLAY				24					

Remarks

Form 10/2

Laboratory - Results Summary

Project

N6 Galway City Outer Bypass: Contract 3
Ground Investigation: Forramoyle West to Gortaleva
Galway County Council

Contract

KC3267



Exploration Associates

Sheet

6

Samples				Classification					Strength			Other Tests
Hole	Depth	Type	Description	<425 I _p	Prep w _L	w _p	Water %	γ _{b3} Mg/m	Test	σ ₃ kPa	C kPa	
TP423	1.00	D	Slightly silty sandy GRAVEL				12					
TP423	1.00 - 1.40	B	Slightly silty sandy GRAVEL	23 12	425μ 54	Sieve 42						Org = 3.5% Passing 2mm = 32% Particle Size analysis
TP423A	0.50	D	PEAT				600					
TP423A	0.50 - 1.00	B	PEAT									pH = 5.9 Ps = 1.25 measured SO ₃ (2:1) = 0.57g/l Passing 2mm = 57%
TP423A	2.00	D	PEAT				11					
TP425	0.10 - 0.30	B	Silty very sandy GRAVEL	42 65	425μ 148	Sieve 83						Particle Size analysis
TP425	0.30	D	Silty very sandy GRAVEL				32					
TP425	1.00	D	Slightly sandy gravelly CLAY				14					
TP427	0.20	D	PEAT				64					
TP429	0.20	D	PEAT				476					
TP429	1.00	D	Silty sandy GRAVEL				58					Org = 5.9% Passing 2mm = 26% pH = 5.4 SO ₃ (2:1) = 0.06g/l Passing 2mm = 26%
TP429	1.00	B	Silty sandy GRAVEL	59 26	425μ 89	Sieve 63						Particle Size analysis
TP432	0.50	D	MADE GROUND: Clayey very sandy GRAVEL				21					
TP432	0.50 - 1.00	B	MADE GROUND: Clayey very sandy GRAVEL									w / Dry Density CBR pH = 6.9 Particle Size analysis SO ₃ (2:1) = 0.17g/l Passing 2mm = 62%
TP432	1.50	D	MADE GROUND: Clayey very sandy GRAVEL				21					
TP432	1.50 - 2.00	B	MADE GROUND: Clayey very sandy GRAVEL									Particle Size analysis
TP434	0.50	D	PEAT				851					

Remarks

Form 10/2

Laboratory - Results Summary

Project

N6 Galway City Outer Bypass: Contract 3
Ground Investigation: Forramoyle West to Gortatlewa
Galway County Council

Contract

KC3267



Exploration Associates

Sheet

7

Borehole Log

Drilled by MK Logged by DB Checked by ROR	Start 28/01/2004 End 28/01/2004	Equipment, Methods and Remarks Dando 175 Cable Percussion 150mm diameter from 0.0m to 1.55m.	Depth from 0.00m to 1.55m Diameter 150mm Casing Depth	Ground Level Coordinates National Grid +21.52 mOD E 124527.99 N 224612.43
---	--	--	---	---

Samples and Tests					Strata			
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
0.20 0.20	D 1 W 4		28/01/2004	0800	Plastic dark pseudo fibrous PEAT	(0.80)		
0.50-0.85	U 2	55 blows				0.80 +20.72		
0.80-1.50	B 6				Coarse SAND and GRAVEL** Recovered as clayey very gravelly SAND, locally grey sandy slightly gravelly CLAY. Gravel is subangular fine to coarse of granite.	(0.70)		
1.00	D 3							
1.20	D 5							
1.50-1.58	SPT S	100 (25 for 50mm/100 for 25mm)	28/01/2004 1.50	1000 0.60	GRANITE**	1.50 +20.02 1.55 +19.97		
EXPLORATORY HOLE ENDS AT 1.55 m								

Groundwater Entries			Depth sealed (m)		Depth Related Remarks		Chiselling		
No.	Struck (m)	Post strike behaviour			From	to (m)	Depths (m)	Time	Tools used
1	0.80	Rose to 0.20 m after 20 minutes.			1.55		1.50 -1.55	60 mins	
						Borehole terminated on obstruction - presumed bedrock.			

Groundwater Monitoring

Hole No.	Instrument Type	Tip Depth (mBGL)	Reading				Comments
			Date	Time (hhmmss)	Water Level (mBGL)	Head (m above Tip)	
BH358	SP	3.20	19 Feb 2004		0.25	2.95	
BH358	SP	3.20	29 Mar 2004		0.25	2.95	
BH358	SP	3.20	14 Apr 2004		0.20	3.00	
RC394A	SP	6.00	11 Mar 2004		0.00	6.00	
RC394A	SP	6.00	29 Mar 2004		0.19	5.81	
RC394A	SP	6.00	14 Apr 2004		0.00	6.00	
RC402	SPIE	15.30	29 Mar 2004		1.68	13.62	
RC402	SPIE	15.30	14 Apr 2004		0.10	15.20	
RC404	SPIE	13.80	14 Apr 2004		0.80	13.00	
RC407	SPIE	10.00	11 Mar 2004		2.10	7.90	
RC407	SPIE	10.00	29 Mar 2004		1.28	8.72	
RC407	SPIE	10.00	14 Apr 2004		1.40	8.60	
RC422	SP	7.00	19 Feb 2004		0.90	6.10	
RC422	SP	7.00	29 Mar 2004		0.97	6.03	
RC422	SP	7.00	14 Apr 2004		0.80	6.20	
RC428A	SPIE	8.00	11 Mar 2004		0.10	7.90	
RC428A	SPIE	8.00	29 Mar 2004		0.10	7.90	
RC428A	SPIE	8.00	14 Apr 2004		0.14	7.86	
RC435	SPIE	7.00	19 Feb 2004		2.19	4.81	
RC435	SPIE	7.00	29 Mar 2004		2.10	4.90	
RC435	SPIE	7.00	14 Apr 2004		2.00	5.00	
RC442A	SP	4.50	11 Mar 2004		0.10	4.40	Borehole blocked at 5.50m.
RC442A	SP	4.50	11 Mar 2004		0.10	4.40	Borehole blocked at 5.50m.
RC442A	SP	4.50	29 Mar 2004		0.27	4.23	
RC442A	SP	4.50	14 Apr 2004		0.30	4.20	
RC451A	SP	10.00	19 Feb 2004		1.88	8.12	
RC451A	SP	10.00	29 Mar 2004		0.80	9.20	
RC451A	SP	10.00	14 Apr 2004		0.50	9.50	
RC455A	SPIE	10.00	11 Mar 2004		6.70	3.30	
RC455A	SPIE	10.00	29 Mar 2004		6.63	3.37	
RC455A	SPIE	10.00	14 Apr 2004		6.50	3.50	
RC464A	SP	8.60	11 Mar 2004		0.50	8.10	
RC464A	SP	8.60	29 Mar 2004		0.49	8.11	
RC464A	SP	8.60	14 Apr 2004		0.20	8.40	
RC469	SPIE	4.80	11 Mar 2004		3.50	1.30	Borehole blocked at 5.80m.
RC469	SPIE	4.80	11 Mar 2004		3.50	1.30	Borehole blocked at 5.80m.
RC469	SPIE	4.80	29 Mar 2004		3.01	1.79	
RC469	SPIE	4.80	14 Apr 2004		2.60	2.20	
RC4B	SPIE	10.70	29 Mar 2004		1.94	8.76	
RC4B	SPIE	10.70	14 Apr 2004		2.20	8.50	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleiva KC3267
 Project No. Galway County Council
 Carried out for Galway County Council

Sheet

Sheet 1 of 1

Groundwater Monitoring



Hole No.	Instrument Type	Tip Depth (mBGL)	Reading				Comments
			Date	Time (hhmmss)	Water Level (mBGL)	Head (m above Tip)	
BH358	SP	3.20	19 Feb 2004		0.25	2.95	
BH358	SP	3.20	29 Mar 2004		0.25	2.95	
RC394A	SP	6.00	11 Mar 2004		0.00	6.00	
RC394A	SP	6.00	29 Mar 2004		0.19	5.81	
RC402	SPIE	15.30	29 Mar 2004		1.68	13.62	
RC404	SPIE	13.80	29 Mar 2004		1.05	12.75	
RC407	SPIE	10.00	11 Mar 2004		2.10	7.90	
RC407	SPIE	10.00	29 Mar 2004		1.28	8.72	
RC422	SP	7.00	19 Feb 2004		0.90	6.10	
RC422	SP	7.00	29 Mar 2004		0.97	6.03	
RC428A	SPIE	8.00	11 Mar 2004		0.10	7.90	
RC428A	SPIE	8.00	29 Mar 2004		0.10	7.90	
RC435	SPIE	7.00	19 Feb 2004		2.19	4.81	
RC435	SPIE	7.00	29 Mar 2004		2.10	4.90	
RC442A	SP	4.50	11 Mar 2004		0.10	4.40	Borehole blocked at 5.50m.
RC442A	SP	4.50	29 Mar 2004		0.27	4.23	Borehole blocked at 5.50m.
RC451A	SP	10.00	19 Feb 2004		1.88	8.12	
RC451A	SP	10.00	29 Mar 2004		0.80	9.20	
RC455A	SPIE	10.00	11 Mar 2004		6.70	3.30	
RC455A	SPIE	10.00	29 Mar 2004		6.63	3.37	
RC464A	SP	8.60	11 Mar 2004		0.50	8.10	
RC464A	SP	8.60	29 Mar 2004		0.49	8.11	
RC469	SPIE	4.80	11 Mar 2004		3.50	1.30	Borehole blocked at 5.80m.
RC469	SPIE	4.80	29 Mar 2004		3.01	1.79	Borehole blocked at 5.80m.
RC4B	SPIE	10.70	29 Mar 2004		1.94	8.76	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Project
Project No.
Carried out for


N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva
KC3267
Galway County Council

Sheet
1 of 1



Borehole Log

Drilled by Hillards Logged by DB Checked by ROR		Start 17/02/2004 End 18/02/2004		Equipment, Methods and Remarks Rotary Cored 65mm diameter from 0.0m to 0.00m to 7.0m.		Depth from 0.00m to 7.00m Diameter 65mm Casing Depth		Ground Level +21.20 mOD Coordinates E 124228.33 National Grid N 224712.65			
Samples and Tests					Strata						
Depth	TCR SCR RCD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-1.00	0 N/A N/A			17/02/2004	0800	Sandy gravelly CLAY**		(1.30)			
1.00-2.50	23 N/A N/A					Weathered GRANITE** Recovered as pink / grey GRAVEL with occasional cobbles. Gravel is subrounded fine to coarse. Cobbles are subrounded of granite.		1.30 +19.90 (1.20)			
2.50-4.00	87 57 0			17/02/2004	1800	Moderately strong to strong pink medium to coarse grained porphyritic GRANITE. Core is cross cut by incipient fractures and quartz veins up to 2mm thick with no set spacing or orientation		2.50 +18.70			
3.80				18/02/0004	0800	Weathering: Core recovered as fresh.					
4.17						Discontinuities: Set 1: Subhorizontal 0° - 10° closely spaced undulating and rough fractures, fresh.					
4.00-5.50	97 97 0	NI 60 130				Set 2: Subvertical 65° -75° possibly widely spaced (hard to determine due to the fragmented nature of core) undulating and rough fractures, fresh.		(4.50)			
5.50-7.00 6.35	76 76 9										
				18/02/2004	1800	EXPLORATORY HOLE ENDS AT 7.00 m		7.00 +14.20		SP	
Groundwater Entries No. Struck Post strike behaviour (m)	Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m) Time Tools used						
None observed (see Key Sheet)											
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva KC3267				Borehole			
Scale 1:50				Project No. Carried out for				Galway County Council			
(c) MESG HBIII (299), 23/03/2004 11:25:01				AGS				RC422 Sheet 1 of 1			






Trial Pit Log

Logged by DB Checked by ROR	Start 05/02/2004 End 05/02/2004	Equipment, Methods and Remarks No excavating equipment used. Machine unable to gain access to location.	Dimensions and Orientation Width -  Length -	Ground Level Coordinates National Grid +14.29 mOD E 121265.86 N 222589.05		
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level (Thickness)	Legend	Backfill/Instrument
			1 Moss, thin soil and grass covering over GRANITE outcrop. EXPLORATORY HOLE ENDS AT 0.10 m	0.10 +14.19		
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m) 0.10 Trial pit terminated on presumed bedrock.			Stability Shoring Weather
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESH HBIII (298), 08/04/2004 12:25:37			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva KC3267 Project No. KC3267 Carried out for Galway County Council			Trial Pit TP316A Sheet 1 of 1



Trial Pit Log

Logged by DB Checked by ROR		Start 23/01/2004 End 23/01/2004	Equipment, Methods and Remarks No excavating equipment used Trial pit located on bedrock or boulders.	Dimensions and Orientation Width -  Length -	Ground Level +15.79 mOD Coordinates E 121290.11 National Grid N 222684.78 Offset (m) 0.00		
Samples and Tests			Strata				
Depth	Type & No.	Date Records	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
			1 Moderately strong grey coarse grained crystalline GRANITE. EXPLORATORY HOLE ENDS AT 0.00 m		0.00 +15.79		
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m)		Stability Shoring Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatlewa Project No. KC3267 Carried out for Galway County Council		Trial Pit TP317 Sheet 1 of 1		
Scale 1:25 (c) MESH HBIII (298), 22/03/2004 12:36:34							


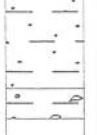

Trial Pit Log

Logged by DB Checked by ROR		Start 04/02/2004 End 04/02/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 0.55 m Length 2.10 m  60 (Deg)	Ground Level Coordinates National Grid +29.21 mOD E 121273.23 N 222974.87	
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
0.50	D 1		1 MADE GROUND: Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse.	(0.30)		
0.50-0.60	B 2		2 MADE GROUND: Silty very sandy GRAVEL with many cobbles and boulders. Locally light brown slightly sandy gravelly CLAY. Gravel is subangular, fine to coarse. Cobbles and boulders are of granite, limestone, diorite and quartzite.	0.30 +28.91		
0.50-0.60	B 3			0.60 +28.61		
			EXPLORATORY HOLE ENDS AT 0.60 m			
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m) 0.60 Trial pit terminated on obstruction - presumed bedrock			Stability Stable Shoring None Weather
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva Project No. KC3267 Carried out for Galway County Council			Trial Pit TP319A Sheet 1 of 1
Scale 1:25 <small>(c) MESH HBIII (298), 22/03/2004 12:36:44</small> 						





Trial Pit Log

Logged by DB Checked by ROR	Start 05/02/2004 End 05/02/2004	Equipment, Methods and Remarks On foot with shovel	Dimensions and Orientation Width -  Length -	Ground Level +32.48 mOD Coordinates E 121244.13 National Grid N 223071.74		
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level (Thickness)	Legend	Backfill/Instrument
			1 Firm brown slightly sandy CLAY with many plant roots EXPLORATORY HOLE ENDS AT 0.10 m	0.10 +32.38		
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m) 0.10 Trial pit terminated on obstruction - presumed bedrock of granite.		Stability good Shoring None Weather	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESG HBIII (236), 22/03/2004 12:36:49 			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortaleva Project No. KC3267 Carried out for Galway County Council		Trial Pit TP320 Sheet 1 of 1	


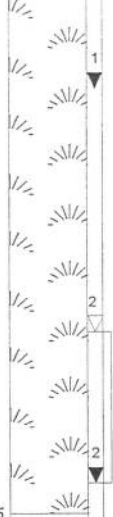

Trial Pit Log

Logged by DB Checked by ROR	Start 23/01/2004 End 23/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 1.40 m Length 4.00 m 	Ground Level Coordinates National Grid	+37.94 mOD E 121159.38 N 223274.50	
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
0.10 0.10-0.30 0.10-0.30	D 1 B 2 B 3		1 TOPSOIL: Firm dark brown slightly sandy CLAY with many rootlets	(0.30)		
			2 Firm grey gravelly CLAY with occasional cobbles. Gravel is subangular, fine to coarse of granite. Cobbles are subangular to subrounded of granite	0.30 +37.64 0.40 +37.54		
			EXPLORATORY HOLE ENDS AT 0.40 m			
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m) 0.40 Trial pit terminated on obstruction- presumed bedrock		Stability good Shoring None Weather	
Notes; For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass; Contract 3 Ground Investigation: Forramoyle West to Gortatleva Project No. KC3267 Carried out for Galway County Council		Trial Pit TP321 Sheet 1 of 1	
Scale 1:25 (c) MESH HBIII (298), 23/03/2004 12:34:53						



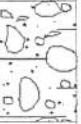
Trial Pit Log

Logged by DB Checked by ROR		Start 04/02/2004 End 04/02/2004	Equipment, Methods and Remarks Excavated using a track machine.	Dimensions and Orientation Width 0.70 m Length 2.80 m		Ground Level Coordinates National Grid	+39.08 mOD E 121158.46 N 223372.78
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.30-0.60	B 2		1 Semi spongy semi plastic, dark brown pseudo fibrous PEAT.		(0.30)		
0.30-0.60	B 3		2 Brown slightly silty sandy peaty GRAVEL with occasional cobbles. Locally slightly sandy very gravelly CLAY. Gravel is subangular, fine to coarse. Cobbles are subangular of limestone and granite.		0.30 +38.78 (0.30)		
0.50	D 1		EXPLORATORY HOLE ENDS AT 0.60 m		0.60 +38.48		
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m) 0.60 Trial pit terminated on obstruction - presumed bedrock.		Stability Moderate Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva KC3267 Project No. Carried out for Galway County Council		Trial Pit TP322A Sheet 1 of 1		
Scale 1:25 <small>(9) MESQ HBIII (298), 22/03/2004 12:36:58</small>							

Trial Pit Log

Logged by DB Checked by ROR		Start 23/01/2004 End 23/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 0.80 m Length 1.80 m  92 (Deg)	Ground Level Coordinates National Grid	+40.25 mOD E 121140.52 N 223456.56	
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.50 0.50-1.00 0.50-1.00	D 1 B 2 B 3		1 Plastic dark brown pseudo fibrous PEAT.		(1.70)		
1.00 1.00-1.50 1.00-1.50	D 4 B 5 B 6						
			EXPLORATORY HOLE ENDS AT 1.70 m		1.70 +38.55		
Depth	Type & No.	Records Date	Depth Related Remarks From to (m)		Stability	Good	
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 0.30 Slight Inflow 2 1.60 Rose to 1.10 m after 30 minutes.			1.70 Trial pit terminated on obstruction - presumed bedrock		Shoring	None	
					Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva Project No. KC3267 Carried out for Galway County Council		Trial Pit TP323 Sheet 1 of 1		
Scale 1:25 (c) MESH HBIII (298), 22/03/2004 12:37:03 							




Trial Pit Log

Logged by DB Checked by ROR		Start 04/02/2004 End 04/02/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 0.60 m Length 2.30 m  182 (Deg)	Ground Level Coordinates National Grid +46.29 mOD E 121141.46 N 223655.82		
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.30-0.50 0.30-0.50	B 2 B 3		1 Plastic brown fibrous PEAT.		(0.50)		
0.50	D 1		2 Firm to stiff grey brown slightly sandy gravelly organic CLAY with occasional cobbles and boulders. Gravel is subangular granite. Cobbles and boulders are of granite.		0.50 +45.79 (0.40)		
0.70 0.70-0.90 0.70-0.90	D 4 B 5 B 6		EXPLORATORY HOLE ENDS AT 0.90 m		0.90 +45.39		
Depth	Type & No.	Records Date	Depth Related Remarks From to (m)		Stability Moderate Shoring None Weather		
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 0.00 Flow from surface			Trial pit terminated on obstruction - presumed bedrock				
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESS HBIII (298), 23/03/2004 12:09:36			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva Project No. KC3267 Carried out for Galway County Council		Trial Pit TP324 Sheet 1 of 1		

Trial Pit Log

Logged by DB Checked by ROR		Start 04/02/2004 End 04/02/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 0.55 m Length 2.30 m		Ground Level Coordinates National Grid	+49.04 mOD E 121134.71 N 223761.31
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.50 0.50-0.60 0.50-0.60	D 1 B 2 B 3		1 Plastic brown fibrous PEAT.		(0.60)		
			EXPLORATORY HOLE ENDS AT 0.60 m		0.60 +48.44		
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks From to (m) 0.50 Trial pit terminated on obstruction - presumed bedrock of granite.		Stability Moderate Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortaleva KC3267 Carried out for Galway County Council		Trial Pit TP325A Sheet 1 of 1		


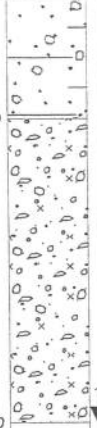

Trial Pit Log

Logged by DB Checked by ROR		Start 14/01/2004 End 14/01/2004	Equipment, Methods and Remarks Excavated using a JCB	Dimensions and Orientation Width 0.75 m Length 2.50 m	 250 (Deg)	Ground Level Coordinates National Grid	+28.78 mOD E 124085.44 N 224977.09
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.40-0.60 0.40-0.60	B 2 B 3		1 TOPSOIL: Firm to stiff brown slightly organic slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse.		(0.60)		
0.60	D 1		2 Grey mottled brown clayey very sandy GRAVEL with occasional cobbles. Locally slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular of granite.		0.60 +28.18 (0.70)		
1.00 1.00-1.30 1.00-1.30	D 4 B 5 B 6		EXPLORATORY HOLE ENDS AT 1.30 m		1.30 +27.48		
			1.30 m Bedrock recovered as angular to subangular gravel and subangular cobbles of granite.				
Depth	Type & No.	Records Date	Depth Related Remarks		Stability Good		
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			From to (m) 1.30 Trial pit terminated on obstruction - presumed granite bedrock.		Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatlewa Project No. KC3267 Carried out for Galway County Council		Trial Pit TP419 Sheet 1 of 1		
Scale 1:25							


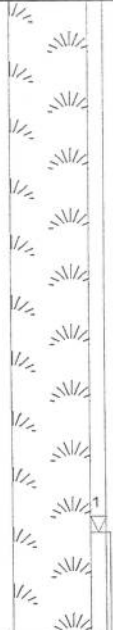
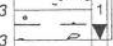
Trial Pit Log

Logged by DB Checked by ROR		Start 26/01/2004 End 26/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 1.00 m Length 3.50 m <div style="display: inline-block; border: 1px solid black; width: 20px; height: 20px; margin: 5px;"> <div style="position: absolute; top: -5px; left: 50%; transform: translate(-50%, -50%); font-size: 8px;">A</div> <div style="position: absolute; right: -5px; top: 50%; transform: translate(50%, 50%); font-size: 8px;">B</div> <div style="position: absolute; bottom: -5px; left: 50%; transform: translate(-50%, 50%); font-size: 8px;">C</div> <div style="position: absolute; left: -5px; top: 50%; transform: translate(50%, 50%); font-size: 8px;">D</div> </div> 186 (Deg)		Ground Level Coordinates National Grid +28.35 mOD E 124162.28 N 224793.69	
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
			1 Firm brown slightly sandy slightly gravelly CLAY with occasional cobbles and many plant roots. Gravel is subangular, fine to coarse granite.		(0.30)		
			EXPLORATORY HOLE ENDS AT 0.30 m 0.30 m Presumed GRANITE bedrock, recovered as grey gravel with many cobbles. Gravel is subangular fine to coarse. Cobbles are subangular.		0.30 +28.05		
Depth	Type & No.	Records Date	Depth Related Remarks		Stability Good		
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			From to (m) 0.30 Trial pit terminated on obstruction - presumed granite bedrock.		Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatleva Project No. KC3267 Carried out for Galway County Council		Trial Pit TP420 Sheet 1 of 1		
Scale 1:25 <small>(c) MESH HBIII (298), 22/03/2004 12:42:24</small>							



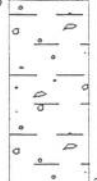

Trial Pit Log

Logged by DB Checked by ROR		Start 27/01/2004 End 27/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 1.00 m Length 4.10 m  18 (Deg)	Ground Level Coordinates National Grid	+23.00 mOD E 124421.90 N 224633.95	
Samples and Tests			Strata		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
Depth	Type & No.	Date Records	Description				
0.20-0.40 0.20-0.40	B 2 B 3		1 Firm brown slightly sandy CLAY with occasional cobbles.		(0.40)		
0.40	D 1		2 Slightly silty sandy GRAVEL with occasional cobbles. Gravel is subangular, fine to coarse. Cobbles are subangular of granite.		0.40 +22.60		
1.00 1.00-1.40 1.00-1.40	D 4 B 5 B 6		0.60-0.90 m Mottled dark brown with iron staining		(1.00)		
			EXPLORATORY HOLE ENDS AT 1.40 m		1.40 +21.60		
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m)			Depth Related Remarks From to (m)		Stability Good		
1 1.40 Slight inflow on top of rock.			1.40 Trial pit terminated on obstruction - presumed bedrock.		Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass: Contract 3 Ground Investigation: Forramoyle West to Gortatlewa Project No. KC3267 Carried out for Galway County Council		Trial Pit TP423 Sheet 1 of 1		
Scale 1:25 (c) MESG HBIII (298), 22/03/2004 12:42:29 							

Trial Pit Log

Logged by DB Checked by ROR		Start 27/01/2004 End 27/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 1.20 m Length 3.80 m  110 (Deg)	Ground Level Coordinates National Grid	+21.93 mOD E 124465.30 N 224621.04	
Samples and Tests			Strata		Depth, Level (Thickness)	Legend	Backfill/ Instruments
Depth	Type & No.	Date Records	Description				
0.50 0.50-1.00 0.50-1.00	D 1 B 2 B 3		1 Plastic dark brown pseudo fibrous PEAT with occasional wood fragments.		(2.10)		
1.50-2.00 1.50-2.00	B 5 B 6						
2.00	D 4						
			2 Firm to stiff grey slightly sandy gravelly CLAY with many cobbles. Gravel is subangular, fine to coarse granite. Cobbles are subangular granite. EXPLORATORY HOLE ENDS AT 2.20 m		2.10 +19.83 2.20 +19.73		
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 2.20 Rose to 1.75 m after 30 minutes.			Depth Related Remarks From to (m) 2.20 Trial pit terminated on obstruction - presumed bedrock.		Stability Good Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESH HBIII (298), 22/03/2004 12:42:34			Project N6 Galway City Outer Bypass; Contract 3 Ground Investigation: Forramoyle West to Gortatleva KC3267 Project No. KC3267 Carried out for Galway County Council		Trial Pit TP423A Sheet 1 of 1		

Trial Pit Log

Logged by DB Checked by ROR		Start 27/01/2004 End 27/01/2004	Equipment, Methods and Remarks Excavated using a track machine	Dimensions and Orientation Width 1.00 m Length 4.00 m  32 (Deg)		Ground Level Coordinates National Grid	+22.98 mOD E 124633.76 N 224617.34	
Samples and Tests			Strata					
Depth	Type & No.	Date Records	Description			Depth, Level (Thickness)	Legend	Backfill/ Instrument
0.10-0.30 0.10-0.30	B 2 B 3		1 Brown organic silty very sandy GRAVEL with occasional roots. Gravel is subangular fine to coarse.			(0.50)		
0.30	D 1							
			0.00-0.10 m Brown clay with occasional roots					
			3 Firm to stiff grey slightly sandy gravelly CLAY with occasional cobbles. Gravel is subrounded, fine to coarse of granite. Cobbles are subangular of granite.			0.50 +22.48		
1.00 1.00-1.20 1.00-1.20	D 4 B 5 B 6					(0.70)		
			EXPLORATORY HOLE ENDS AT 1.20 m			1.20 +21.78		
Depth	Type & No.	Records Date						
Groundwater Entries No. Struck Post Strike Behaviour (m) 1 1.20 Slight inflow on top of rock			Depth Related Remarks From to (m) 1.20 Trial pit terminated on obstruction - presumed bedrock.			Stability Good Shoring None Weather		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project N6 Galway City Outer Bypass; Contract 3 Ground Investigation: Forramoyle West to Gortatleva KC3267 Project No. KC3267 Carried out for Galway County Council			Trial Pit TP425 Sheet 1 of 1		
Scale 1:25 (c) MESG HBIII (296), 22/03/2004 12:42:40			