

**Appendix 4F**

Laboratory Results of Physical Tests  
for Soil Samples

**ALS TECHNICHEM (HK) PTY LTD**

**CERTIFICATE OF ANALYSIS**

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<b>CONTACT:</b>	MR S PYLE	<b>BATCH:</b>	HK12211
<b>CLIENT:</b>	VIBRO (HK) LTD	<b>SUB BATCH:</b>	0
<b>ADDRESS:</b>	27/F NEW WORLD TOWER 16/18 QUEEN'S RD CENTRAL HONG KONG	<b>DATE RECEIVED:</b>	Various
		<b>ISSUE DATE:</b>	9/28/01
<b>PROJECT:</b>	Report on physical laboratory tests in accordance with section 5.5.1 of the Remedial Investigation Work Plan.	<b>SAMPLE TYPE:</b>	Soil
<b>ORDER No.:</b>	Contract No. CV/2000/10	<b>No. Of SAMPLES:</b>	26

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**ISSUING LABORATORY: HONG KONG**

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Narrative	n/a	Blank, SCS & DCS	n/a
Notes	Page 1	Matrix Spike Results	n/a
Analytical Results	Page 2	Surrogate Results	n/a
Sample Duplicates	n/a	Holding Times	n/a

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**NOTES**

This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

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**SIGNATORY**

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Richard L C Fung  
General Manager - Hong Kong

ANALYTICAL RESULTS

Sample ID	HK12037-25	HK12039-1	HK12041-1	HK12041-2	HK12042-1	HK12043-6	HK12044-25	HK12045-12	HK12046-1	HK12046-2
Client Sample No.	B-D6/1.77-2.22M/5	B-P8/3.30-3.75m/7	B-B34/3.50-3.95m/7	B-L34/3.30-3.75m/7	OB-5/2.00-2.45m/8	B-L6/2.2-2.65m/6	B-L37/2.0-2.45m/5	OB-2/3.70 4.15m/	B-T1/2.30-2.75m/1	OB-4/3.40-3.85m/7
Description	Silty SAND (SM)	Clayey SAND (SC)	Silty SAND (SM)	Gravelly SAND (SP)	Clayey SAND (SC)	SAND (SP)	Silty SAND (SM)	Sandy CLAY (CI)	Clayey SAND (SC)	Clayey SAND (SC)
Particle Density ( $Urn^3$ )	2.60	2.70	2.69	2.63	2.65	2.64	2.65	2.72	2.65	2.69
As Received Moisture Content (%)	14.5	33.4	36.0	16.1	16.6	17.0	15.9	37.1	19.2	35.1
Bulk Density ( $Urn^3$ )	2.04	1.89	1.77	NP	1.94	1.90	2.05	1.90	2.09	1.86
Volume of Solids (%)	68.3	52.3	48.4	NP	62.8	61.4	66.6	51.1	66.1	51.3
Porosity Volume of Voids (%)	31.7	47.7	51.6	NP	37.2	38.6	33.4	48.9	33.9	48.7
Air Filled Porosity Volume of Air (%)	5.9	0.5	4.9	NP	9.6	11.1	5.3	0.0	0.2	0.4
Saturated Moisture Content (%)	17.6	33.5	39.6	NP	22.2	23.6	16.8	35.1	19.3	35.0
Effective Porosity Volume of Water at saturated moisture content (%)	31.3	47.3	51.6	NP	36.9	38.3	29.7	48.8	33.7	48.2
Hydraulic Conductivity (m/sec)	2.9E-08	2.3E-09	9.5E-06	NP	3.8E-07	5.2E-05	8.1E-06	4.9E-10	1.0E-06	1.8E-09
Total Organic Carbon (%)	0.90	<0.05	0.90	<0.05	0.15	0.05	<0.05	0.66	0.06	0.90

Note : NP - Not Possible to test.

ANALYTICAL RESULTS



Sample ID	HK12047-1	HK12047-2	HK12049-1	HK12050-1	HK12050-2	HK12050-3	HK12052-1	HK12052-2	HK12054-1
Client Sample No.	B-M2/1.8-2.25m/5	B-08/2.15-2.60m/6	B-T9/2.00-2.45m/6	B-N3/3.50-3.95m/7	BX-2/2.3-2.75m/6	B-Z6/3.50-3.95m/5	OB-22/2.30-2.75m/7	OB-11/3.50-3.95m/7	B-V2/2.0-2.45m/6
Description	Sandy CLAY (CI)	Sandy CLAY (CI)	Sandy CLAY (CI)	Silty SAND (SM)	Clayey SAND (SC)	Clayey SAND (SC)	Clayey SAND/Sandy CLAY (SC/CI)	Clayey SAND (SC)	Clayey SAND (SC)
Particle Density (Um <sup>3</sup> )	2.64	2.86	2.65	NP	NP	2.65	2.64	2.64	2.63
As Received Moisture Content (%)	16.0	24.7	18.8	15.1	19.8	17.7	19.4	21.3	14.3
Bulk Density (Um <sup>3</sup> )	1.86	1.98	2.08	NP	NP	1.97	2.00	2.04	2.19
Volume of Solids (%)	70.6	59.8	66.1	NP	NP	63.3	63.5	63.6	72.9
Porosity Volume of Voids (%)	29.5	40.2	33.9	NP	NP	36.7	36.5	36.4	27.1
Air Filled Porosity Volume of Air (%)	0.0	0.9	1.0	NP	NP	7.0	3.9	0.7	0.0
Saturated Moisture Content (%)	16.2	25.3	19.3	NP	NP	21.8	21.2	21.6	14.3
Effective Porosity Volume of Water at saturated moisture content (%)	29.5	40.2	33.7	NP	NP	36.5	35.5	36.3	27.1
Hydraulic Conductivity (m/sec)	1.7E-09	2.7E-09	3.0E-09	NP	NP	3.0E-08	9.3E-09	2.2E-09	3.4E-08
Total Organic Carbon (%)	<0.05	0.13	0.05	0.15	0.95	0.10	<0.05	<0.05	0.23

Note : NP - Not Possible to test.



ANALYTICAL RESULTS

Sample ID	HK12054-2	HK12054-3	HK12056-9	HK12056-19	HK12058-3	HK12060-9	HK12062-1
Client Sample No.	OB-31/1.84-2.29m/6	OB-15/3.50-3.95m/7	OB-13/3.50-3.95m/7	B-R/2/0.2-2.45m/6	B-S8/2.00-2.45m/6	B-U2A/3.50-3.95m/7	B-Q1/2.00-2.45m/6
Description	Clayey SAND (SC)	Clayey SAND (SC)	Clayey SAND (SC)	Clayey SAND (SC)	Clayey SAND (SC)	Clayey SAND (SC)	Cobbles/Gravel
Particle Density (t/m <sup>3</sup> )	2.66	2.63	2.65	2.65	NP	2.64	NP
As Received Moisture Content (%)	21.3	25.2	24.3	22.3	25.3	20.7	8.4
Bulk Density (t/m <sup>3</sup> )	1.81	1.85	1.92	1.94	NP	2.02	NP
Volume of Solids (%)	56.2	56.2	58.3	59.9	NP	63.2	NP
Porosity Volume of Voids (%)	43.8	43.8	41.7	40.1	NP	36.8	NP
Air Filled Porosity Volume of Air (%)	12.1	6.6	4.2	4.7	NP	2.1	NP
Saturated Moisture Content (%)	29.4	29.5	26.1	24.4	NP	21.6	NP
Effective Porosity Volume of Water at saturated moisture content (%)	43.8	43.6	40.2	38.7	NP	36.1	NP
Hydraulic Conductivity (m/sec)	2.9E-08	1.7E-07	8.4E-09	7.0E-09	NP	4.7E-08	NP
Total Organic Carbon (%)	0.13	<0.05	<0.05	0.05	0.13	<0.05	<0.05

Note : NP - Not Possible to test.