

TRUNG TÂM NGHIÊN CỨU CÔNG NGHỆ VÀ THIẾT BỊ

CÔNG NGHIỆP

PHÒNG THÍ NGHIỆM TỔNG HỢP

Công trình : LOGISVALLEY HCMC

Địa điểm : KCN AN PHƯỚC, HUYỆN LONG THÀNH, TỈNH ĐỒNG NAI

Tên lớp

STT

Hố khoan

Mẫu

Độ sâu

(m)

Sỏi sạn

10.0 đến 5.0

5.0 đến 2.0

2.0 đến 1.0

1.0 đến 0.50

0.25 đến 0.1

0.05 đến 0.01

0.01 đến 0.005

Cát

2.0 đến 1.0

1.0 đến 0.50

0.25 đến 0.1

0.05 đến 0.01

0.01 đến 0.005

Bụi

0.05 đến 0.01

0.01 đến 0.005

Sét

< 0.005

(mm)

Độ ẩm

W %

Dung trọng

ướt

γ kN/m³

khô

γ_d kN/m³

Dung trọng đầy nổi

γ' kN/m³

KL riêng

G_s kN/m³

Độ bão hoà

S_r %

Độ rỗng

n %

Hệ số rỗng

e_o

Giới hạn Atterberg

GH chảy

GH dẻo

Chỉ số dẻo

Độ sệt

THÍ NGHIỆM NÉN LÚN

Hệ số rỗng

e_i

e_{100}

e_{200}

e_{400}

e_{800}

$a_{(100-200)}$ kPa⁻¹ x10⁻²

$E_{(100-200)}$ kPa

$E_{o(100-200)}$ kPa

THÍ NGHIỆM CẮT PHẪNG

Sức chống cắt cực đại

τ (kPa)

100

200

300

400

Góc nội ma sát

φ Độ

Lực dính

C kPa

MÔ TẢ TÊN ĐẤT

Lớp 1: Á sét, nâu vàng, trạng thái dẻo cứng

1	HK8	HK8-1	1.8 - 2				1.2	7.3	13.4	26.9	14.0	12.6	4.2	20.4	23.55	19.4	15.7	9.9	27.0	88.3	41.9	0.720	31.34	17.61	13.73	0.43	0.666	0.628	0.577	0.510	0.038	4384.2	12531.0	43.7	65.3	88.0	110.4	12°34'	21.2	Á sét, nâu vàng, trạng thái dẻo cứng
2	HK10	HK10-1	1.8 - 2				1.7	5.4	12.3	25.9	13.9	12.4	6.3	22.1	29.31	19.7	15.2	9.6	27.0	102.0	43.7	0.776	38.22	23.19	15.03	0.41	0.737	0.709	0.673	0.625	0.028	6203.6	16173.3	46.5	63.6	96.7	114.3	13°18'	21.2	Á sét, vàng nâu, trạng thái dẻo cứng
3	HK11	HK11-1	1.8 - 2				0.9	4.9	10.3	25.6	9.9	15.4	6.1	26.9	26.56	19.2	15.2	9.6	27.0	92.4	43.7	0.776	34.17	20.88	13.29	0.43	0.724	0.693	0.650	0.600	0.031	5561.3	14774.7	44.3	71.3	93.6	114.3	13°05'	22.8	Á sét, xám vàng - nâu vàng, trạng thái dẻo cứng
4	"	HK11-2	3.8 - 4					2.8	6.5	22.4	14.4	16.8	9.0	28.1	24.37	19.6	15.8	10.0	27.1	92.4	41.7	0.715	30.12	18.55	11.57	0.50	0.662	0.629	0.587	0.538	0.033	5036.4	14379.3	51.4	64.9	92.7	120.5	13°14'	23.6	Á sét, nâu đỏ - xám trắng, trạng thái dẻo cứng
5	HK12	HK12-1	1.8 - 2				1.0	3.1	9.0	22.2	13.7	17.8	7.8	25.4	21.09	20.0	16.5	10.4	27.0	89.5	38.9	0.636	30.57	17.64	12.93	0.27	0.599	0.575	0.542	0.498	0.024	6662.5	20137.4	48.9	70.0	91.0	123.8	13°48'	22.0	Á sét, nâu vàng, trạng thái dẻo cứng
6	HK13	HK13-1	1.8 - 2				3.1	7.6	15.6	22.2	9.5	11.4	3.8	26.8	19.47	20.1	16.8	10.6	26.9	87.1	37.5	0.601	27.37	13.48	13.89	0.43	0.571	0.548	0.520	0.481	0.023	6830.4	21174.3	45.9	69.1	103.8	112.9	13°16'	24.0	Á sét, xám tro - vàng nâu, trạng thái dẻo cứng
7	"	HK13-2	3.8 - 4				2.6	7.0	14.6	20.4	8.9	13.4	7.2	25.9	23.57	19.0	15.4	9.7	27.1	84.0	43.2	0.760	31.42	20.55	10.87	0.28	0.721	0.696	0.659	0.608	0.025	6884.0	18224.7	44.7	68.5	103.8	113.6	13°36'	22.2	Á sét, xám trắng, trạng thái dẻo cứng
		Trung bình	A				1.5	5.4	11.7	23.7	12.0	14.3	6.3	25.1	23.99	19.6	15.8	9.9	27.0	91.0	41.6	0.712	31.89	18.84	13.04	0.39	0.669	0.640	0.601	0.551	0.029	5937.5	16770.7	46.5	67.5	95.7	115.7	$\varphi_{tc}= 13°16'$	$C_{tc}= 22.4$	
		Độ lệch chuẩn	σ												3.273	0.403			0.069			0.069	3.442	3.103			0.064	0.063	0.060	0.059			3.035	3.195	6.730	5.156	$\varphi_2= 12°51'$	$C_2= 20.4$		
		Hệ số phân tán	v												0.136	0.021			0.003			0.097	0.108	0.165			0.096	0.098	0.100	0.106			0.065	0.047	0.070	0.045	$\varphi_1= 12°36'$	$C_1= 19.1$		

Lớp 2: Á sét lẫn sỏi sạn laterit, nâu đỏ - xám trắng, trạng thái dẻo cứng

8	HK3	HK3-1	1.8 - 2	27.2	19.1	9.6	2.6	2.3	3.2	5.0	1.0	6.4	4.6	19.0	23.88	19.5	15.7	9.9	27.0	89.6	41.9	0.720	32.24	18.54	13.70	0.39	0.678	0.651	0.625	0.594	0.027	6214.8	17320.1	51.9	73.5	100.2	130.9	14°46'	23.2	Á sét lẫn dăm sạn laterit, nâu đỏ, trạng thái dẻo cứng
9	HK4	HK4-1	1.8 - 2	31.2	11.8	8.5	3.6	4.1	3.6	6.8	2.1	6.4	2.7	19.2	23.05	19.3	15.7	9.9	27.1	86.0	42.1	0.726	31.07	19.42	11.65	0.31	0.682	0.653	0.619	0.579	0.029	5800.0	16128.1	45.0	71.1	103.6	120.9	14°35'	20.1	Á sét lẫn dăm sạn laterit, nâu đỏ, trạng thái dẻo cứng
10	HK5	HK5-1	1.8 - 2		18.5	2.4	3.2	5.7	11.2	15.2	11.0	10.1	4.6	18.1	21.65	19.5	16.0	10.1	27.0	85.0	40.7	0.688	28.54	15.73	12.81	0.46	0.654	0.629	0.593	0.544	0.025	6616.0	18889.3	43.7	74.2	95.0	121.6	14°17'	20.0	Á sét lẫn sỏi sạn laterit, nâu đỏ - xám trắng, trạng thái dẻo cứng
11	HK6	HK6-1	1.8 - 2	23.0	10.1	12.8	5.5	6.0	6.4	8.8	3.0	6.1	2.3	16.0	21.97	19.8	16.2	10.2	27.1	88.5	40.2	0.673	30.01	15.23	14.78	0.46	0.628	0.599	0.562	0.512	0.029	5613.8	16550.0	44.7	64.4	89.1	116.0	13°25'	18.9	Á sét lẫn dăm sạn laterit, nâu đỏ, trạng thái dẻo cứng
12	HK8	HK8-2	3.8 - 4	28.1	17.4	10.4	3.9	3.7	3.9	6.3	3.5	7.6	2.7	12.5	23.47	19.7	16.0	10.1	27.0	92.1	40.7	0.688	33.84	18.40	15.44	0.33	0.651	0.626	0.591	0.547	0.025	6604.0	18916.5	46.4	70.8	85.6	126.4	14°18'	18.6	Á sét lẫn dăm sạn laterit, nâu đỏ, trạng thái dẻo cứng
13	HK9	HK9-1	1.8 - 2	29.6	5.6	3.9	1.8	6.5	10.7	12.9	6.8	4.9	2.5	14.8	22.32	19.7	16.1	10.2	27.1	88.6	40.6	0.683	31.46	16.96	14.50	0.37	0.645	0.623	0.590	0.548	0.022	7477.3	21487.4	42.2	70.1	92.9	118.1	14°04'	18.2	Á sét lẫn dăm sạn laterit, nâu đỏ - vàng nâu, trạng thái dẻo cứng
14	HK10	HK10-2	3.8 - 4		9.1	5.0	2.3	1.9	9.2	21.2	10.6	13.7	6.5	20.5	28.22	19.0	14.8	9.3	27.0	92.5	45.2	0.824	37.83	23.53	14.30	0.33	0.784	0.754	0.712	0.655	0.030	5946.7	14600.3	44.7	78.4	88.0	127.1	14°24'	20.4	Á sét, nâu đỏ, trạng thái dẻo cứng
15	HK11	HK11-3	5.8 - 6	10.9	11.0	1.6	1.0	4.3	7.7	16.6	7.0	9.9	5.0	25.0	22.80	19.7	16.0	10.1	27.0	89.5	40.7	0.688	30.12	18.47	11.65	0.37	0.647	0.620	0.583	0.537	0.027	6100.0	17586.3	47.9	69.3	89.9	125.2	14°10'	20.0	Á sét lẫn sỏi sạn laterit, xám hồng, trạng thái dẻo cứng
16	HK12	HK12-2	3.8 - 4			1.4	1.8	3.0	10.1	19.5	10.9	16.6	8.9	27.8	24.39	19.1	15.4	9.7	27.1	87.0	43.2	0.760	31.69	19.72	11.97	0.39	0.720	0.690	0.646	0.583	0.030	5733.3	15285.1	52.3	73.5	94.3	129.9	14°14'	24.1	Á sét, nâu đỏ, trạng thái dẻo cứng
17	HK14	HK14-1	1.8 - 2	35.8	3.9	2.2	1.1	2.0	5.0	8.2	7.1	10.3	5.2	19.2	24.93	19.3	15.4	9.7	27.0	89.4	43.0	0.753	32.08	20.16	11.92	0.40	0.714	0.690	0.657	0.611	0.024	7141.7	19039.7	45.4	71.7	101.6	116.3	13°38'	23.1	Á sét lẫn dăm sạn laterit, xám tro - nâu đỏ, trạng thái dẻo cứng
18	"	HK14-2	3.8 - 4				4.2	7.0	12.6	18.3	14.0	13.6	5.7	24.6	21.03	19.6	16.2	10.2	27.1	84.7	40.2	0.673	30.55	17.14	13.41	0.29	0.638	0.615	0.582	0.539	0.023	7121.7	20642.4	44.5	73.7	98.4	121.0	14°16'	20.9	Á sét, xám tro - nâu đỏ, trạng thái dẻo cứng
19	"	HK14-3	5.8 - 6					5.4	10.1	23.3	16.4	17.0	6.9	20.9	22.84	19.7	16.0	10.1	27.1	89.2	41.0	0.694	31.25	18.69	12.56	0.33	0.658	0.632	0.600	0.558	0.026	6376.9	18147.4	47.2	71.8	110.1	121.0	14°33'	22.6	Á sét, xám tro - nâu đỏ, trạng thái dẻo cứng
20	HK15	HK15-1	1.8 - 2	23.0	20.8	1.7	0.6	2.7	3.4	14.5	7.4	5.9	2.9	17.1	21.38	19.7	16.2	10.2	27.0	86.5	40.0	0.667	30.90	16.85	14.05	0.32	0.630	0.606	0.574	0.531	0.024	6791.7	19875.1	46.5	73.8	91.3	128.7	14°48'	19.1	Á sét lẫn dăm sạn laterit, xám vàng - xám tro, trạng thái dẻo cứng
21	"	HK15-3	5.8 - 6		4.9	11.6	10.4	9.4	16.1	13.2	5.2	8.4	4.5	16.3	22.49	19.5	15.9	10.0	27.0	87.0	41.1	0.698	32.15	17.85	14.30	0.32	0.661	0.639	0.610	0.566	0.022	7550.0	21322.0	49.1	74.5	112.3	122.3	14°26'	25.2	Á sét lẫn sỏi sạn laterit, nâu đỏ, trạng thái dẻo cứng
22	"	HK15-4	7.8 - 8		2.3	8.4	12.9	13.5	14.2	16.8	7.0	6.6	2.4	15.9	21.75	19.6	16.1	10.1	27.0	86.7	40.4	0.677	30.86	18.13	12.73	0.28	0.639	0.615	0.584	0.543	0.024	6829.2	19794.3	47.9	73.0	98.6	122.6	14°01'	23.1	Á sét, nâu đỏ, trạng thái dẻo cứng
23	HK16	HK16-1	1.8 - 2	10.7	25.9	12.9	4.3	4.1	4.4	9.9	3.3	4.4	2.3	17.8	21.83	20.0	16.4	10.3	27.0	91.2	39.3	0.646	31.11	17.97	13.14	0.29	0.608	0.584	0.552	0.510	0.024	6700.0	20063.8	44.5	67.5	97.0	118.4	14°06'	19.1	Á sét lẫn dăm sạn laterit, nâu đỏ, trạng thái dẻo cứng
		Trung bình	A	13.7	10.0	5.8	3.7	5.1	8.2	13.5	7.3	9.2	4.4	19.0	23.00	19.5	15.9	10.0	27.0	88.6	41.2	0.702	31.61	18.30	13.31	0.35	0.665	0.639	0.605	0.560	0.026	6538.6	18478.0	46.5	72.0	96.7	122.9	$\varphi_{tc}= 14°15'$	$C_{tc}= 21.0$	
		Độ lệch chuẩn	σ												1.770	0.261			0.050			0.044	2.028	1.931			0.044	0.042	0.040	0.038			2.906	3.327	7.876	4.852	$\varphi_2= 13°57'$	$C_2= 19.5$		
		Hệ số phân tán	v												0.077	0.013			0.002			0.063	0.064	0.106			0.065	0.066	0.066	0.067			0.063	0.046	0.081	0.039	$\varphi_1= 13°46'$	$C_1= 18.5$		

Lớp TK: Á cát, xám trắng - xám hồng, trạng thái dẻo

24	HK12	HK12-3	5.8 - 6				1.6	7.4	24.9	28.9	12.0	10.9	4.6	9.7	20.77	19.6	16.2	10.1	26.7	85.6	39.3	0.648	25.70	19.12	6.58	0.25	0.613	0.594	0.577	0.561	0.019	8489.5	23746.8	52.1	91.5	128.6	176.3	22°17'	9.7	Á cát, xám trắng, trạng thái dẻo
25	HK13	HK13-3	5.8 - 6				2.5	22.3	36.5	17.0	6.3	3.3	2.6	9.5																										

Tên lớp	STT	Hố khoan	Mẫu	Độ sâu (m)	KQTN thành hạt, %										Độ ẩm W	Dung trọng		Dung trọng đáy nổi γ'	KL riêng G _s	Độ bão hoà S _r	Độ rỗng n	Hệ số rỗng e _o	Giới hạn Atterberg				THÍ NGHIỆM NÉN LÚN								THÍ NGHIỆM CẮT PHẪNG								MÔ TẢ TÊN ĐẤT														
					Sỏi sạn			Cát				Bụi		Sét		γ _{ướt} kN/m ³	γ _{khô} kN/m ³						γ' kN/m ³	G _s kN/m ³	S _r %	n %	e _o 	GH chảy W _L %	GH dẻo W _P %	Chỉ số dẻo I _P %	Chỉ số sét I _L 	Hệ số rỗng				a ₍₁₀₀₋₂₀₀₎ kPa ⁻¹ ·x10 ⁻² 	E ₍₁₀₀₋₂₀₀₎ kPa	E _{o(100-200)} kPa	Sức chống cắt cực đại					Góc nội ma sát φ Độ	Lực dính C kPa												
					>10	10.0 đến 5.0	5.0 đến 2.0	2.0 đến 1.0	1.0 đến 0.50	0.25 đến 0.1	0.05 đến 0.01	0.01 đến 0.005	< 0.005																			e ₁₀₀	e ₂₀₀	e ₄₀₀	e ₈₀₀				τ (kPa)	100	200	300				400											
	35	"	HK2-5	9.8 - 10			6.5	9.0	9.9	13.8	18.7	9.4	7.1	4.0	21.6	21.90	20.2	16.6	10.4	27.0	94.3	38.5	0.627	28.42	17.15	11.27	0.42	0.591	0.567	0.531	0.477	0.024	6629.2	20201.1	43.2	70.1	94.4	115.8	13°37'	20.4	Á sét, xám trắng, trạng thái dẻo cứng																
	36	"	HK2-6	11.8 - 12						10.1	19.2	31.5	10.2	8.3	3.0	17.7	24.79	19.6	15.7	9.9	27.1	92.5	42.1	0.726	32.87	18.90	13.97	0.42	0.683	0.656	0.622	0.578	0.027	6233.3	17275.1	46.2	67.1	95.1	121.2	14°12'	19.2	Á sét, xám trắng, trạng thái dẻo cứng															
	37	HK3	HK3-2	3.8 - 4			2.0	4.2	18.3	18.0	11.1	5.3	11.0	5.9	24.2	21.78	20.0	16.4	10.4	27.1	90.5	39.5	0.652	30.05	18.45	11.60	0.29	0.615	0.592	0.554	0.502	0.023	7021.7	20853.2	45.5	68.0	102.9	116.3	13°53'	21.4	Á sét, nâu đỏ - xám xanh, trạng thái dẻo cứng																
	38	"	HK3-3	5.8 - 6			1.6	3.4	22.2	20.0	12.5	6.1	7.3	4.7	22.2	22.70	19.6	16.0	10.1	26.9	89.7	40.5	0.681	30.74	19.63	11.11	0.28	0.643	0.620	0.587	0.543	0.023	7143.5	20594.6	51.6	73.5	95.8	129.0	14°17'	23.9	Á sét, nâu đỏ - xám xanh, trạng thái dẻo cứng																
	39	HK4	HK4-2	3.8 - 4			6.0	9.2	11.2	12.1	12.4	9.1	10.5	5.9	23.6	21.26	19.3	15.9	10.0	27.0	82.2	41.1	0.698	29.74	15.26	14.48	0.41	0.661	0.636	0.605	0.563	0.025	6644.0	18825.1	49.7	64.1	98.1	117.4	13°20'	23.1	Á sét, xám tro, trạng thái dẻo cứng																
	40	"	HK4-3	5.8 - 6			13.9	8.3	10.3	10.8	10.8	6.9	8.6	5.0	25.4	21.83	19.7	16.2	10.2	26.9	89.0	39.8	0.660	30.75	18.22	12.53	0.29	0.622	0.599	0.566	0.521	0.023	7052.2	20790.5	46.0	74.7	109.0	117.9	14°02'	24.4	Á sét, xám tro, trạng thái dẻo cứng																
	41	"	HK4-4	7.8 - 8				3.3	7.7	15.9	25.5	9.8	11.8	6.1	19.9	29.55	19.0	14.7	9.3	27.1	94.9	45.8	0.844	36.27	25.41	10.86	0.38	0.799	0.770	0.728	0.668	0.029	6203.4	14615.3	42.0	72.3	88.7	116.3	13°27'	20.0	Á sét, xám vàng, trạng thái dẻo cứng																
	42	"	HK4-5	9.8 - 10				2.6	9.2	16.5	30.7	9.5	6.9	3.8	20.8	21.90	20.0	16.4	10.4	27.1	91.0	39.5	0.652	30.97	16.08	14.89	0.39	0.613	0.588	0.556	0.520	0.025	6452.0	19241.2	47.9	70.8	99.8	123.3	14°19'	21.7	Á sét, xám vàng, trạng thái dẻo cứng																
	43	HK5	HK5-2	3.8 - 4			4.8	7.8	16.4	18.8	13.1	5.5	9.1	3.1	21.4	20.01	20.0	16.7	10.5	27.1	87.0	38.4	0.623	27.50	14.16	13.34	0.44	0.589	0.567	0.540	0.505	0.022	7222.7	22009.8	46.9	77.2	104.7	129.0	15°19'	21.0	Á sét, nâu đỏ - xám trắng, trạng thái dẻo cứng																
	44	"	HK5-3	5.8 - 6				3.9	12.1	22.0	27.7	8.8	5.6	2.6	17.3	22.03	19.6	16.1	10.1	26.9	88.3	40.1	0.671	30.52	17.40	13.12	0.35	0.635	0.611	0.580	0.539	0.024	6812.5	19830.5	40.5	76.3	96.7	120.5	14°36'	18.4	Á sét, xám trắng - nâu đỏ, trạng thái dẻo cứng																
	45	HK6	HK6-2	3.8 - 4		5.4	10.5	4.0	7.8	15.3	16.8	7.5	10.1	3.4	19.2	20.89	20.0	16.5	10.4	27.0	88.7	38.9	0.636	31.29	17.32	13.97	0.26	0.598	0.575	0.545	0.507	0.023	6947.8	20999.8	48.4	67.5	88.9	125.9	14°15'	19.2	Á sét lẫn sỏi sạn thạch anh, nâu đỏ - vàng nâu, trạng thái dẻo cứng																
	46	"	HK6-3	5.8 - 6		4.1	15.9	6.9	5.6	15.5	13.4	4.2	10.4	3.6	20.4	22.87	19.6	16.0	10.1	27.1	89.3	41.0	0.694	28.86	18.27	10.59	0.43	0.656	0.632	0.599	0.554	0.024	6900.0	19636.0	45.5	82.9	109.0	128.2	15°20'	22.9	Á sét lẫn sỏi sạn thạch anh, nâu đỏ - vàng nâu, trạng thái dẻo cứng																
	47	HK7	HK7-1	1.8 - 2				3.4	7.6	12.1	20.8	8.2	12.6	8.4	26.9	21.67	20.0	16.4	10.4	27.1	90.1	39.5	0.652	30.59	17.03	13.56	0.34	0.616	0.593	0.558	0.510	0.023	7026.1	20844.3	51.1	67.8	100.0	125.7	14°22'	22.2	Á sét, xám vàng - nâu đỏ, trạng thái dẻo cứng																
	48	"	HK7-2	3.8 - 4				3.0	8.7	15.4	22.9	10.1	9.5	4.0	26.4	20.04	19.8	16.5	10.4	26.9	85.6	38.7	0.630	28.74	17.02	11.72	0.26	0.594	0.571	0.538	0.491	0.023	6930.4	21033.2	43.7	79.4	99.5	120.7	14°06'	23.1	Á sét, xám vàng - nâu đỏ, trạng thái dẻo cứng																
	49	"	HK7-3	5.8 - 6			2.4	2.9	13.4	19.8	29.0	9.1	6.0	2.2	15.2	24.35	18.6	15.0	9.4	27.0	82.2	44.4	0.800	31.57	18.99	12.58	0.43	0.757	0.732	0.699	0.661	0.025	7028.0	17821.6	42.7	75.2	96.0	126.4	15°13'	17.1	Á sét, xám vàng - nâu đỏ, trạng thái dẻo cứng																
	50	HK9	HK9-2	3.8 - 4				2.2	6.8	20.0	23.7	8.7	11.2	5.9	21.5	25.67	19.1	15.2	9.6	27.0	89.3	43.7	0.776	33.27	19.00	14.27	0.47	0.736	0.709	0.670	0.615	0.027	6429.6	16762.7	46.2	67.0	90.1	118.3	13°28'	20.6	Á sét, xám tro - vàng nâu, trạng thái dẻo cứng																
	51	"	HK9-3	5.8 - 6			0.7	5.1	23.5	30.0	13.0	3.8	6.1	2.4	15.4	20.14	20.2	16.8	10.6	26.9	90.1	37.5	0.601	26.33	16.19	10.14	0.39	0.565	0.543	0.515	0.476	0.022	7113.6	22052.3	44.0	73.8	93.0	123.6	14°28'	19.1	Á sét, xám tro - vàng nâu, trạng thái dẻo cứng																
	52	HK10	HK10-3	5.8 - 6			1.1	1.6	13.0	29.7	21.0	5.5	9.2	3.5	15.4	20.42	19.5	16.2	10.2	27.1	82.2	40.2	0.673	29.18	16.50	12.68	0.31	0.635	0.611	0.579	0.537	0.024	6812.5	19830.5	43.5	63.9	98.1	112.7	13°36'	19.1	Á sét, nâu đỏ, trạng thái dẻo cứng																
	53	"	HK10-4	7.8 - 8				2.7	6.2	13.3	24.8	12.6	11.6	6.3	22.5	20.06	19.9	16.6	10.4	26.9	87.0	38.3	0.620	27.18	16.44	10.74	0.34	0.588	0.566	0.536	0.499	0.022	7218.2	22018.3	47.4	68.1	96.3	122.4	14°13'	20.3	Á sét, nâu đỏ - vàng nâu, trạng thái dẻo cứng																
	54	"	HK10-5	9.8 - 10						6.5																																															

Tên lớp	STT	Hố khoan	Mẫu	Độ sâu (m)	KQTN thành hạt, %										Độ ẩm W %	Dung trọng		Dung trọng dây nổi γ' kN/m^3	KL riêng G_s m^3	Độ bão hoà S_r %	Độ rỗng n %	Hệ số rỗng e_o	Giới hạn Atterberg				THÍ NGHIỆM NÉN LÚN								THÍ NGHIỆM CẮT PHẪNG							MÔ TẢ TÊN ĐẤT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
					Sỏi sạn			Cát						Bụi		Sét < 0,005 	γ kN/m^3						γ_d kN/m^3	GH chảy W_L %	GH dẻo W_P %	Chỉ số dẻo I_P %	liq sét I_L %	Hệ số rỗng				$a_{(100-200)}$ $kPa^{-1} \cdot 10^{-2}$	$E_{(100-200)}$ kPa	$E_{\alpha(100-200)}$ kPa	Sức chống cắt cực đại				Góc nội ma sắt φ Độ	Lực dính C kPa																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
					>10	10.0 đến 5.0	5.0 đến 2.0	2.0 đến 1.0	1.0 đến 0.50	0.50 đến 0.25	0.25 đến 0.1	0.1 đến 0.05	0.05 đến 0.01	0.01 đến 0.005														e_i							τ (kPa)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

Tên lớp	STT	Hố khoan	Mẫu	Độ sâu (m)	KQTN thành hạt, %										Độ ẩm W %	Dung trọng		Dung trọng đầy nổi γ' kN/m ³	KL riêng G_s kN/m ³	Độ bão hoà S_r %	Độ rỗng n %	Hệ số rỗng e_o	Giới hạn Atterberg				THÍ NGHIỆM NÉN LÚN								THÍ NGHIỆM CẮT PHẪNG								MÔ TẢ TÊN ĐẤT				
					Sỏi sạn			Cát						Bụi		Sét < 0.005	γ kN/m ³						γ_d kN/m ³	γ' kN/m ³	G_s kN/m ³	S_r %	n %	e_o	GH chảy W_L %	GH dẻo W_P %	Chỉ số dẻo I_P %	Độ sét I_L %	Hệ số rỗng				$a_{(100-200)}$ kPa ⁻¹ x 10 ⁻²	$E_{(100-200)}$ kPa	$E_{o(100-200)}$ kPa	Sức chống cắt cực đại				Góc nội ma sát φ Độ	Lực dính C kPa		
					>10	10.0 đến 5.0	5.0 đến 2.0	2.0 đến 1.0	1.0 đến 0.50	0.50 đến 0.25	0.1 đến 0.05	0.05 đến 0.01	0.01 đến 0.005	e ₁																			e ₁₀₀	e ₂₀₀	e ₄₀₀	e ₈₀₀				τ (kPa)							
																																								100	200	300				400	
					(mm)																																										
	175	"	HK11-11	21.8 - 22						1.6	4.9	34.3	15.7	43.5	24.09	19.6	15.8	10.0	27.4	89.9	42.3	0.734	38.47	18.64	19.83	0.27	0.696	0.673	0.636	0.587	0.023	7373.9	17697.4	56.1	76.7	112.5	128.7	14°14'	30.1	Sét, vàng nâu - nâu đỏ, trạng thái dẻo cứng							
	176	"	HK11-12	23.8 - 24						5.5	9.3	29.5	13.1	42.6	27.39	19.1	15.0	9.5	27.3	91.2	45.1	0.820	44.69	20.72	23.97	0.28	0.776	0.750	0.711	0.658	0.026	6830.8	16393.8	56.6	74.5	97.2	128.5	13°25'	29.6	Sét, vàng nâu - nâu đỏ, trạng thái dẻo cứng							
	177	"	HK11-13	25.8 - 26						0.6	6.1	34.2	15.6	43.5	26.31	19.4	15.4	9.8	27.3	92.9	43.6	0.773	40.14	19.57	20.57	0.33	0.728	0.699	0.663	0.615	0.029	5958.6	14300.7	56.0	83.9	93.7	133.0	13°32'	31.5	Sét, vàng nâu - nâu đỏ, trạng thái dẻo cứng							
	178	"	HK11-14	27.8 - 28						2.2	11.0	30.3	14.2	42.3	23.77	19.9	16.1	10.2	27.3	93.2	41.0	0.696	38.12	18.29	19.83	0.28	0.658	0.631	0.594	0.548	0.027	6140.7	14737.8	52.1	83.4	101.4	129.6	14°04'	29.0	Sét, vàng nâu - nâu đỏ, trạng thái dẻo cứng							
	179	"	HK11-15	29.8 - 30						3.6	10.2	32.6	14.7	38.9	26.30	19.5	15.4	9.8	27.4	92.5	43.8	0.779	40.12	19.09	21.03	0.34	0.741	0.714	0.677	0.625	0.027	6448.1	15475.6	53.8	79.4	99.8	126.8	13°28'	30.1	Sét, vàng nâu - nâu đỏ, trạng thái dẻo cứng							
	180	HK12	HK12-10	19.8 - 20						3.0	6.6	33.2	15.2	42.0	26.40	19.4	15.3	9.7	27.3	91.9	44.0	0.784	45.17	20.45	24.72	0.24	0.747	0.722	0.693	0.658	0.025	6988.0	16771.2	67.8	102.2	116.7	153.4	15°11'	42.2	Sét, nâu vàng, trạng thái nửa cứng							
	181	"	HK12-11	21.8 - 22						2.2	8.7	25.6	16.4	47.1	28.75	19.0	14.8	9.4	27.3	92.9	45.8	0.845	45.02	22.76	22.26	0.27	0.803	0.779	0.745	0.703	0.024	7512.5	17594.3	60.0	83.2	98.1	138.4	14°02'	32.4	Sét, nâu vàng, trạng thái dẻo cứng							
	182	"	HK12-12	23.8 - 24						3.3	6.5	26.8	12.7	50.7	24.73	19.7	15.8	10.0	27.2	93.2	41.9	0.722	47.61	20.87	26.74	0.14	0.689	0.669	0.643	0.607	0.020	8445.0	20268.0	74.4	103.9	122.7	162.1	15°45'	45.3	Sét, nâu vàng, trạng thái nửa cứng							
	183	HK13																																													

RESEARCH CENTER FOR TECHNOLOGY AND INDUSTRIAL EQUIPMENT															STATISTICAL TABLE PHYSICO-MECHANIC CHARACTERISTICS OF SOIL LAYERS TEST RESULTS																									TT04-BM25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
GENERAL LABORATORY															Project : LOGISVALLEY HCMC															Location : AN PHUOC INDUSTRIAL ZONE, LONG THANH DISTRICT, DONG NAI PROVINCE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Layer No.	No.	Borehole.	Sample	Depth (m)	Combined results from sieve & hydrometer analysis, %										Moisture content W	Unit weight		Unit weight Subm. γ'	Specific Gravity G _s	Saturation S _r	Porosity n	Void ratio e _o	Atterberg limit				QUICK COMPRESSION TEST								DIRECT SHEAR TEST								DESCRIPTION OF SOIL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
					Gravel			Sand					Silt			Clay < 0.005	wet γ						dry γ _d	Liquid limit W _L	Plastic limit W _P	Plasticity Index I _P	Liquididity Index I _L	Void ratio				a ₍₁₀₀₋₂₀₀₎ kPa ⁻¹ x10 ⁻²	E ₍₁₀₀₋₂₀₀₎ kPa	E _{o(100-200)} kPa	Max shear stress				Angle of friction φ Độ	Cohesion C kPa																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
					>10	10.0	5.0	2.0	1.0	0.50	0.25	0.1	0.05	0.01														e _i							τ (kPa)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
					to	to	to	to	to	to	to	to	to	e ₁₀₀														e ₂₀₀	e ₄₀₀	e ₈₀₀	100				200	300	400																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
					5.0	2.0	1.0	0.50	0.25	0.1	0.05	0.01	0.005	(mm)														%	%	%	%				kPa	kPa	100	200			300	400		φ	C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
					%	kN/m ³	kN/m ³	kN/m ³	kN/m ³	%	%	e _o	%	%														%	%	%	%				%	%	%	%			%	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

Layer No.	No.	Borehole.	Sample	Depth (m)	Combined results from sieve & hydrometer analysis, %										Moisture content W %	Unit weight		Unit weight Subm. γ'	Specific Gravity G _s	Saturation S _r	Porosity n	Void ratio e _o	Atterberg limit				QUICK COMPRESSION TEST							DIRECT SHEAR TEST							DESCRIPTION OF SOIL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
					Gravel			Sand					Silt			Clay < 0.005 (mm)	wet γ						dry γ _d	Liquid limit W _L %	Plastic limit W _P %	Plasticity Index I _P %	Liquidty Index I _L %	Void ratio				E _{i(100-200)} kPa	E _{o(100-200)} kPa	Max shear stress				Angle of friction φ Đø	Cohesion C kPa																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
					>10	10.0 to 5.0	5.0 to 2.0	2.0 to 1.0	1.0 to 0.50	0.25 to 0.1	0.05 to 0.01	0.01 to 0.005	e _i															τ (kPa)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Layer No.	No.	Borehole.	Sample	Depth	Combined results from sieve & hydrometer analysis, %										Moisture content	Unit weight		Unit weight Subm.	Specific Gravity	Saturation	Porosity	Void ratio	Atterberg limit				QUICK COMPRESSION TEST								DIRECT SHEAR TEST						DESCRIPTION OF SOIL				
					Gravel			Sand					Silt										Clay	Liquid limit	Plastic limit	Plasticity Index	Liquididity Index	Void ratio				E _{a(100-200)} kPa ⁻¹ x10 ⁻²	E ₁₍₁₀₀₋₂₀₀₎	E _{o(100-200)}	Max shear stress				Angle of friction	Cohesion					
					>10	10.0	5.0	2.0	1.0	0.50	0.25	0.1	0.05	0.01														e _i							e ₁₀₀	e ₂₀₀	e ₄₀₀	e ₈₀₀				τ (kPa)			
						to	to	to	to	to	to	to	to	100														200	300	400	φ											C			
						5.0	2.0	1.0	0.50	0.25	0.1	0.05	0.01																														0.005		
						(mm)																																							
W	γ	γ _d	γ'	G _s	S _r	n	e _o	W _L	W _P	I _P	I _L	e ₁₀₀	e ₂₀₀	e ₄₀₀	e ₈₀₀	kPa	kPa	100	200	300	400	φ	C																						
%	kN/m ³	kN/m ³	kN/m ³	kN/m ³	%	%		%	%	%	%											Độ	kPa																						
	128	HK11	HK11-9	17.8 - 18			3.8	18.5	33.5	16.4	10.4	2.6	4.2	1.8	8.8	20.29	20.1	16.7	10.5	26.8	89.9	37.7	0.605	23.15	17.42	5.73	0.50	0.575	0.556	0.542	0.526	0.019	8289.5	24352.8	61.2	98.0	154.5	196.0	24°45'	12.2	Plasticity, reddish brown, Clayey sand				
	129	HK12	HK12-8	15.8 - 16					4.3	20.3	47.6	8.4	7.4	3.1	8.9	20.42	19.5	16.2	10.1	26.7	84.1	39.3	0.648	23.38	17.61	5.77	0.49	0.623	0.608	0.596	0.582	0.015	10820.0	29705.2	53.6	108.1	133.7	197.2	24°32'	9.1	Plasticity, yellowish grey - yellowish brown, Clayey sand				
	130	"	HK12-9	17.8 - 18					5.1	20.9	47.1	12.6	3.2	1.7	9.4	21.06	19.8	16.4	10.3	26.8	89.0	38.8	0.634	24.00	18.22	5.78	0.49	0.609	0.592	0.578	0.561	0.017	9464.7	26544.7	60.9	99.0	139.2	201.9	24°51'	9.5	Plasticity, yellowish grey - yellowish brown, Clayey sand				
	131	HK14	HK14-8	15.8 - 16	9.4	1.9	6.6	8.1	15.6	25.2	11.6	3.8	6.2	2.6	9.0	20.70	20.0	16.6	10.4	26.8	90.4	38.1	0.614	23.62	17.81	5.81	0.50	0.591	0.576	0.565	0.551	0.015	10606.7	30375.4	54.1	105.7	153.3	195.3	25°14'	9.3	Plasticity, brownish yellow, Clayey sand with quartz gravels				
	132	"	HK14-9	17.8 - 18			3.3	4.4	22.2	33.7	12.5	5.2	6.4	3.4	8.9	21.39	19.6	16.1	10.0	26.6	87.3	39.5	0.652	25.57	17.25	8.32	0.50	0.617	0.599	0.585	0.568	0.018	8983.3	24962.0	52.1	104.2	164.9	190.2	25°24'	9.1	Plasticity, brownish yellow, Clayey sand				
	133	HK15	HK15-5	9.8 - 10					13.1	38.7	21.3	7.7	6.3	3.7	9.2	22.92	19.2	15.6	9.7	26.6	86.5	41.4	0.705	25.60	20.35	5.25	0.49	0.673	0.653	0.638	0.620	0.020	8365.0	21386.8	55.8	98.0	149.3	191.1	24°34'	9.3	Plasticity, whitish grey, Clayey sand				
	134	"	HK15-6	11.8 - 12				6.2	37.7	18.2	14.8	6.5	6.0	2.2	8.4	20.20	20.0	16.6	10.4	26.7	88.7	37.8	0.608	23.09	17.44	5.65	0.49	0.580	0.564	0.552	0.540	0.016	9875.0	28718.5	57.8	93.0	162.8	190.6	25°05'	9.0	Plasticity, yellowish grey - reddish brown, Clayey sand				
	135	"	HK15-7	13.8 - 14				4.1	12.6	37.6	20.9	7.8	5.0	2.6	9.4	19.13	19.4	16.3	10.2	26.6	80.5	38.7	0.632	22.08	16.21	5.87	0.50	0.600	0.583	0.569	0.552	0.017	9411.8	26709.6	51.3	102.2	161.3	185.7	24°49'	9.6	Plasticity, yellowish grey, Clayey sand				
	136	"	HK15-8	15.8 - 16				4.0	17.5	43.3	12.7	4.3	6.0	2.9	9.3	19.20	20.3	17.0	10.6	26.6	90.4	36.1	0.565	23.31	16.46	6.85	0.40	0.542	0.529	0.518	0.503	0.013	11861.5	35110.2	58.5	99.5	152.2	198.4	25°17'	9.1	Plasticity, yellowish grey - reddish brown, Clayey sand				
	137	"	HK15-9	17.8 - 18			7.6	30.2	34.4	11.8	3.8	0.7	3.3	1.8	6.4	21.03	19.3	15.9	9.9	26.6	83.1	40.2	0.673	24.00	18.52	5.48	0.46	0.647	0.633	0.623	0.612	0.014	11764.3	31209.5	60.7	97.5	155.7	202.9	25°52'	8.0	Plasticity, brownish yellow, Clayey sand				
	138	HK16	HK16-7	13.8 - 14					12.4	43.5	24.8	5.3	4.6	1.5	7.9	20.36	20.1	16.7	10.4	26.7	90.8	37.5	0.599	23.44	18.08	5.36	0.43	0.569	0.553	0.541	0.529	0.016	9806.3	28917.7	54.3	105.9	137.8	197.9	24°50'	8.3	Plasticity, reddish brown, Clayey sand				
	139	"	HK16-8	15.8 - 16					9.4	38.9	25.1	7.7	6.4	2.9	9.6	21.80	19.6	16.1	10.1	26.8	87.9	39.9	0.665	24.56	18.79	5.77	0.52	0.638	0.620	0.608	0.593	0.018	9100.0	24579.1	58.3	96.3	163.4	193.0	25°14'	10.0	Plasticity, yellowish grey, Clayey sand				
	140	"	HK16-9	17.8 - 18				7.6	8.7	39.8	23.1	5.5	4.5	1.6	9.2	22.75	19.5	15.9	9.9	26.6	89.9	40.2	0.673	25.68	19.52	6.16	0.52	0.641	0.624	0.611	0.596	0.017	9652.9	25929.7	54.6	100.7	147.4	190.9	24°30'	9.5	Plasticity, brownish yellow, Clayey sand				
	141	"	HK16-10	19.8 - 20				4.6	19.8	35.1	15.4	4.2	7.0	4.0	9.9	19.34	20.3	17.0	10.6	26.6	91.1	36.1	0.565	22.29	16.60	5.69	0.48	0.541	0.527	0.516	0.503	0.014	11007.1	32581.1	61.0	99.3	157.6	201.7	25°40'	9.8	Plasticity, brownish yellow, Clayey sand				
	142	"	HK16-11	21.8 - 22			4.1	21.6	40.5	11.0	8.3	1.8	2.9	1.5	8.3	19.50	20.2	16.9	10.6	26.7	89.8	36.7	0.580	22.35	16.61	5.74	0.50	0.558	0.545	0.534	0.519	0.013	11984.6	35474.5	58.2	103.7	145.8	202.9	25°28'	8.6	Plasticity, yellowish brown, Clayey sand				
	143	"	HK16-12	23.8 - 24			4.0	18.2	33.1	15.9	8.0	2.8	6.1	2.7	9.2	20.61	20.5	17.0	10.6	26.6	97.0	36.1	0.565	23.54	17.72	5.82	0.50	0.541	0.524	0.510	0.494	0.017	9064.7	26831.5	57.0	100.8	155.4	196.0	25°15'	9.4	Plasticity, yellowish brown, Clayey sand				
Average			A	0.2	0.2	1.3	3.6	13.5	28.2	27.2	8.1	6.0	2.7	9.0	20.62	20.0	16.6	10.4	26.7	90.3	37.9	0.609	23.60	17.78	5.82	0.49	0.584	0.568	0.556	0.541	0.015	10402.2	29609.8	55.7	101.8	148.0	195.0	φ _{1c} = 24°53'	C _{1c} = 9.1						
Dev. Standard			σ												1.522	0.384			0.022			0.050	1.550	1.533			0.048	0.047	0.046	0.045			3.475	5.227	9.780	6.683	φ ₂ = 24°43'	C ₂ = 8.1							
Coe. Dispersion			v												0.074	0.019			0.005			0.083	0.066	0.086			0.082	0.083	0.083	0.084			0.062	0.051	0.066	0.034	φ ₃ = 24°36'	C ₃ = 7.5							

Layer 5: Stiff, reddish brown - yellowish brown, Clay

144	HK1	HK1-9	17.8 - 18												4.8	8.1	35.4	15.7	36.0	28.64	19.1	14.8	9.4	27.4	92.2	46.0	0.851	45.18	22.51	22.67	0.27	0.812	0.785	0.748	0.696	0.027	6711.1	15636.9	52.9	74.7	95.5	124.3	13°13'	28.1	Stiff, reddish brown, Clay
145	"	HK1-10	19.8 - 20												5.5	8.7	31.4	18.3	36.1	26.34	19.0	15.0	9.5	27.3	87.7	45.1	0.820	41.47	20.09	21.38	0.29	0.780	0.755	0.716	0.663	0.025	7120.0	17016.8	57.8	72.5	98.4	130.4	13°42'	28.9	Stiff, reddish brown, Clay
146	"	HK1-11	21.8 - 22							2.3	10.9	12.6	30.2	13.4	30.6	28.46	18.9	14.7	9.3	27.2	91.1	46.0	0.850	41.62	23.44	18.18	0.28	0.807	0.778	0.736	0.681	0.029	6231.0	14605.5	54.0	76.7	89.9	128.7	13°21'	28.0	Stiff, ashgrey - bluish grey, Clay				
147	HK2	HK2-8	15.8 - 16								3.4	7.4	36.9	13.9	38.4	33.70	18.4	13.8	8.8	27.4	93.6	49.6	0.986	48.49	25.83	22.66	0.35	0.936	0.899	0.841	0.757	0.037	5232.4	11511.4	51.1	71.1	101.0	116.7	12°46'	28.3	Stiff, brownish yellow, Clay				
148	"	HK2-9	17.8 - 18								2.9	7.9	30.0	19.9	39.3	36.03	18.1	13.3	8.4	27.3	93.4	51.3	1.053	51.45	25.73	25.72	0.40	1.000	0.962	0.903	0.811	0.038	5263.2	9473.7	45.2	74.3	90.8	112.0	12°14'	26.4	Stiff, blackish blue grey, Clay				
149	"	HK2-10	19.8 - 20								2.9	9.3	29.3	17.6	40.9	33.42	18.5	13.9	8.8	27.3	94.6	49.1	0.964	49.22	25.49	23.73	0.33	0.915	0.879	0.828	0.758	0.036	5319.4	11702.8	52.6	67.8	81.1	117.2	11°42'	27.9	Stiff, blackish blue grey, Clay				
150	HK3	HK3-9	17.8 - 18								4.5	10.2	27.3	21.0	37.0	32.75	18.7	14.1	8.9	27.3	95.5	48.4	0.936	45.12	25.73	19.39	0.36	0.889	0.855	0.811	0.749	0.034	5555.9	12222.9	50.2	82.2	92.0	125.6	13°17'	28.5	Stiff, brownish yellow, Clay				
151	"	HK3-10	19.8 - 20								3.0	8.4	33.1	14.5	41.0	31.13	18.3	14.0	8.9	27.4	89.1	48.9	0.957	44.00	21.18	22.82	0.44	0.909	0.874	0.824	0.759	0.035	5454.3	11999.4	46.2	73.3	104.3	112.0	12°52'	26.9	Stiff, pinkish brown, Clay				
152	"	HK3-11	21.8 - 22								4.2	7.0	38.6	15.3	34.9	34.85	18.3	13.6	8.6	27.3	94.5	50.2	1.007	48.24	26.36	21.88	0.39	0.954	0.919	0.870	0.798	0.035	5582.9	12282.3	48.7	64.8	87.1	108.0	11°19'	27.1	Stiff, whitish grey - pinkish grey, Clay				
153	"	HK3-12	23.8 - 24								5.8	9.4	31.8	16.2	36.8	34.70	18.2	13.5	8.6	27.3	92.7	50.5	1.022	47.50	23.58	23.92	0.46	0.972	0.940	0.895	0.837	0.032	6162.5	13557.5	48.1	71.5	86.6	111.8	11°39'	28.0	Stiff, whitish grey - pinkish grey, Clay				
154	"	HK3-13	25.8 - 26								3.3	7.6	27.0	14.0	48.1	29.74	19.0	14.6	9.2	27.2	93.7	46.3	0.863	43.87	21.35	22.52	0.37	0.817	0.785	0.742	0.685	0.032	5678.1	13230.0	54.6	69.6	90.8	120.0	12°16'	29.4	Stiff, brownish yellow, Clay				
155	"	HK3-14	27.8 - 28								5.7	6.4	23.8	16.8	47.3	27.63	19.1	15.0	9.5	27.4	91.5	45.3	0.827	43.55	20.14	23.41	0.32	0.787	0.763	0.726	0.674	0.024	7445.8	17676.4	52.8	78.2	99.0	126.9	13°40'	28.5	Stiff, brownish yellow, Clay				
156	HK4	HK4-11	21.8 - 22							7.7	42.5	10.9	11.3	3.7	23.9	25.44	19.5	15.5	9.8	27.0	92.6	42.6	0.742	31.89	20.56	11.33	0.43	0.702	0.675	0.637	0.590	0.027	6303.7	17098.8	47.0	74.5	102.6	122.3	14°15'	23.1	Stiff, brownish yellow, Sandy clay				
157	HK5	HK5-10	19.8 - 20								2.1	10.7	32.0	14.6	40.6	26.49	19.0	15.0	9.5	27.3	88.2	45.1	0.820	40.71	20.24	20.47	0.31	0.780	0.751	0.719	0.676	0.029	6137.9	14718.8	55.0	71.8	100.9	124.2	13°19'	28.8	Stiff, yellowish grey, Clay				
158	"	HK5-11	21.8 - 22								3.2	6.5	31.3	15.1	43.9	31.49	18.7	14.2	9.0	27.2	93.6	47.8	0.915	42.36	22.49	19.87	0.45	0.870	0.840	0.794	0.732	0.030	6233.3	13838.0	53.3	71.7	90.3	122.4	12°44'	28.0	Stiff, reddish brown, Clay				
159	HK6	HK6-9	17.8 - 18								2.8	10.2	32.0	14.5	40.5	29.84	18.8	14.5	9.2	27.2	92.7	46.7	0.876	45.10	20.98	24.12	0.37	0.834	0.806	0.767	0.716	0.028	6550.0	14986.4	55.5	71.3	88.2	122.1	12°14'	30.1	Stiff, brownish yellow, Clay				
160	"	HK6-10	19.8 - 20								4.0	5.7	33.1	15.2	42.0	34.06	18.5	13.8	8.7	27.3	95.1	49.5	0.978	48.34	22.61	25.73	0.45	0.931	0.899	0.853	0.794	0.032	6034.4	13275.6	49.7	81.4	101.7	122.6	13°26'	29.1	Stiff, brownish yellow, Clay				
161	"	HK6-11	21.8 - 22								2.5	6.9	33.2	15.2	42.2	33.49	18.4	13.8	8.8	27.4	93.1	49.6	0.986	50.74	20.05	30.69	0.44	0.936	0.901	0.848	0.776	0.035	5531.4	12169.1	56.1	81.6	98.4	131.5	13°39'	31.2	Stiff, pinkish grey, Clay				
162	"	HK6-12	23.8 - 24								6.3	11.8	31.3	12.8	37.8	31.07	18.3	14.0	8.9	27.3	89.3	48.7	0.950	48.35	21.93	26.42	0.35	0.901	0.866	0.817	0.750	0.035	5431.4	11949.1	55.3	71.7	94.1	124.9	13°01'	28.7	Stiff, pinkish grey, Clay				
163	"	HK6-13	25.8 - 26								4.9	7.1	26.7	13.8	47.5	30.68	19.0	14.5	9.2	27.4	94.5	47.1	0.890	48.76	23.52	25.24	0.28	0.848	0.818	0.775	0.711	0.030	6160.0	13946.2	52.3	73.5	88.2	122.1	12°38'	28.0	Stiff, yellowish grey - pinkish grey, Clay				
164	"	HK6-14	27.8 - 28								3.6	9.9	28.9	13.4	44.2	33.28	18.2	13.7	8.7	27.3	91.5	49.8	0.993	46.25	28.04	18.21	0.29	0.949	0.919	0.868	0.793	0.030	6496.7	14292.7	48.1	78.2	103.6	120.3	13°36'	27.1	Stiff, bluish grey, Clay				
165	HK7	HK7-10	19.8 - 20								2.9	6.8	28.1	10.7	51.5	31.22	18.8	14.3	9.1	27.4	93.4	47.8	0.916	46.98	25.44	21.54	0.27	0.873	0.847	0.810	0.762	0.026	7203.8	15891.7	46.2	74.7	98.3	110.1	12°09'	28.5	Stiff, whitish grey - brownish yellow, Clay				
166	"	HK7-11	21.8 - 22								3.2	7.5	28.6	12.5	48.2	30.27	18.9	14.5	9.2	27.3	93.6	46.9	0.883	44.87	24.62	20.25	0.28	0.834	0.802	0.756	0.693	0.032	5731.3	13159.0	55.5	73.0	96.2	126.1	13°13'	29.0	Stiff, whitish grey - brownish yellow, Clay				
167	HK8	HK8-11	21.8 - 22								2.8	6.4	28.5	15.8	46.5	25.81	19.6	15.6	9.9	27.3	93.9	42.9	0.750	41.53	20.40	21.13	0.26	0.710	0.685	0.650	0.608	0.025	6840.0	16416.0	48.6	76.0	91.7	116.2	12°20'	28.5	Stiff, yellowish grey - yellowish brown, Clay				
168	"	HK8-12	23.8 - 24								2.9	6.3	33.4	15.2	42.2	29.53	19.0	14.7	9.3	27.3	94.1	46.2	0.857	41.32	20.78	20.54	0.43	0.820	0.791	0.751	0.691	0.029	6275.9	14547.4	49.2	65.3	90.1	109.7	11°39'	27.0	Stiff, reddish brown, Clay				
169	HK9	HK9-11	21.8 - 22							4.5	9.4	7.8	27.4	12.9	38.0	27.66	19.3	15.1	9.6	27.3	93.5	44.7	0.808	42.80	20.96	21.84	0.31	0.769	0.742	0.703	0.645	0.027	6551.9	15724.4	56.1	75.0	99.3	127.8	13°28'	29.7	Stiff, brownish yellow, Clay				
170	HK10	HK10-10	19.8 - 20							1.5	4.9	8.3	28.8	10.1	46.4	26.68	19.0	15.0	9.5	27.3	88.8	45.1	0.820	42.00	20.12	21.88	0.30	0.779	0.750	0.709	0.663	0.029	6134.5	14722.8	54.1	75.5	90.8	127.3	13°13'	28.2	Stiff, yellowish grey - reddish brown, Clay				
171	"	HK10-11	21.8 - 22							1.9	7.3	10.2	32.0	9.4	39.2	25.81	19.5	15.5	9.8	27.4	92.1	43.4	0.768	42.62	19.66	22.96	0.27	0.728	0.700	0.658	0.596	0.028	6171.4	14811.4	51.6	83.4	105.7	127.8	14°05'	29.4	Stiff, yellowish grey - reddish brown, Clay				
172	"	HK10-12	23.8 - 24							3.4	9.0	10.1	26.2	9.1	42.2	27.34	19.2	15.1	9.6	27.3	92.4	44.7	0.808	42.80	20.29	22.51	0.31	0.767	0.739	0.698	0.648	0.028	6310.7	15145.7	53.6	76.2	100.3	126.8	13°42'	28.3	Stiff, yellowish grey - reddish brown, Clay				
173	"	HK10-13	25.8 - 26						1.4	3.9	6.5	8.3	30.2	12.7	37.0	27.40	18.9	14.8	9.4	27.3	88.5	45.8	0.845	40.67	21.05	19.62	0.32	0.807	0.781	0.741	0.689	0.026	6950.0	16249.1	54.1	71.7	98.6	124.9	13°27'	27.5	Stiff, yellowish grey - reddish brown, Clay				
174	HK11	HK11-10	19.8 - 20								3.4	7.8	30.2	13.0	45.6	27.56	19.3	15.1	9.6	27.3	93.1	44.7	0.808	40.30	17.54	22.76	0.44	0.765	0.736	0.697	0.648	0.029	6086.2	14606.9	54.8	74.2	90.3	127.6	13°12'	28.1	Stiff, brownish yellow - reddish brown, Clay				

					Combined results from sieve & hydrometer analysis, %										Moisture content W %	Unit weight		Unit weight Subm. γ' kN/m³	Specific Gravity G _s kN/m³	Saturation S _r %	Porosity n %	Void ratio e _o	Atterberg limit				QUICK COMPRESSION TEST								DIRECT SHEAR TEST							DESCRIPTION OF SOIL
Layer No.	No.	Borehole.	Sample	Depth (m)	Gravel			Sand					Silt			Clay	wet γ						dry γ _d	Liquid limit W _L %	Plastic limit W _P %	Plasticity Index I _P %	Liquidity Index I _L %	Void ratio				a ₍₁₀₀₋₂₀₀₎ kPa ⁻¹ x10 ⁻²	E _{i(100-200)} kPa	E _{o(100-200)} kPa	Max shear stress				Angle of friction φ °	Cohesion C kPa		
					>10	10.0 to 5.0	5.0 to 2.0	2.0 to 1.0	1.0 to 0.50	0.25 to 0.1	0.05 to 0.01	0.01 to 0.005	τ (kPa) 100 200 300 400																													
					(mm)																																					
	175	"	HK11-11	21.8 - 22							1.6	4.9	34.3	15.7	43.5	24.09	19.6	15.8	10.0	27.4	89.9	42.3	0.734	38.47	18.64	19.83	0.27	0.696	0.673	0.636	0.587	0.023	7373.9	17697.4	56.1	76.7	112.5	128.7	14°14'	30.1	Stiff, brownish yellow - reddish brown, Clay	
	176	"	HK11-12	23.8 - 24							5.5	9.3	29.5	13.1	42.6	27.39	19.1	15.0	9.5	27.3	91.2	45.1	0.820	44.69	20.72	23.97	0.28	0.776	0.750	0.711	0.658	0.026	6830.8	16393.8	56.6	74.5	97.2	128.5	13°25'	29.6	Stiff, brownish yellow - reddish brown, Clay	
	177	"	HK11-13	25.8 - 26							0.6	6.1	34.2	15.6	43.5	26.31	19.4	15.4	9.8	27.3	92.9	43.6	0.773	40.14	19.57	20.57	0.33	0.728	0.699	0.663	0.615	0.029	5958.6	14300.7	56.0	83.9	93.7	133.0	13°32'	31.5	Stiff, brownish yellow - reddish brown, Clay	
	178	"	HK11-14	27.8 - 28							2.2	11.0	30.3	14.2	42.3	23.77	19.9	16.1	10.2	27.3	93.2	41.0	0.696	38.12	18.29	19.83	0.28	0.658	0.631	0.594	0.548	0.027	6140.7	14737.8	52.1	83.4	101.4	129.6	14°04'	29.0	Stiff, brownish yellow - reddish brown, Clay	
	179	"	HK11-15	29.8 - 30							3.6	10.2	32.6	14.7	38.9	26.30	19.5	15.4	9.8	27.4	92.5	43.8	0.779	40.12	19.09	21.03	0.34	0.741	0.714	0.677	0.625	0.027	6448.1	15475.6	53.8	79.4	99.8	126.8	13°28'	30.1	Stiff, brownish yellow - reddish brown, Clay	
	180	HK12	HK12-10	19.8 - 20							3.0	6.6	33.2	15.2	42.0	26.40	19.4	15.3	9.7	27.3	91.9	44.0	0.784	45.17	20.45	24.72	0.24	0.747	0.722	0.693	0.658	0.025	6988.0	16771.2	67.8	102.2	116.7	153.4	15°11'	42.2	Very stiff, yellowish brown, Clay	
	181	"	HK12-11	21.8 - 22							2.2	8.7	25.6	16.4	47.1	28.75	19.0	14.8	9.4	27.3	92.9	45.8	0.845	45.02	22.76	22.26	0.27	0.803	0.779	0.745	0.703	0.024	7512.5	17594.3	60.0	83.2	98.1	138.4	14°02'	32.4	Stiff, yellowish brown, Clay	
	182	"	HK12-12	23.8 - 24							3.3	6.5	26.8	12.7	50.7	24.73	19.7	15.8	10.0	27.2	93.2	41.9	0.722	47.61	20.87	26.74	0.14	0.689	0.669	0.643	0.607	0.020	8445.0	20268.0	74.4	103.9	122.7	162.1	15°45'	45.3	Very stiff, yellowish brown, Clay	
	183	HK13	HK13-9	17.8 - 18							4.4	7.2	28.4	17.0	43.0	29.78	19.0	14.6	9.3	27.3	93.4	46.5	0.870	51.54	20.72	30.82	0.29	0.830	0.801	0.761	0.704	0.029	6310.3	14501.2	54.3	81.6	101.7	131.3	14°06'	29.5	Stiff, whitish grey - pinkish grey, Clay	
	184	"	HK13-10	19.8 - 20							4.3	7.9	26.5	13.9	47.4	29.15	19.1	14.8	9.4	27.4	93.9	46.0	0.851	50.29	20.13	30.16	0.30	0.808	0.779	0.737	0.679	0.029	6234.5	14601.2	55.0	75.8	99.8	129.2	13°51'	28.3	Stiff, whitish grey - pinkish grey, Clay	
	185	HK14	HK14-10	19.8 - 20							6.3	10.0	28.5	12.2	43.0	31.59	18.6	14.1	8.9	27.2	92.5	48.2	0.929	42.98	24.16	18.82	0.39	0.883	0.854	0.817	0.762	0.029	6493.1	14284.8	51.1	74.2	105.2	120.0	13°22'	28.2	Stiff, blackish blue grey - ashgrey, Clay	
	186	"	HK14-11	21.8 - 22							5.9	6.9	29.4	15.3	42.5	27.57	19.0	14.9	9.4	27.2	90.8	45.2	0.826	41.83	20.55	21.28	0.33	0.786	0.758	0.720	0.665	0.028	6378.6	15206.5	55.6	74.2	94.6	127.6	13°18'	28.9	Stiff, blackish blue grey - ashgrey, Clay	
	187	HK15	HK15-10	19.8 - 20							4.1	9.0	29.5	12.7	44.7	30.48	18.8	14.4	9.1	27.4	92.5	47.4	0.903	42.84	23.21	19.63	0.37	0.860	0.828	0.778	0.710	0.032	5812.5	13043.3	51.4	67.6	91.5	111.8	11°35'	29.3	Stiff, pinkish brown, Clay	
	188	HK16	HK16-13	25.8 - 26							7.1	8.6	25.5	13.3	45.5	27.40	19.0	14.9	9.4	27.3	89.9	45.4	0.832	42.45	21.81	20.64	0.27	0.793	0.766	0.726	0.672	0.027	6640.7	15725.3	46.9	81.0	103.6	118.3	13°19'	28.3	Stiff, pinkish brown, Clay	
	Average			A					0.03	0.6	5.2	8.3	29.8	14.2	41.8	29.25	18.9	14.7	9.3	27.3	92.6	46.3	0.863	44.21	21.86	22.35	0.33	0.822	0.793	0.751	0.694	0.029	6321.3	14645.9	53.4	76.4	97.4	124.6	φ _{ic} = 13°13'	C _{ic} = 29.3		
	Dev. Standard			σ												3.126	0.439			0.080			0.087	3.965	2.386			0.083	0.080	0.075	0.067			5.277	7.583	8.07	10.73	φ ₂ = 12°55'	C ₂ = 27.8			
	Coe. Dispersion			v												0.107	0.023			0.003			0.100	0.090	0.109			0.101	0.101	0.099	0.096			0.099	0.099	0.082	0.082	φ ₁ = 12°45'	C ₁ = 26.9			
Layer 6: Plasticity, brownish yellow - reddish brown, Clayey sand																																										
	189	HK1	HK1-12	23.8 - 24				4.3	24.2	37.5	17.0	3.1	4.7	1.5	7.7	21.40	19.8	16.3	10.2	26.6	90.1	38.7	0.632	24.38	18.56	5.82	0.49	0.608	0.593	0.580	0.564	0.015	10720.0	30025.6	57.0	105.9	142.7	203.3	25°26'	8.3	Plasticity, brownish yellow, Clayey sand	
	190	"	HK1-13	25.8 - 26				1.5	6.5	43.5	22.6	7.3	6.3	2.9	9.4	19.53	19.8	16.6	10.4	26.7	85.8	37.8	0.608	22.35	16.80	5.55	0.49	0.580	0.566	0.555	0.541	0.014	11285.7	32737.6	55.6	102.7	150.7	196.0	25°08'	9.0	Plasticity, brownish yellow, Clayey sand	
	191	HK2	HK2-11	21.8 - 22			2.1	8.8	34.2	21.4	17.3	4.4	2.9	1.6	7.3	20.12	20.0	16.7	10.4	26.6	90.3	37.2	0.593	23.13	17.44	5.69	0.47	0.564	0.548	0.536	0.522	0.016	9775.0	28934.0	59.2	98.3	158.0	199.1	25°37'	8.8	Plasticity, pinkish grey, Clayey sand	
	192	HK4	HK4-12	23.8 - 24				7.0	20.3	47.5	10.3	3.3	1.7	9.9	20.71	19.9	16.5	10.3	26.8	88.9	38.4	0.624	23.83	17.67	6.16	0.49	0.596	0.579	0.565	0.548	0.017	9388.2	26781.8	54.8	100.0	146.2	189.6	24°15'	10.0	Plasticity, brownish yellow, Clayey sand		
	193	"	HK4-13	25.8 - 26				6.2	20.0	50.1	7.7	5.7	1.9	8.4	20.25	20.1	16.7	10.4	26.6	90.8	37.2	0.593	23.27	17.45	5.82	0.48	0.565	0.548	0.535	0.519	0.017	9205.9	27249.4	54.3	112.6	139.7	203.1	25°20'	9.0	Plasticity, reddish brown - brownish yellow, Clayey sand		
	194	HK5	HK5-12	23.8 - 24			2.9	11.4	27.7	25.9	12.8	4.2	5.2	1.6	8.3	19.53	20.5	17.2	10.7	26.6	95.0	35.3	0.547	22.30	16.65	5.65	0.51	0.523	0.508	0.497	0.483	0.015	10153.3	30053.9	60.7	96.8	154.5	200.9	25°34'	8.6	Plasticity, reddish brown, Clayey sand	
	195	"	HK5-13	25.8 - 26				4.2	10.6	34.1	25.4	6.7	6.4	3.0	9.6	20.65	20.2	16.7	10.4	26.7	92.0	37.5	0.599	23.50	17.42	6.08	0.53	0.576	0.560	0.546	0.528	0.016	9850.0	28791.6	58.5	97.7	139.7	197.0	24°35'	8.8	Plasticity, reddish brown, Clayey sand	
	196	HK7	HK7-12	23.8 - 24				13.6	45.4	19.6	4.7	5.7	1.8	9.2	22.71	19.4	15.8	9.9	26.6	88.3	40.6	0.684	25.65	19.88	5.77	0.49	0.655	0.637	0.621	0.601	0.018	9194.4	24255.9	55.6	101.0	145.1	192.9	24°31'	9.7	Plasticity, brownish yellow - reddish brown, Clayey sand		
	197	HK8	HK8-13	25.8 - 26				3.1	35.6	29.3	11.3	4.0	5.6	1.8	9.3	21.93	20.0	16.4	10.3	26.8	92.7	38.8	0.634	24.73	19.00	5.73	0.51	0.609	0.593	0.581	0.563	0.016	10056.3	28166.6	55.0	105.5	148.9	197.4	25°12'	9.0	Plasticity, yellowish grey - reddish brown, Clayey sand	
	198	HK9	HK9-12	23.8 - 24			4.3	17.0	34.4	14.6	8.3	2.7	6.2	3.6	8.9	20.19	19.8	16.5	10.3	26.7	87.2	38.2	0.618	23.15	17.26	5.89	0.50	0.594	0.578	0.566	0.552	0.016	9962.5	28456.9	61.4	101.0	146.3	205.7	25°33'	9.1	Plasticity, brownish yellow, Clayey sand	
	199	"	HK9-13	25.8 - 26			6.3	20.6	31.3	15.6	5.9	2.6	6.0	3.0	8.7	18.33	20.6	17.4	10.9	26.6	92.2	34.6	0.529	21.27	15.48	5.79	0.49	0.502	0.489	0.480	0.466	0.013	11553.8	34199.4	55.3	106.0	156.6	199.1	25°44'	8.8	Plasticity, brownish yellow, Clayey sand	
	200	"	HK9-14	27.8 - 28				13.4	30.6	22.3	9.8	3.7	7.4	3.1	9.7	19.32	20.3	17.0	10.6	26.6	91.0	36.1	0.565	22.42	16.13	6.29	0.51	0.540	0.527	0.516	0.503	0.013	11846.2	35064.6	57.3	100.8	153.6	196.9	25°15'	9.3	Plasticity, brownish yellow, Clayey sand	
	201	"	HK9-15	29.8 - 30	3.9	14.2	18.7	31.9	9.4	7.7	2.6	3.7	1.6	6.3	17.82	20.5	17.4	10.9	26.6	89.6	34.6	0.529	20.70	14.88	5.82	0.51	0.510	0.497	0.487	0.475	0.013	11615.4	34381.5	57.3	106.9	157.6	205.0	26°17'	8.2	Plasticity, yellowish grey, Clayey sand with quartz gravels		
	202	HK10	HK10-14	27.8 - 28			10.7	30.4	17.8	14.9	10.0	2.9	3.1	1.4	8.8	19.28	20.2	16.9	10.5	26.6	89.3	36.5	0.574	22.30	16.41	5.89	0.49	0.550	0.535	0.524	0.509	0.015	10333.3	30586.7	60.4	93.8	154.2	196.5	25°07'	9.1	Plasticity, yellowish grey - yellowish brown, Clayey sand	
	203	"	HK10-15	29.8 - 30			13.6	35.1	1																																	

Layer No.	No.	Borehole.	Sample	Depth (m)	Combined results from sieve & hydrometer analysis, %												Moisture content W	Unit weight		Unit weight Subm. γ'	Specific Gravity G _s	Saturation S _r	Porosity n	Void ratio e _o	Atterberg limit				QUICK COMPRESSION TEST								DIRECT SHEAR TEST						DESCRIPTION OF SOIL
					Gravel			Sand				Silt		Clay 0.005 0.																													