Appendix 3 Laboratory Test

Table APP.3-1 Lower Jalond Test-I-(1)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
1	LJ-1	101	14.05/14.25	5.4	10.80	1:2	71	2.01	0.32	2.89	4.362
2	LJ-1	122	19.40/20.80	5.4	10.80	1:2	1506	1.02	0.34	2.97	4.954
3	LJ-1	153	24.60/25.40	5.4	10.80	1:2	415	3.23	1.22	2.64	3.816
4	LJ-1	200	33.65/35.10	5.4	10.90	1:2.02	502	3.21	1.19	2.68	3.385
5	LJ-1	265	47.00/48.50	5.7	11.3	1:1.98	314	4.02	1.57	2.56	3.256
6	LJ-1	305	59.00/60.55	5.4	10.80	1:2	262	3.87	1.59	2.45	3.506
7	LJ-2	9	2.25/3.35	5.4	10.80	1:2	546	3.16	1.21	2.62	3.636

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-2 Lower Jalond Test-I-(2)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm²	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
8	LJ-2	99	10.45/11.55	5.4	10.90	1:2.02	1070	2.12	0.74	2.94	5.190
9	LJ-2	167	28.20/28.55	5.4	10.90	1:2.02	314	3.06	2.03	2.71	3.231
10	LJ-2	223	37.00/38.65	5.4	10.90	1:2.02	415	3.43	1.30	2.63	3.527
11	LJ-2	371	51.00/52.5	5.4	10.90	1:2.02	589	2.72	1.02	2.67	4.504
12	LJ-2	435	67.60/69.00	5.4	10.80	1:2	1048	2.52	0.88	2.87	4.576
13	LJ 3	80	12.10/13.30	5.85	11.5	1:1.97	800	2.67	0.99	2.70	3.979
14	LJ 3	126	23.85/25.20	5.85	11.4	1:1.95	781	2.72	1.02	2.67	4.435

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-3 Lower Jalond Test-I-(3)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm²	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
15	LJ-3	181	37.85/39.20	6.85	12.70	1:2.17	632	3.17	1.20	2.64	3.713
16	LJ-3	208	49.50/50.85	5.85	11.50	1:1.97	614	3.30	1.25	2.63	4.323
17	LJ-3	263	67.55/68.65	5.85	11.50	1:1.97	484	4.20	1.69	2.48	3.585

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-4 Lower Jalond Test-I-(4)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
1	UM1	29	29.50/29.61	5.4	10.00	1:1.85	238	2.9	1.31	2.34	3.017
2	UM1	36	30.60/30.73	5.4	10.00	1:1.85	451	2.3	1.29	2.66	4.613
3	UM1	57	33.10/33.30	5.4	10.00	1:1.85	383	2.0	0.87	2.64	4.281
4	UM1	113	38.40/39.90	5.4	10.00	1:1.85	513	2.1	0.79	2.67	4.310
5	UM1	135	47.40/48.90	5.4	10.00	1:1.85	349	2.5	0.95	2.62	4.830
6	UM1	148	51.60/53.00	5.4	10.00	1:1.85	412	2.4	0.93	2.63	4.807
7	UM1	163	55.75/57.25	5.4	10.00	1:1.85	437	2.2	0.83	2.65	4.716
8	UM1	184	58.25/59.70	5.4	10.00	1:1.85	457	2.7	1.00	2.58	4.219

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-5 Lower Jalond Test-I-(5)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
9	UM2	59B	16.45/17.95	5.4	10.00	1:1.85	618	3.1	1.22	2.53	4.115
10	UM2	84	20.90/22.30	5.4	10.00	1:1.85	873	2.6	0.93	2.74	4.716
11	UM2	108	31.10/32.60	5.4	10.00	1:1.85	976	2.2	0.78	2.82	4.230
12	UM2	137	39.15/39.40	5.4	10.00	1:1.85	839	2.1	0.75	2.79	4.873
13	UM2	167A	48.80/49.00	5.4	10.00	1:1.85	863	2.3	0.51	2.81	4.881
14	UM2	180B	51.60/53.10	5.4	10.00	1:1.85	1092	1.5	0.54	2.80	4.385
15	UM2	192B	54.60/56.10	5.4	10.00	1:1.85	873	2.2	0.77	2.85	4.310
16	UM2	198	56.10/57.60	5.4	10.00	1:1.85	1236	1.0	0.36	2.81	4.761

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-6 Lower Jalond Test-I-(6)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
17	UM3	85	32.15/33.65	5.4	10.00	1:1.85	571	4.9	1.88	2.59	4.323
18	UM3	111	37.65/39.15	5.4	10.00	1:1.85	1026	3.4	1.22	2.78	4.784
19	UM3	131C	41.91/42.13	5.4	10.00	1:1.85	533	4.1	1.38	2.65	4.317
20	UM3	139	43.15/44.65	5.4	10.00	1:1.85	856	4.2	1.52	2.74	4.476
21	UM3	166	48.15/48.46/	5.4	10.00	1:1.85	527	4.8	1.83	2.65	4.323
22	UM3	181	51.20/52.70	5.4	10.00	1:1.85	537	4.9	1.86	2.63	4.444
23	UM3	198	55.70/57.20	5.4	10.00	1:1.85	393	5.1	1.96	2.60	4.464
24	UM3	222	59.80/60.00	5.4	10.00	1:1.85	424	4.9	2.03	2.62	4.316
25	UM4	2	4.5/6.00	7.5	8.5	1:1.13	102	9.8	4.26	2.31	2.153
26	UM4	117C	29.45/30.20	5.4	10.00	1:1.85	388	4.4	1.69	2.64	4.107
27	UM5	13	5.00/6.15	7.5	8.5	1:1.13	196	8.2	3.33	2.45	2.341

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-7 Lower Jalond Test-I-(7)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
28	UM5	102	26.50/28.00	5.4	10.00	1:1.18	473	3.0	1.12	2.69	4.285
29	UM5	113	28.00/29.50	5.4	10.00	1:1.85	393	2.3	0.82	2.80	4.901

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-8 Lower Jalond Test-I-(8)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
1	LM1	17	9.00/9.40	5.4	10.00	1:1.85	527	1.7	0.60	2.92	4.194
2	LM1	18	9.45/9.60	5.4	10.00	1:1.85	592	1.9	0.50	2.87	4.593
3	LM1	63A	21.92/23.40	5.4	10.00	1:1.85	677	1.5	0.49	3.01	4.329
4	LM1	84A	31.09/32.59	5.4	10.00	1:1.85	218	7.4	3.10	2.38	2.531
5	LM1	116	44.83/46.41	5.4	10.00	1:1.85	589	4.7	1.87	2.51	4.688
6	LM1	137	52.48/53.98	5.4	10.00	1:1.85	494	2.6	0.94	2.73	4.267
7	LM1	152	56.96/58.49	5.4	10.00	1:1.85	655	3.2	1.24	2.57	4.566

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-9 Lower Jalond Test-I-(9)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
8	LM2	18	8.00/9.60	5.4	10.00	1:1.85	875	2.7	0.99	2.76	4.106
9	LM2	99	22.15/23.65	5.4	10.00	1:1.85	371	4.6	1.80	2.53	3.952
10	LM2	128A	31.87/33.33	5.4	10.00	1:1.85	120	10.1	4.62	2.19	2.197
11	LM2	171	44.18/45.68	5.4	10.00	1:1.85	961	2.2	0.78	2.84	4.524
12	LM2	237	57.60/59.10	5.4	10.00	1:1.85	284	5.2	2.15	2.41	3.021

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-10 Lower Jalond Test-I-(10)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
13	LM3	34B	9.40/10.90	5.4	10.00	1:1.85	862	2.0	0.69	2.81	4.520
14	LM3	74	21.15/22.61	5.4	10.00	1:1.85	1463	1.1	0.37	2.96	4.761
15	LM3	100	28.58/29.63	5.4	7.5	1:1.39	109	10.2	4.79	2.14	1.689
16	LM3	181	46.28/47.78	5.4	10.00	1:1.85	568	6.4	2.53	2.52	4.048
17	LM3	218	53.34/56.84	5.4	10.00	1:1.85	567	2.9	1.06	2.71	4.202
18	LM4	13	9.00/10.25	5.4	10.00	1:1.85	770	7.8	3.12	2.50	4.328
19	LM4	41	20.20/20.68	5.4	10.00	1:1.85	375	3.1	1.21	2.46	4.461
20	LM4	67	34.80/36.35	5.4	10.00	1:1.85	306	6.7	2.58	2.60	3.378
21	LM4	102C	44.20/45.76	5.4	10.00	1:1.85	131	10.0	4.33	2.30	2.538
22	LM4	139	58.13/59.47	5.4	10.00	1:1.85	489	4.4	1.66	2.65	4.444

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-11 Lower Jalond Test-I-(11)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
23	LM5	24C	3.34/4.50	5.4	10.00	1:1.85	888	1.4	0.49	2.87	4.736
24	LM5	68	15.44/17.00	5.4	10.00	1:1.85	655	2.4	0.89	2.75	4.464
25	LM5	131B	29.28/30.78	5.4	10.00	1:185	148	10.8	4.82	2.24	2.409
26	LM5	185	43.42/44.92	5.4	10.00	1:1.85	2818	10.8	3.97	2.18	2.867
27	LM5	256	49.47/50.60	5.4	10.00	1:1.85	673	3.3	1.56	2.72	4.318
28	LM5	265	51.00/51.20	5.4	10.00	1:1.85	756	2.1	0.38	2.83	4.548
29	LM5	292B	56.87/57.55	5.4	10.00	1:1.85	281	4.8	1.91	2.54	4.361
30	LM6	17	6.00/7.25	5.4	10.00	1:1.85	880	3.9	1.40	2.79	4.830
31	LM6	63A	23.25/24.80	5.4	10.00	1:1.85	724	4.0	1.44	2.77	4.736
32	LM6	82B	37.37/38.87	5.4	10.00	1:1.85	697	7.3	3.17	2.29	4.729
33	LM6	95A	47.57/49.13	5.4	10.00	1:1.85	830	4.0	1.45	2.77	3.194
34	LM6	118	57.06/58.69	5.4	10.00	1:1.85	144	6.8	2.77	2.45	2.857

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-12 Lower Jalond Test-I-(12)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
1	UH1	19	15.46/15.76	5.4	10.58	1:2.35	102.6	6.1	2.55	2.39	2.646
2	UH1	23	17.16/17.39	5.4	10.30	1:1.92	131.0	5.5	2.46	2.41	2.687
3	UH1	40	20.11/20.39	5.4	10.27	1:1.90	154.3	5.3	3.10	2.38	3.011
4	UH1	76	23.80/24.00	5.4	10.80	1:2.0	349.0	4.9	1.91	2.55	3.678
5	UH1	103	26.40/26.70	5.4	10.80	1:2.0	416.3	2.7	1.08	2.71	4.122
6	UH1	128	29.70/29.85	5.4	10.80	1:2.0	631.4	1.9	0.81	2.76	4.358
7	UH2	44	5.13/5.48	5.4	10.30	1:1.92	568.0	3.7	1.33	2.71	4.030
8	UH2	78	9.56/9.68	5.4	10.00	1:1.85	611.0	2.2	0.79	2.81	3.939
9	UH2	111	14.03/14.15	5.4	10.00	1:1.85	352.4	3.1	1.22	2.51	4.297
10	UH2	142	18.53/18.91	5.4	10.70	1:1.98	651.6	7.3	3.17	2.43	4.262
11	UH2	197	23.47/23.62	5.4	10.00	1:1.85	270.56	4.8	1.89	2.61	3.541
12	UH2	238	29.30/29.47	5.4	10.00	1:1.85	598.3	2.5	0.87	2.79	4.233

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-13 Lower Jalond Test-I-(13)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm²	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
13	UH3	38	5.46/5.65	5.4	10.00	1:1.85	984.5	2.1	0.58	2.79	4.803
14	UH3	63	10.09/10.46	5.4	10.00	1:1.85	1026	0.7	0.20	2.99	4.510
15	UH3	95	13.68/13.83	5.4	10.00	1:1.85	1616	0.5	0.17	3.18	4.905
16	UH3	120	17.45/17.55	5.4	10.00	1:1.85	978.8	2.2	0.68	2.81	4.916
17	UH3	192	20.85/20.95	5.4	9.00	1:1.67	337.3	3.6	2.66	2.71	3.017
18	UH3	240	28.65/28.75	5.4	8.00	1:1.48	320.1	3.1	1.33	2.58	2.403

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-14 Lower Jalond Test-I-(14)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm²	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
1	LH1	33	13.80/14.01	5.4	10.7	1:1.98	1223	0.7	0.22	3.08	4.885
2	LH1	61	23.08/23.50	5.4	10.7	1:1.98	1354	0.6	0.20	3.13	4.841
3	LH1	91	30.89/31.13	5.4	10.7	1:1.98	649.3	1.9	0.96	2.51	4.204
4	LH1	123	39.23/39.35	5.4	10.7	1:1.98	706.7	2.7	0.97	2.81	4.067
5	LH1	161	48.25/48.45	5.4	10.7	1:1.98	341.0	4.5	1.78	2.57	3.413
6	LH1	212	62.46/62.84	5.4	10.7	1:1.98	786	2.0	0.71	2.86	4.354
7	LH2	83	17.26/17.49	5.4	10.7	1:1.98	633	2.3	0.81	2.82	3.892
8	LH2	159	29.54/29.95	5.4	10.7	1:1.98	437	4.1	1.56	2.65	3.794
9	LH2	215	43.99/44.16	5.4	10.7	1:1.98	961	0.9	0.32	2.93	4.297
10	LH2	262	54.22/54.44	5.4	10.7	1:1.98	469.2	2.5	1.31	2.70	4.198
11	LH2	324	65.63/65.77	5.4	10.7	1:1.98	404.3	2.8	1.51	2.77	3.998
12	LH2	390	74.34/74.68	5.4	10.7	1:1.98	611	2.2	0.78	2.81	3.905

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-15 Lower Jalond Test-I-(15)

SR. NO.	BORE HOLE NO.	CORE NO.	DEPTH m.	DIAMETER cms.	LENGTH cms.	D : H	UNIAXIAL COMPRESSIVE STRENGTH kg/cm^2	POROSITY %	WATER ABSORPTION %	DRY DENSITY gm/cc	ULTRASONIC TEST m/sec
13	LH3	7	12.30/12.64	5.4	10.70	1:1.98	764	2.0	0.71	2.85	4.163
14	LH3	69B	22.80/23.22	5.4	10.70	1:1.98	655	2.1	0.75	2.84	4.131
15	LH3	89A	31.33/31.51	5.4	10.70	1:1.98	1062	1.7	0.50	2.91	4.230
16	LH3	110	39.21/39.34	5.4	10.70	1:1.98	808	1.5	0.53	2.89	4.196
17	LH3	134	45.69/46.06	5.4	10.70	1:1.98	1162	0.7	0.64	2.98	4.314
18	LH3	189	56.36/56.69	5.4	10.70	1:1.98	1332	0.6	0.60	3.10	4.930

NOTE : All samples were soaked in water for 24 hrs. before testing.

Table APP.3-16 Lower Jalond Test-II-(1)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
1	LJ-1	122	19.40/20.80	0.93	0.31	70.0	2.97
2	LJ-1	101	14.05/14.25	0.48	0.22	40.0	2.89
3	LJ-1	153	24.60/25.40	0.53	0.27	41.0	2.85
4	LJ-1	200	33.65/35.10	0.15	0.025	28.0	2.76
5	LJ-1	265	47.00/48.50	0.34	0.15	30.0	2.85
6	LJ-1	305	59.00/60.55	0.47	0.19	36.0	2.86
7	LJ-2	9	2.25/3.35	0.30	0.09	50.5	2.82
8	LJ-2	99	10.45/11.45	0.79	0.25	51.0	2.90
9	LJ-2	167	28.20/28.55	0.36	0.21	31.0	2.71
10	LJ-2	223	37.00/38.65	0.15	0.05	45.0	2.91
11	LJ-2	371	51.00/52.50	0.26	0.23	36.0	2.87
12	LJ-2	435	67.60/69.00	0.80	0.29	68.0	2.78
13	LJ-3	80	12.10/13.30	0.93	0.50	34.0	2.87
14	LJ-3	126	23.85/26.20	0.30	0.32	39.0	2.87
15	LJ-3	181	37.85/38.20	0.37	0.15	37.5	2.94
16	LJ-3	208	49.50/50.85	0.22	0.33	58.0	2.84
17	LJ-3	263	67.55/68.65	0.29	0.22	40.0	2.84

Table APP.3-17 Lower Jalond Test-II-(2)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
1	UM1	29	29.50/29.61	0.48	0.31	26.3	2.62
2	UM1	36	30.60/30.73	0.64	0.28	42.8	2.71
3	UM1	57	33.10/33.30	0.61	0.31	43.1	2.71
4	UM1	113	38.40/39.90	0.61	0.22	51.1	2.78
5	UM1	135	47.40/48.90	0.45	0.28	38.3	2.71
6	UM1	148	51.60/53.00	0.56	0.23	59.1	2.97
7	UM1	163	55.75/57.25	0.83	0.23	70.8	2.81
8	UM1	184	58.25/59.70	0.55	0.24	53.4	2.78
9	UM2	59B	16.45/17.95	0.73	0.29	169.3	2.78
10	UM2	84	20.90/22.30	0.74	0.23	72.3	2.77
11	UM2	108	31.10/32.60	0.63	0.18	84.3	3.01
12	UM2	137	39.15/39.40	0.68	0.24	71.1	2.78
13	UM2	167A	48.80/49.00	0.77	0.23	76.3	2.77
14	UM2	180B	51.60/53.10	0.97	0.21	110.6	2.79
15	UM2	192B	54.60/56.10	0.91	0.22	80.1	2.73
16	UM2	198	56.10/57.60	1.01	0.20	140.1	2.80
17	UM3	85	32.15/33.65	0.83	0.24	67.3	2.80
18	UM3	111	37.65/39.15	1.03	0.21	11.3	2.78
19	UM3	131C	41.91/42.13	0.61	0.24	67.4	2.69

Table APP.3-18 Lower Jalond Test-II-(3)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
20	UM3	139	43.15/44.65	0.71	0.17	80.3	2.96
21	UM3	166	48.15/48.46	0.59	0.27	51.9	2.77
22	UM3	181	51.20/52.70	0.63	0.27	64.6	2.79
23	UM3	198	55.70/57.20	0.54	0.28	49.3	2.68
24	UM3	222	59.80/60.00	0.53	0.27	46.1	2.69
25	UM4	2	4.5/6.00	0.46	0.30	28.3	2.59
26	UM4	117C	29.45/30.20	0.62	0.31	49.1	2.76
27	UM5	13	5.00/6.15	0.43	0.28	38.8	2.61
28	UM5	102	26.50/28.00	0.54	0.18	98.76	2.95
29	UM5	113	28.00/29.50	0.61	0.31	40.8	2.59

Table APP.3-19 Lower Jalond Test-II-(4)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
1	LM1	17	9.00/9.40	0.97	0.22	91.2	2.79
2	LM1	18	9.45/9.60	0.99	0.26	89.7	2.79
3	LM1	63A	21.92/23.40	0.89	0.21	106.3	2.80
4	LM1	84A	31.09/32.59	0.49	0.27	19.4	2.24
5	LM1	116	44.83/46.41	0.83	0.23	86.0	2.97
6	LM1	137	52.48/53.98	1.43	0.24	41.4	2.79
7	LM1	152	56.96/58.49	0.68	0.28	81.3	2.84
8	LM2	18	8.00/9.60	0.55	0.26	62.7	2.75
9	LM2	99	22.15/23.65	0.51	0.27	44.7	2.69
10	LM2	128A	31.87/33.33	0.44	0.32	19.30	2.61
11	LM2	171	44.18/45.68	0.93	0.23	78.3	2.81
12	LM2	237	57.60/59.10	0.50	0.31	56.3	2.73
13	LM3	34B	9.40/10.90	0.83	0.22	61.9	2.80
14	LM3	74	21.15/22.61	0.84	0.20	115.3	2.96
15	LM3	100	28.58/29.63	0.43	0.32	44.8	2.73
16	LM3	181	46.28/47.78	0.93	0.22	98.7	2.68
17	LM3	218	53.34/56.84	0.88	0.18	102.50	2.95
18	LM4	13	9.00/10.25	0.89	0.23	69.2	2.81
19	LM4	41	20.20/20.68	0.76	0.24	58.4	2.77

Table APP.3-20 Lower Jalond Test-II-(5)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
20	LM4	67	34.80/36.35	0.57	0.23	93.23	2.71
21	LM4	102C	44.20/45.76	0.51	0.28	26.3	2.61
22	LM4	139	58.13/59.47	0.62	0.21	91.70	3.00
23	LM5	24C	3.34/4.50	0.88	0.22	128.19	2.82
24	LM5	68	15.44/17.00	0.84	0.24	68.7	2.76
25	LM5	131B	29.28/30.78	0.69	0.28	19.0	2.75
26	LM5	185	43.42/44.92	0.43	0.28	94.98	2.69
27	LM5	256	49.47/50.60	0.51	0.27	54.3	2.61
28	LM5	265	51.00/51.20	0.49	0.27	61.7	2.62
29	LM5	292B	56.87/57.55	0.98	0.23	102.3	2.78
30	LM6	17	6.00/7.25	1.08	0.21	124.3	2.81
31	LM6	63A	23.25/24.80	1.21	0.22	156.4	2.79
32	LM6	82B	37.37/38.87	1.13	0.23	113.1	2.79
33	LM6	95A	47.57/49.13	0.84	0.24	64.1	2.61
34	LM6	118	57.06/58.69	0.10	0.27	19.90	2.81

Table APP.3-21 Lower Jalond Test-II-(6)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
1	UH1	19	15.46/15.76	0.440	0.32	20.47	2.69
2	UH1	23	17.16/17.39	0.123	0.23	70.3	2.71
3	UH1	40	20.11/20.39	0.083	0.28	59.7	2.75
4	UH1	76	23.80/24.00	1.012	0.21	107.3	2.85
5	UH1	103	26.40/26.70	0.173	0.07	98.1	2.84
6	UH2	44	5.13/5.48	0.256	0.22	94.1	2.97
7	UH2	78	9.56/9.68	0.213	0.21	121.9	2.88
8	UH2	111	14.03/14.15	0.503	0.155	110.3	2.87
9	UH2	142	18.53/18.91	0.281	0.19	138.0	2.94
10	UH2	197	23.47/23.62	0.274	0.22	93.5	2.84
11	UH3	38	5.46/5.65	0.056	0.38	19.3	2.75
12	UH3	63	10.09/10.46	1.555	0.19	137.7	2.94
13	UH3	95	13.68/13.83	(1.52)	0.19	134.3	2.89
14	UH3	120	17.45/17.55	0.231	0.23	98.3	2.85
15	UH3	192	20.85/20.95	0.243	0.22	101.4	2.85

Table APP.3-22 Lower Jalond Test-II-(7)

Sr No.	B. H. No.	CODE	DEPTH (m) from/to	E ($x10^6$ kg/cm^2)	v	Tensile strength (kg/cm^2)	Specific gravity
	LH1	33	13.80/14.01	0.259	0.147	126.0	2.78
	LH1	61	23.08/23.50	0.498	0.162	127.0	2.78
	LH1	123	39.23/39.35	0.254	0.092	124.8	2.80
	LH1	161	48.25/48.45	0.321	0.158	119.3	2.79
	LH1	212	62.46/62.84	0.312	0.172	113.2	2.80
	LH2	83	17.26/17.49	0.472	0.169	133.8	2.78
	LH2	159	29.54/29.95	0.504	0.151	129.5	2.80
	LH2	214	43.99/44.16	0.167	0.161	132.4	2.80
	LH2	262	54.22/54.44	0.413	0.146	121.3	2.83
	LH2	324	65.63/65.77	1.135	0.164	134.8	2.79
	LH3	7	12.30/12.64	0.488	0.09	118.5	2.96
	LH3	69B	22.80/23.22	0.360	0.166	134.63	2.79
	LH3	89A	31.33/31.51	0.351	0.158	118.7	2.75
	LH3	134	45.69/46.06	0.397	0.178	121.13	2.81
	LH3	189	56.36/56.69	1.625	0.153	135.85	2.82

PROCTOR COMPACTION TEST

SITE:- M/P STUDY ON P S H P D LOWER JALOND

LOCATION:- L J P 1

TYPE OF TEST STANDARD PROCTOR COMPATION TEST

MAX DRY DENSITY:- 1.395 gm cc

OPTIMUM MOISTURE CONTENT :- 29%

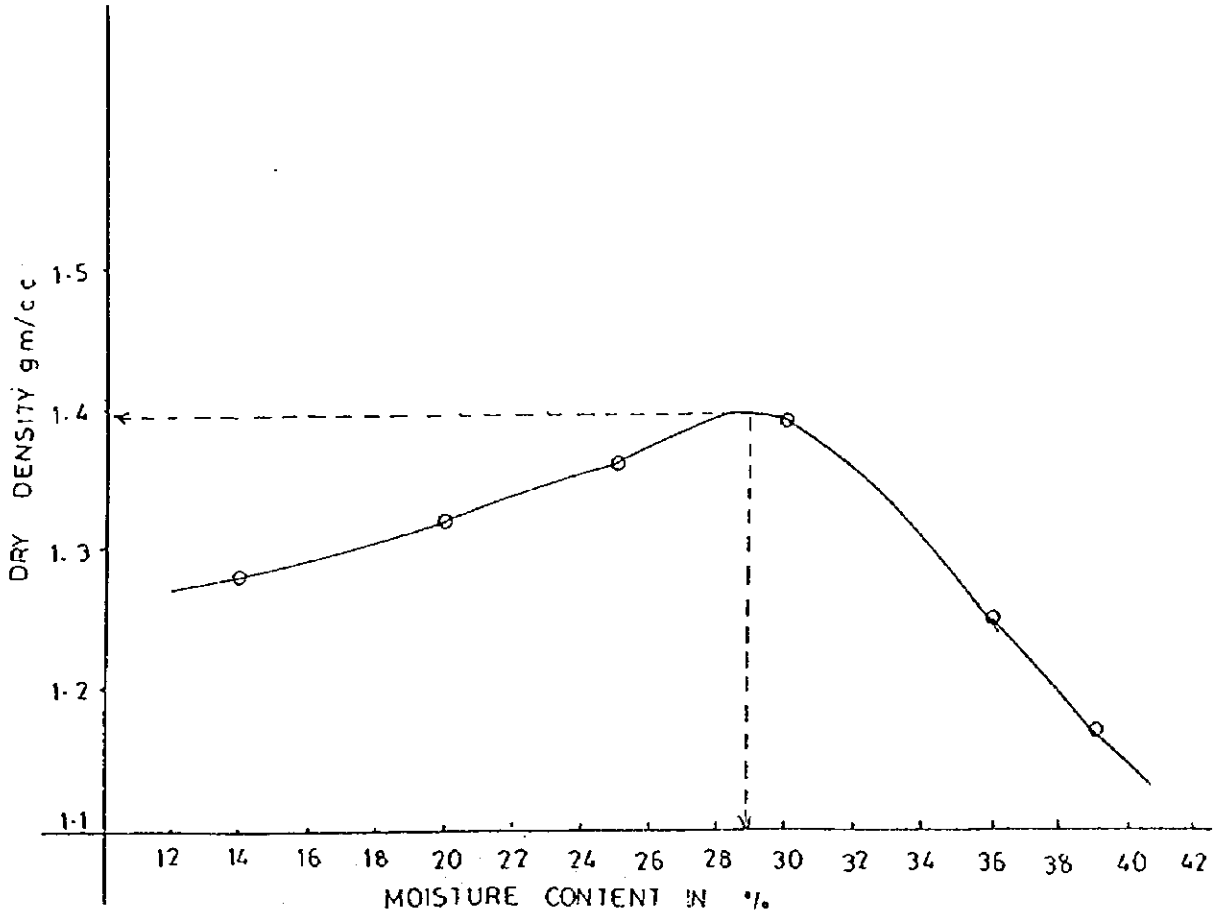

Fig. APP.3-1 Laboratory Compaction Test (Jalond Site, LJP-1)

PRPD. BY CHOUDHARY	DRN BY SABIR	CHD BY NAIK	DRG NO. 166

D B M GEOTECHNICS AND CONSTRUCTION PVT. LTD. MUMBAI

LABORATARY COMPACTION TEST

SITE:- C E S JALOND

LOCATION:- PIT NO 2 L J P 2 ALICHY VADI TO MERDI

TYPES OF TEST:- STANDERED PROCTOR COMPACTION TEST

MAX DRY DENSITY:- 1·46 gm/cc

OPTIMUM MOISTUR CONENT:- 21 %

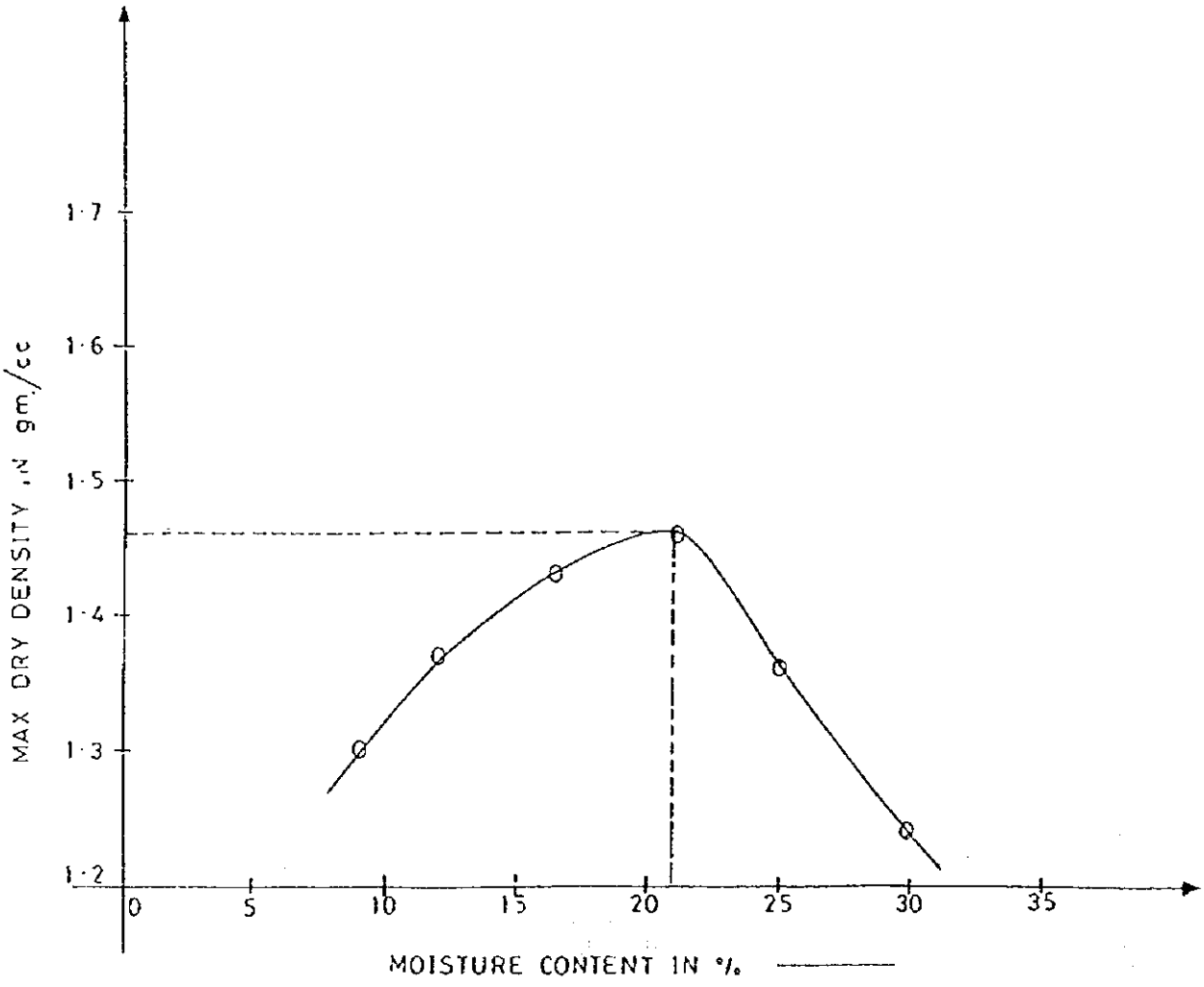

Fig. APP.3-2 Laboratory Compaction Test (Jalond Site, LJP-2)

DRN BY:- PRAVIN	PRD BY: CHOUDHARY	CHD BY

SITE: CES JALAND

Table APP.3-23 Laboratory Physical Test (Jalond Site, LJP-1~2)

SOIL TEST DATA SHEET

BORE HOLE/ PIT NO.	DEPTH m	SAMPLE TYPE UD/D	DENSITY WET gm/cc	DENSITY DRY gm/cc	NATURAL MOISTURE CONTENT %	MECHANICAL ANALYSIS GRAVEL %	SAND %	SILT %	CLAY %	CONSISTENCY LIMITS LIQUID %	PLASTIC %	PLASTICITY INDEX %	SOIL CLASSIFICATION (I.S.)	SHEAR STRENGTH TEST TYPE	COHESION kg/cm²	φ Deg.	CONSOLIDATION TEST COMP. INDEX (Lab)	INITIAL VOIDS RATIO e_o	SPECIFIC GRAVITY	OTHER TESTS (SEE LEGEND)	REMARKS
JP1	Borrow Pit	D	2.9	1.399	08	60	24	-	16	NP	—			—	—	-	—	—	—		
JP2	Borrow Pit	D	2.1	1.46	06	15	25	30	30	36	20	16		—	—	—	—	—	—	2.65	

HEM : CHEMICAL ANALYSIS TEST
OMP : COMPACTION TEST
S : DIRECT SHEAR TEST
: PERMEABILITY TEST
S : FREE SWELL TEST

Tuu : TRIAXIAL TEST UNCONSOLIDATED UNDRAINED
Tcu : TRIAXIAL TEST CONSOLIDATED UNDRAINED
Tcd : TRIAXIAL TEST CONSOLIDATED DRAINED
NP : NON PLASTIC
SL : SHRINKAGE LIMIT TEST

SP : SWELLING PRESSURE OR SWELLING POTENTIAL TEST
RM : ON REMOULDED SOIL
VL : LABORATORY VANE SHEAR TEST
UC : UNCONFINED COMPRESSION TEST

DRG. NO.:

DBM GEOTECHNICS & CONSTRUCTIONS PVT. LTD.

LBORATORY COMPACTION TEST

SITE: CES MARLESHWAR

LOCATION: UMP 1

TYPES OF TEST: STANDERED PROCTOR COMPACTION TEST

MAX DRY DENSITY: 1·55 gm/cc

OPTIMUM MOISTURE CONTENT: 22 %

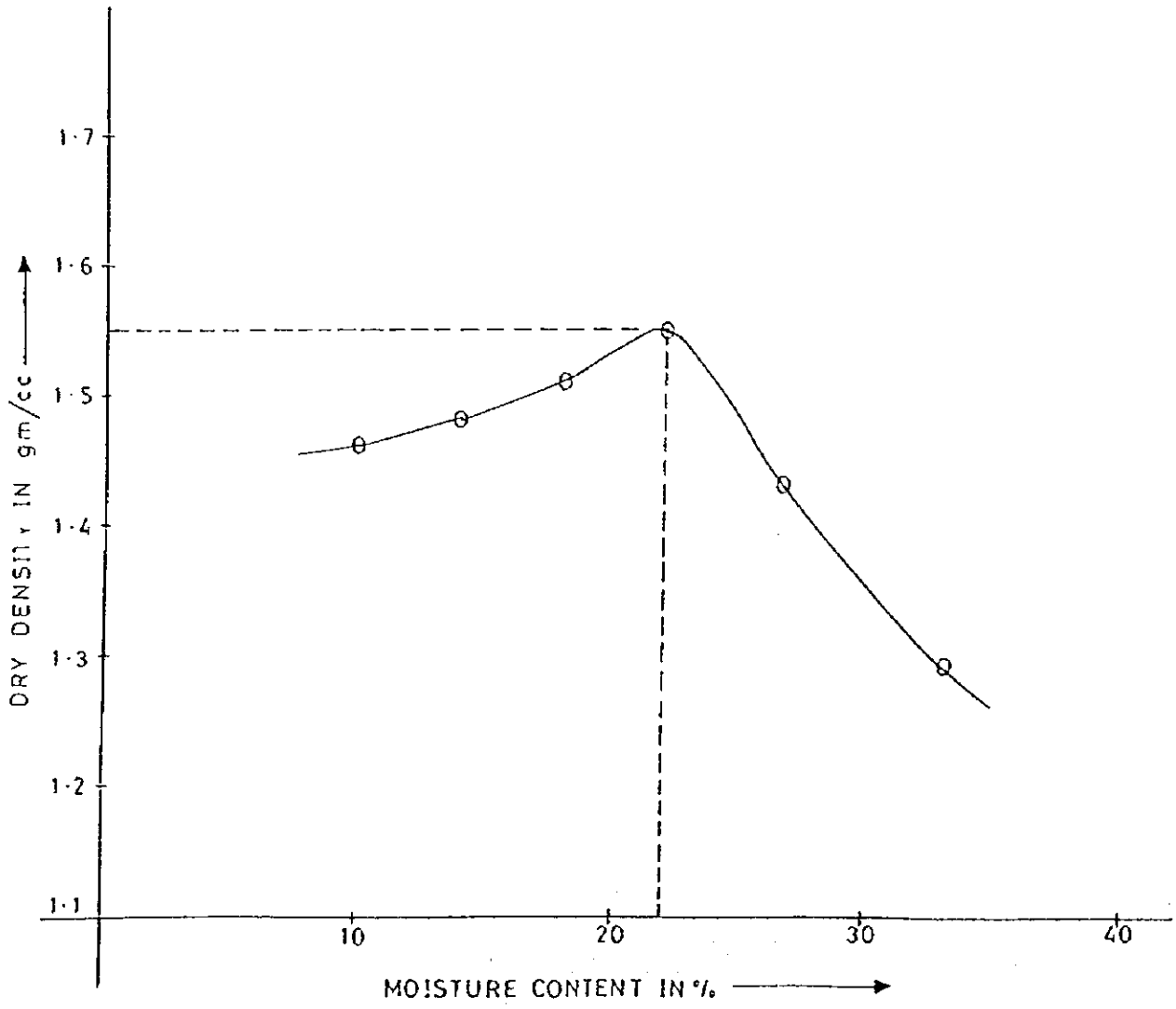

Fig. APP.3-3 Laboratory Compaction Test (Upper Marleshwar Site, UMP-1)

DRAWN BY: PRAVIN	CHD BY: CHOUDHARY	DRG NO:

D B M GEOTECHNICS AND CONSTRUCTION PVT LTD.

PROCTOR COMPACTION TEST

SITE :- M/P STUDY ON PSHPD MARLESHWAR

LOCATION :- UMP 2

TYPE OF TEST :- STANDARD PROCTOR COMPACTION TEST

OPTIMUM MOISTURE CONTENT :- 18.5

MAX. DRY DENSITY :- 1·81 gm/cc

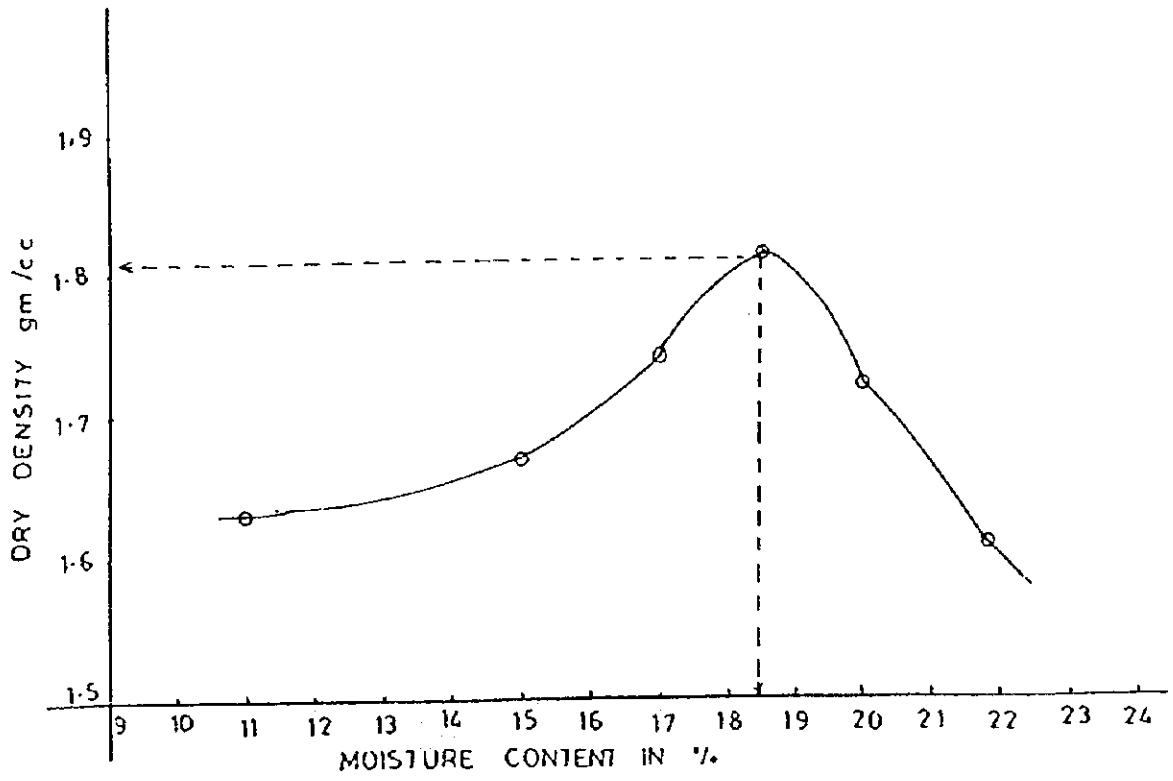

Fig. APP.3-4 Laboratory Compaction Test (Upper Marleshwar Site, UMP-2)

PRPD. BY: CHOUDHARY	DRN. BY:- SABIR	CHD. BY:- NAIK	DRG. NO. 161

DBM GEOTECHNICS AND CONSTRUCTIONS PVT. LTD. MUMBAI

LABORATORY COMPACTION TEST

SITE: CES MARLESHWAR

LOCATION: LMP 1

TYPES OF TEST: STANDERED PROCTOR TEST

MAX DRY DENSITY: 1·455 gm/cc

OPTIMUM MOISTURE CONTENT: 30·5 %

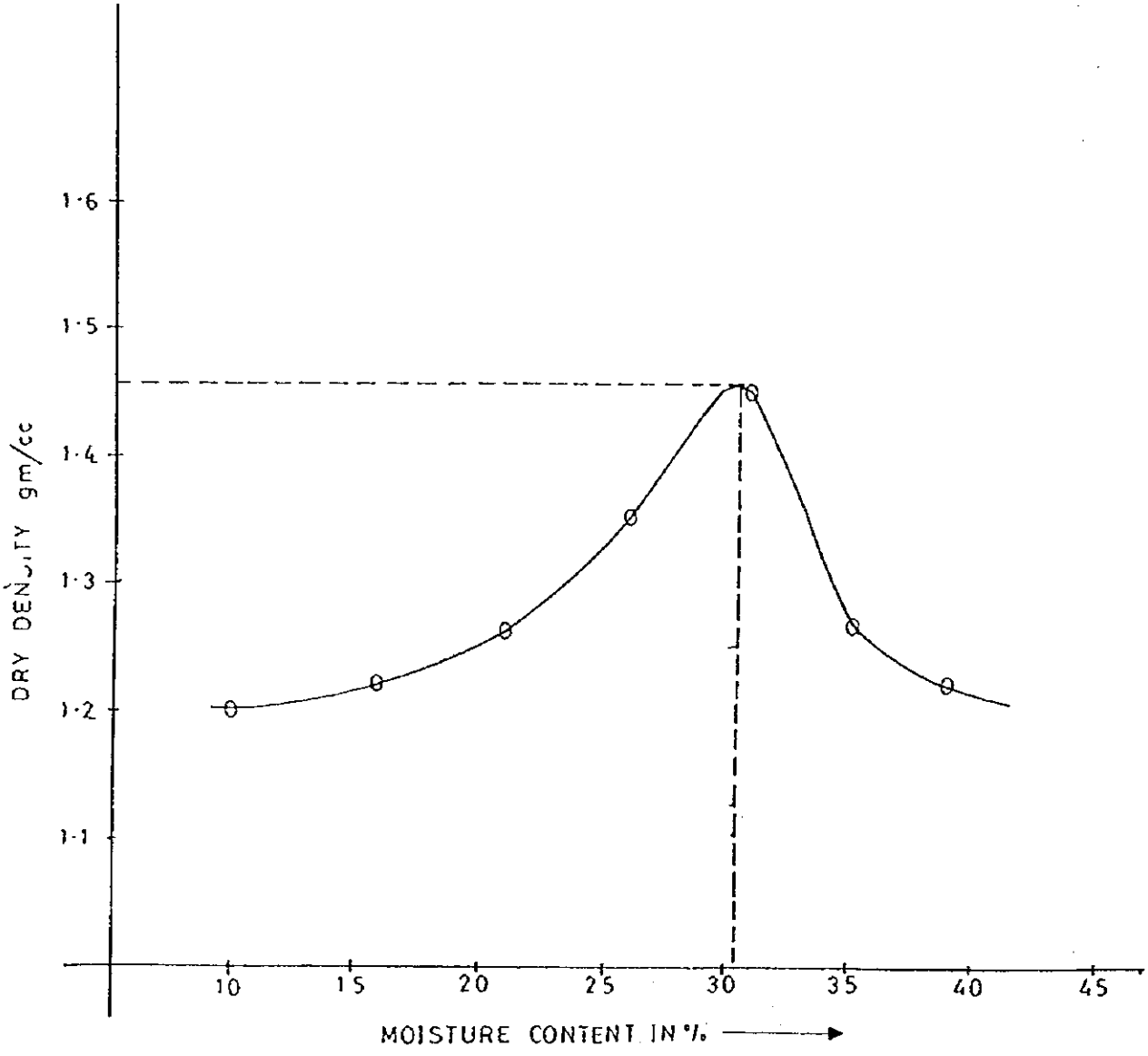

Fig. APP.3-5 Laboratory Compaction Test (Lower Marleshwar Site, LMP-1)

DRAWN BY: PRAVIN	CHD BY: CHOUDHARY	DRG NO:

D B M GEOTECHNICS AND CONSTRUCTION PVT. LTD.

LABORATORY COMPACTION TEST

SITE: CES MARLESHWAR

LOCATION: LMP 2

TYPES OF TEST: STANDERED PROCTOR COMPACTION TEST

MAX DRY DENSITY: 1·505 gm/cc

OPTIMUM MOITURE CONTENT: 23 %

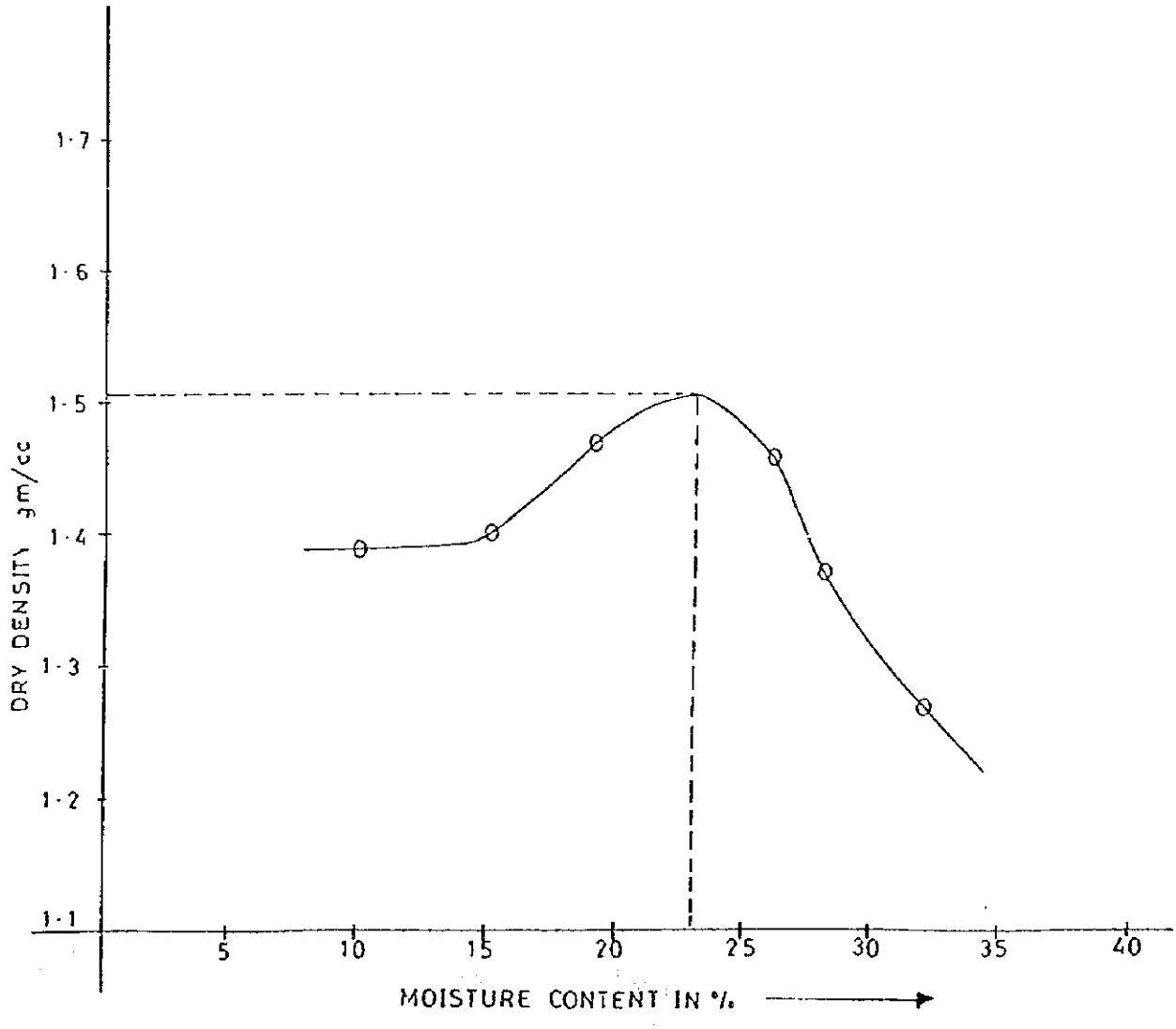

Fig. APP.3-6 Laboratory Compaction Test (Lower Marleshwar Site, LMP-2)

DRAWN BY: PRAVIN	CHD BY: CHOUDHARY	DRG NO:

DBM GEOTECHNICS AND CONSTRUCTION PVT LTD.

SITE:

Table APP.3-24 Laboratory Physical Test (Marleshwar Site, UMP-1 ~ UMP-2)

SOIL TEST DATA SHEET

BORE HOLE/ PIT NO.	DEPTH m	SAMPLE TYPE UD/D	MAX. DRY DENSITY GM/CC	OPTM. MOIST. CONT %	NATURAL MOISTURE CONTENT %	MECHANICAL ANALYSIS				CONSISTENCY LIMITS			SOIL CLASSIFICATION (I.S.)	SHEAR STRENGTH TEST			CONSOLIDATION TEST		SPECIFIC GRAVITY	OTHER TESTS (SEE LEGEND)	REMARKS
						GRAVEL %	SAND %	SILT %	CLAY %	LIQUID %	PLASTIC %	PLASTICITY INDEX %		TYPE	COHESION kg/cm²	ϕ Deg.	COMP. INDEX (Lab)	INITIAL VOIDS RATIO e_0			
UMP1	—	D	30·5	1·445	17	03	20	40	37	42	23	19	CI	—	—	—	—	—	2·65		
UPM2	—	D	23	1·505	12	10	38	26	26	47	26	21	CI	—	—	—	—	—	2·66		
UMP1	—	D	22	1·55	04	16	35	28	21	46	25	21	—	—	—	—	—	—	2·67		
UMP2	—	D	18·5	1·81	04	40	54	— 06 —		—	NP	—	—	—	—	—	—	—	—		

EM : CHEMICAL ANALYSIS TEST
MP : COMPACTION TEST
: DIRECT SHEAR TEST
: PERMEABILITY TEST
: FREE SWELL TEST

Tuu : TRIAXIAL TEST UNCONSOLIDATED UNDRAINED
Tcu : TRIAXIAL TEST CONSOLIDATED UNDRAINED
Tcd : TRIAXIAL TEST CONSOLIDATED DRAINED
NP : NON PLASTIC
SL : SHRINKAGE LIMIT TEST

SP : SWELLING PRESSURE OR SWELLING POTENTIAL TEST
RM : ON REMOULDED SOIL
VL : LABORATORY VANE SHEAR TEST
UC : UNCONFINED COMPRESSION TEST

DRG. NO.:

BM GEOTECHNICS & CONSTRUCTIONS PVT. LTD.

LABORATORY COMPACTION TEST

SITE :- MASTER PLAN STUDY ON PSHPD UPPER HEVALE

LOCATION :- UHP 1

TYPE OF TEST :- STANDARD PROCTER TEST

MAX. DRY DENSITY :- 1·60 gm/cc

OPTIMUM MOISTURE CONTENT :- 26 %

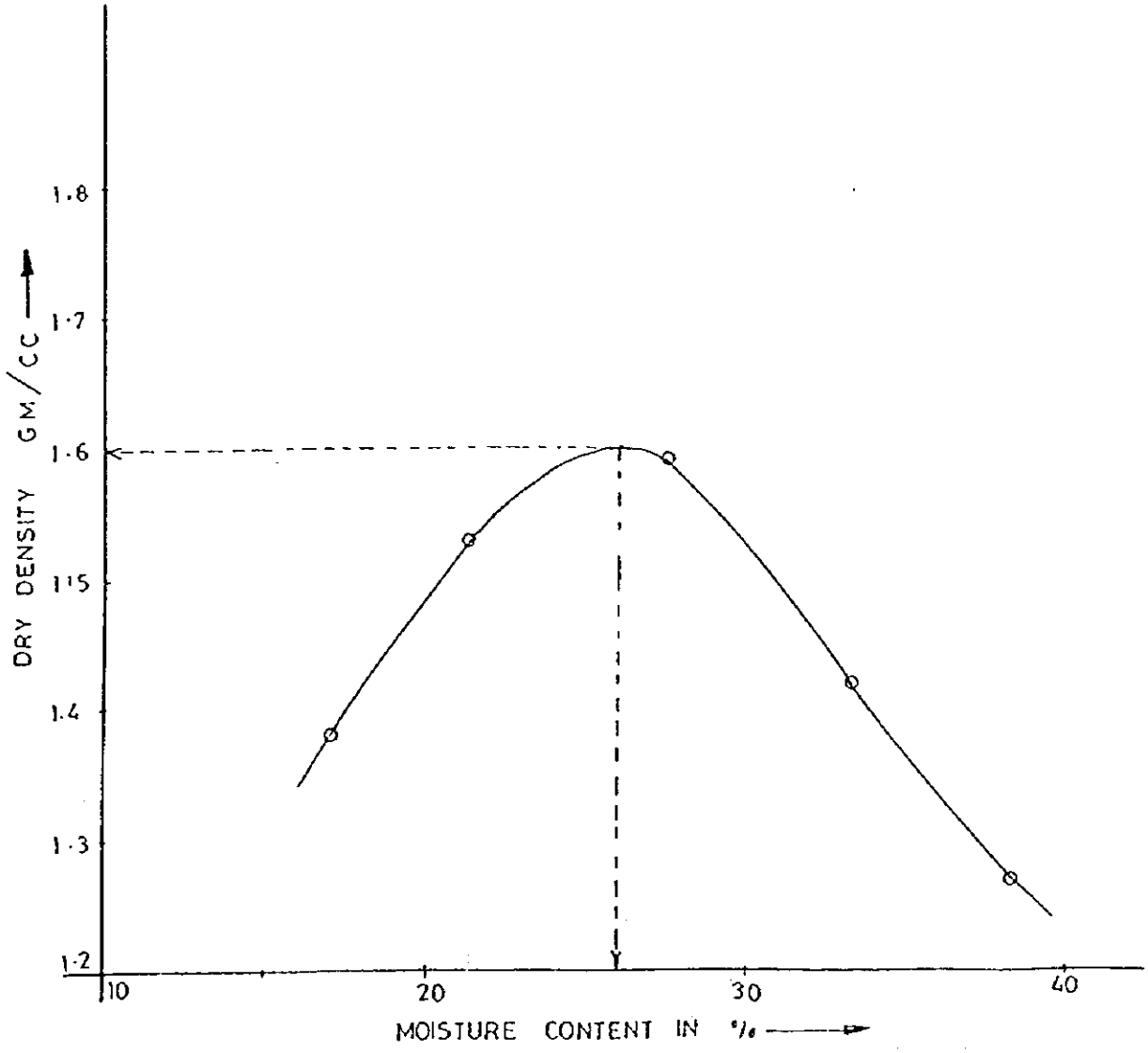

Fig. APP.3-7 Laboratory Compaction Test (Upper Hevale Site, UHP-1)

DRAWN BY: SABIR	CHD BY: SINGH	DRG. NO. 16

LABORATORY COMPACTION TEST

SITE:- MASTER PLAN STUDY ON PSHPD UPPER HEVALE

LOCATION :- UHP 2

TYPE OF TEST :- STANDARD PROCTOR TEST

MAX. DRY DENSITY :- 1·57 gm/cc

OPTIMUM MOISTER CONTENT 29·40 %

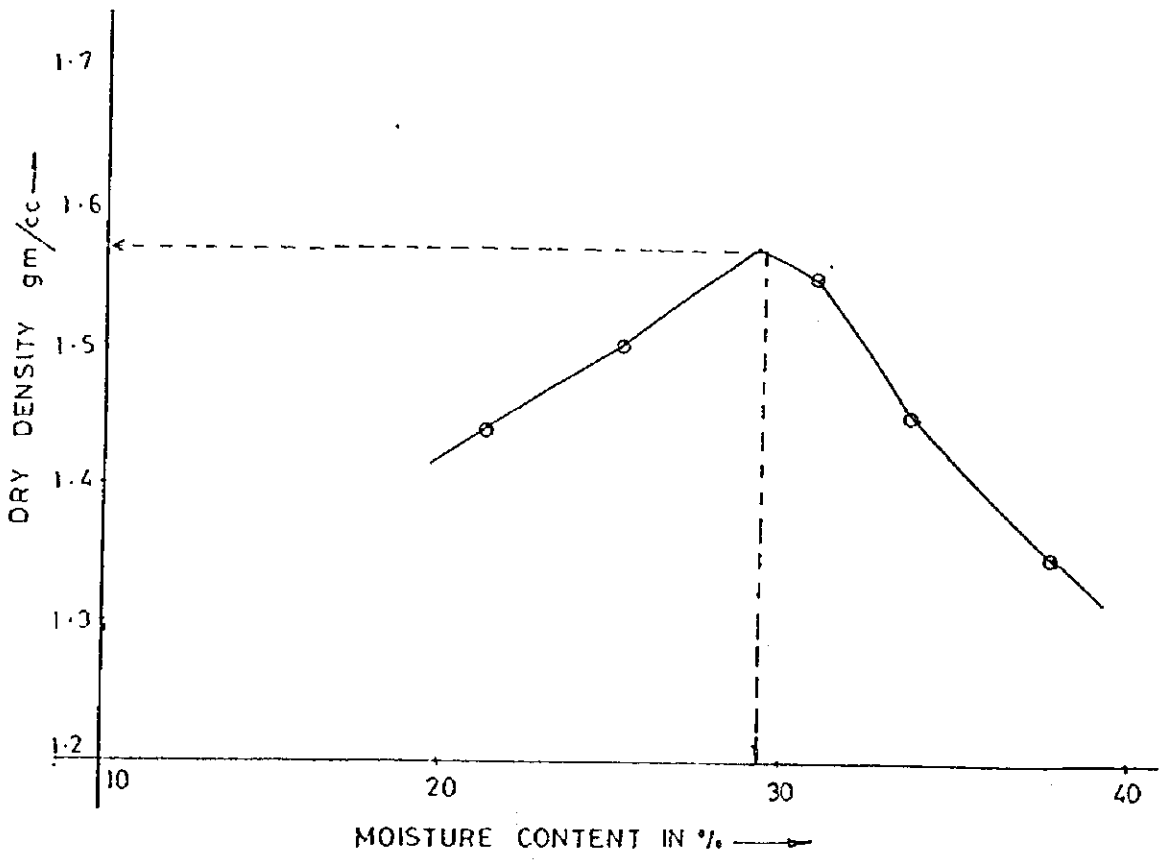

Fig. APP.3-8 Laboratory Compaction Test (Upper Hevale Site, UHP-2)

DRAWN BY: SABIR	CHD BY : SINGH	ORG NO : 161

DBM GEOTECHNICS AND CONSTRUCTIONS PVT. LTD.

LABORATORY COMPACTION TEST

SITE: MASTER PLAN STUDY ON PSHPD LOWER HEVALE

LOCATION: L H P 1

TYPE OF TEST: STANDARD PROCTOR TEST

MAX.DRY DENSITY: 1·535 g m/cc

OPTIMUM MOISTURE CONTENT: 26 %

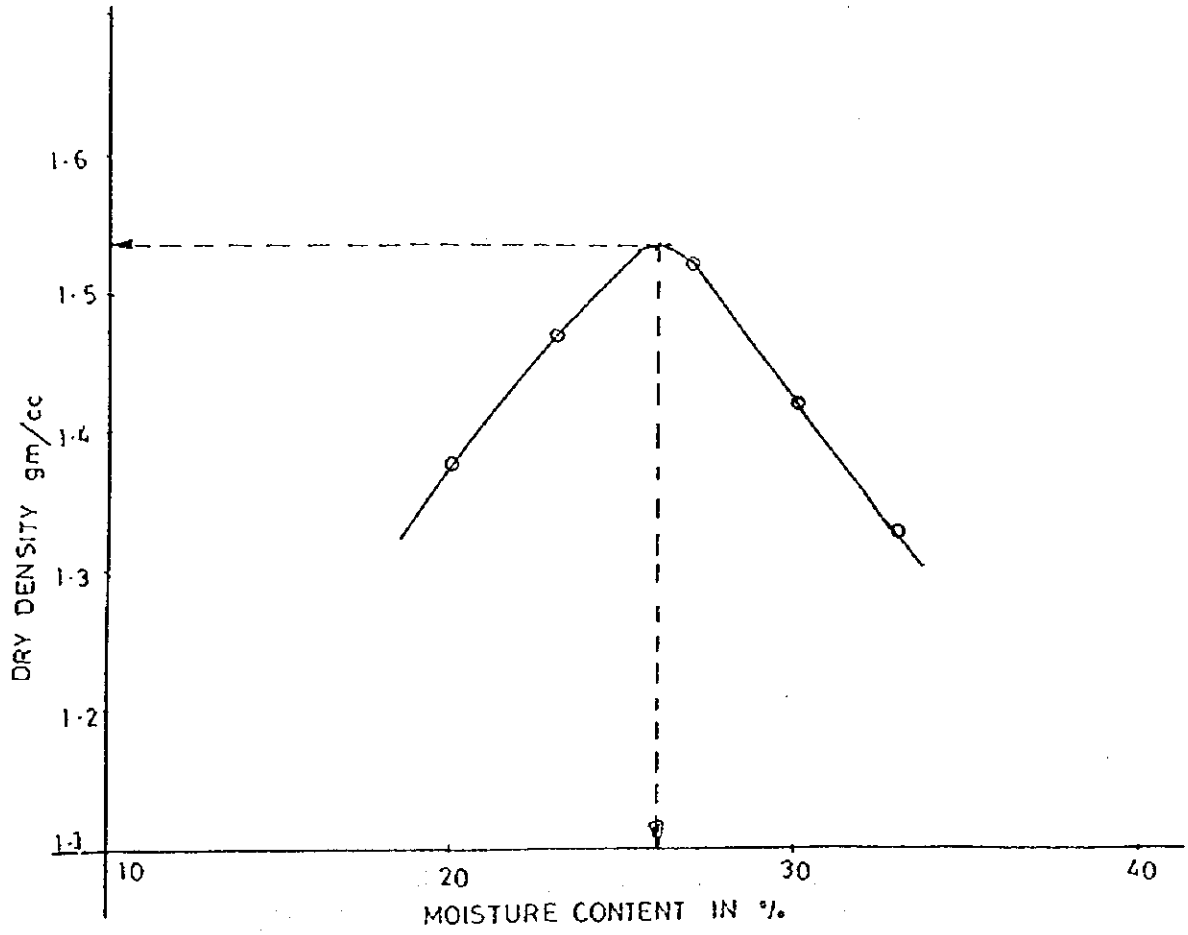

Fig. APP.3-9 Laboratory Compaction Test (Lower Hevale Site, LHP-1)

DRAWN BY: SABIR	CHD BY: SINGH	DRG NO. 16

DBM GEOTECHNICS AND CONSTRUCTIONS PVT. LTD

LABORATORY COMPACTION TEST

SITE: MASTER PLAN STUDY ON PSHPD LOWER HEVALE

LOCATION LHP 2

TYPE OF TEST STANDARD PROCTOR TEST

MAX. DRY DENSITY: 1·545 gm

OPTIMUM MOISTURE CONTENT: 26·4 %

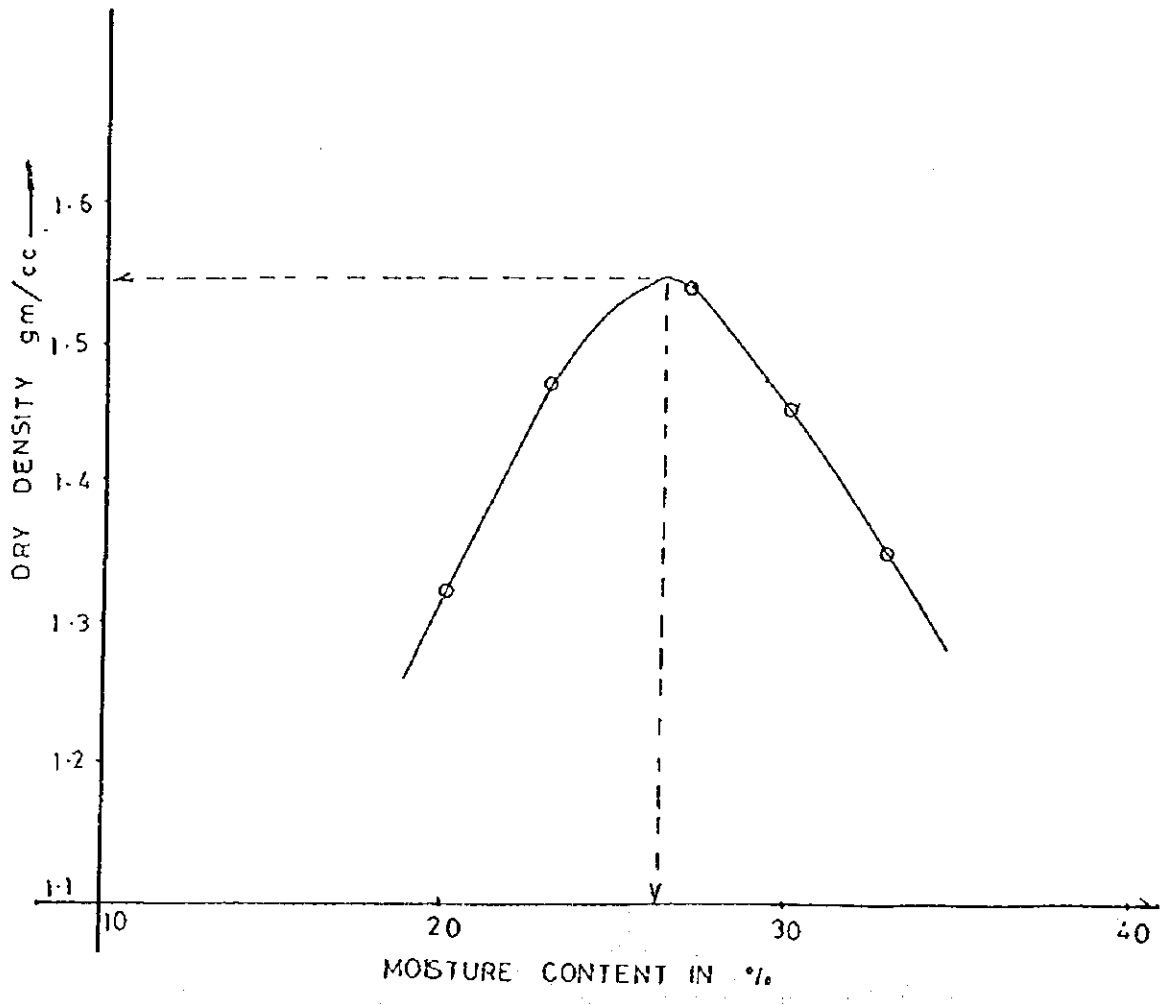

Fig. APP.3-10 Laboratory Compaction Test (Lower Hevale Site, LHP-2)

DRAWN BY : SABIR	CHD BY : SINGH	DRG. NO 161

DBM GEOTECHNICS AND CONSTRUCTIONS PVT LTD.

SITE:

Table APP.3-25 Laboratory Physical Test (Hevale Site, UHP-1~LHP-2)

SOIL TEST DATA SHEET

BORE HOLE/ PIT NO.	DEPTH m	SAMPLE TYPE UD/D	MAX. DRY DENSITY GM/C.C	OPTM. MOIST. CONT. %	NATURAL MOISTURE CONTENT %	MECHANICAL ANALYSIS				CONSISTENCY LIMITS			SOIL CLASSIFICATION (I.S.)	SHEAR STRENGTH TEST			CONSOLIDATION TEST		SPECIFIC GRAVITY	OTHER TESTS (SEE LEGEND)	REMARKS
						GRAVEL %	SAND %	SILT %	CLAY %	LIQUID %	PLASTIC %	PLAST. ICITY INDEX %		TYPE	COHESION kg/cm²	φ Deg.	COMP. INDEX (Lab)	INITIAL VOIDS RATIO e_o			
UH1	3.00																				
	3.60	D	–	–	–	05	23	35	37	47	26	21	CI	–	–	–	–	–	2.65		
UH1	9.00																				
	9.60	D	–	–	–	00	28	35	37	45	24	21	CI	–	–	–	–	–	2.65		
UHP1	TRIAL																				
	PIT	D	1.60	26	7	05	40	28	27	43	23	20	CI	–	–	–	–	–	2.72		
UHP2	TRIAL																				
	PIT	D	1.57	29.4	7	10	33	29	28	44	24	20	CI	–	–	–	–	–	2.68		

CHEM : CHEMICAL ANALYSIS TEST
COMP : COMPACTION TEST
DS : DIRECT SHEAR TEST
K : PERMEABILITY TEST
FS : FREE SWELL TEST

Tuu : TRIAXIAL TEST UNCONSOLIDATED UNDRAINED
Tcu : TRIAXIAL TEST CONSOLIDATED UNDRAINED
Tcd : TRIAXIAL TEST CONSOLIDATED DRAINED
NP : NON PLASTIC
SL : SHRINKAGE LIMIT TEST

SP : SWELLING PRESSURE OR SWELLING POTENTIAL TEST
RM : ON REMOULDED SOIL
VL : LABORATORY VANE SHEAR TEST
UC : UNCONFINED COMPRESSION TEST

DRG. NO.: 161

DDM GEOTECHNICS & CONSTRUCTIONS PVT. LTD.

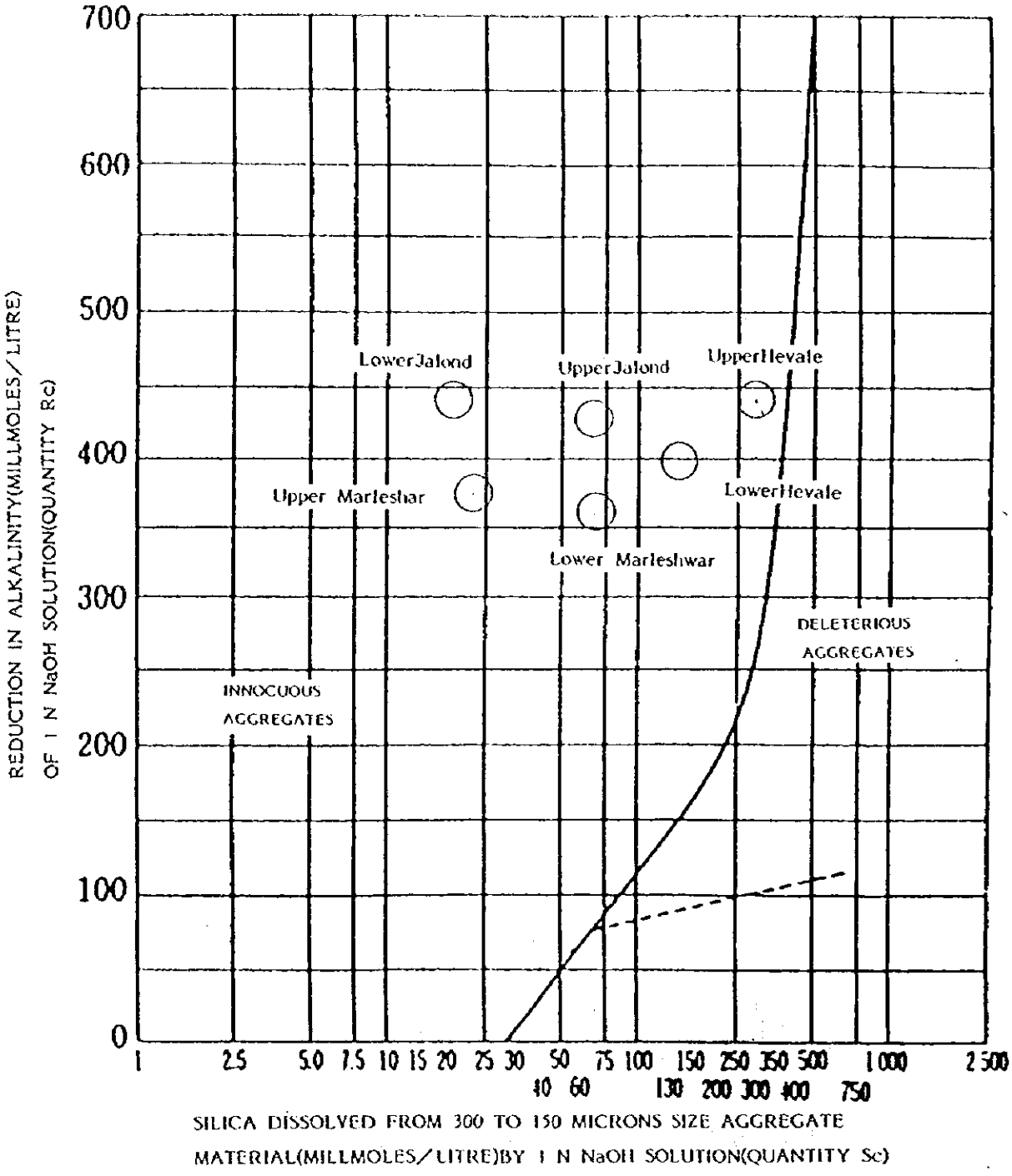

Fig. APP.3-11 Illustration of Division Between Innocuous and Deleterious Aggregates on Basis Reduction in Alkalinity Test