

APPENDIX-A
LOAD TESTING PROGRAM

STATIC LOAD TEST PROGRAMME FOR 517 TONS TEST ON INDEX PILE

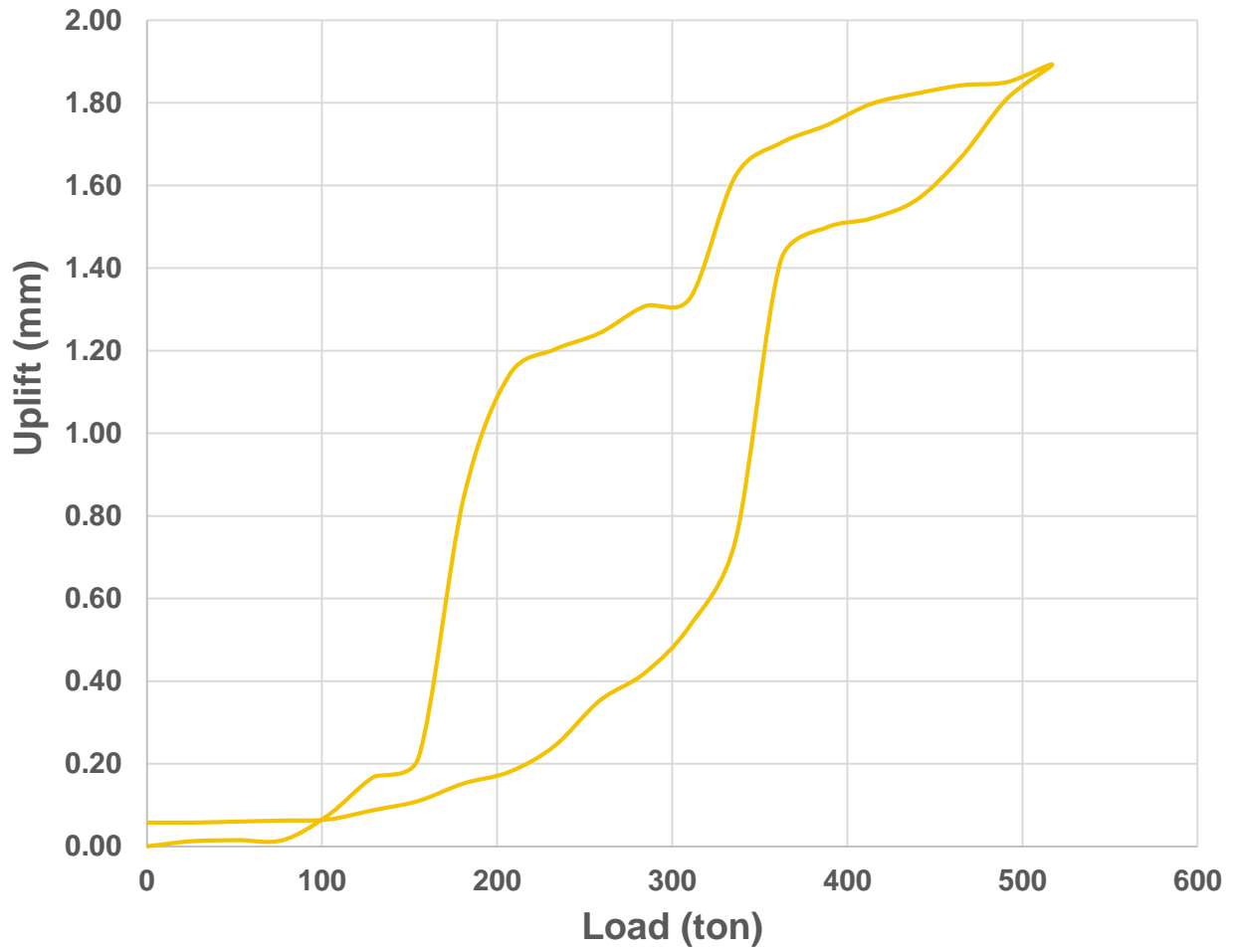
Diameter of pile	900 mm		
Working Load (WL)	345.00 Tons		
Test Load(TL)	1.5 X Working Load	=	517.0 Tons
Load Increment	1/20 X Test Load	=	25.85 Tons
No. of Hydraulic Jack Piston	1		
Hydraulic Jack Piston Ø	53 cm		
Area of Piston	2207.07 cm ²		

Load Required	Pressure Gauge Reading	Units
Each Load Increment	11.71	kg/cm ² or Bar
Working Load	156.32	kg/cm ² or Bar
Test Load	234.25	kg/cm ² or Bar

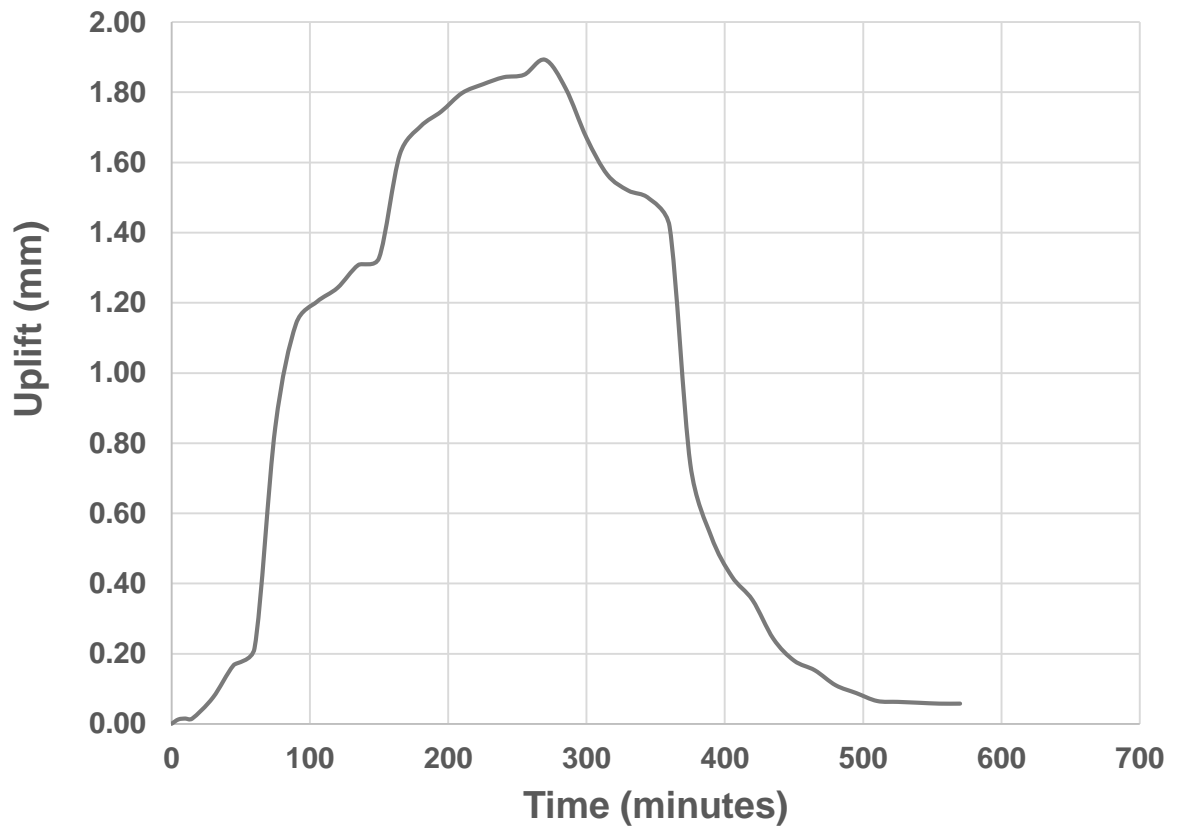
Cycles	Test Load	Required Pressure	% of working load	Remarks	Maximum Time of Holding Load	Reading Intervals
	Tons	Bar			Minutes	Minutes
Loading-1	0.00	0	0			
	25.85	12	7		15	0,5,10,15
	51.70	23	15		15	0,5,10,15
	77.55	35	22		15	0,5,10,15
	103.40	47	30		15	0,5,10,15
	129.25	59	37		15	0,5,10,15
	155.10	70	45		15	0,5,10,15
	180.95	82	52		15	0,5,10,15
	206.80	94	60		15	0,5,10,15
	232.65	105	67		15	0,5,10,15
	258.50	117	75		15	0,5,10,15
	284.35	129	82		15	0,5,10,15
	310.20	141	90		15	0,5,10,15
	336.05	152	97		15	0,5,10,15
	361.90	164	105		15	0,5,10,15
	387.75	176	112		15	0,5,10,15
	413.60	187	120		15	0,5,10,15
439.45	199	127		15	0,5,10,15	
465.30	211	135		15	0,5,10,15	
491.15	223	142		15	0,5,10,15	
517.00	234	150		15	0,5,10,15	
UnLoading-1	491.15	223	142		15	0,5,10,15
	465.30	211	135		15	0,5,10,15
	439.45	199	127		15	0,5,10,15
	413.60	187	120		15	0,5,10,15
	387.75	176	112		15	0,5,10,15
	361.90	164	105		15	0,5,10,15
	336.05	152	97		15	0,5,10,15
	310.20	141	90		15	0,5,10,15
	284.35	129	82		15	0,5,10,15
	258.50	117	75		15	0,5,10,15
	232.65	105	67		15	0,5,10,15
	206.80	94	60		15	0,5,10,15
	180.95	82	52		15	0,5,10,15
	155.10	70	45		15	0,5,10,15
	129.25	59	37		15	0,5,10,15
	103.40	47	30		15	0,5,10,15
	77.55	35	22		15	0,5,10,15
51.70	23	15		15	0,5,10,15	
25.85	12	7		15	0,5,10,15	
0.00	0	0		15	0,5,10,15	
					600	
Maximum Total Load Test Duration (hours)						10.00

APPENDIX-B
GRAPHS

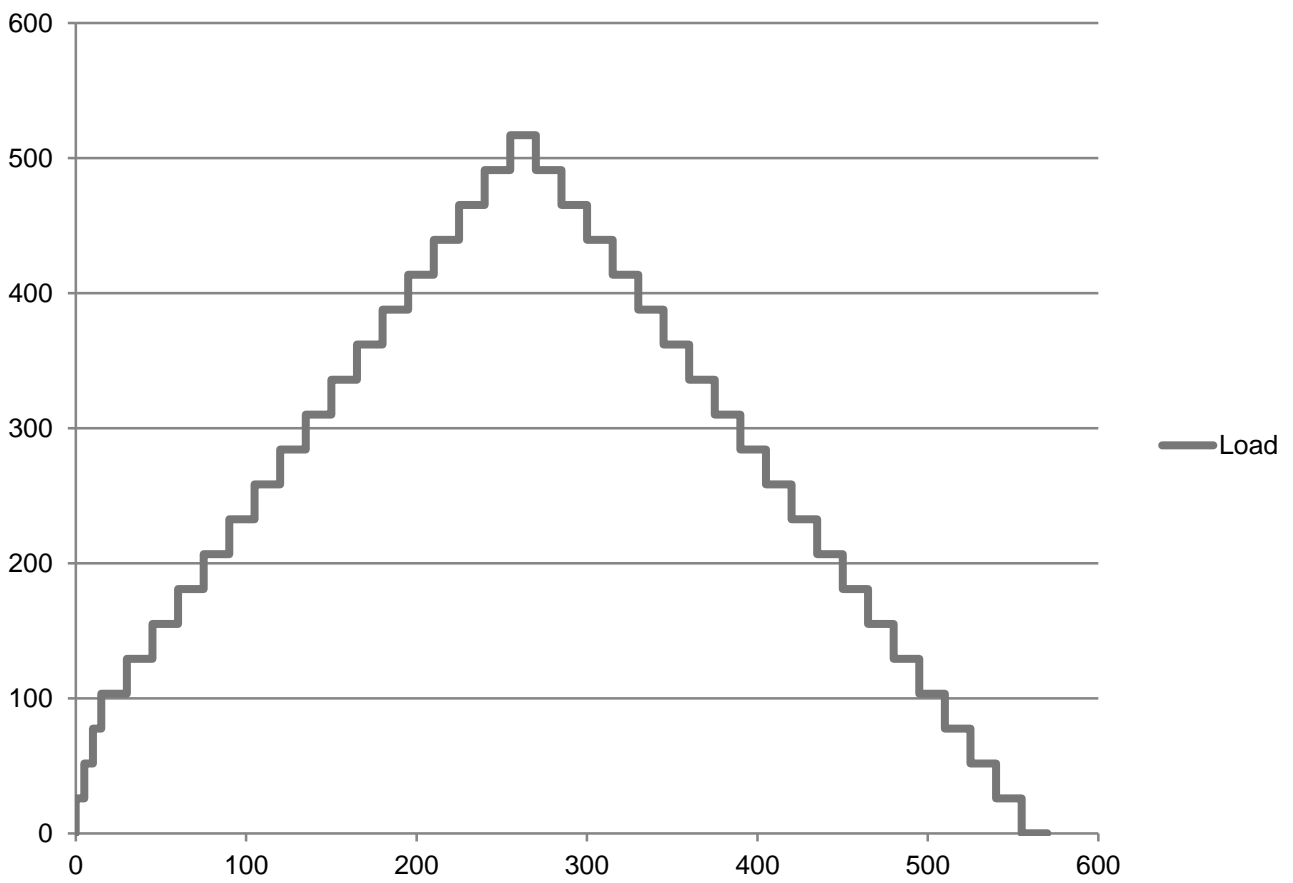
Load - Uplift Curve



Time - Uplift Curve



Load



APPENDIX-C
OBSERVATION SHEETS

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
1	04-Mar	1:25:00 PM	25.8	11.70	5	99.99	99.98	99.99	99.99	99.9875	0.0125	Tensile Loading
2	04-Mar	1:30:00 PM	51.7	23.42	5	99.99	99.97	99.99	99.99	99.985	0.015	
3	04-Mar	1:35:00 PM	77.6	35.14	5	99.99	99.97	99.99	99.99	99.985	0.015	
4	04-Mar	1:35:00 PM	103.4	46.85	0	99.99	99.96	99.99	99.99	99.9825	0.0175	
5	04-Mar	1:40:00 PM			5	99.92	99.96	99.91	99.95	99.935	0.065	
6	04-Mar	1:45:00 PM			10	99.9	99.96	99.91	99.94	99.9275	0.0725	
7	04-Mar	1:50:00 PM			15	99.9	99.95	99.91	99.94	99.925	0.075	
8	04-Mar	1:50:00 PM	129.3	58.56	0	99.87	99.75	99.86	99.89	99.8425	0.1575	
9	04-Mar	1:55:00 PM			5	99.87	99.75	99.86	99.89	99.8425	0.1575	
10	04-Mar	2:00:00 PM			10	99.86	99.73	99.86	99.89	99.835	0.165	
11	04-Mar	2:05:00 PM			15	99.86	99.72	99.86	99.89	99.8325	0.1675	
12	04-Mar	2:05:00 PM	155.1	70.27	0	99.86	99.67	99.86	99.83	99.805	0.195	
13	04-Mar	2:10:00 PM			5	99.82	99.65	99.84	99.83	99.785	0.215	
14	04-Mar	2:15:00 PM			10	99.82	99.65	99.84	99.83	99.785	0.215	
15	04-Mar	2:20:00 PM			15	99.82	99.65	99.84	99.83	99.785	0.215	
16	04-Mar	2:20:00 PM	181.0	81.99	0	99.71	99.5	99.55	99.83	99.6475	0.3525	
17	04-Mar	2:25:00 PM			5	98.62	98.62	99.55	99.83	99.155	0.845	
18	04-Mar	2:30:00 PM			10	98.62	98.62	99.55	99.83	99.155	0.845	
19	04-Mar	2:35:00 PM			15	98.62	98.62	99.55	99.83	99.155	0.845	
20	04-Mar	2:35:00 PM	206.8	93.70	0	98.62	97.69	99.55	99.82	98.92	1.08	
21	04-Mar	2:40:00 PM			5	98.62	97.6	99.51	99.75	98.87	1.13	
22	04-Mar	2:45:00 PM			10	98.62	97.58	99.51	99.75	98.865	1.135	
23	04-Mar	2:50:00 PM			15	98.62	97.58	99.49	99.75	98.86	1.14	
24	04-Mar	2:50:00 PM	232.7	105.41	0	98.62	97.55	99.47	99.72	98.84	1.16	

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
25	04-Mar	2:55:00 PM			5	98.62	97.54	99.47	99.72	98.8375	1.1625	Tensile Loading
26	04-Mar	3:00:00 PM			10	98.62	97.51	99.47	99.72	98.83	1.17	
27	04-Mar	3:05:00 PM			15	98.62	97.4	99.45	99.72	98.7975	1.2025	
28	04-Mar	3:05:00 PM	258.5	117.12	0	98.59	97.35	99.45	99.75	98.785	1.215	
29	04-Mar	3:10:00 PM			5	98.59	97.35	99.45	99.75	98.785	1.215	
30	04-Mar	3:15:00 PM			10	98.55	97.32	99.45	99.75	98.7675	1.2325	
31	04-Mar	3:20:00 PM			15	98.53	97.3	99.45	99.75	98.7575	1.2425	
32	04-Mar	3:20:00 PM	284.4	128.84	0	98.53	97.29	99.25	99.72	98.6975	1.3025	
33	04-Mar	3:25:00 PM			5	98.53	97.29	99.25	99.72	98.6975	1.3025	
34	04-Mar	3:30:00 PM			10	98.52	97.28	99.25	99.72	98.6925	1.3075	
35	04-Mar	3:35:00 PM			15	98.52	97.28	99.25	99.72	98.6925	1.3075	
36	04-Mar	3:35:00 PM	310.2	140.55	0	98.52	97.28	99.25	99.71	98.69	1.31	
37	04-Mar	3:40:00 PM			5	98.52	97.28	99.25	99.71	98.69	1.31	
38	04-Mar	3:45:00 PM			10	98.49	97.28	99.23	99.7	98.675	1.325	
39	04-Mar	3:50:00 PM			15	98.49	97.27	99.23	99.7	98.6725	1.3275	
40	04-Mar	3:50:00 PM	336.1	152.26	0	98.49	97.77	98.45	99.7	98.6025	1.3975	
41	04-Mar	3:55:00 PM			5	98.39	97.25	98.4	99.6	98.41	1.59	
42	04-Mar	4:00:00 PM			10	98.38	97.24	98.35	99.55	98.38	1.62	
43	04-Mar	4:05:00 PM			15	98.38	97.25	98.34	99.54	98.3775	1.6225	
44	04-Mar	4:05:00 PM	361.9	163.97	0	98.36	97.24	98.32	99.52	98.36	1.64	
45	04-Mar	4:10:00 PM			5	98.35	97.24	98.32	99.52	98.3575	1.6425	
46	04-Mar	4:15:00 PM			10	98.35	97.2	98.32	99.51	98.345	1.655	
47	04-Mar	4:20:00 PM			15	98.25	97.18	98.25	99.51	98.2975	1.7025	
48	04-Mar	4:20:00 PM	387.8	175.69	0	98.25	97.17	98.22	99.5	98.285	1.715	

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
49	04-Mar	4:25:00 PM			5	98.22	97.15	98.22	99.48	98.2675	1.7325	Tensile Loading
50	04-Mar	4:30:00 PM			10	98.21	97.15	98.21	99.48	98.2625	1.7375	
51	04-Mar	4:35:00 PM			15	98.2	97.15	98.2	99.47	98.255	1.745	
52	04-Mar	4:35:00 PM	413.6	187.40	0	98.17	97.09	98.18	99.4	98.21	1.79	
53	04-Mar	4:40:00 PM			5	98.17	97.09	98.18	99.39	98.2075	1.7925	
54	04-Mar	4:45:00 PM			10	98.17	97.08	98.18	99.38	98.2025	1.7975	
55	04-Mar	4:50:00 PM			15	98.17	97.08	98.18	99.38	98.2025	1.7975	
56	04-Mar	4:50:00 PM	439.5	199.11	0	98.15	97.06	98.17	99.36	98.185	1.815	
57	04-Mar	4:55:00 PM			5	98.15	97.06	98.17	99.36	98.185	1.815	
58	04-Mar	5:00:00 PM			10	98.14	97.06	98.16	99.35	98.1775	1.8225	
59	04-Mar	5:05:00 PM			15	98.14	97.06	98.16	99.35	98.1775	1.8225	
60	04-Mar	5:05:00 PM	465.3	210.82	0	98.12	97.06	98.16	99.33	98.1675	1.8325	
61	04-Mar	5:10:00 PM			5	98.12	97.06	98.16	99.33	98.1675	1.8325	
62	04-Mar	5:15:00 PM			10	98.12	97.06	98.15	99.33	98.165	1.835	
63	04-Mar	5:20:00 PM			15	98.12	97.06	98.13	99.32	98.1575	1.8425	
64	04-Mar	5:20:00 PM	491.2	222.53	0	98.12	97.06	98.12	99.3	98.15	1.85	
65	04-Mar	5:25:00 PM			5	98.12	97.06	98.12	99.3	98.15	1.85	
66	04-Mar	5:30:00 PM			10	98.12	97.06	98.12	99.3	98.15	1.85	
67	04-Mar	5:35:00 PM			15	98.12	97.06	98.12	99.3	98.15	1.85	
68	04-Mar	5:35:00 PM	517.0	234.25	0	98.09	97.05	98.1	99.28	98.13	1.87	
69	04-Mar	5:40:00 PM			5	98.08	97.05	98.09	99.27	98.1225	1.8775	
70	04-Mar	5:45:00 PM			10	98.08	97.03	98.07	99.25	98.1075	1.8925	
71	04-Mar	5:50:00 PM			15	98.08	97.03	98.07	99.25	98.1075	1.8925	

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
72	04-Mar	6:00:00 PM	491.2	222.53	0	98.08	97.03	98.07	99.25	98.1075	1.8925	Unloading
73	04-Mar	6:05:00 PM			5	98.12	97.07	98.15	99.27	98.1525	1.8475	
74	04-Mar	6:10:00 PM			10	98.14	97.1	98.17	99.3	98.1775	1.8225	
75	04-Mar	6:15:00 PM			15	98.14	97.12	98.2	99.3	98.19	1.81	
76	04-Mar	6:15:00 PM	465.3	210.82	0	98.2	97.3	98.22	99.32	98.26	1.74	
77	04-Mar	6:20:00 PM			5	98.22	97.32	98.25	99.34	98.2825	1.7175	
78	04-Mar	6:25:00 PM			10	98.24	97.35	98.3	99.38	98.3175	1.6825	
79	04-Mar	6:30:00 PM			15	98.25	97.36	98.32	99.39	98.33	1.67	
80	04-Mar	6:30:00 PM	439.5	199.11	0	98.25	97.38	98.37	99.4	98.35	1.65	
81	04-Mar	6:35:00 PM			5	98.3	97.4	98.4	99.44	98.385	1.615	
82	04-Mar	6:40:00 PM			10	98.35	97.44	98.42	99.45	98.415	1.585	
83	04-Mar	6:45:00 PM			15	98.37	97.46	98.42	99.49	98.435	1.565	
84	04-Mar	6:45:00 PM	413.6	187.40	0	98.37	97.47	98.43	99.55	98.455	1.545	
85	04-Mar	6:50:00 PM			5	98.37	97.48	98.44	99.56	98.4625	1.5375	
86	04-Mar	6:55:00 PM			10	98.39	97.49	98.44	99.58	98.475	1.525	
87	04-Mar	7:00:00 PM			15	98.39	97.49	98.45	99.59	98.48	1.52	
88	04-Mar	7:00:00 PM	387.8	175.69	0	98.42	97.49	98.45	99.59	98.4875	1.5125	
89	04-Mar	7:05:00 PM			5	98.42	97.5	98.45	99.6	98.4925	1.5075	
90	04-Mar	7:10:00 PM			10	98.42	97.51	98.46	99.61	98.5	1.5	
91	04-Mar	7:15:00 PM			15	98.43	97.51	98.46	99.61	98.5025	1.4975	
92	04-Mar	7:15:00 PM	361.9	163.97	0	98.53	97.58	98.49	99.62	98.555	1.445	
93	04-Mar	7:20:00 PM			5	98.54	97.59	98.5	99.63	98.565	1.435	
94	04-Mar	7:25:00 PM			10	98.54	97.61	98.51	99.64	98.575	1.425	
95	04-Mar	7:30:00 PM			15	98.55	97.62	98.52	99.64	98.5825	1.4175	

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						A mm	B mm	C mm	D mm			
96	04-Mar	7:30:00 PM	336.1	152.26	0	99.15	98.6	99.35	99.65	99.1875	0.8125	Unloading
97	04-Mar	7:35:00 PM			5	99.2	98.61	99.38	99.66	99.2125	0.7875	
98	04-Mar	7:40:00 PM			10	99.25	98.65	99.4	99.67	99.2425	0.7575	
99	04-Mar	7:45:00 PM			15	99.3	98.66	99.41	99.67	99.26	0.74	
100	04-Mar	7:45:00 PM	310.2	140.55	0	99.35	98.68	99.45	99.69	99.2925	0.7075	
101	04-Mar	7:50:00 PM			5	99.5	98.75	99.48	99.69	99.355	0.645	
102	04-Mar	7:55:00 PM			10	99.58	98.78	99.57	99.7	99.4075	0.5925	
103	04-Mar	8:00:00 PM			15	99.62	98.84	99.7	99.7	99.465	0.535	
104	04-Mar	8:00:00 PM	284.4	128.84	0	99.75	98.88	99.72	99.72	99.5175	0.4825	
105	04-Mar	8:05:00 PM			5	99.77	98.89	99.73	99.74	99.5325	0.4675	
106	04-Mar	8:10:00 PM			10	99.79	98.9	99.78	99.8	99.5675	0.4325	
107	04-Mar	8:15:00 PM			15	99.8	98.92	99.79	99.81	99.58	0.42	
108	04-Mar	8:15:00 PM	258.5	117.12	0	99.82	98.92	99.83	99.86	99.6075	0.3925	
109	04-Mar	8:20:00 PM			5	99.83	98.92	99.84	99.88	99.6175	0.3825	
110	04-Mar	8:25:00 PM			10	99.85	98.93	99.84	99.89	99.6275	0.3725	
111	04-Mar	8:30:00 PM			15	99.85	98.95	99.87	99.92	99.6475	0.3525	
112	04-Mar	8:30:00 PM	232.7	105.41	0	99.85	99.01	99.89	99.93	99.67	0.33	
113	04-Mar	8:35:00 PM			5	99.87	99.03	99.89	99.94	99.6825	0.3175	
114	04-Mar	8:40:00 PM			10	99.89	99.25	99.89	99.94	99.7425	0.2575	
115	04-Mar	8:45:00 PM			15	99.9	99.28	99.9	99.95	99.7575	0.2425	
116	04-Mar	8:45:00 PM	206.8	93.70	0	99.95	99.36	99.92	99.95	99.795	0.205	
117	04-Mar	8:50:00 PM			5	99.95	99.37	99.93	99.95	99.8	0.2	
118	04-Mar	8:55:00 PM			10	99.96	99.39	99.93	99.95	99.8075	0.1925	
119	04-Mar	9:00:00 PM			15	99.96	99.41	99.95	99.96	99.82	0.18	

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
120	04-Mar	9:00:00 PM	181.0	81.99	0	99.96	99.44	99.96	99.97	99.8325	0.1675	Unloading
121	04-Mar	9:05:00 PM			5	99.97	99.44	99.97	99.98	99.84	0.16	
122	04-Mar	9:10:00 PM			10	99.97	99.45	99.97	99.98	99.8425	0.1575	
123	04-Mar	9:15:00 PM			15	99.97	99.46	99.97	99.99	99.8475	0.1525	
124	04-Mar	9:15:00 PM	155.1	70.27	0	99.98	99.5	99.98	99.99	99.8625	0.1375	
125	04-Mar	9:20:00 PM			5	99.98	99.52	99.98	99.99	99.8675	0.1325	
126	04-Mar	9:25:00 PM			10	99.98	99.54	99.98	99.99	99.8725	0.1275	
127	04-Mar	9:30:00 PM			15	99.99	99.6	99.98	99.99	99.89	0.11	
128	04-Mar	9:30:00 PM	129.3	58.56	0	99.99	99.63	99.98	99.99	99.8975	0.1025	
129	04-Mar	9:35:00 PM			5	99.99	99.64	99.98	99.99	99.9	0.1	
130	04-Mar	9:40:00 PM			10	99.99	99.66	99.98	99.99	99.905	0.095	
131	04-Mar	9:45:00 PM			15	99.99	99.69	99.98	99.99	99.9125	0.0875	
132	04-Mar	9:45:00 PM	103.4	46.85	0	99.99	99.71	99.98	99.99	99.9175	0.0825	
133	04-Mar	9:50:00 PM			5	99.99	99.73	99.98	99.99	99.9225	0.0775	
134	04-Mar	9:55:00 PM			10	99.99	99.75	99.98	99.99	99.9275	0.0725	
135	04-Mar	10:00:00 PM			15	99.99	99.78	99.98	99.99	99.935	0.065	
136	04-Mar	10:00:00 PM	77.6	35.14	0	99.99	99.78	99.98	99.99	99.935	0.065	
137	04-Mar	10:05:00 PM			5	99.99	99.78	99.98	99.99	99.935	0.065	
138	04-Mar	10:10:00 PM			10	99.99	99.79	99.98	99.99	99.9375	0.0625	
139	04-Mar	10:15:00 PM			15	99.99	99.79	99.98	99.99	99.9375	0.0625	
140	04-Mar	10:15:00 PM	51.7	23.42	0	99.99	99.79	99.98	99.99	99.9375	0.0625	
141	04-Mar	10:20:00 PM			5	99.99	99.79	99.98	99.99	99.9375	0.0625	
142	04-Mar	10:25:00 PM			10	99.99	99.79	99.98	99.99	99.9375	0.0625	
143	04-Mar	10:30:00 PM			15	99.99	99.8	99.98	99.99	99.94	0.06	

PILE UPLIFT TEST READING SHEET

Pile No.	TP-01
Pile Dia.	900mm

Jack Piston dia	53 cm
Piston Area	2206.18 cm ²

S.No	Date	Time	Equivalent Load (ton)	Pressure Gauge Reading bar (kg/cm ²)	Reading Time Minutes	Strain Gauge Reading				Average Reading mm	Average Uplift mm	Remarks
						A mm	B mm	C mm	D mm			
144	04-Mar	10:30:00 PM	25.9	11.71	0	99.99	99.8	99.98	99.99	99.94	0.06	Unloading
145	04-Mar	10:35:00 PM			5	99.99	99.8	99.98	99.99	99.94	0.06	
146	04-Mar	10:40:00 PM			10	99.99	99.8	99.98	99.99	99.94	0.06	
147	04-Mar	10:45:00 PM			15	99.99	99.81	99.98	99.99	99.9425	0.0575	
148	04-Mar	10:45:00 PM	0.0	0.00	0	99.99	99.81	99.98	99.99	99.9425	0.0575	
149	04-Mar	10:50:00 PM			5	99.99	99.81	99.98	99.99	99.9425	0.0575	
150	04-Mar	10:55:00 PM			10	99.99	99.81	99.98	99.99	99.9425	0.0575	
151	04-Mar	11:00:00 PM			15	99.99	99.81	99.98	99.99	99.9425	0.0575	

Summary

Maximum Uplift	1.89 mm
Maximum Tensile Load	517.0 ton
Max Strain (after unloading)	0.06 mm
Rebound	1.84 mm

APPENDIX-D
PHOTOGRAPHS









