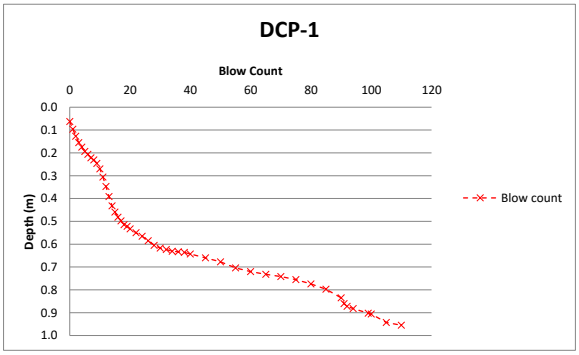
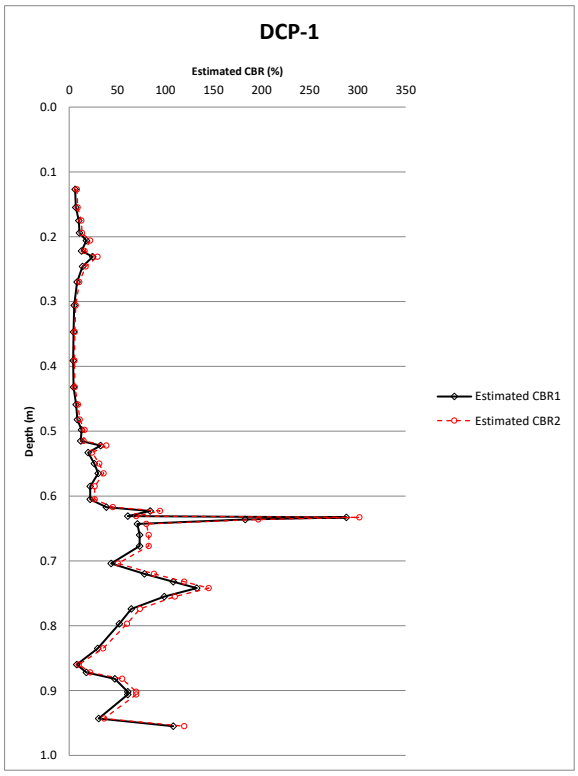
APPENDIX X - RESULTS OF DYNAMIC CONE PENETROMETER (DCP) TESTING

Project:	Sandfields Young Business Centre
Project No.	ESP.9222
Test No.	DCP-1

Date of Test:	19/05/2025
Operator:	JA
Soil type:	Topsoil over Made Ground
Soil condition:	Unsaturated

Blow count	Penetration (mm)	Penetration (m)	Penetration Index (DPI) mm/blow	Estimated CBR1 (%)[1]	Estimated CBR2 (%)[2]
0	63.000	0.063			
1	96.000	0.096	33.0	6	7
2	127.000	0.127	31.0	6	8
3	155.000	0.155	28.0	7	9
4	175.000	0.175	20.0	10	13
5	194.000	0.194	19.0	11	13
6	206.000	0.206	12.0	18	22
7	222.000	0.222	16.0	13	16
8	231.000	0.231	9.0	25	30
9	246.000	0.246	15.0	14	17
10	270.000	0.270	24.0	8	10
11	306.000	0.306	36.0	5	7
12	347.000	0.347	41.0	5	6
13	391.000	0.391	44.0	4	6
14	432.000	0.432	41.0	5	6
15	459.000	0.459	27.0	7	9
16	482.000	0.482	23.0	9	11
17	498.000	0.498	16.0	13	16
18	515.000	0.515	17.0	12	15
19	522.000	0.522	7.0	33	39
20	533.000	0.533	11.0	20	24
22	550.000	0.550	8.5	26	31
24	565.000	0.565	7.5	30	36
26	585.000	0.585	10.0	22	26
28	605.000	0.605	10.0	22	26
30	617.000	0.617	6.0	39	45
32	623.000	0.623	3.0	84	95
34	631.000	0.631	4.0	61	70
36	633.000	0.633	1.0	288	302
38	636.000	0.636	1.5	183	197
40	643.000	0.643	3.5	71	80
45	660.000	0.660	3.4	73	83
50	677.000	0.677	3.4	73	83
55	704.000	0.704	5.4	44	51
60	720.000	0.720	3.2	78	88
65	732.000	0.732	2.4	108	120
70	742.000	0.742	2.0	133	145
75	755.000	0.755	2.6	99	110
80	774.000	0.774	3.8	65	74
85	797.000	0.797	4.6	52	60
90	835.000	0.835	7.6	30	35
91	860.000	0.860	25.0	8	10
92	872.000	0.872	12.0	18	22
94	882.000	0.882	5.0	48	55
99	902.000	0.902	4.0	61	70
100	906.000	0.906	4.0	61	70
105	943.000	0.943	7.4	31	36
110	955.000	0.955	2.4	108	120





Notes:

1. CBR calculated based on Webster et al, 1992.
2. CBR calculated based on DMRB, 2008.
3. CBR values less than 2.5% highlighted in red and bold. Soils unsuitable in pavements.

Reference:

- Webster S, Grau R and Williams T. 1992. Description and Application of Dual Mass Dynamic Cone Penetrometer. Dept of Army Waterways Equipment Station, Instruction rpt GL-92-3.
- Highways Agency, 2008. Design Manual for Roads and Bridges (DMRB), Data for Pavement Assessment. HD29/08.

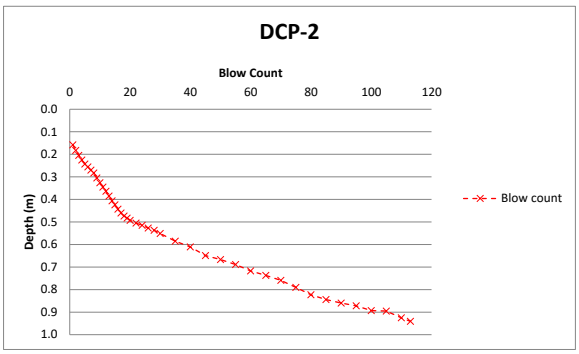
APPENDIX X - RESULTS OF DYNAMIC CONE PENETROMETER (DCP) TESTING

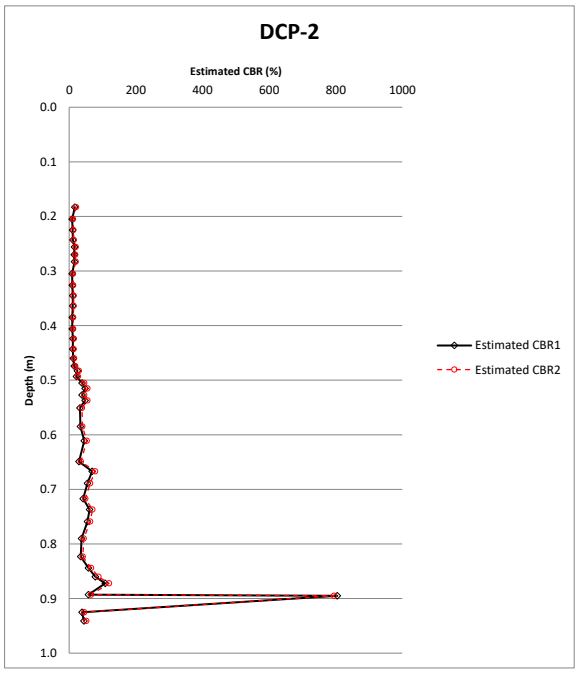
esp
ENGINEERS
GEOLOGISTS
SCIENTISTS

Project:	Sandfields Young Business Centre
Project No.	ESP.9222
Test No.	DCP-2

Date of Test:	19/05/2025
Operator:	JA
Soil type:	Topsoil over Made Ground
Soil condition:	Unsaturated

Blow count	Penetration (mm)	Penetration (m)	Penetration Index (DPI) mm/blow	Estimated CBR1 (%)[1]	Estimated CBR2 (%)[2]
0	86	0.086			
1	158.000	0.158	72.0	**2.4**	3.3
2	183.000	0.183	12.5	17	21
3	205.000	0.205	22.0	9	12
4	225.000	0.225	20.0	10	13
5	243.000	0.243	18.0	11	14
6	256.000	0.256	13.0	16	20
7	270.000	0.270	14.0	15	19
8	283.000	0.283	13.0	16	20
9	305.000	0.305	22.0	9.0	11.5
10	326.000	0.326	21.0	10	12
11	345.000	0.345	19.0	11	13
12	364.000	0.364	19.0	11	13
13	385.000	0.385	21.0	10	12
14	406.000	0.406	21.0	10	12
15	424.000	0.424	18.0	11	14
16	443.000	0.443	19.0	11	13
17	460.000	0.460	17.0	12	15
18	474.000	0.474	14.0	15	19
19	483.000	0.483	9.0	25	30
20	493.000	0.493	10.0	22	26
22	505.000	0.505	6.0	39	45
24	515.000	0.515	5.0	48	55
26	527.000	0.527	6.0	39	45
28	537.000	0.537	5.0	48	55
30	551.000	0.551	7.0	33	39
35	585.000	0.585	6.8	34	40
40	611.000	0.611	5.2	46	53
45	649.000	0.649	7.6	30	35
50	667.000	0.667	3.6	69	78
55	689.000	0.689	4.4	55	63
60	717.000	0.717	5.6	42	49
65	737.000	0.737	4.0	61	70
70	759.000	0.759	4.4	55	63
75	790.000	0.790	6.2	37	44
80	823.000	0.823	6.6	35	41
85	844.000	0.844	4.2	58	66
90	860.000	0.860	3.2	78	88
95	872.000	0.872	2.4	108	120
100	893.000	0.893	4.2	58	66
105	895.000	0.895	0.4	805	795
110	925.000	0.925	6.0	39	45
113	941.000	0.941	5.3	44	51





Notes:

1. CBR calculated based on Webster et al, 1992.
2. CBR calculated based on DMRB, 2008.
3. CBR values less than 2.5% highlighted in red and bold. Soils unsuitable in pavements.

Reference:

- Webster S, Grau R and Williams T. 1992. Description and Application of Dual Mass Dynamic Cone Penetrometer. Dept of Army Waterways Equipment Station, Instruction rpt GL-92-3.
- Highways Agency, 2008. Design Manual for Roads and Bridges (DMRB), Data for Pavement Assessment. HD29/08.

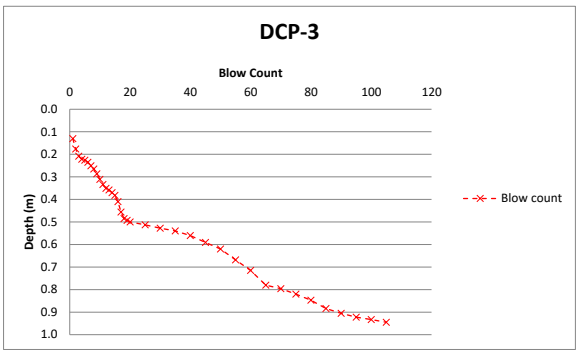
APPENDIX X - RESULTS OF DYNAMIC CONE PENETROMETER (DCP) TESTING

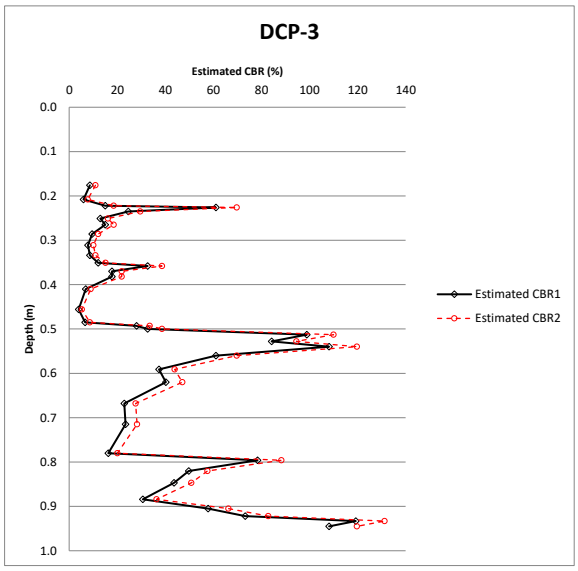
esp
ENGINEERS
GEOLOGISTS
SCIENTISTS

Project:	Sandfields Young Business Centre
Project No.	ESP.9222
Test No.	DCP-3

Date of Test:	19/05/2025
Operator:	JA
Soil type:	Topsoil over Made Ground
Soil condition:	Unsaturated

Blow count	Penetration (mm)	Penetration (m)	Penetration Index (DPI) mm/blow	Estimated CBR1 (%)[1]	Estimated CBR2 (%)[2]
0	63	0.063			
1	130.000	0.130	67.0	2.6	4
2	176.000	0.176	23.0	9	11
3	208.000	0.208	32.0	6	8
4	222.000	0.222	14.0	15	19
5	226.000	0.226	4.0	61	70
6	235.000	0.235	9.0	25	30
7	251.000	0.251	16.0	13	16
8	265.000	0.265	14.0	15	19
9	286.000	0.286	21.0	10	12
10	311.000	0.311	25.0	8	10
11	334.000	0.334	23.0	9	11
12	351.000	0.351	17.0	12	15
13	358.000	0.358	7.0	33	39
14	370.000	0.370	12.0	18	22
15	382.000	0.382	12.0	18	22
16	410.000	0.410	28.0	7	9
17	456.000	0.456	46.0	4	5
18	485.000	0.485	29.0	7	9
19	493.000	0.493	8.0	28	34
20	500.000	0.500	7.0	33	39
25	513.000	0.513	2.6	99	110
30	528.000	0.528	3.0	84	95
35	540.000	0.540	2.4	108	120
40	560.000	0.560	4.0	61	70
45	591.000	0.591	6.2	37	44
50	620.000	0.620	5.8	40	47
55	668.000	0.668	9.6	23	28
60	715.000	0.715	9.4	23	28
65	780.000	0.780	13.0	16	20
70	796.000	0.796	3.2	78	88
75	820.000	0.820	4.8	50	58
80	847.000	0.847	5.4	44	51
85	884.000	0.884	7.4	31	36
90	905.000	0.905	4.2	58	66
95	922.000	0.922	3.4	73	83
100	933.000	0.933	2.2	119	131
105	945.000	0.945	2.4	108	120





Notes:

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- Highways Agency, 2008. Design Manual for Roads and Bridges (DMRB), Data for Pavement Assessment. HD29/08.

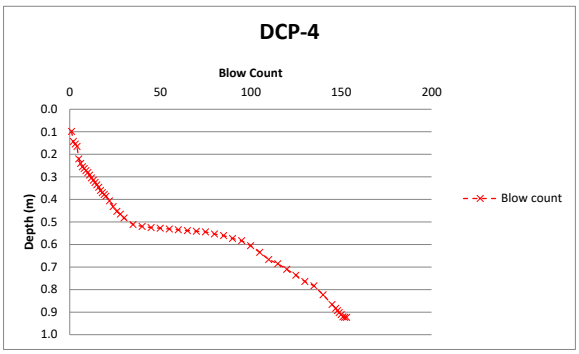
APPENDIX X - RESULTS OF DYNAMIC CONE PENETROMETER (DCP) TESTING

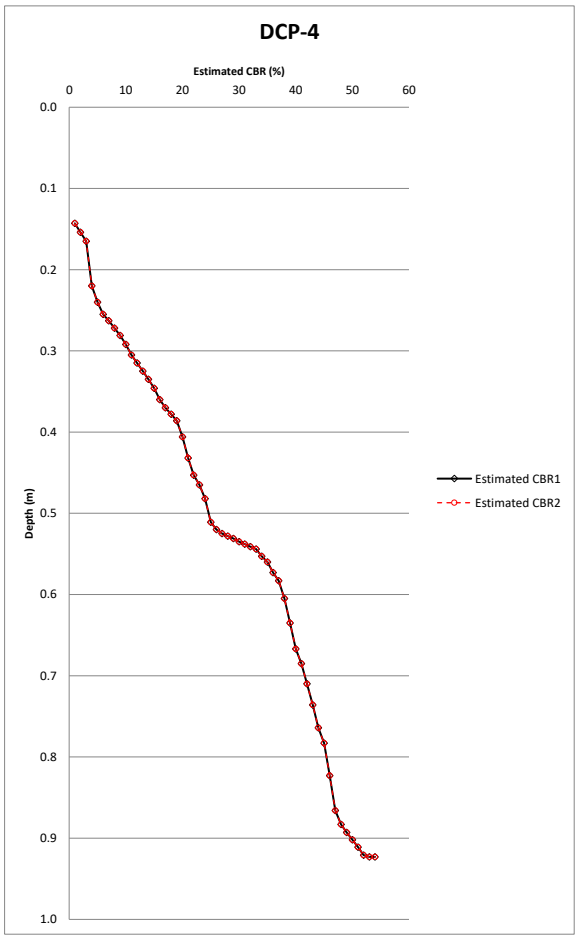
esp
ENGINEERS
GEOLOGISTS
SCIENTISTS

Project:	Sandfields Young Business Centre
Project No.	ESP.9222
Test No.	DCP-4

Date of Test:	19/05/2025
Operator:	JA
Soil type:	Topsoil over Made Ground
Soil condition:	Unsaturated

Blow count	Penetration (mm)	Penetration (m)	Penetration Index (DPI) mm/blow	Estimated CBR1 (%)[1]	Estimated CBR2 (%)[2]
0	42	0.042			
1	98.000	0.098	56.0	3.2	4
2	143.000	0.143	22.5	9	11
3	154.000	0.154	11.0	20	24
4	165.000	0.165	11.0	20	24
5	220.000	0.220	55.0	3.2	4
6	240.000	0.240	20.0	10	13
7	255.000	0.255	15.0	14	17
8	263.000	0.263	8.0	28	34
9	272.000	0.272	9.0	25	30
10	281.000	0.281	9.0	25	30
11	292.000	0.292	11.0	20	24
12	305.000	0.305	13.0	16	20
13	315.000	0.315	10.0	22	26
14	325.000	0.325	10.0	22	26
15	335.000	0.335	10.0	22	26
16	346.000	0.346	11.0	20	24
17	360.000	0.360	14.0	15	19
18	370.000	0.370	10.0	22	26
19	378.000	0.378	8.0	28	34
20	386.000	0.386	8.0	28	34
22	406.000	0.406	10.0	22	26
24	432.000	0.432	13.0	16	20
26	453.000	0.453	10.5	21	25
28	465.000	0.465	6.0	39	45
30	482.000	0.482	8.5	26	31
35	511.000	0.511	5.8	40	47
40	520.000	0.520	1.8	149	162
45	525.000	0.525	1.0	288	302
50	528.000	0.528	0.6	511	518
55	531.000	0.531	0.6	511	518
60	535.000	0.535	0.8	370	382
65	538.000	0.538	0.6	511	518
70	541.000	0.541	0.6	511	518
75	544.000	0.544	0.6	511	518
80	553.000	0.553	1.8	149	162
85	560.000	0.560	1.4	198	212
90	573.000	0.573	2.6	99	110
95	583.000	0.583	2.0	133	145
100	605.000	0.605	4.4	55	63
105	635.000	0.635	6.0	39	45
110	667.000	0.667	6.4	36	42
115	685.000	0.685	3.6	69	78
120	710.000	0.710	5.0	48	55
125	736.000	0.736	5.2	46	53
130	764.000	0.764	5.6	42	49
135	783.000	0.783	3.8	65	74
140	823.000	0.823	8.0	28	34
145	866.000	0.866	8.6	26	31
147	883.000	0.883	8.5	26	31
148	893.000	0.893	10.0	22	26
149	902.000	0.902	9.0	25	30
150	911.000	0.911	9.0	25	30
151	921.000	0.921	10.0	22	26
152	923.000	0.923	2.0	133	145
153	923.000	0.923	0.0	-	-





Notes:

1. CBR calculated based on Webster et al, 1992.
2. CBR calculated based on DMRB, 2008.
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