



Site : ROBROYSTON NORTH

Client :

Engineer: JOHNSON POOLE & BLOOMER

Job Number

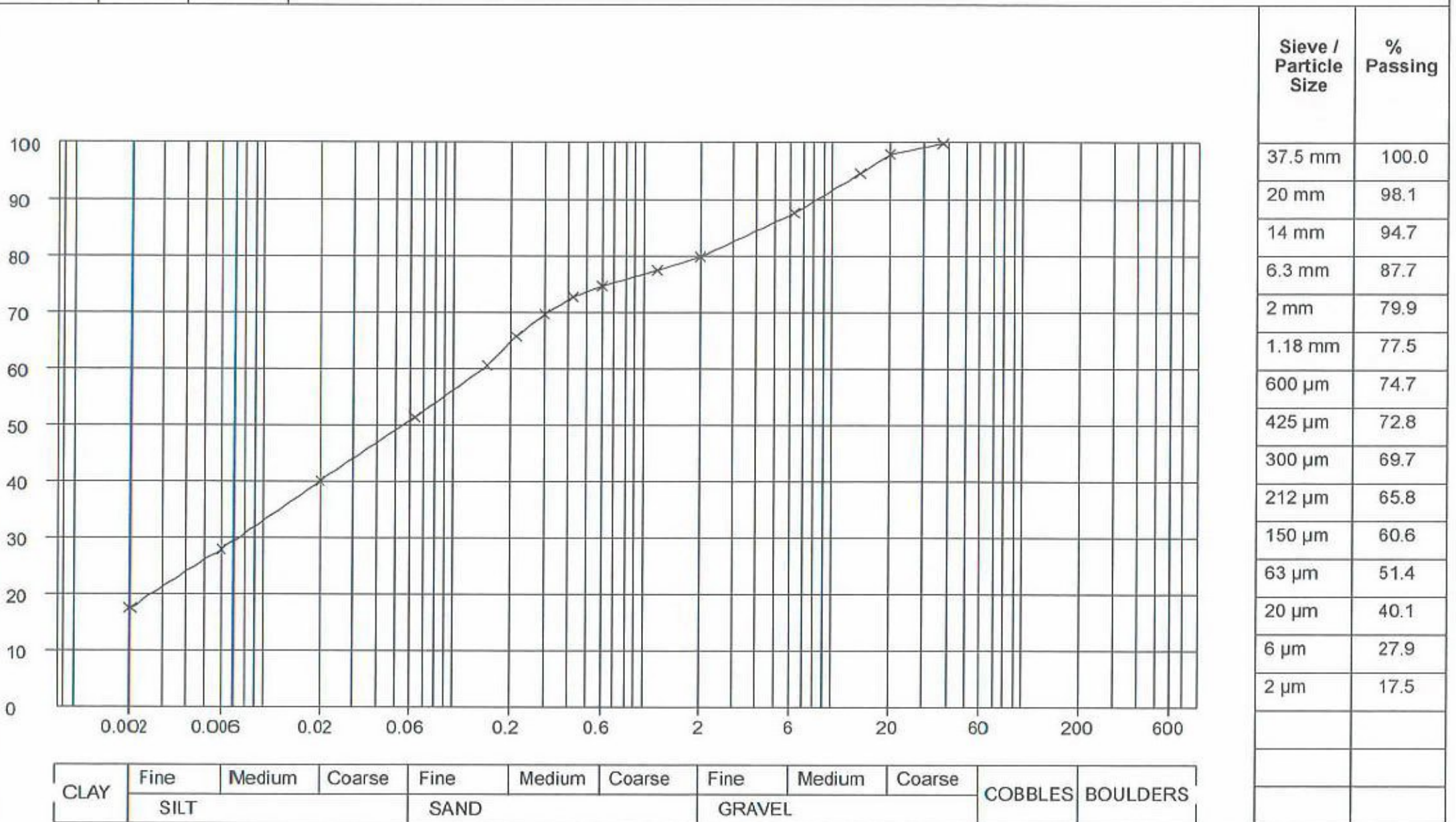
M505

Sheet

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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
S331	1.20	U	



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	4.8 mm
D60	144.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	20.1%
Sand	29.0%
Silt	33.4%
Clay	17.5%

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :



Site : ROBROYSTON NORTH

Client :

Engineer: JOHNSON POOLE & BLOOMER

Job Number

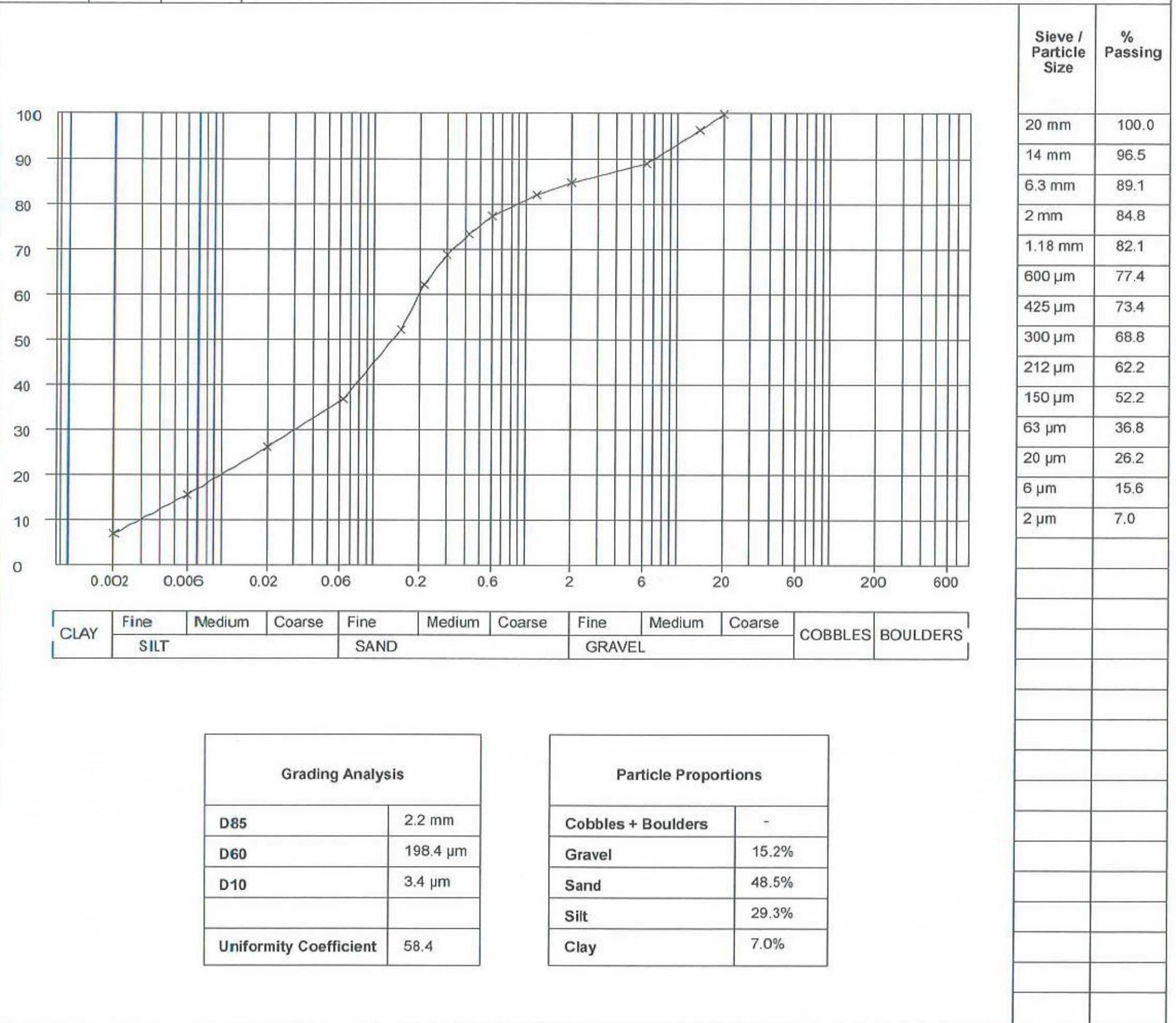
M505

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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
S331	3.00	U	



CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	2.2 mm
D60	198.4 µm
D10	3.4 µm
Uniformity Coefficient	58.4

Particle Proportions	
Cobbles + Boulders	-
Gravel	15.2%
Sand	48.5%
Silt	29.3%
Clay	7.0%

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :



Site : ROBR0YSTON NORTH

Client :

Engineer: JOHNSON POOLE & BLOOMER

Job Number

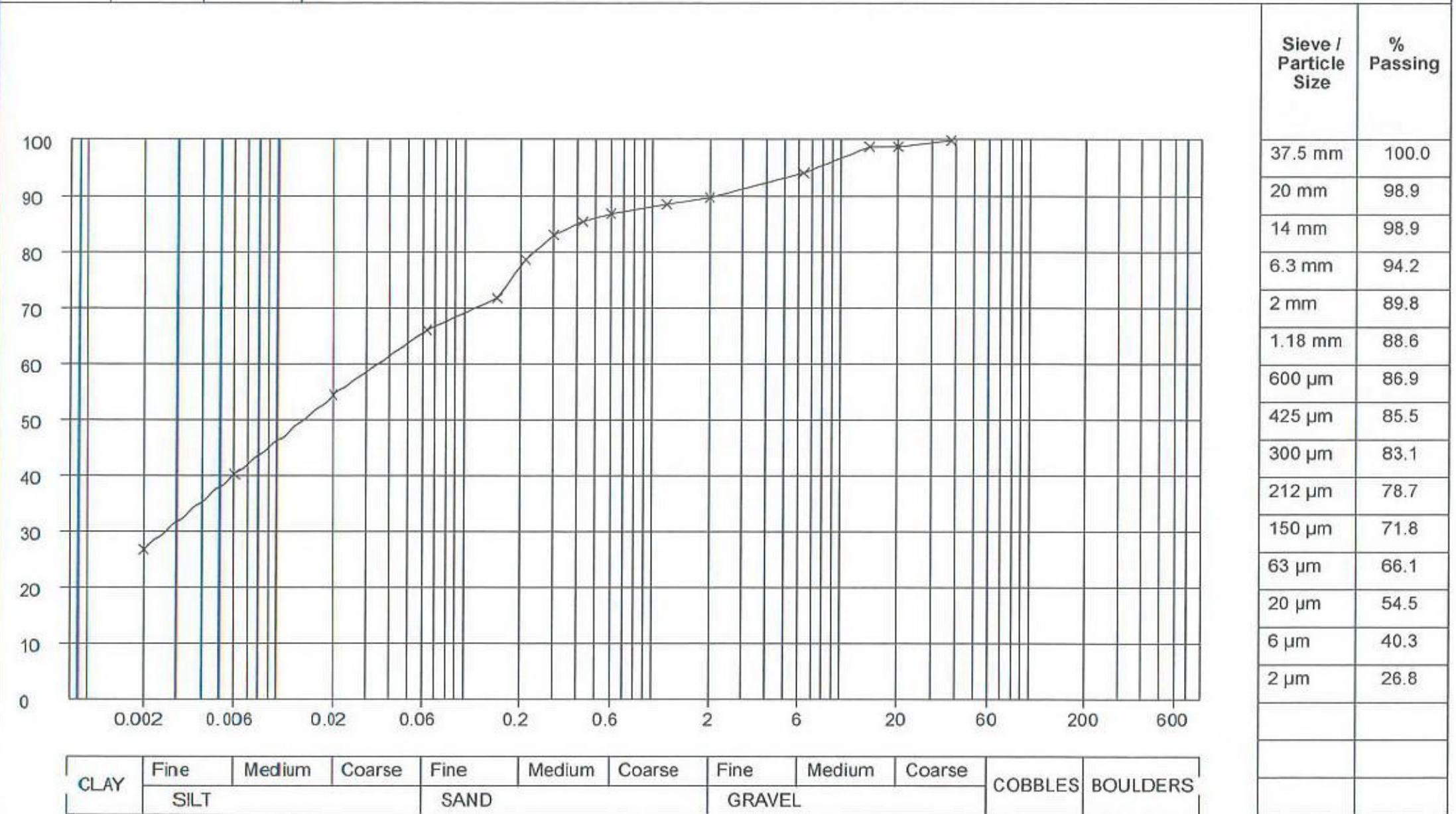
M505

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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
S332	1.20	U	



Grading Analysis	
D85	399.0 µm
D60	40.4 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	10.2%
Sand	24.2%
Silt	38.8%
Clay	26.8%

Method of Preparation: BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :



Site : ROBROYSTON NORTH

Client :

Engineer: JOHNSON POOLE & BLOOMER

Job Number

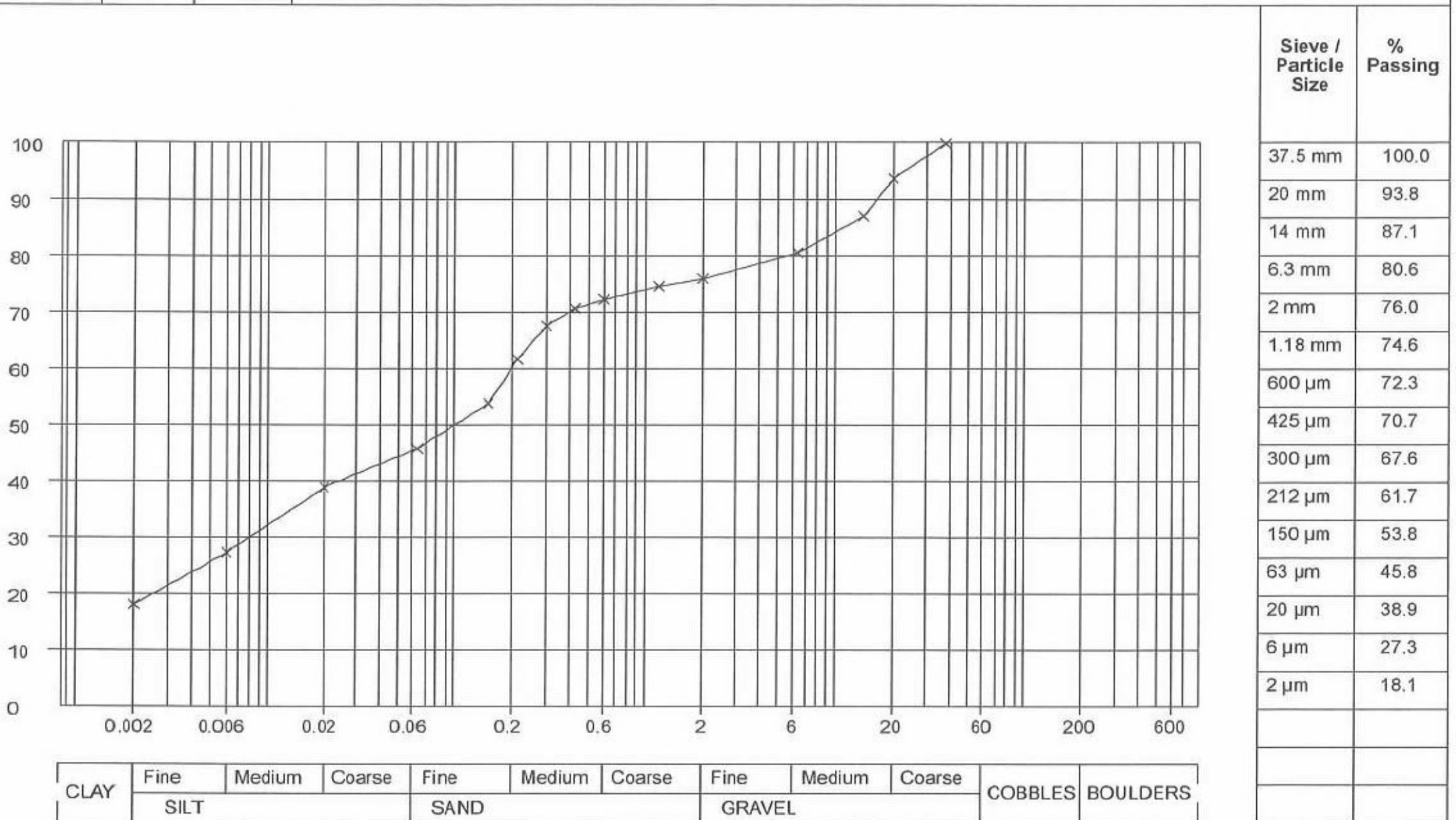
M505

Sheet

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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
S332	3.00	U	



CLAY	Fine	Medium	Coarse	SILT	SAND	GRAVEL	COBBLES	BOULDERS

Grading Analysis	
D85	11.5 mm
D60	198.7 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	24.0%
Sand	30.5%
Silt	27.4%
Clay	18.1%

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

SITE: Robroyston North. M505

Template: RS03

Job Number M-: 505  
 Exp. Point: BHS301  
 DEPTH: 1.20 m.  
 Description: Grey gravelly sandy clay

SPECIMEN/STAGE No: 1 2 3  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 WEIGHT OF SPECIMEN = 3521 gms.  
 DIAMETER OF SPECIMEN = 101 m.m.  
 HEIGHT OF SPECIMEN = 201 m.m.  
 WT. of WET SAMPLE + TIN = 589 gms.  
 WT. of DRY SAMPLE + TIN = 513 gms.  
 WT. of TIN = 41.4 gms.  
 LOAD FACTOR = 8.83 N/Div.  
 PRESSURE ZERO = 3 7 13 Div.

SPEC./STAGE No: 1 2 3

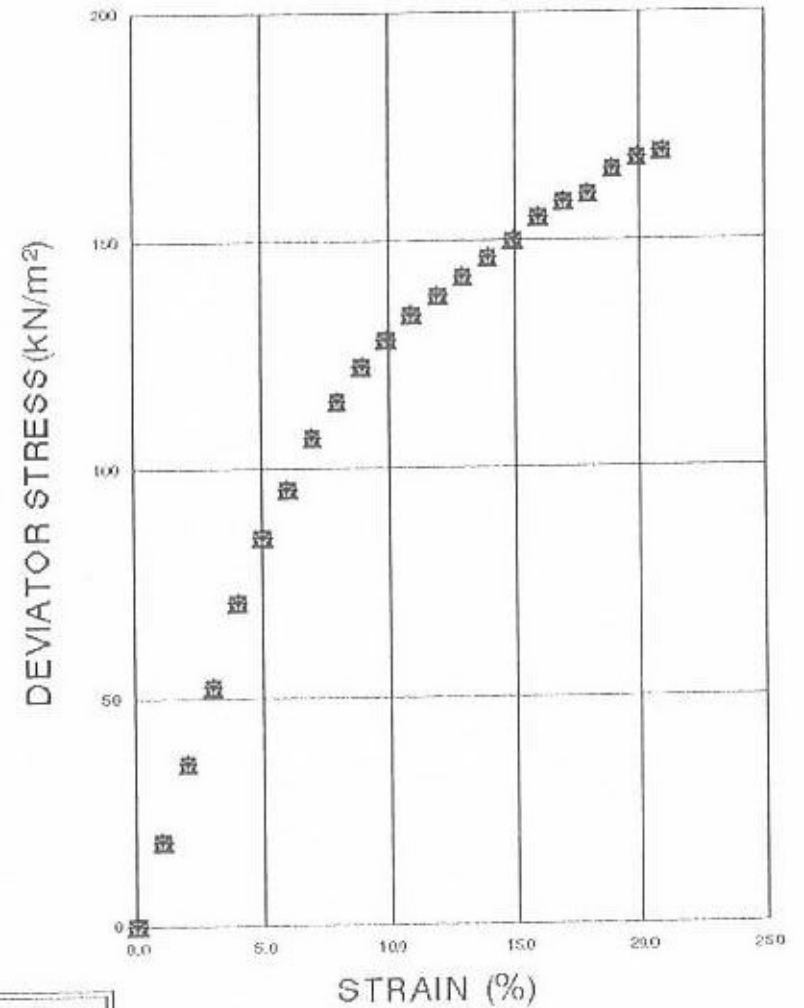
WATER CONT. = 16.1 % dry weight  
 BULK DENSITY = 2.19 Mg/m<sup>3</sup>  
 DRY DENSITY = 1.88 Mg/m<sup>3</sup>  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 SHEAR STRENGTH = 75 80 85 kN/m<sup>2</sup>  
 STRAIN at FAILURE = 15 18 21 %  
 RATE of STRAIN = 2 2 2 %/min.  
 MEMBRANE TYPE = Standard Latex - 0.5mm. thick.

AVERAGE SHEAR STRENGTH = 80 kN/m<sup>2</sup>

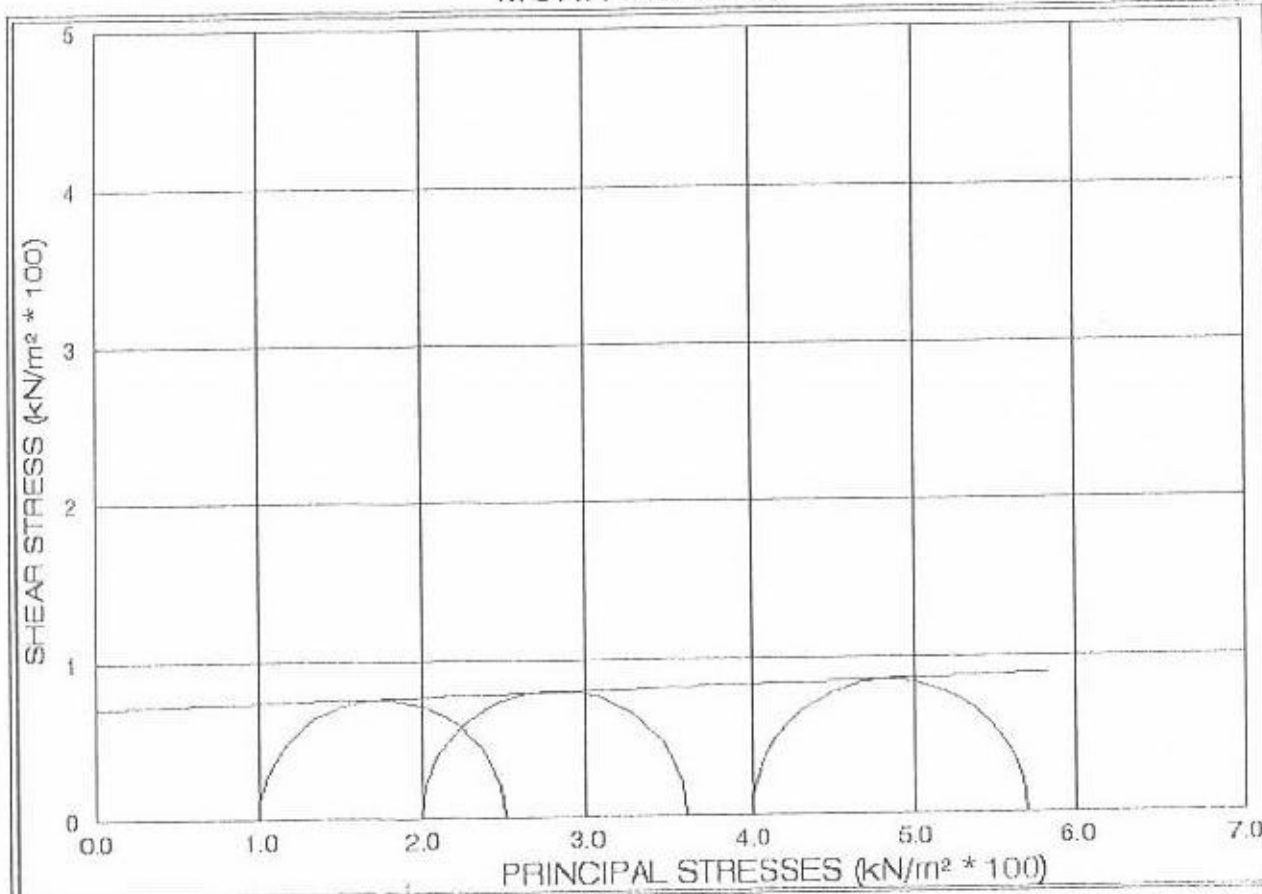
APPARENT COHESION = 71 kN/m<sup>2</sup>  
 ANGLE of SHR. RESISTANCE = 2 Degrees

READ No	AREA cm <sup>2</sup>	STRAIN %	STRAIN mm	PROVING RING DIAL Divs.	APPLIED LOAD kN	DEVIATOR STRESS kN/m <sup>2</sup>
	80.12		0			
1	80.92	1.0	2	20	0.15	19
2	81.75	2.0	4	36	0.29	36
3	82.58	3.0	6	52	0.43	52
4	83.44	4.0	8	70	0.59	71
5	84.31	5.0	10	84	0.72	85
6	85.21	6.0	12	95	0.81	95
7	86.12	7.0	14	107	0.92	107
8	87.05	8.0	16	116	1.00	115
9	88.00	9.0	18	125	1.08	122
10	88.97	10.0	20	132	1.14	128
11	89.97	10.9	22	139	1.20	133
12	90.98	11.9	24	145	1.25	138
13	92.02	12.9	26	151	1.31	142
14	93.09	13.9	28	157	1.36	146
15	94.17	14.9	30	163	1.41	150
16	95.29	15.9	32	174	1.47	155
17	96.43	16.9	34	180	1.53	158
18	97.60	17.9	36	184	1.56	160
19	98.80	18.9	38	198	1.63	165
20	100.02	19.9	40	203	1.68	168
21	101.28	20.9	42	207	1.71	169

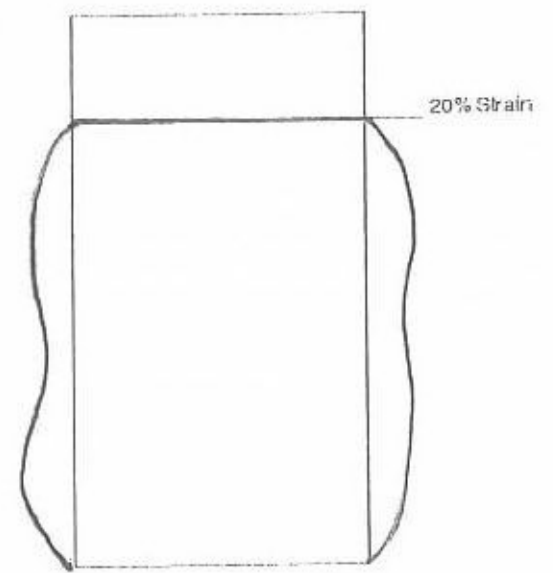
STRESS / STRAIN PLOT



MOHR CIRCLES



FAILURE



PLASTIC - BRITTLE - COMPOUND

COMMENTS:

Prepared by: Vertical Extrusion \ Remoulding.  
 101mm Diameter Multi-stage test - (one specimen)

Aitken Laboratories Ltd, Castlehill House, Bank St, Slamanan, FK13ZJ

Print Time: 10:46 AM Print Date: 09/03/2020

Originator  
 Checked & Approved

**QUICK UNDRAINED TRIAXIAL COMPRESSION TEST**  
 in accordance with  
 BS EN ISO 17892: Part8

Robroyston North. M505

**Aitken  
 Laboratories  
 Limited**

SITE : Robroyston North. M505

Template: RS03

Job Number M-: 505  
 Exp. Point : BHS303  
 DEPTH : 3.00 m.  
 Description : Grey gravelly sandy clay

SPECIMEN/STAGE No : 1 2 3  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 WEIGHT OF SPECIMEN = 2439 gms.  
 DIAMETER OF SPECIMEN = 84.2 m.m.  
 HEIGHT OF SPECIMEN = 198 m.m.  
 WT. of WET SAMPLE + TIN = 890 gms.  
 WT. of DRY SAMPLE + TIN = 801 gms.  
 WT. of TIN = 41.4 gms.  
 LOAD FACTOR = 128 N/Div.  
 PRESSURE ZERO = -1 -1 -1 Div.

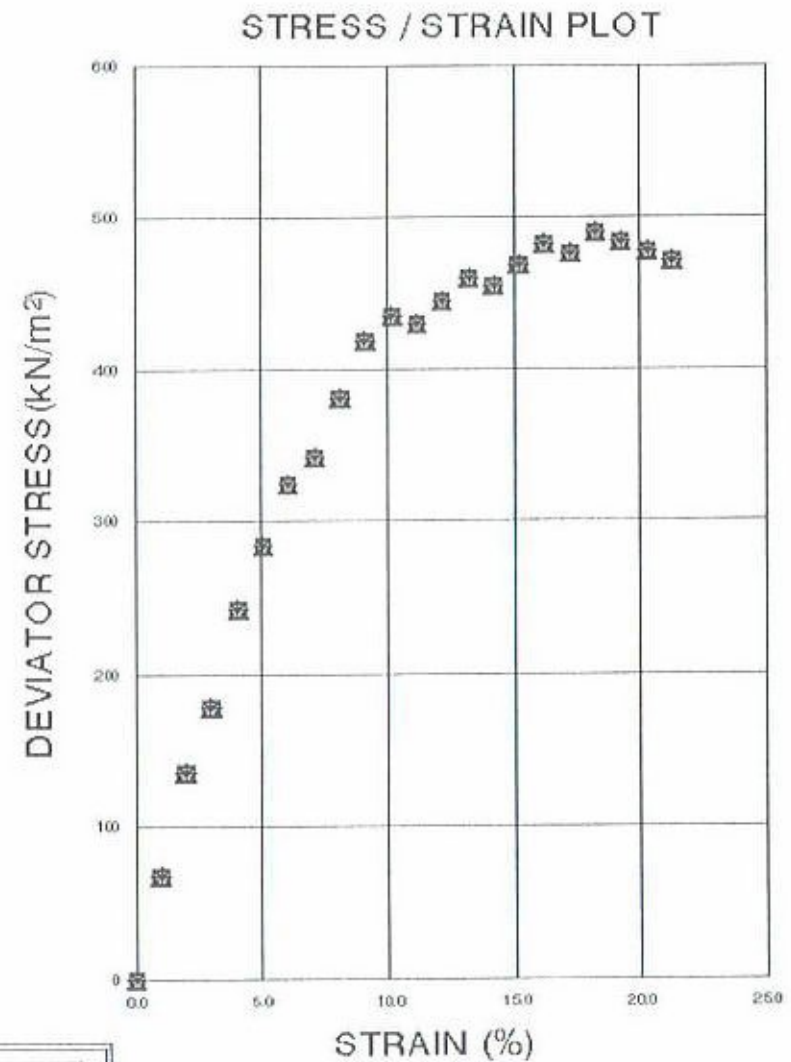
SPEC. / STAGE No : 1 2 3

WATER CONT. = 11.7 % dry weight  
 BULK DENSITY = 2.22 Mg/m<sup>3</sup>  
 DRY DENSITY = 1.98 Mg/m<sup>3</sup>  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 SHEAR STRENGTH = 171 209 245 kN/m<sup>2</sup>  
 STRAIN at FAILURE = 7 9 18 %  
 RATE of STRAIN = 2 2 2 %/min.  
 MEMBRANE TYPE = Standard Latex - 0.5mm. thick.

AVERAGE SHEAR STRENGTH = 208 kN/m<sup>2</sup>

APPARENT COHESION = 126 kN/m<sup>2</sup>  
 ANGLE of SHR. RESISTANCE = 11 Degrees

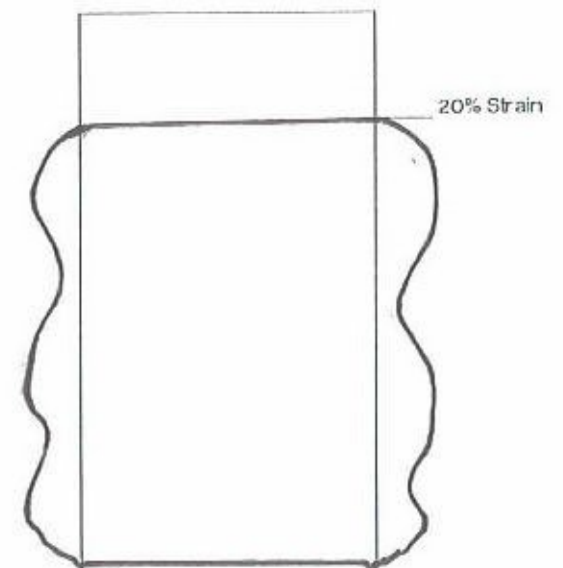
READ No	AREA cm <sup>2</sup>	STRAIN %	STRAIN mm	PROVING RING DIAL Divs.	APPLIED LOAD kN	DEVIATOR STRESS kN/m <sup>2</sup>
	55.67		0			
1	56.24	1.0	2	2	0.38	68
2	56.82	2.0	4	5	0.77	135
3	57.41	3.0	6	7	1.02	179
4	58.02	4.0	8	10	1.41	243
5	58.64	5.1	10	12	1.67	284
6	59.27	6.1	12	14	1.92	324
7	59.91	7.1	14	15	2.05	342
8	60.57	8.1	16	17	2.31	381
9	61.25	9.1	18	19	2.56	418
10	61.94	10.1	20	20	2.69	434
11	62.64	11.1	22	20	2.69	429
12	63.36	12.1	24	21	2.82	445
13	64.10	13.2	26	22	2.95	460
14	64.86	14.2	28	22	2.95	454
15	65.63	15.2	30	23	3.07	468
16	66.42	16.2	32	24	3.20	482
17	67.24	17.2	34	24	3.20	476
18	68.07	18.2	36	25	3.33	489
19	68.92	19.2	38	25	3.33	483
20	69.80	20.2	40	25	3.33	477
21	70.69	21.3	42	25	3.33	471



MOHR CIRCLES



FAILURE



PLASTIC \ BRITTLE \ COMPOUND

COMMENTS:

Prepared by : Vertical Extrusion \ Remoulding.  
 84mm Diameter Multi-stage test - (one specimen)

Aitken Laboratories Ltd, Castlehill House, Bank St, Slamanan, FK13EZ

Print Date: 14/03/2020

Print Time: 08:51 AM

Originator: [Redacted]

**QUICK UNDRAINED TRIAXIAL COMPRESSION TEST**  
 in accordance with  
 BS EN ISO 17892: Part8

Checked & Approved: [Redacted]

Robroyston North. M505

**Aitken  
 Laboratories  
 Limited**

SITE : Robroyston North. M505

Template: RS03

Job Number M-: 505  
 Exp.Point :BHS304  
 DEPTH : 1.20 m.  
 Description : Mottled brown gravelly sandy clay

SPEC. / STAGE No : 1 2 3

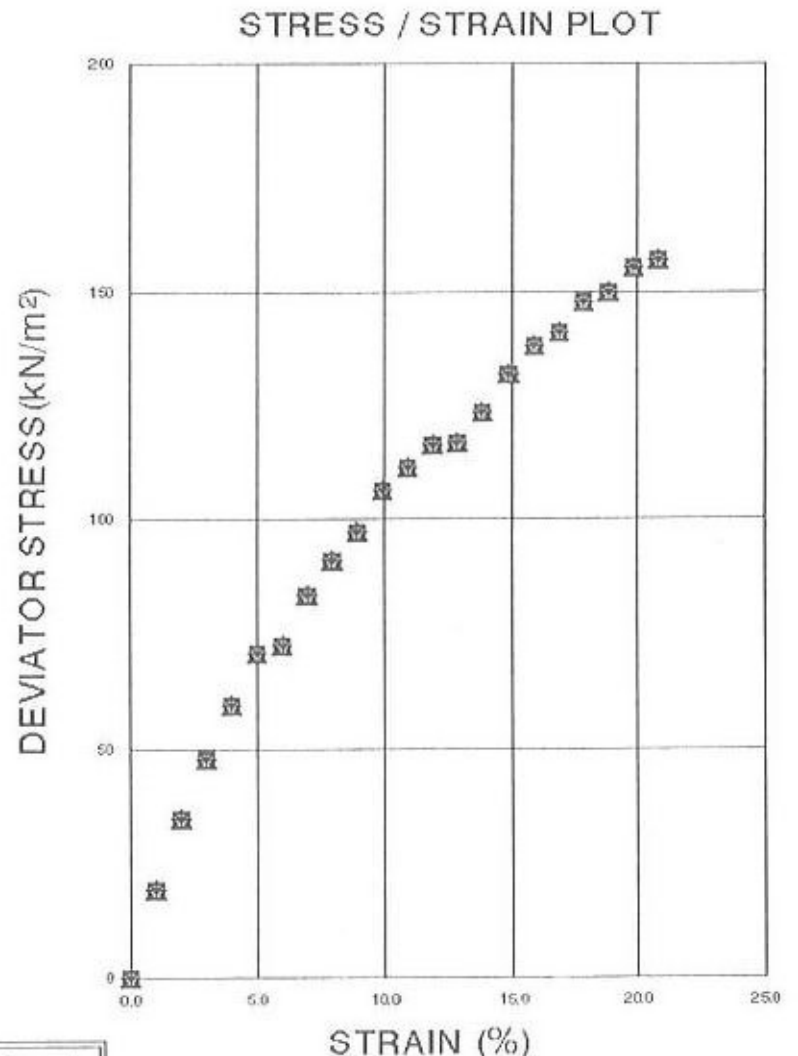
WATER CONT. = 21.4 % dry weight  
 BULK DENSITY = 2.02 Mg/m<sup>3</sup>  
 DRY DENSITY = 1.67 Mg/m<sup>3</sup>  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 SHEAR STRENGTH = 35 58 79 kN/m<sup>2</sup>  
 STRAIN at FAILURE = 5 12 21 %  
 RATE of STRAIN = 2 2 2 %/min.  
 MEMBRANE TYPE = Standard Latex - 0.5mm. thick.

AVERAGE SHEAR STRENGTH = 57 kN/m<sup>2</sup>

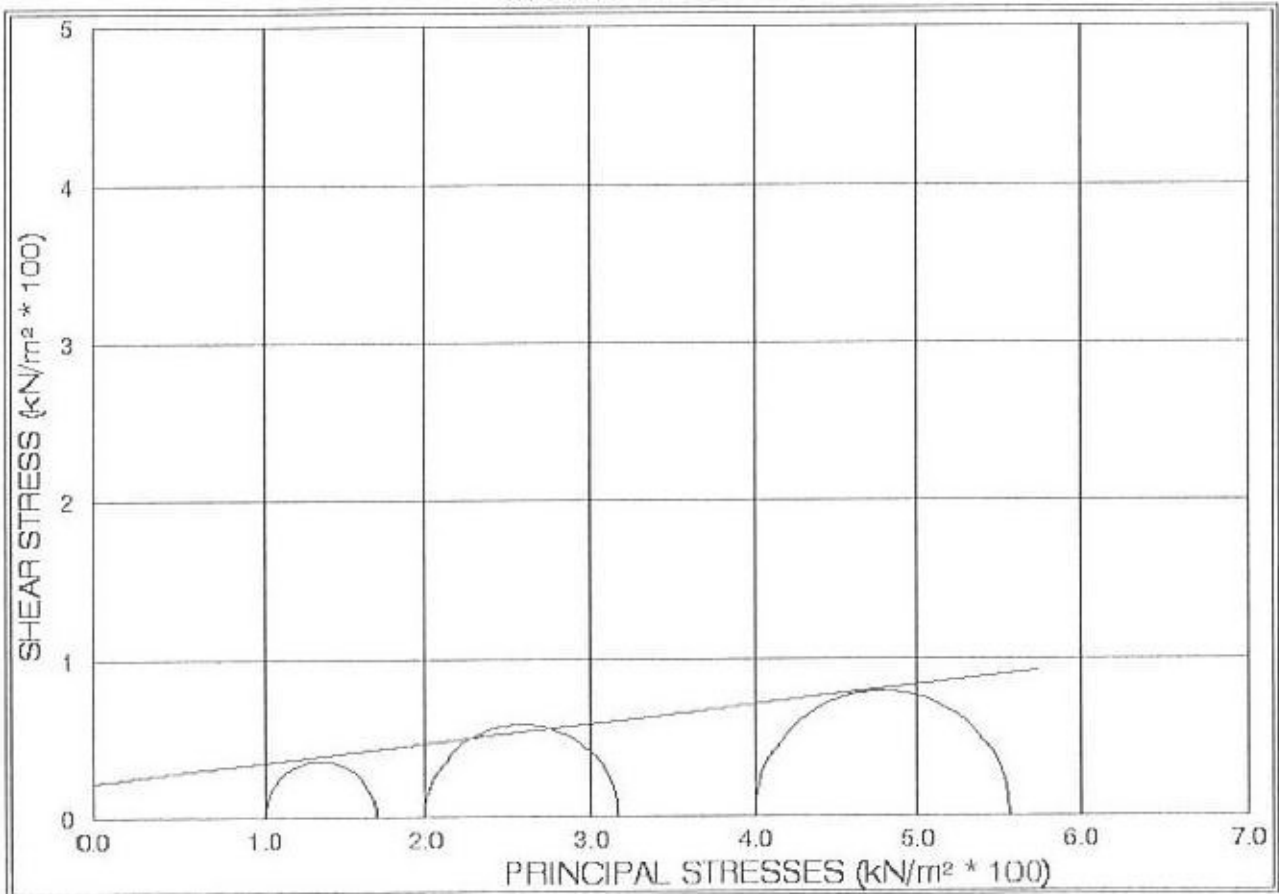
APPARENT COHESION = 22 kN/m<sup>2</sup>  
 ANGLE of SHR. RESISTANCE = 7 Degrees

SPECIMEN/STAGE No : 1 2 3  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 WEIGHT OF SPECIMEN = 3145 gms.  
 DIAMETER OF SPECIMEN = 99 m.m.  
 HEIGHT OF SPECIMEN = 202 m.m.  
 WT.of WET SAMPLE + TIN = 558 gms.  
 WT.of DRY SAMPLE + TIN = 467 gms.  
 WT.of TIN = 41.9 gms.  
 LOAD FACTOR = 8.83 N/Div.  
 PRESSURE ZERO = 3 7 13 Div.

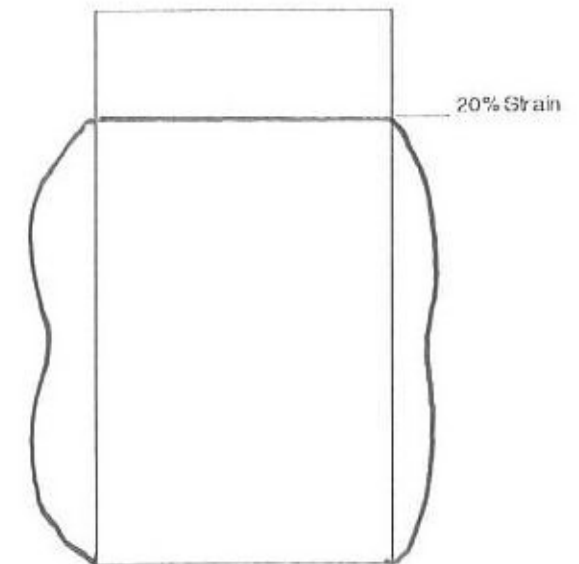
HEAD No	AREA cm <sup>2</sup>	STRAIN %	STRAIN mm	PROVING RING DIAL Divs.	APPLIED LOAD kN	DEVIATOR STRESS kN/m <sup>2</sup>
	76.98		0			
1	77.75	1.0	2	20	0.15	19
2	78.53	2.0	4	34	0.27	35
3	79.33	3.0	6	46	0.38	48
4	80.15	4.0	8	57	0.48	59
5	80.99	5.0	10	68	0.57	71
6	81.84	5.9	12	74	0.59	72
7	82.71	6.9	14	85	0.69	83
8	83.60	7.9	16	93	0.76	91
9	84.51	8.9	18	100	0.82	97
10	85.44	9.9	20	110	0.91	106
11	86.39	10.9	22	116	0.96	111
12	87.36	11.9	24	122	1.02	116
13	88.35	12.9	26	130	1.03	117
14	89.36	13.9	28	138	1.10	124
15	90.40	14.9	30	148	1.19	132
16	91.47	15.8	32	156	1.26	138
17	92.56	16.8	34	161	1.31	141
18	93.67	17.8	36	170	1.39	148
19	94.81	18.8	38	174	1.42	150
20	95.98	19.8	40	182	1.49	155
21	97.18	20.8	42	186	1.53	157



MOHR CIRCLES



FAILURE



PLASTIC \ BRITTLE \ COMPOUND

COMMENTS:

Prepared by : Vertical Extrusion \ Remoulding.  
 99mm Diameter Multi-stage test - (one specimen)

Aitken Laboratories Ltd, Castlehill House, Bank St, Siamanan, FK13EZ

Print Time: 10:49 AM Print Date: 09/05/2020

Originator	[REDACTED]	<b>QUICK UNDRAINED TRIAXIAL COMPRESSION TEST</b> in accordance with BS EN ISO 17892: Part8		<b>Aitken Laboratories Limited</b>
Checked & Approved		Robroyston North. M505		

SITE : Robroyston North, M505

Template: RS03

Job Number M-: 505  
 Exp. Point : BHS305  
 DEPTH : 1.20 m.  
 Description : Grey gravelly sandy clay

SPECIMEN/STAGE No : 1 2 3  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 WEIGHT OF SPECIMEN = 3408 gms.  
 DIAMETER OF SPECIMEN = 102 m.m.  
 HEIGHT OF SPECIMEN = 200 m.m.  
 WT. of WET SAMPLE + TIN = 845 gms.  
 WT. of DRY SAMPLE + TIN = 728 gms.  
 WT. of TIN = 42.1 gms.  
 LOAD FACTOR = 8.83 N/Div.  
 PRESSURE ZERO = 3 7 13 Div.

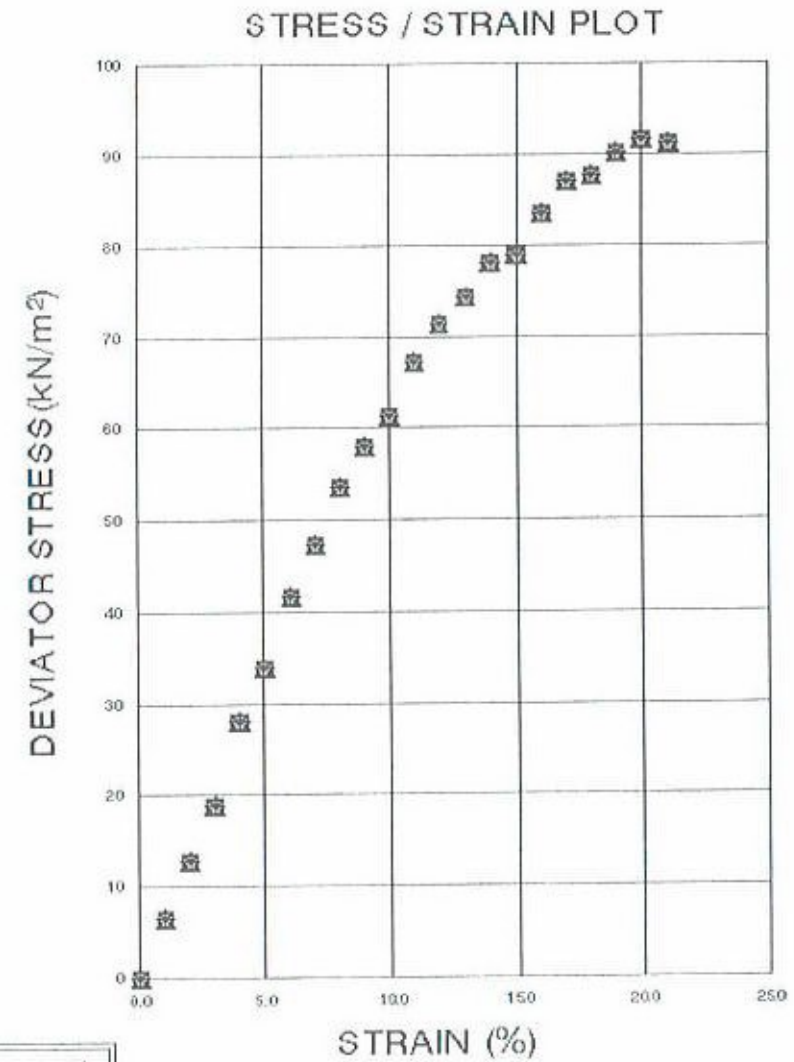
SPEC. / STAGE No: 1 2 3

WATER CONT. = 17.1 % dry weight  
 BULK DENSITY = 2.09 Mg/m<sup>3</sup>  
 DRY DENSITY = 1.78 Mg/m<sup>3</sup>  
 CELL PRESSURES = 100 200 400 kN/m<sup>2</sup>  
 SHEAR STRENGTH = 31 39 46 kN/m<sup>2</sup>  
 STRAIN at FAILURE = 10 14 20 %  
 RATE of STRAIN = 2 2 2 %/min.  
 MEMBRANE TYPE = Standard Latex - 0.5mm. thick.

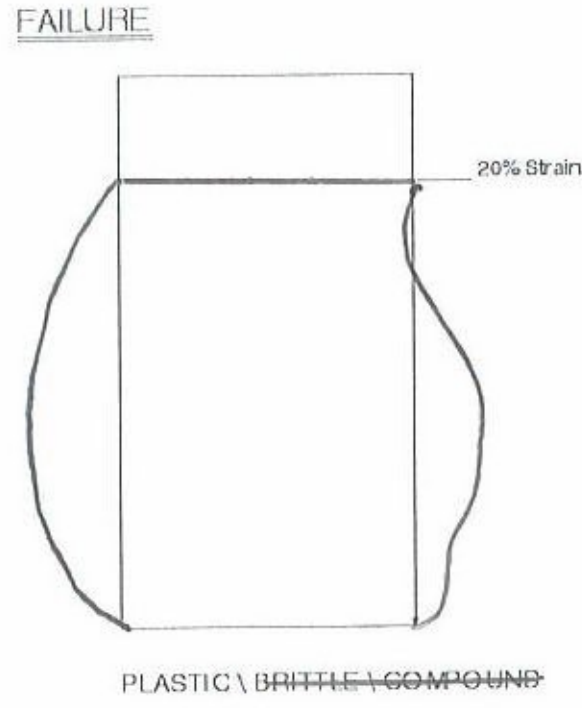
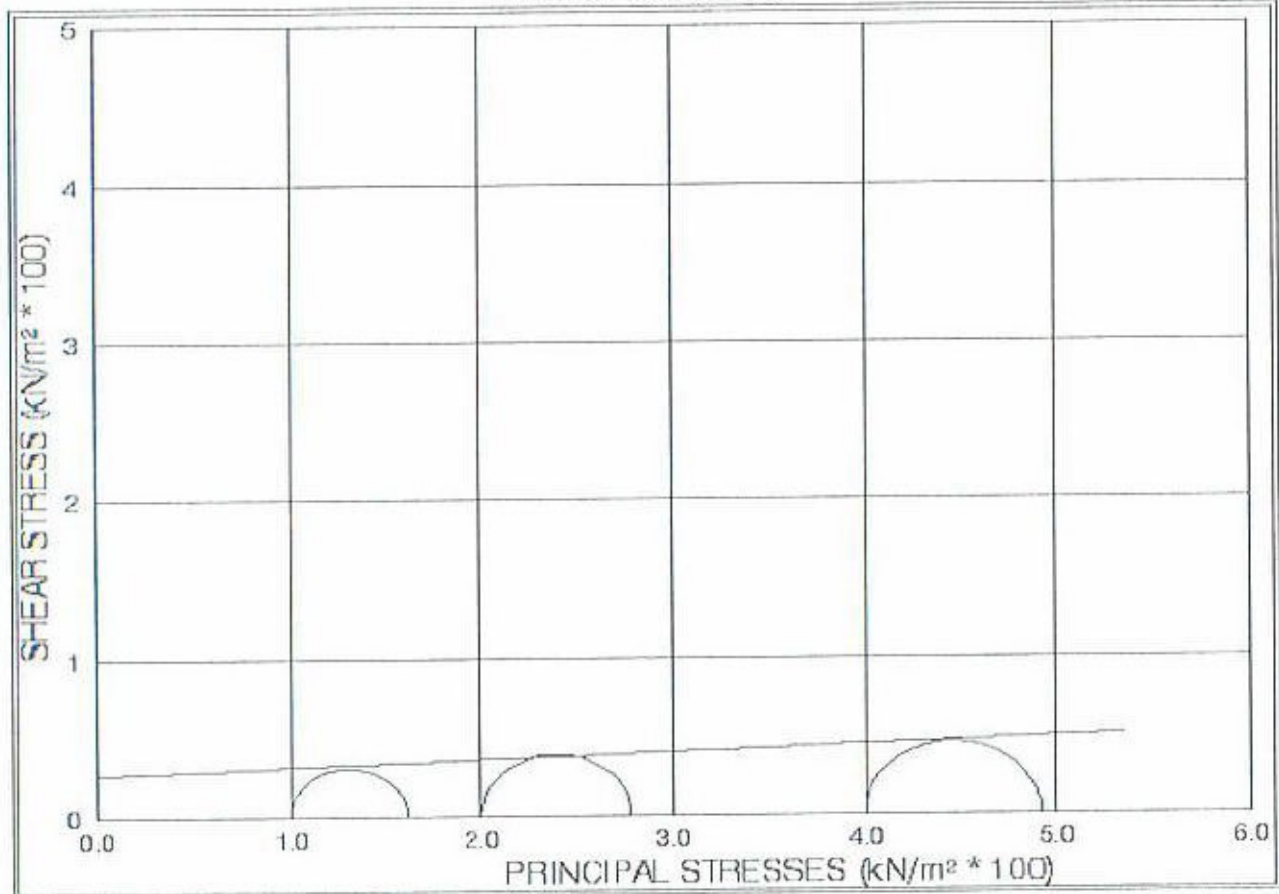
AVERAGE SHEAR STRENGTH = 38 kN/m<sup>2</sup>

APPARENT COHESION = 26 kN/m<sup>2</sup>  
 ANGLE of SHR. RESISTANCE = 3 Degrees

READ No	AREA cm <sup>2</sup>	STRAIN %	STRAIN mm	PROVING RING DIAL Divs.	APPLIED LOAD kN	DEVIATOR STRESS kN/m <sup>2</sup>
1	81.71	1.0	2	9	0.05	6
2	83.38	2.0	4	15	0.11	13
3	84.24	3.0	6	21	0.16	19
4	85.12	4.0	8	30	0.24	28
5	86.01	5.0	10	36	0.29	34
6	86.93	6.0	12	44	0.36	42
7	87.86	7.0	14	50	0.42	47
8	88.82	8.0	16	57	0.48	54
9	89.79	9.0	18	62	0.52	58
10	90.79	10.0	20	66	0.56	61
11	91.81	11.0	22	77	0.62	67
12	92.86	12.0	24	82	0.66	71
13	93.92	13.0	26	86	0.70	74
14	95.01	14.0	28	91	0.74	78
15	96.13	15.0	30	99	0.76	79
16	97.28	16.0	32	105	0.81	84
17	98.45	17.0	34	110	0.86	87
18	99.65	18.0	36	112	0.87	88
19	100.88	19.0	38	116	0.91	90
20	102.14	20.0	40	119	0.94	92
21	103.43	21.0	42	120	0.94	91



MOHR CIRCLES



COMMENTS:  
 Prepared by : Vertical Extrusion \ Remoulding-  
 102mm Diameter Multi-stage test- (one specimen)

Ailken Laboratories Ltd, Castlehill House, Bank St, Sliamnan, FK13EZ

Print Time: 10:42 AM Print Date: 09/03/2020

Originator	[REDACTED]	<b>QUICK UNDRAINED TRIAXIAL COMPRESSION TEST</b> in accordance with BS EN ISO 17892: Part8	<b>Ailken Laboratories Limited</b>
Checked & Approved		Robroyston North, M505	