

Date: 25th April 2012

Our Ref: LW23095

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GEOTECHNICAL
AND
ENVIRONMENTAL
ENGINEERS

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The Old Dairy
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Dear Chris,

**The Vinery, Poling, Arundel, West Sussex
Ground Investigation Report**

Outlined below are the findings from the recent ground investigation undertaken at The Vinery, Poling, Arundel, West Sussex. The investigation was carried out over the alignment of the proposed access road.

The purpose of the ground investigation was to:

- assess the near surface ground and groundwater conditions prevailing at the positions investigated; and to
- provide preliminary information to assist others in undertaking design of road pavements.

The test locations were prescribed by Millwood House Consultants Ltd. The analysis and discussions contained in this report are based on the ground and groundwater conditions encountered during the site work and in situ and laboratory testing procedures. The possibility of a variation in ground and groundwater conditions away from the points investigated should not be overlooked. Groundwater conditions can vary both seasonally and due to other effects.

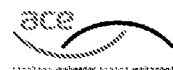
It is noted that the groundworks were undertaken and the report was prepared specifically for the Client's project and the recommendations given may not be appropriate to alternative schemes. The copyright for the report and licence for its use shall remain vested in Ashdown Site Investigation Ltd (the Company) who disclaim all responsibility or liability (whether at common law or under the express or implied terms of the Contract between the Company and the Client) for any loss or damage of whatever nature in the event that this report is relied on by a third party, or is issued in circumstances or for projects for which it was not originally commissioned, or where the exploratory records and test results contained therein are interpreted by anyone other than the Company.

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Site Works

The site work was carried out on the 10th April 2012. Six boreholes (denoted WS1 to WS6 on Figure 2) were excavated to depths of between 0.75m and 1.0m below ground level using dynamic sampling techniques.

Laboratory Testing

Geotechnical testing was scheduled and undertaken by Ashdown Site Investigation Ltd in accordance with the methods given in BS1377:1990 Parts 1 to 8 'Methods of test for soils for civil engineering purposes'. Notes to assist with the interpretation of the geotechnical laboratory testing are appended to this report.

The type and number of geotechnical tests carried out are detailed in the table below.

Type of test	No. of samples tested
Moisture Content	6
Atterberg Limits	4
Particle Size Distribution	2
Water Soluble sulphate and pH	3

In addition to the above, testing to determine the strength of existing concrete pavements was also undertaken. The results of the concrete strength tests are reported under separate cover.

Ground Conditions

The exploratory hole logs, in situ and laboratory test results are attached to this report, together with a site plan showing the hole locations. Notes to assist in the interpretation of the records are also contained in this report.

Stratigraphy

Each of the boreholes was excavated through a surface cover of concrete, some 190mm to 350mm in thickness. Within boreholes WS2, WS3 and WS6, 6mm diameter reinforcing mesh was present at depths of between 90mm and 110mm within the concrete. In borehole WS5, bricks were noted to be present within the concrete over the lowermost 150mm of the concrete which extended to a depth of 350mm at this location.

Beneath the concrete surface, sub-base materials, variously comprising very gravelly clay clayey and gravel and flint and brick gravel were generally present; the exception being borehole WS4 where these materials were absent. The sub-base materials, where present, extended to depths of between 290mm and 450mm below ground level.

Underlying the sub-base materials and directly underlying the concrete at the position of borehole WS4, made ground soils were encountered. Within boreholes WS1 to WS3, the made ground was present to depths of between 0.35m and 0.60m below ground level and generally comprised silty clay containing variable proportion of brick, flint and charcoal.

Within the remaining boreholes, the made ground was recorded to extend to the full depth of investigation; depths of between 0.75m and 1.0m below ground level. At these positions the made ground variously comprised gravelly clay, gravel and chalk containing brick, flint, clinker, glass and tile.

Beneath the made ground within boreholes WS1 to WS3, the boreholes passed down into undisturbed firm silty clay containing gravel of ironstone to the full depth of investigation at 1.0m. These natural soils are considered to be representative of the River Terrace Deposits indicated to underlie the area of the site on the British Geological Survey 1:50,000 map.

With the exception of borehole WS2 where ponding was noted at the base of the borehole on completion, all of the boreholes remained dry during excavation.

Instability was recorded within the made ground present in borehole WS4 only. The remaining boreholes remained stable during excavation.

Geotechnical Assessment

Pavement Design

In situ TRL dynamic cone penetrometer testing was undertaken at each borehole position. The testing allows for the direct estimation of the California Bearing Ratio (CBR) of the soils and indicated CBR values typically in the range 3% to 7% in the soils underlying the pavement construction at the test positions.

The former Department of the Environment, Transport and the Regions Design Manual for Roads and Bridges, Volume 7 (Pavement Design & Maintenance), Section 2, Part 2 1994 provides a useful correlation between soil type and equilibrium (long term) CBR values. This guidance suggests a design equilibrium CBR value of 3% to 5% applicable to the clay soils for the construction of thin (300mm) pavement in poor to average construction conditions and assuming a low groundwater table.

Based upon review of the in situ test results and the quoted guidance it is suggested that for both the made ground and River Terrace Deposit soils a CBR value of no greater than 3% should be adopted for preliminary pavement design.

All formations should be proof rolled and any very loose, bulky, soft, degradable or otherwise unsuitable materials thus identified should be removed and replaced with well compacted granular fill. Prepared subgrades should be protected from adverse weather by ensuring they are graded to falls to prevent

ponding, and they should be reasonably protected from trafficking during construction.

The subgrade may be assumed not to be susceptible to frost heave.

If new roads are to be adopted, the local highway authority should be consulted with reference to the acceptability of the proposed figures prior to designs being finalised and construction undertaken.

Aggressivity to Concrete

In consideration of the soils encountered beneath the site it is recommended that 'brown field conditions' be conservatively assumed for the purposes of assessing the aggressivity of the chemical environment for concrete classification (ACEC class). Given the noted occurrence of groundwater seepages, 'mobile groundwater' conditions should also be assumed.

Chemical analysis of the soil indicates a sulphate content falling into Design Sulfate Class DS-1 of Table C2 of the Building Research Establishment Special Digest No 1 "Concrete in aggressive ground", 2005. The results of the pH tests indicate that the underlying soils are slightly alkaline.

In accordance with the BRE digest, a DS-1 Design Sulfate Class and an AC-1 ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground at the site.

Groundwater and Stability

It is expected that ingress of perched water, if any, or surface run off into shallow excavations could be adequately dealt with by pumping from sumps.

It is expected that excavations within the fine grained River Terrace Deposits will be stable in the short term. Excavations within the made ground and coarse grained River Terrace Deposits should be assumed to be unstable even in the short term, particularly in view of the unstable soils recorded in borehole WS4. Where stable excavations are required they should be suitably supported or side slopes battered back to a safe angle of repose.

Where personnel access is required to any excavation its stability must be assessed by a suitably qualified and experienced responsible person. Entry into unsupported excavations should only be permitted where they have been assessed as safe to enter but in any case it is advised that personnel access to unsupported excavations greater than 1.2m depth should be prohibited.

Our final account for the works carried out is enclosed for your attention. Please note that we do not fall within the scope of legislation Income Tax (Sub-contractors in the Construction Industry) Regulations 1975. No deductions should therefore be made prior to settling our account. The invoice includes for the testing of the concrete cores, the results of which will be forwarded to you under separate cover as soon as they are received by us.

If you have any questions regarding the above, please do not hesitate to contact us.

Yours sincerely



Tim Howard

for Ashdown Site Investigation Limited
encl.

NOTES FOR THE INTERPRETATION OF EXPLORATORY HOLE RECORDS

1 Symbols and abbreviations

Samples

U	'Undisturbed' Sample: - also known as 'U100' or 'U4' - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
Uo	Sample not obtained.
U*	Full penetration of sample not obtained.
U**	Full penetration obtained but limited sample recovered.
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample.
R	Root Sample.
B	Bulk Disturbed Sample.
W	Water Sample.
J	Jar Sample (sample taken in amber glass jar fitted with gas tight lid)
T	Tub Sample
E	Environmental Suite (including a jar sample, tub sample and vial sample)

In situ Testing

S	Standard penetration test (SPT): In the borehole record the depth of the test is that at the start of the normal 450mm penetration, the number of blows to achieve the standard penetration of 300mm (the 'N' value) is shown after the test index letter, but the seating blows through the initial 150mm penetration are not reported unless the full penetration of 450mm cannot be achieved. In the latter case, the symbols below are added to the test index letter:-
S*	Seating blows only
S**	Blow count includes seating blows
S++	No penetration
So	'Split spoon' SPT sampler sank under its own weight. The test is usually completed when the number of blows reaches 50 (25 blows for seating count). The depths of both the top and bottom of the test drive are shown in the sample column on the Borehole Record. If a sample is not recovered in the sampler, a disturbed sample is over the depth of the test as boring continues.
C	Standard Penetration Test (SPT) conducted usually in coarse grained soils or weak rocks using the same procedure as for the SPT but with a 50mm diameter, 60° apex solid cone fitted in place of the sampler. Variations in test results are indicated by the same symbols as for the SPT (above).
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: See Insitu Testing Notes in Appendix C for full description. Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column. In sand the number of blows is approximately equivalent to the SPT "N" value.

2 **Soil Description**

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1:2002) and Part 2 Principles of classification (BS EN 14688-2:2004).

Fine Grained Soils

The consistency of fine grained soils given in the report is based on visual inspection of the samples and the strength is based on results of in situ and/or laboratory undrained shear strength tests when carried out.

The consistency is determined on the following basis:

Consistency	Manual Test
Very Soft	Soil exudes between fingers when squeezed in hand
Soft	Soils can be moulded by light finger pressure
Firm	Cannot be moulded by finger but rolled to 3mm threads without breaking/crumbling
Stiff	Crumbles/breaks when rolled to 3mm thick threads but can be moulded into a lump again
Very Stiff	Cannot be moulded and crumbles under pressure, can be indented by thumbnail

Based on BS EN ISO 14688-1:2002

The terms used for the designation of the undrained shear strength are as follows:

Undrained Shear Strength	
Extremely to Very Low	<20 kPa
Low	20-40 kPa
Medium	40-75 kPa
High	75-150 kPa
Very High	150-300 kPa
Extremely high	300-600 kPa

Based on BS EN ISO 14688-2:2004

Note: The undrained shear strength of the soils is measured either by laboratory testing or in the field using hand penetrometer or shear vane.

It is recognised that any coarse grained soil that has in excess of approximately 35% fine grained soil (clay and silt) can often be expected to behave as a fine grained soil despite the dominance of coarse grained material within the soil mass. To reflect this, it is the soil type that dominates the behaviour of the soil mass that appears on the exploratory hole records.

Coarse Grained Soils

The relative densities of coarse grained soils (sand and gravel) given in the report are based on field estimations and the results of the Standard Penetration Test (SPT) and equivalent correlation from other testing. The classification in terms of "N" Values is as follows:

SPT 'N' Value	Relative Density
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Greater than 50	Very Dense

3 **Rock Description**

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1:2003).

The description of rock mass includes the type of rock, structure, discontinuities and weathering.

The unconfined compressive strength of rock material is determined on the following basis:

Term	Field Identification	Unconfined Compressive Strength (MPa)
Extremely Weak	Indented by thumbnail	Less than 1
Very Weak	Crumbles under firm blows with point of geological hammer, peeled by pocket knife	1 to 5
Weak	Peeled by pocket knife with difficulty, shallow indentations made by firm blow with geological hammer	5 to 25
Medium Strong	Cannot be peeled or scraped with knife, can be fractured with single firm blow of geological hammer	25 to 50
Strong	Requires more than one blow of geological hammer to fracture	50 to 100
Very Strong	Requires many blows of geological hammer to fracture it	100 to 250
Extremely Strong	Can only be chipped with geological hammer	Greater than 250

The terms describing discontinuity and bedding spacing are as follows:

Bedding Thickness

Very Thick	>2000mm
Thick	2000-600mm
Medium	600-200mm
Thin	200-60mm
Very Thin	60-20mm
Thickly Laminated	20-6mm
Thinly Laminated	<6mm

Discontinuity Spacing

Very Wide	>2000mm
Wide	2000-600mm
Medium	600-200mm
Close	200-60mm
Very Close	60-20mm
Extremely Close	<20mm

Chalk

Chalk description is based on BS EN ISO 14688 and BS EN ISO 14689. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk. See additional chalk classification notes.

GEOTECHNICAL LABORATORY TESTING NOTES

1 Index Tests

Index (Atterberg Limit) tests are undertaken on samples of fine grained soils provide the primary information for the classification of fine grained soils.

Fine grained soil is tested to determine its liquid and plastic limits, which are moisture contents that define boundaries between material consistency states. These tests are used to evaluate indices used for soil identification and to help determine the shrinkage and swelling characteristics of the soil under conditions of changing moisture content. The tests are carried out in accordance with BS1377: Part 2: 1990 + A1:1996 Classification tests.

The consistency index is derived from the Index Tests and is summarized in the following table. These divisions may be approximate, particularly for low plasticity soils.

Consistency	Consistency Index
Very Soft	<0.25
Soft	0.25 to 0.50
Firm	0.50 to 0.75
Stiff	0.75 to 1.00
Very Stiff	>1.00

Based on BN EN ISO 14688-2:2004

2 Particle Size Distribution Tests

Sieve analyses are carried out soil samples to establish their particle size distribution that can assist in the assessment of the permeability and classification of granular soils.

The tests are carried out in accordance with BS1377: Part 2: 1990 + A1:1996 Classification tests.

3 Natural Moisture/ Saturated Moisture Content Determination of Chalk

The results of natural moisture or saturated moisture content tests of disturbed samples of chalk are used to assist in the classification of the chalk to determine key geotechnical parameters of strength, density and crushing properties.

The tests are carried out in accordance with BS1377: Part 2: 1990 + A1:1996 Classification tests.

4 Soil Suction Testing

Soil suction tests are undertaken for the determination of the state of desiccation in clay soils.

The testing is carried out in accordance with the Building Research Establishment Information Paper IP4/93, dated February 1993.

5 Triaxial Compression Tests

Undrained triaxial compression tests are carried out on undisturbed samples of cohesive soil in order to assist in the determination of the undrained shear strength of the soil. The results of moisture content and density determinations are also included.

The tests are carried out in accordance with BS1377: Part 7: 1990 + A1:1994 Shear strength tests (total stress).

6 Shear Vane and Hand Penetrometer Testing

Undisturbed samples are tested in the laboratory using a Geonor Hand Shear Vane for the determination of their undrained shear strength.

The vane tests are carried out in general accordance with BS1377: Part 7: 1990 + A1:1994 Shear strength tests (total stress).

7 One Dimensional Consolidation Tests

One-dimensional consolidation tests are performed on undisturbed soil samples to ascertain their settlement characteristics.

The tests are carried out in accordance with BS1377: Part 5: 1990 + A1:1994 Compressibility, Permeability and Durability tests.

8 Dry Density / Moisture Content Relationship (Compaction) Testing

Compaction testing for the determination of the dry density / moisture content relationship is carried out on using either a 2.5kg, 4.5kg hammer or a vibrating hammer.

The tests are carried out in accordance with the British Standard BS1377: Part 4: 1990 + A1 & A2:2002 Compaction-related tests.

9 California Bearing Ratio

The soil is usually compacted at the as dug "natural" moisture content and often at moisture contents around the natural moisture content.

The California bearing ratio is determined in accordance with the British Standard BS1377: Part 4: 1990 + A1 & A2:2002 Compaction related tests.

10 Chemical Testing

Soil samples are tested for their concentration of water soluble sulphate and pH for use in concrete mix design.

Water samples are tested for total sulphate concentration and pH value.

Where a water soluble sulphate content in soils or a total sulphate content in groundwater exceeds 3000mg/l SO₄ the magnesium sulphate content of the samples is required to be determined (BRE Special Digest 1:2005).



GEOTECHNICAL AND ENVIRONMENTAL
ENGINEERS
Swanborough Farm
Swanborough
Lewes, East Sussex
BN7 3PF

Borehole No.: WS1

Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Standpipe Installation	Samples and Testing				Strata		
	Sample Type	Depths		Vane/ Pen Test N Value	Legend	Depth / Reduced Level	Strata Descriptions
		From (m)	To (m)				
						0.00	Ground Level
	Core*	0.00	0.20			0.20	Concrete (no reinforcement).
	D	0.30				0.35	MADE GROUND (sub-base): Brown silty very gravelly clay. Gravel is fine to coarse flint with cobbles of flint.
	D H	0.40		60		0.50	
	D H	0.60		65			MADE GROUND: Green grey slightly gravelly silty clay. Gravel is fine to medium brick, flint and charcoal.
	H	0.90		80			Firm orange brown silty CLAY. (River Terrace Deposits) with occasional gravel of fine to medium very weak dark brown ironstone below 0.7m depth.
	D	1.00				1.00	
							End of Borehole

Remarks:

Borehole dry and stable on completion.

* Concrete core taken between ground level and 0.2m depth.

Excavation Method: Dynamic Sampler

Borehole Diameter: 92mm

Made By: TH



GEOTECHNICAL AND ENVIRONMENTAL
ENGINEERS
Swanborough Farm
Swanborough
Lewes, East Sussex
BN7 3PF

Borehole No.: WS2

Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Standpipe Installation	Samples and Testing				Strata		
	Sample Type	Depths		Vane/ Pen Test N Value	Legend	Depth / Reduced Level	Strata Descriptions
		From (m)	To (m)				
						0.00	Ground Level
	Core*	0.00	0.20			0.20	Concrete. with reinforcement mesh (6mm diameter) at 0.11m depth.
						0.30	MADE GROUND (sub-base): Brown and grey coarse gravel of flint.
	D H	0.50		100		0.60	MADE GROUND: Brown grey slightly gravelly silty clay. Gravel is fine to medium brick and charcoal.
	D H	0.80		40		1.00	Firm brown slightly gravelly silty CLAY with orange brown staining. Gravel is fine to medium very weak ironstone. (River Terrace Deposits)
							End of Borehole

Remarks:

Water ponding at base on completion.

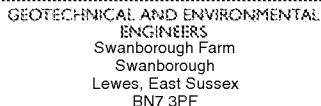
Borehole stable on completion.

* Concrete core taken between ground level and 0.2m depth.

Excavation Method: Dynamic Sampler

Borehole Diameter: 92mm

Made By: TH



Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Remarks: Borehole dry and stable on completion. * Concrete core taken between ground level and 0.19m depth.	Excavation Method: Dynamic Sampler
	Borehole Diameter: 92mm
	Made By: TH



GEOTECHNICAL AND ENVIRONMENTAL
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Swanborough Farm
Swanborough
Lewes, East Sussex
BN7 3PF

Borehole No.: WS4

Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Standpipe Installation	Samples and Testing				Strata		
	Sample Type	Depths		Vane/ Pen Test N Value	Legend	Depth / Reduced Level	Strata Descriptions
		From (m)	To (m)				
						0.00	Ground Level
	Core*	0.00	0.20			0.20	Concrete (no reinforcement).
	D	0.50				0.75	MADE GROUND: Dark grey clayey very sandy fine to coarse gravel of brick, tile, flint and clinker.
							End of Borehole

Remarks:

No further progress below 0.75m depth - obstruction.

Borehole dry on completion.

Borehole sides unstable in made ground.

* Concrete core taken between ground level and 0.2m depth.

Excavation Method: Dynamic Sampler

Borehole Diameter: 92mm

Made By: TH



GEOTECHNICAL AND ENVIRONMENTAL
ENGINEERS
Swanborough Farm
Swanborough
Lewes, East Sussex
BN7 3PF

Borehole No.: WS5

Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Standpipe Installation	Samples and Testing				Strata		
	Sample Type	Depths		Vane/ Pen Test N Value	Legend	Depth / Reduced Level	Strata Descriptions
		From (m)	To (m)				
						0.00	Ground Level
	Core*	0.00	0.35				Concrete (no reinforcement) with whole bricks in lower 150mm.
	D	0.50				0.35	
						0.45	MADE GROUND (sub-base): Fine to coarse gravel of flint and brick.
							MADE GROUND: Dark grey and grey silty gravelly clay. Gravel is fine to coarse flint, charcoal, clinker, brick and glass with organic fragments.
	H	0.80		60			
	D	0.90				1.00	
							End of Borehole

Remarks:

Borehole dry and stable on completion.

* Concrete core taken between ground level and 0.35m depth.

Excavation Method: Dynamic Sampler

Borehole Diameter: 92mm

Made By: TH



GEOTECHNICAL AND ENVIRONMENTAL
ENGINEERS
Swanborough Farm
Swanborough
Lewes, East Sussex
BN7 3PF

Borehole No.: WS6

Site Name: The Vinery, Poling, Arundel, West Sussex

Job No.: LW23095

Start Date: 10/04/2012

End Date: 10/04/2012

Standpipe Installation	Samples and Testing				Strata		
	Sample Type	Depths		Vane/ Pen Test N Value	Legend	Depth / Reduced Level	Strata Descriptions
		From (m)	To (m)				
						0.00	Ground Level
	Core*	0.00	0.21			0.21	Concrete. with reinforcement mesh (6mm diameter) at 0.09m depth.
	D	0.30				0.40	MADE GROUND (sub-base): Brown clayey silty sandy fine to coarse gravel of flint and occasional brick.
	D	0.45				0.50	MADE GROUND: Black fine to coarse gravel of clinker and roadstone.
	D	0.80				1.00	MADE GROUND: Off white chalk fill recovered as weak gravel and silt. With occasional light brown staining.
							End of Borehole

Remarks:

Borehole dry and stable on completion.

* Concrete core taken between ground level and 0.21m depth.

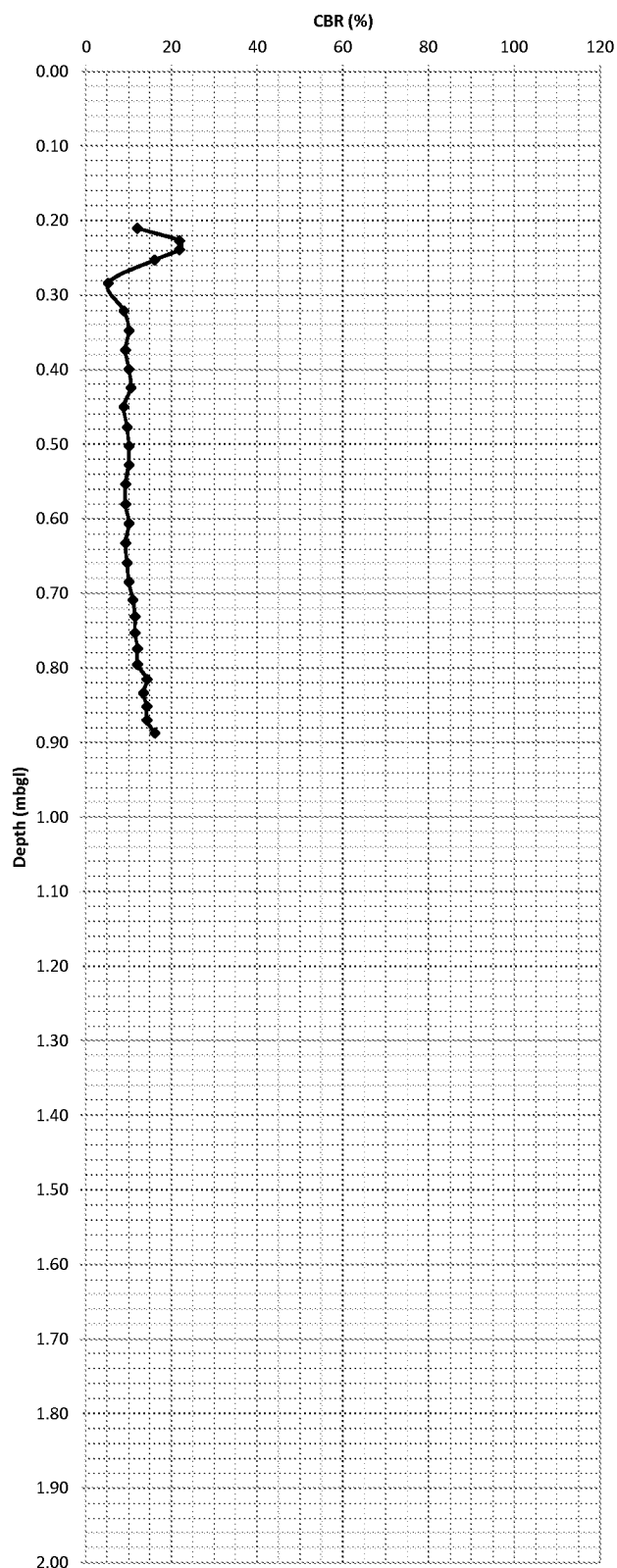
Excavation Method: Dynamic Sampler

Borehole Diameter: 92mm

Made By: TH

TRL Dynamic Cone Penetrometer Record

LW23095



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

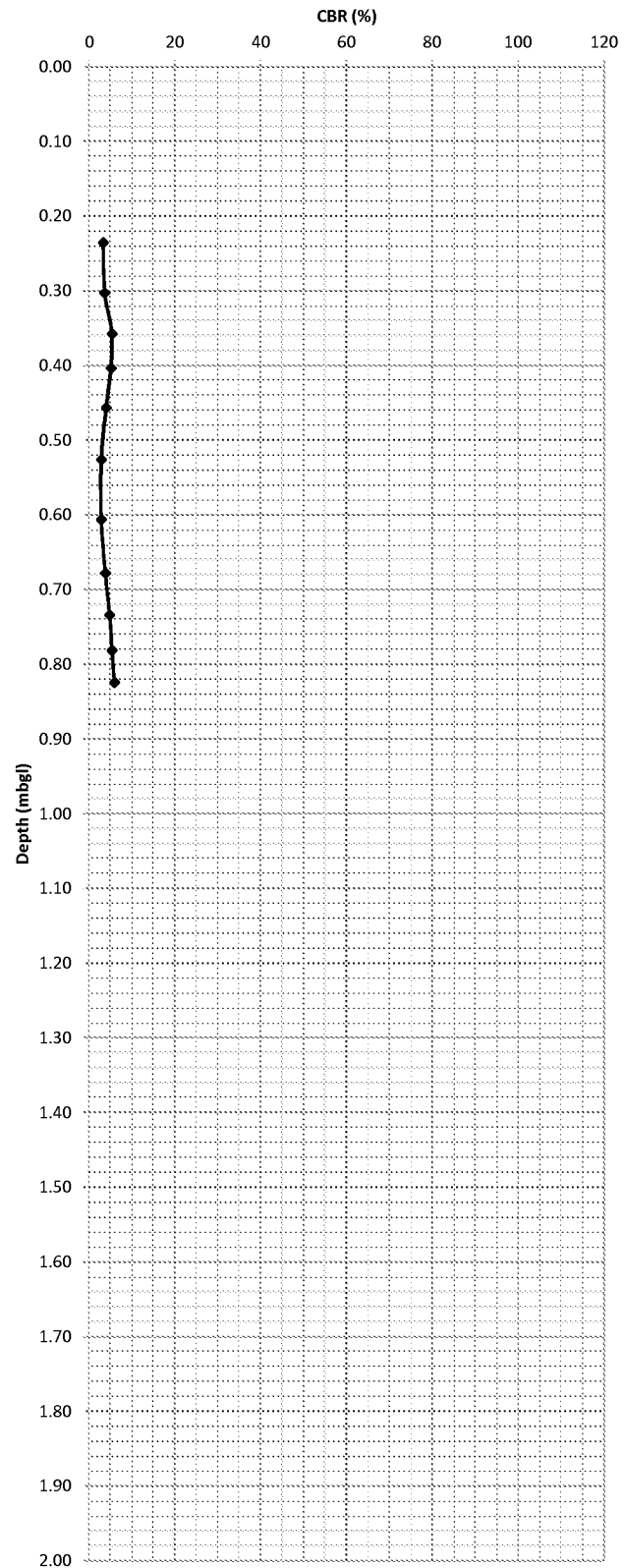
SITE The Vinery, Poling, Arundel, West Sussex

Report Ref.

LW23095

Test Location Reference	WS2
Depth of Start of Test (mbsgl)	0.20

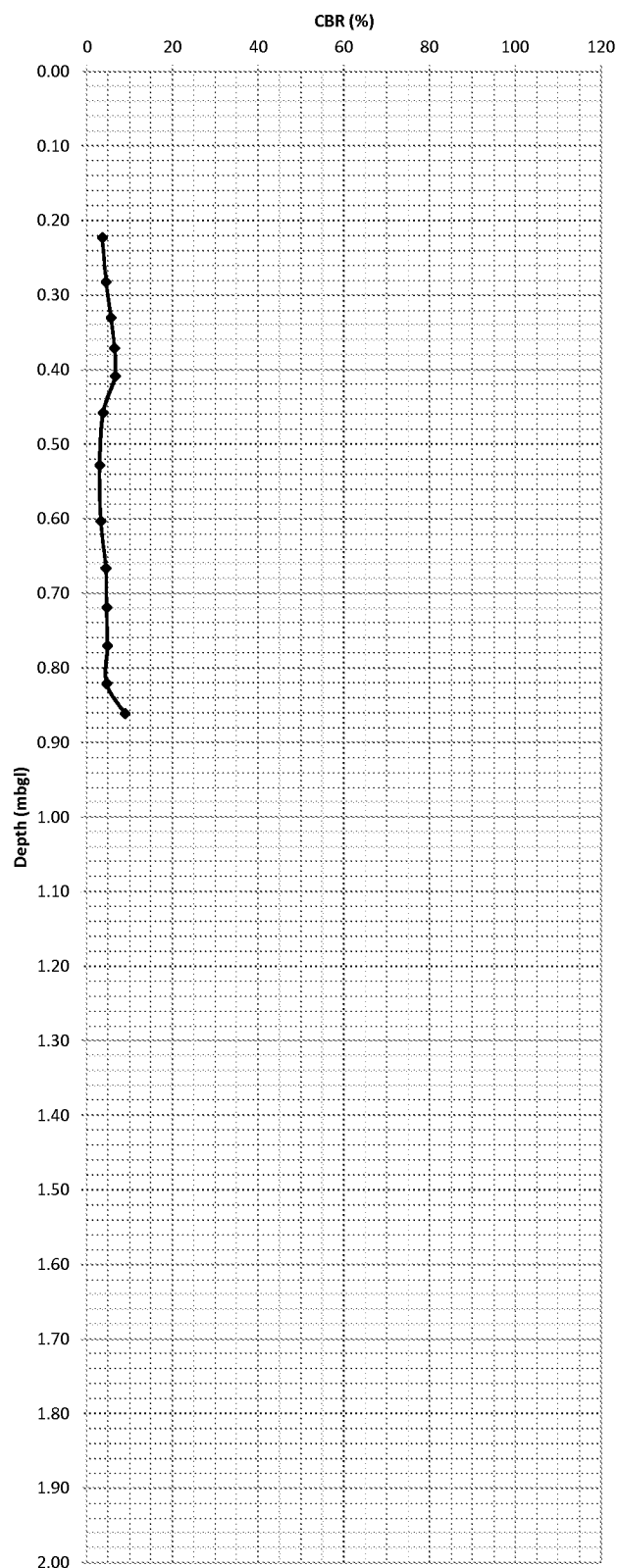
No. Blows	Total Blows	Reading (mm)	Depth (mbgl)	CBR%
DCP Zero Reading		310	0.20	
1	1	381	0.27	3
1	2	445	0.34	4
1	3	490	0.38	5
1	4	537	0.43	5
1	5	596	0.49	4
1	6	676	0.57	3
1	7	757	0.65	3
1	8	819	0.71	4
1	9	869	0.76	5
1	10	914	0.80	5
1	11	955	0.85	6



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

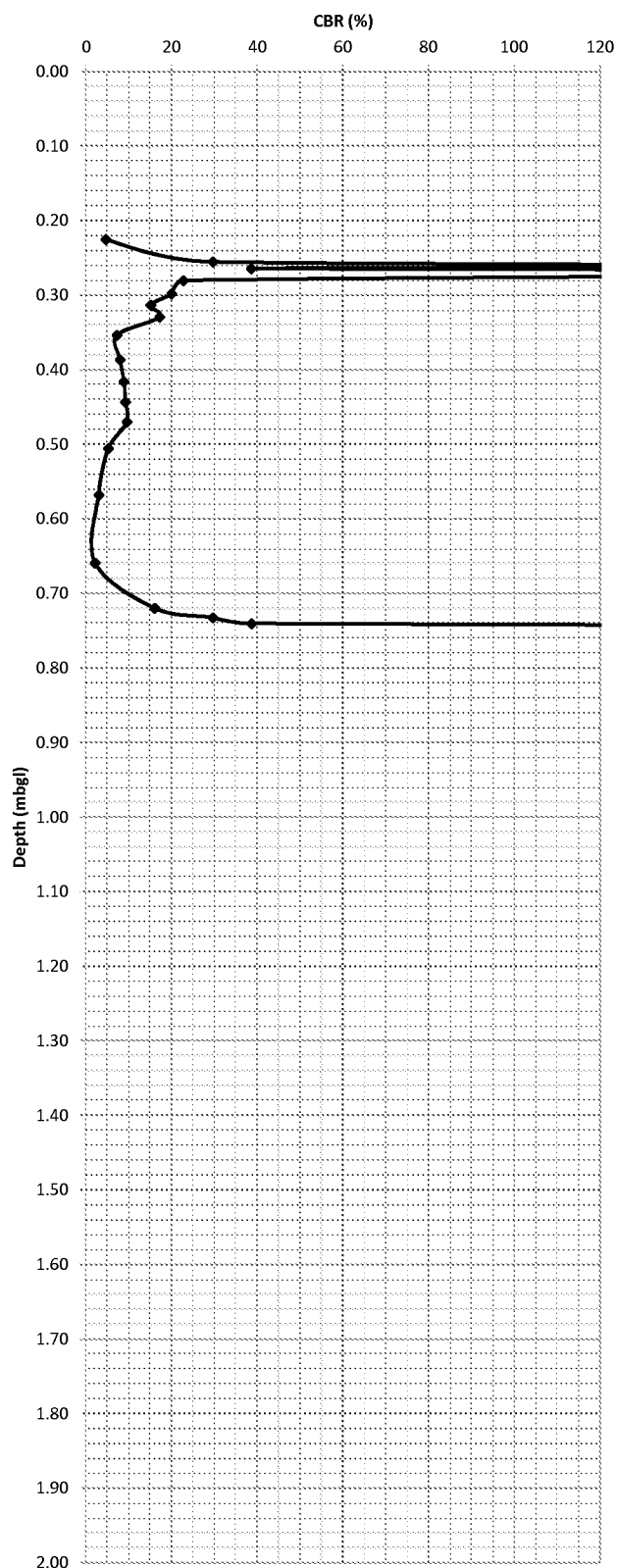
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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

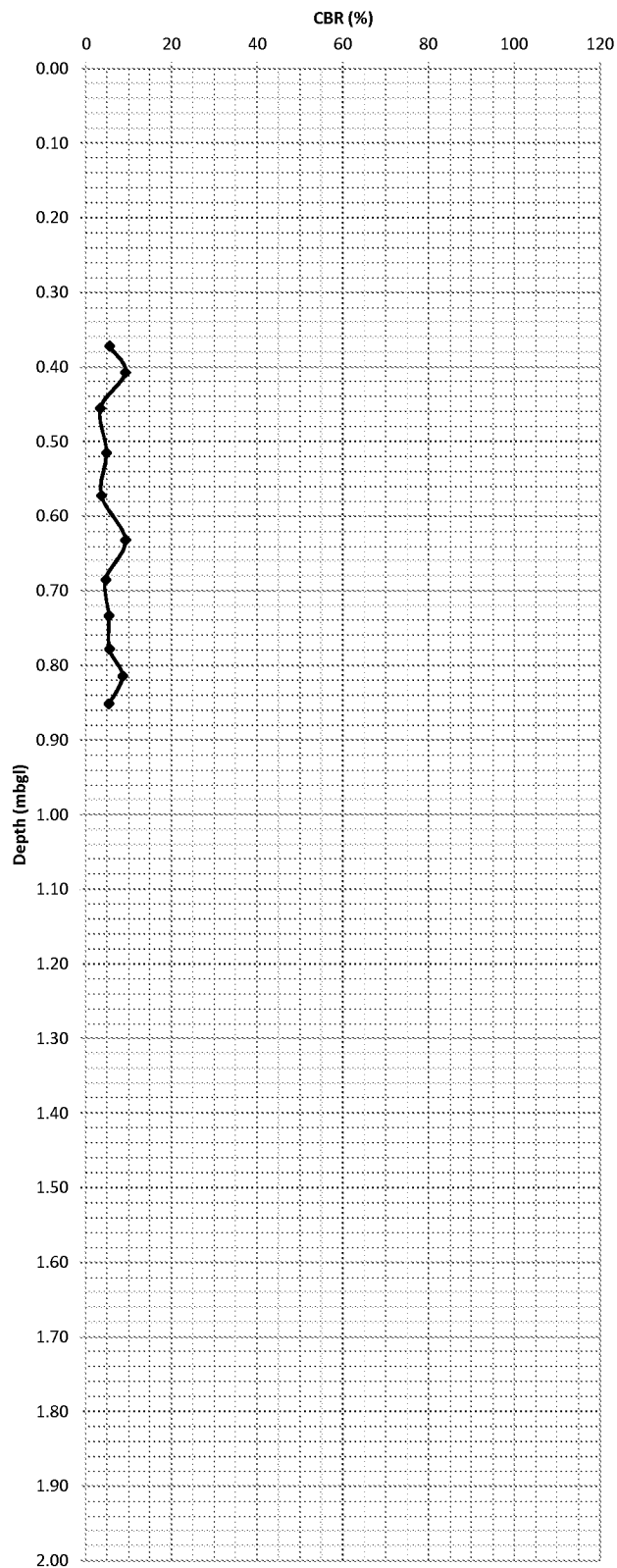
LW23095



No further progress below 0.5m depth - obstruction.

TRL Dynamic Cone Penetrometer Record

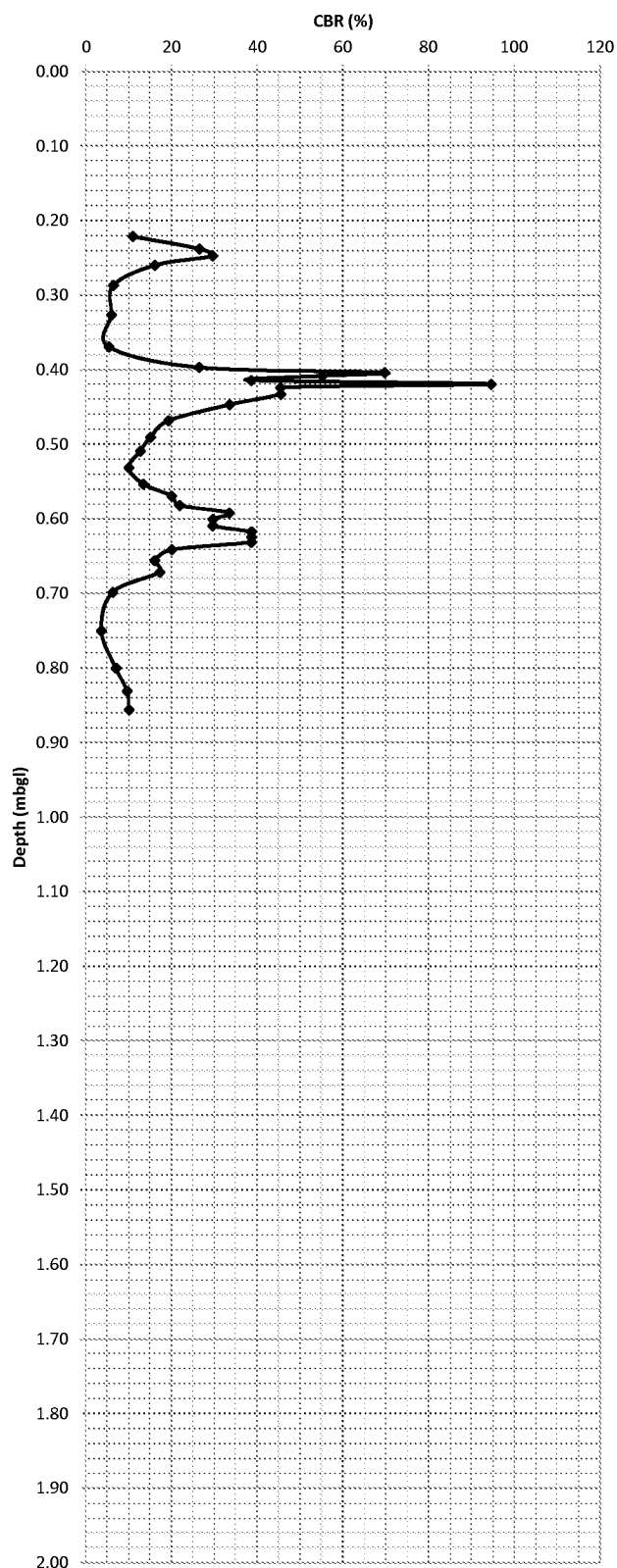
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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

ASHDOWN SITE INVESTIGATION LTD

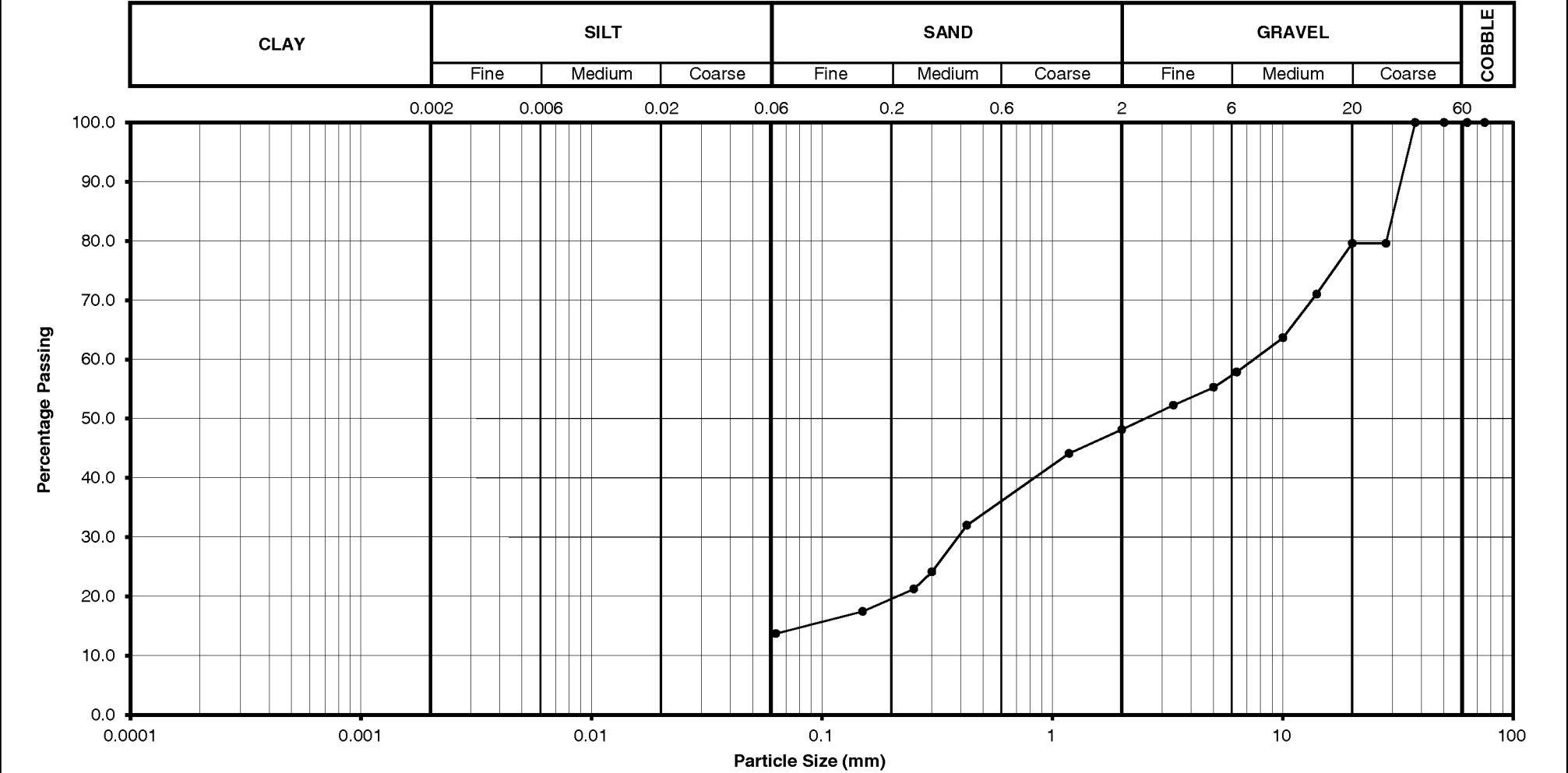
Site:	The Vinery, Poling, Arundel, West Sussex	Report No:	LW23095
		Sheet No:	1 of 1

SOIL CLASSIFICATION SUMMARY

Sample No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (w _a %)	Atterberg Limits			Class'n	Cons. Index (I _c)	% passing 425 μ m sieve	Visual Description of Sample
				W _l %	W _p %	I _p %				
WS1	0.30	20	38	46	19	27	CI	0.30	46	MADE GROUND: Brown gravelly clay. Gravel (49%) is fine to coarse flint.
WS2	0.80	26	26	42	19	23	CI	0.70	99	Firm brown CLAY with rare fine to medium ironstone gravel.
WS3	0.50	23	23	41	19	22	CI	0.82	99	Stiff brown and orange brown slightly sandy CLAY with rare medium ironstone gravel.
WS4	0.50	22								
WS5	0.50	26	27	45	20	25	CI	0.72	95	MADE GROUND: Grey slightly gravelly sandy CLAY. Gravel is fine to medium flint, brick and glass.
WS6	0.30	12								

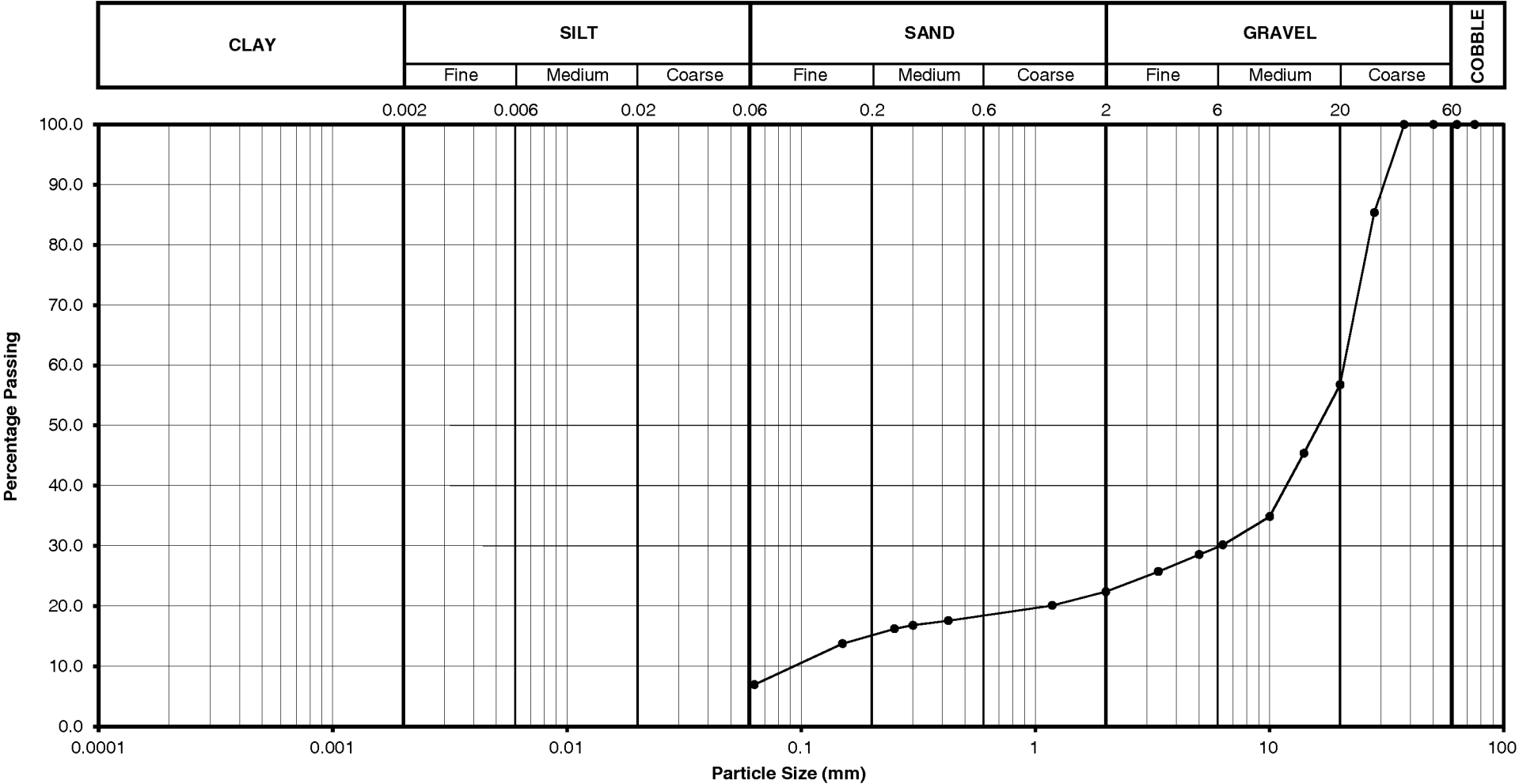
Remarks:

Particle Size Distribution by Wet Sieve; BS1377: Part 2 1990



Job Name	The Vinery, Poling, Arundel, West Sussex.	BH/ TP No.	WS4	Sample Description	Clayey very sandy GRAVEL.
Job No.	LW23095	Sample Depth (m)	0.50		

Particle Size Distribution by Wet Sieve; BS1377: Part 2 1990



Job Name	The Vinery, Poling, Arundel, West Sussex.	BH/ TP No.	WS6	Sample Description	Clayey sandy GRAVEL.
Job No.	LW23095	Sample Depth (m)	0.30		



Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY

THE ENVIRONMENTAL LABORATORY LTD

F.A.O. David Harris
Ashdown Site Investigation Limited
The Old Dairy, Swanborough Farm
Swanborough, Lewes,
East Sussex, BN7 9PF

Reporting Date: 20/04/12

ANALYTICAL REPORT No. AR38181

Samples Received By:-	Laboratory Courier
Samples Received:-	13/04/12
Your Job No:	LW23095
Site Location:	The Vinery, Polings, West Sussex
No Samples Received:-	3

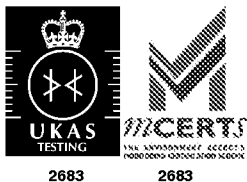
Report Checked By:-

Steve Knight
Director

Authorised By:-

Mike Varley BSc, CChem, CSci, FRSC
Chief Chemist

Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards On Sea, East Sussex, TN38 9BY

Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR38181

Location: The Vinery, Polings, West Sussex



Your Job No: LW23095

Reporting Date: 20/04/12

F.A.O. David Harris
Ashdown Site Investigation Limited
The Old Dairy, Swanborough Farm
Swanborough, Lewes,
East Sussex, BN7 9PF

Soils

Characteristic	Clay loam	Clay loam	Silt Loam
TP/BH	WS3	WS5	WS6
Depth (m)	0.20	0.90	0.45
Our ref	34376	34377	34378
pH Value** (Units)	8.1	7.7	9.5
Water Soluble Sulphate (mg/l as SO ₄)	11	18	16

All results expressed on dry weight basis

** - MCERTS accredited test

GM



Unit A2
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St Leonards on Sea
East Sussex
TN38 9BY

THE ENVIRONMENTAL LABORATORY LTD

SAMPLE RECEIPT AND TEST DATES

Our Analytical Report Number AR38181
Your Job No: LW23095
Sample Receipt Date: 13/04/12
Reporting Date: 20/04/12

Registered: 13/04/12
Prepared: 14/04/12
Analysis complete: 20/04/12

TEST METHOD SUMMARY

PARAMETER	Analysis Undertaken on	Date Tested	Method Number	Technique
pH Value**	Air dried sample	17/04/12	113	Probe
Water Soluble Sulphate	Air dried sample	19/04/12	209	Colorimetry

** - MCERTS Accredited test

Determinands not marked with * or ** are non accredited

MCERTS accreditation covers samples which are predominantly sand, clay, loam or combinations of these three soil types

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Site Location

