



## Certificate of Analysis

Certificate Number 15-39353

07-Jul-15

*Client* TD Construction Testing Ltd  
Unit 15 Gerards Park  
College Street  
St Helens  
WA10 1FZ

*Our Reference* 15-39353

*Client Reference* TD15-G-01-G

*Contract Title* Galliford Try, Skipton FAS

*Description* 2 Soil samples.

*Date Received* 02-Jul-15

*Date Started* 03-Jul-15

*Date Completed* 07-Jul-15

*Test Procedures* Identified by prefix DETSn (details on request).

*Notes* Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

*Approved By*

A handwritten signature in black ink, appearing to read 'Rob Brown'.

Rob Brown  
Business Manager



## Summary of Chemical Analysis Soil Samples

Our Ref 15-39353

Client Ref TD15-G-01-G

Contract Title Galliford Try, Skipton FAS

Lab No	834383	834384
Sample ID	LAB/15/777	LAB/15/778
Depth		
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	26/06/15	26/06/15
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>Inorganics</b>					
pH	DETSC 2008#			6.4	6.8
Sulphate Aqueous Extract as SO <sub>4</sub>	DETSC 2076#	10	mg/l	34	60
Total Potential Sulphate as SO <sub>4</sub>	*	0.03	%	0.08	0.08
Oxidisable Sulphide as SO <sub>4</sub>	*	0.01	%	0.02	0.01
Reduced Sulphur (by Calculation)	*	0.01	%	< 0.01	< 0.01
Total Sulphur as S	DETSC 2320	0.01	%	0.03	0.03
Total Sulphate as SO <sub>4</sub>	DETSC 2321#	0.01	%	0.05	0.07

## Information in Support of the Analytical Results

Our Ref 15-39353

Client Ref TD15-G-01-G

Contract Galliford Try, Skipton FAS

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
834383	LAB/15/777 SOIL	26/06/15	PT 1L		
834384	LAB/15/778 SOIL	26/06/15	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

TD Construction Testing  
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8011



T: 01744 734 769

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**Laboratory Test Report**  
Determination of Particle Density to BS1377-2:1990  
(Gas Jar Method)

Client :	Galliford Try
Client Address :	Site Offices Skipton West Yorkshire
Contract :	Skipton FAS
Job No. :	TD15-G-01-G
Report No.:	TD15-G-01-G-05

**Sample Details**

Material Description :	Mudstone & Clay
Laboratory Number :	Lab/15/778
Client Ref. :	Bulk 2
Source :	Soil Hill
Sample Location :	Compaction Trial Layer 3
Date Sampled :	26/06/15
Sampled By :	TD
Date Received :	26/06/15
Date of Test :	07/07/15
Type of sample:	Bulk
Orientation:	Disturbed

**Test Results**

Average Particle Density	2.64
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**Deviations from Test Method**

**Comments**

Sample Prepared in accordance with BS1377-1 Cl 7.3, 7.4

Signed

J. Hopkinson (Laboratory Section Manager)

Report Date : 07/07/15



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## TEST REPORT

### Determination of Liquid and Plastic Limits

BS1377: Part 2: 1990

Client: Galliford Try  
Site: Skipton  
Location: Compaction Trial

Report No: TD15-G-01-G-06  
Date received: 26/06/2015  
Date tested: 07/07/2015

Sample Ref.	Lab ref.	Sample Location	Sample Description	Sample Type	Sample Prep.	% Ret. 425µm sieve	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %
Bulk 1	Lab/15/777	Layer 2	Mudstone + Clay	B	W	70	13.9	46	25	21
Bulk 2	Lab/15/778	Layer 3	Mudstone + Clay	B	W	67	13.4	49	26	23

Sample Type: D = Disturbed, B = Bulk, U = Undisturbed

Sample Prep: N = tested in natural condition, A = air dried before test, W = subject to wet sieving before test

Result: NP = Non-plastic

Test Method: 4 Point / 1 Point

Deviations:

Interpretations and opinions expressed herein are outside the scope of the UKAS Accreditation

Certified that the test was carried out in accordance with BS 1377: Part 2: 1990: Methods 3.0.4.3, 4.4 & 5

Authorised By:

( X ) J. J. Hopkinson (Laboratory Section Manager)

( ) D. Ames (Director)

Date Reported:

07/07/2015

Report v2 03/15

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**Laboratory Test Report**  
Determination of Particle Density to BS1377-2:1990  
(Gas Jar Method)

Client :	Galliford Try
Client Address :	Site Offices Skipton West Yorkshire
Contract :	Skipton FAS
Job No. :	TD15-G-01-G
Report No.:	TD15-G-01-G-04

**Sample Details**

Material Description :	Mudstone & Clay
Laboratory Number :	Lab/15/755
Client Ref. :	1
Source :	Soil Hill
Sample Location :	Quarry Face
Date Sampled :	23/06/15
Sampled By :	TD
Date Received :	23/06/15
Date of Test :	01/07/15
Type of sample:	Bulk
Orientation:	Disturbed

**Test Results**

Average Particle Density	2.67
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**Deviations from Test Method**

**Comments**

Sample Prepared in accordance with BS1377-1 Cl 7.3, 7.4

Signed

J. Hopkinson (Laboratory Section Manager)

Report Date : 07/07/15

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### TEST REPORT

#### Determination of Moisture Content/Dry Density Relationship

Client: Galliford Try  
Site: Skipton FAS  
Location: Compaction Trial Layer 2  
Client sample ref: Bulk 1  
Sample description: Mudstone + Clay  
Material Source: Soil Hill

Report no.: TD15-G-01-G-02

Lab ref: Lab/15/777

Date Sampled: 26/06/15

Date Received: 26/06/15

Date Tested: 02/07/15

Type of sample: Bulk

Specimen type: Single

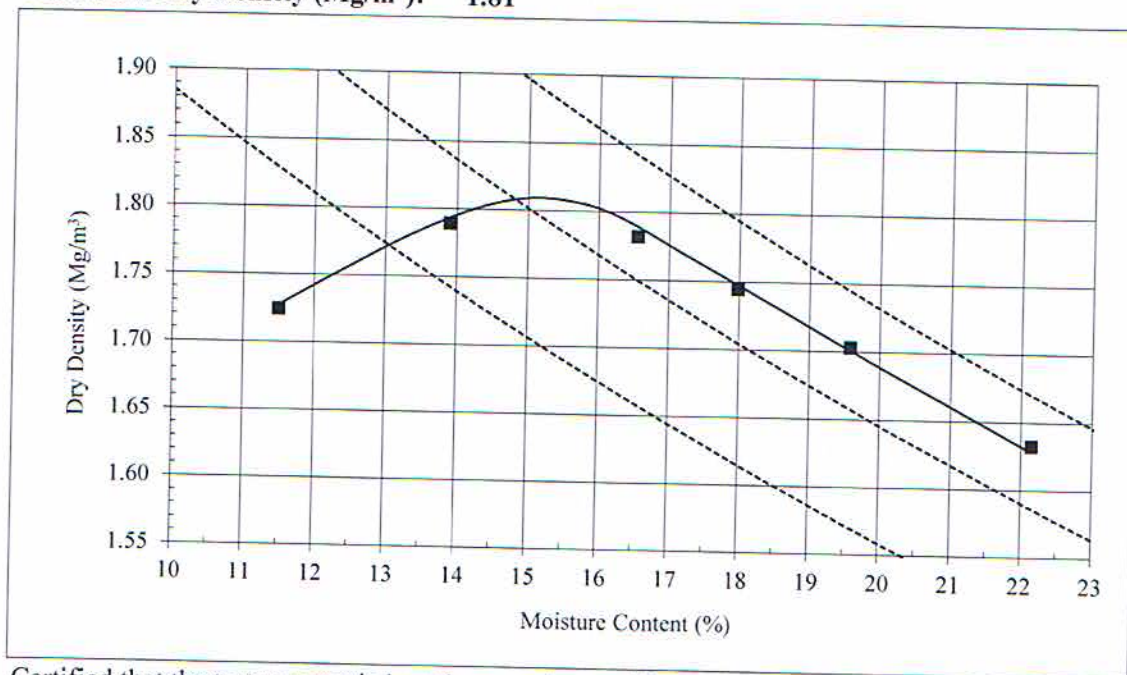
Rammer type: 2.5kg

Grading zone: 2

Preparation Procedure : 3.2.6.2

Sieved On: 20mm

Particle Density  $Mg/m^3$ : 2.65 (measured)  
Amount retained on 20mm sieve: 1%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 13.9  
**Optimum Moisture Content (%): 15.5**  
**Maximum Dry Density ( $Mg/m^3$ ): 1.81**



Certified that the test was carried out in accordance with BS1377-4:1990, Method 3.3

Deviations: 3.2.6.2

Comments: Air Void Lines plotted at 0%, 5% and 10% Values

Signed

( ) D. Ames (Director)

(X) J. Hopkinson (Laboratory Section)

Date Reported: 03/07/15

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### TEST REPORT

#### Determination of Moisture Content/Dry Density Relationship

Client: Galliford Try  
Site: Skipton FAS  
Location: Compaction Trial Layer 3  
Client sample ref: Bulk 2  
Sample description: Mudstone + Clay  
Material Source: Soil Hill

Report no.: TD15-G-01-03

Lab ref: Lab/15/778

Date Sampled: 26/06/15

Date Received: 26/06/15

Date Tested: 07/07/15

Type of sample: Bulk

Specimen type: Single

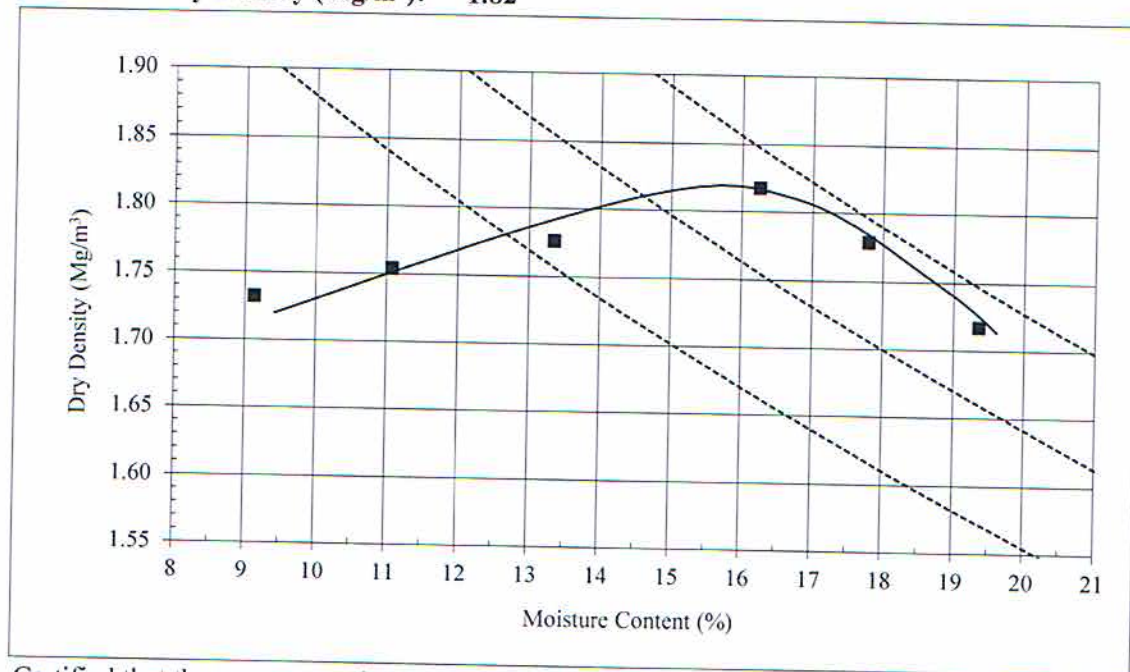
Rammer type: 2.5kg

Grading zone: 2

Preparation Procedure : 3.2.6.2

Sieved On: 20mm

Particle Density  $\text{Mg/m}^3$ : 2.64 (measured)  
Amount retained on 20mm sieve: 2%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 13.4  
**Optimum Moisture Content (%): 15.5**  
**Maximum Dry Density ( $\text{Mg/m}^3$ ): 1.82**



Certified that the test was carried out in accordance with BS1377-4:1990, Method 3.3

Deviations: 3.2.6.2

Comments: Air Void Lines plotted at 0%, 5% and 10% Values

Signed

( ) D. Ames (Director)

(X) J. Hopkinson (Laboratory Section)

Date Reported: 08/07/15

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Form C29-1 (ver. 4) 18/05/15



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# **TEST REPORT**

Determination of Particle Size Distribution

## **SIEVE ANALYSIS**

Client: Galliford Try  
 Site: Skipton FAS  
 Location: Compaction Trial L2  
 Date Sampled: 26/6/15  
 Sampled from: Mat  
 Supplier: Client  
 Description: Mudstone & Clay (2C)

Report No. TD15-G-01-G-08

TD Ref: Lab/15/777

Client Ref. Bulk 1

Mass (kg): 65

Source: Soil Hill

Material Specification: SHW Series 600 Table 6/2

Sampled by: TD

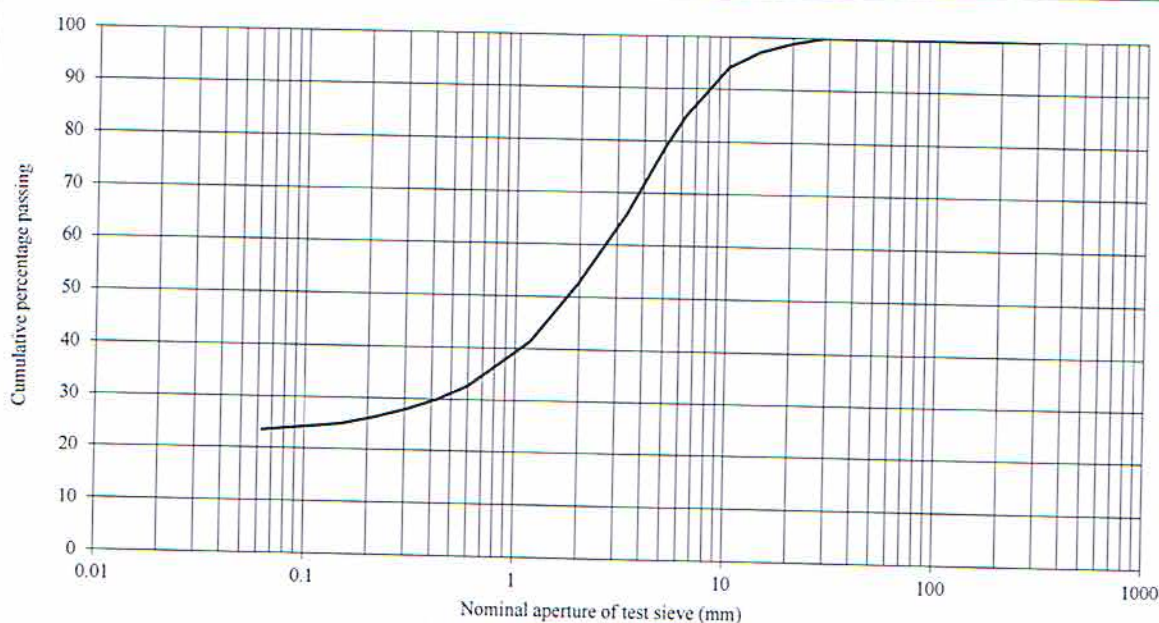
Date received: 26/6/15

Sample type: Bulk

Method of Preparation: BS 1377-1 & 2 : 1990

Remarks:

BS Sieve (mm)	Passing (%)	Material Specification
300	100	100
125	100	
90	100	
75	100	
37.5	100	
28	100	
20	99	
14	97	
10	94	
6.3	85	
5.0	79	15 - 80
3.35	66	
2.00	53	
1.18	41	
0.600	33	
0.425	30	
0.300	28	
0.212	26	
0.150	25	
0.063	23	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2

Signed

( ) T. Robinson (Director)

( ) D. Ames (Director)

(X) J. Hopkinson (Laboratory Section Manager)

Date Reported: 9/7/15

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C25 Soils Grading RS (Ver.2) 03/04/15

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### TEST REPORT

Determination of Particle Size Distribution

### SIEVE ANALYSIS

Client: Galliford Try  
 Site: Skipton FAS  
 Location: Compaction Trial L3  
 Date Sampled: 26/6/15  
 Sampled from: Mat  
 Supplier: Client  
 Description: Mudstone & Clay (2C)

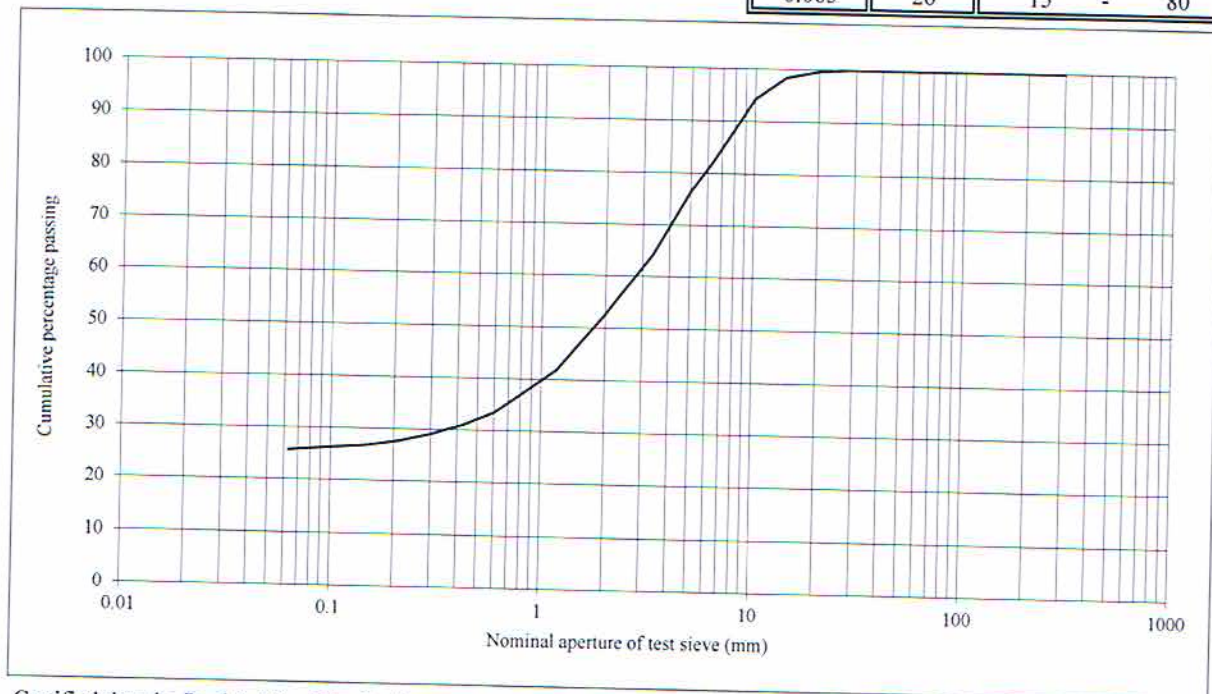
Report No. TD15-G-01-G-09

TD Ref: Lab/15/778  
 Client Ref: Bulk 2  
 Mass (kg): 66  
 Source: Soil Hill

Material Specification: SHW Series 600 Table 6/2  
 Sampled by: TD  
 Date received: 26/6/15  
 Sample type: Bulk  
 Method of Preparation: BS 1377-1 & 2 : 1990

Remarks:

BS Sieve (mm)	Passing (%)	Material Specification
300	100	100
125	100	
90	100	
75	100	
37.5	100	
28	100	
20	100	
14	98	
10	94	
6.3	82	
5.0	76	
3.35	64	
2.00	53	
1.18	42	
0.600	33	15 - 80
0.425	31	
0.300	29	
0.212	28	
0.150	27	
0.063	26	
		15 - 80



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2

Signed

( ) T. Robinson (Director)  
 ( ) D. Ames (Director)  
 (X) J. Hopkinson (Laboratory Section Manager)

Date Reported: 9/7/15

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C25 Soils Grading RS (Ver.2) 03/04/15



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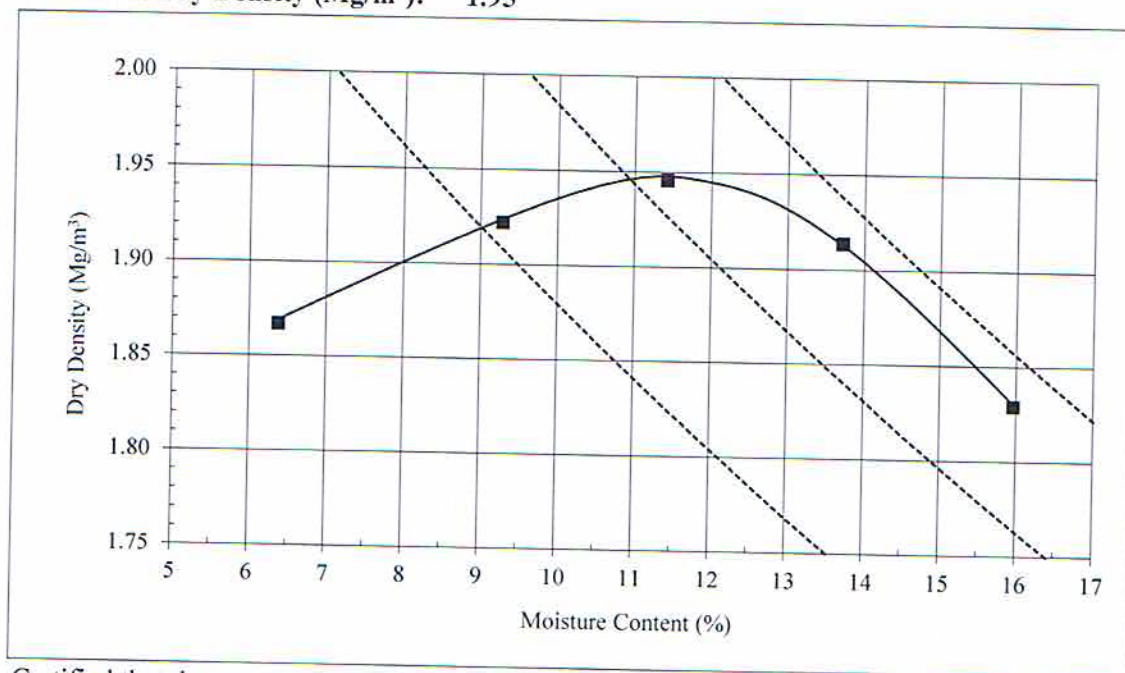
### TEST REPORT

#### Determination of Moisture Content/Dry Density Relationship

Client: Galliford Try  
Site: Skipton FAS  
Location: Compaction Trial Layer 2  
Client sample ref: Bulk 1  
Sample description: Mudstone + Clay  
Material Source: Soil Hill

Report no.: TD15-G-01-G-1:  
Lab ref: Lab/15/777  
Date Sampled: 26/06/15  
Date Received: 26/06/15  
Date Tested: 07/07/15  
Type of sample: Bulk  
Specimen type: Single  
Rammer type: 4.5kg  
Grading zone: 2  
Preparation Procedure : 3.2.6.2  
Sieved On: 20mm

Particle Density  $\text{Mg/m}^3$ : 2.64 (measured)  
Amount retained on 20mm sieve: 2%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 13.7  
**Optimum Moisture Content (%): 11.5**  
**Maximum Dry Density ( $\text{Mg/m}^3$ ): 1.95**



Certified that the test was carried out in accordance with BS1377-4:1990, Method 3.5

Deviations: 3.2.6.2

Comments: Air Void Lines plotted at 0%, 5% and 10% Values

Signed \_\_\_\_\_ ( ) D. Ames (Director)  
(X) J. Hopkinson (Laboratory Section)

Date Reported: 09/07/15

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### TEST REPORT

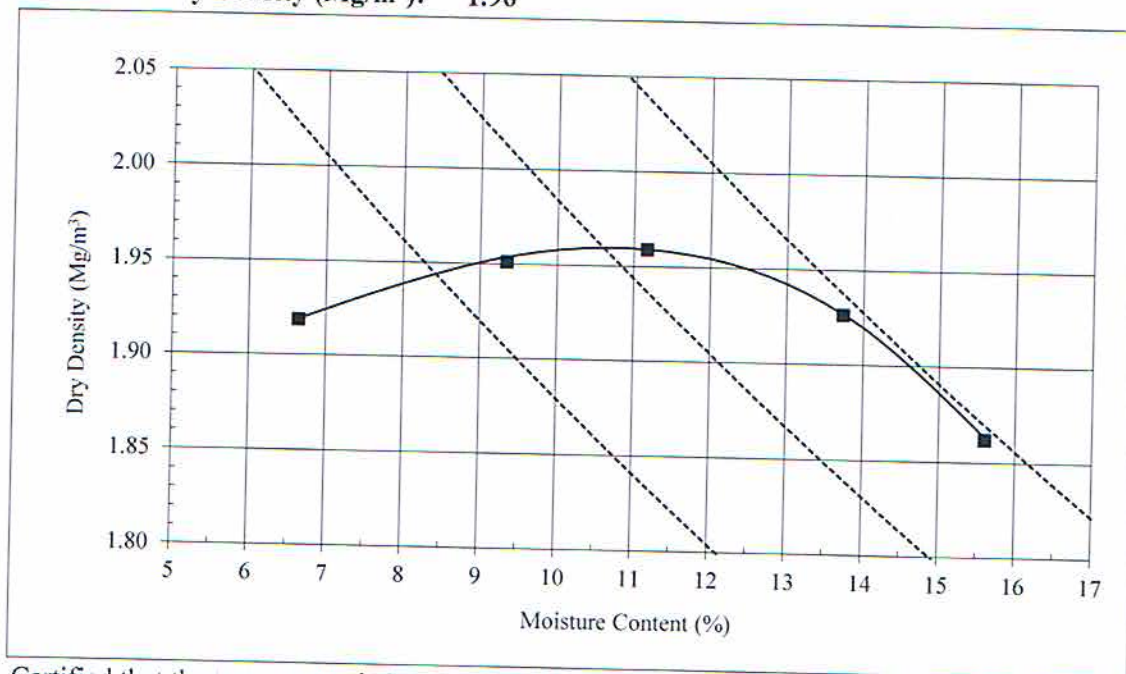
#### Determination of Moisture Content/Dry Density Relationship

Client: Galliford Try  
Site: Skipton FAS  
Location: Compaction Trial Layer 3  
Client sample ref: Bulk 2  
Sample description: Mudstone + Clay  
Material Source: Soil Hill

Report no.: TD15-G-01-G-1  
Lab ref: Lab/15/778  
Date Sampled: 26/06/15  
Date Received: 26/06/15  
Date Tested: 07/07/15  
Type of sample: Bulk

Particle Density  $Mg/m^3$ : 2.64 (measured)  
Amount retained on 20mm sieve: 2%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 13.7  
**Optimum Moisture Content (%): 11**  
**Maximum Dry Density ( $Mg/m^3$ ): 1.96**

Specimen type: Single  
Rammer type: 4.5kg  
Grading zone: 2  
Preparation Procedure : 3.2.6.2  
Sieved On: 20mm



Certified that the test was carried out in accordance with BS1377-4:1990, Method 3.5

Deviations: 3.2.6.2

Comments: Air Void Lines plotted at 0%, 5% and 10% Values

Signed \_\_\_\_\_

( ) D. Ames (Director)

(X) J. Hopkinson (Laboratory Section)

Date Reported: 09/07/15

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Form C29-1 (ver. 4) 18/05/15

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### TEST REPORT

Determination of Particle Size Distribution

#### SIEVE ANALYSIS

Client: D Morgan  
 Site: Skipton FAS  
 Location: Site  
 Date Sampled: 27/4/15  
 Sampled from: Quarry Face  
 Supplier: Client  
 Description: Mudstone & Clay (2C)

Report No. TD15-D-01-I-05

TD Ref: Lab/15/480

Client Ref. 1

Mass (kg): 61

Source: Soil Hill

Material Specification: SHW Series 600 Table 6/2

Sampled by: TD

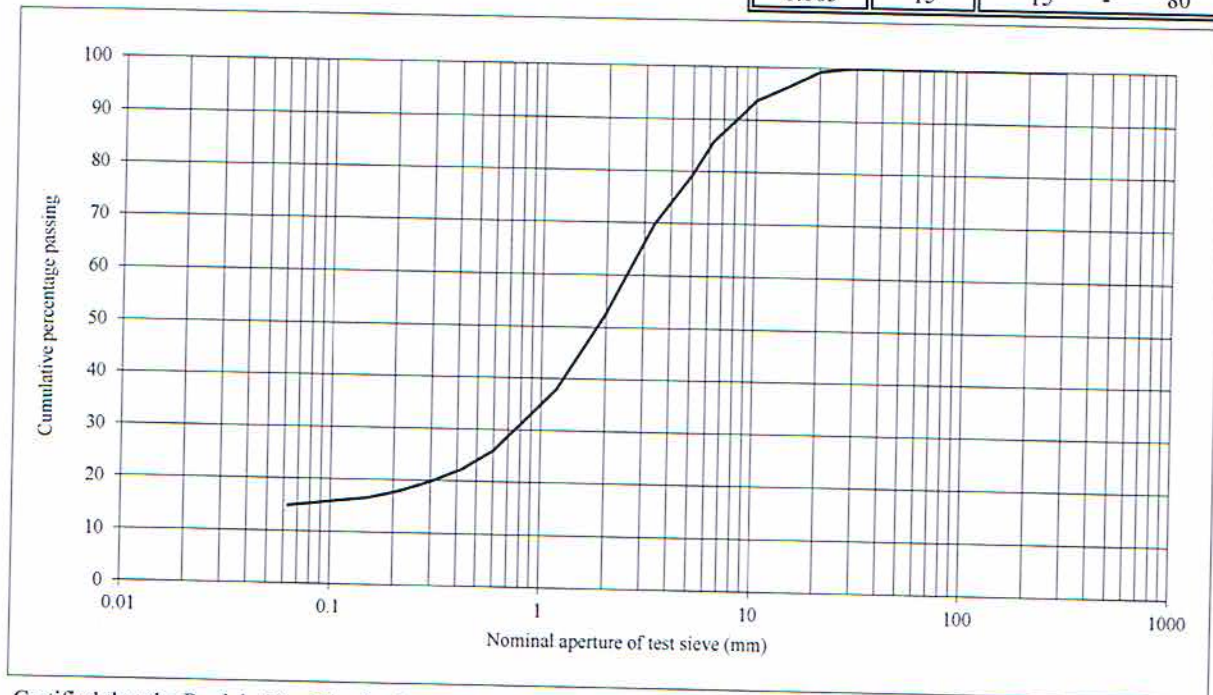
Date received: 27/4/15

Sample type: Bulk

Method of Preparation: BS 1377-1 & 2 : 1990

Remarks:

BS Sieve (mm)	Passing (%)	Material Specification
300	100	100
125	100	
90	100	
75	100	
37.5	100	
28	100	
20	99	
14	96	
10	94	
6.3	86	
5.0	79	15 - 80
3.35	70	
2.00	53	
1.18	38	
0.600	26	
0.425	22	
0.300	20	
0.212	18	
0.150	17	
0.063	15	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2

Signed

( ) T. Robinson (Director)

( ) D. Ames (Director)


(X) J. Hopkinson (Laboratory Section Manager)

Date Reported: 18/5/15

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C25 Soils Grading RS (Ver.2) 03/04/15





## TEST REPORT

### Determination of Liquid and Plastic Limits

BS1377: Part 2: 1990

Client: D.Morgan  
Site: Skipton  
Location: Site Stockpile

Report No:	TD15-D-01-I-07
Date received:	27/04/2015
Date tested:	12/05/2015

Sample Ref.	Lab ref.	Sample Location	Sample Description	Sample Type	Sample Prep.	% Ret. 425µm sieve	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %
Soil Hill	Lab/15/480	Soil Hill Stockpile	Mudstone + Clay	B	W	76	15.2	49	27	22

Sample Type: D = Disturbed B = Bulk U = Undisturbed

Sample Type: D = Disturbed, B = Bulk, U = Undisturbed

Sample Prep: N = tested in natural condition, A = air dried before test, W = subject to wet sieving before test

Comments:

Interpretations and opinions expressed herein are outside the scope of the UKAS Accreditation

interpretations and opinions expressed herein are outside the scope of the UKAS Accreditation

Confirmed that the test was carried out in accordance with BS 1377: Part 2: 1990: Methods 3.0.4.3, 4.4 & 5

### Deviations:

Result: NP = Non-plastic



( X ) J.Hopkinson (Laboratory Section Manager)

Authorised By:

( ) D. Ames (Director)

Date Reported:

22/05/2015

Report v2 03/15



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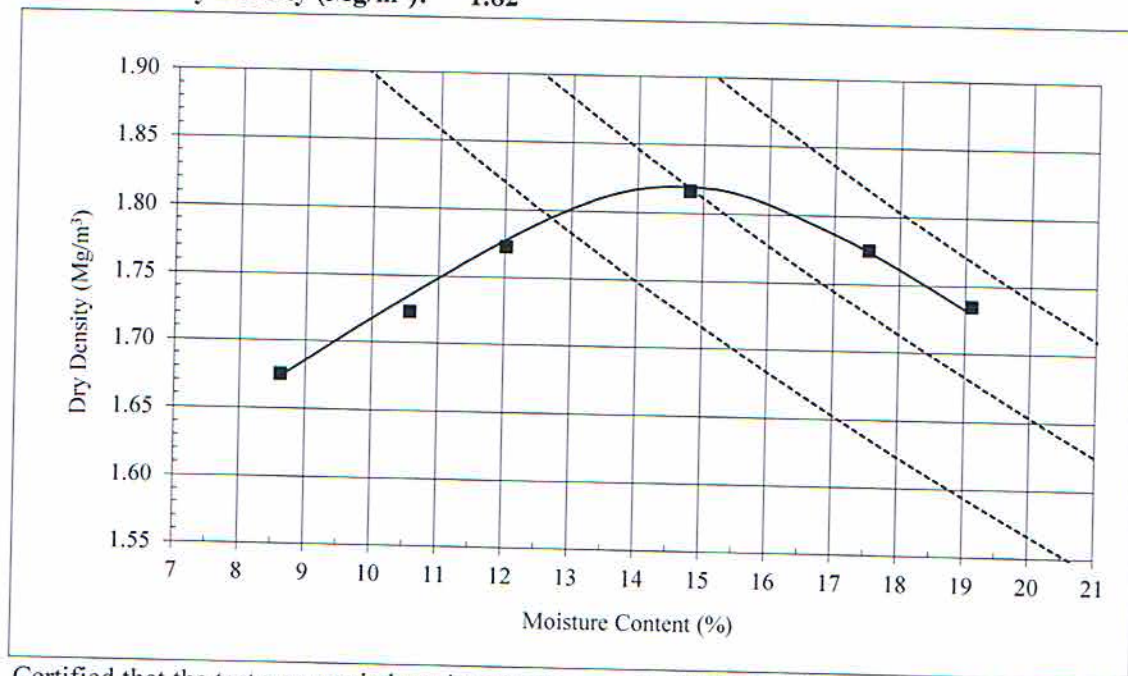
### TEST REPORT

#### Determination of Moisture Content/Dry Density Relationship

Client: Galliford Try  
Site: Skipton FAS  
Location: Rockface in quarry  
Client sample ref: AH01  
Sample description: Mudstone + Clay  
Material Source: Soil Hill

Report no.: TD15-G-01-G-01  
Lab ref: Lab/15/735  
Date Sampled: 23/06/15  
Date Received: 23/06/15  
Date Tested: 01/07/15  
Type of sample: Bulk  
Specimen type: Single  
Rammer type: 2.5kg  
Grading zone: 2  
Preparation Procedure : 3.2.6.2  
Sieved On: 20mm

Particle Density  $Mg/m^3$ : 2.67 (measured)  
Amount retained on 20mm sieve: 1%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 12  
**Optimum Moisture Content (%): 14.5**  
**Maximum Dry Density ( $Mg/m^3$ ): 1.82**



Certified that the test was carried out in accordance with BS1377-4:1990, Method 3.3

Deviations: 3.2.6.2

Comments: Air Void Lines plotted at 0%, 5% and 10% Values

Signed

( ) D. Ames (Director)

(X) J. Hopkinson (Laboratory Section)

Date Reported: 02/07/15

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### TEST REPORT

#### Determination of Moisture Content/Dry Density Relationship

Client: D. Morgan  
Site: Skipton

Report no.: TD15-D-01-I-01

Lab ref: Lab/15/480

Date received: 27/04/15

Date tested: 05/05/15

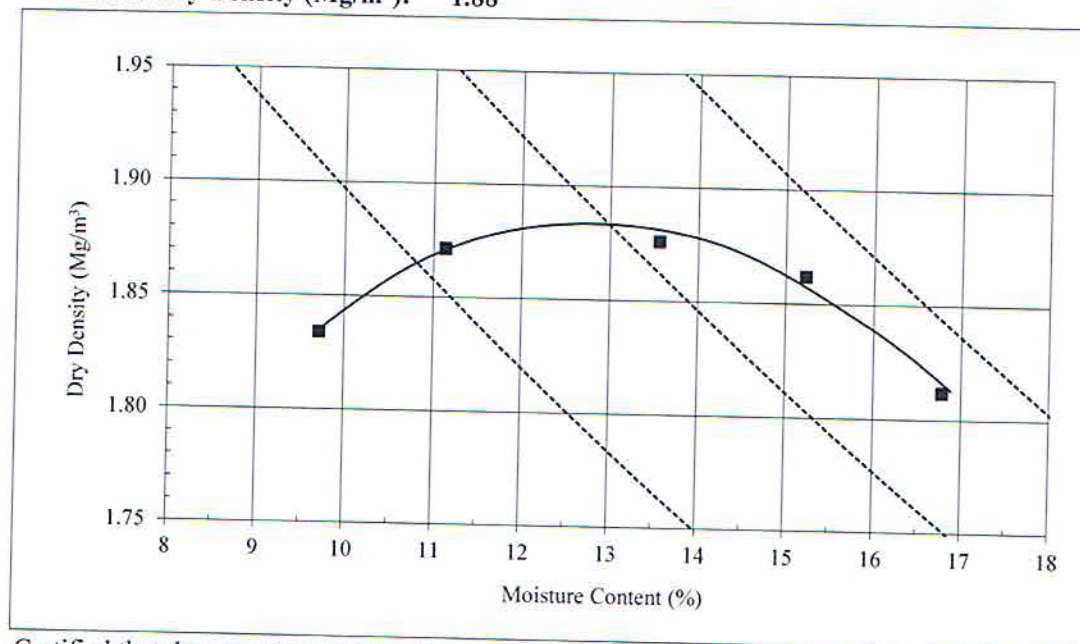
Type of sample: Bulk

Specimen type: Multiple

Rammer type: 4.5kg

Grading zone: 2

Client sample ref: Soil Hill  
Sample description: Mudstone & Clay  
Particle Density  $\text{Mg/m}^3$ : 2.67 (measured)  
Amount retained on 20mm sieve: 3%  
Amount retained on 37.5mm sieve: 0%  
As received moisture content (%): 15.2  
**Optimum Moisture Content (%): 13**  
**Maximum Dry Density ( $\text{Mg/m}^3$ ): 1.88**



Certified that the test was carried out in accordance with BS1377-4:1990, Method BS 1377: Pt 4: 3.5

Sample preparation procedure: 3.2.6.2

Comments: Air Void Lines plotted at 0% and 10% Values

Signed

J. Hopkinson (Laboratory Section Manager)

Date Reported: 07/05/15

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### Laboratory Test Report

Determination of Particle Density to BS1377-2:1990  
(Gas Jar Method)

Client : D Morgan  
Client Address : New Hey  
Chester Road  
Ellesmere Port  
CH66 2LS  
Contract : Skipton FAS  
Job No. : TD15-D-01-I  
Report No.: TD15-D-01-I-02

#### Sample Details

Material Description : Mudstone & Clay  
Laboratory Number : Lab/15/480  
Client Ref. : 1  
Source : Soil Hill  
Sample Location : Quarry Face  
Date Sampled : 27/04/15  
Sampled By : TD  
Date Received : 27/03/15  
Date of Test : 07/05/15  
Type of sample: Bulk  
Orientation: Disturbed

#### Test Results

Average Particle Density 2.67

#### Deviations from Test Method

#### Comments

Sample Prepared in accordance with BS1377-1 CI 7.3, 7.4

Signed

A handwritten signature in black ink, appearing to be 'JH'.

J. Hopkinson (Laboratory Section Manager)

Report Date :

07/05/15