

TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.33.1.1

SAMPLE NUMBER: 47035

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP16-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, DI, RB

FILL LOCATION: SP16-7

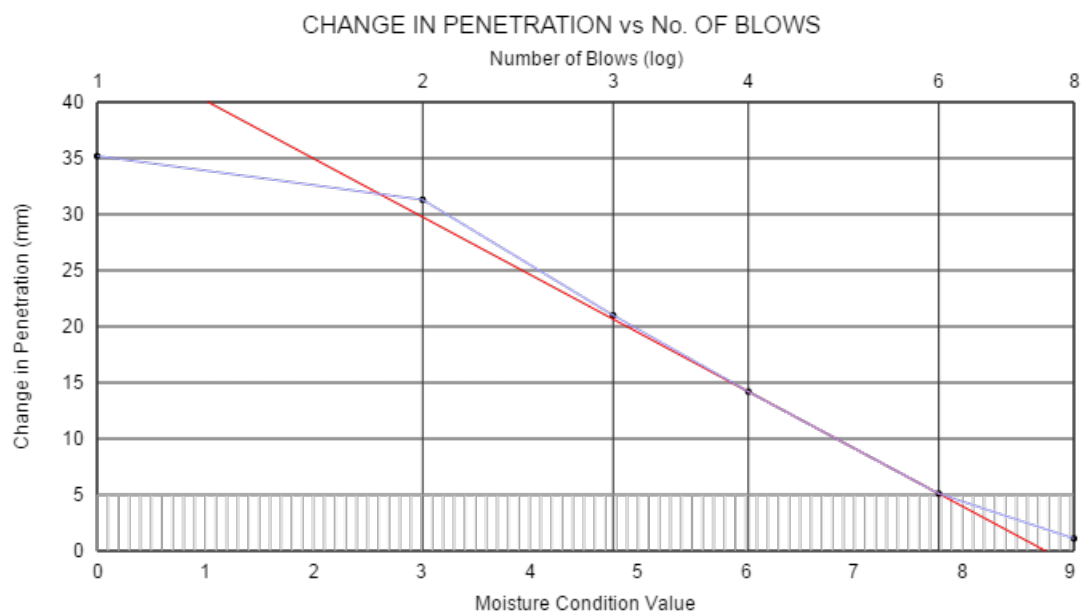
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	7.8
NATURAL MOISTURE CONTENT (%)	25.5
PERCENTAGE RETAINED 20mm (%)	7.7
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV -42

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


0927

Report Format: L/Rep S10a rev.3

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.35.1.1

SAMPLE NUMBER: 47035

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP16-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP16-7

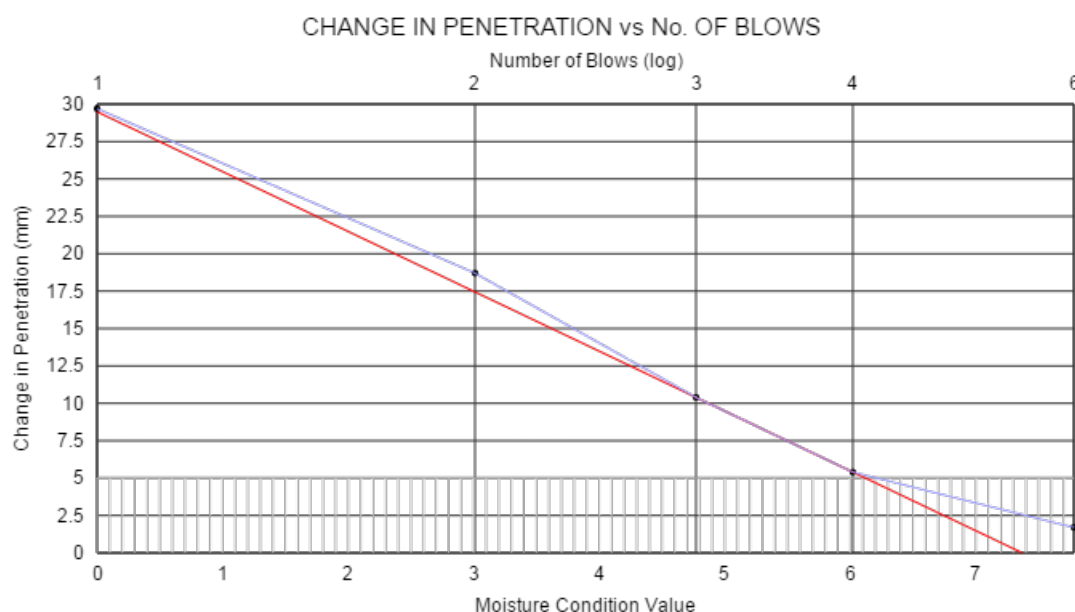
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	6.1
NATURAL MOISTURE CONTENT (%)	26.2
PERCENTAGE RETAINED 20mm (%)	30.2
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV: 36

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
22-Feb-18



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Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.35.1.1

SAMPLE NUMBER: 47035

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP16-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP16-7

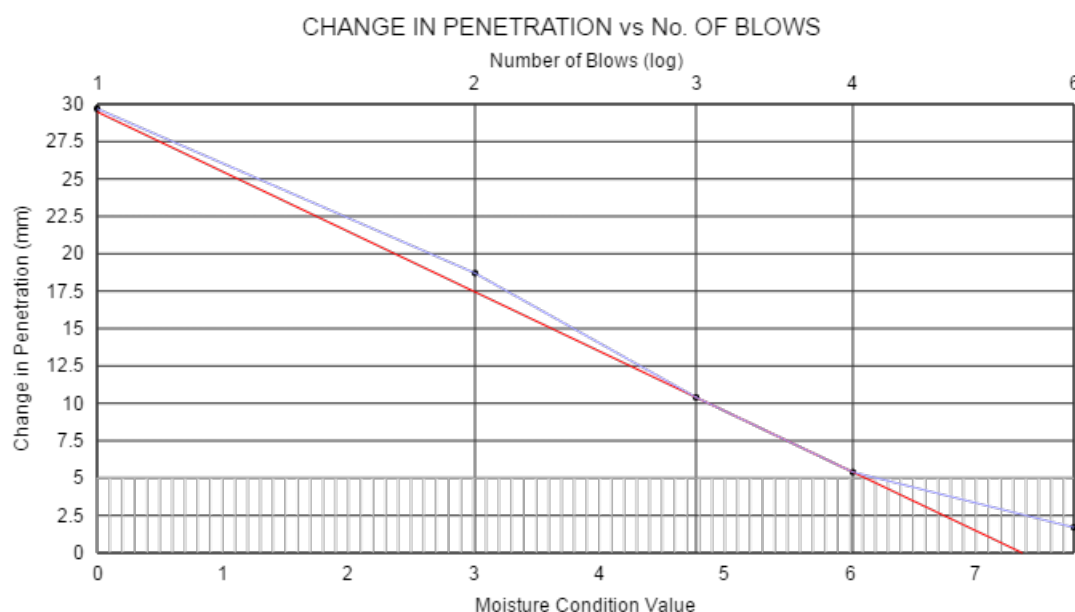
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	6.1
NATURAL MOISTURE CONTENT (%)	26.2
PERCENTAGE RETAINED 20mm (%)	30.2
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV: 36

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
22-Feb-18



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Kent ME17 1QW

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 31124.2.1.1

SAMPLE NUMBER: 42936

CLIENT: Cognition Land & Water Ltd

CLIENT REF: LGSP1

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 11/01/2018

SITE: Pump Lane, Southall

SAMPLED BY: client

SUPPLIER: Unknown

DATE RECEIVED: 12/01/2018

MATERIAL: Granular Material With MG

DATE COMPLETED: 17/01/2018

CLASSIFICATION: Class 7F

TESTED BY: MG, DG, JW, AV, MW

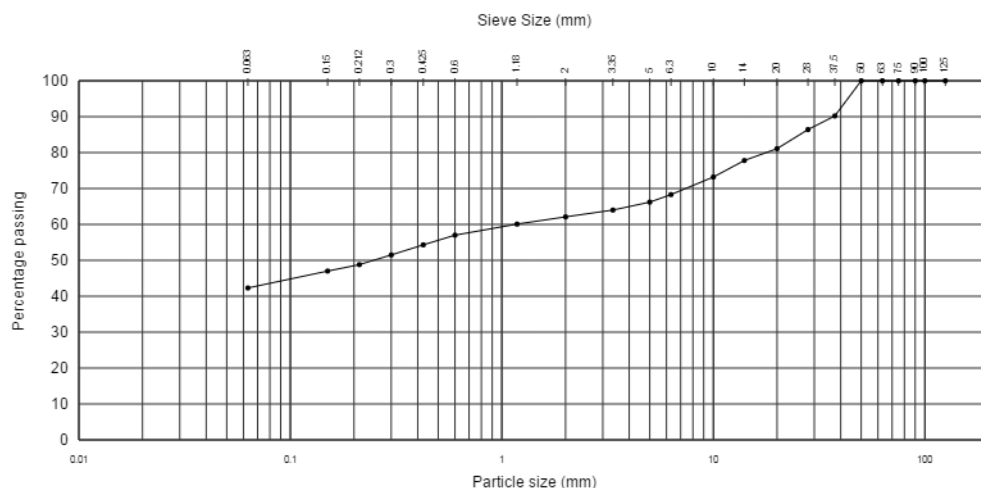
LOCATION: Lagoon Stockpile 1

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	90	
28	86	
20	81	
14	78	
10	73	
6.3	68	
5	66	
3.35	64	
2	62	
1.18	60	
0.6	57	
0.425	54	
0.3	52	
0.212	49	
0.15	47	
0.063	42	15 - 100

Class 7F - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 7F

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 23.4%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

 For and on behalf of CET
 Dan Gay - Supervisor



 Approved Signatory
 17-Jan-18


0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.2.1.1

SAMPLE NUMBER: 46574

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay, occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

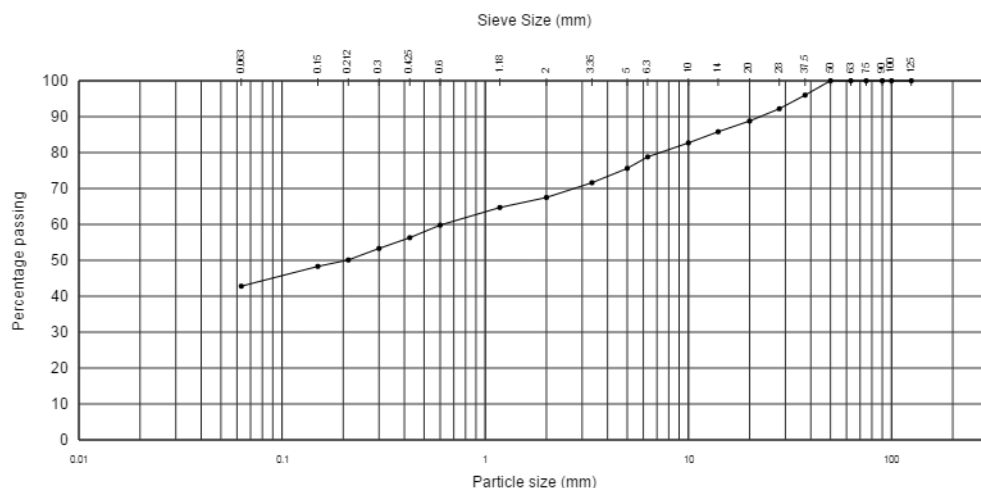
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	96	
28	92	
20	89	
14	86	
10	83	
6.3	79	
5	76	
3.35	72	
2	68	15 - 80
1.18	65	
0.6	60	
0.425	56	
0.3	53	
0.212	50	
0.15	48	
0.063	43	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 28.1%

 Remarks:
 Remaining sample will be retained for a minimum of 28 days from date of report.

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.4.1.1

SAMPLE NUMBER: 46575

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, AV, MW

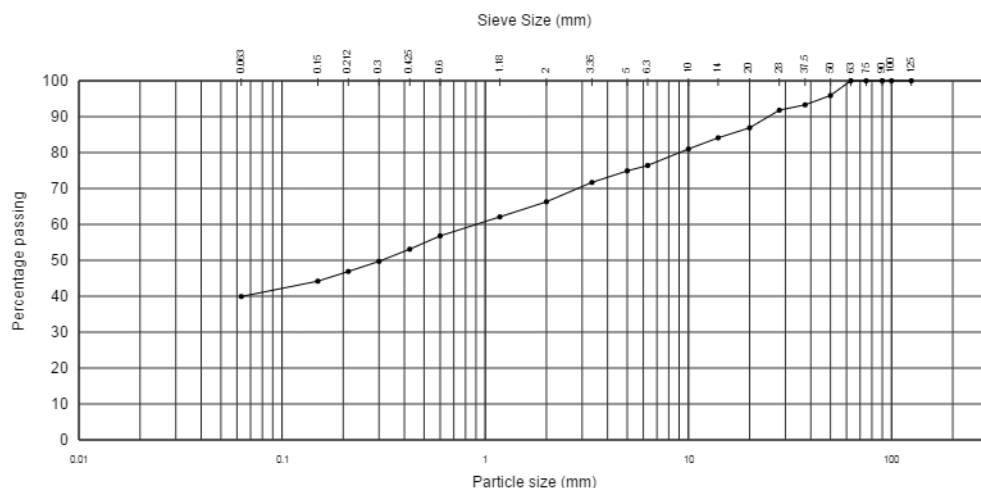
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	96	
37.5	93	
28	92	
20	87	
14	84	
10	81	
6.3	76	
5	75	
3.35	72	
2	66	15 - 80
1.18	62	
0.6	57	
0.425	53	
0.3	50	
0.212	47	
0.15	44	
0.063	40	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 30.2%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

19-Feb-18



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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.6.1.1

SAMPLE NUMBER: 46576

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

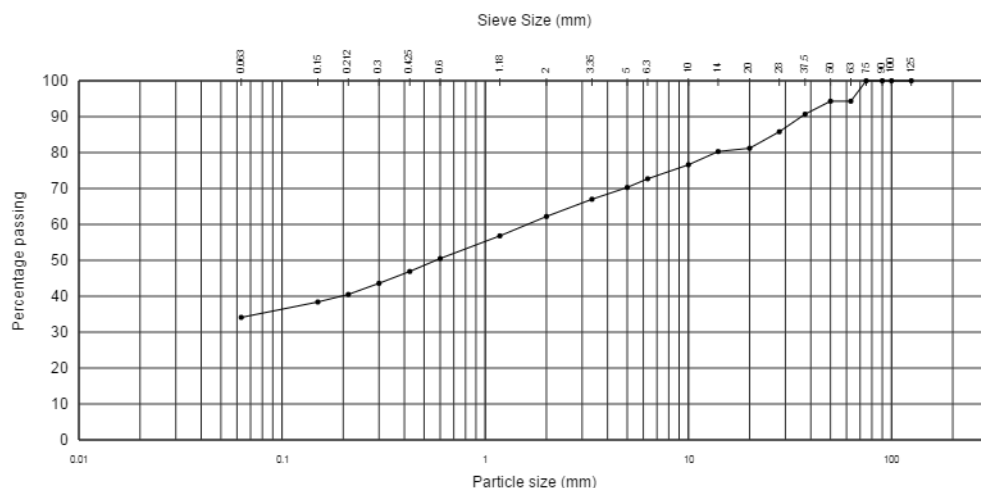
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	94	
50	94	
37.5	91	
28	86	
20	81	
14	80	
10	77	
6.3	73	
5	70	
3.35	67	
2	62	15 - 80
1.18	57	
0.6	51	
0.425	47	
0.3	44	
0.212	41	
0.15	38	
0.063	34	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 28.0%

 Remarks:
 Remaining sample will be retained for a minimum of 28 days from date of report.

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18


0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.12.1.1

SAMPLE NUMBER: 46579

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

LOCATION: SP4-7

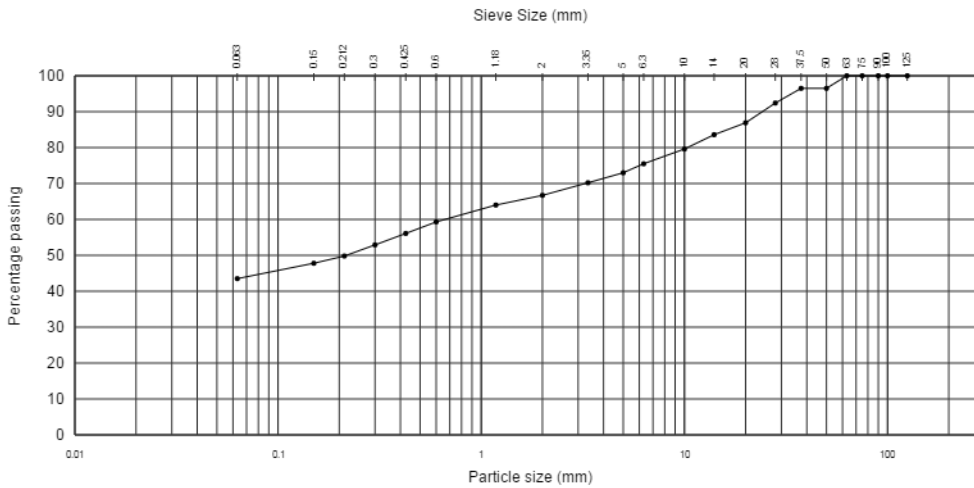
WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT



SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	97	
37.5	97	
28	92	
20	87	
14	84	
10	80	
6.3	76	
5	73	
3.35	70	
2	67	15 - 80
1.18	64	
0.6	59	
0.425	56	
0.3	53	
0.212	50	
0.15	48	
0.063	44	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 27.2%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor

D S

Approved Signatory

19-Feb-18



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TEST REPORT:

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.14.1.1

SAMPLE NUMBER: 46580

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

LOCATION: SP4-7

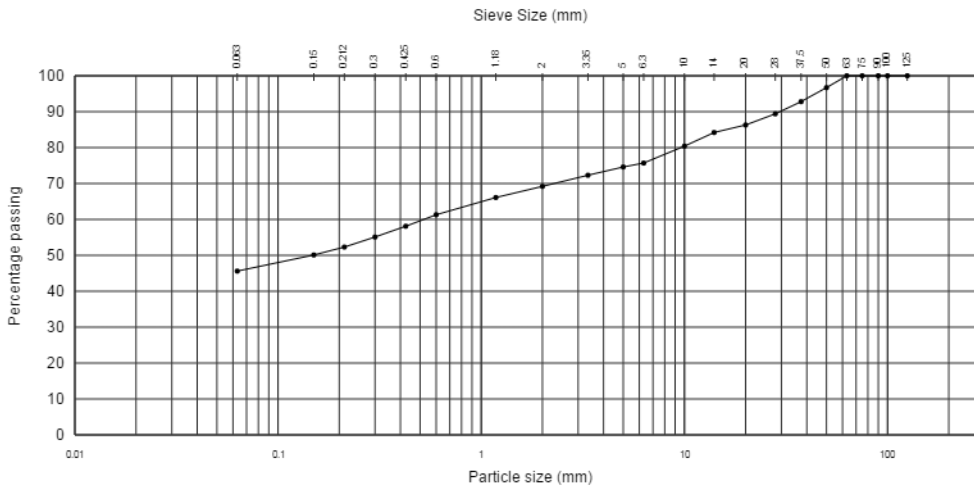
WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT



SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	97	
37.5	93	
28	89	
20	86	
14	84	
10	80	
6.3	76	
5	75	
3.35	72	
2	69	15 - 80
1.18	66	
0.6	61	
0.425	58	
0.3	55	
0.212	52	
0.15	50	
0.063	46	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 29.4%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor

D S

Approved Signatory

19-Feb-18



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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.16.1.1

SAMPLE NUMBER: 46581

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

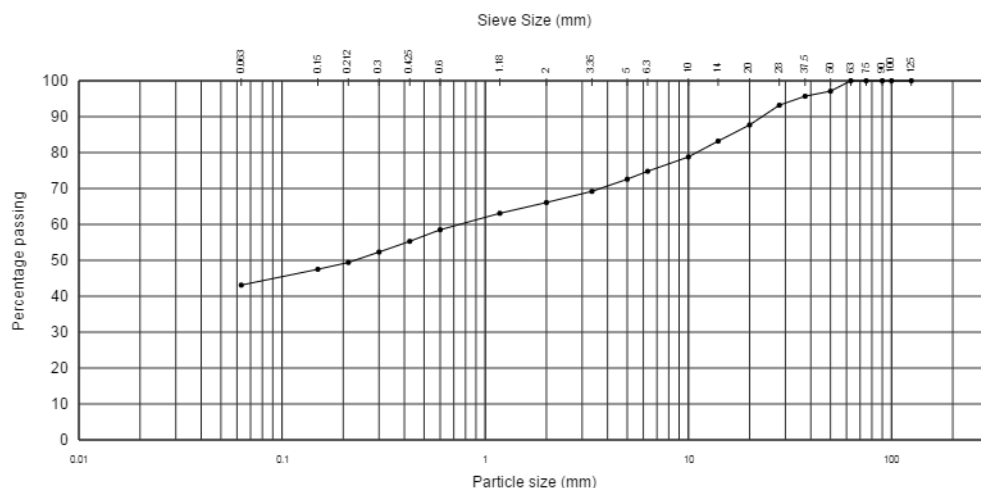
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	97	
37.5	96	
28	93	
20	88	
14	83	
10	79	
6.3	75	
5	73	
3.35	69	
2	66	15 - 80
1.18	63	
0.6	59	
0.425	55	
0.3	52	
0.212	49	
0.15	48	
0.063	43	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 27.7%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

19-Feb-18

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.18.1.1

SAMPLE NUMBER: 46582

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

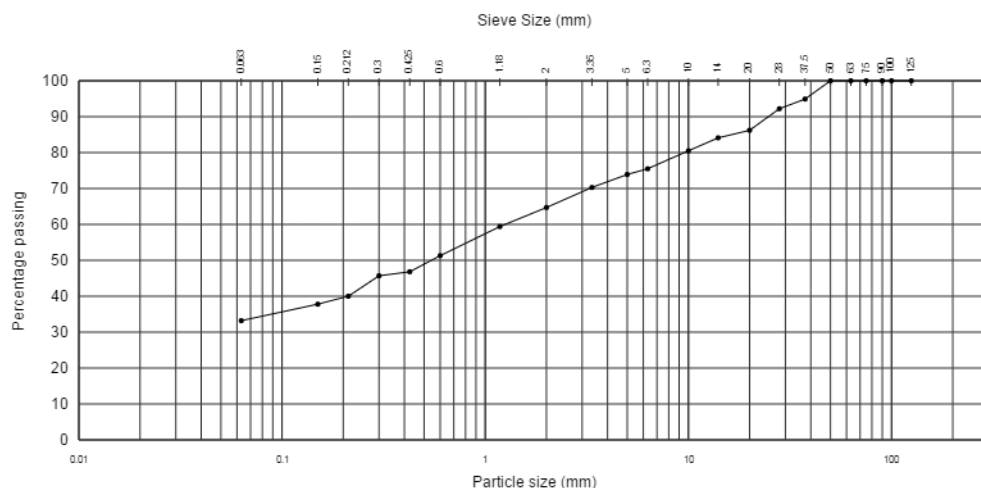
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	95	
28	92	
20	86	
14	84	
10	81	
6.3	76	
5	74	
3.35	70	
2	65	15 - 80
1.18	59	
0.6	51	
0.425	47	
0.3	46	
0.212	40	
0.15	38	
0.063	33	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 28.1%

 Remarks:
 Remaining sample will be retained for a minimum of 28 days from date of report.

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.20.1.1

SAMPLE NUMBER: 46583

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, AV, MW

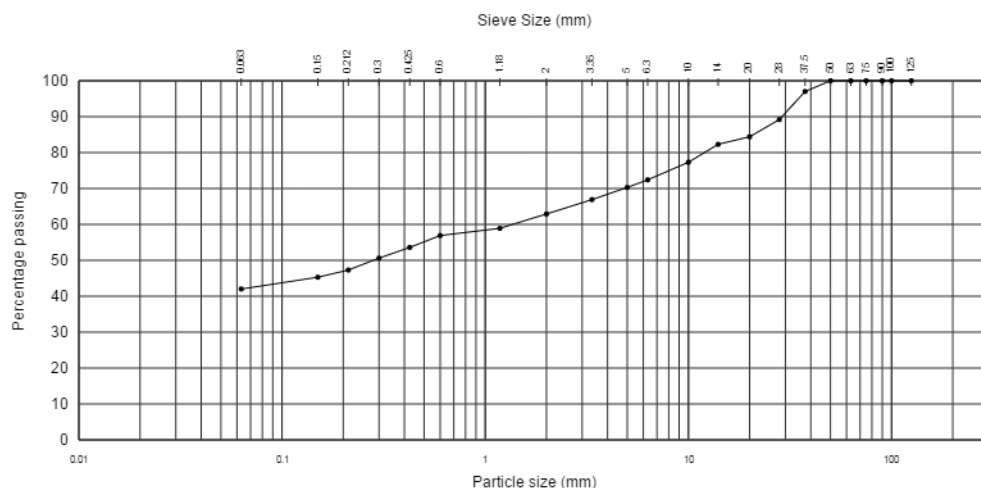
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	97	
28	89	
20	84	
14	82	
10	77	
6.3	72	
5	70	
3.35	67	
2	63	15 - 80
1.18	59	
0.6	57	
0.425	54	
0.3	51	
0.212	47	
0.15	45	
0.063	42	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 27.0%

 Remarks:
 Remaining sample will be retained for a minimum of 28 days from date of report.

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18


0927

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT:

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.22.1.1

SAMPLE NUMBER: 46585

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: Unknown

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

LOCATION: SP4-7

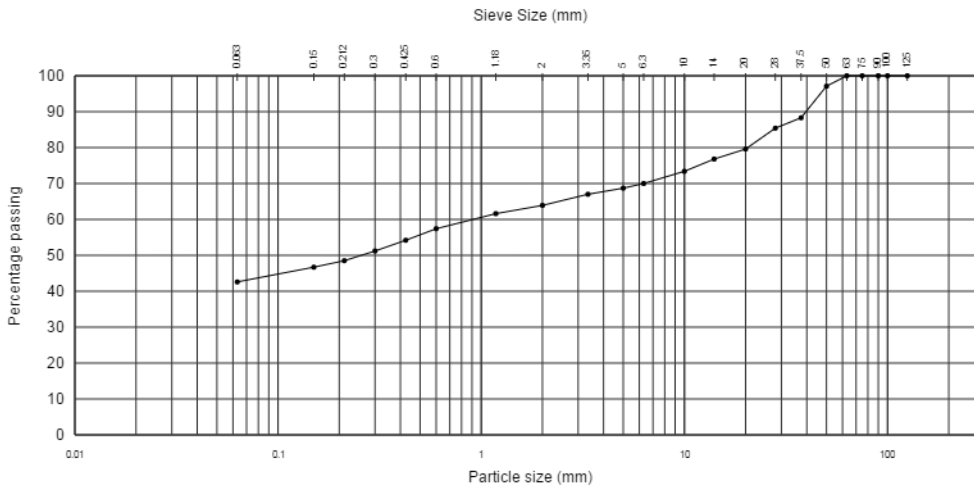
WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT



Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 26.6%

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	97	
37.5	88	
28	85	
20	80	
14	77	
10	73	
6.3	70	
5	69	
3.35	67	
2	64	15 - 80
1.18	62	
0.6	57	
0.425	54	
0.3	51	
0.212	49	
0.15	47	
0.063	43	15 - 80

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor

D S

Approved Signatory

19-Feb-18

Report Format: L/Rep S6a/9

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33207.22.1.1

SAMPLE NUMBER: 46585

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: Unknown

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

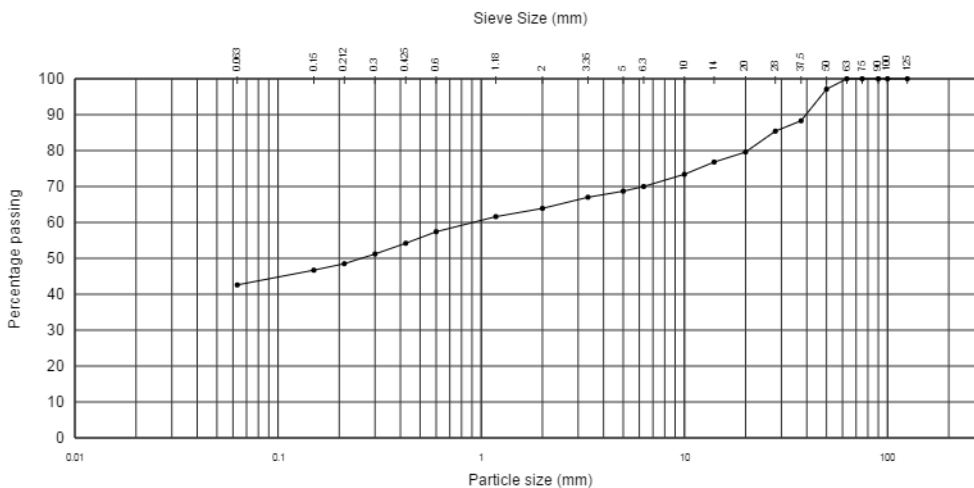
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT


Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 26.6%

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	97	
37.5	88	
28	85	
20	80	
14	77	
10	73	
6.3	70	
5	69	
3.35	67	
2	64	15 - 80
1.18	62	
0.6	57	
0.425	54	
0.3	51	
0.212	49	
0.15	47	
0.063	43	15 - 80

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

19-Feb-18

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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Page 1 of 1

TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33942.3.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 02/03/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

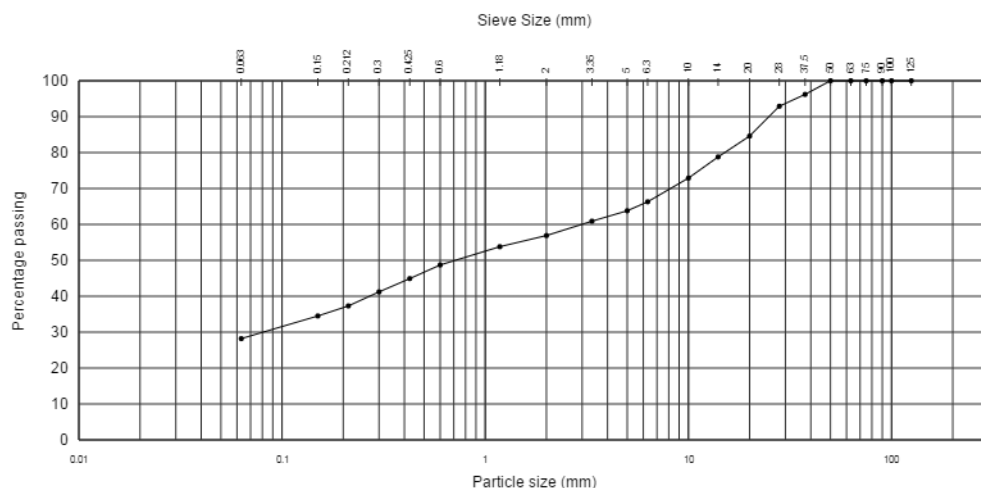
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	96	
28	93	
20	85	
14	79	
10	73	
6.3	66	
5	64	
3.35	61	
2	57	15 - 80
1.18	54	
0.6	49	
0.425	45	
0.3	41	
0.212	37	
0.15	35	
0.063	28	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 22.1%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

02-Mar-18



0927

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33942.5.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 02/03/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

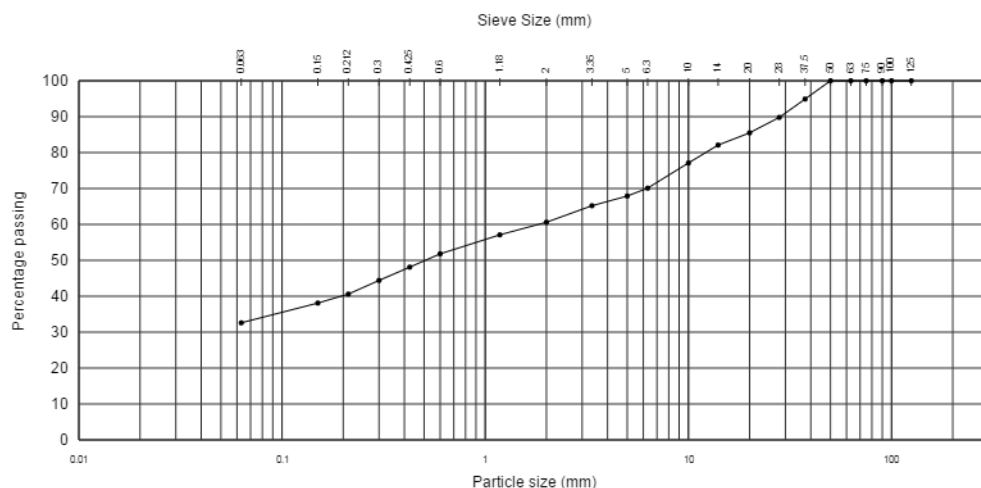
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	95	
28	90	
20	86	
14	82	
10	77	
6.3	70	
5	68	
3.35	65	
2	61	15 - 80
1.18	57	
0.6	52	
0.425	48	
0.3	44	
0.212	41	
0.15	38	
0.063	33	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 22.5%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

05-Mar-18

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33942.6.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 02/03/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, MW

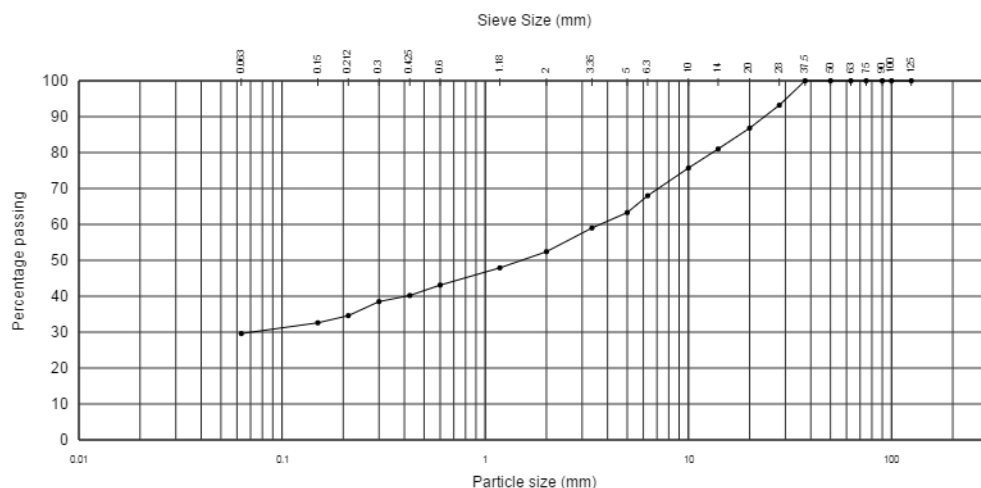
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	93	
20	87	
14	81	
10	76	
6.3	68	
5	63	
3.35	59	
2	52	15 - 80
1.18	48	
0.6	43	
0.425	40	
0.3	39	
0.212	35	
0.15	33	
0.063	30	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

 Uniformity Coefficient (D₆₀/D₁₀) N/A

Sample complies with the grading specification

Moisture content: 22.2%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

05-Mar-18

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS 1377 - 2 : 1990, Method 9.2 Washing & Dry Sieving

REPORT NUMBER: 392872 / 33942.8.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 02/03/2018

CLASSIFICATION: Class 2C

TESTED BY: DG, DI, AV, MW

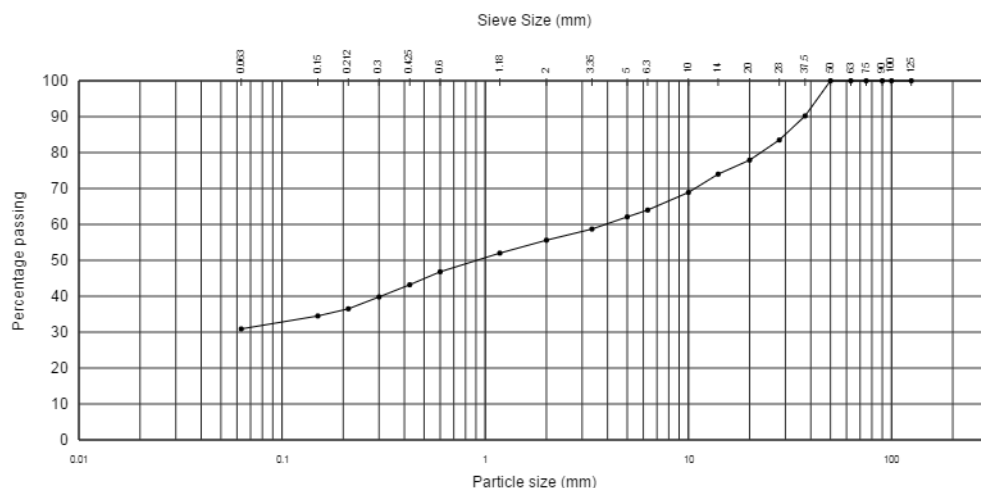
LOCATION: SP4-7

WITHIN ORIGINAL SPECIMEN: N/A

PREPARATION METHOD: BS 1377:Part 1:1990 clause 7.3 & 7.4.5

TYPE OF SAMPLE: Disturbed

VARIATIONS: No variations

RESULT

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
125	100	100 - 100
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	90	
28	84	
20	78	
14	74	
10	69	
6.3	64	
5	62	
3.35	59	
2	56	15 - 80
1.18	52	
0.6	47	
0.425	43	
0.3	40	
0.212	37	
0.15	35	
0.063	31	15 - 80

Class 2C - Specification for Highway Works (2016) Table 6/2 Earthworks Materials - Class 2C

Uniformity Coefficient (D60/D10) N/A

Sample complies with the grading specification

Moisture content: 20.6%

Remarks:

Remaining sample will be retained for a minimum of 28 days from date of report.

For and on behalf of CETi

Dan Gay - Supervisor



Approved Signatory

02-Mar-18



0927

Report Format: L/Rep S6a/9

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

Page 1 of 1



TEST REPORT : **DETERMINATION OF THE PLASTICITY INDEX OF SOIL**
BS 1377:Part 2:1990 clause 5.4

REPORT No.:	392872 / 33402.4.1.1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	47033	ADDRESS:	Springfield House
CLIENT REF:	SP4-7	SITE:	Pump Lane, Southall
DATE SAMPLED:	16/02/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Dark Brown Stoney Clay
DATE RECEIVED:	16/02/2018	LOCATION:	SP4-7
DATE TEST COMPLETED:	22/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	FK	PREPARATION METHOD:	BS 1377:Part 1:1990
TYPE OF SAMPLE:	Disturbed	VARIATIONS:	No Variations

ORIENTATION OF TEST SPECIMEN WITHIN ORIGINAL SAMPLE: N/A

RESULT:

TEST DETAILS	TEST RESULT	SPECIFICATION DETAILS		
		Lower Limits		Upper Limits
THE LIQUID LIMIT OF THE SAMPLE: BS 1377: Part 2: 1990 clause 4.4 (1 point)	48%	N/A	-	N/A
THE PLASTIC LIMIT OF THE SAMPLE: To BS1377 : Part2 : 1990 cl 5.3	28%	N/A	-	N/A
THE PLASTICITY INDEX OF THE SAMPLE:	20%			
The Percentage Passing 425µm Test Sieve :	74%			
Sample History :	The material was tested after washing through a 425µm test sieve			

REMARKS:

Remaining sample will be retained for a minimum of 28 days from date of report.

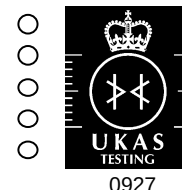
Page 1 of 1
REPORT FORMAT: L/Rep S3S4/rev.6

For and on behalf of CET



Approved Signatory
22-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor



TEST REPORT : DETERMINATION OF THE PLASTICITY INDEX OF SOIL
 BS 1377:Part 2:1990 clause 5.4

REPORT No.:	F18-392872-179045-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179045/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	SP4-7 (46574)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Dark brown silty clay occ gravel
DATE RECEIVED:	14/02/2018	LOCATION:	SP4-7
DATE TEST COMPLETED:	19/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	FK	PREPARATION METHOD:	BS 1377:Part 1:1990
TYPE OF SAMPLE:	Disturbed	VARIATIONS:	No Variations

ORIENTATION OF TEST SPECIMEN WITHIN ORIGINAL SAMPLE: N/A

RESULT:

TEST DETAILS	TEST RESULT	SPECIFICATION DETAILS		
		Lower Limits		Upper Limits
THE LIQUID LIMIT OF THE SAMPLE: BS 1377: Part 2: 1990 clause 4.4 (1 point)	53%	N/A	-	N/A
THE PLASTIC LIMIT OF THE SAMPLE: To BS1377 : Part2 : 1990 cl 5.3	37%	N/A	-	N/A
THE PLASTICITY INDEX OF THE SAMPLE:	16%			
The Percentage Passing 425µm Test Sieve :	56%			
Sample History :	The material was tested after washing through a 425µm test sieve			

REMARKS:

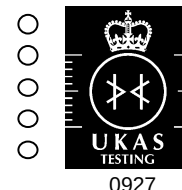
Remaining sample will be retained for a minimum of 28 days from date of report.

 Page 1 of 1
 REPORT FORMAT: L/Rep S3S4/rev.6

For and on behalf of CET



 Approved Signatory
 20-Feb-18

 John Newbery - Laboratory Manager
 Matt Oliver- Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor


TEST REPORT : DETERMINATION OF THE PLASTICITY INDEX OF SOIL
 BS 1377:Part 2:1990 clause 5.4

REPORT No.:	F18-392872-179046-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179046/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	SP4-7 (46575)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Dark Brown Silty Clay with Occ. Gravel
DATE RECEIVED:	14/02/2018	LOCATION:	SP4-7
DATE TEST COMPLETED:	19/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	FK	PREPARATION METHOD:	BS 1377:Part 1:1990
TYPE OF SAMPLE:	Disturbed	VARIATIONS:	No Variations

ORIENTATION OF TEST SPECIMEN WITHIN ORIGINAL SAMPLE: N/A

RESULT:

TEST DETAILS	TEST RESULT	SPECIFICATION DETAILS		
		Lower Limits		Upper Limits
THE LIQUID LIMIT OF THE SAMPLE: BS 1377: Part 2: 1990 clause 4.4 (1 point)	55%	N/A	-	N/A
THE PLASTIC LIMIT OF THE SAMPLE: To BS1377 : Part2 : 1990 cl 5.3	33%	N/A	-	N/A
THE PLASTICITY INDEX OF THE SAMPLE:	22%			
The Percentage Passing 425µm Test Sieve :	53%			
Sample History :	The material was tested after washing through a 425µm test sieve			

REMARKS:

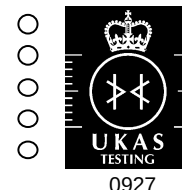
Remaining sample will be retained for a minimum of 28 days from date of report.

 Page 1 of 1
 REPORT FORMAT: L/Rep S3S4/rev.6

For and on behalf of CET



 Approved Signatory
 20-Feb-18

 John Newbery - Laboratory Manager
 Matt Oliver- Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor


TEST REPORT : **DETERMINATION OF THE PLASTICITY INDEX OF SOIL**
BS 1377:Part 2:1990 clause 5.4

REPORT No.:	F18-392872-178657-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	178657/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	42936	SITE:	Pump Lane, Southall
DATE SAMPLED:	11/01/2018	SUPPLIER:	Site Won
SAMPLED BY:	Client	MATERIAL:	Granular Material with MG
DATE RECEIVED:	15/01/2018	LOCATION:	Lagoon Stockpile 1 Lagoon Stockpile 4 - mislabeled
DATE TEST COMPLETED:	17/01/2018	ACCEPT STD:	Contract Specification
TESTED BY:	EU	PREPARATION METHOD:	BS 1377:Part 1:1990
TYPE OF SAMPLE:	Disturbed	VARIATIONS:	No Variations

ORIENTATION OF TEST SPECIMEN WITHIN ORIGINAL SAMPLE: N/A

RESULT:

TEST DETAILS	TEST RESULT	SPECIFICATION DETAILS		
		Lower Limits		Upper Limits
THE LIQUID LIMIT OF THE SAMPLE: BS 1377: Part 2: 1990 clause 4.4 (1 point)	46%	N/A	-	N/A
THE PLASTIC LIMIT OF THE SAMPLE: To BS1377 : Part2 : 1990 cl 5.3	21%	N/A	-	N/A
THE PLASTICITY INDEX OF THE SAMPLE:	25			
The Percentage Passing 425µm Test Sieve :	45.7			
Sample History :	The material was tested after washing through a 425µm test sieve			

REMARKS:

Specification details not applicable.

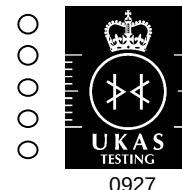
For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1
REPORT FORMAT: L/Rep S3S4/rev.6

Approved Signatory
17-Jan-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

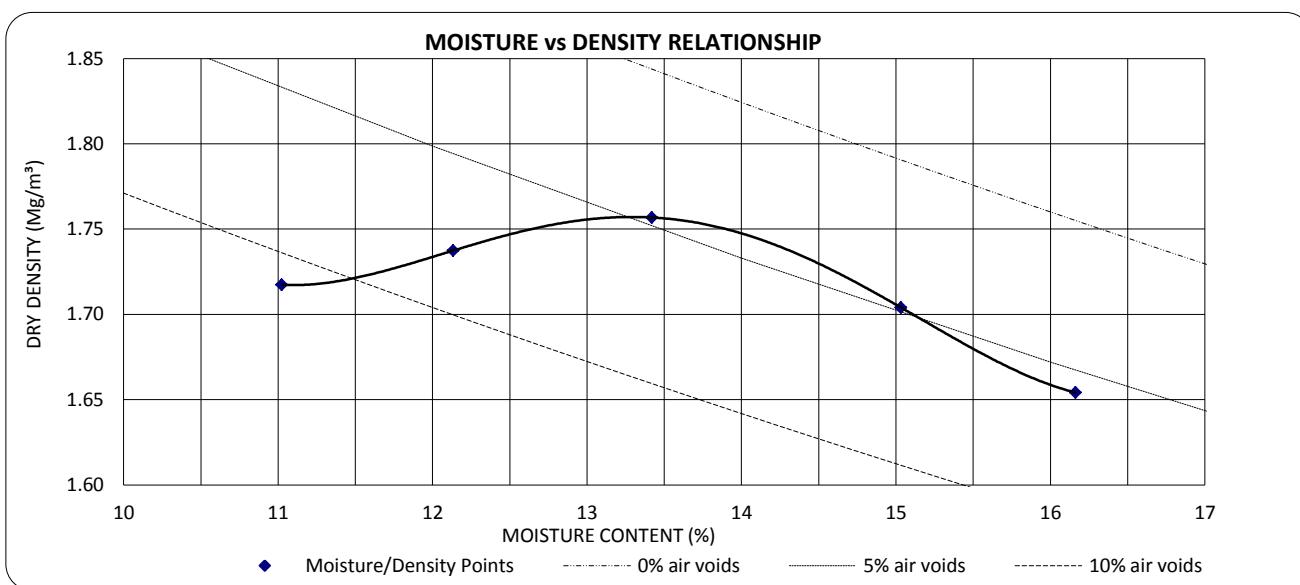


TEST REPORT : DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP
BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

REPORT No.:	F18-392872-178661-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	178661/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	42944	SITE:	Pump Lane, Southall
DATE SAMPLED:	11/01/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Granular Material with MG (Medium level of stabilisation)
DATE RECEIVED:	15/01/2018	LOCATION:	Lagoon Stockpile 1 Lagoon Stockpile 4 (mislabelled)
DATE TEST COMPLETED:	16/01/2018	ACCEPT STD:	Contract Specification
TESTED BY:	EU/JW	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.76 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	14 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	29 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	9.8 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.45 Mg/m ³



REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1
Report Format: L/Rep S12a rev.10

Approved Signatory
16-Jan-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

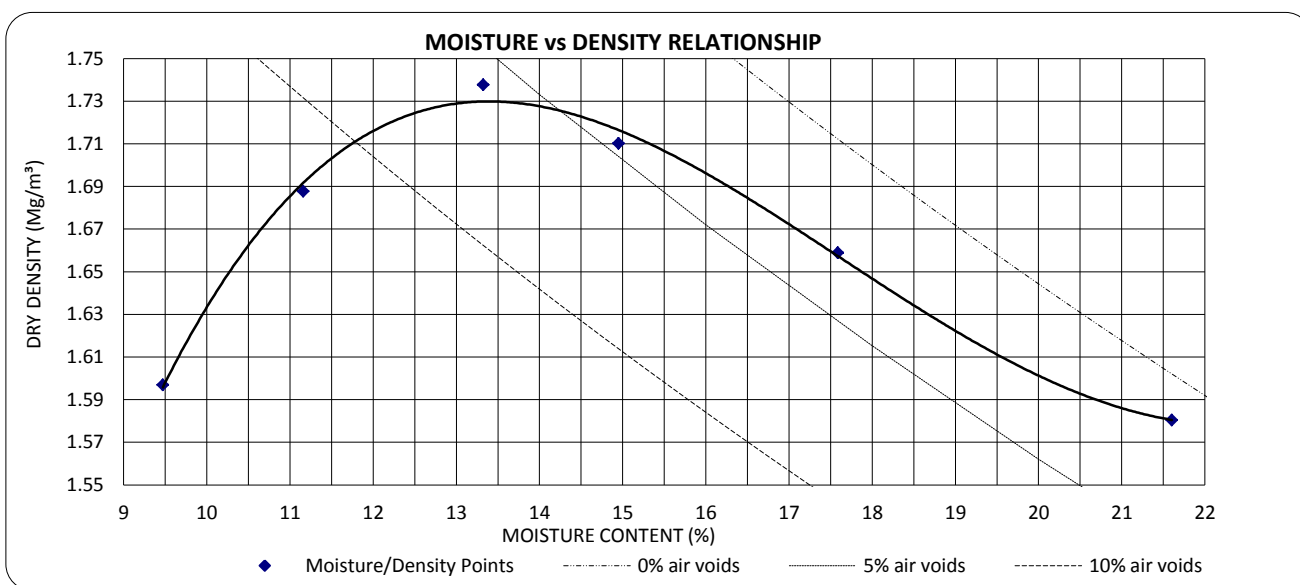


TEST REPORT : **DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP**
BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

REPORT No.:	F18-392872-178662-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	178662/1	ADDRESS:	Springfield House, Oatlands Drive, Weybridge
CLIENT REF:	42945	SITE:	Pump Lane, Southall
DATE SAMPLED:	11/01/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Granular Material with MG (Low level of stabilisation)
DATE RECEIVED:	15/01/2018	LOCATION:	Lagoon Stockpile 2 Lagoon Stockpile 4 (mislabelled)
DATE TEST COMPLETED:	16/01/2018	ACCEPT STD:	Contract Specification
TESTED BY:	JW	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.73 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	14 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	15 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	4.5 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.45 Mg/m ³



REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1
Report Format: L/Rep S12a rev.10

Approved Signatory
17-Jan-18

John Newbery - Laboratory Manager
Matt Oliver - Site Manager
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Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

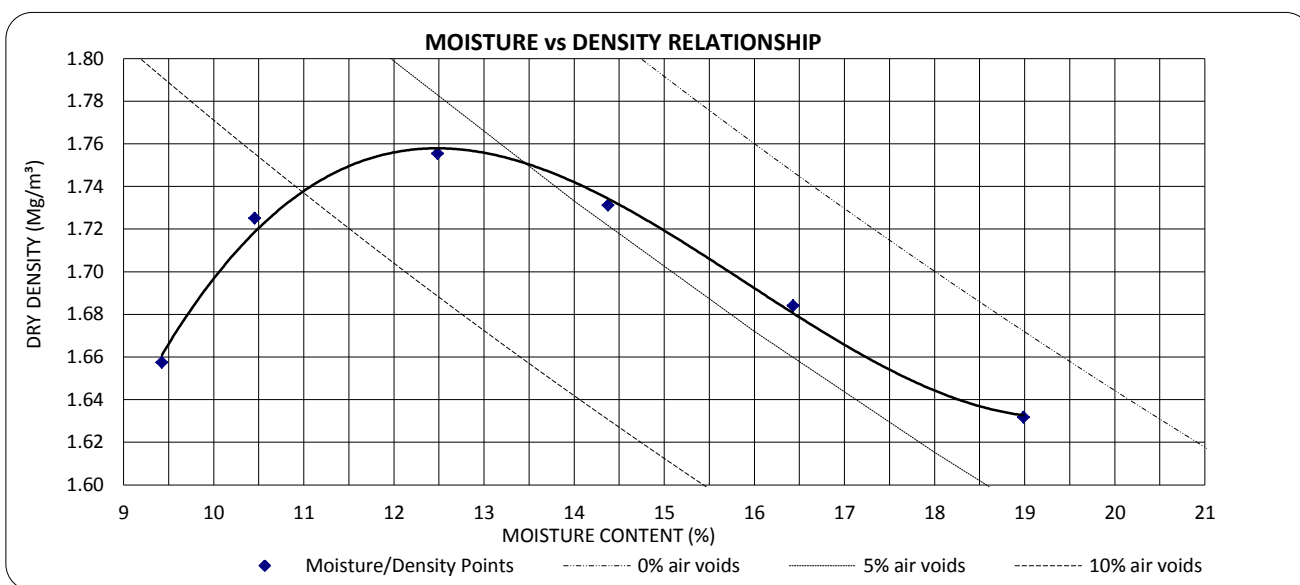


TEST REPORT : DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP
 BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

REPORT No.:	F18-392872-178660-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	178660/1	ADDRESS:	Springfield House, Oatlands Drive, Weybridge
CLIENT REF:	42943	SITE:	Pump Lane, Southall
DATE SAMPLED:	11/01/2018	SUPPLIER:	Details Not Supplied
SAMPLED BY:	Client	MATERIAL:	Granular Material with MG (Low level of stabilisation)
DATE RECEIVED:	15/01/2018	LOCATION:	Lagoon Stockpile 1 Lagoon Stockpile 4 (mislabelled)
DATE TEST COMPLETED:	16/01/2018	ACCEPT STD:	Contract Specification
TESTED BY:	EU/JW	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.76 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	13 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	29 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	9.8 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.45 Mg/m ³


REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

 Page 1 of 1
 Report Format: L/Rep S12a rev.10

 Approved Signatory
 16-Jan-18

 John Newbery - Laboratory Manager
 Matt Oliver - Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor


TEST REPORT:
DETERMINATION OF DRY DENSITY / MOISTURE / MCV RELATIONSHIP

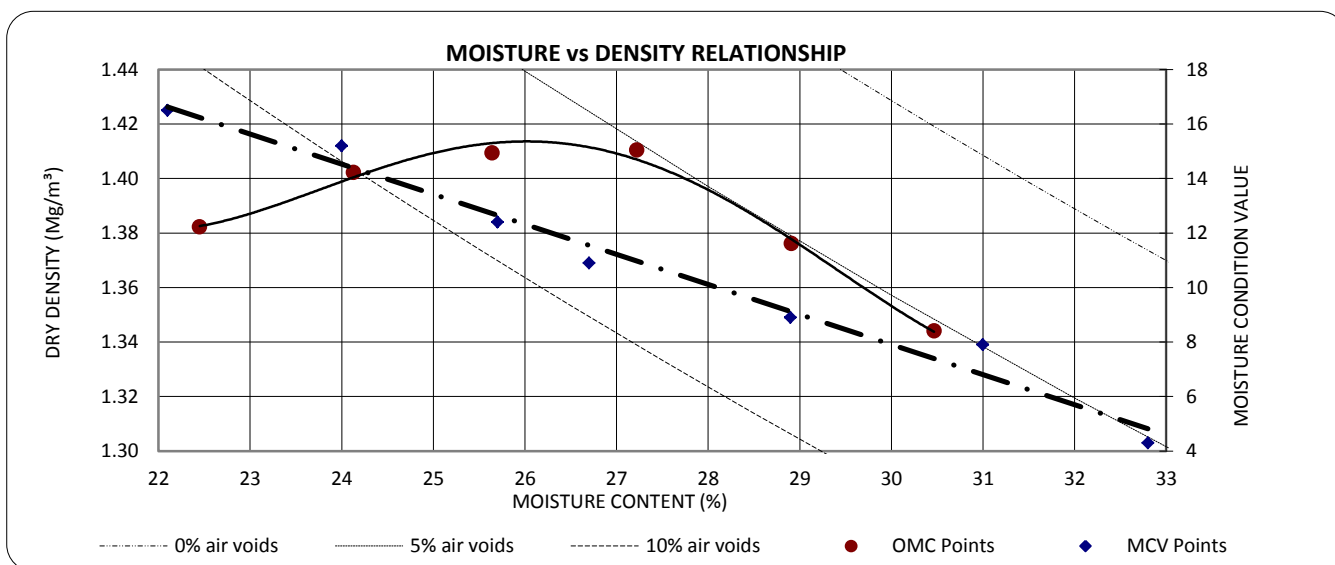
BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

BS 1377 Part 4 : 1990 Clause 5.5

REPORT No.:	F18-392872-179026-1a	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179026/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	LAG-SP4(46495)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Stockpile
SAMPLED BY:	Client	MATERIAL:	Brown Silty Clay with Occ. Gravel + 2%OPC
DATE RECEIVED:	13/02/2018	LOCATION:	LAG-SP4
DATE TEST COMPLETED:	14/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	JW/RB/MG	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.41 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	26 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	2.2 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	8.4 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.50 Mg/m ³


REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

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Report Format: L/Rep S12-11 rev.10

Approved Signatory

14-Feb-18

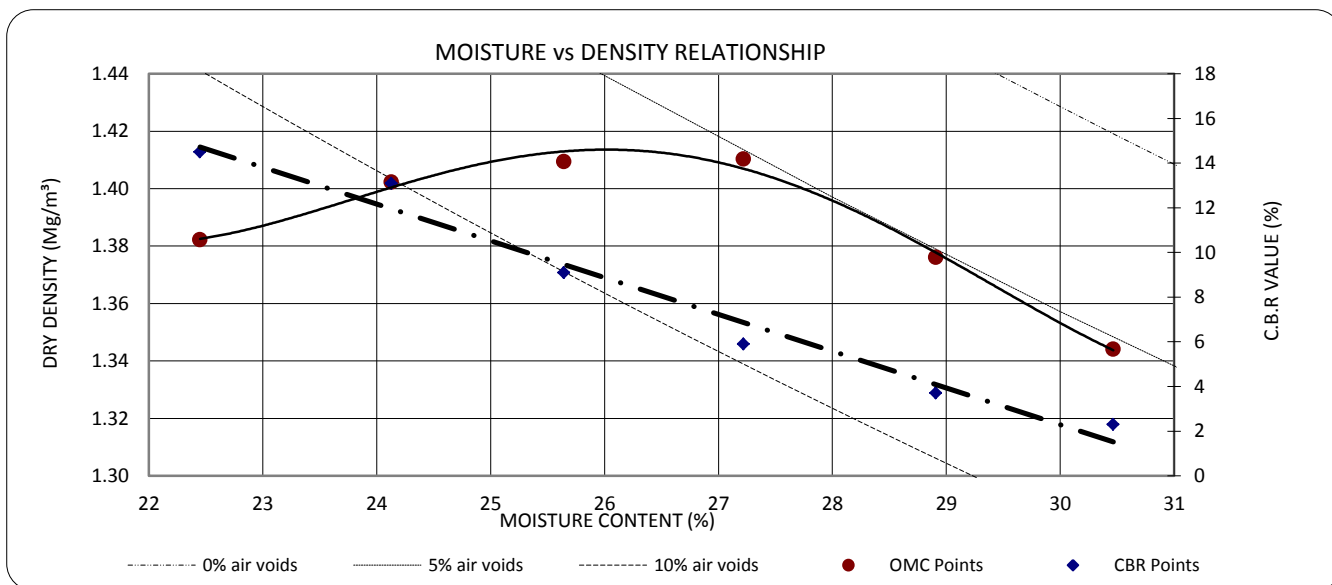
 John Newbery - Laboratory Manager
 Matt Oliver- Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor


TEST REPORT: DETERMINATION OF DRY DENSITY / MOISTURE / CBR RELATIONSHIP
 BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)
 BS 1377 Part 4 : 1990 Clause 7

REPORT No.:	F18-392872-179026-1	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179026/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	LAG-SP4(46495)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Stockpile
SAMPLED BY:	Client	MATERIAL:	Brown Silty Clay with Occ. Gravel + 2%OPC
DATE RECEIVED:	13/02/2018	LOCATION:	LAG-SP4
DATE TEST COMPLETED:	14/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	JW/RB/MG	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULT:

MAX DRY DENSITY	=	1.41 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	26 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	8.4 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	2.2 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.50 Mg/m ³



REMARKS: Average CBR Value Reported

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1

Report Format: L/Rep S12-10 rev.1

Approved Signatory

14-Feb-18

John Newbery - Laboratory Manager
 Matt Oliver- Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor



TEST REPORT:

DETERMINATION OF DRY DENSITY / MOISTURE / MCV RELATIONSHIP

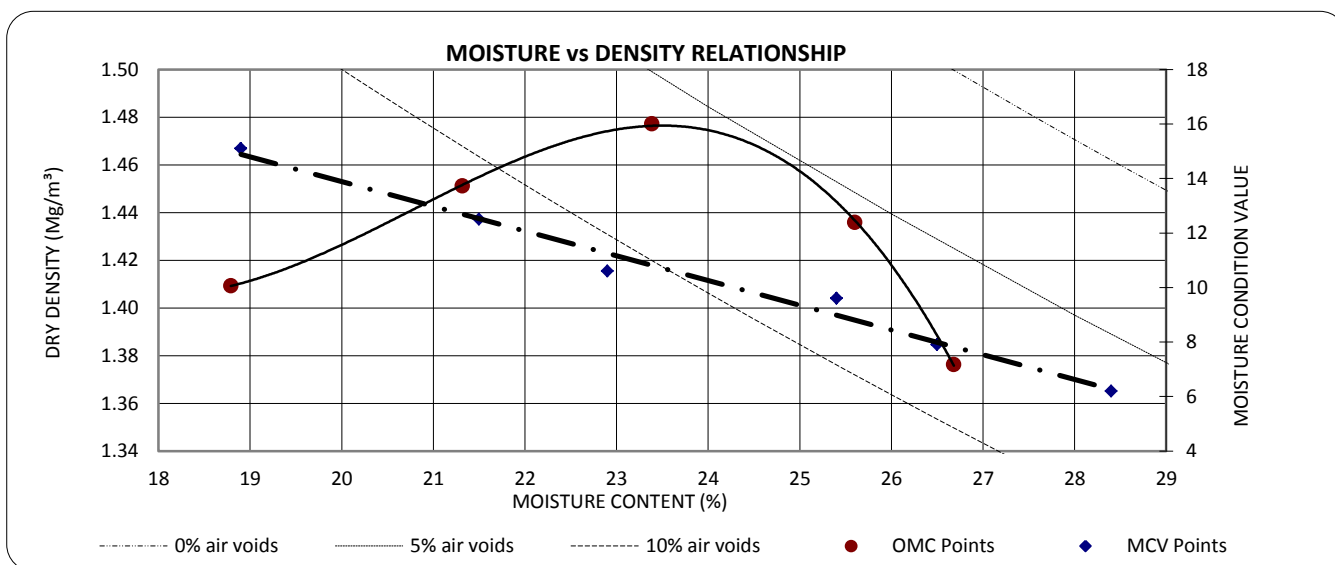
BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

BS 1377 Part 4 : 1990 Clause 5.5

REPORT No.:	F18-392872-179027-1a	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179027/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	LAG-SP4(46501)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Stockpile
SAMPLED BY:	Client	MATERIAL:	Brown Silty Clay with Occ. Gravel + 4%OPC
DATE RECEIVED:	13/02/2018	LOCATION:	LAG-SP4
DATE TEST COMPLETED:	14/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	JW/RB/MG	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.48 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	24 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	8.4 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	2.2 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.50 Mg/m ³



REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1

Report Format: L/Rep S12-11 rev.10

Approved Signatory

14-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor



TEST REPORT:
DETERMINATION OF DRY DENSITY / MOISTURE / MCV RELATIONSHIP

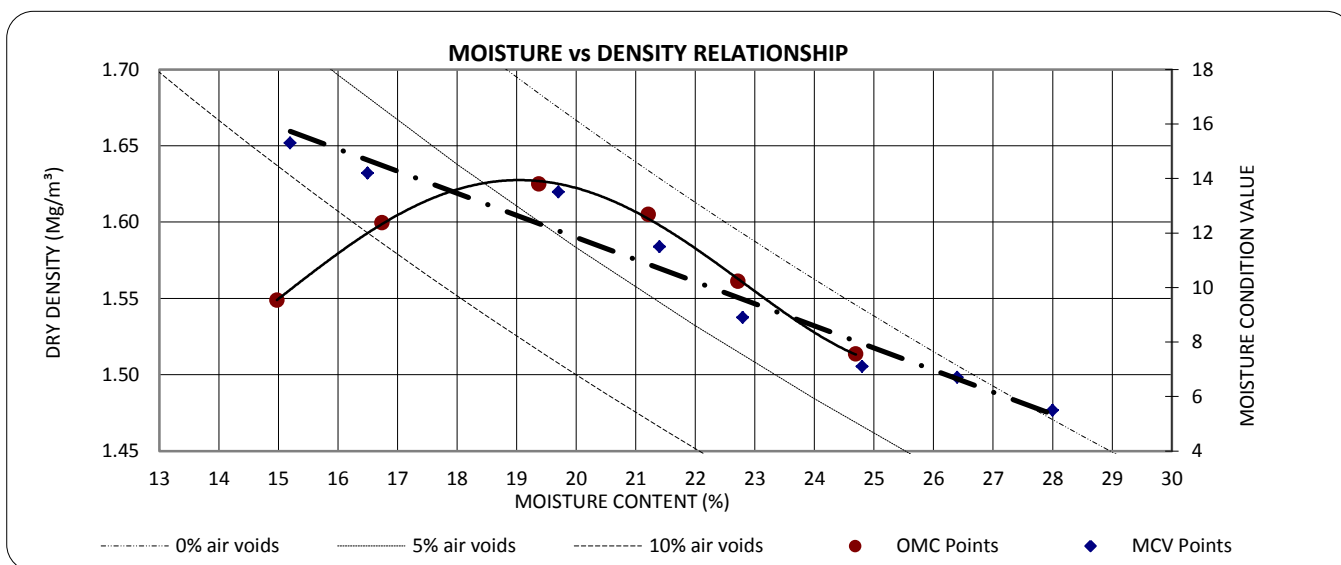
BS 1377: Part 4: 1990: clause 3.4 (2.5kg Rammer Method)

BS 1377 Part 4 : 1990 Clause 5.5

REPORT No.:	F18-392872-179030-1a	CLIENT:	Cognition Land & Water Ltd
SAMPLE No.:	179030/1	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	LAG-SP8 (46497)	SITE:	Pump Lane, Southall
DATE SAMPLED:	08/02/2018	SUPPLIER:	Stockpile
SAMPLED BY:	Client	MATERIAL:	Brown Silty Clay with Occ. Gravel + 2%OPC
DATE RECEIVED:	13/02/2018	LOCATION:	LAG-SP8 Lagoon Stockpile 4 (misabeled)
DATE TEST COMPLETED:	15/02/2018	ACCEPT STD:	Contract Specification
TESTED BY:	JW/MG/RB	PREPARATION METHOD:	CBR Mould (BS1377:Pt1:1990 Cl7.6.3) : Material chopped to <20mm, for cohesive soil.
TYPE OF SAMPLE:	Disturbed		
ORIENTATION OF TEST SPECIMEN		COMPACTION SAMPLE:	Separate Samples
WITHIN ORIGINAL SPECIMEN:	N/A	VARIATIONS:	None

RESULTS:

MAX DRY DENSITY	=	1.62 Mg/m ³
OPTIMUM MOISTURE CONTENT	=	20 %
AMOUNT (By Dry Mass) RETAINED ON 20mm TEST SIEVE	=	7.0 %
AMOUNT (By Dry Mass) RETAINED ON 37.5mm TEST SIEVE	=	6.2 %
ASSUMED PARTICLE DENSITY USED TO PLOT AIR VOID LINES	=	2.50 Mg/m ³


REMARKS:

For and on behalf of CET

Remaining sample will be retained for a minimum of 28 days from date of report.

Page 1 of 1

Report Format: L/Rep S12-11 rev.10

Approved Signatory

16-Feb-18

 John Newbery - Laboratory Manager
 Matt Oliver- Site Manager
 Adrian McGilvery - Senior Technician
 Chris Davidson - Laboratory Supervisor
 Phil Mayhew - Operations Supervisor


0927

TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 31124.1.1.1

SAMPLE NUMBER: 42936

CLIENT: Cognition Land & Water Ltd

CLIENT REF: LGSP1

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 11/01/2018

SITE: Pump Lane, Southall

SAMPLED BY: client

SUPPLIER: Unknown

DATE RECEIVED: 12/01/2018

MATERIAL: Granular Material With MG 7F

DATE COMPLETED: 17/01/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, EU

FILL LOCATION: Lagoon Stockpile 1

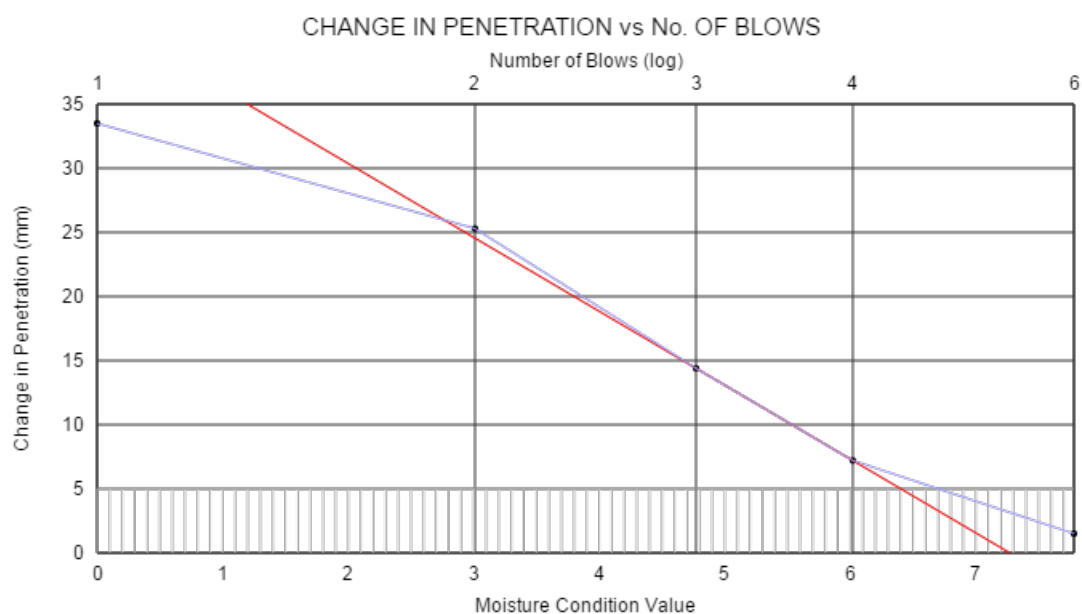
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	6.4
NATURAL MOISTURE CONTENT (%)	28.9
PERCENTAGE RETAINED 20mm (%)	8.2
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
Hsv:= 28

For and on behalf of CET
Dan Gay - Supervisor



Approved Signatory
17-Jan-18



0927

Report Format: L/Rep S10a rev.3

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Registered in England No. 02527130

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Page 1 of 1

TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.1.1.1

SAMPLE NUMBER: 46574

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay, occ gravel

DATE COMPLETED: 19/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

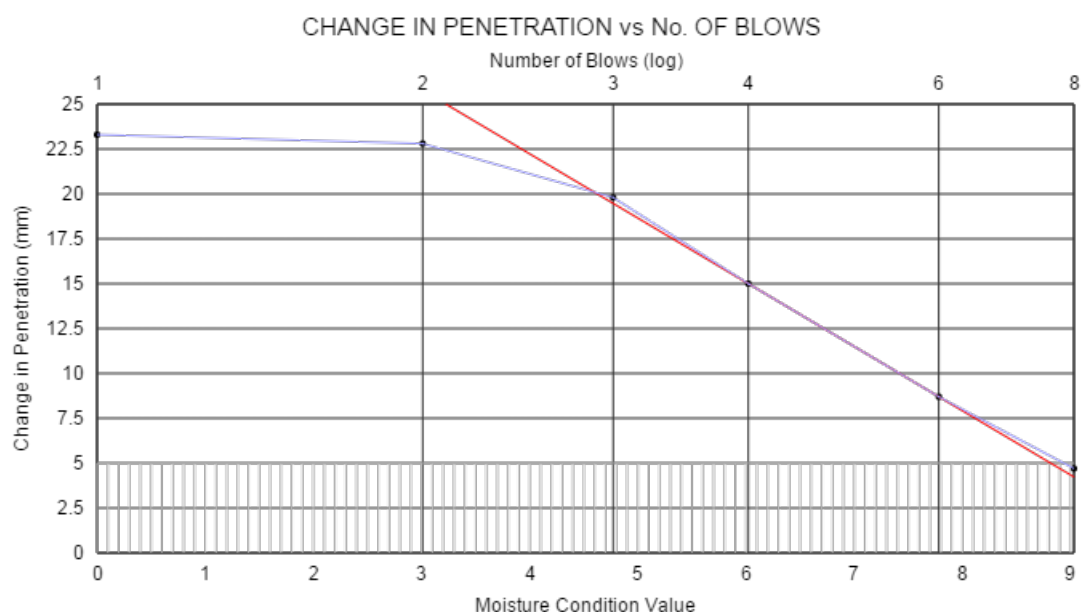
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.8
NATURAL MOISTURE CONTENT (%)	34.2
PERCENTAGE RETAINED 20mm (%)	17.8
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 60

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.3.1.1

SAMPLE NUMBER: 46575

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

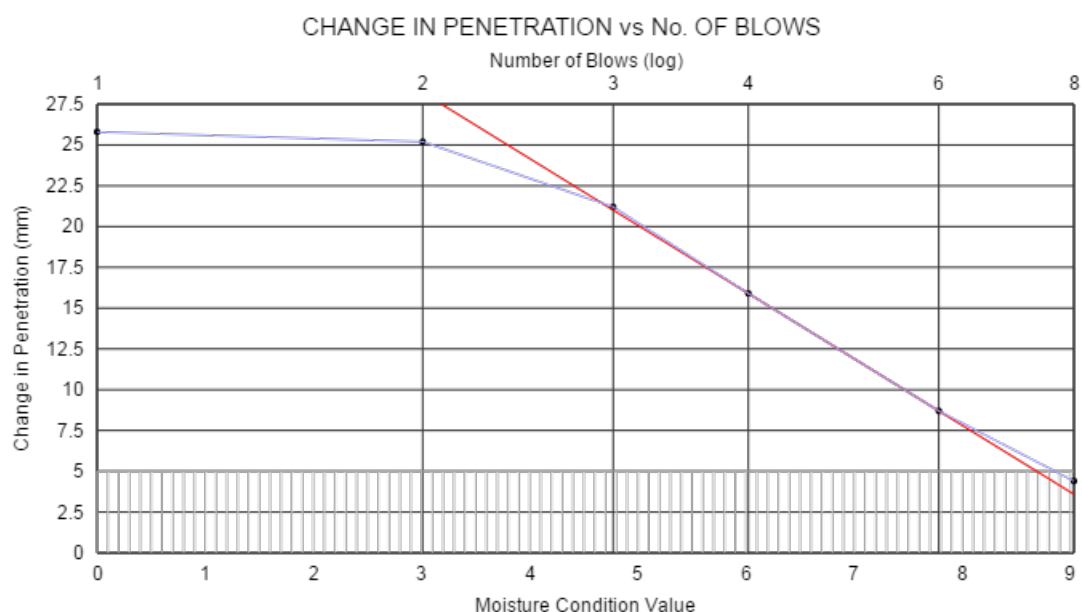
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.7
NATURAL MOISTURE CONTENT (%)	35.4
PERCENTAGE RETAINED 20mm (%)	16.6
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV: 50

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
19-Feb-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.5.1.1

SAMPLE NUMBER: 46576

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 20/02/2018

CUT LOCATION: Unknown

TESTED BY: JN, DG, DI, JW, TB

FILL LOCATION: SP4-7

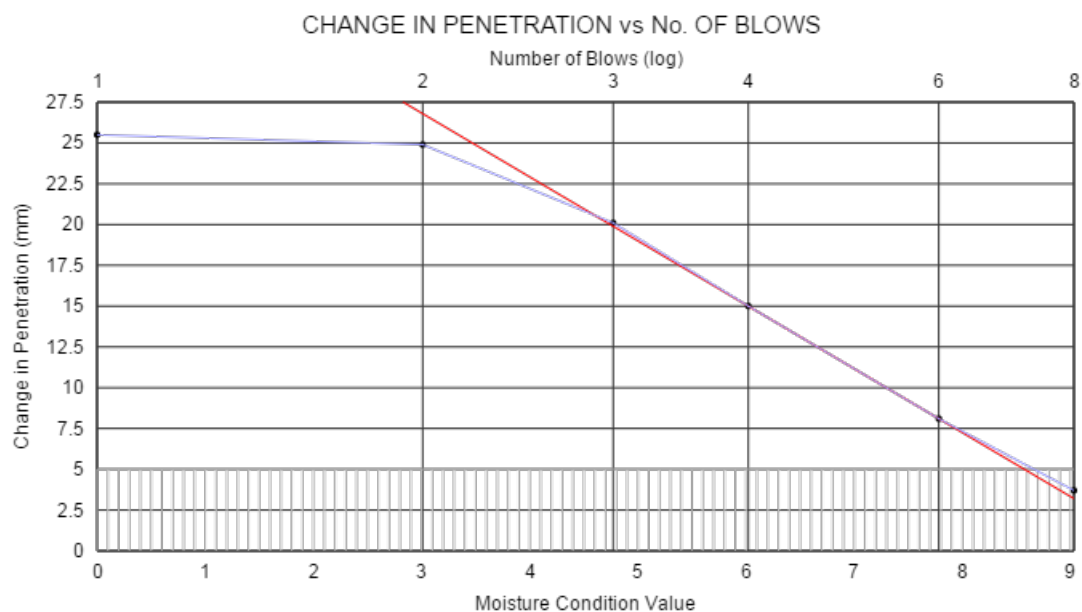
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.6
NATURAL MOISTURE CONTENT (%)	32.4
PERCENTAGE RETAINED 20mm (%)	15.7
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV: 70

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
20-Feb-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.7.1.1

SAMPLE NUMBER: 46577

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 20/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

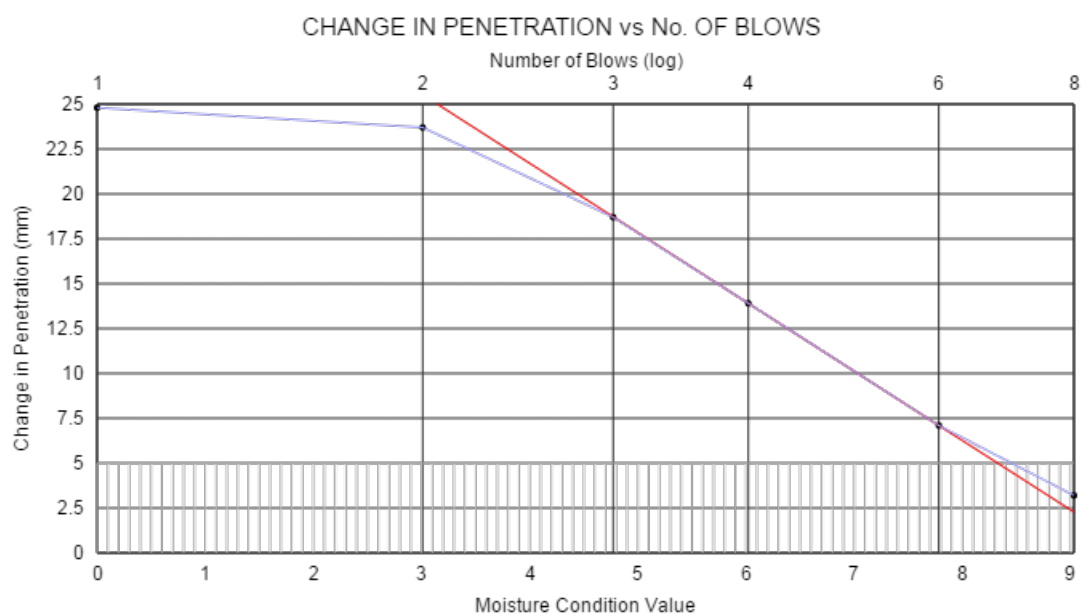
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.3
NATURAL MOISTURE CONTENT (%)	29.3
PERCENTAGE RETAINED 20mm (%)	10.6
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 70

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 20-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.11.1.1

SAMPLE NUMBER: 46579

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 20/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

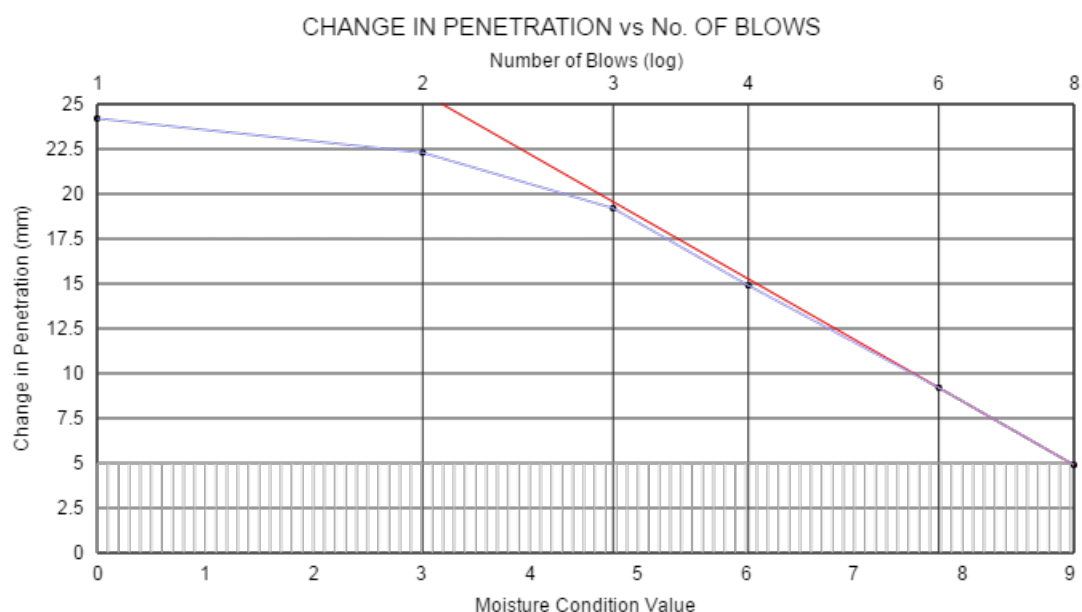
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	9.0
NATURAL MOISTURE CONTENT (%)	27.9
PERCENTAGE RETAINED 20mm (%)	13.6
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 72

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 20-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.13.1.1

SAMPLE NUMBER: 46580

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

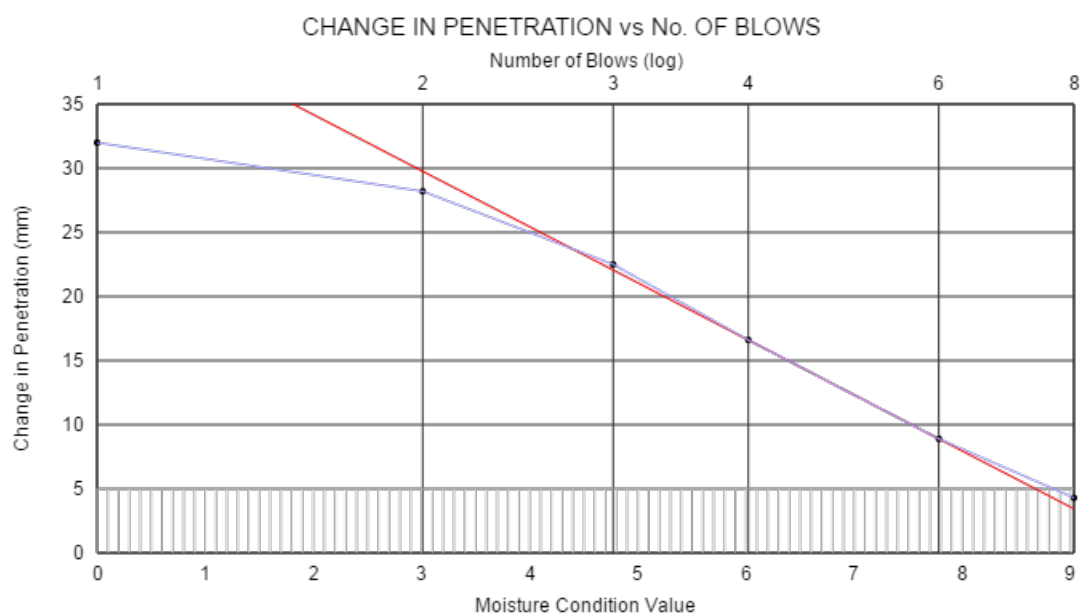
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.7
NATURAL MOISTURE CONTENT (%)	32.7
PERCENTAGE RETAINED 20mm (%)	24.4
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV: 52

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
19-Feb-18



0927

Report Format: L/Rep S10a rev.3

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.15.1.1

SAMPLE NUMBER: 46581

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 19/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

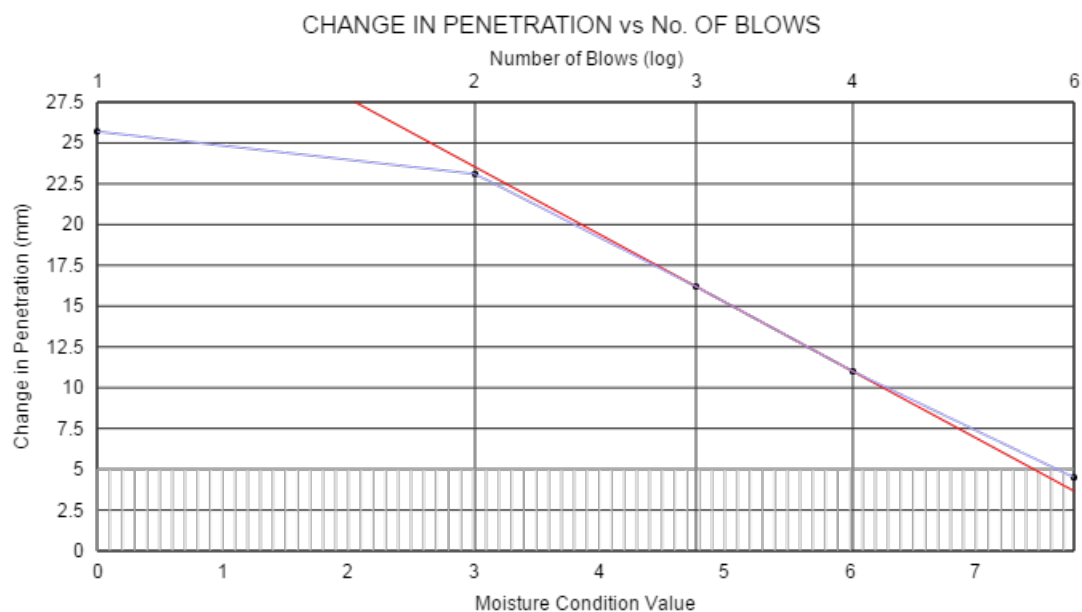
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	7.5
NATURAL MOISTURE CONTENT (%)	30.5
PERCENTAGE RETAINED 20mm (%)	13.8
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 40

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 19-Feb-18


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 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.17.1.1

SAMPLE NUMBER: 46582

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 20/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, TB

FILL LOCATION: SP4-7

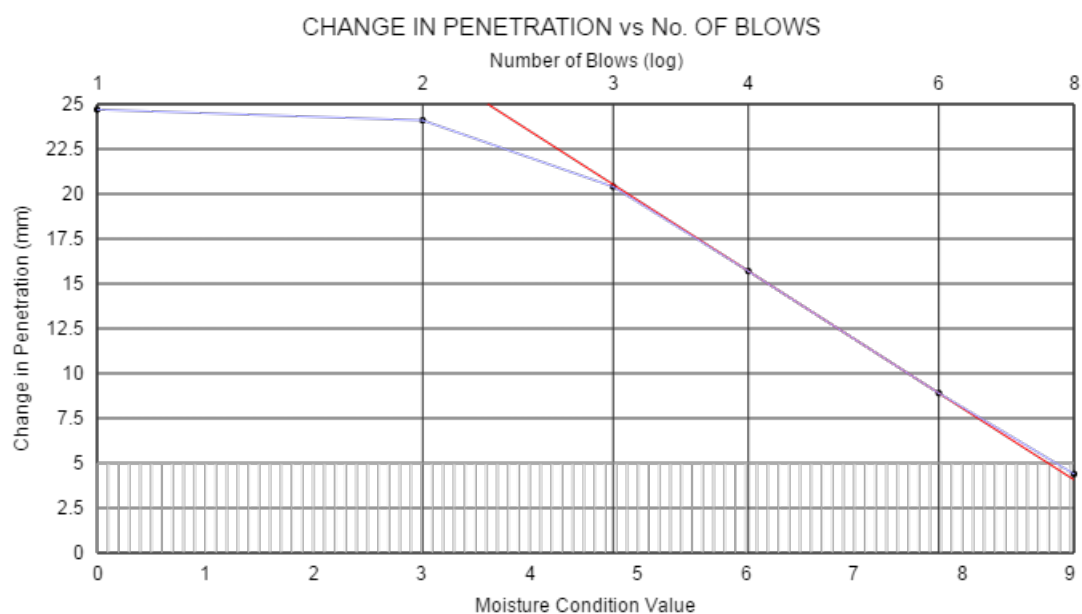
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	8.8
NATURAL MOISTURE CONTENT (%)	28.6
PERCENTAGE RETAINED 20mm (%)	53.8
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 60

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 20-Feb-18


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 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:

DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33207.19.1.1

SAMPLE NUMBER: 46583

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Otlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 08/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 14/02/2018

MATERIAL: Dark brown silty clay occ gravel

DATE COMPLETED: 20/02/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW

FILL LOCATION: SP4-7

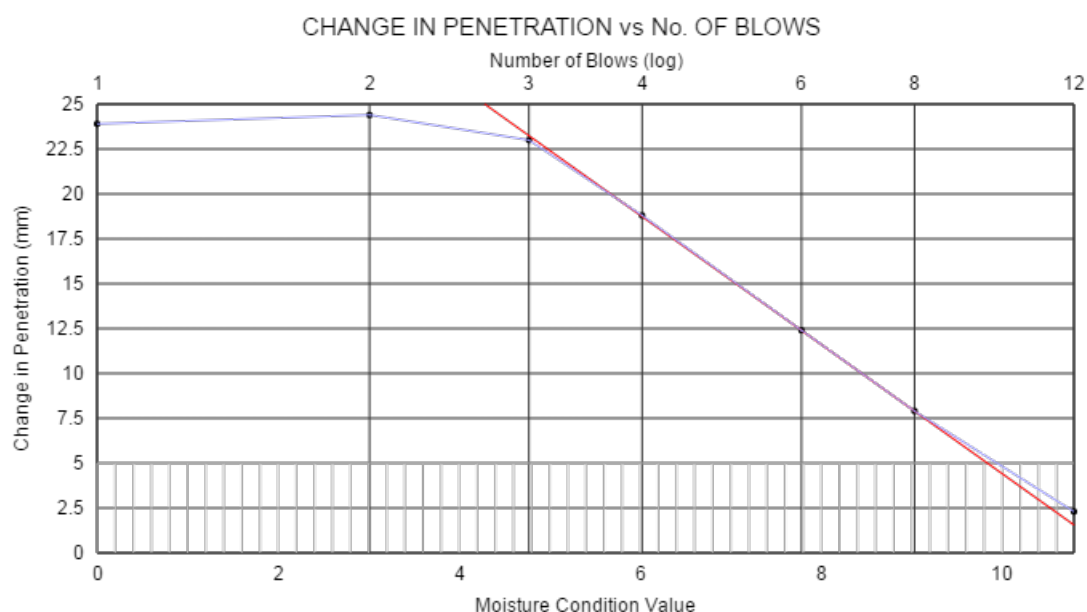
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	9.8
NATURAL MOISTURE CONTENT (%)	27.4
PERCENTAGE RETAINED 20mm (%)	17.0
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)



Remarks:
HSV-70

For and on behalf of CETi
Dan Gay - Supervisor

D S

Approved Signatory
20-Feb-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.2.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

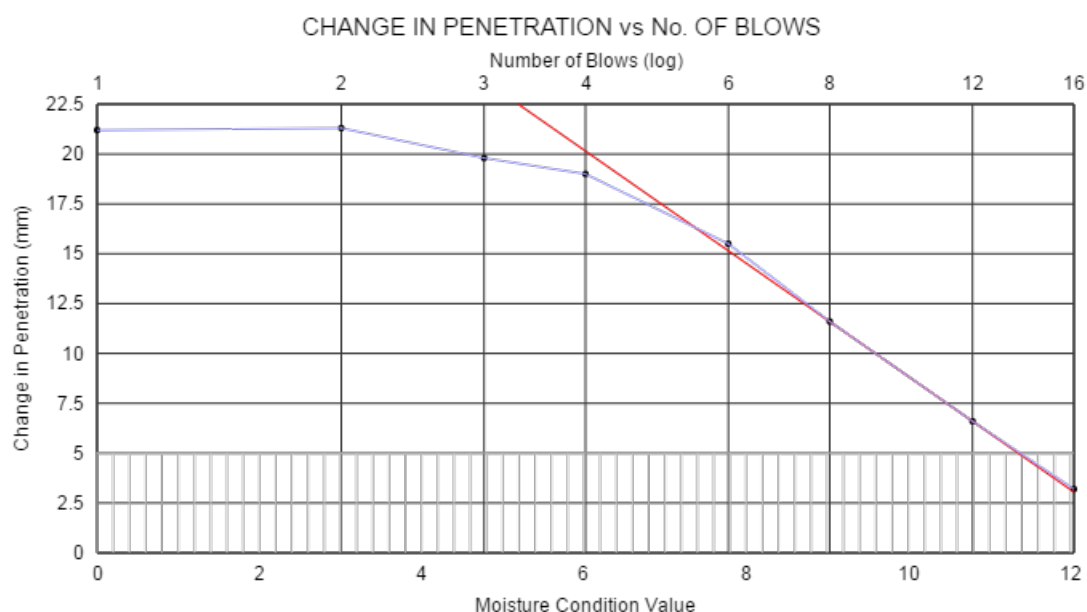
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	11.4
NATURAL MOISTURE CONTENT (%)	24.9
PERCENTAGE RETAINED 20mm (%)	9.1
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 100

 For and on behalf of CETI
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.6.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

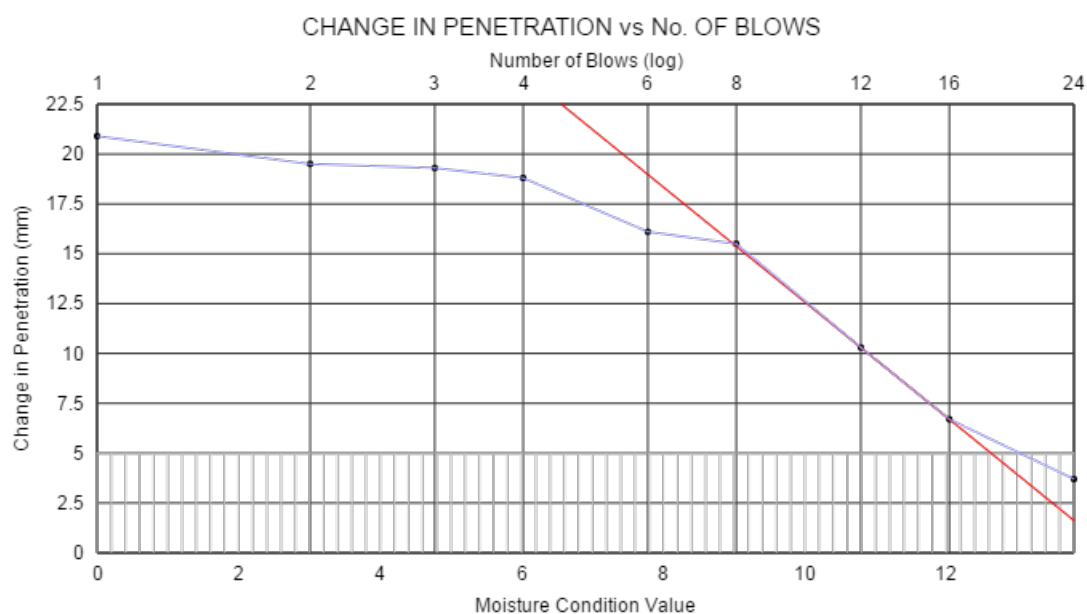
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	12.6
NATURAL MOISTURE CONTENT (%)	26.5
PERCENTAGE RETAINED 20mm (%)	19.1
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
HSV: 140+

 For and on behalf of CETi
Dan Gay - Supervisor



 Approved Signatory
22-Feb-18


0927

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 Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

 0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.10.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

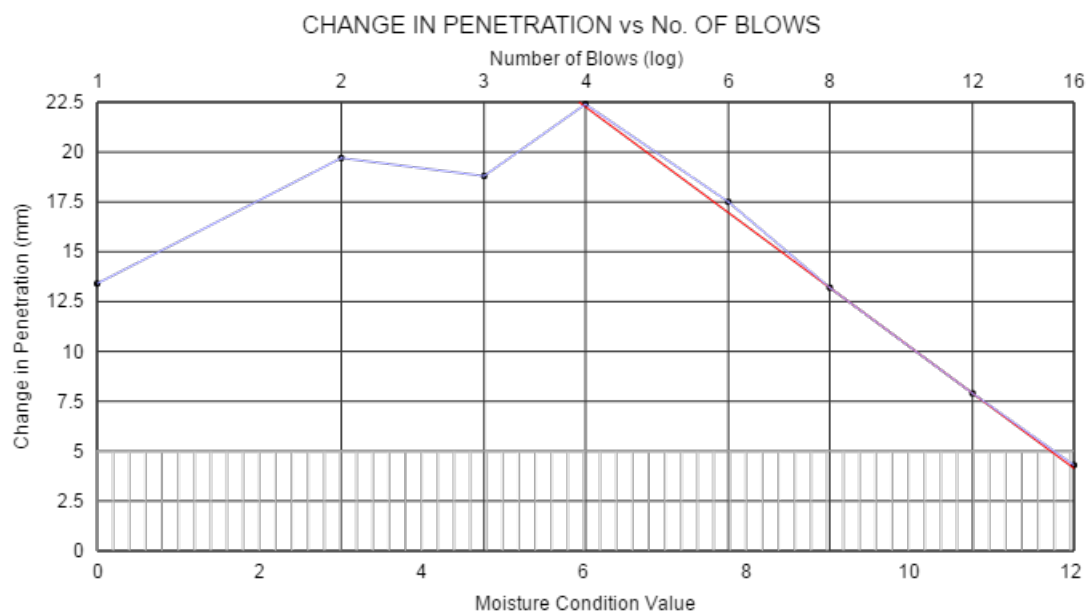
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	11.8
NATURAL MOISTURE CONTENT (%)	27.0
PERCENTAGE RETAINED 20mm (%)	7.1
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 102

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.13.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

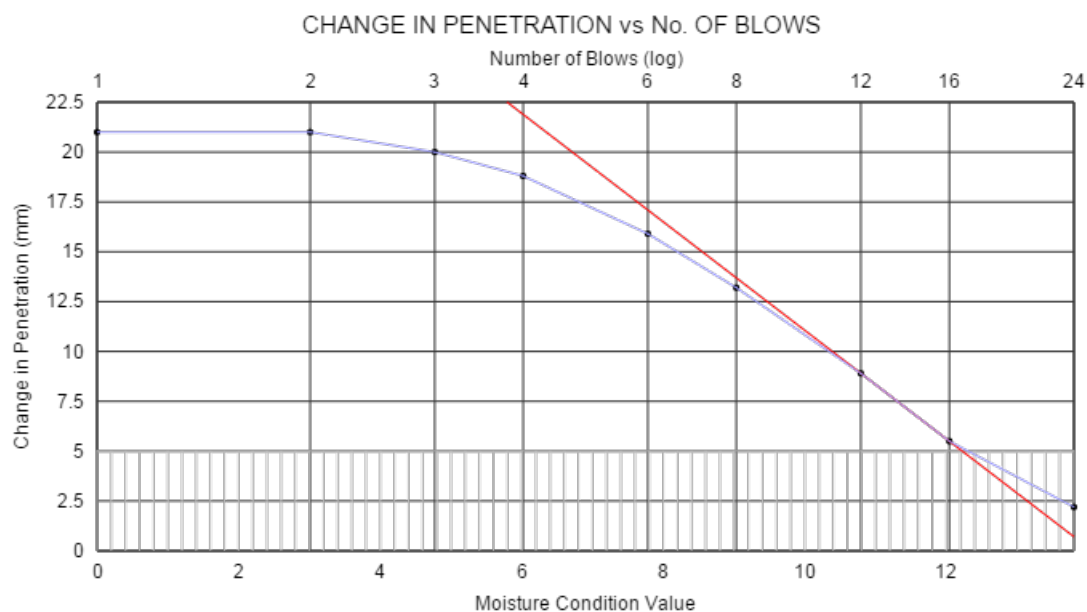
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	12.2
NATURAL MOISTURE CONTENT (%)	28.6
PERCENTAGE RETAINED 20mm (%)	14.4
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 140+

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.14.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

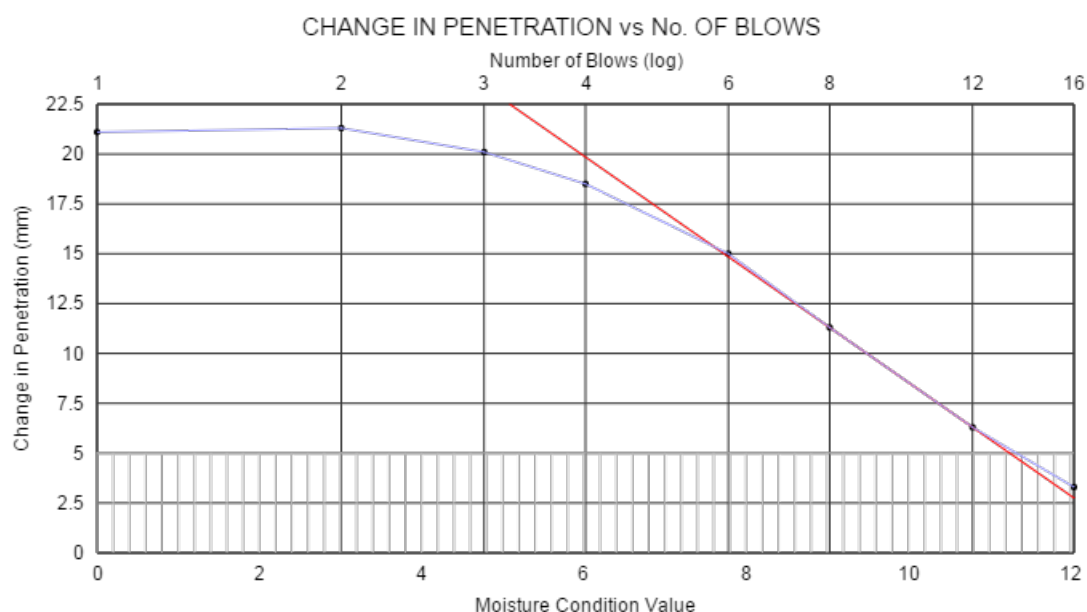
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	11.2
NATURAL MOISTURE CONTENT (%)	28.2
PERCENTAGE RETAINED 20mm (%)	8.5
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 90

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33402.15.1.1

SAMPLE NUMBER: 47033

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 16/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 16/02/2018

MATERIAL: Dark Brown Stoney Clay

DATE COMPLETED: 22/02/2018

CUT LOCATION: Unknown

TESTED BY: MG, DG, RB, TB

FILL LOCATION: SP4-7

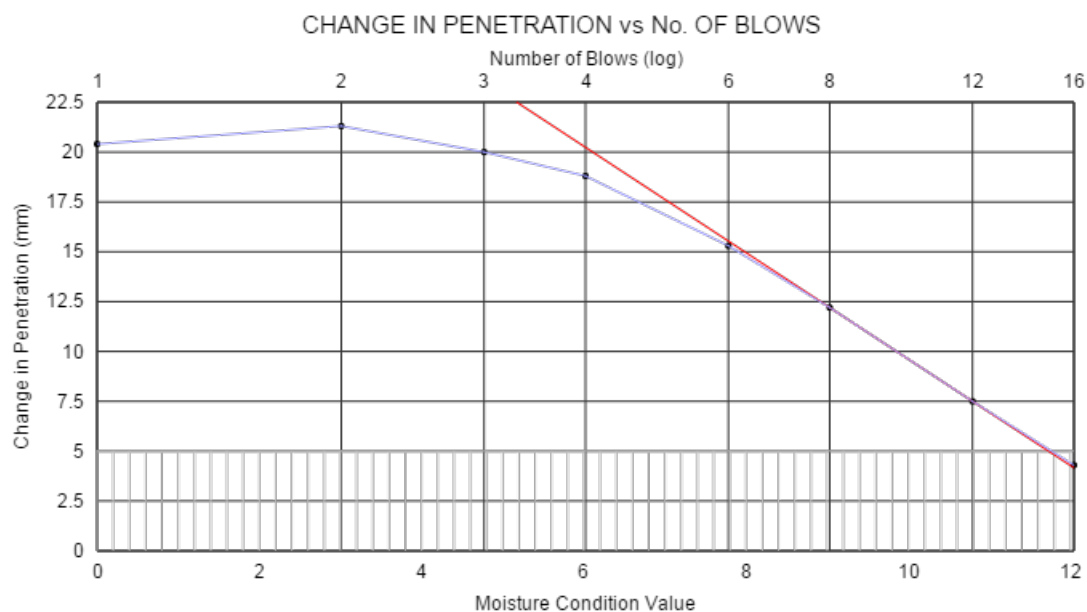
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	11.7
NATURAL MOISTURE CONTENT (%)	25.7
PERCENTAGE RETAINED 20mm (%)	3.7
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 HSV: 134

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 22-Feb-18


0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33942.2.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 05/03/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, AP

FILL LOCATION: SP4-7

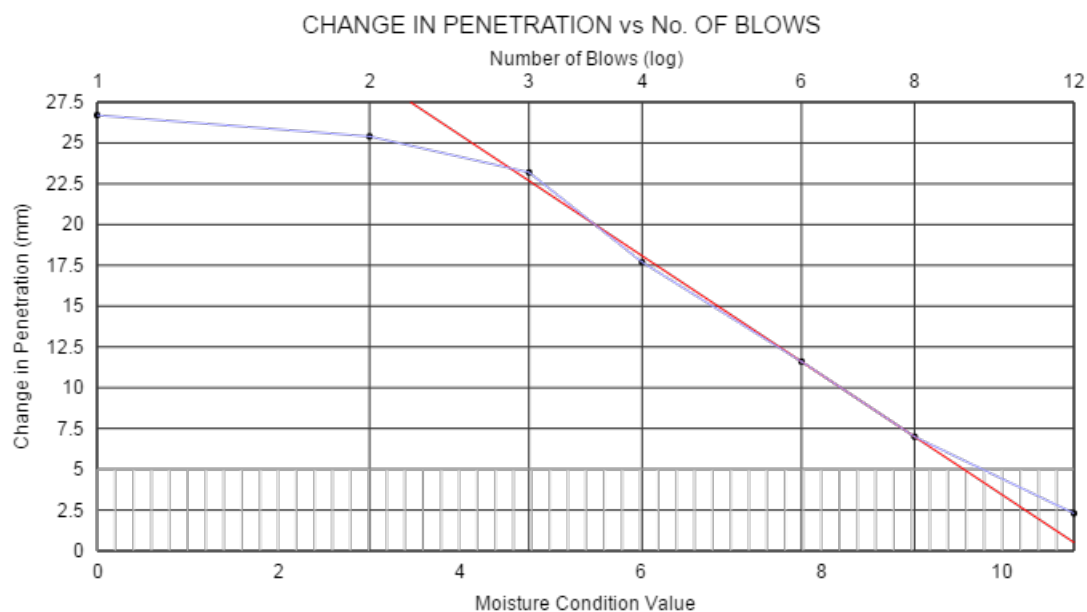
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	9.6
NATURAL MOISTURE CONTENT (%)	24.9
PERCENTAGE RETAINED 20mm (%)	11.2
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 H.S.V - 96 KPa

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 05-Mar-18


0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT:
DETERMINATION OF MOISTURE CONDITION VALUE (M.C.V.)

BS 1377 Part 4 : 1990 Clause 5.4 - Natural Moisture Content (Lab Test)

REPORT NUMBER: 392872 / 33942.4.1.1

SAMPLE NUMBER: 47946

CLIENT: Cognition Land & Water Ltd

CLIENT REF: SP4-7

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED: 18/02/2018

SITE: Pump Lane, Southall

SAMPLED BY: Client

SUPPLIER: Unknown

DATE RECEIVED: 26/02/2018

MATERIAL: Soil

DATE COMPLETED: 05/03/2018

CUT LOCATION: Unknown

TESTED BY: DG, DI, JW, AP

FILL LOCATION: SP4-7

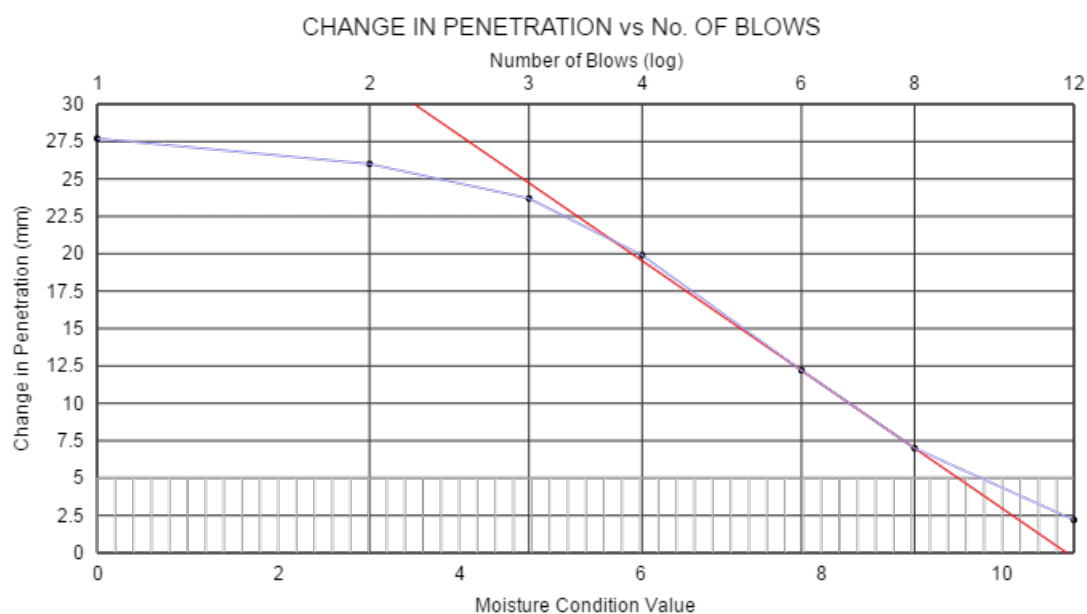
TYPE OF SAMPLE: Disturbed

CERTIFICATE OF SAMPLING: No

VARIATIONS FROM STANDARD: None

RESULTS:

MOISTURE CONDITION VALUE	9.5
NATURAL MOISTURE CONTENT (%)	23.4
PERCENTAGE RETAINED 20mm (%)	13.1
INTERPRETATION OF CURVE	Steepest straight line
PREPARATION METHOD	BS 1377: Part 4: 1990 clause 5.4 (Natural and sieved through 20mm test sieve)


 Remarks:
 H.S.V - 80

 For and on behalf of CETi
 Dan Gay - Supervisor



 Approved Signatory
 05-Mar-18


0927

Report Format: L/Rep S10a rev.3

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:
DETERMINATION OF PARTICLE DENSITY

BS 1377:Part 2:1990 Gas Jar Method

REPORT NUMBER:

392872 / 35436.7.1.2

SAMPLE NUMBER:

See Below

CLIENT:

Cognition Land & Water Ltd

CLIENT REF:

See Below

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

DATE SAMPLED:

22/03/2018

SITE:

Pump Lane, Southall

SAMPLED BY:

Dan Lewis

SUPPLIER:

Unknown

DATE RECEIVED:

23/03/2018

MATERIAL:

Clay Clay

DATE TESTED:

28/03/2018

LOCATION:

Rear Stockpiles

TESTED BY:

CD, MG, RB

ACCEPT. STD:

Contract Specification

TYPE OF SAMPLE:

Disturbed

PREPARATION METHOD:

BS1377:Part1:1990 clauses 7.3 and 7.4.2

 ORIENTATION OF TEST SPECIMEN
 WITHIN ORIGINAL SAMPLE:

N/A

VARIATIONS:

None

RESULT

SAMPLE NO	CLIENT SAMPLE REF	MATERIAL	PARTICLE DENSITY Mg.m ³
50778	SP4	Clay Clay	2.48

Remarks:

Amended report. This test report supersedes test report version 1

For and on behalf of CETi

Chris Davidson - Laboratory Section Manager



Approved Signatory

04-Apr-18



0927

Report Format: L/Rep S7A / rev.2

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 2

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Chris Davidson
CET UK Ltd
Northdown House
Ashford Road
Harrietsham
Maidstone
Kent
ME17 1QW

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 18-71555

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Sample Receipt Date: 02/03/2018

Sample Scheduled Date: 02/03/2018

Report Issue Number: 1

Reporting Date: 08/03/2018

Authorised by:

Russell Jarvis
Associate Director of Client Services

Authorised by:

Dave Ashworth
Deputy Quality Manager

QTS Environmental is the trading name of DETS Ltd, company registration number 03705645



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-71555	Date Sampled	24/02/18	24/02/18	24/02/18	24/02/18	24/02/18
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pump Lane, Southall	TP / BH No	48208 (34119.5.1.1)	48208 (34119.9.1.1)	48208 (34119.13.1.1)	48209 (34119.26.1.1)	48209 (34119.30.1.1)
Project / Job Ref: 392872	Additional Refs	FCA	FCA	FCA	SP17	SP17
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 08/03/2018	QTSE Sample No	319622	319623	319624	319625	319626

General Inorganics	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.4	8.2	8.2	8.3	8.2
Organic Matter	%	< 0.1	MCERTS	2.4	1.6	2.2	2.8	0.8
W/S Sulphur (as S)	%	0.001	NONE	0.034	0.015	0.016	0.070	0.013
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.51	0.22	0.24	1.05	0.20
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.06	0.03	0.03	0.09	0.05
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.17	0.08	0.10	0.27	0.16
Total Sulphur (as S)	%	< 0.01	NONE	0.09	0.04	0.06	0.13	0.09
Latent Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.26	0.13	0.17	0.38	0.27
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.09	0.05	0.07	0.11	0.10

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-71555	Date Sampled	24/02/18	24/02/18	24/02/18	24/02/18	
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Pump Lane, Southall	TP / BH No	48209 (34119.34.1.1)	48210 (34119.47.1.1)	48210 (34119.51.1.1)	48210 (34119.55.1.1)	
Project / Job Ref: 392872	Additional Refs	SP17	Zone 7	Zone 7	Zone 7	
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	
Reporting Date: 08/03/2018	QTSE Sample No	319627	319628	319629	319630	

General Inorganics	Unit	RL	Accreditation				
pH	pH Units	N/a	MCERTS	8.4	9.5	9.5	9.6
Organic Matter	%	< 0.1	MCERTS	0.9	0.3	0.8	0.5
W/S Sulphur (as S)	%	0.001	NONE	0.025	0.028	0.051	0.025
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.38	0.43	0.77	0.37
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.03	0.08	0.10	0.13
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.10	0.24	0.31	0.38
Total Sulphur (as S)	%	< 0.01	NONE	0.04	0.12	0.15	0.22
Latent Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.13	0.36	0.44	0.67
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.03	0.11	0.14	0.29

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 18-71555

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Reporting Date: 08/03/2018

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
319622	48208 (34119.5.1.1)	FCA	None Supplied	7.9	Black sandy clay with stones
319623	48208 (34119.9.1.1)	FCA	None Supplied	7.1	Brown sandy clay with stones
319624	48208 (34119.13.1.1)	FCA	None Supplied	5.9	Black sandy clay with stones
319625	48209 (34119.26.1.1)	SP17	None Supplied	13	Brown sandy clay
319626	48209 (34119.30.1.1)	SP17	None Supplied	6.4	Brown sandy clay with brick
319627	48209 (34119.34.1.1)	SP17	None Supplied	7	Brown sandy clay with stones
319628	48210 (34119.47.1.1)	Zone 7	None Supplied	8.1	Brown sandy clay with stones and brick
319629	48210 (34119.51.1.1)	Zone 7	None Supplied	9.5	Brown sandy clay with stones and brick
319630	48210 (34119.55.1.1)	Zone 7	None Supplied	5	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/s}

Unsuitable Sample ^{u/s}



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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 18-71555

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Reporting Date: 08/03/2018

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Chris Davidson
CET UK Ltd
Northdown House
Ashford Road
Harrietsham
Maidstone
Kent
ME17 1QW

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 18-71555

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Sample Receipt Date: 02/03/2018

Sample Scheduled Date: 02/03/2018

Report Issue Number: 1

Reporting Date: 08/03/2018

Authorised by:

Russell Jarvis
Associate Director of Client Services

Authorised by:

Dave Ashworth
Deputy Quality Manager

QTS Environmental is the trading name of DETS Ltd, company registration number 03705645



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-71555	Date Sampled	24/02/18	24/02/18	24/02/18	24/02/18	24/02/18
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pump Lane, Southall	TP / BH No	48208 (34119.5.1.1)	48208 (34119.9.1.1)	48208 (34119.13.1.1)	48209 (34119.26.1.1)	48209 (34119.30.1.1)
Project / Job Ref: 392872	Additional Refs	FCA	FCA	FCA	SP17	SP17
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 08/03/2018	QTSE Sample No	319622	319623	319624	319625	319626

General Inorganics	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.4	8.2	8.2	8.3	8.2
Organic Matter	%	< 0.1	MCERTS	2.4	1.6	2.2	2.8	0.8
W/S Sulphur (as S)	%	0.001	NONE	0.034	0.015	0.016	0.070	0.013
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.51	0.22	0.24	1.05	0.20
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.06	0.03	0.03	0.09	0.05
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.17	0.08	0.10	0.27	0.16
Total Sulphur (as S)	%	< 0.01	NONE	0.09	0.04	0.06	0.13	0.09
Latent Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.26	0.13	0.17	0.38	0.27
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.09	0.05	0.07	0.11	0.10

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-71555	Date Sampled	24/02/18	24/02/18	24/02/18	24/02/18	
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Pump Lane, Southall	TP / BH No	48209 (34119.34.1.1)	48210 (34119.47.1.1)	48210 (34119.51.1.1)	48210 (34119.55.1.1)	
Project / Job Ref: 392872	Additional Refs	SP17	Zone 7	Zone 7	Zone 7	
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	
Reporting Date: 08/03/2018	QTSE Sample No	319627	319628	319629	319630	

General Inorganics	Unit	RL	Accreditation				
pH	pH Units	N/a	MCERTS	8.4	9.5	9.5	9.6
Organic Matter	%	< 0.1	MCERTS	0.9	0.3	0.8	0.5
W/S Sulphur (as S)	%	0.001	NONE	0.025	0.028	0.051	0.025
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.38	0.43	0.77	0.37
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.03	0.08	0.10	0.13
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.10	0.24	0.31	0.38
Total Sulphur (as S)	%	< 0.01	NONE	0.04	0.12	0.15	0.22
Latent Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.13	0.36	0.44	0.67
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.03	0.11	0.14	0.29

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 18-71555

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Reporting Date: 08/03/2018

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
319622	48208 (34119.5.1.1)	FCA	None Supplied	7.9	Black sandy clay with stones
319623	48208 (34119.9.1.1)	FCA	None Supplied	7.1	Brown sandy clay with stones
319624	48208 (34119.13.1.1)	FCA	None Supplied	5.9	Black sandy clay with stones
319625	48209 (34119.26.1.1)	SP17	None Supplied	13	Brown sandy clay
319626	48209 (34119.30.1.1)	SP17	None Supplied	6.4	Brown sandy clay with brick
319627	48209 (34119.34.1.1)	SP17	None Supplied	7	Brown sandy clay with stones
319628	48210 (34119.47.1.1)	Zone 7	None Supplied	8.1	Brown sandy clay with stones and brick
319629	48210 (34119.51.1.1)	Zone 7	None Supplied	9.5	Brown sandy clay with stones and brick
319630	48210 (34119.55.1.1)	Zone 7	None Supplied	5	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/s}

Unsuitable Sample ^{u/s}



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 18-71555

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Reporting Date: 08/03/2018

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

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Chris Davidson
CET UK Ltd
Northdown House
Ashford Road
Harrietsham
Maidstone
Kent
ME17 1QW

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

DETS Report No: 18-74705

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: None Supplied

Sample Receipt Date: 03/05/2018

Sample Scheduled Date: 03/05/2018

Report Issue Number: 1

Reporting Date: 10/05/2018

Authorised by:

Kevin Old
Associate Director of Laboratory

Authorised by:

Russell Jarvis
Associate Director of Client Services



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
DETS Report No: 18-74705	Date Sampled	01/05/18	01/05/18	01/05/18		
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Pump Lane, Southall	TP / BH No	56072	56076	56078		
Project / Job Ref: 392872	Additional Refs	SP1Z3	SP1Z3	SP1Z3		
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 10/05/2018	QTSE Sample No	331841	331842	331843		

General Inorganics	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	11.6	11.7	11.7		
Organic Matter	%	< 0.1	MCERTS	2	2.2	1.6		
W/S Sulphur (as S)	%	< 0.001	NONE	0.026	0.020	0.018		
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.39	0.30	0.26		
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.08	0.10	0.08		
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.25	0.31	0.25		
Total Sulphur (as S)	%	< 0.01	NONE	0.12	0.13	0.12		
Al Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.36	0.40	0.35		
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.11	0.09	0.10		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 18-74705	
CET UK Ltd	
Site Reference: Pump Lane, Southall	
Project / Job Ref: 392872	
Order No: None Supplied	
Reporting Date: 10/05/2018	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
331841	56072	SP1Z3	None Supplied	7.4	Brown sandy clay with stones and concrete
331842	56076	SP1Z3	None Supplied	9	Brown sandy clay with stones
331843	56078	SP1Z3	None Supplied	6	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/5}



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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 18-74705	
CET UK Ltd	
Site Reference: Pump Lane, Southall	
Project / Job Ref: 392872	
Order No: None Supplied	
Reporting Date: 10/05/2018	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Chris Davidson
CET UK Ltd
Northdown House
Ashford Road
Harrietsham
Maidstone
Kent
ME17 1QW



QTS Environmental Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 18-69242

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-001394

Sample Receipt Date: 15/01/2018

Sample Scheduled Date: 15/01/2018

Report Issue Number: 1

Reporting Date: 17/01/2018

Authorised by:

Russell Jarvis
Associate Director of Client Services

QTSE is the trading name of DETS Ltd, company registration number 03705645

Authorised by:

Dave Ashworth
Deputy Quality Manager



QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-69242	Date Sampled	11/01/18	11/01/18	11/01/18		
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Pump Lane, Southall	TP / BH No	42936	42937	42938		
Project / Job Ref: 392872	Additional Refs	agoon Stockpile 1	agoon Stockpile 2	agoon Stockpile 3		
Order No: C-001394	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2018	QTSE Sample No	310432	310433	310434		

General Inorganics	Unit	RL	Accreditation				
pH	pH Units	N/a	MCERTS	8.0	8.3	9.0	
Organic Matter	%	< 0.1	MCERTS	2.9	1.9	1.2	
W/S Sulphur (as S)	%	0.001	NONE	< 0.001	0.042	0.062	
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	0.64	0.94	
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.05	0.06	0.07	
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.15	0.18	0.22	
Total Sulphur (as S)	%	< 0.01	NONE	0.06	0.08	0.11	
Latent Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.18	0.24	0.32	
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.04	0.07	0.10	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 18-69242

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-001394

Reporting Date: 17/01/2018

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
310432	42936	Lagoon Stockpile 1	None Supplied	13.3	Brown sandy clay with stones
310433	42937	Lagoon Stockpile 2	None Supplied	13.4	Brown sandy clay with stones
310434	42938	Lagoon Stockpile 3	None Supplied	13.4	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 18-69242

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-001394

Reporting Date: 17/01/2018

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Chris Davidson
CET UK Ltd
Northdown House
Ashford Road
Harrietsham
Maidstone
Kent
ME17 1QW

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 18-71114

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-002056

Sample Receipt Date: 19/02/2018

Sample Scheduled Date: 20/02/2018

Report Issue Number: 1

Reporting Date: 26/02/2018

Authorised by:

Kevin Old
Associate Director of Laboratory

Authorised by:

Dave Ashworth
Deputy Quality Manager

QTS Environmental is the trading name of DETS Ltd, company registration number 03705645



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
QTS Environmental Report No: 18-71114	Date Sampled	16/02/18	16/02/18	16/02/18	16/02/18	16/02/18
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pump Lane, Southall	TP / BH No	47033 (33402.3.1.1)	47033 (33402.7.1.1)	47033 (33402.9.1.1)	47033 (33402.11.1.1)	47034 (33402.21.1.1)
Project / Job Ref: 392872	Additional Refs	SP4 - 7	SP4 - 7	SP4 - 7	SP4 - 7	SP8 - 7
Order No: C-002056	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 26/02/2018	QTSE Sample No	318025	318026	318027	318028	318030

Determinand	Unit	RL	Accreditation					
Organic Matter	%	< 0.1	MCERTS	5.3	4.3	5.2	4.6	2.2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
 Subcontracted analysis (S)



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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
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Tel : 01622 850410



Soil Analysis Certificate						
QTS Environmental Report No: 18-71114	Date Sampled	16/02/18	16/02/18			
CET UK Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Pump Lane, Southall	TP / BH No	47035	47035			
		(33402.27.1.1)	(33402.31.1.1)			
Project / Job Ref: 392872	Additional Refs	SP16 - 7	SP16 - 7			
Order No: C-002056	Depth (m)	None Supplied	None Supplied			
Reporting Date: 26/02/2018	QTSE Sample No	318032	318033			

Determinand	Unit	RL	Accreditation			
Organic Matter	%	< 0.1	MCERTS	2.6	2.9	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
 Subcontracted analysis (S)



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Soil Analysis Certificate - TRL 447 Standard						
QTS Environmental Report No: 18-71114	Date Sampled	16/02/18	16/02/18	16/02/18		
CET UK Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Pump Lane, Southall	TP / BH No	47033 (33402.5.1.1)	47034 (33402.23.1.1)	47035 (33402.29.1.1)		
Project / Job Ref: 392872	Additional Refs	SP4 - 7	SP8 - 7	SP16 - 7		
Order No: C-002056	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 26/02/2018	QTSE Sample No	318024	318029	318031		

General Inorganics	Unit	RL	Accreditation				
pH	pH Units	N/a	MCERTS	7.6	11.6	10.6	
Organic Matter	%	< 0.1	MCERTS	4.5	2.6	2.4	
W/S Sulphur (as S)	%	0.001	NONE	0.091	0.021	0.049	
Water Soluble Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	1.37	0.31	0.74	
Acid Soluble Sulphur (as S)	%	< 0.01	NONE	0.14	0.17	0.21	
Acid Soluble Sulphate (as SO ₄)	%	< 0.01	NONE	0.41	0.51	0.63	
Total Sulphur (as S)	%	< 0.01	NONE	0.24	0.26	0.28	
al Potential Sulphate (as SO ₄)	%	< 0.01	NONE	0.72	0.77	0.85	
Oxidisable Sulphide (as SO ₄)	%	< 0.01	NONE	0.31	0.27	0.22	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions

QTS Environmental Report No: 18-71114

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-002056

Reporting Date: 26/02/2018

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
318024	47033 (33402.5.1.1)	SP4 - 7	None Supplied	13.1	Black sandy clay with stones
318025	47033 (33402.3.1.1)	SP4 - 7	None Supplied	12	Black sandy clay with stones
318026	47033 (33402.7.1.1)	SP4 - 7	None Supplied	14.4	Brown sandy clay
318027	47033 (33402.9.1.1)	SP4 - 7	None Supplied	11.6	Black sandy clay with stones
318028	47033 (33402.11.1.1)	SP4 - 7	None Supplied	18.8	Black sandy clay with stones
318029	47034 (33402.23.1.1)	SP8 - 7	None Supplied	10.7	Brown sandy clay with stones
318030	47034 (33402.21.1.1)	SP8 - 7	None Supplied	10.9	Brown sandy clay with stones
318031	47035 (33402.29.1.1)	SP16 - 7	None Supplied	14.5	Brown sandy clay with stones and brick
318032	47035 (33402.27.1.1)	SP16 - 7	None Supplied	14.3	Brown sandy clay with stones and brick
318033	47035 (33402.31.1.1)	SP16 - 7	None Supplied	17.2	Brown sandy clay with stones and brick

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{u/s}



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 18-71114

CET UK Ltd

Site Reference: Pump Lane, Southall

Project / Job Ref: 392872

Order No: C-002056

Reporting Date: 26/02/2018

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO ₄) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO ₄) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO ₄) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 5

Site Test Data

Zone 3 Earthwork Acceptability Testing

TEST REPORT: **Estimation of In-Situ Dry Density, Relative Compaction And Air Voids**
 CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38083.9.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/05/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Andy Wilson **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site Won

GAUGE SERIAL No: 18445 **MATERIAL:** Cement Stabilised Brown Silty Gravelly Clay

CORRECTION FACTORS: Bulk $\gamma=1.0$ **LOCATION:** Phase 3
 Moisture $b=1.0$

SPECIFIC GRAVITY: 2.45 Mg/m³ **COMPLIANCE LIMITS:** 5% Maximum Voids
 95% Minimum Compaction

MAX DRY DENSITY: 1.78 Mg/m³

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Layer 1	1.956	0.275	1.956	16.4				
	1.975	0.268	1.975	15.7	1.690	16.03	3.7	95
Layer 2	1.980	0.299	1.980	17.8				
	1.985	0.278	1.985	16.3	1.690	17.04	2.0	95
Layer 3	2.006	0.280	2.006	16.2				
	2.014	0.271	2.014	15.5	1.730	15.89	1.7	97
Layer 4	1.966	0.234	1.966	13.5				
	1.986	0.259	1.986	15.0	1.730	14.25	4.8	97
Layer 5	1.977	0.293	1.977	17.4				
	2.005	0.257	2.005	14.7	1.720	16.05	2.4	96
Layer 6	2.006	0.285	2.006	16.6				
	1.975	0.254	1.975	14.8	1.720	15.66	2.8	97

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S (voids)/rev.1

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

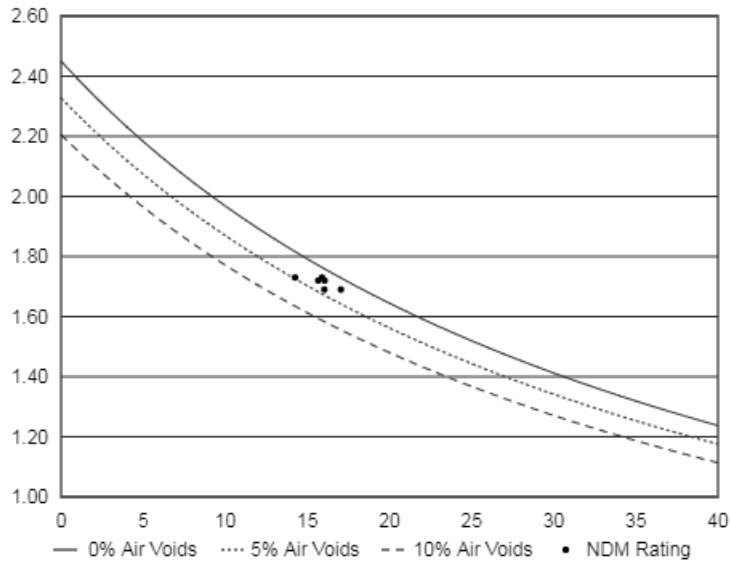
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Report version 1

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TEST REPORT: Estimation of In-Situ Dry Density, Relative Compaction And Air Voids
CET's In-House Procedure STP NDM-S Method B Direct Transmission
REPORT NUMBER: 392872 / 38083.9.1.1

AIR VOID LINE PLOT



Remarks:
Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
* Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S (voids)/rev.1

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Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

For and on behalf of CET
Phil Mayhew - Contracts Supervisor

Approved Signatory
03-May-18



0927

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TEST REPORT:
Estimation of In-Situ Dry Density, Relative Compaction And Air Voids

CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38292.8.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 04/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Andy Wilson

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site Won

GAUGE SERIAL No: 18445

MATERIAL: Cement Stabilised Brown Silty Gravelly Clay

 CORRECTION FACTORS: Bulk $\gamma=1.0$
Moisture $b=1.0$

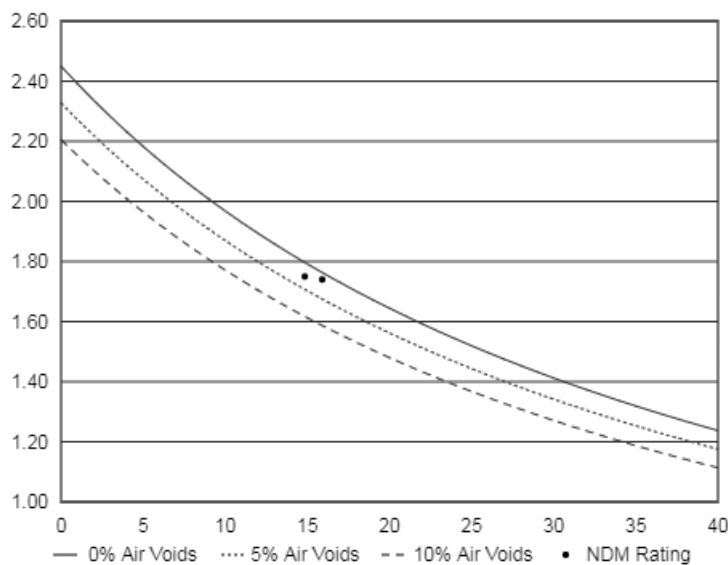
LOCATION: Phase 3

 SPECIFIC GRAVITY: 2.45 Mg/m³

 COMPLIANCE LIMITS: 5% Maximum Voids
95% Minimum Compaction

 MAX DRY DENSITY: 1.78 Mg/m³
TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Layer 1	2.005	0.280	2.005	16.2				
	2.033	0.274	2.033	15.6	1.740	15.90	1.2	98
Layer 7	1.990	0.263	1.990	15.2				
	2.027	0.256	2.027	14.5	1.750	14.84	2.7	98

AIR VOID LINE PLOT

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
 08-May-18


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Report Format: S/Rep STP NDM-S (voids)/rev.1

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
Estimation of In-Situ Dry Density, Relative Compaction And Air Voids

CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38991.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Marc Hawkins

SITE: Pump Lane, Southall

GAUGE MODEL No: T3340

SUPPLIER: Site won

GAUGE SERIAL No: 18819

MATERIAL: Stabilised brown clay + gravel

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

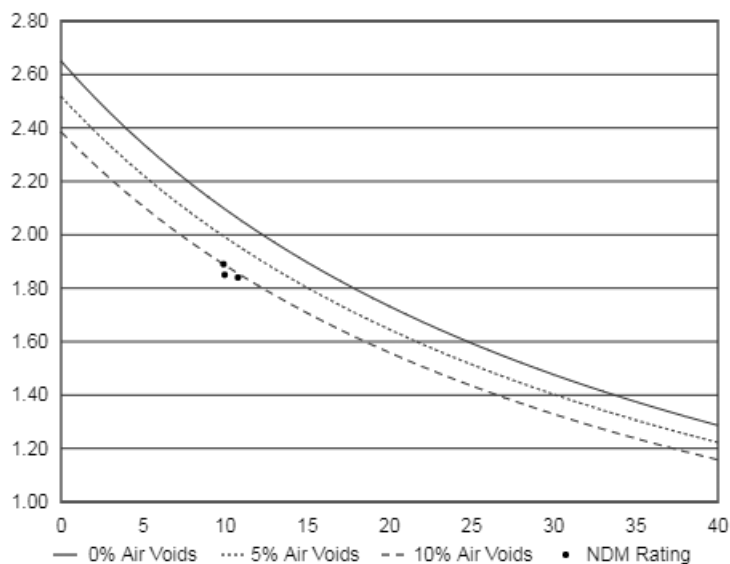
LOCATION: Gate A access road pump lane

 SPECIFIC GRAVITY: 2.65 Mg/m³

 COMPLIANCE LIMITS: 5% Maximum Voids
95% Minimum Compaction

 MAX DRY DENSITY: 1.91 Mg/m³
TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Final layer test 1	2.029	0.196	2.029	10.7				
	2.045	0.200	2.045	10.8	1.840	10.77	10.8 *	96
Final layer test 2	2.047	0.180	2.047	9.6				
	2.028	0.189	2.028	10.3	1.850	9.96	11.6 *	97
Final layer test 3	2.087	0.183	2.087	9.6				
	2.071	0.191	2.071	10.2	1.890	9.89	9.9 *	99

AIR VOID LINE PLOT

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
 17-May-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

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 enquiries@cet-uk.com
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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38292.7.1.1

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

04/05/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

Andy Wilson

SITE:

Pump Lane, Southall

LOCATION:

Phase 3 Layer 1

MATERIAL:

Cement Stabilised Brown Silty Gravelly Clay

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 20T
Plate Diameter: 455 mm
Plate Area: 0.162597 m²
Plate Correction: 0.65

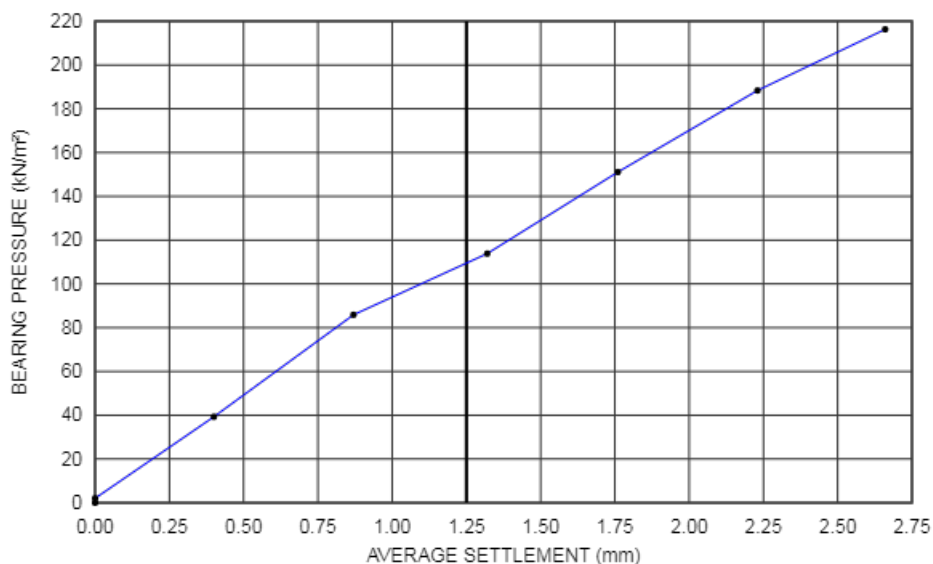
Average Bearing Pressure (P) at 1.25mm penetration

P = 109 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 11 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 11 %

Remarks:

Report Format: STP S8 rev.1

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Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38292.7.1.1

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	19.97	18.83	14.32	0.00	0.00	0.00	0.00
6.4	39.3	19.54	18.46	13.93	0.43	0.37	0.39	0.40
14.0	85.9	19.12	18.00	13.38	0.85	0.83	0.94	0.87
18.5	113.8	18.68	17.59	12.89	1.29	1.24	1.43	1.32
24.6	151.1	18.28	17.14	12.43	1.69	1.69	1.89	1.76
30.6	188.4	17.86	16.58	12.00	2.11	2.25	2.32	2.23
35.2	216.3	17.45	16.15	11.55	2.52	2.68	2.77	2.66

Remarks:

For and on behalf of CET
Phil Mayhew - Contracts Supervisor



Approved Signatory
04-May-18



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Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38292.7.1.2

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

04/05/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

Andy Wilson

SITE:

Pump Lane, Southall

LOCATION:

Phase 3 Layer 7

MATERIAL:

Cement Stabilised Brown Silty Gravelly Clay

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 20T
Plate Diameter: 455 mm
Plate Area: 0.162597 m²
Plate Correction: 0.65

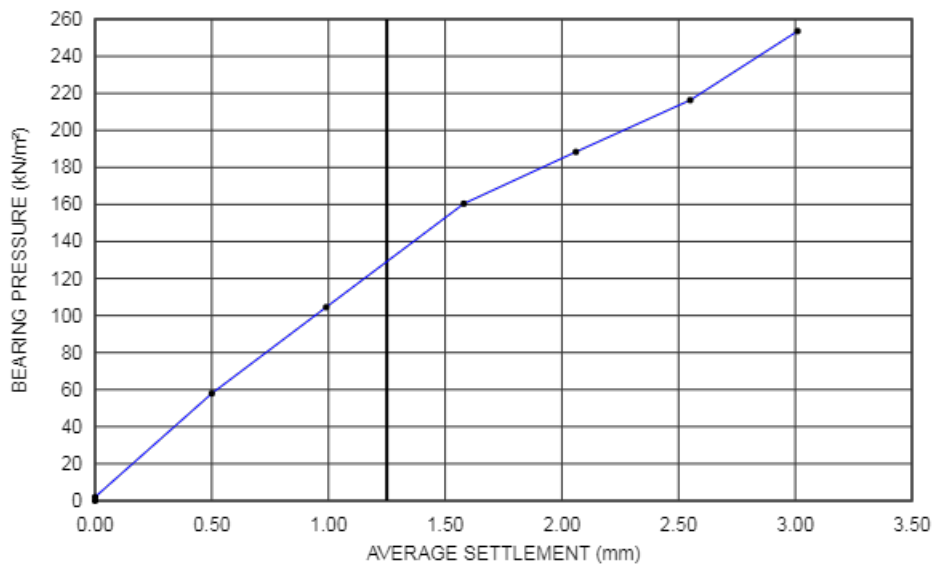
Average Bearing Pressure (P) at 1.25mm penetration

P = 129 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 14 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 14 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38292.7.1.2

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	18.17	19.72	23.93	0.00	0.00	0.00	0.00
9.4	57.9	17.58	19.30	23.44	0.59	0.42	0.49	0.50
17.0	104.5	17.12	18.79	22.93	1.05	0.93	1.00	0.99
26.1	160.4	16.61	18.15	22.33	1.56	1.57	1.60	1.58
30.6	188.4	16.21	17.66	21.78	1.96	2.06	2.15	2.06
35.2	216.3	15.67	17.15	21.36	2.50	2.57	2.57	2.55
41.2	253.6	15.32	16.59	20.89	2.85	3.13	3.04	3.01

Remarks:

For and on behalf of CET
Phil Mayhew - Contracts Supervisor



Approved Signatory
04-May-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER: 392872 / 38551.2.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 10/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Marc Hawkins

SITE: Pump Lane, Southall

LOCATION: Pump Lane Access Road

MATERIAL: Hoggin

Equipment Details

Average Bearing Pressure

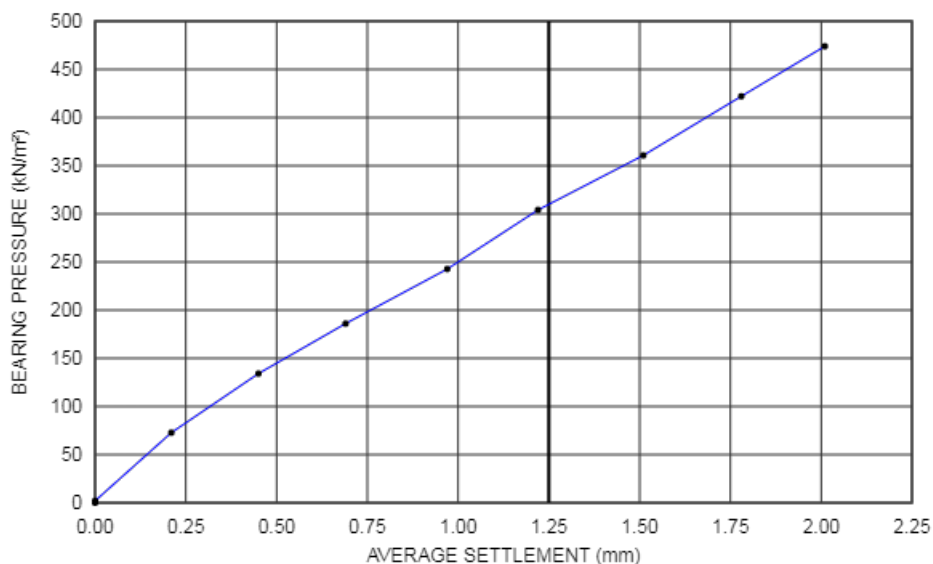
Estimated C.B.R Value

Type of Kentledge: 21 T 360
Plate Diameter: 455 mm
Plate Area: 0.162597 m²
Plate Correction: 0.65

Average Bearing Pressure (P) at 1.25mm penetration
P = 309 kN / m²

Estimated C.B.R at 1.25mm penetration
Estimated C.B.R = 64 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 64 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38551.2.1.1

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	23.35	25.74	25.25	0.00	0.00	0.00	0.00
11.8	72.8	23.22	25.49	25.00	0.13	0.25	0.25	0.21
21.8	134.1	23.10	25.22	24.67	0.25	0.52	0.58	0.45
30.2	186.0	22.96	24.95	24.35	0.39	0.79	0.90	0.69
39.5	242.7	22.80	24.64	23.99	0.55	1.10	1.26	0.97
49.4	304.0	22.61	24.38	23.68	0.74	1.36	1.57	1.22
58.6	360.7	22.40	24.06	23.34	0.95	1.68	1.91	1.51
68.6	422.1	22.19	23.74	23.06	1.16	2.00	2.19	1.78
77.1	474.0	22.02	23.46	22.83	1.33	2.28	2.42	2.01

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
10-May-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER: 392872 / 38991.2.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Marc Hawkins

SITE: Pump Lane, Southall

LOCATION: Pump lane access road gate A

MATERIAL: Stabilised clay/gravel

Equipment Details

Average Bearing Pressure

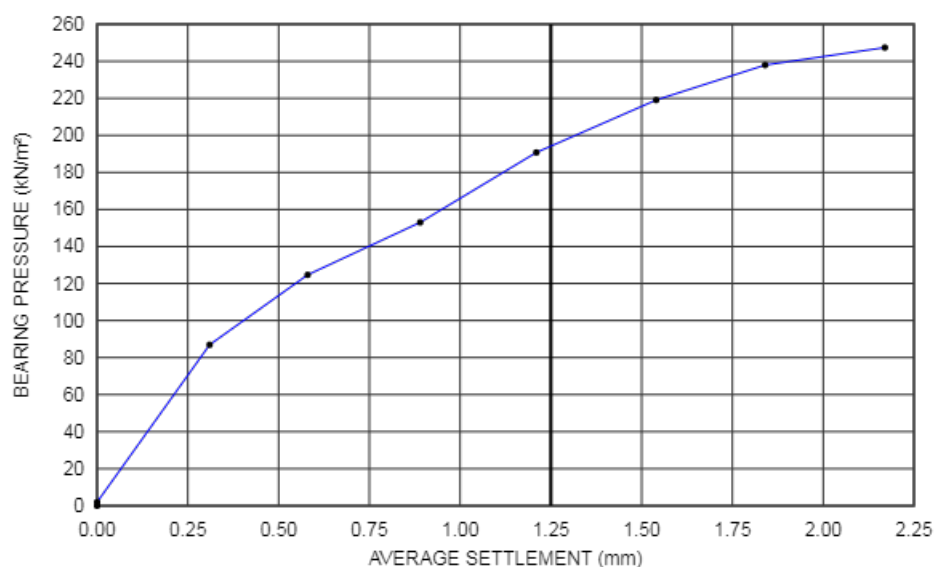
Estimated C.B.R Value

Type of Kentledge: 13 T roller
Plate Diameter: 455 mm
Plate Area: 0.162597 m²
Plate Correction: 0.65

Average Bearing Pressure (P) at 1.25mm penetration
P = 194 kN / m²

Estimated C.B.R at 1.25mm penetration
Estimated C.B.R = 29 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 29 %

Remarks:

Report Format: STP S8 rev.1

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Harrietsham, Nr Maidstone
Kent ME17 1QW

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 38991.2.1.1

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	22.08	24.00	22.04	0.00	0.00	0.00	0.00
14.1	86.9	21.62	23.72	21.86	0.46	0.28	0.18	0.31
20.3	124.7	21.20	23.42	21.76	0.88	0.58	0.28	0.58
24.9	153.0	20.70	23.10	21.64	1.38	0.90	0.40	0.89
31.0	190.8	20.18	22.79	21.51	1.90	1.21	0.53	1.21
35.6	219.1	19.60	22.46	21.43	2.48	1.54	0.61	1.54
38.7	238.0	19.05	22.11	21.45	3.03	1.89	0.59	1.84
40.2	247.4	18.57	21.85	21.20	3.51	2.15	0.84	2.17

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
17-May-18



927

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 2 of 2

TEST REPORT: **Estimation of In-Situ Dry Density, Relative Compaction And Air Voids**
 CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38083.9.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/05/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Andy Wilson **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site Won

GAUGE SERIAL No: 18445 **MATERIAL:** Cement Stabilised Brown Silty Gravelly Clay

CORRECTION FACTORS: Bulk $\gamma=1.0$ **LOCATION:** Phase 3
 Moisture $b=1.0$

SPECIFIC GRAVITY: 2.45 Mg/m³ **COMPLIANCE LIMITS:** 5% Maximum Voids
 95% Minimum Compaction

MAX DRY DENSITY: 1.78 Mg/m³

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Layer 1	1.956	0.275	1.956	16.4				
	1.975	0.268	1.975	15.7	1.690	16.03	3.7	95
Layer 2	1.980	0.299	1.980	17.8				
	1.985	0.278	1.985	16.3	1.690	17.04	2.0	95
Layer 3	2.006	0.280	2.006	16.2				
	2.014	0.271	2.014	15.5	1.730	15.89	1.7	97
Layer 4	1.966	0.234	1.966	13.5				
	1.986	0.259	1.986	15.0	1.730	14.25	4.8	97
Layer 5	1.977	0.293	1.977	17.4				
	2.005	0.257	2.005	14.7	1.720	16.05	2.4	96
Layer 6	2.006	0.285	2.006	16.6				
	1.975	0.254	1.975	14.8	1.720	15.66	2.8	97

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S (voids)/rev.1

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

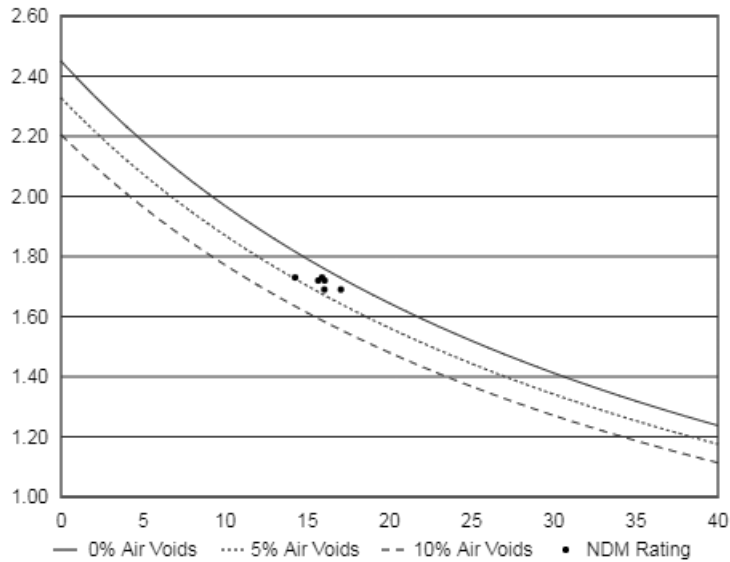
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Report version 1

Page 1 of 2

TEST REPORT: Estimation of In-Situ Dry Density, Relative Compaction And Air Voids
CET's In-House Procedure STP NDM-S Method B Direct Transmission
REPORT NUMBER: 392872 / 38083.9.1.1

AIR VOID LINE PLOT



Remarks:
Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
* Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S (voids)/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

For and on behalf of CET
Phil Mayhew - Contracts Supervisor

Approved Signatory
03-May-18



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TEST REPORT:
Estimation of In-Situ Dry Density, Relative Compaction And Air Voids

CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38292.8.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 04/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Andy Wilson

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site Won

GAUGE SERIAL No: 18445

MATERIAL: Cement Stabilised Brown Silty Gravelly Clay

 CORRECTION FACTORS: Bulk $\gamma=1.0$
Moisture $b=1.0$

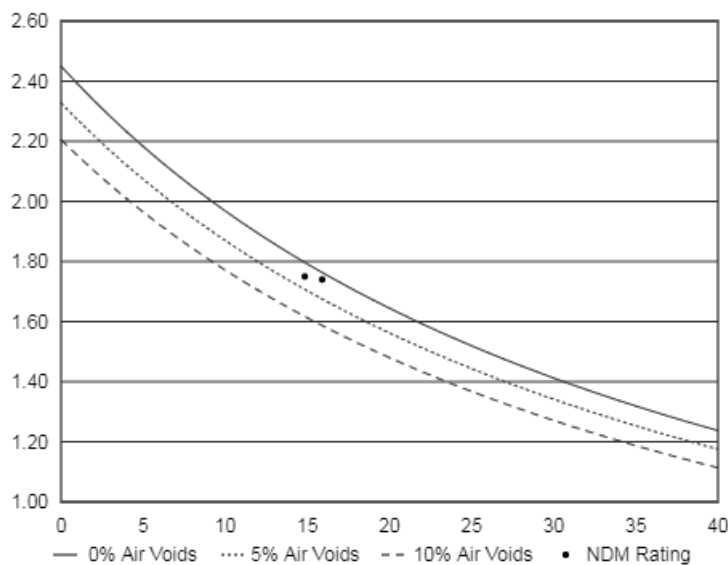
LOCATION: Phase 3

 SPECIFIC GRAVITY: 2.45 Mg/m³

 COMPLIANCE LIMITS: 5% Maximum Voids
95% Minimum Compaction

 MAX DRY DENSITY: 1.78 Mg/m³
TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Layer 1	2.005	0.280	2.005	16.2	1.740	15.90	1.2	98
	2.033	0.274	2.033	15.6				
Layer 7	1.990	0.263	1.990	15.2	1.750	14.84	2.7	98
	2.027	0.256	2.027	14.5				

AIR VOID LINE PLOT

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
 08-May-18


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Report Format: S/Rep STP NDM-S (voids)/rev.1

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
Estimation of In-Situ Dry Density, Relative Compaction And Air Voids

CET's In-House Procedure STP NDM-S Method B Direct Transmission

REPORT NUMBER: 392872 / 38991.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/05/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Marc Hawkins

SITE: Pump Lane, Southall

GAUGE MODEL No: T3340

SUPPLIER: Site won

GAUGE SERIAL No: 18819

MATERIAL: Stabilised brown clay + gravel

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

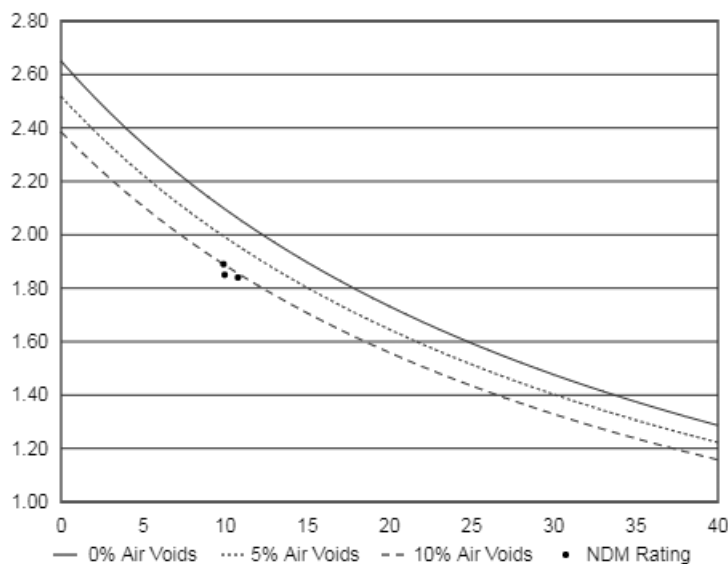
LOCATION: Gate A access road pump lane

 SPECIFIC GRAVITY: 2.65 Mg/m³

 COMPLIANCE LIMITS: 5% Maximum Voids
95% Minimum Compaction

 MAX DRY DENSITY: 1.91 Mg/m³
TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Moisture Content (%)	Mean Air Voids (%)	Mean Relative Compaction (%)
Final layer test 1	2.029	0.196	2.029	10.7				
	2.045	0.200	2.045	10.8	1.840	10.77	10.8 *	96
Final layer test 2	2.047	0.180	2.047	9.6				
	2.028	0.189	2.028	10.3	1.850	9.96	11.6 *	97
Final layer test 3	2.087	0.183	2.087	9.6				
	2.071	0.191	2.071	10.2	1.890	9.89	9.9 *	99

AIR VOID LINE PLOT

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
 17-May-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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Report version 1

Page 1 of 1

Western Embankment (Zone 7)
Earthwork Acceptability Testing

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 09-Jan-18

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Report version 2



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Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 09-Jan-18

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 09-Jan-18

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 09-Jan-18

CET is the trading name for CET Structures Limited.
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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30810.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 10/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.93 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.109	0.199	3.158	64.4	1.92	100
	2.101	0.189	3.149	63.7		
Adjacent to bridge	2.130	0.201	2.179	12.4	1.93	100
	2.125	0.213	2.174	13.2		
Adjacent to bridge	2.073	0.222	2.121	14.3	1.86	96
	2.092	0.230	2.140	14.7		
Adjacent to bridge	2.122	0.264	2.171	17.0	1.85	96
	2.115	0.270	2.164	17.5		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

11-Jan-18



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Report Format: S/Rep STP NDM-S/rev.2

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30810.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 10/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.93 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.109	0.199	3.158	64.4	1.92	100
	2.101	0.189	3.149	63.7		
Adjacent to bridge	2.130	0.201	2.179	12.4	1.93	100
	2.125	0.213	2.174	13.2		
Adjacent to bridge	2.073	0.222	2.121	14.3	1.86	96
	2.092	0.230	2.140	14.7		
Adjacent to bridge	2.122	0.264	2.171	17.0	1.85	96
	2.115	0.270	2.164	17.5		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

11-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Page 1 of 1

TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30810.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 10/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.93 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.109	0.199	3.158	64.4	1.92	100
	2.101	0.189	3.149	63.7		
Adjacent to bridge	2.130	0.201	2.179	12.4	1.93	100
	2.125	0.213	2.174	13.2		
Adjacent to bridge	2.073	0.222	2.121	14.3	1.86	96
	2.092	0.230	2.140	14.7		
Adjacent to bridge	2.122	0.264	2.171	17.0	1.85	96
	2.115	0.270	2.164	17.5		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

11-Jan-18



0927

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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30810.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 10/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.93 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.109	0.199	3.158	64.4	1.92	100
	2.101	0.189	3.149	63.7		
Adjacent to bridge	2.130	0.201	2.179	12.4	1.93	100
	2.125	0.213	2.174	13.2		
Adjacent to bridge	2.073	0.222	2.121	14.3	1.86	96
	2.092	0.230	2.140	14.7		
Adjacent to bridge	2.122	0.264	2.171	17.0	1.85	96
	2.115	0.270	2.164	17.5		

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
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For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

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Northdown House, Ashford Road
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
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	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
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For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
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Northdown House, Ashford Road
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 Kent ME17 1QW

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TEST REPORT:	Estimation of In-Situ Dry Density And Relative Compaction				
	CET's In-House Procedure STP NDM-S - Method D (Direct transmission)				
REPORT NUMBER:	392872 / 30929.1.1.1				
CLIENT REF:	392872	CLIENT:	Cognition Land & Water Ltd		
DATE COMPLETED:	11/01/2018	ADDRESS:	Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ		
TESTED BY:	James Harrison	SITE:	Pump Lane, Southall		
GAUGE MODEL No:	T3440	SUPPLIER:	Site won		
GAUGE SERIAL No:	15414	MATERIAL:	Orange gravelly sand		
CORRECTION FACTORS:	Bulk $\gamma=1.023$ Moisture $b=1.192$	LOCATION:	Adjacent to bridge		
		VARIATIONS FROM PROCEDURE:	N/A		
MAX DRY DENSITY:	1.93 Mg/m ³	COMPLIANCE LIMITS:	95% Minimum Compaction		

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30929.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 11/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 1	2.151	0.187	3.201	61.8	1.97	102
	2.147	0.202	3.196	63.4		
Adjacent to bridge layer 1	2.156	0.217	2.206	13.3	1.95	101
	2.149	0.201	2.198	12.2		
Adjacent to bridge layer 2	2.131	0.234	2.180	14.7	1.90	98
	2.133	0.237	2.182	14.9		
Adjacent to bridge layer 2	2.151	0.201	2.201	12.2	1.95	101
	2.159	0.222	2.209	13.6		
Adjacent to bridge layer 3	2.133	0.255	2.182	16.2	1.90	98
	2.151	0.239	2.201	14.9		
Adjacent to bridge layer 3	2.140	0.244	2.189	15.3	1.91	99
	2.156	0.234	2.206	14.5		
Adjacent to bridge layer 4	2.071	0.185	2.119	11.6	1.88	98
	2.033	0.179	2.080	11.4		
Adjacent to bridge layer 4	2.141	0.188	2.190	11.4	1.97	102
	2.153	0.195	2.203	11.8		
Adjacent to bridge layer 5	2.171	0.223	2.221	13.6	1.95	101
	2.163	0.230	2.213	14.1		
Adjacent to bridge layer 5	2.133	0.190	2.182	11.6	1.94	101
	2.122	0.201	2.171	12.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 12-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872 CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018 ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison SITE: Pump Lane, Southall

GAUGE MODEL No: T3440 SUPPLIER: Site won

GAUGE SERIAL No: 15414 MATERIAL: Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ LOCATION: Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 15-Jan-18



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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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Report Format: S/Rep STP NDM-S/rev.2

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE:

Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER:

Site won

GAUGE SERIAL No: 15414

MATERIAL:

Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION:

Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS:

95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site won

GAUGE SERIAL No: 15414

MATERIAL: Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION: Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE:

Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER:

Site won

GAUGE SERIAL No: 15414

MATERIAL:

Orange gravelly sand

 CORRECTION FACTORS: Bulk $\gamma=1.023$
 Moisture $b=1.192$

LOCATION:

Adjacent to bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 2.01 Mg/m³

COMPLIANCE LIMITS:

95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Phil Mayhew - Contracts Supervisor



Approved Signatory

15-Jan-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30988.1.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 12/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 6	2.148	0.112	2.197	6.5	2.06	103
	2.157	0.121	2.207	7.0		
Adjacent to bridge layer 6	2.111	0.153	2.111	7.8	1.96	97
	2.100	0.147	2.100	7.5		
Adjacent to bridge layer 6	2.099	0.153	2.099	7.9	1.92	96
	2.072	0.170	2.072	8.9		
Adjacent to bridge layer 7	2.077	0.116	2.125	7.0	2.00	99
	2.087	0.104	2.135	6.2		
Adjacent to bridge layer 7	2.099	0.124	2.147	7.4	1.99	99
	2.093	0.133	2.141	8.0		
Adjacent to bridge layer 7	2.099	0.125	2.147	7.5	1.98	98
	2.074	0.139	2.122	8.5		
Adjacent to bridge layer 8	2.066	0.124	2.114	7.5	1.96	98
	2.080	0.141	2.128	8.6		
Adjacent to bridge layer 8	2.067	0.143	2.115	8.8	1.95	97
	2.088	0.150	2.136	9.1		
Adjacent to bridge layer 8	2.050	0.143	2.097	8.8	1.93	96
	2.067	0.155	2.115	9.6		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 15-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 16-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



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 16-Jan-18



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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



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Report version 1

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 16-Jan-18



0927

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

Remarks:
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For and on behalf of CET
 Matt Butt - Operations Supervisor



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31092.1.1.8

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 15/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge second area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge second area	2.145	0.161	2.194	9.6	2.00	104
	2.150	0.166	2.199	9.9		
Adjacent to bridge second area	2.133	0.168	2.182	10.1	1.98	102
	2.130	0.176	2.179	10.7		
Adjacent to bridge second area	2.140	0.188	2.189	11.4	1.96	102
	2.146	0.194	2.195	11.8		
Adjacent to bridge second area	2.151	0.217	2.201	13.3	1.94	101
	2.147	0.212	2.196	13.0		
Adjacent to bridge second area	2.133	0.198	2.182	12.1	1.94	101
	2.130	0.203	2.179	12.5		
Adjacent to bridge second area	2.113	0.188	2.162	11.6	1.93	100
	2.108	0.190	2.157	11.7		
Adjacent to bridge second area	2.086	0.223	2.134	14.2	1.86	97
	2.090	0.233	2.138	14.9		
Adjacent to bridge second area	2.084	0.198	2.132	12.4	1.89	98
	2.069	0.188	2.117	11.8		

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For and on behalf of CET
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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31174.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 16/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge third area	2.201	0.233	2.252	14.1	1.97	102
	2.211	0.240	2.262	14.5		
Adjacent to bridge third area	2.133	0.193	2.182	11.8	1.96	102
	2.122	0.170	2.171	10.3		
Adjacent to bridge third area	2.111	0.190	2.160	11.7	1.93	100
	2.104	0.193	2.152	12.0		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31174.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 16/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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	2.211	0.240	2.262	14.5		
Adjacent to bridge third area	2.133	0.193	2.182	11.8	1.96	102
	2.122	0.170	2.171	10.3		
Adjacent to bridge third area	2.111	0.190	2.160	11.7	1.93	100
	2.104	0.193	2.152	12.0		

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31174.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 16/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge third area	2.201	0.233	2.252	14.1	1.97	102
	2.211	0.240	2.262	14.5		
Adjacent to bridge third area	2.133	0.193	2.182	11.8	1.96	102
	2.122	0.170	2.171	10.3		
Adjacent to bridge third area	2.111	0.190	2.160	11.7	1.93	100
	2.104	0.193	2.152	12.0		

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Northdown House, Ashford Road
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31255.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 17/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 9	2.166	0.283	2.216	18.0	1.88	98
	2.155	0.267	2.205	16.9		
Adjacent to bridge layer 9	2.142	0.250	2.191	15.7	1.88	98
	2.140	0.263	2.189	16.7		
Adjacent to bridge layer 10	2.176	0.247	2.226	15.2	1.92	99
	2.139	0.240	2.188	15.0		
Adjacent to bridge layer 10	2.143	0.260	2.192	16.5	1.87	97
	2.136	0.269	2.185	17.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
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Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31255.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 17/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 9	2.166	0.283	2.216	18.0	1.88	98
	2.155	0.267	2.205	16.9		
Adjacent to bridge layer 9	2.142	0.250	2.191	15.7	1.88	98
	2.140	0.263	2.189	16.7		
Adjacent to bridge layer 10	2.176	0.247	2.226	15.2	1.92	99
	2.139	0.240	2.188	15.0		
Adjacent to bridge layer 10	2.143	0.260	2.192	16.5	1.87	97
	2.136	0.269	2.185	17.2		

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31255.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 17/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 9	2.166	0.283	2.216	18.0	1.88	98
	2.155	0.267	2.205	16.9		
Adjacent to bridge layer 9	2.142	0.250	2.191	15.7	1.88	98
	2.140	0.263	2.189	16.7		
Adjacent to bridge layer 10	2.176	0.247	2.226	15.2	1.92	99
	2.139	0.240	2.188	15.0		
Adjacent to bridge layer 10	2.143	0.260	2.192	16.5	1.87	97
	2.136	0.269	2.185	17.2		

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31255.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 17/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 9	2.166	0.283	2.216	18.0	1.88	98
	2.155	0.267	2.205	16.9		
Adjacent to bridge layer 9	2.142	0.250	2.191	15.7	1.88	98
	2.140	0.263	2.189	16.7		
Adjacent to bridge layer 10	2.176	0.247	2.226	15.2	1.92	99
	2.139	0.240	2.188	15.0		
Adjacent to bridge layer 10	2.143	0.260	2.192	16.5	1.87	97
	2.136	0.269	2.185	17.2		

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

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 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



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 19-Jan-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18



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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31617.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 23/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: 0-32 IBAA

 CORRECTION FACTORS: Bulk $\gamma=1$
 Moisture $b=1$

LOCATION: Adjacent to Bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.85 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to Bridge	2.098	0.192	2.098	10.1	1.89	102
	2.066	0.190	2.066	10.1		
Adjacent to Bridge	1.943	0.176	1.943	10.0	1.77	96
	1.940	0.171	1.940	9.7		
Adjacent to Bridge	2.002	0.190	2.002	10.5	1.80	97
	2.001	0.214	2.001	12.0		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
 25-Jan-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31617.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 23/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: 0-32 IBAA

 CORRECTION FACTORS: Bulk $\gamma=1$
 Moisture $b=1$

LOCATION: Adjacent to Bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.85 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to Bridge	2.098	0.192	2.098	10.1	1.89	102
	2.066	0.190	2.066	10.1		
Adjacent to Bridge	1.943	0.176	1.943	10.0	1.77	96
	1.940	0.171	1.940	9.7		
Adjacent to Bridge	2.002	0.190	2.002	10.5	1.80	97
	2.001	0.214	2.001	12.0		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



 Approved Signatory
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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31617.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 23/01/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: 0-32 IBAA

 CORRECTION FACTORS: Bulk $\gamma=1$
 Moisture $b=1$

LOCATION: Adjacent to Bridge

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.85 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to Bridge	2.098	0.192	2.098	10.1	1.89	102
	2.066	0.190	2.066	10.1		
Adjacent to Bridge	1.943	0.176	1.943	10.0	1.77	96
	1.940	0.171	1.940	9.7		
Adjacent to Bridge	2.002	0.190	2.002	10.5	1.80	97
	2.001	0.214	2.001	12.0		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

 For and on behalf of CET
 Matt Butt - Operations Supervisor



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 25-Jan-18


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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
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Report version 1

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 2



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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 30736.1.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 09/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge	2.105	0.223	2.153	14.1	1.88	98
	2.095	0.219	2.143	13.9		
Adjacent to bridge	2.102	0.213	2.150	13.4	1.90	99
	2.099	0.200	2.147	12.5		
Adjacent to bridge	2.022	0.199	2.069	13.0	1.87	97
	2.099	0.201	2.147	12.6		
Adjacent to bridge	2.102	0.189	2.150	11.7	1.92	100
	2.111	0.199	2.160	12.3		
Adjacent to bridge	2.078	0.189	2.126	11.9	1.91	99
	2.100	0.192	2.148	11.9		
Adjacent to bridge	2.101	0.188	2.149	11.6	1.93	100
	2.110	0.195	2.159	12.1		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)
 Amended report. This test report supersedes test report version 1

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 09-Jan-18

CET is the trading name for CET Structures Limited.
 Registered in England No. 02527130

Report version 2



0927

Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18



0927

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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 Registered in England No. 02527130

Report version 1

Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 31322.4.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 18/01/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Site won

GAUGE SERIAL No: 15414 **MATERIAL:** Orange gravelly sand

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge third area
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 1.93 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 11	2.176	0.270	2.226	16.9	1.91	99
	2.181	0.257	2.231	15.9		
Adjacent to bridge layer 11	2.140	0.248	2.189	15.6	1.89	98
	2.133	0.240	2.182	15.1		
Adjacent to bridge layer 12	2.101	0.213	2.149	13.4	1.90	99
	2.110	0.210	2.159	13.1		
Adjacent to bridge layer 12	2.100	0.199	2.148	12.4	1.93	100
	2.116	0.189	2.165	11.6		
Adjacent to bridge layer 13	2.106	0.184	2.154	11.3	1.93	100
	2.100	0.191	2.148	11.9		
Adjacent to bridge layer 13	2.091	0.196	2.139	12.3	1.91	99
	2.088	0.193	2.136	12.1		
Adjacent to bridge layer 14	2.101	0.266	2.149	17.3	1.85	96
	2.086	0.229	2.134	14.7		
Adjacent to bridge layer 14	2.101	0.213	2.149	13.4	1.92	99
	2.122	0.198	2.171	12.2		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Phil Mayhew - Contracts Supervisor



Approved Signatory
 19-Jan-18



0927

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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Report version 1

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.1

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

23/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

James Harrison

SITE:

Pump Lane, Southall

LOCATION:

Adjacent to bridge pb1

MATERIAL:

Orange sand and gravel with rock

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 360
Plate Diameter: 453 mm
Plate Area: 0.161171 m²
Plate Correction: 0.65

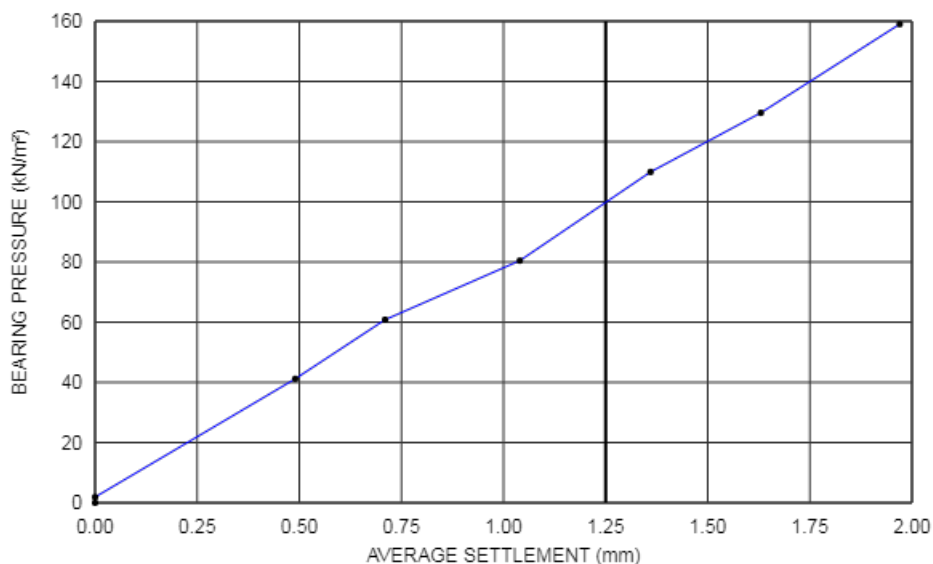
Average Bearing Pressure (P) at 1.25mm penetration

P = 100 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 9.0 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 9.0 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.1

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	16.12	14.92	17.93	0.00	0.00	0.00	0.00
6.6	41.2	15.83	14.65	17.02	0.29	0.27	0.91	0.49
9.8	60.8	15.55	14.39	16.91	0.57	0.53	1.02	0.71
13.0	80.5	15.12	14.10	16.63	1.00	0.82	1.30	1.04
17.7	109.9	14.78	13.73	16.38	1.34	1.19	1.55	1.36
20.9	129.6	14.50	13.48	16.10	1.62	1.44	1.83	1.63
25.6	159.0	14.11	13.10	15.84	2.01	1.82	2.09	1.97

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
23-Jan-18



0927

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Page 2 of 2

TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.2

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

23/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

James Harrison

SITE:

Pump Lane, Southall

LOCATION:

Adjacent to Bridge PB2

MATERIAL:

Orange Sand and Gravel with Rock

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 360
Plate Diameter: 453 mm
Plate Area: 0.161171 m²
Plate Correction: 0.65

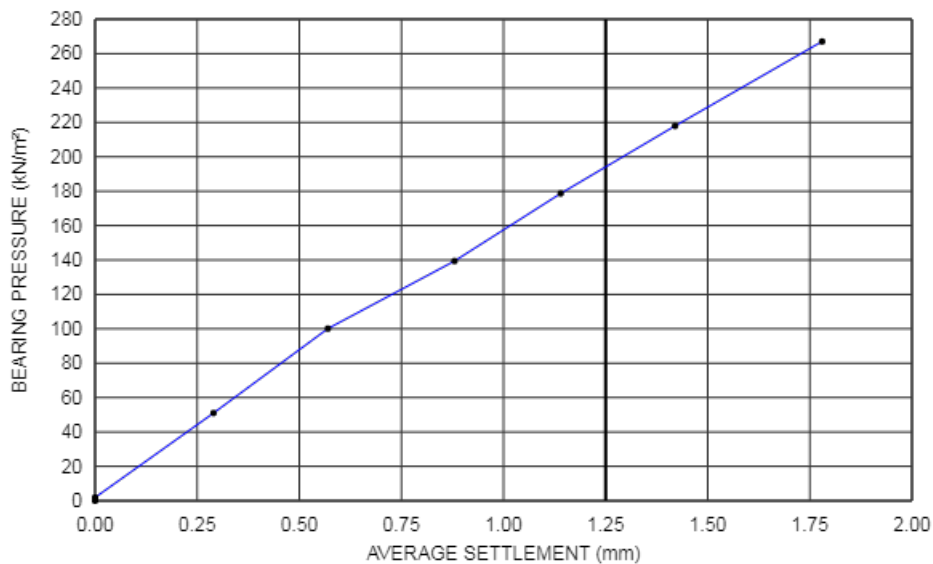
Average Bearing Pressure (P) at 1.25mm penetration

P = 195 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 29 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 29 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.2

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	19.94	14.53	17.94	0.00	0.00	0.00	0.00
8.2	51.0	19.62	14.21	17.70	0.32	0.32	0.24	0.29
16.1	100.1	19.36	13.92	17.42	0.58	0.61	0.52	0.57
22.5	139.4	19.07	13.60	17.11	0.87	0.93	0.83	0.88
28.8	178.7	18.83	13.33	16.84	1.11	1.20	1.10	1.14
35.1	218.0	18.55	13.01	16.60	1.39	1.52	1.34	1.42
43.0	267.1	17.98	12.72	16.38	1.96	1.81	1.56	1.78

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
23-Jan-18



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Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.3

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

23/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

James Harrison

SITE:

Pump Lane, Southall

LOCATION:

Adjacent to Bridge PB3

MATERIAL:

Orange Sand and Gravel with Rock

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 360
Plate Diameter: 453 mm
Plate Area: 0.161171 m²
Plate Correction: 0.65

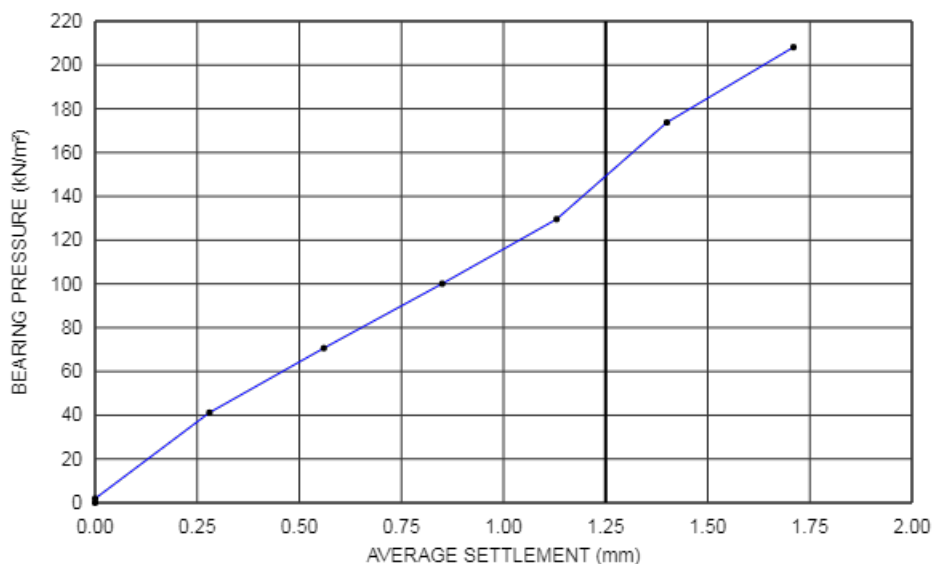
Average Bearing Pressure (P) at 1.25mm penetration

P = 149 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 18 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 18 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.3

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	16.22	11.54	13.34	0.00	0.00	0.00	0.00
6.6	41.2	15.93	11.26	13.06	0.29	0.28	0.28	0.28
11.4	70.6	15.62	11.00	12.79	0.60	0.54	0.55	0.56
16.1	100.1	15.35	10.72	12.49	0.87	0.82	0.85	0.85
20.9	129.6	15.06	10.45	12.21	1.16	1.09	1.13	1.13
28.0	173.8	14.76	10.19	11.94	1.46	1.35	1.40	1.40
33.5	208.1	14.44	9.89	11.65	1.78	1.65	1.69	1.71

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
23-Jan-18



0927

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

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TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.4

CLIENT REF:

392872

CLIENT:

Cognition Land & Water Ltd

DATE COMPLETED:

23/01/2018

ADDRESS:

Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY:

James Harrison

SITE:

Pump Lane, Southall

LOCATION:

Adjacent to Bridge PB4

MATERIAL:

Orange Sand and Gravel with Rock

Equipment Details

Average Bearing Pressure

Estimated C.B.R Value

Type of Kentledge: 360
Plate Diameter: 453 mm
Plate Area: 0.161171 m²
Plate Correction: 0.65

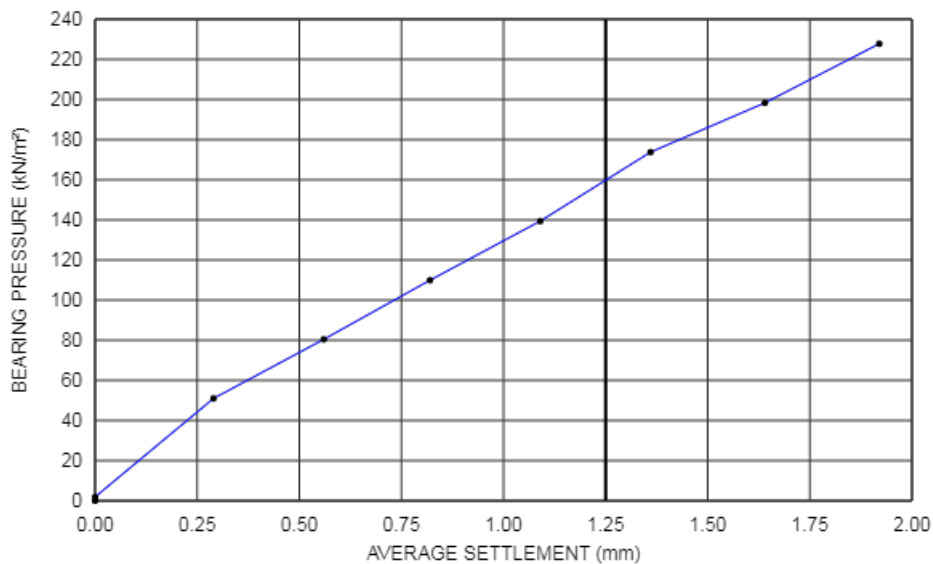
Average Bearing Pressure (P) at 1.25mm penetration

P = 160 kN / m²

Estimated C.B.R at 1.25mm penetration

Estimated C.B.R = 20 %

APPLIED LOAD vs SETTLEMENT RELATIONSHIP



Estimated C.B.R: 20 %

Remarks:

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Registered in England No. 02527130

Report version 1

Page 1 of 2

TEST REPORT:

Estimation of California Bearing Ratio

Tested in accordance with BS 1377-9 : 1990 & Design Manual for Roads and Bridges Vol. 7, Sect. 2 HD 25-94

REPORT NUMBER:

392872 / 31617.6.1.4

TEST RESULTS

LOAD APPLIED TO PLATE	AVERAGE BEARING PRESSURE	GAUGE READING			GAUGE SETTLEMENT			AVERAGE SETTLEMENT
		1	2	3	1	2	3	
kN	kN/m ²	mm			mm			mm
0.0	0.0	14.47	22.24	20.75	0.00	0.00	0.00	0.00
8.2	51.0	14.20	21.94	20.46	0.27	0.30	0.29	0.29
13.0	80.5	13.94	21.66	20.19	0.53	0.58	0.56	0.56
17.7	109.9	13.66	21.39	19.94	0.81	0.85	0.81	0.82
22.5	139.4	13.40	21.10	19.69	1.07	1.14	1.06	1.09
28.0	173.8	13.09	20.89	19.41	1.38	1.35	1.34	1.36
32.0	198.3	12.86	20.60	19.08	1.61	1.64	1.67	1.64
36.7	227.8	12.61	20.36	18.74	1.86	1.88	2.01	1.92

Remarks:

For and on behalf of CET
Matt Butt - Operations Supervisor



Approved Signatory
23-Jan-18



0927

Report Format: STP S8 rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 2 of 2

Central Embankment (Zone 4)
Earthwork Acceptability Testing

TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: A-I2/4x

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

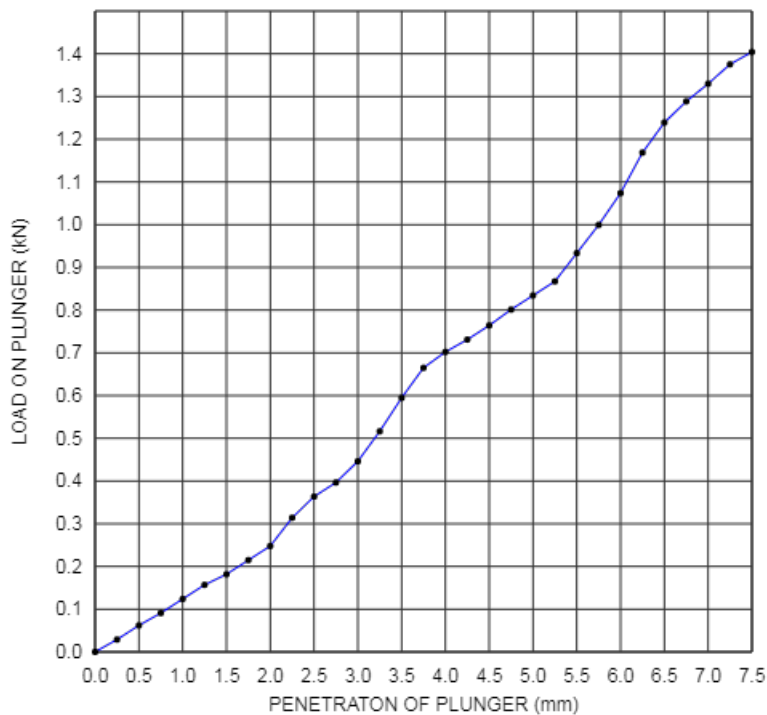
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 4.2%

MOISTURE CONTENT: 21.3%

Remarks:

Maximum load : 1.404kN

Corresponding penetration : 7.50mm

For and on behalf of CETi

Phil Mayhew - Contracts Supervisor

Approved Signatory

02-Mar-18



0927

Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.2

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: A-I3/4z

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

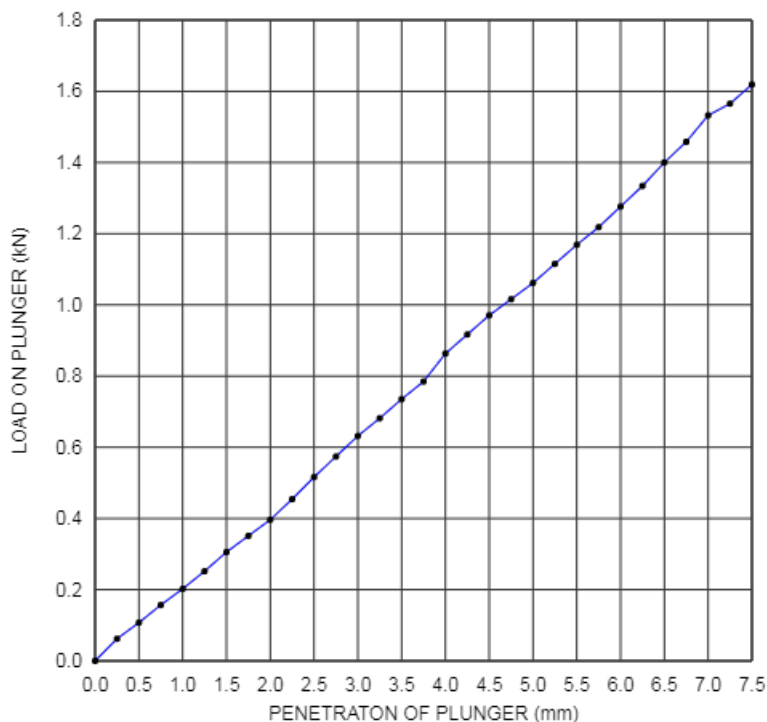
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 5.3%

MOISTURE CONTENT: 24%

Remarks:

Maximum load : 1.619kN

Corresponding penetration : 7.50mm

For and on behalf of CETi

Phil Mayhew - Contracts Supervisor

Approved Signatory

02-Mar-18



0927

Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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Report version 1

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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.3

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: A-I4/4w

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

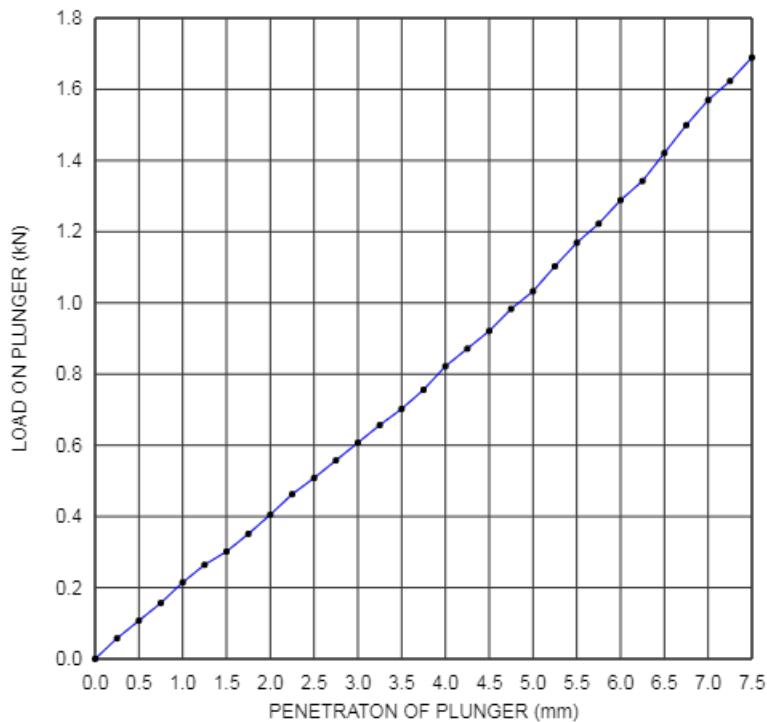
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 5.2%

MOISTURE CONTENT: 21.2%

Remarks:

Maximum load : 1.689kN

Corresponding penetration : 7.50mm

For and on behalf of CETi

Phil Mayhew - Contracts Supervisor

Approved Signatory

02-Mar-18



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Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.4

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: A-15/4y

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

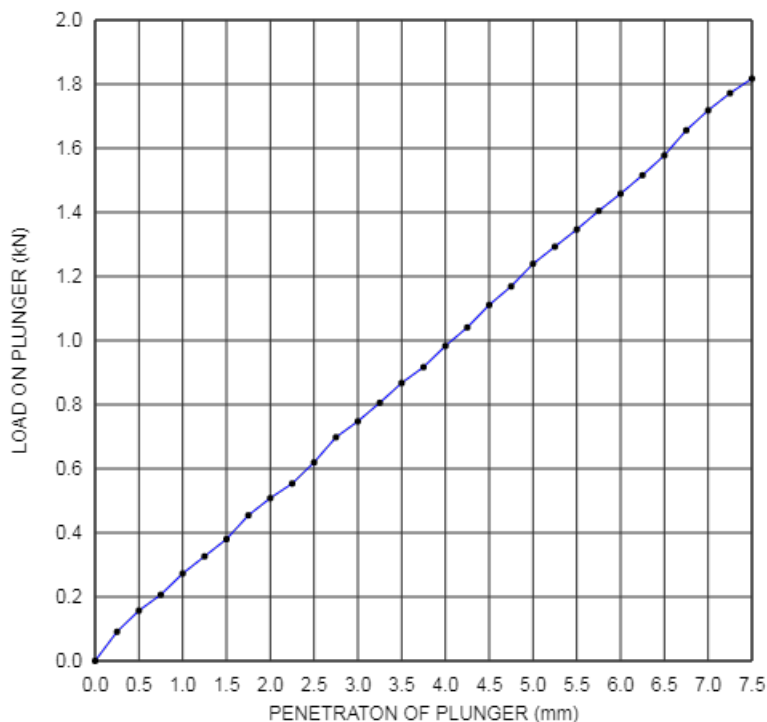
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 6.2%

MOISTURE CONTENT: 20.3%

Remarks:
Maximum load : 1.817kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33350.7.1.2

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 18/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Lee Honey

SITE: Pump Lane, Southall

LOCATION: A-L8/4X

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown Clay and Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 4.5 kg

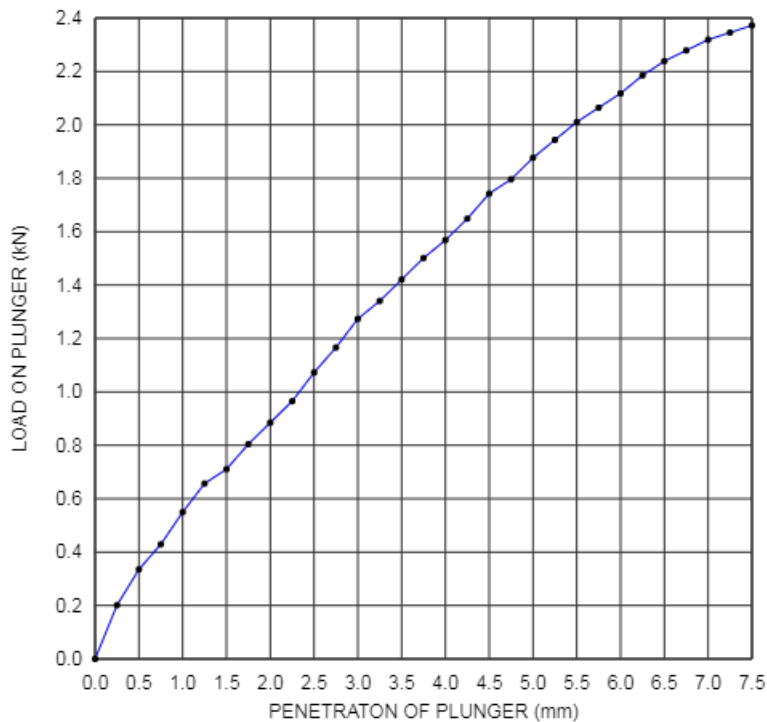
FORCE EXERTED BY SURCHARGE DISCS: 0.04410 kN

APPLIED SURCHARGE PRESSURE: 0.94 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 9.4%

MOISTURE CONTENT: 26.4%

Remarks:

Maximum load : 2.373kN

Corresponding penetration : 7.50mm

For and on behalf of CETi

Phil Mayhew - Contracts Supervisor

Approved Signatory

02-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT: **Determination of California Bearing Ratio (CBR)**
BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 34829.8.1.1

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 14/03/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold **SITE:** Pump Lane, Southall

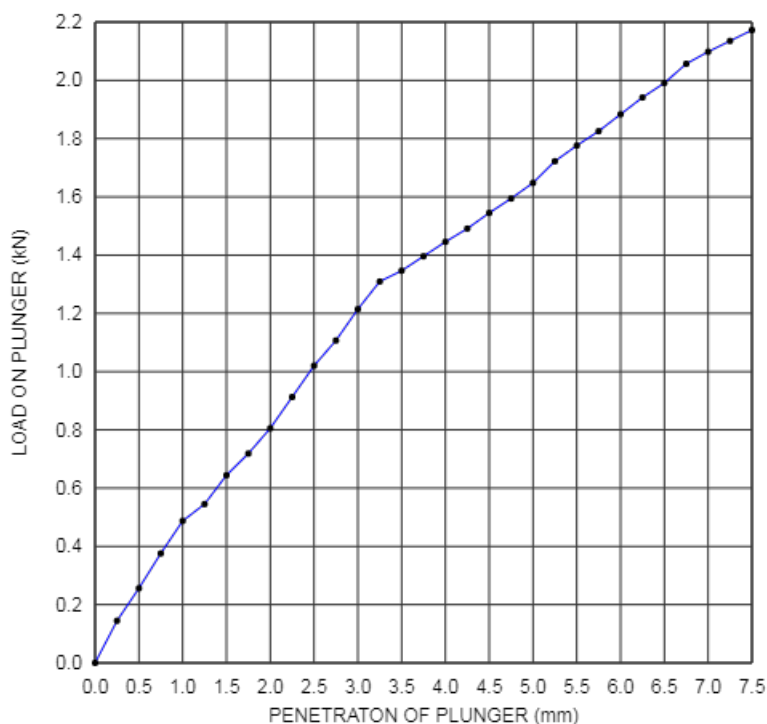
LOCATION: A-L10/4X **SUPPLIER:** In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 8.2%
MOISTURE CONTENT: 15.7%

Remarks:
Maximum load : 2.173kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Matt Butt - Operations Supervisor

MB

Approved Signatory
19-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33258.7.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B1-L1/4W

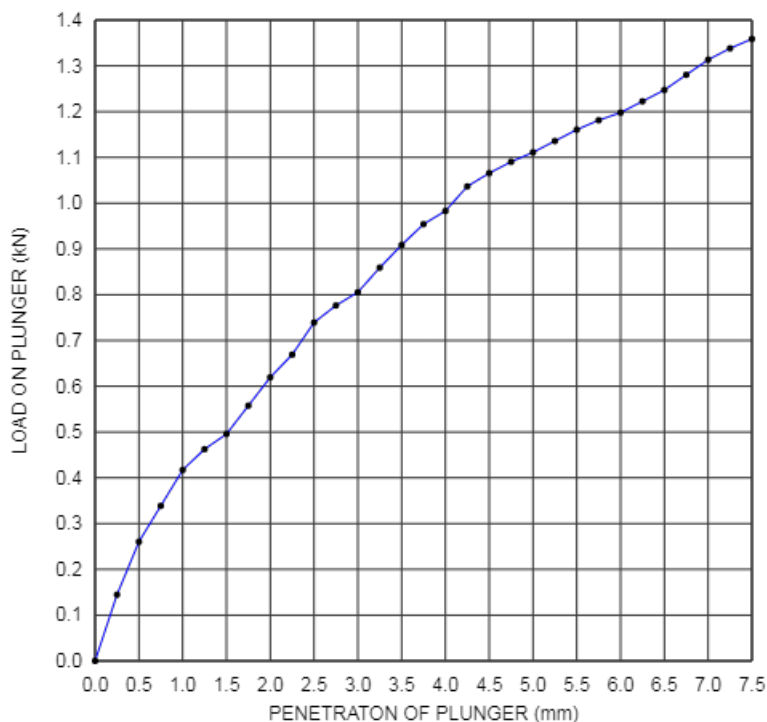
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 5.6%
MOISTURE CONTENT: 24.5%

Remarks:
Maximum load : 1.359kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT: **Determination of California Bearing Ratio (CBR)**
BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33258.7.1.2

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 16/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold **SITE:** Pump Lane, Southall

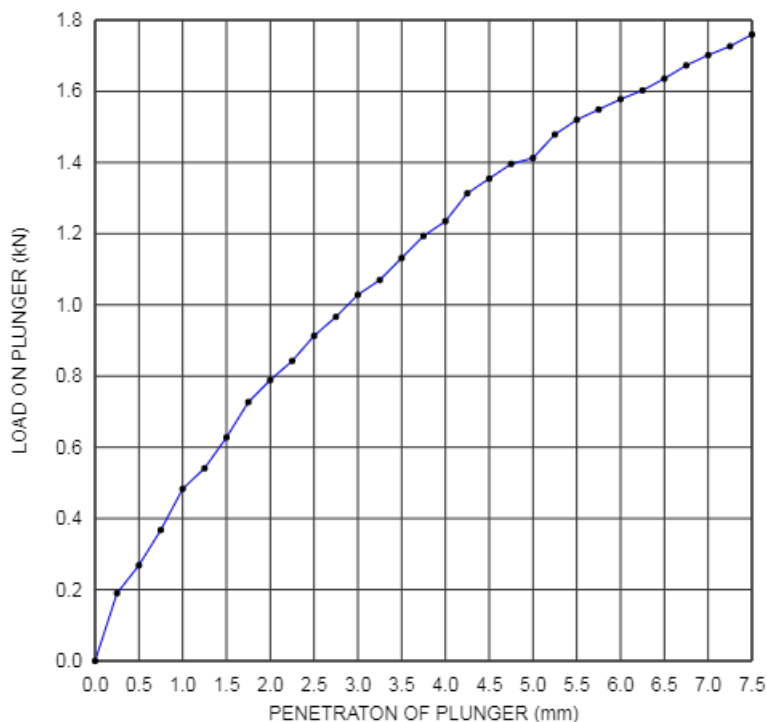
LOCATION: B1-L3/4Y **SUPPLIER:** In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 7.1%
MOISTURE CONTENT: 24.9%

Remarks:
Maximum load : 1.760kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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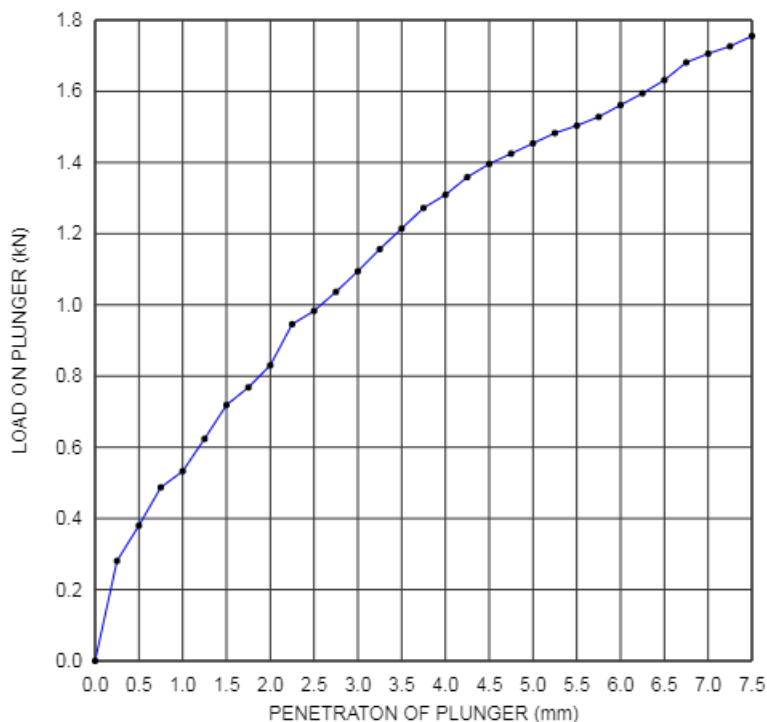
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TEST REPORT:	Determination of California Bearing Ratio (CBR)		
	BS 1377: Part 9 : 1990 In-Situ Method		
REPORT NUMBER:	392872 / 33258.7.1.3		
CLIENT REF:	392872	CLIENT:	Cognition Land & Water Ltd
DATE COMPLETED:	16/02/2018	ADDRESS:	Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ
TESTED BY:	Matt Arnold	SITE:	Pump Lane, Southall
LOCATION:	B1-L5/4Z	SUPPLIER:	In-Situ
		MATERIAL:	Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
 (Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 7.4%
MOISTURE CONTENT: 19.7%

Remarks:
 Maximum load : 1.755kN
 Corresponding penetration : 7.50mm

For and on behalf of CETI
 Phil Mayhew - Contracts Supervisor

Approved Signatory
 02-Mar-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 34829.8.1.3

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 14/03/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B1-L11/4X

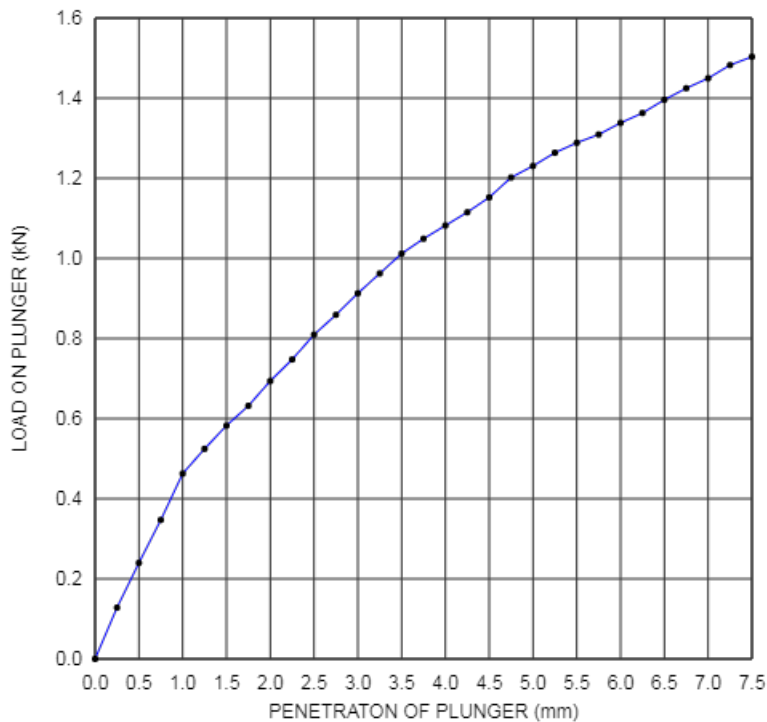
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 6.2%

MOISTURE CONTENT: 14.8%

Remarks:
Maximum load : 1.503kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Matt Butt - Operations Supervisor

MB

Approved Signatory
19-Mar-18



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Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33258.7.1.4

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B2-L1/4Z

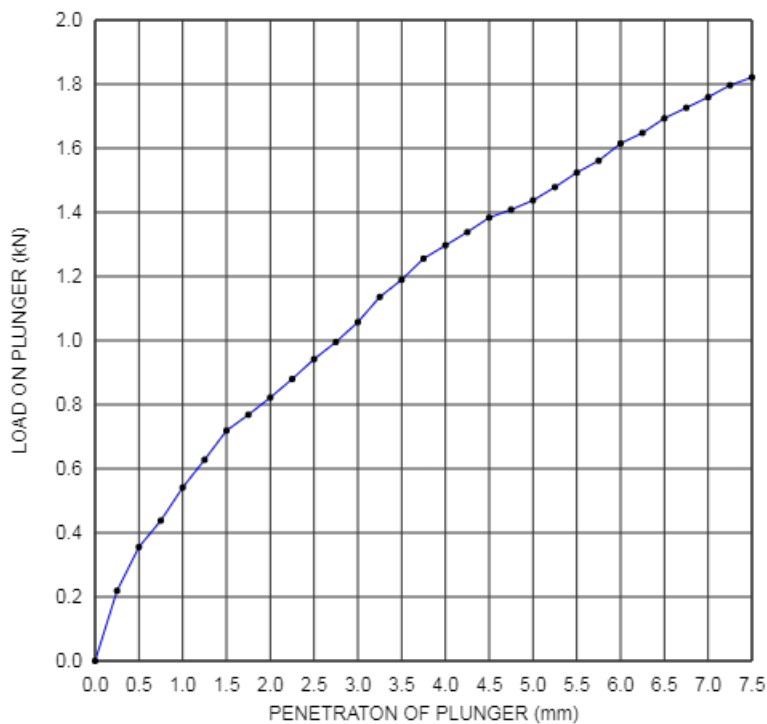
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 7.2%
MOISTURE CONTENT: 24.7%

Remarks:
Maximum load : 1.821kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



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Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33258.7.1.5

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B2-L3/4W

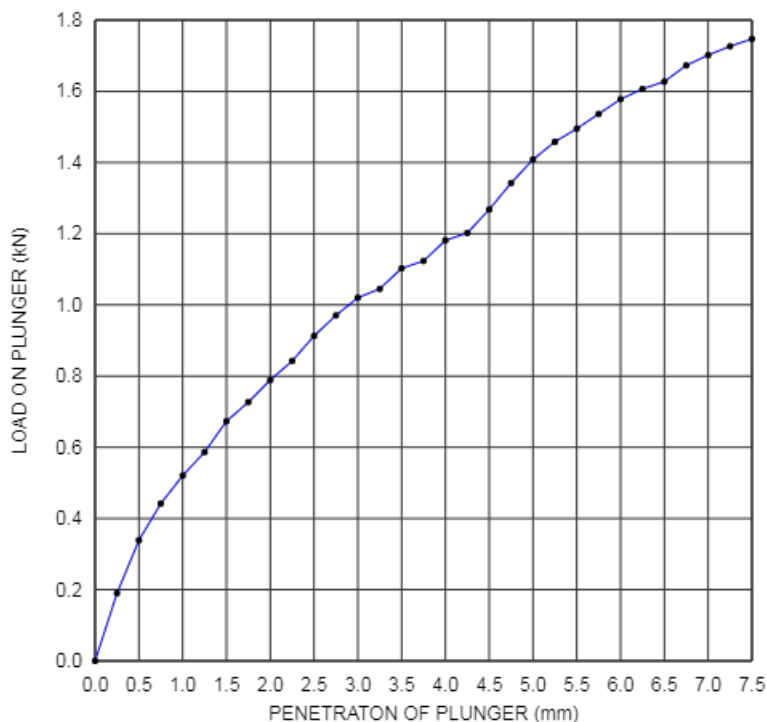
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 7.0%

MOISTURE CONTENT: 23.4%

Remarks:
Maximum load : 1.747kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Phil Mayhew - Contracts Supervisor

Approved Signatory
02-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 34829.8.1.4

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 14/03/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B2-L11/4Y

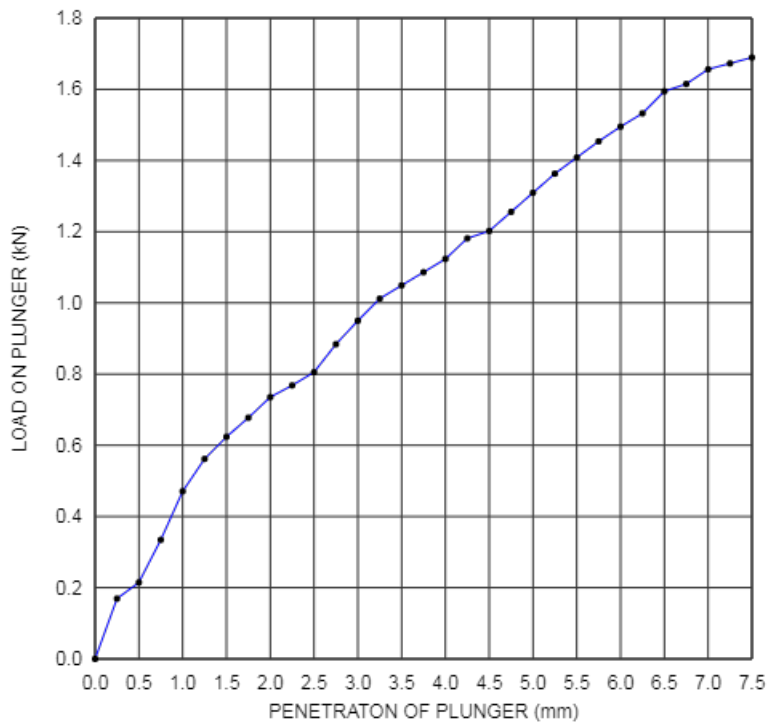
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 6.5%
MOISTURE CONTENT: 15.6%

Remarks:
Maximum load : 1.689kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Matt Butt - Operations Supervisor

MB

Approved Signatory
19-Mar-18



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Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.5

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: B-I1/4xx

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

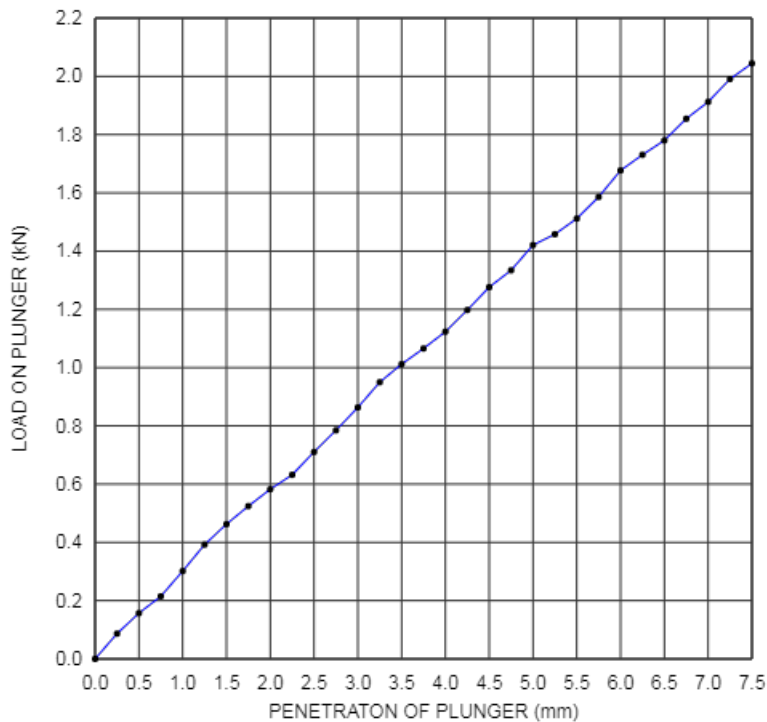
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 7.1%

MOISTURE CONTENT: 17.6%

Remarks:
Maximum load : 2.044kN
Corresponding penetration : 7.50mm

For and on behalf of CETi
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



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Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.6

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: B-I2/4yy

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

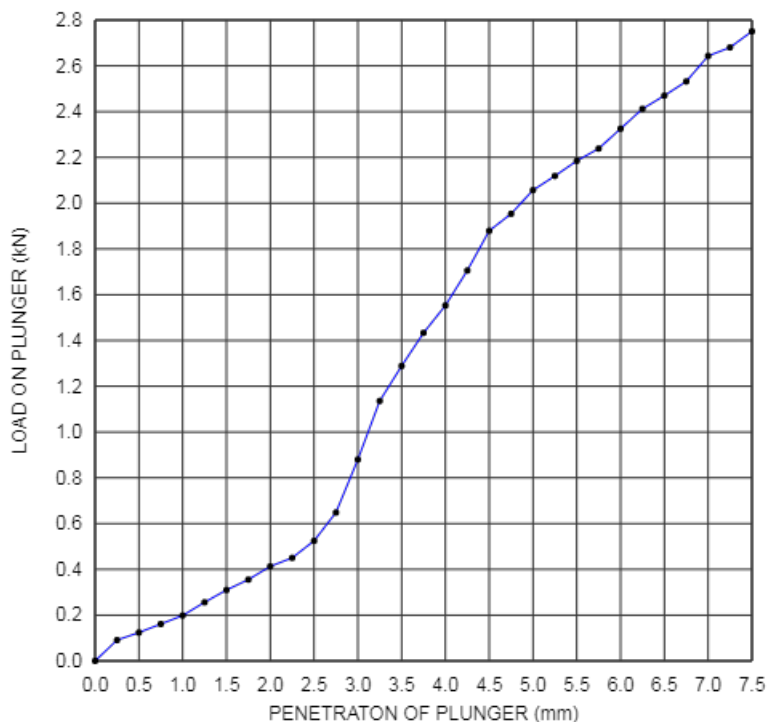
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 10.3%

MOISTURE CONTENT: 24.6%

Remarks:
Maximum load : 2.751kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Approved Signatory
02-Mar-18



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Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
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TEST REPORT: **Determination of California Bearing Ratio (CBR)**

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33168.7.1.7

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 15/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

LOCATION: B-I3/4xx

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown clay with gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 2.2 kg

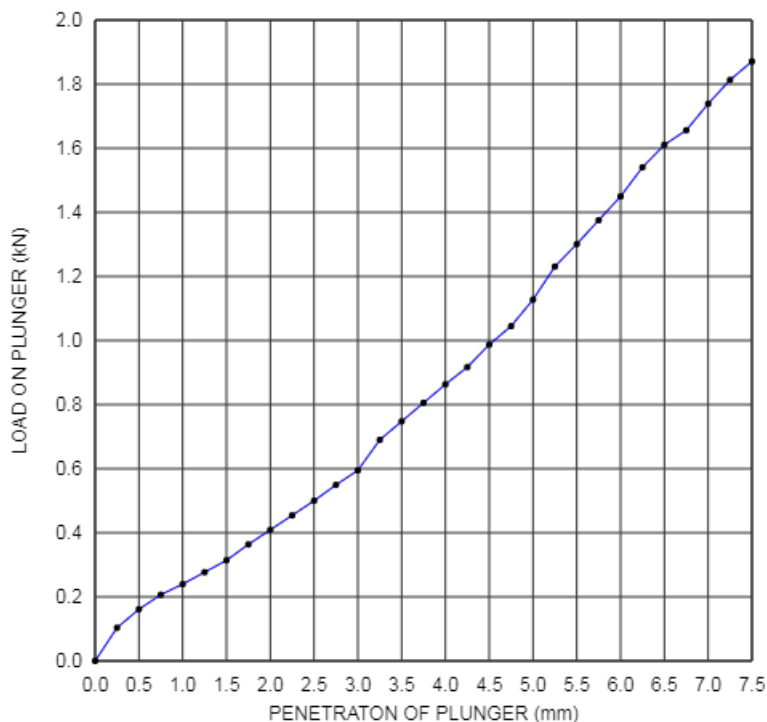
FORCE EXERTED BY SURCHARGE DISCS: 0.02156 kN

APPLIED SURCHARGE PRESSURE: 0.46 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Overcast

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 5.6%

MOISTURE CONTENT: 21.7%

Remarks:
Maximum load : 1.871kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Approved Signatory
02-Mar-18



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Registered in England No. 02527130

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Page 1 of 1

TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33258.7.1.6

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 16/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Matt Arnold

SITE: Pump Lane, Southall

LOCATION: B-L5/4XX

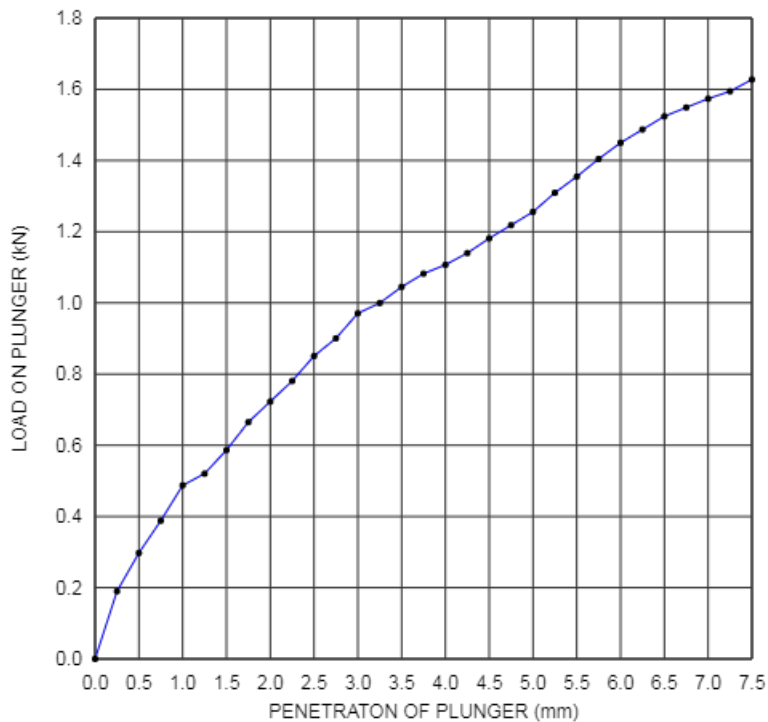
SUPPLIER: In-Situ

MATERIAL: Brown Stabilised clay with Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: .04687 m²
MASS OF SURCHARGE WEIGHTS USED: 8.959 kg
FORCE EXERTED BY SURCHARGE DISCS: 0.08780 kN
APPLIED SURCHARGE PRESSURE: 1.87 kN/m²
PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm
WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 6.4%

MOISTURE CONTENT: 23.5%

Remarks:
Maximum load : 1.627kN
Corresponding penetration : 7.50mm

For and on behalf of CETI
Phil Mayhew - Contracts Supervisor

Phil Mayhew

Approved Signatory
02-Mar-18



0927

Report Format: S/RepK30/rev.1

Northdown House, Ashford Road
Harrietsham, Nr Maidstone
Kent ME17 1QW

0843 2272362
enquiries@cet-uk.com
www.cet-uk.com

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Report version 1

Page 1 of 1

TEST REPORT: Determination of California Bearing Ratio (CBR)

BS 1377: Part 9 : 1990 In-Situ Method

REPORT NUMBER: 392872 / 33350.7.1.3

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 18/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: Lee Honey

SITE: Pump Lane, Southall

LOCATION: B-L6/4YY

SUPPLIER: In-Situ

MATERIAL: Stabilised Brown Clay and Gravel

TEST RESULTS

AREA OF SURCHARGE DISCS USED: 0.04688 m²

MASS OF SURCHARGE WEIGHTS USED: 4.5 kg

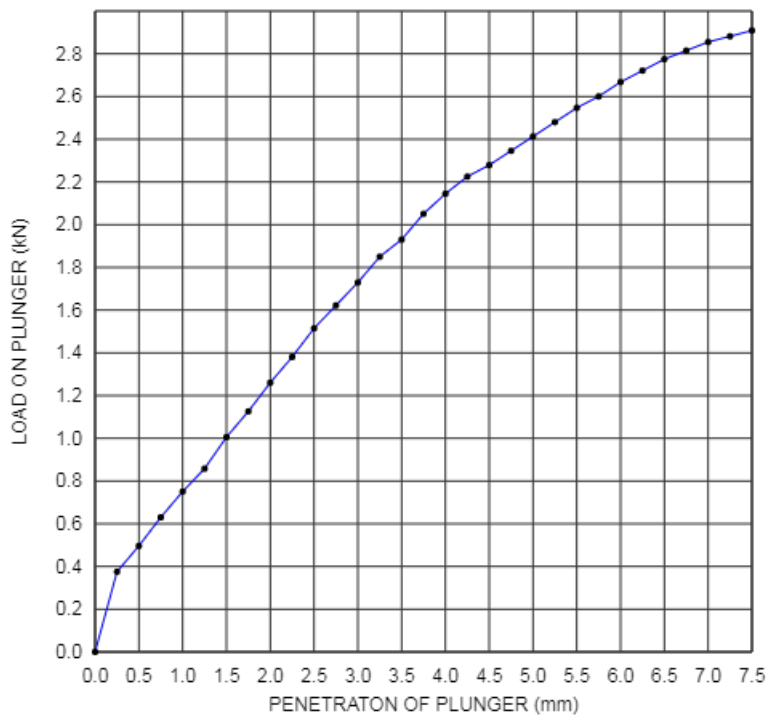
FORCE EXERTED BY SURCHARGE DISCS: 0.04410 kN

APPLIED SURCHARGE PRESSURE: 0.94 kN/m²

PARTICLES >20mm BENEATH PLUNGER: NO
(Particle details if present) mm

WEATHER CONDITIONS DURING TEST: Sunny

LOAD vs PENETRATION RELATIONSHIP



IN-SITU C.B.R. VALUE : 12.1%

MOISTURE CONTENT: 23.5%

Remarks:

Maximum load : 2.909kN

Corresponding penetration : 7.50mm

For and on behalf of CETi

Phil Mayhew - Contracts Supervisor

Approved Signatory

02-Mar-18



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Report Format: S/RepK30/rev.1

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Kent ME17 1QW

0843 2272362
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Report version 1

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TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

6

REPORT No.:	FS18-392872-353480-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	4-X	SITE:	Pump Lane, Southall
DATE TESTED:	09/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Lee Honey	MATERIAL:	Stabilised CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
1	4X	Stabilised CLAY & Gravel	95

REMARKS:

For and on behalf of CET



Approved Signatory
15-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353510-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	A-L2/4X	SITE:	Pump Lane, Southall
DATE TESTED:	12/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	James Harrison	MATERIAL:	Stabilised Brown CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
A-L2/4X	Details Not Supplied	Stabilised Brown CLAY & Gravel	80

REMARKS:

For and on behalf of CET



Approved Signatory
20-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353511-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	A-L4/4Z	SITE:	Pump Lane, Southall
DATE TESTED:	13/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Lee Honey	MATERIAL:	Stabilised Brown CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
A-L4/4Z	Details Not Supplied	Stabilised Brown CLAY & Gravel	75

REMARKS:

For and on behalf of CET



Approved Signatory
20-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353512-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	A-L3/4W	SITE:	Pump Lane, Southall
DATE TESTED:	14/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	James Harrison	MATERIAL:	Stabilised Brown CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
A-L3/4W	Details Not Supplied	Stabilised Brown CLAY & Gravel	85

REMARKS:

For and on behalf of CET



Approved Signatory
20-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353513-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	See Below	SITE:	Pump Lane, Southall
DATE TESTED:	15/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Lee Honey	MATERIAL:	Stabilised Brown CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
A-L5/4Y	Details Not Supplied	Stabilised Brown CLAY & Gravel	70
B-L1/4XX	Details Not Supplied	Stabilised Brown CLAY & Gravel	80
B-L2/4YY	Details Not Supplied	Stabilised Brown CLAY & Gravel	75
B-L3/4XX	Details Not Supplied	Stabilised Brown CLAY & Gravel	70

REMARKS:

For and on behalf of CET



Approved Signatory
20-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: **DETERMINATION OF DEGREE OF PULVERISATION**
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353525-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	A-L7/4Y	SITE:	Pump Lane, Southall
DATE TESTED:	17/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Lee Honey	MATERIAL:	Stabilised Brown CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
A-L7/4Y	Details Not Supplied	Stabilised Brown CLAY & Gravel	95

REMARKS:

For and on behalf of CET



Approved Signatory
19-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

REPORT No.:	FS18-392872-353521-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	See Below	SITE:	Pump Lane, Southall
DATE TESTED:	16/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Matthew Arnold	MATERIAL:	Brown Gravelly Stabilised CLAY

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
B-L5/4XX	Details Not Supplied	Brown Gravelly Stabilised CLAY	70
B-L4/4YY	Details Not Supplied	Brown Gravelly Stabilised CLAY	70

REMARKS:

For and on behalf of CET



Approved Signatory
20-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor



Report Format : DOP(sum) rev.1

TEST REPORT: DETERMINATION OF DEGREE OF PULVERISATION
BS 1924 :Part 2:1990 clause 1.5

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REPORT No.:	FS18-392872-353478-1	CLIENT:	Cognition Land & Water Ltd
TEST No.:	-	ADDRESS:	Springfield House,Oatlands Drive, Weybridge
CLIENT REF:	Trial Pad	SITE:	Pump Lane, Southall
DATE TESTED:	08/02/2018	SUPPLIER:	Details Not Supplied
TESTED BY:	Lee Honey	MATERIAL:	Stabilised CLAY & Gravel

TEST RESULTS

Test No.	Location	Visual Material Description	Degree of Pulverisation (P) %
1	Trial Pad	Stabilised CLAY & Gravel	90

REMARKS:

For and on behalf of CET



Approved Signatory
15-Feb-18

John Newbery - Laboratory Manager
Matt Oliver- Site Manager
Adrian McGilvery - Senior Technician
Chris Davidson - Laboratory Supervisor
Phil Mayhew - Operations Supervisor

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Report Format : DOP(sum) rev.1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



0927

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

CET is the trading name for CET Structures Limited.
 Registered in England No. 02527130

Report version 1

Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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 Registered in England No. 02527130

Report version 1

Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18

CET is the trading name for CET Structures Limited.
 Registered in England No. 02527130

Report version 1



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Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



0927

Report Format: S/Rep STP NDM-S/rev.2

Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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 Registered in England No. 02527130

Report version 1

Page 1 of 1

TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

MAX DRY DENSITY: 2.01 Mg/m³ **VARIATIONS FROM PROCEDURE:** N/A

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

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For and on behalf of CET
 Matt Butt - Operations Supervisor



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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
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	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
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	2.203	0.211	2.254	12.6		
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	2.170	0.191	2.220	11.4		

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For and on behalf of CET
 Matt Butt - Operations Supervisor



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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
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	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
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	2.170	0.191	2.220	11.4		

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For and on behalf of CET
 Matt Butt - Operations Supervisor



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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
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Northdown House, Ashford Road
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 Kent ME17 1QW

0843 2272362
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
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For and on behalf of CET
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
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For and on behalf of CET
 Matt Butt - Operations Supervisor



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
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For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
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For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
 05-Feb-18



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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT: **Estimation of In-Situ Dry Density And Relative Compaction**
 CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32288.1.1.9

CLIENT REF: 392872 **CLIENT:** Cognition Land & Water Ltd

DATE COMPLETED: 02/02/2018 **ADDRESS:** Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison **SITE:** Pump Lane, Southall

GAUGE MODEL No: T3440 **SUPPLIER:** Day aggregates

GAUGE SERIAL No: 15414 **MATERIAL:** Orange sand and gravel

CORRECTION FACTORS: Bulk $\gamma=1.023$ **LOCATION:** Adjacent to bridge north side
 Moisture $b=1.192$

VARIATIONS FROM PROCEDURE: N/A

MAX DRY DENSITY: 2.01 Mg/m³ **COMPLIANCE LIMITS:** 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge north side Layer 5	2.112	0.193	2.161	11.9	1.93	96
	2.101	0.190	2.149	11.8		
Adjacent to bridge north side Layer 5	2.192	0.230	2.242	13.9	1.97	98
	2.190	0.222	2.240	13.4		
Adjacent to bridge north side Layer 6	2.111	0.203	2.160	12.6	1.92	95
	2.110	0.200	2.159	12.4		
Adjacent to bridge north side Layer 6	2.155	0.198	2.205	12.0	1.96	98
	2.140	0.193	2.189	11.7		
Adjacent to bridge north side Layer 7	2.193	0.198	2.243	11.8	2.00	100
	2.180	0.193	2.230	11.5		
Adjacent to bridge north side Layer 7	2.143	0.181	2.192	10.9	1.97	98
	2.133	0.187	2.182	11.4		
Adjacent to bridge north side Layer 8	2.211	0.233	2.262	14.0	1.99	99
	2.203	0.211	2.254	12.6		
Adjacent to bridge north side Layer 8	2.193	0.199	2.243	11.8	2.00	99
	2.170	0.191	2.220	11.4		

Remarks:
 Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.
 * Denotes specification non-compliance (if applicable)

For and on behalf of CET
 Matt Butt - Operations Supervisor



Approved Signatory
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Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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TEST REPORT:
Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32485.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 06/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 7	1.943	0.206	1.943	11.9	1.72	97
	1.927	0.218	1.927	12.8		
Adjacent to bridge layer 7	1.924	0.192	1.924	11.1	1.74	98
	1.938	0.186	1.938	10.6		
Adjacent to bridge layer 8	1.939	0.197	1.939	11.3	1.73	98
	1.909	0.194	1.909	11.3		
Adjacent to bridge layer 8	1.946	0.193	1.946	11.0	1.76	99
	1.953	0.190	1.953	10.8		
Adjacent to bridge layer 9	1.933	0.211	1.933	12.3	1.72	97
	1.940	0.220	1.940	12.8		
Adjacent to bridge layer 9	1.922	0.213	1.922	12.5	1.70	96
	1.911	0.220	1.911	13.0		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Matt Butt - Operations Supervisor



Approved Signatory

07-Feb-18



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 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
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TEST REPORT:
Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32485.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 06/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 7	1.943	0.206	1.943	11.9	1.72	97
	1.927	0.218	1.927	12.8		
Adjacent to bridge layer 7	1.924	0.192	1.924	11.1	1.74	98
	1.938	0.186	1.938	10.6		
Adjacent to bridge layer 8	1.939	0.197	1.939	11.3	1.73	98
	1.909	0.194	1.909	11.3		
Adjacent to bridge layer 8	1.946	0.193	1.946	11.0	1.76	99
	1.953	0.190	1.953	10.8		
Adjacent to bridge layer 9	1.933	0.211	1.933	12.3	1.72	97
	1.940	0.220	1.940	12.8		
Adjacent to bridge layer 9	1.922	0.213	1.922	12.5	1.70	96
	1.911	0.220	1.911	13.0		

Remarks:

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CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32485.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 06/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to bridge layer 7	1.943	0.206	1.943	11.9	1.72	97
	1.927	0.218	1.927	12.8		
Adjacent to bridge layer 7	1.924	0.192	1.924	11.1	1.74	98
	1.938	0.186	1.938	10.6		
Adjacent to bridge layer 8	1.939	0.197	1.939	11.3	1.73	98
	1.909	0.194	1.909	11.3		
Adjacent to bridge layer 8	1.946	0.193	1.946	11.0	1.76	99
	1.953	0.190	1.953	10.8		
Adjacent to bridge layer 9	1.933	0.211	1.933	12.3	1.72	97
	1.940	0.220	1.940	12.8		
Adjacent to bridge layer 9	1.922	0.213	1.922	12.5	1.70	96
	1.911	0.220	1.911	13.0		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

* Denotes specification non-compliance (if applicable)

For and on behalf of CET

Matt Butt - Operations Supervisor



Approved Signatory

07-Feb-18



0927

Report Format: S/Rep STP NDM-S/rev.2

 Northdown House, Ashford Road
 Harrietsham, Nr Maidstone
 Kent ME17 1QW

 0843 2272362
 enquiries@cet-uk.com
 www.cet-uk.com

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 Registered in England No. 02527130

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TEST REPORT:
Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32485.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 06/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

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CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 06/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated grey ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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Adjacent to bridge layer 8	1.939	0.197	1.939	11.3	1.73	98
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Adjacent to bridge layer 8	1.946	0.193	1.946	11.0	1.76	99
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Adjacent to bridge layer 9	1.922	0.213	1.922	12.5	1.70	96
	1.911	0.220	1.911	13.0		

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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32677.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 08/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated Grey Ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Adjacent to second bridge	1.919	0.192	1.919	11.1	1.72	97
	1.927	0.212	1.927	12.4		
Adjacent to second bridge	1.972	0.235	1.972	13.5	1.74	99
	1.982	0.231	1.982	13.2		

Remarks:

Nuclear density readings are only an estimate of actual density. If actual density is required the method specified in the contract should be adopted.

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 For and on behalf of CET
 Matt Butt - Operations Supervisor



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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32677.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 08/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated Grey Ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

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CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 08/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated Grey Ash

 CORRECTION FACTORS: Bulk $\gamma=1$
Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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	1.982	0.231	1.982	13.2		

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 For and on behalf of CET
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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32677.1.1.1

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 08/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Day Aggregates

GAUGE SERIAL No: 15414

MATERIAL: Incinerated Grey Ash

 CORRECTION FACTORS: Bulk $\gamma=1$
 Moisture $b=1$

LOCATION: Adjacent to bridge north side

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.77 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
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TEST REPORT: Estimation of In-Situ Dry Density And Relative Compaction

CET's In-House Procedure STP NDM-S - Method D (Direct transmission)

REPORT NUMBER: 392872 / 32677.1.1.3

CLIENT REF: 392872

CLIENT: Cognition Land & Water Ltd

DATE COMPLETED: 08/02/2018

ADDRESS: Springfield House, Oatlands Drive, Weybridge, Surrey, KT13 9LZ

TESTED BY: James Harrison

SITE: Pump Lane, Southall

GAUGE MODEL No: T3440

SUPPLIER: Site Won

GAUGE SERIAL No: 15414

MATERIAL: 6F5

 CORRECTION FACTORS: Bulk $\gamma=1$
 Moisture $b=1$

LOCATION: Fill area

VARIATIONS FROM PROCEDURE: N/A

 MAX DRY DENSITY: 1.84 Mg/m³

COMPLIANCE LIMITS: 95% Minimum Compaction

TEST RESULTS

Test No.	Gauge Bulk Density (Mg/m ³)	Gauge Moisture Density (Mg/m ³)	Corrected Bulk Density (Mg/m ³)	Corrected Moisture Content (%)	Mean Dry Density (Mg/m ³)	Mean Relative Compaction (%)
Fill area	2.007	0.238	2.007	13.5	1.76	96
	2.019	0.267	2.019	15.2		
Fill area	2.024	0.206	2.024	11.3	1.83	99
	2.036	0.200	2.036	10.9		
Fill area	2.036	0.207	2.036	11.3	1.83	100
	2.037	0.201	2.037	10.9		

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