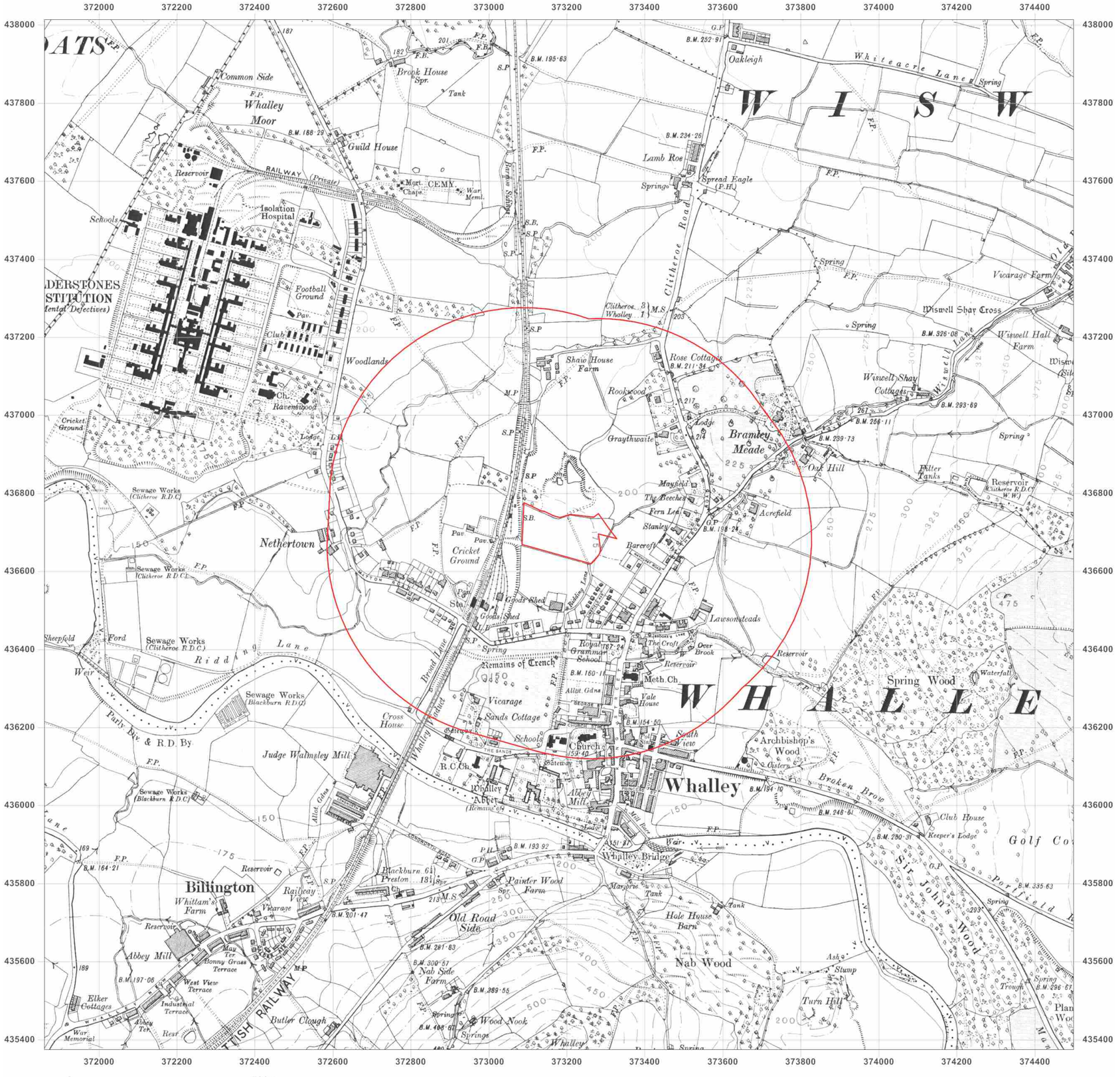

GroundSure
ENVIRONMENTAL INSIGHT

Site Details:

5,HAYHURST ROAD,WHALLEY,CLITHEROE, BB7 9RL

Client Ref: 45054
Report Ref: HMD-982542
Grid Ref: 373179, 436693

Map Name: County Series

Map date: **1932-1933**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1844
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

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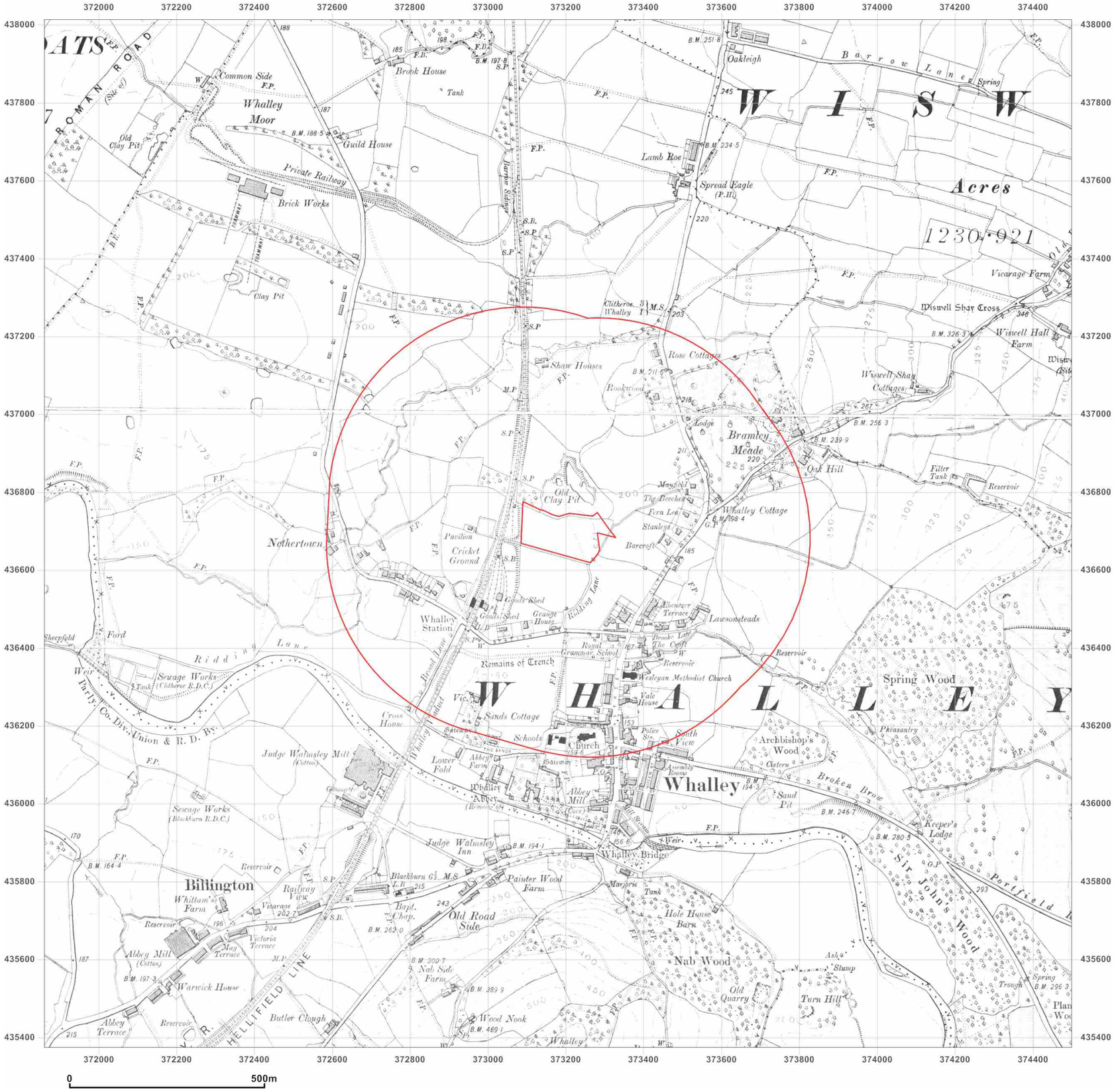
E: info@groundsure.com
W: www.groundsure.com

Production date: 10 July 2013

To view map legend click here *Legend*



GroundSure
ENVIRONMENTAL INSIGHT

Site Details:

5,HAYHURST ROAD,WHALLEY,CLITHEROE, BB7 9RL

Client Ref: 45054
Report Ref: HMD-982542
Grid Ref: 373179, 436693

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

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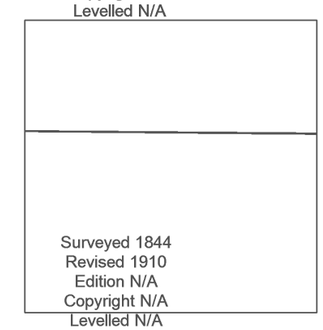
Surveyed 1844
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1844
Revised 1910
Edition N/A
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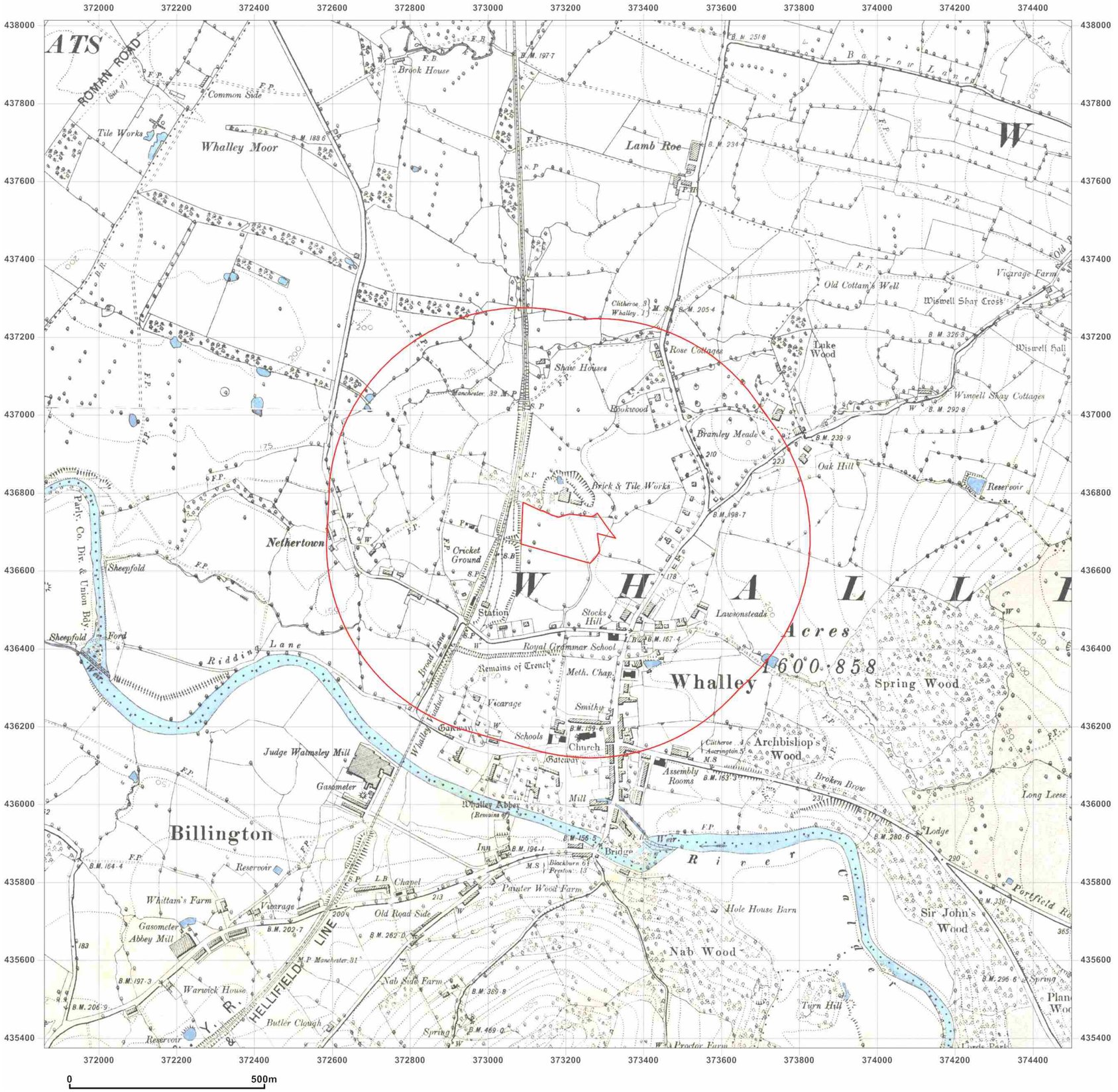
To view map legend click here *Legend*



GroundSure
ENVIRONMENTAL INSIGHT

Site Details:

5,HAYHURST ROAD,WHALLEY,CLITHEROE, BB7 9RL

Client Ref: 45054
Report Ref: HMD-982542
Grid Ref: 373179, 436693

Map Name: County Series

Map date: **1892**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1892
Edition N/A
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Production date: 10 July 2013

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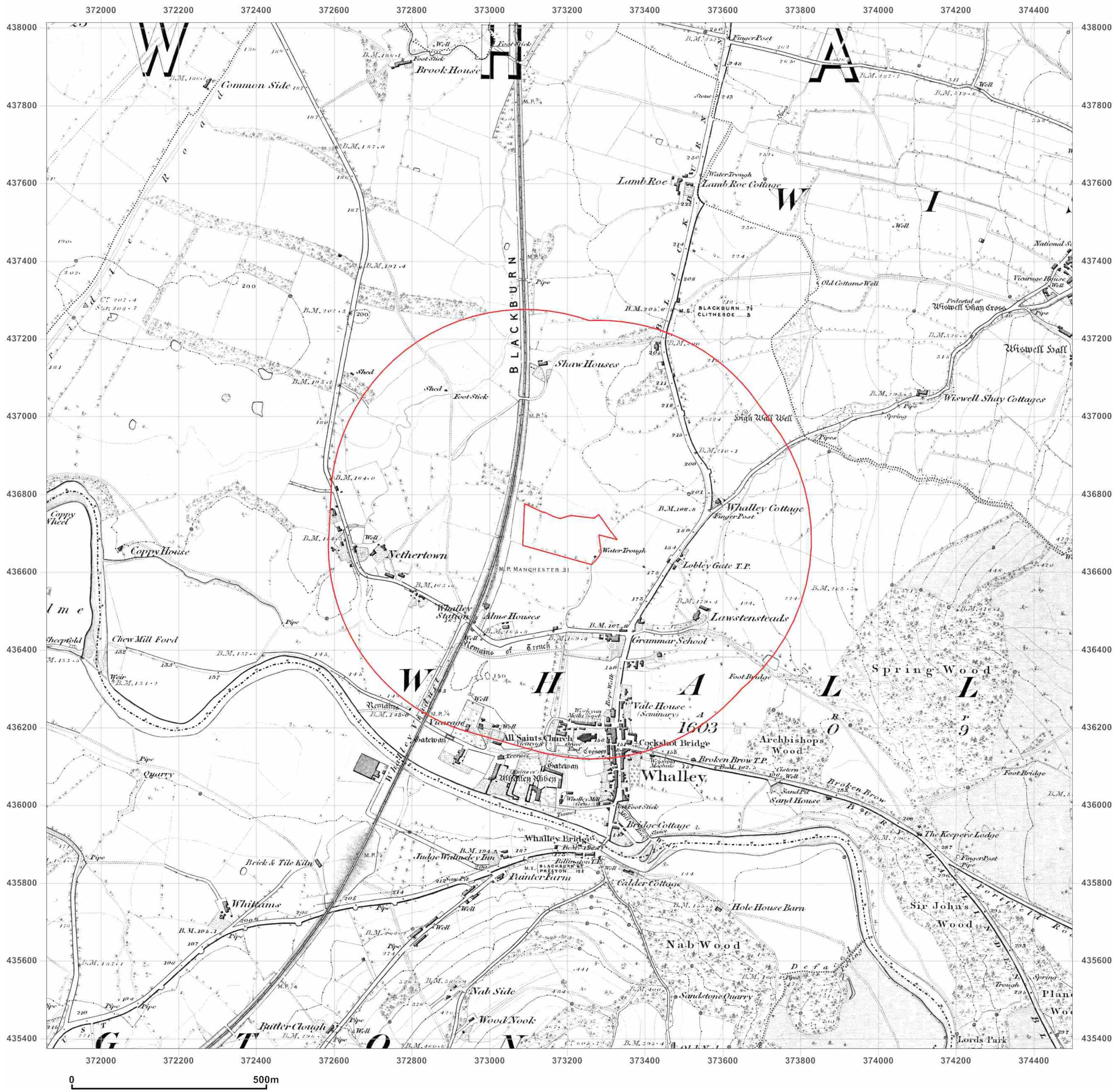

GroundSure
ENVIRONMENTAL INSIGHT

Site Details:

5,HAYHURST ROAD,WHALLEY,CLITHEROE, BB7 9RL

Client Ref: 45054
Report Ref: HMD-982542
Grid Ref: 373179, 436693

Map Name: County Series

Map date: **1846**

Scale: 1:10,560

Printed at: 1:10,560

N W E S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 10 July 2013

To view map legend click here *Legend*

APPENDIX VI

EXPLORATORY LOGS

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.70m x 0.70m x 3.20m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D1				(0.20)	Grass over Dark brown, clayey, sandy TOPSOIL with rootlets.		
0.10	J2				0.20			
0.40	HV 70kPa		69.3,71.3,69.3/Av. 69.97			Firm, medium strength, light grey mottled light brown and orange, slightly sandy, slightly gravelly CLAY with occasional rootlets. Gravel is subangular to subrounded, medium and coarse including siltstone and sandstone.		
0.50	B3							
0.50	D4				(1.40)			
1.00	HV 62kPa		61.4,63.4,61.4/Av. 62.07					
1.00	B5							
1.00	D6							
			Water strike(1) at 1.60m.		1.60			▽1
1.80	B7					Grey, slightly silty, fine to coarse SAND and subangular to subrounded, fine to coarse GRAVEL with medium cobble content. Gravel includes sandstone, siltstone and granite.		
1.80	D8							
					(1.60)			
2.80	B9							
2.80	D10							
					3.20			
						Complete at 3.20m		

Plan

Remarks

Major spalling of trial pit sides below 1.60m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP01

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.90m x 0.70m x 3.00m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15) 0.15	Grass over dark brown, clayey, sandy TOPSOIL with rootlets.		
0.30	HV 74kPa		73.3,75.2,73.3/Av. 73.93			Firm, medium strength, light grey mottled light brown and orange, slightly sandy, slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse including sandstone, siltstone and granite.		
0.40	B1				(1.05)	Below 0.70m: soft, gravelly with many bands of orange, fine to coarse sand.		
0.40	D2							
0.40	J3							
1.00	B4				1.20			
1.00	D5		Water strike(1) at 1.30m.			Grey, slightly silty, fine to coarse SAND and subrounded and rounded, fine to coarse GRAVEL with medium cobble content. Gravel and cobbles include sandstone, siltstone and granite.		▽1
1.80	B6				(1.20)			
1.80	D7							
					2.40	Stiff, high strength, brown, silty CLAY.		
2.60	HV 138kPa		144.3,132.6,136.5/Av. 137.80		(0.60)			
2.80	B8							
2.80	D9				3.00	Complete at 3.00m		

Plan

Remarks

Major spalling of trial pit sides between 1.50m and 2.40m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP02

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.80m x 0.70m x 3.60m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D1				(0.20)	Grass over dark brown, very clayey, sandy TOPSOIL with rootlets.		
0.10	J2				0.20			
0.40	HV 79kPa		81.2,79.2,77.2/Av. 79.20			Firm, medium to high strength, light grey/brown mottled light brown and orange, silty, slightly sandy CLAY.		
0.50	B3				(1.00)			
0.50	D4					Below 0.70m: slightly gravelly. Gravel is subangular to subrounded, fine to coarse including sandstone and siltstone		
1.30	B5				1.20			
1.30	D6		Water strike(1) at 1.50m.			Grey, slightly silty, fine to coarse SAND and subrounded and rounded, fine to coarse GRAVEL with medium cobble content. Gravel includes sandstone, siltstone, granite and quartz.		▽1
					(1.30)			
2.60	B7		132.6,136.5,132.6/Av. 133.90		2.50	Stiff, high strength, brown, silty CLAY with laminae of silt.		
2.60	HV 134kPa							
2.60	D8				(1.10)			
3.60	B9				3.60	Complete at 3.60m		

Plan

Remarks

Major spalling of trial pit sides between 1.50m and 2.50m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP03

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.80m x 0.70m x 3.60m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	Grass over dark brown, clayey, slightly sandy TOPSOIL with rootlets.		
0.40	B1		140.4,132.6,140.4/Av.			Stiff, high strength, light grey mottled light brown and orange, silty, slightly sandy CLAY.		
0.40	HV 138kPa		137.80					
0.40	D2							
0.40	J3							
1.00	B4		132.6,128.7,132.6/Av.		(1.60)	Below 0.90m: brown mottled grey.		
1.00	HV 131kPa		131.30					
1.00	D5							
			Water strike(1) at 1.80m.		1.80			▽1
2.00	B6					Brown, slightly silty, fine to coarse SAND and subangular to rounded, fine to coarse GRAVEL including sandstone, siltstone, granite and quartz.		
2.00	D7				(0.90)			
					2.70	Stiff, very high strength, brown, silty CLAY with laminae of silt.		
3.00	B8							
3.00	D9				(0.90)			
3.20	HV 157kPa		159.9,156,156/Av. 157.30					
					3.60	Complete at 3.60m		

Plan

Remarks

Major spalling of trial pit sides between 1.80m and 2.70m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP04

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	3.00m x 0.70m x 3.00m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.15	D1				(0.20)	Grass over dark brown, clayey, slightly sandy TOPSOIL with rootlets.		
0.15	J2				0.20			
0.40	HV 80kPa		79.2,81.2,79.2/Av. 79.87			Firm, medium to high strength, light brown and light grey, silty, slightly sandy CLAY.		
0.40	B3							
0.40	D4							
1.00	HV 71kPa		69.3,71.3,71.3/Av. 70.63		(1.70)			
1.00	B5							
1.00	D6							
					1.90	Grey, slightly silty, fine to coarse SAND and subangular to rounded, fine to coarse GRAVEL with medium cobble content. Gravel and cobbles includes sandstone, siltstone and granite.		
2.20	B7		Water strike(1) at 2.20m.					▽1
2.20	D8				(1.10)			
3.00	D10				3.00			
3.00	B9					Terminated at 3.00m		

Plan

Remarks

Trial pit terminated at 3.00m due to wall collapsing from 0.20m.
Major spalling of trial pit sides below 0.30m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP05

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	3.00m x 0.70m x 3.80m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	Grass over dark brown, clayey, sandy TOPSOIL with rootlets.		
0.40	HV 81kPa		79.2,81.2,81.2/Av. 80.53			Firm, medium to high strength, light brown mottled light grey, silty, slightly sandy CLAY.		
0.40	B1							
0.40	D2							
0.40	J3				(1.10)			
					1.30			
1.40	B4				(0.40)	Soft, grey/blue, very sandy, gravelly CLAY. Gravel is subangular to rounded, fine to coarse including sandstone and siltstone.		
1.40	D5				1.70			
			Water strike(1) at 1.80m.		(0.60)	Brown, silty, fine to coarse SAND and subangular to rounded, fine to coarse GRAVEL with medium cobble content. Gravel includes sandstone, siltstone, granite and quartz.		▽1
2.00	B6				2.30			
2.00	D7							
2.50	HV 87kPa		85.1,89.1,87.1/Av. 87.10			Brown SILT with laminae of clay.		
3.00	B8				(1.50)			
3.00	D9							
					3.80	Complete at 3.80m		

Plan

Remarks

Slight spalling of trial pit sides between 1.70m and 2.30m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP06

IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.80m x 0.70m x 3.40m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.60)	Grass over MADE GROUND: Dark grey, sandy, angular and subangular, fine to coarse GRAVEL with cobbles of sandstone. Gravel includes sandstone, limestone and crushed brick.		
0.20	D2							
0.20	J3				0.60			
0.80	HV 73kPa		75.2,69.3,73.3/Av. 72.60			Firm, medium strength, light grey mottled light brown, silty, slightly sandy CLAY.		
0.80	B4							
0.80	D5							
0.80	J6							
1.80	HV 83kPa		83.2,81.2,83.2/Av. 82.53		(2.30)	Below 1.80m: high strength.		
1.80	B7					Below 2.00m: sandy and gravelly.		
1.80	D8							
			Water strike(1) at 2.90m.		2.90			▽1
3.00	B9				(0.50)	Grey, fine to coarse SAND and subangular to rounded, fine to coarse GRAVEL including sandstone, siltstone, quartz and granite.		
3.00	D10				3.40			
						Complete at 3.40m		

Plan

Remarks

Major spalling of trial pit sides below 2.90m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP07

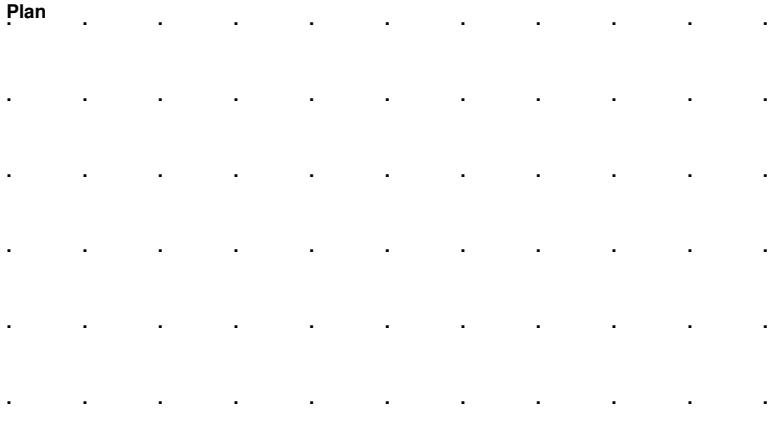
IAN FARMER ASSOCIATES

Site	Trial Pit Number
Co-op, Whalley	TP08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.80m x 0.70m x 3.80m		Fairhust	41036
	Location	**Dates** 24/08/2012	**Engineer** Fairhurst	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	Grass over dark brown, clayey, slightly sandy TOPSOIL with rootlets.		
0.40	HV 89kPa		89.1,89.1,89.1/Av. 89.10			Firm, medium strength, light brown mottled light grey, silty, slightly sandy CLAY.		
0.40	B1							
0.40	D2					At 0.40m: high strength. Below 0.90m: occasional lenses of silt.		
1.00	HV 60kPa		59.4,61.4,59.4/Av. 60.07					
1.00	B3					At 1.10m: band (150mm) of light grey silty sand.		
1.00	D4				(2.50)			
2.00	HV 61kPa		59.4,59.4,63.4/Av. 60.73					
2.00	B5							
2.00	D6							▽1
			Water strike(1) at 2.70m.		2.70 (0.40) 3.10	Brown, fine to coarse SAND and subangular to rounded, fine to coarse GRAVEL including sandstone, siltstone and quartz.		
3.20	B7					Stiff, very high strength, brown, silty CLAY.		
3.20	D8				(0.70)			
3.50	HV 168kPa		163.8,175.5,163.8/Av. 167.70		3.80			
						Complete at 3.80m		

Plan



Remarks

Slight spalling of trial pit sides between 2.70m and 3.10m during excavation.

Scale (approx)	Logged By	Figure No.
1:50	TB	41036.TP08

Trial Pit Record

Trial Pit Number: TP101

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

REC Resource & Environmental Consultants

Osprey House
Pacific Quay
Broadway
Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
www.recltd.co.uk

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly clayey fine to medium SAND. (Topsoil).	0.29	ES	0.10			
		Firm brown mottled slightly sandy CLAY.						
1.0			1.20	ES	1.00	Water at 1.90m bgl		
		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.00	ES	1.90			
2.0		Terminated at 2.00m bgl due to collapse.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.00m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 1.90m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP102

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

REC Resource & Environmental Consultants

Osprey House
Pacific Quay
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Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
www.recltd.co.uk

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey fine to medium SAND. (Topsoil).	0.29	ES	0.15			
1.0		Firm brown mottled slightly sandy CLAY.	1.20	ES	0.90	Water at 1.80m bgl		
		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	1.90					
2.0		Terminated at 1.90m bgl due to collapse.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 1.90m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 1.80m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP103

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

REC Resource & Environmental Consultants

Osprey House
Pacific Quay
Broadway
Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey fine to medium SAND. (Topsoil).	0.23	ES	0.15			
1.0		Firm to stiff medium strength brown mottled slightly sandy CLAY.	1.32	HSV ES	0.90 1.00	Water at 1.80m bgl		80kPa
		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	1.95					
2.0		Terminated at 1.95m bgl due to collapse.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 1.95m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 1.80m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP104

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

REC Resource & Environmental Consultants

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey gravelly fine to medium SAND. Gravel is sub-angular to sub-rounded of mudstone and coal. (Topsoil).	0.24	ES	0.10			
1.0		Firm to stiff medium strength brown mottled slightly sandy CLAY.	1.40	HSV ES	0.90 1.10	Water at 2.10m bgl		106kPa
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.30	ES	2.10			
3.0		Terminated at 2.30m bgl due to collapse.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.30m
Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Stability: Unstable
Groundwater: Groundwater encountered at 2.10m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP105

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		MADE GROUND: Brown slightly clayey gravelly fine to medium sand. Gravel is sub-angular to sub-rounded of mudstone and coal.	0.29	ES	0.10			
		Soft to firm brown mottled slightly sandy CLAY.						
1.0				ES	1.00	Water at 2.05m bgl		
			1.51					
		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.						
2.0			2.10	ES	2.10			
		Terminated at 2.10m bgl.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.10m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.05m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP106

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and organic content.	0.31	ES	0.20			
1.0		Firm medium strenght brown mottled sandy gravelly CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone.	1.57	HSV ES	1.10 1.20	Water at 1.90m bgl		56kPa
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular ro sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.00	ES	1.95			
		Terminated at 2.00m bgl.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.00m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 1.90m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP107

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

REC Resource & Environmental Consultants

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and organic content. (Topsoil).	0.27	ES	0.15			
1.0		Firm medium strength brown mottled grey sandy gravelly CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone.	1.74	ES HSV	1.50 1.60	Water at 2.10m bgl		80kPa
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular ro sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.50					
		Terminated at 2.50m bgl due to collapse.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.50m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.10m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP108

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and organic content. (Topsoil).	0.27	ES	0.20			
1.0		Firm medium strength brown mottled grey sandy gravelly CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone.	1.74	HSV	1.50	Water at 2.40m bgl		88kPa
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular ro sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.50	ES	2.40			
3.0		Terminated at 2.50m bgl due to collapse						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.50m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.40m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP109

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and organic content. (Topsoil).	0.31	ES	0.20			
1.0		Firm high strength brown mottled grey sandy gravelly CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone.	1.74	HSV	1.50			110kPa
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular ro sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.	2.83	ES	2.80	Water at 2.70m bgl		
3.0		Terminated at 2.83m bgl due to collapse.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.83m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.70m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP110

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and organic content. (Topsoil).	0.28	ES	0.10			
1.0		Firm brown mottled grey sandy gravelly CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone.	1.80	ES	1.50	Water at 2.00m bgl		
2.0		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular ro sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone and sandstone.	2.20	ES	2.10			
		Terminated at 2.20m bgl due to collapse.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.20m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.00m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP111

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone. (Topsoil).	0.31	ES	0.10			
1.0		Firm to stiff medium strength mottled brown gravelly sandy CLAY with occasional cobbles. Gravel is medium to coarse sub-angular to sub-rounded of sandstone, mudstone and coal. Cobbles are sub-angular to sub-rounded of mudstone and sandstone.		ES HSV	1.50 1.60			75kPa
2.0				ES	2.10			
3.0			3.10					
4.0		Complete at 3.10m bgl.						
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 3.10m
Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Stability: Unstable
Groundwater: None encountered

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP112

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		Brown slightly gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone. (Topsoil).	0.30	ES	0.20			
		Firm to stiff high strength mottled grey slightly gravelly CLAY.		ES HSV	1.00 1.00			82kPa
1.0			1.36					
		Soft to firm medium strength dark brown grey slightly sandy CLAY.		ES HSV	1.80 2.00			52kPa
2.0			2.50					
		Complete at 2.50m bgl.						
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.50m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: None encountered

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP113

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone. (Topsoil).	0.35	ES	0.10			
1.0		Firm to stiff medium strength brown mottled grey slightly gravelly CLAY. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone.		HSV	1.20	Water at 2.00m bgl		54kPa
2.0			2.21	ES	2.10			
		Brown sandy GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are sub-angular to sub-rounded of mudstone and sandstone.	2.40					
3.0		Complete at 2.40m bgl.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.40m

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Unstable

Groundwater: Groundwater encountered at 2.00m bgl

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP114

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
		MADE GROUND: Brown slightly clayey fine to medium gravelly sand. Gravel is medium to coarse angular to sub-angular of brick and sandstone.	0.29	ES	0.15			
1.0		Firm medium strength brown mottled slightly sandy CLAY.	1.55	HSV	1.00			67kPa
2.0		Soft to very soft brown gravelly CLAY. Gravel is medium to coarse sub-rounded to rounded of sandstone and mudstone.	2.50	ES	1.90			
3.0		Complete at 2.50m bgl.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.50m
Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Stability: Unstable
Groundwater: None encountered

Date: 24/07/2013
Status: Final

Trial Pit Record

Trial Pit Number: TP115

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Excavation Method: JCB 3CX

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm) 0 25 50 75 100	Field / Laboratory Testing
0.0		Brown slightly clayey gravelly fine to medium SAND. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. (Topsoil).	0.30	ES	0.15			
1.0		Firm medium strength brown mottled slightly sandy CLAY.	1.27			Water at 2.00m bgl		
2.0		Soft to very soft brown gravelly CLAY. Gravel is medium to coarse sub-rounded to rounded of sandstone and mudstone.	2.15	ES	2.00			
3.0		Complete at 2.15m bgl.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.00m x 3.00m x 2.15m
Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Stability: Unstable
Groundwater: Groundwater encountered at 2.00m bgl

Date: 24/07/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS101

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Drilling Equipment: Mini tracked window sampler rig

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SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
0.0		Brown slightly clayey fine to medium SAND. (Topsoil).	0.26	ES	0.10			
		Very soft extremely low strength brown mottled gravelly sandy CLAY.		ES SPT	1.00 1.00-1.45	0/0/0/0/0/0 N= 0		
1.0			1.34					
		Medium dense brown sandy slightly clayey GRAVEL. Gravel is medium to coarse sub-rounded to rounded of mudstone and sandstone.					Water at 1.80m bgl	
2.0				ES SPT	1.90 2.00-2.45	10/6/3/1/5/4 N= 13		
			2.67					
		Firm low strength brown gravelly sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded of mudstone.		SPT	3.00-3.45	1/2/2/3/4/4 N= 13		
3.0				ES	3.50			
				SPT	4.00-4.45	3/2/2/2/2/2 N= 8		
4.0			4.45					
		Terminated at 4.45m bgl due to collapse.						
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 1.80m bgl
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Additon of water: None added
Casing diameter: 110mm

Date logged: 24/07/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS102

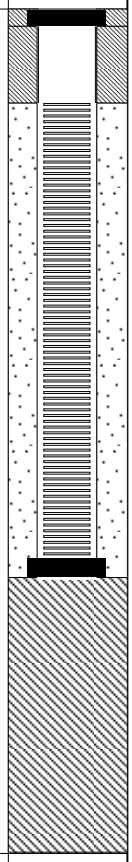
Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Drilling Equipment: Mini tracked window sampler rig

REC Resource & Environmental Consultants
Osprey House
Pacific Quay
Broadway
Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
www.recltd.co.uk

Depth (mbgl)	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)
	SUBSURFACE PROFILE		**SAMPLES AND IN-SITU TESTING**			
0.0	Brown slightly clayey fine to medium SAND. (Topsoil).	0.25	ES	0.10		
1.0	Firm brown mottled grey gravelly sandy CLAY. Gravel is medium to coarse sub-angular to sub-rounded of mudstone.	1.21	SPT	1.00-1.45	1/0/1/1/0/8 N= 10	
2.0	Medium dense brown sandy slightly clayey GRAVEL. Gravel is medium to coarse sub-rounded to rounded of mudstone and sandstone.	2.15	SPT	2.00-2.45	6/3/3/3/4/5 N= 15	Water at 1.90m bgl
			ES	2.20		
3.0	Stiff medium strength brown gravelly sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded of mudstone.		SPT	3.00-3.45	4/3/4/3/4/4 N= 15	
4.0	becoming firm low strength at 4.00m bgl.	4.45	ES SPT	3.80 4.00-4.45	3/3/2/3/2/2 N= 9	
5.0	Terminated at 4.45m bgl due to collapse.					
6.0						

Monitoring Installation / Backfill



Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 1.90m bgl
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Additon of water: None added
Casing diameter: 110mm

Date logged: 24/07/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS103

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Drilling Equipment: Mini tracked window sampler rig

REC Resource & Environmental Consultants
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Pacific Quay
Broadway
Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
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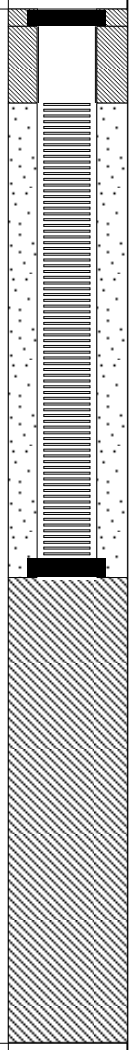
Depth (mbgl)	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)
	Brown slightly clayey fine to medium SAND. (Topsoil).	0.28	ES	0.10		
1.0	Firm low strength brown mottled grey gravelly sandy CLAY. Gravel is medium to coarse sub-angular to sub-rounded of mudstone.	1.84	SPT	1.00-1.45	1/1/2/1/1/2 N= 6	
2.0	Medium dense brown sandy slightly clayey GRAVEL. Gravel is medium to coarse sub-rounded to rounded of mudstone and sandstone.	2.96	SPT	2.00-2.45	2/3/3/3/2/4 N= 12	Water at 2.40m bgl
			ES	2.40		
			ES	2.80		
3.0	Stiff medium strength brown gravelly sandy CLAY. Gravel is medium to coarse angular to sub-angular of mudstone.		SPT	3.00-3.45	2/2/3/3/3/5 N= 14	
4.0			SPT	4.00-4.45	2/3/3/4/3/4 N= 14	
			ES	4.80		
5.0		5.45	SPT	5.00-5.45	2/2/2/2/2/2 N= 8	
6.0	Complete at 5.45m bgl.					

Monitoring Installation / Backfill



Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 2.40m bgl
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Additon of water: None added
Casing diameter: 110mm

Date logged: 24/07/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS104

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Drilling Equipment: Mini tracked window sampler rig

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Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		SUBSURFACE PROFILE		**SAMPLES AND IN-SITU TESTING**				
		Brown slightly clayey fine to medium SAND. (Topsoil).	0.19	ES	0.05			
		Firm brown mottled gravelly sandy CLAY. Gravel is medium to coarse sub-angular to sub-rounded of mudstone.						
1.0				ES	1.00-1.-45	1/1/1/2/2/1 N= 6		
2.0		becoming very soft extremely low strength at 2.00m bgl.		ES	2.00-2.45	0/0/0/0/0/0 N= 0		
			2.41	ES	2.40		Water at 2.40m bgl	
		Medium dense brown sandy slightly clayey GRAVEL with cobbles. Gravel is medium to coarse sub-angular to sub-rounded of sandstone and mudstone.		ES	3.00-3.45	2/3/4/3/4/4 N= 15		
3.0				ES	3.60			
4.0			4.00					
		Terminated at 4.00m bgl due to collapse.						
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 2.40m bgl
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Additon of water: None added
Casing diameter: 110mm

Date logged: 24/07/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS105

Project Number: 45045
Contract Name: Hayhurst Road
Client: Bellway Homes
Engineer: R. Horseman

Date Started: 17/06/2013
Date Completed: 17/06/2013
Elevation AOD (m): N/A
Co-ordinates: N/A
Drilling Equipment: Mini tracked window sampler rig

REC Resource & Environmental Consultants
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Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		SUBSURFACE PROFILE		**SAMPLES AND IN-SITU TESTING**				
		Brown slightly clayey fine to medium SAND. (Topsoil).	0.29	ES	0.10			
1.0		Soft to firm low strength brown mottled grey sandy gravelly CLAY. Gravel is medium to coarse sub-angular to sub-rounded of sandstone and mudstone.		SPT	1.00-1.45	0/0/1/1/1/1 N= 4		
2.0			2.00	SPT	2.00-2.45	1/1/2/2/3/4 N= 11	Water at 2.50m bgl	
		Medium dense brown sandy GRAVEL. Gravel is medium to coarse sub-angular to sub-rounded of mudstone and sandstone. Cobbles are rounded to sub-rounded of mudstone.		ES	2.70			
3.0		becoming very loose at 3.00m bgl.		SPT	3.00-3.45	0/0/0/0/0/0 N= 4		
				ES	3.50			
		becoming medium dense at 4.00m bgl.	4.00	SPT	4.00-4.45	2/2/3/4/4 N= 14		
4.0		Terminated at 4.00m bgl due to collapse.						
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 2.50m bgl
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Additon of water: None added
Casing diameter: 110mm

Date logged: 24/07/2013
Status: Final

APPENDIX VII

CHEMICAL TESTING RESULTS

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 335880-1

Date of Report: 25-Jun-2013

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Miss Steph Towers

Customer Job Reference: 45045
Customer Site Reference: Hayhurst Rd, Whalley
Date Job Received at SAL: 18-Jun-2013
Date Analysis Started: 19-Jun-2013
Date Analysis Completed: 25-Jun-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

UKAS TESTING
1549

Report checked
and authorised by :
Mr Ross Walker
Customer Services Manager
(Land)

Issued by :
Mr Ross Walker
Customer Services Manager
(Land)

SAL Reference: 335880
Project Site: Hayhurst Rd, Whalley
Customer Reference: 45045

Soil Analysed as Soil
REC Ltd 002S

	SAL Reference	335880 001	335880 009	335880 019	335880 022	335880 029	335880 051
	Customer Sample Reference	TP101 0.10	TP104 1.10	TP108 0.20	TP109 2.80	TP112 1.00	WS105 0.10
	Date Sampled	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013
Determinand	**Method** / **Test Sample** / **LOD** / **Units**						
Arsenic	T6 / AR / 1 / mg/kg	**21**	**6**	**9**	**4**	**3**	**17**
Cadmium	T6 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1
Chromium	T6 / AR / 1 / mg/kg	**44**	**41**	<1	<1	<1	**28**
Lead	T6 / AR / 1 / mg/kg	**180**	**350**	**10**	**1**	**2**	**120**
Mercury	T6 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1
Selenium	T6 / AR / 3 / mg/kg	<3	<3	<3	**3**	<3	<3
Copper	T6 / AR / 1 / mg/kg	**80**	**15**	**4**	**2**	**2**	**29**
Nickel	T6 / AR / 1 / mg/kg	**29**	**19**	<1	<1	<1	**28**
Zinc	T6 / AR / 1 / mg/kg	**190**	**63**	**18**	**6**	**2**	**130**
pH	T7 / AR / /	**5.4**	**6.1**	**6.5**	**7.6**	**6.0**	**7.2**
SO4(Total)	T6 / AR / 0.01 / %	**1.2**	**0.16**	**0.39**	**0.31**	**0.06**	**0.22**
SO4(2:1)	T6 / AR / 0.1 / g/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cyanide(Total)	T4 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1
Phenols(Mono)	T4 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1
Chromium VI	T6 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1

SAL Reference: 335880
Project Site: Hayhurst Rd, Whalley
Customer Reference: 45045

Soil Analysed as Soil
Total and Speciated USEPA16 PAH

	SAL Reference	335880 001	335880 009	335880 019	335880 022	335880 029	335880 051
	Customer Sample Reference	TP101 0.10	TP104 1.10	TP108 0.20	TP109 2.80	TP112 1.00	WS105 0.10
	Date Sampled	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013
Determinand	**Method** / **Test Sample** / **LOD** / **Units**						
Naphthalene	T149 / AR / 0.01 / mg/kg	**0.04**	<0.01	**0.06**	<0.01	<0.01	**0.04**
Acenaphthylene	T149 / AR / 0.01 / mg/kg	**0.04**	<0.01	**0.08**	<0.01	<0.01	**0.10**
Acenaphthene	T149 / AR / 0.01 / mg/kg	**0.13**	<0.01	**0.24**	<0.01	<0.01	**0.31**
Fluorene	T149 / AR / 0.01 / mg/kg	**0.10**	<0.01	**0.20**	<0.01	<0.01	**0.23**
Phenanthrene	T149 / AR / 0.01 / mg/kg	**0.97**	**0.01**	**1.5**	**0.01**	**0.01**	**2.0**
Anthracene	T149 / AR / 0.01 / mg/kg	**0.16**	<0.01	**0.21**	<0.01	<0.01	**0.34**
Fluoranthene	T149 / AR / 0.01 / mg/kg	**1.5**	**0.01**	**2.0**	**0.01**	**0.01**	**2.4**
Pyrene	T149 / AR / 0.01 / mg/kg	**1.2**	**0.01**	**1.5**	**0.01**	**0.01**	**1.9**
Benzo(a)Anthracene	T149 / AR / 0.01 / mg/kg	**0.56**	**0.01**	**0.64**	**0.01**	**0.01**	**0.73**
Chrysene	T149 / AR / 0.01 / mg/kg	**0.53**	<0.01	**0.62**	**0.01**	<0.01	**0.67**
Benzo(b/k)Fluoranthene	T149 / AR / 0.01 / mg/kg	**0.83**	**0.01**	**0.86**	**0.01**	**0.01**	**0.98**
Benzo(a)Pyrene	T149 / AR / 0.01 / mg/kg	**0.43**	<0.01	**0.43**	**0.01**	<0.01	**0.53**
Indeno(123-cd)Pyrene	T149 / AR / 0.01 / mg/kg	**0.22**	<0.01	**0.22**	<0.01	<0.01	**0.27**
Dibenzo(ah)Anthracene	T149 / AR / 0.01 / mg/kg	**0.09**	<0.01	**0.11**	<0.01	<0.01	**0.11**
Benzo(ghi)Perylene	T149 / AR / 0.01 / mg/kg	**0.22**	<0.01	**0.23**	<0.01	<0.01	**0.28**
PAH(total)	T149 / AR / 0.01 / mg/kg	**7.0**	**0.05**	**8.9**	**0.07**	**0.05**	**11**

SAL Reference: 335880
Project Site: Hayhurst Rd, Whalley
Customer Reference: 45045

Soil Analysed as Soil
REC Suite C (Banded TPH C5-C35)

	SAL Reference	335880 001	335880 009	335880 019	335880 022	335880 029	335880 051
	Customer Sample Reference	TP101 0.10	TP104 1.10	TP108 0.20	TP109 2.80	TP112 1.00	WS105 0.10
	Date Sampled	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013
Determinand	**Method** / **Test Sample** / **LOD** / **Units**						
TPH (C5-C6)	T54 / AR / 0.10 / mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C6-C8)	T54 / AR / 0.10 / mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10)	T54 / AR / 0.10 / mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12)	T8 / AR / 1 / mg/kg	<1	<1	<1	<1	<1	<1
TPH (C12-C16)	T8 / AR / 1 / mg/kg	<1	<1	**2**	<1	<1	**2**
TPH (C16-C21)	T8 / AR / 1 / mg/kg	**5**	<1	**10**	<1	<1	**9**
TPH (C21-C35)	T8 / AR / 1 / mg/kg	**24**	<1	**21**	<1	<1	**23**

SAL Reference: 335880
Project Site: Hayhurst Rd, Whalley
Customer Reference: 45045

Soil Analysed as Soil
Miscellaneous

	SAL Reference	335880 001	335880 019	335880 022	335880 029
	Customer Sample Reference	TP101 0.10	TP108 0.20	TP109 2.80	TP112 1.00
	Date Sampled	17-JUN-2013	17-JUN-2013	17-JUN-2013	17-JUN-2013
Determinand	**Method** / **Test Sample** / **LOD** / **Units**				
Asbestos ID	T27 / AR / /	-	N.D.	N.D.	N.D.
Total Organic Carbon	T21 / AR / 0.1 / %	**13**	-	-	-

Index to symbols used in 335880-1

Value	Description
AR	As Received
N.D.	Not Detected
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T54	GC/MS (Headspace)
T6	ICP/OES
T4	Colorimetry
T7	Probe
T21	OX/IR
T8	GC/FID
T149	GC/MS (SIR)
T27	PLM

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Asbestos ID	T27	AR			SU	019,022,029
Total Organic Carbon	T21	AR	0.1	%	N	001
Arsenic	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Cadmium	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Chromium	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Lead	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Mercury	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Selenium	T6	AR	3	mg/kg	U	001,009,019,022,029,051
Copper	T6	AR	1	mg/kg	U	001,009,019,022,029,051

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Nickel	T6	AR	1	mg/kg	U	001,009,019,022,029,051
Zinc	T6	AR	1	mg/kg	U	001,009,019,022,029,051
pH	T7	AR			U	001,009,019,022,029,051
SO4(Total)	T6	AR	0.01	%	N	001,009,019,022,029,051
SO4(2:1)	T6	AR	0.1	g/l	N	001,009,019,022,029,051
Cyanide(Total)	T4	AR	1	mg/kg	U	001,009,019,022,029,051
Phenols(Mono)	T4	AR	1	mg/kg	U	001,009,019,022,029,051
Chromium VI	T6	AR	1	mg/kg	N	001,009,019,022,029,051
TPH (C5-C6)	T54	AR	0.10	mg/kg	N	001,009,019,022,029,051
TPH (C6-C8)	T54	AR	0.10	mg/kg	N	001,009,019,022,029,051
TPH (C8-C10)	T54	AR	0.10	mg/kg	N	001,009,019,022,029,051
TPH (C10-C12)	T8	AR	1	mg/kg	U	001,009,019,022,029,051
TPH (C12-C16)	T8	AR	1	mg/kg	U	001,009,019,022,029,051
TPH (C16-C21)	T8	AR	1	mg/kg	U	001,009,019,022,029,051
TPH (C21-C35)	T8	AR	1	mg/kg	U	001,009,019,022,029,051
Naphthalene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Acenaphthene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Fluorene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Phenanthrene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Anthracene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Fluoranthene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Pyrene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Chrysene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051
PAH(total)	T149	AR	0.01	mg/kg	U	001,009,019,022,029,051

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 337301-2

Date of Report: 04-Jul-2013

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Miss Steph Towers

Customer Job Reference: 45045
Customer Site Reference: HAYHURST RD
Date Job Received at SAL: 27-Jun-2013
Date Analysis Started: 27-Jun-2013
Date Analysis Completed: 04-Jul-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

UKAS TESTING
1549

Report checked
and authorised by :
Mr Ross Walker
Customer Services Manager
(Land)

Issued by :
Mr Ross Walker
Customer Services Manager
(Land)

SAL Reference: 337301
Project Site: HAYHURST RD
Customer Reference: 45045

Water Analysed as Water
REC Ltd 002W

				SAL Reference	**337301 001**	**337301 002**	**337301 004**
				Customer Sample Reference	**WS101**	**WS102**	**WS104**
				Date Sampled	**26-JUN-2013**	**26-JUN-2013**	**26-JUN-2013**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
As (Dissolved)	T281	AR	0.2	µg/l	**5.9**	**11**	**13**
Cd (Dissolved)	T281	AR	0.02	µg/l	**0.14**	<0.02	<0.02
Cr (Dissolved)	T281	AR	1	µg/l	**10**	**12**	**10**
Pb (Dissolved)	T281	AR	0.3	µg/l	<0.3	<0.3	<0.3
Hg (Dissolved)	T281	AR	0.05	µg/l	<0.05	<0.05	<0.05
Se (Dissolved)	T281	AR	0.5	µg/l	**1.0**	**1.0**	**0.5**
Cu (Dissolved)	T281	AR	0.5	µg/l	**1.0**	<0.5	<0.5
Ni (Dissolved)	T281	AR	1	µg/l	**5**	**6**	**8**
Zn (Dissolved)	T281	AR	2	µg/l	**9**	**12**	**6**
pH	T7	AR			**7.1**	**7.0**	**6.8**
Cyanide(Total)	T4	AR	50	µg/l	<50	<50	<50
Phenols(Mono)	T4	AR	100	µg/l	<100	<100	<100
Chromium VI	T686	AR	3	µg/l	<3	<3	<3
Sulphate	T686	AR	100	µg/l	**19000**	**7000**	**16000**

SAL Reference: 337301
Project Site: HAYHURST RD
Customer Reference: 45045

Water Analysed as Water
Total and Speciated USEPA16 PAH

				SAL Reference	**337301 001**	**337301 002**	**337301 004**
				Customer Sample Reference	**WS101**	**WS102**	**WS104**
				Date Sampled	**26-JUN-2013**	**26-JUN-2013**	**26-JUN-2013**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Naphthalene	T149	AR	0.01	µg/l	**0.11**	**0.13**	**0.31**
Acenaphthylene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Acenaphthene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Fluorene	T149	AR	0.01	µg/l	**0.02**	<0.01	**0.02**
Phenanthrene	T149	AR	0.01	µg/l	**0.02**	**0.02**	**0.04**
Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.02**
Pyrene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.02**
Benzo(a)Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Chrysene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.03**
Benzo(b/k)Fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Benzo(a)Pyrene	T149	AR	0.01	µg/l	<0.01	**0.02**	**0.04**
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	<0.01	**0.02**	**0.03**
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.02**
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.03**
PAH(total)	T149	AR	0.01	µg/l	**0.15**	**0.19**	**0.56**

SAL Reference: 337301
Project Site: HAYHURST RD
Customer Reference: 45045

Water Analysed as Water
REC Suite C (Banded TPH C5-C35)

	SAL Reference	337301 001	337301 002	337301 004
	Customer Sample Reference	WS101	WS102	WS104
	Date Sampled	26-JUN-2013	26-JUN-2013	26-JUN-2013

Determinand	Method	Test Sample	LOD	Units			
TPH (C5-C6)	T215	AR	10	µg/l	<10	<10	<10
TPH (C6-C8)	T215	AR	10	µg/l	<10	<10	<10
TPH (C8-C10) DW	T215	AR	10	µg/l	<10	<10	<10
TPH (C10-C12) DW	T81	AR	10	µg/l	<10	<10	**16**
TPH (C12-C16) DW	T81	AR	10	µg/l	<10	**11**	**68**
TPH (C16-C21) DW	T81	AR	10	µg/l	**42**	**120**	**230**
TPH (C21-C35) DW	T81	AR	10	µg/l	**170**	**530**	**1100**

Index to symbols used in 337301-2

Value	Description
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T4	Colorimetry
T7	Probe
T281	ICP/MS (Filtered)
T686	Discrete Analyser
T81	GC/FID (LV)
T149	GC/MS (SIR)
T215	GC/MS (Headspace)(LV)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
As (Dissolved)	T281	AR	0.2	µg/l	U	001-002,004
Cd (Dissolved)	T281	AR	0.02	µg/l	U	001-002,004
Cr (Dissolved)	T281	AR	1	µg/l	U	001-002,004
Pb (Dissolved)	T281	AR	0.3	µg/l	U	001-002,004
Hg (Dissolved)	T281	AR	0.05	µg/l	U	001-002,004
Se (Dissolved)	T281	AR	0.5	µg/l	U	001-002,004
Cu (Dissolved)	T281	AR	0.5	µg/l	U	001-002,004
Ni (Dissolved)	T281	AR	1	µg/l	U	001-002,004
Zn (Dissolved)	T281	AR	2	µg/l	U	001-002,004
pH	T7	AR			U	001-002,004
Cyanide(Total)	T4	AR	50	µg/l	U	001-002,004
Phenols(Mono)	T4	AR	100	µg/l	U	001-002,004
Chromium VI	T686	AR	3	µg/l	U	001-002,004
Sulphate	T686	AR	100	µg/l	U	001-002,004
TPH (C5-C6)	T215	AR	10	µg/l	N	001-002,004
TPH (C6-C8)	T215	AR	10	µg/l	N	001-002,004
TPH (C8-C10) DW	T215	AR	10	µg/l	N	001-002,004
TPH (C10-C12) DW	T81	AR	10	µg/l	U	001-002,004
TPH (C12-C16) DW	T81	AR	10	µg/l	U	001-002,004
TPH (C16-C21) DW	T81	AR	10	µg/l	U	001-002,004
TPH (C21-C35) DW	T81	AR	10	µg/l	U	001-002,004
Naphthalene	T149	AR	0.01	µg/l	U	001-002,004
Acenaphthylene	T149	AR	0.01	µg/l	U	001-002,004
Acenaphthene	T149	AR	0.01	µg/l	U	001-002,004
Fluorene	T149	AR	0.01	µg/l	U	001-002,004
Phenanthrene	T149	AR	0.01	µg/l	U	001-002,004
Anthracene	T149	AR	0.01	µg/l	U	001-002,004

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Fluoranthene	T149	AR	0.01	µg/l	U	001-002,004
Pyrene	T149	AR	0.01	µg/l	U	001-002,004
Benzo(a)Anthracene	T149	AR	0.01	µg/l	U	001-002,004
Chrysene	T149	AR	0.01	µg/l	U	001-002,004
Benzo(b/k)Fluoranthene	T149	AR	0.01	µg/l	U	001-002,004
Benzo(a)Pyrene	T149	AR	0.01	µg/l	U	001-002,004
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	U	001-002,004
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	U	001-002,004
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	U	001-002,004
PAH(total)	T149	AR	0.01	µg/l	U	001-002,004

APPENDIX VIII

ORIGIN OF TIER I VALUES

ORIGIN OF REC TIER I VALUES

Constituent	Origin of Risk Assessment Value
Arsenic	2009 SGV
Cadmium	LQM CIEH 2nd Edition 2009
Chromium	LQM CIEH 2nd Edition 2009
Lead	Residential Half 2003 EA SGV based on planned target blood lead level reduction to 5µg/l.
	Commercial Calculated using commercial exposure equation within lead SGV 2003 with revised input data from HPA and taking proposed blood lead levels into account.
Mercury	2009 SGV
Nickel	2009 SGV
Selenium	Soil guideline value, DEFRA/Environment Agency
Copper	LQM CIEH 2nd Edition 2009
Zinc	LQM CIEH 2nd Edition 2009
Cyanide - Total	CLEA 1.06 Derived Value
Phenols - Total.	LQM CIEH 2nd Edition 2009 – 1% SOM
Naphthalene	General Assessment Criteria (GAC) developed by CIEH / LQM the using CLEA 1-06 with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene(	
Chrysene	
Benzo(b/k)Fluoranthene (iii)	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C_5-C_6 (aliphatic)	
TPH C_6-C_8 (aliphatic)	
TPH C_8-C_{10} (aliphatic)	
TPH C_{10}-C_{12} (aliphatic)	
TPH C_{12}-C_{16} (aromatic)	
TPH C_{16}-C_{21} (aromatic)	
TPH C_{21}-C_{35} (aromatic)	

APPENDIX IX

GEOTECHNICAL TESTING RESULTS

PSL
Professional Soils Laboratory

LABORATORY REPORT

UKAS TESTING
4043

Contract Number: PSL13/2429

Client's Reference: Report Date: 19 July 2013

Client Name: REC Resource & Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Manchester
M50 2UE

For the attention of: Stephanie Towers

Contract Title: Hayhurst Road, Clitheroe

Date Received: 11/7/2013
Date Commenced: 11/7/2013
Date Completed: 19/7/2013

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

Checked and Approved Signatories:

R Gunson	A Watkins	M Beastall
(Director)	(Director)	(Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
WS101		Tub	2.00-2.45	Grey very gravelly very sandy CLAY
WS102		Tub	3.00-3.45	Brown sandy CLAY
WS103		Tub	2.00-2.45	Grey very gravelly very sandy CLAY
WS104		Tub	3.00-3.45	Brown very gravelly sandy CLAY
WS105		Tub	2.00-2.45	Grey slightly gravelly slightly sandy CLAY

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	19/07/13		19/07/13		19/07/13

HAYHURST ROAD, CLITHEROE

Contract No: PSL13/2429

Client Ref: 45045

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
WS101		Tub	2.00-2.45	4.1				30	16	14	65	Low plasticity CL.
WS102		Tub	3.00-3.45	19				46	24	22	100	Intermediate plasticity CI.
WS103		Tub	2.00-2.45	15				28	15	13	80	Low plasticity CL.
WS104		Tub	3.00-3.45	11				46	23	23	60	Intermediate plasticity CI.
WS105		Tub	2.00-2.45	27				53	26	27	96	High plasticity CH.

SYMBOLS : NP : Non Plastic

PSL Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	19/07/13		19/07/13		19/07/13

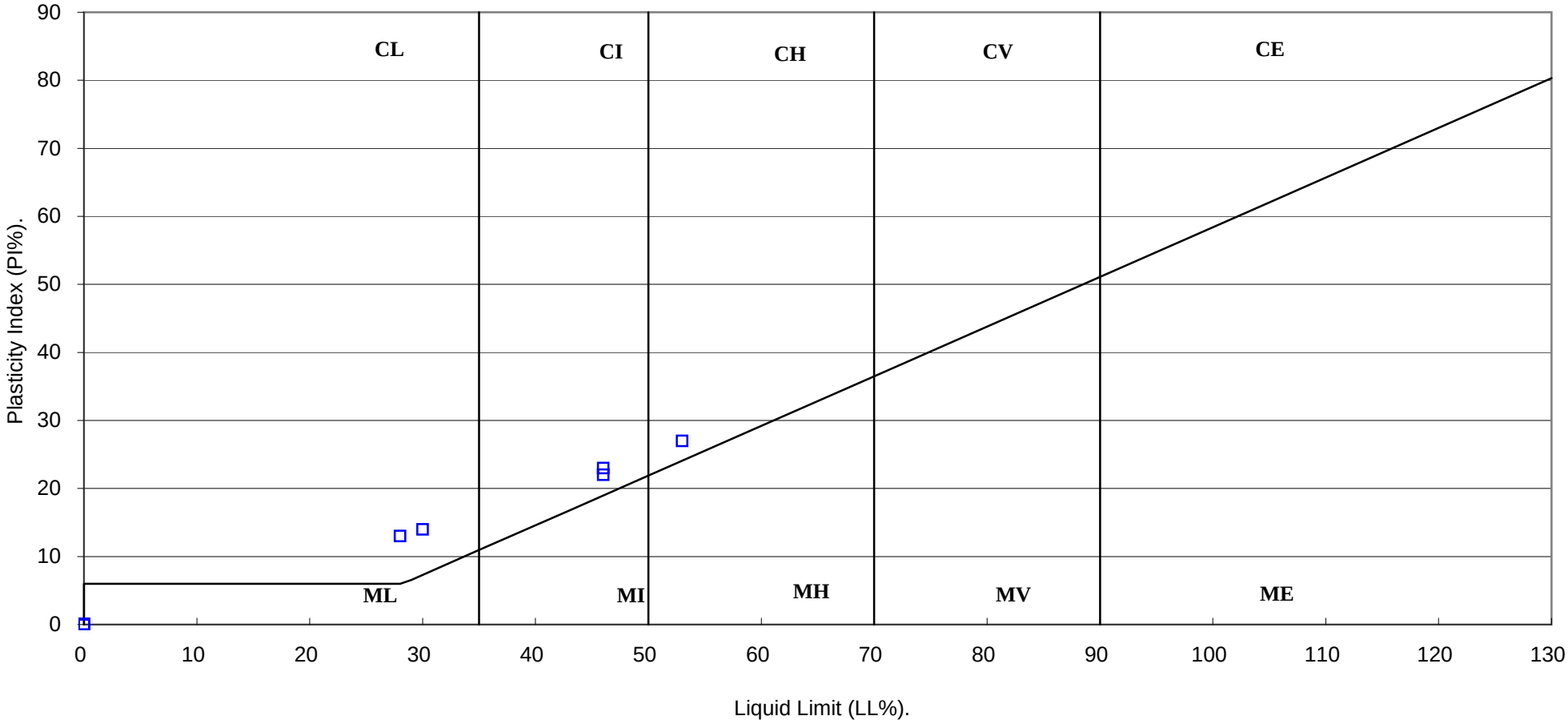
HAYHURST ROAD, CLITHEROE

Contract No: PSL13/2429

Client Ref: 45045

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



	Compiled by	Date	Checked by	Date	Approved by	Date
PSL Professional Soils Laboratory		19/07/13		19/07/13		19/07/13
	HAYHURST ROAD, CLITHEROE				Contract No:	PSL13/2429
					Client Ref:	45045

APPENDIX X

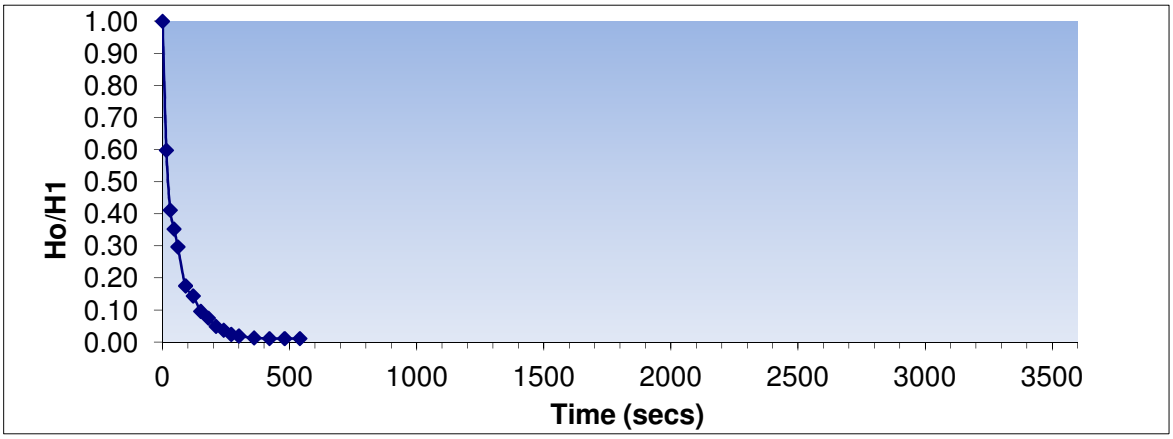
FALLING HEAD RESULTS

Falling Head Test

Borehole: WS101 **Test No: 1**

Contract No:	45045	Casing Diameter: (m)	0.05
Contract Title:	Hayhurst Road	Height of Casing:	GL
Date of Test:	26/06/2013	Depth of Borehole: (m)	1.30

Recorded Time			Total Time			H/Ho
Hours	Minutes	Seconds	(secs)	Depth (m)		
0	0	0	0	0	0	1.0000
0	0	15	15	0.523	15	0.5977
0	0	30	30	0.765	30	0.4115
0	0	45	45	0.842	45	0.3523
0	1	0	60	0.914	60	0.2969
0	1	30	90	1.072	90	0.1754
0	2	0	120	1.113	120	0.1438
0	2	30	150	1.175	150	0.0962
0	3	0	180	1.202	180	0.0754
0	3	30	210	1.236	210	0.0492
0	4	0	240	1.251	240	0.0377
0	4	30	270	1.269	270	0.0238
0	5	0	300	1.275	300	0.0192
0	6	0	360	1.283	360	0.0131
0	7	0	420	1.285	420	0.0115
0	8	0	480	1.285	480	0.0115
0	9	0	540	1.285	540	0.0115



General Approach

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

k = permeability of soil

F = Intake Factor (figures 6 &7, BS5930:1999)

H_1 = variable head measured at time t_1 after commencement of test

H_2 = variable head measured at time t_2 after commencement of test

A = Cross sectional area of borehole casing or standpipe as appropiate.

H_1 =	0.59	t_1 =	15
H_2 =	0.0115	t_2 =	480
		F=	0.1375

A = 0.00196349 m^2

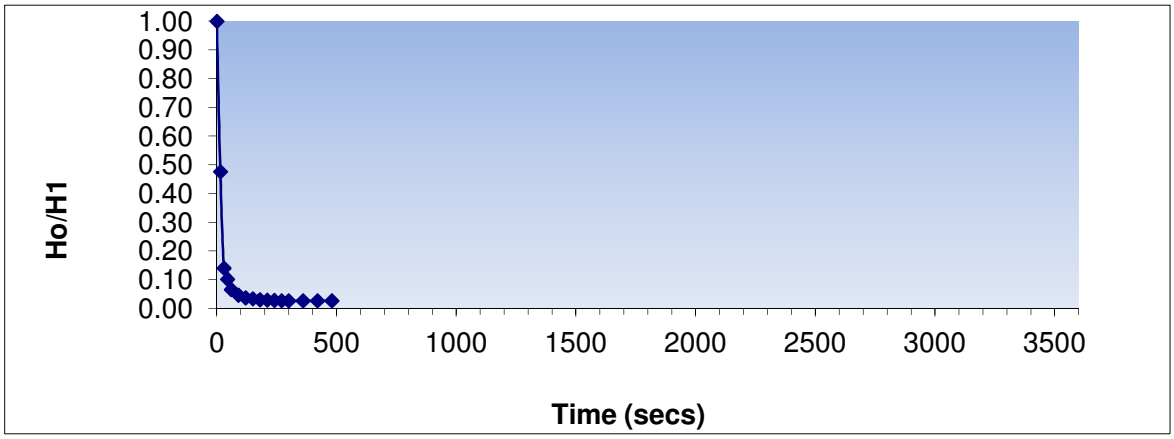
Coefficient of Permeability, k = **4.28E-03** m/s

Falling Head Test

Borehole: WS104 **Test No: 1**

Contract No:	45045	Casing Diameter: (m)	0.05
Contract Title:	Hayhurst Road	Height of Casing:	GL
Date of Test:	26/06/2013	Depth of Borehole: (m)	1.46

Recorded Time			Total Time			H/Ho
Hours	Minutes	Seconds	(secs)	Depth (m)		
0	0	0	0	0	0	1.0000
0	0	15	15	0.765	15	0.4760
0	0	30	30	1.255	30	0.1404
0	0	45	45	1.311	45	0.1021
0	1	0	60	1.364	60	0.0658
0	1	30	90	1.392	90	0.0466
0	2	0	120	1.406	120	0.0370
0	2	30	150	1.41	150	0.0342
0	3	0	180	1.415	180	0.0308
0	3	30	210	1.417	210	0.0295
0	4	0	240	1.419	240	0.0281
0	4	30	270	1.42	270	0.0274
0	5	0	300	1.421	300	0.0267
0	6	0	360	1.421	360	0.0267
0	7	0	420	1.421	420	0.0267
0	8	0	480	1.421	480	0.0267



General Approach

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

k = permeability of soil

F = Intake Factor (figures 6 &7, BS5930:1999)

H_1 = variable head measured at time t_1 after commencement of test

H_2 = variable head measured at time t_2 after commencement of test

A = Cross sectional area of borehole casing or standpipe as appropiate.

H_1 =	0.47	t_1 =	15
H_2 =	0.0267	t_2 =	360
		F=	0.1375

A = 0.00196349 m^2

Coefficient of Permeability, k = **1.98E-03** m/s

APPENDIX XI

DCP RESULTS

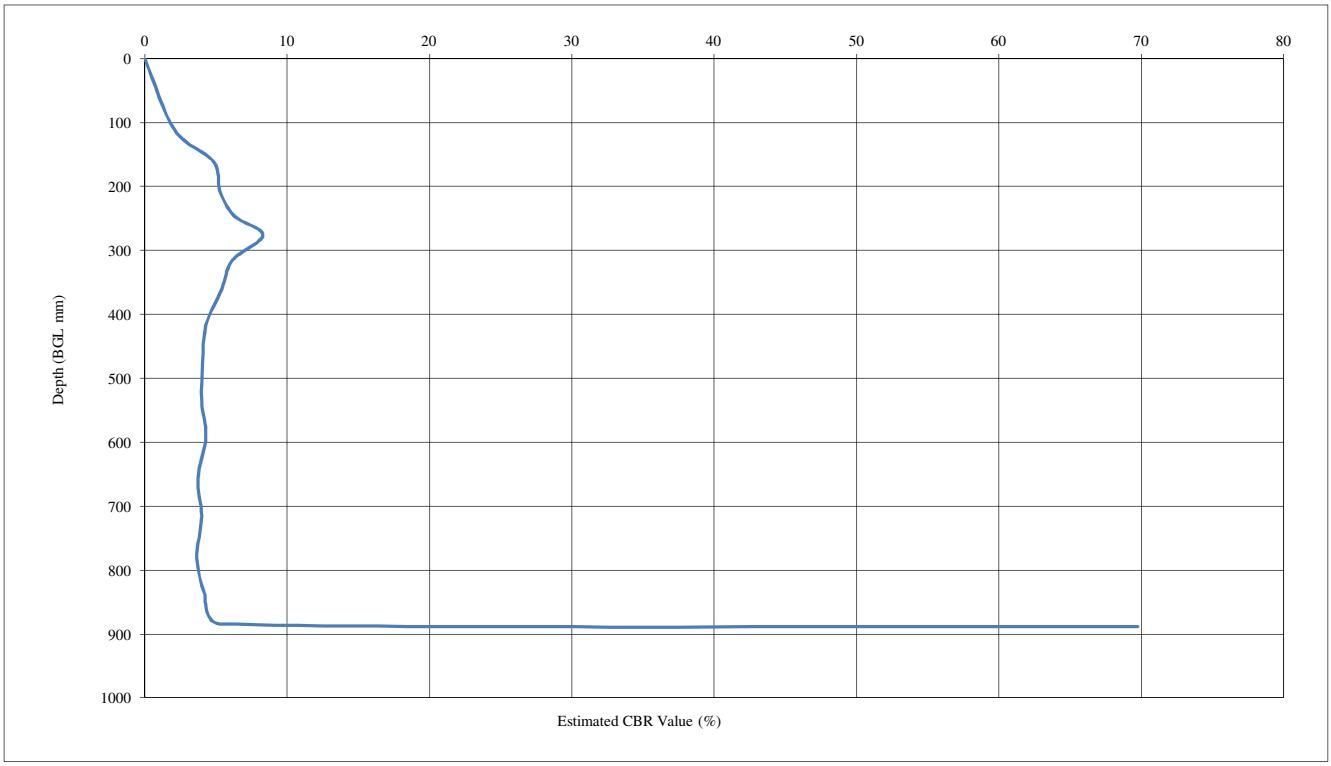
REC Geoenvironmental

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Hayhurst Road	**Test Date:**	26/06/2013
Site Ref	45045	**Test Location:**	CBR101
Test No.:	1	**Easting:**	
Initial Depth (mm BGL):	54	**Northing:**	
Final Depth (mm BGL):	0		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	300	4	4	75.00	3.15
300	938	20	16	39.88	6.14
938	942	21	1	4.00	69.76

Average estimated CBR value of 6.1% between 0.3m - 0.93m bgl

Comments

Site Engineer:	Checked By:	Date:	Approved By:	Date:
M DORAN	R PAUL	19/07/2013	R PAUL	19/07/2013

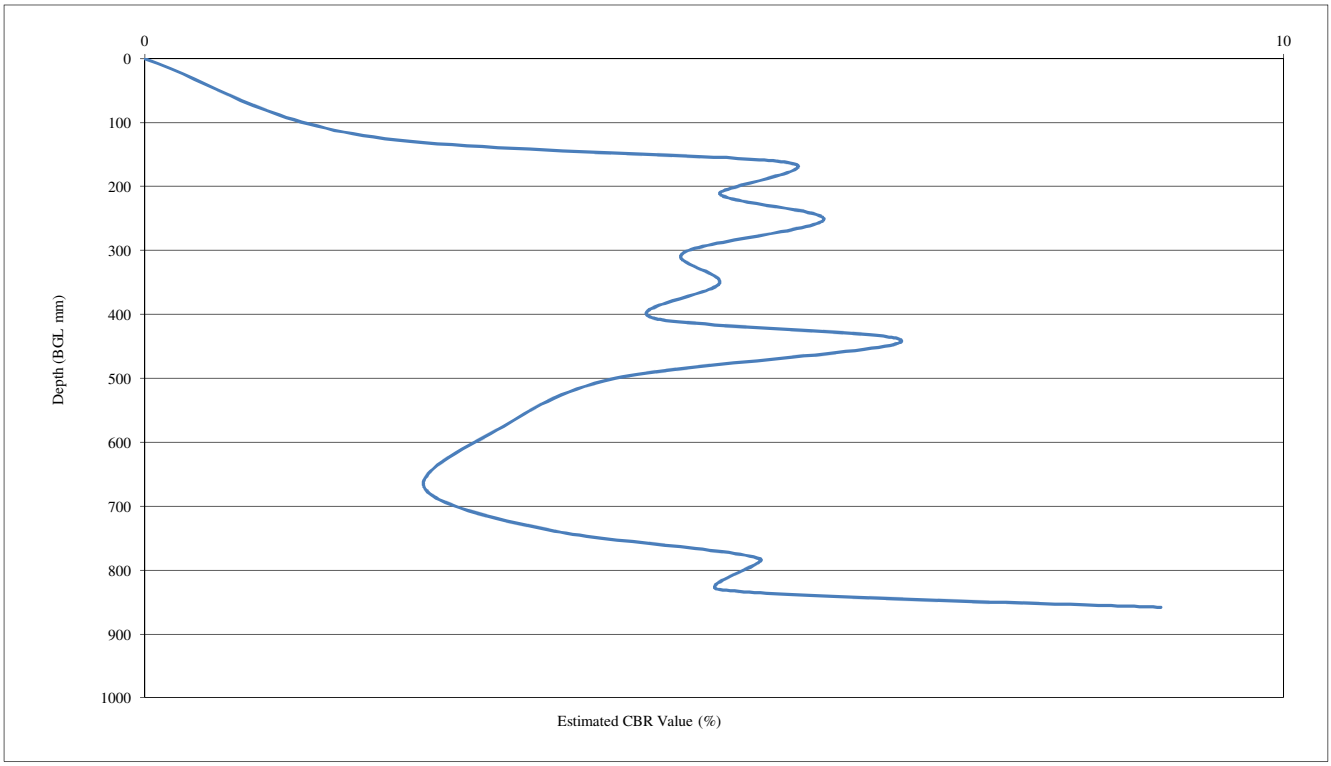
REC Geoenvironmental

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Hayhurst Road	**Test Date:**	26/06/2013
Site Ref	45045	**Test Location:**	CBR102
Test No.:	1	**Easting:**	
Initial Depth (mm BGL):	110	**Northing:**	
Final Depth (mm BGL):	0		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	120	1	1	120.00	1.92
120	515	7	6	65.83	3.61
515	968	15	8	56.63	4.24

Average estimated CBR value of 3.61% between 0.12m - 0.51m bgl

Comments

Site Engineer:	Checked By:	Date:	Approved By:	Date:
M DORAN	R PAUL	19/07/2013	R PAUL	19/07/2013

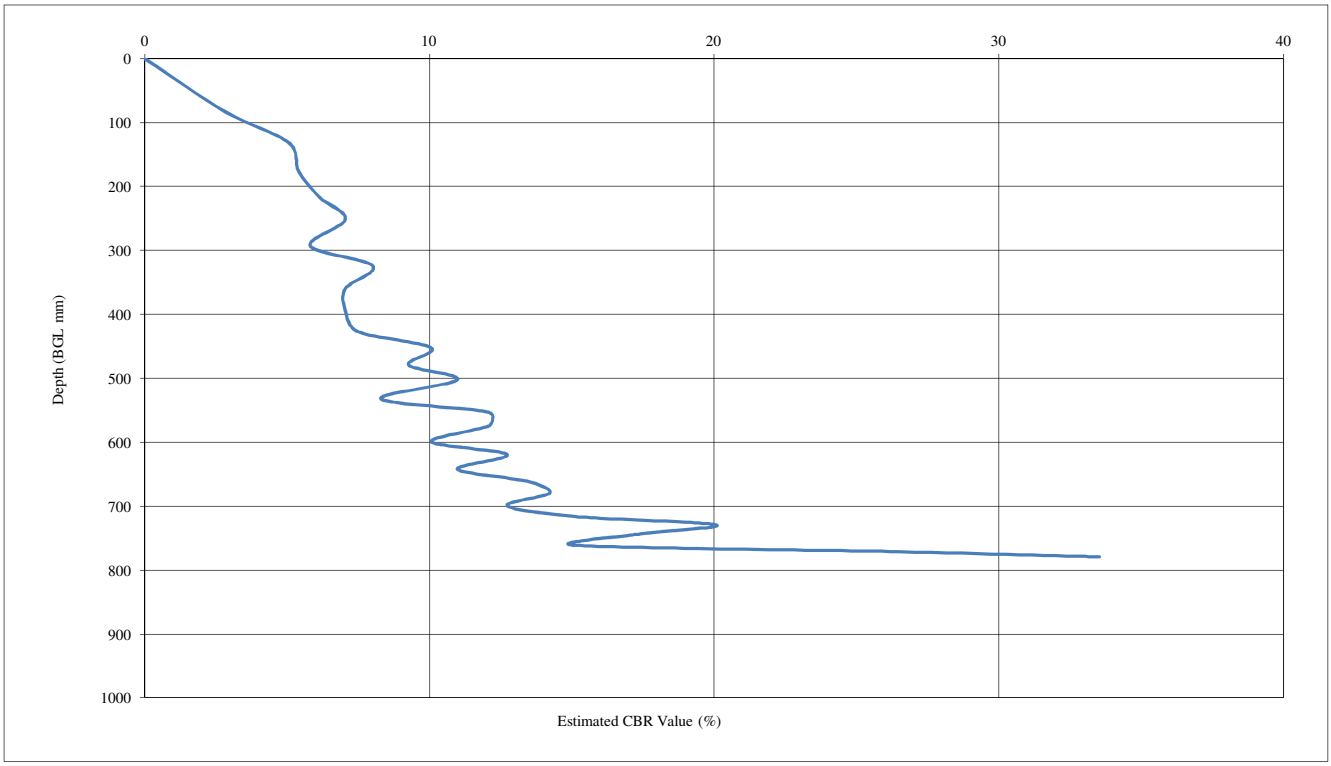
REC Geoenvironmental

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Hayhurst Road	**Test Date:**	26/06/2013
Site Ref	45045	**Test Location:**	CBR103
Test No.:	1	**Easting:**	
Initial Depth (mm BGL):	171	**Northing:**	
Final Depth (mm BGL):	0		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	302	2	1	302.00	0.72
302	724	15	6	70.33	3.37
724	942	27	12	18.17	14.09
942	950	28	1	8.00	33.53

Average estimated CBR value of 3.37% between 0.30m - 0.72m bgl

Comments

Site Engineer:	Checked By:	Date:	Approved By:	Date:
M DORAN	R PAUL	19/07/2013	R PAUL	19/07/2013

CD CONTAINING

ENVIRONMENTAL & GEOLOGICAL DATA
HISTORICAL MAPPING
COMPLETE PDF COPY OF REC REPORT

REC are a multi-disciplinary health, safety, environmental and energy consultancy. Our national coverage enables our local experts to provide cost effective and pragmatic consultancy services in an efficient and sustainable manner.

REC CHSS *Corporate Health & Safety Services*

- NEBOSH Accredited Training Courses
- IOSH Accredited Training Courses
- IEMA Accredited Training Courses
- Asbestos Training
- Health & Safety Training
- CDM Training
- Health & Safety Consultancy

REC *Renewable Energy*

- Feasibility Studies
- Ground Source Heat Pumps Installation
- Air Source Heat Pump Installation
- System Design and Maintenance
- Solar Photovoltaic (PV) Systems
- Combined Heat and Power Systems

REC *Acoustics*

- Sound Insulation Testing
- Noise at Work Assessment
- Development Related Noise
- Environmental Noise

REC *Environmental Management*

- Environmental Management
- Divestment Services
- Environmental Management Systems
- CDM Co-Ordination
- Environment Permit Application

REC *Asbestos & Legionella*

- Asbestos Management Surveys
- Demolition/Refurbishment Surveys
- Analysis of Asbestos in Soils and Bulk Samples
- Air Testing for Clearances and Reassurance
- Legionella Risk Assessment

REC *Air Quality*

- Air Quality Impact
- Odour Assessment
- Dispersion Modelling
- Stack Emission Testing
- Pollution Monitoring

REC *Geoenvironmental*

- Geotechnical Investigation & Assessment
- Contaminated Land Investigation & Assessment
- Waste Management
- Groundwater Testing
- Environmental Impact Assessment

REC *Flood Risk*

- Flood Risk & Consequence Assessment
- Strategic Flood Risk Assessment (SFRA)
- EIA Technical Chapters
- Assessment of Flood Levels
- Hydrology & Hydrogeology
- Flood Defence Structures
- Drainage Systems (SUDS) Design
- Mitigation Measures
- Soakaway Tests

REC *Ecology*

- Phase 1 Habitat Surveys
- Invasive Species
- Legally Protected Species Surveys
- Mitigation Schemes
- Ecological Impact Assessment (EcIA)
- BREEAM & Code 4 Sustainable Homes
- Habitat Management Plans
- Management planning and targeted Biodiversity Action Plan survey
- Environmental Impact Assessment