SITE INVESTIGATION
FACTUAL REPORT

Report No:	287859
Client:	Crawford Claims Management
Site:	16 Heath Hurst Road, London
Client Ref:	SU1503854-
Date of Visit:	04/12/2015

Unit E2 First Floor Suite, Boundary Court
Willow Farm Business Park, Castle Donington
Leicestershire, DE74 2NN

[redacted]

CET is the trading name of CET Structures Ltd
Registered in England No. 02527130

Investigation Layout Plan

Sheet: 1 of 1

Job No: 287859

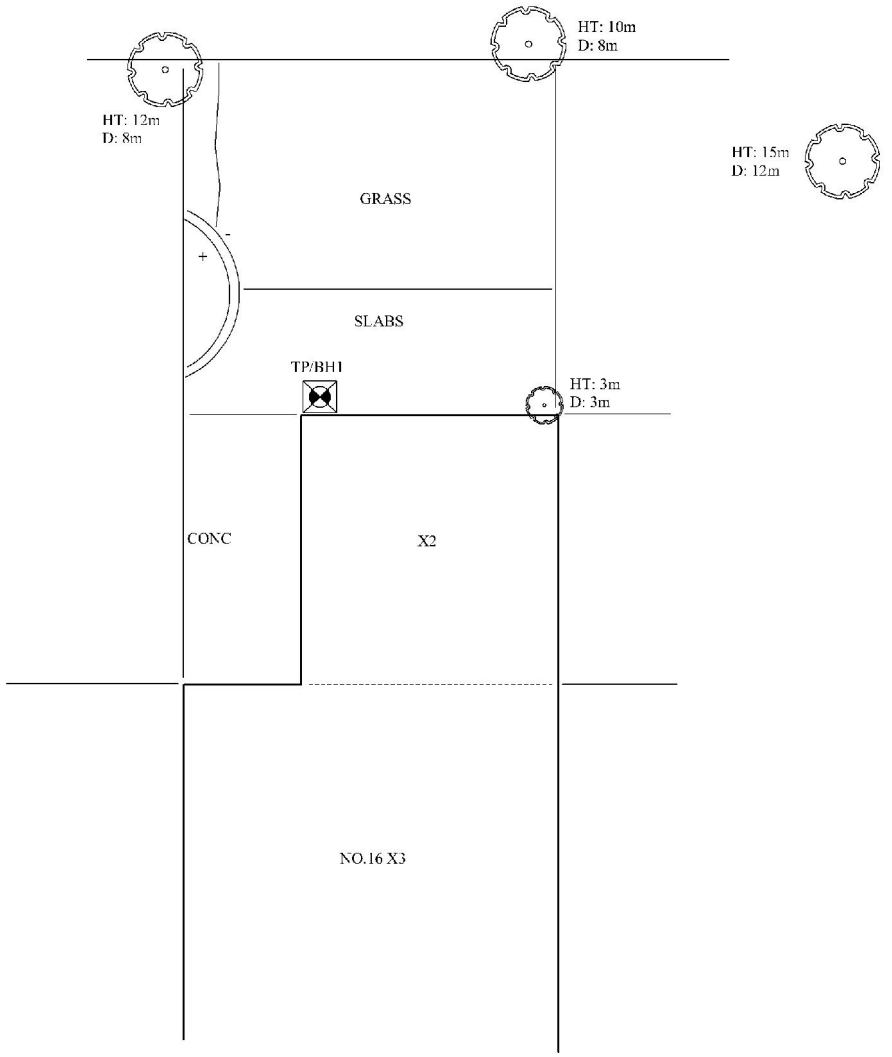
Date: 04/12/2015

Site: 16 Heath Hurst Road, NW3

Work carried out for: Crawford Claims MGMT SUS

AC (SI) | SA (Checked) | AR (Drawn)

Weather: Dry



Remarks:

Original house (x2) was approx 1m shorter than it is now PH advised.
Parking - permit.
Water supply - outside tap.
Site access - through house.

Scale: N.T.S.

Key:

Combined Gulley	RWWG
Manhole	MH
Rain Water Pipe	RWP
Rain Water Gulley	RWG
Soil Vent Pipe	SVP
Waste Gulley	WG
Waste Pipe	WP

Surface Water Drain

Foul Water Drain

Tree / Bush (approx. ht in m)

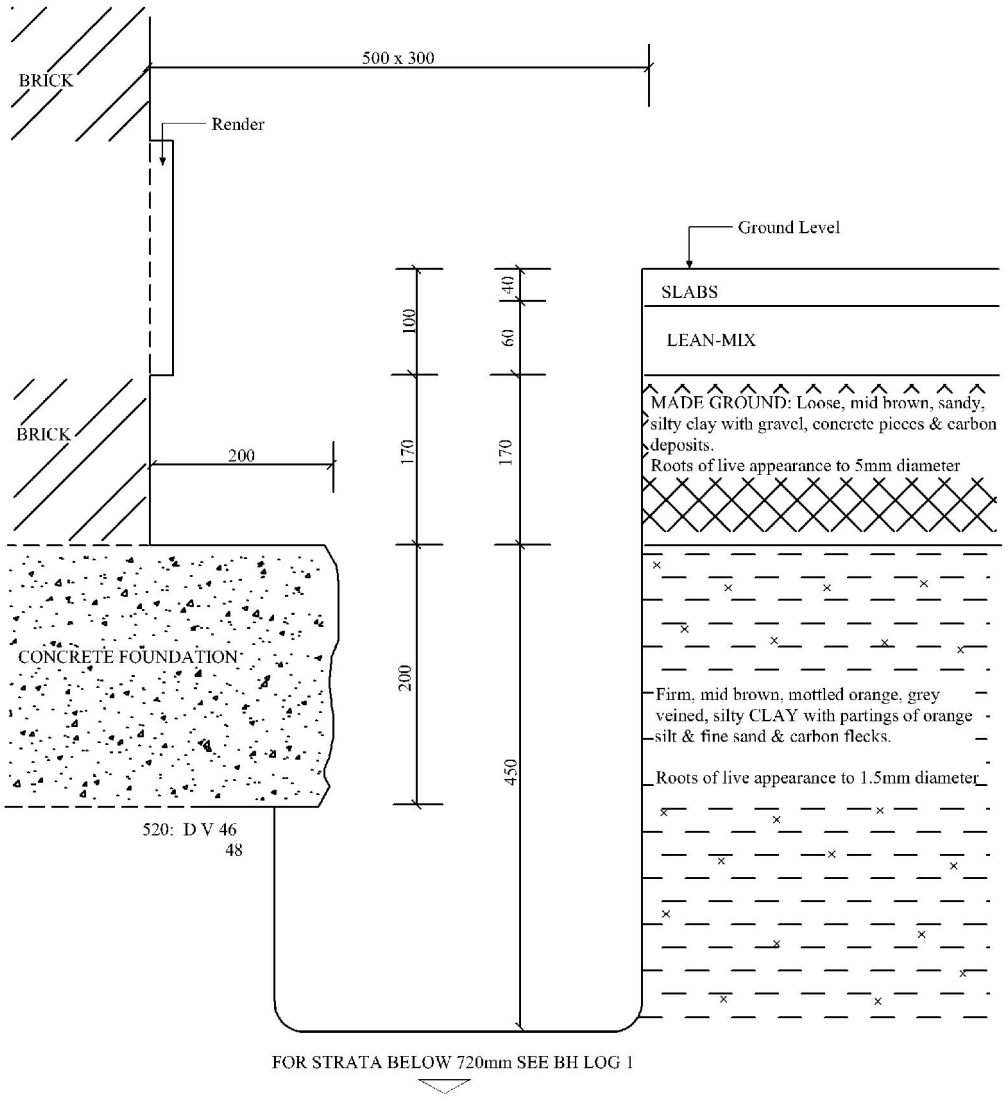
Trial Pit

Borehole

O/D - Open Discharge

Trial Pit No: 1

Sheet: 1 of 1	Site: 16 Heath Hurst Road		
Job No: 287859			
Date: 04.12.15	Work carried out for: Crawford Claims Management Ltd		
Excavation Method: Hand Tools	Drawn by: DVC		
Weather: DRY	Ground Level mOD:		



FOR STRATA BELOW 720mm SEE BH LOG 1

Remarks: All measurements in millimetres.

Key:

D	Small disturbed sample	J	Jar sample
B	Bulk disturbed sample	V	Pilcon Vane (kPa)
W	Water sample	M	Mackintosh probe
TDTD	Too dense to drive		

Logged:	Checked:	Approved:	Scale:
AC	SA		N.T.S.

Borehole No: 1			Sheet: 1 of 1							
			Job No: 287859			Site: 16 Heath Hurst Road				
Boring Method: Hand Auger			Date: 04.12.15							
Diameter: 75mm	Coordinates:		Ground Level mOD:			Work Carried out for: Crawford Claims Management Ltd				

Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
	As Trial Pit 1	0.72							
0.72	Firm, mid brown, mottled orange, grey veined, silty CLAY with partings of orange silt & fine sand & carbon flecks.	0.28	x	D	V	132 136	1.00	Roots of live appearance to 2mm diameter to 1m, 2mm diameter roots to 2m & 1mm diameter roots to 2.6m	
1.00	Stiff, mid brown, grey veined, silty CLAY with partings of orange silt & fine sand & crystals.	0.50	x	D	V	140+ 140+	1.50		
1.50	Very stiff, as above.	1.50	x	D	V	140+ 140+	2.00		
			x	D	V	140+ 140+	2.50	No roots observed below 2.6m	
3.00	Borehole ends at 3m			D	V	140+ 140+	3.00		

Remarks:
Borehole dry and open on completion

Key: T.D.T.D. Too Dense to Drive
D Small disturbed sample
B Bulk disturbed sample
W Water sample
J Jar sample
V Pilcon Vane (kPa)
M Mackintosh Probe

Logged: AC	Checked: SA	Typed by: DVC	Scale: NTS	Weather: DRY

Laboratory Summary Results

Our Ref : 287859

Location : 16, Heath Hurst Road, London, NW3

Work carried out for: Crawford Claims Management

Date Sampled: 04/12/2015

Date Received : 07/12/2015

Date Tested : 08/12/2015

Date of Report : 15/12/2015

Sample Ref			Moisture Content	Soil Fraction	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity * Index	Modified * Plasticity Index	Soil * Class	Filter Paper Contact Time	Soil Sample Suction	Oedometer Strain	Estimated Heave Potential (Dd)	In situ * Shear Vane Strength	Organic * Content	pH * Value	Sulphate Content * (g/l)		* Class
TP/BH No	Depth (m)	Type	(%) [1]	> 0.425mm (%) [2]	(%) [3]	(%) [4]	(%) [5]	[5]	(%) [6]	[7]	(h)	(kPa) [8]	[9]	(mm)[10]	(kPa) [11]	(%)[12]	[13]	SO_3 [14]	SO_4 [15]	[16]
1	U/S 0.52	D	38	<5	94	32	62	0.10	62	CE	168	284			47					
	1.0	D	28	<5	80	27	53	0.01	53	CV	168	859			134					
	1.5	D	27	<5							168	870			> 140					
	2.0	D	28	<5	79	26	53	0.04	53	CV	168	790			> 140					
	2.5	D	31	<5							168	539			> 140					
	3.0	D	33	<5	83	31	52	0.03	52	CV	168	600			> 140					

Test Methods / Notes

[1] BS 1377 : Part 2 : 1990, Test No 3.2

[2] Estimated if <5%, otherwise measured

[3] BS 1377 : Part 2 : 1990, Test No 4.4

[4] BS 1377 : Part 2 : 1990, Test No 5.3

[5] BS 1377 : Part 2 : 1990, Test No 5.4

[6] BRE Digest 240 : 1993

[7] BS 5930 : 1981 : Figure 31 - Plasticity Chart for the classification of fine soils

[8] In-house method S9a adapted from BRE IP 4/93

[9] In-house Test Procedure ST7a: One Dimensional Swell/Strain Test

[10] Estimated Heave Potential (Dd)

[11] Values of shear strength were determined in situ by CIST using a Pilcon hand vane or Geonor vane (GV).

[12] BS 1377 : Part 3 : 1990, Test No 4

[13] BS 1377 : Part 2 : 1990, Test No 9

[14] BS 1377 : Part 3 : 1990, Test No 5.6

[15] $SO_3 = 1.2 \times SO_4$

[16] BRE Special Digest One (Concrete in Aggressive Ground) August 2005
Note that if the SO4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the sample as falling into the DS-4M or DS-5M class respectively unless water soluable magnesium testing is undertaken to prove otherwise.

* These tests are not UKAS accredited

Full reports can be provided upon request

Key

D	Disturbed sample (small)
B	Disturbed sample (bulk)
U	Undisturbed sample
W	Groundwater sample
ENP	Essentially Non-Plastic by inspection
U/S	Underside of Foundation

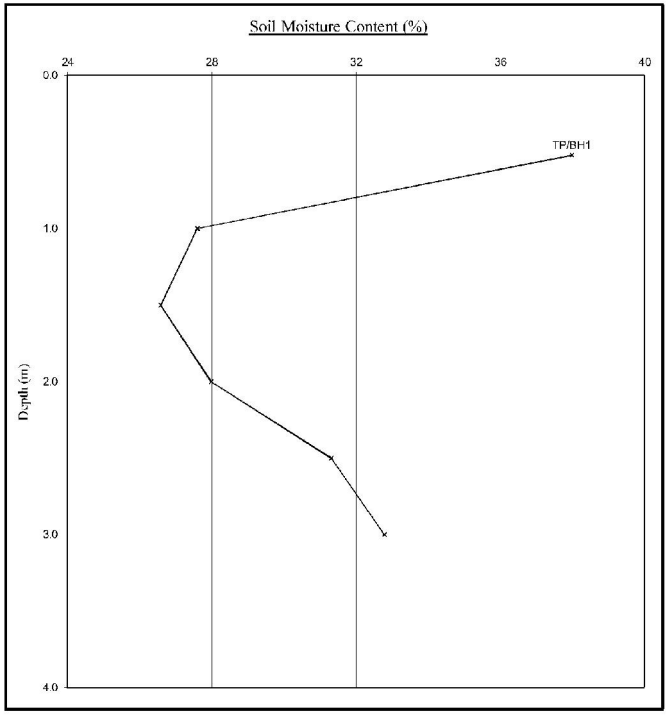
UKAS TESTING

8618

Version: 5BH V1.4 - 11/05/15

Moisture Content Profiles

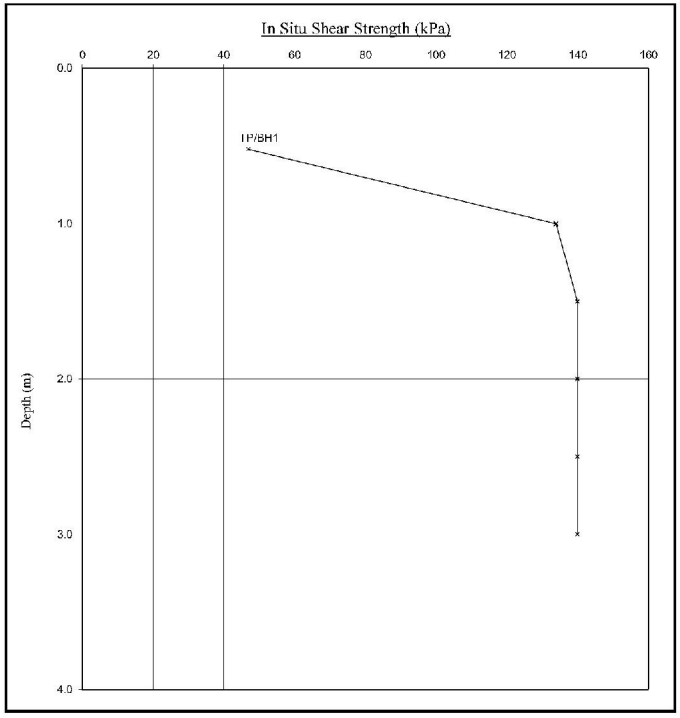
Our Ref : 287859
Location : 16, Heath Hurst Road, London, NW3
Work carried out for: Crawford Claims Management



Notes
1. If plotted, 0.4 LL and PL−2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clay) at shallow depths.
2. Unless specifically noted the profiles have not been related to a site datum.

Shear Strength Profiles

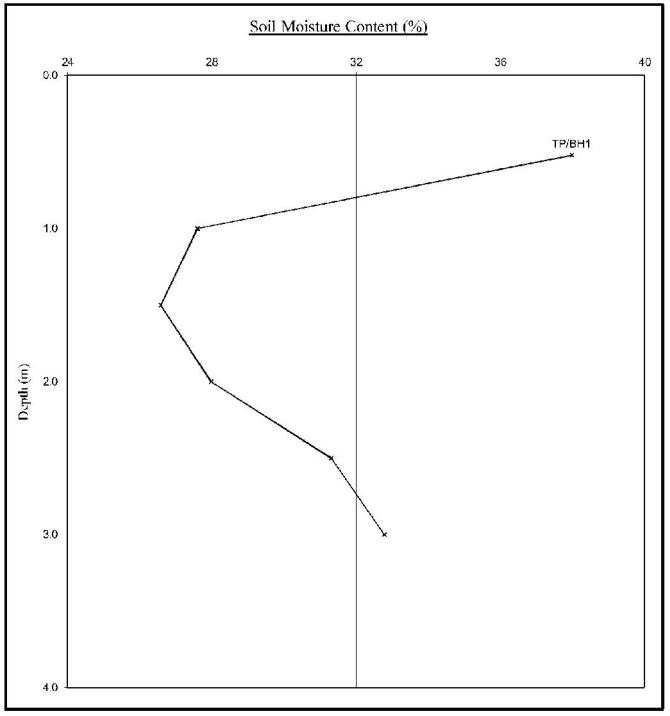
Date Sampled : 04/12/2015
Date Received : 07/12/2015
Date Tested : 08/12/2015
Date of Report : 15/12/2015



Note
1. Unless otherwise stated, values of Shear Strength were determined in situ by CIRIA using a Pilcon Hand Vane the calibration of which is limited to a maximum reading of 140 kPa.
2. Unless specifically noted the profiles have not been related to a site datum.

Moisture Content Profiles

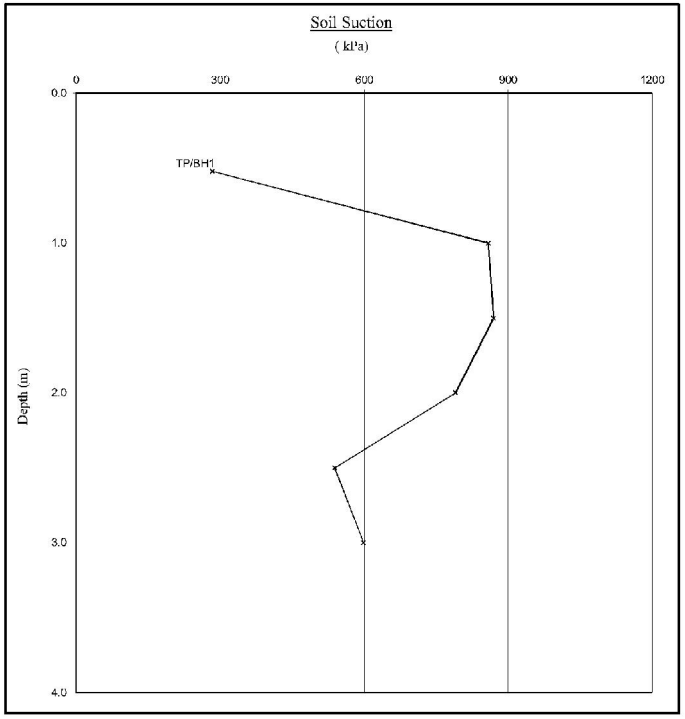
Our Ref : 287859
Location : 16, Heath Hurst Road, London, NW3
Work carried out for: Crawford Claims Management



Notes
1. If plotted, 0.4 LL and PL−2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clay) at shallow depths.
2. Unless specifically noted the profiles have not been related to a site datum.

Soil Suction Profiles

Date Sampled : 04/12/2015
Date Received : 07/12/2015
Date Tested : 08/12/2015
Date of Report : 15/12/2015



Note
When shown, the theoretical equilibrium suction profiles are based on conventional assumptions associated with London Clay (and similarly overconsolidated clays) at shallow depths. Note that the sample disturbance component is dependant on the method of sampling and any subsequent recompaction. The above plots show this to be 100kPa which is the value suggested by the BRE on the basis of their limited number of tests on recompacted samples. This may or may not be appropriate in this instance and judgement should be exercised.

EPSL ***European Plant Science Laboratory***	Sheet: 1 of 1 Job No: **287859** Date: **08/12/2015** Order No: **768298** EPSL Ref: **R13069**	Site: **16 Heath Hurst Road, NW3,** Work carried out for: **Crawford Claims MGMT SUS**

Certificate of Analysis

The following work was commissioned by CET on behalf of their client. Root samples were obtained in sealed packets from the above site with no reference given as to the types of tree or shrub from which they may have originated.
The results were as follows -

Trial pit/ Borehole number	**Root diameter (mm)**	**Tree, shrub or climber from which root originates**	**Result of starch test**
TP1 (USF)	1.5 mm	Rosa spp. 3 roots	Positive
TP1 (USF)	1.5 mm	Fraxinus spp. 2 roots	Positive
BH1 (0.72-2m)	2 mm	Rosa spp.	Positive
BH1 (0.72-2.6m)	1 mm	Fraxinus spp. 4 roots	Positive

Rosa spp. are roses.
Fraxinus spp. include common ash.

[redacted]

MDM

Address for correspondence: EPSL, Intec, Parc Menai, Bangor, Gwynedd, North Wales, LL57 4FG

[redacted]

Head of Laboratory Services : M D Mitchell B.Sc. (Hons), M.Phil.
Plant Anatomist : Dr G S Turner B.Sc. (Hons), M.Sc., Ph.D
Plant Anatomist : Dr D P Aebischer B.Sc. (Hons), M.Sc., Ph.D
Consultant: Dr M P Denne B.Sc. (Hons), M.Sc., Ph.D
Registered in England. No 3256771, Registered Office:Yarmouth House, 1300 Parkway, Solent Business Park, Hampshire, PO15 7AE

Drainage Layout Plan

Sheet: 1 of 1

Job No: 287859

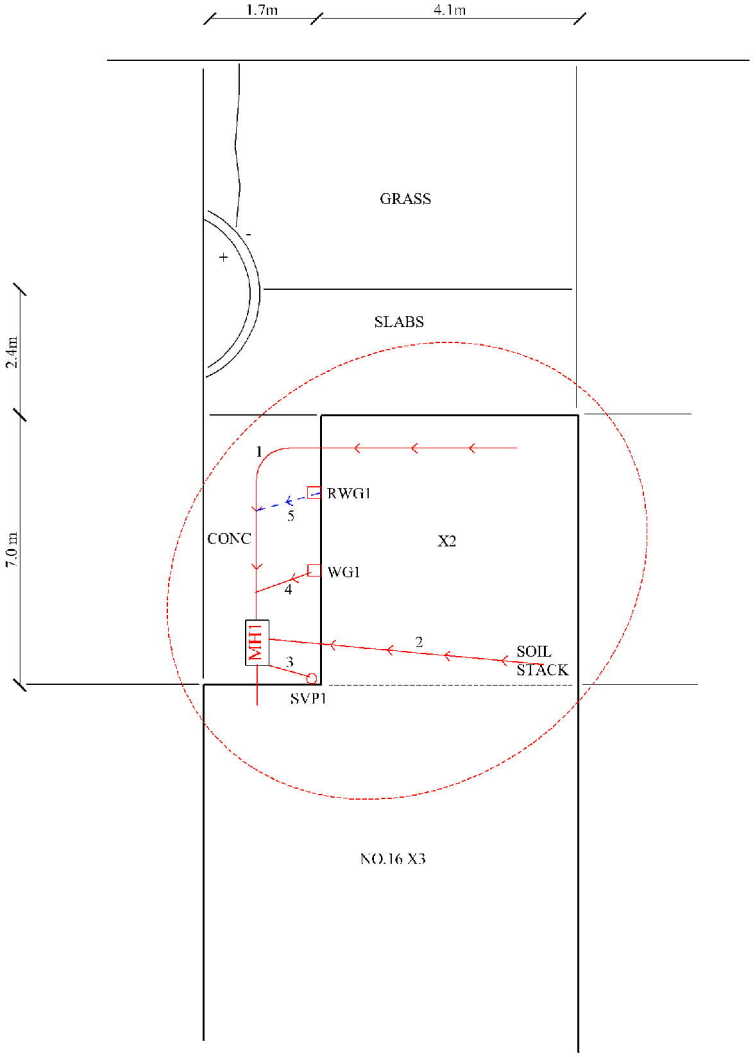
Date: 04/12/2015

Site: 16 Heath Hurst Road, NW3

Work carried out for: Crawford Claims MGMT SUS

AC (Sl) | MD (Checked) | AR (Drawn)

Weather: DRY



ON SITE TREE IDENTIFICATION FOR GUIDANCE ONLY. NOT AUTHENTICATED.

Remarks:

Original house (x2) was approx 1m shorter than it is now PH advised.
Parking - permit.
Water supply - outside tap.
Site access - through house.
MH1 - invert level = 1100mm

Scale: N.T.S.

Key:

Combined Gulley	RWWG
Manhole	MH
Rain Water Pipe	RWP
Rain Water Gulley	RWG
Soil Vent Pipe	SVP
Waste Gulley	WG
Waste Pipe	WP

Surface Water Drain

Foul Water Drain

Tree / Bush (approx. ht in m)

Trial Pit

Borehole

O/D - Open Discharge

To:	**Crawford Claims Management**	Client Ref:	SU1503854
Ftao: Gordon McEwan		Job No	287859
		Claim No:	
Site:	**16 Heath Hurst Road**	Date:	10-Dec-15

ESTIMATE

Item	No recommendations required to the private drainage surveyed.	Amount

Notes
Repairs to shared runs and off boundary pipe-work may be the responsibility of the water authority.

[redacted]

Condition Grade
A - Structurally sound with no leakage evident.
B - Cracks and fractures observed.
C - Structurally unsound

Quotation is binding only if accepted within 28 days from date of issue and is subject to our Standard Terms and Conditions
The price qualification notes, stated on the drainage solutions schedule of rates, apply to this quotation.
CET Structures Ltd undertakes to return to site free of charge to carry out remedial work to the drainage repairs set out above for a period of 2 months from the date of this invoice. The company standard charge rates will apply to the visit should the work requested be unrelated to the said repairs.

Underground Drainage Report	Sheet: 1 of 3 Job No: 287859 Date: 4-Dec-15	Site: 16 Heath Hurst Road Work carried out for: Crawford Claims Management

MANHOLE DETAILS

Manhole	Depth to Invert	Condition
MH1	1100mm	As built

CCTV Survey:-

1. **Drainage Run:**

From manhole 1 run 1 to upstream - 150mm clay combined - upstream (not shared)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.1	WL	Water level 20%	
0.7	DC	Dimension of sewer changes to 100mm	
2.0	JN	Junction at 3 o'clock 100mm WG1 (JN1)	
4.3	JN	Junction at 3 o'clock 100mm RWG1 (JN2)	
5.2	LR	Line right	
6.2			Under house (laminate floor)
8.8	DE	Debris 20%	
9.0	JN	Junction at 3 o'clock capped off	
9.2	DE	Debris 100%	
9.2	FH	Finish - unable to push further	

Note: Run appears disused after JN at 4.3m

Water Test Grade:

0 - Unable to fill
1 - Heavy Loss
2 - Medium Loss over 2 minutes
3 - Slow Loss over 5 minutes
4 - No Loss

Underground Drainage Report	Sheet: 2 of 3 Job No: 287859 Date: 4-Dec-15	Site: 16 Heath Hurst Road Work carried out for: Crawford Claims Management

2. Drainage Run:

From manhole 1 run 2 to soil stack - 100mm plastic foul water - upstream (not shared)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.5			Under house
0.8	DE	Debris 30%	
1.0	WL	Water level 20%	
2.5	WL	Water level 20%	
3.0	WL	Water level 10%	
4.1	LU	Line up	
4.4	FH	Finish - reached soil stack	

3 Drainage Run:

From manhole 1 run 3 to soil vent pipe 1 - 100mm clay foul water - upstream (not shared)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.7	LU	Line up	
0.8	FH	Finish - reached SVP1	

4 Drainage Run:

Break in junction in run 1 - run 4 to waste gully 1 - 100mm clay foul water - upstream (not shared)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.8	LU	Line up	
1.0	FH	Finish - reached WG1	

Gully condition: As built

Water Test Grade:

0 - Unable to fill
1 - Heavy Loss
2 - Medium Loss over 2 minutes
3 - Slow Loss over 5 minutes
4 - No Loss

Underground Drainage Report	Sheet: 3 of 3 Job No: 287859 Date: 4-Dec-15	Site: 16 Heath Hurst Road Work carried out for: Crawford Claims Management

5 Drainage Run:

Break in junction in run 1 - run 5 to rain water gully 1 - 100mm clay surface water - upstream (not shared)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.3	LU	Line up	
0.3	FH	Finish - reached RWG1	

Gully condition: As built

- End of Survey -

Our assessment of the drainage system is based on our visual inspection and on information collated at the time of the survey. Where assumptions have been made these are based on our experience and do not constitute any form of guarantee, nor do we guarantee that further deterioration will not occur following this survey. CCTV video records will be stored for a period of 3 months from date of inspection and then destroyed.

Water Test Grade:

0 - Unable to fill
1 - Heavy Loss
2 - Medium Loss over 2 minutes
3 - Slow Loss over 5 minutes
4 - No Loss

Water Authority Sewer Condition Codes

B	Broken pipe at… (or from… to..) o'clock
BR	Branch Major
CC	Crack circumferential from… to… o'clock
CL	Crack longitudinal @… o'clock
CM	Cracks multiple from… to… o'clock
CN	Connection at… o'clock, diameter… mm
CNI	Connection at… o'clock, diameter… mm, intrusion… r
CU	Camera under water
CX	Connection defective at… o'clock
CXI	Connection defective at… o'clock, diameter… mm, intrusion… mm
D	Deformed sewer… %
DB	Displaced bricks at (or from.. to..) o'clock
DC	Dimension of sewer changes at this point
DE	Debris (non silt/grease)… % cross-sectional loss
DEG	Debris grease… % cross-sectional area loss
DES	Debris silt… % cross-sectional area loss
DI	Dropped invert, gap… mm
EHJ	Encrustation heavy from.. to.. o'clock % cross-sectional area loss (at joint)
ELJ	Encrustation light from.. to.. o'clock%
EMJ	Encrustation medium from.. to.. o'clock %, cross-secti area loss (at joint)
ESH	Scale heavy… % cross-sectional area loss from... to.. o'clock
ESL	Scale light from… to… o'clock
ESM	Scale medium… % cross-sectional area loss from… t o'clock
FC	Fracture circumferential from… to… o'clock
FL	Fracture longitudinal at… o'clock
FM	Fractures multiple from… to… o'clock
GO	General observation at this point
GP	General photograph number… taken at this point
H	Hole in sewer at… o'clock
IDJ	Infiltration dripper at (or from… to…) o'clock (at joint)
IGJ	Infiltration gusher at (or from… to…) o'clock (at joint)
IRJ	Infiltration runner at (or from… to…) o'clock (at joint)
ISJ	Infiltration seeper at (or from… to…) o'clock (at joint)
JDM	Joint displaced medium
JDL	Joint displaced large
JN	Junction at…o'clock, diameter…mm
JX	Junction defective at.. o'clock, diameter.. mm
LC	Lining of sewer changes/starts/finishes at this point
LD	Line of sewer deviates down
LL	Line of sewer deviates left
LN	Line defect at (or from.. to..) o'clock
LR	Line of sewer deviates right
LU	Line of sewer deviates up
MB	Missing bricks at.. (or from.. to..) o'clock
MC	Material of sewer changes at this point
MH	Manhole/node
MM	Mortar missing medium at.. (or from.. to..) o'clock
MS	Mortar missing surface at.. (or from.. to..) o'clock
MT	Mortar missing total at.. (or from.. to..) o'clock
OB	Obstruction… % height/diameter loss
OJL	Open joint large
OJM	Open joint medium
PC	Length of pipe forming sewer changes at this point, new length…mm
RFJ	Roots fine (at joint)
RMJ	Roots mass… % cross-sectional area loss (at joint)
RTJ	Roots tap (at joint)
SA	Survey abandoned
SC	Shape of sewer changes at this point
SSL	Surface damage, spalling large at (or from.. to..) o'clock
SSM	Surface damage, spalling medium at (or from.. to..) o'clock
SSS	Surface damage, spalling slight at (or from.. to..) o'clock
SWL	Surface damage, wear large at… (or from.. to..) o'clock
SWM	Surface damage, wear medium at… (or from.. to..) o'clock
SWS	Surface damage, wear slight at.. (or from.. to..) o'clock
V	Vermin (rats and mice)
WL	Water level… % height/diameter
X	Sewer collapsed… % cross-sectional area loss
FH	End of survey

Contract: 287859

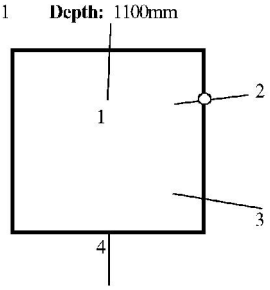
Site Address: 16 Heath Hurst Road

Date: 04-Dec-15

Operative Initial: AC

Page: 1 of 1

M/H: 1 **Depth:** 1100mm



Chamber Dimension (mm): 600 X 450

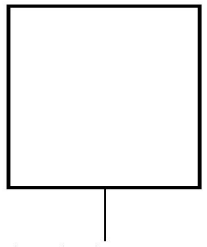
Depths of run if different to invert level:-

Run

Manhole Condition

As built

M/H: **Depth:**



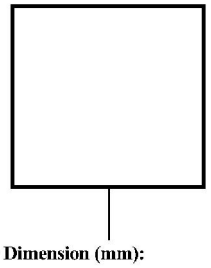
Chamber Dimension (mm):

Depths of run if different to invert level:-

Run

Manhole Condition

M/H: **Depth:**



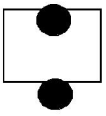
Chamber Dimension (mm):

Depths of run if different to invert level:-

Run

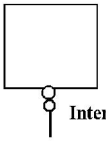
Manhole Condition

KEY….



Internal Back Drop

External Back Drop



Interceptor

Water Pressure Test Results

From: To: Pass / Fail