SITE INVESTIGATION
FACTUAL REPORT

Report No:	246035
Client:	Cunningham Lindsey - Maidstone
Site:	57, Aberdare Gardens London
Client Ref:	7851572[redacted]
Date of Visit:	13/01/2015

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

[redacted]

Investigation Layout Plan

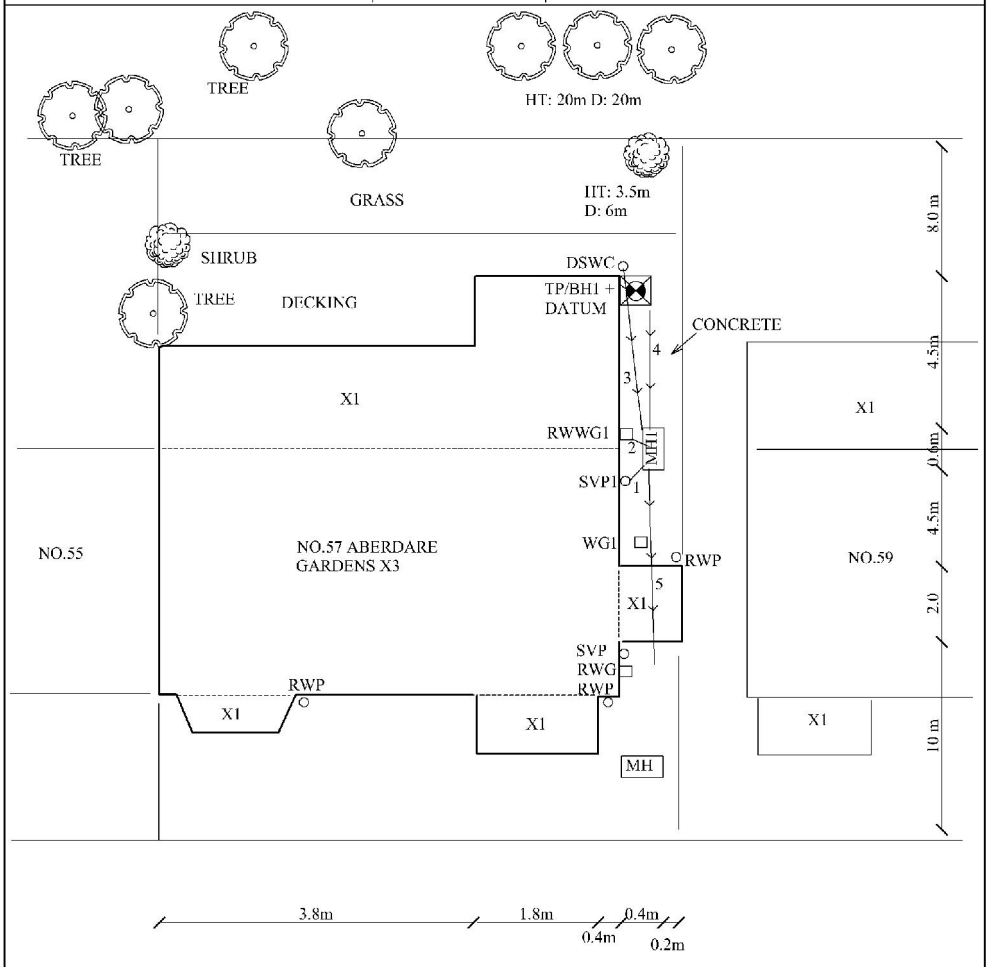
Sheet: 1 of 1
Job No: 246035E
Date: 13/01/2015

Site: 57 Aberdare Gardens, NW6 3AL

Work carried out for: Cunningham Lindsey

SP	MD/SE	AR
(SI)	(Checked)	(Drawn)

Weather: DRY



ON SITE TREE IDENTIFICATION FOR GUIDANCE ONLY. NOT AUTHENTICATED.

Remarks:

Parking - onsite.
Water supply - in house.
Site access - good.
Power - internal

Scale: N.T.S.

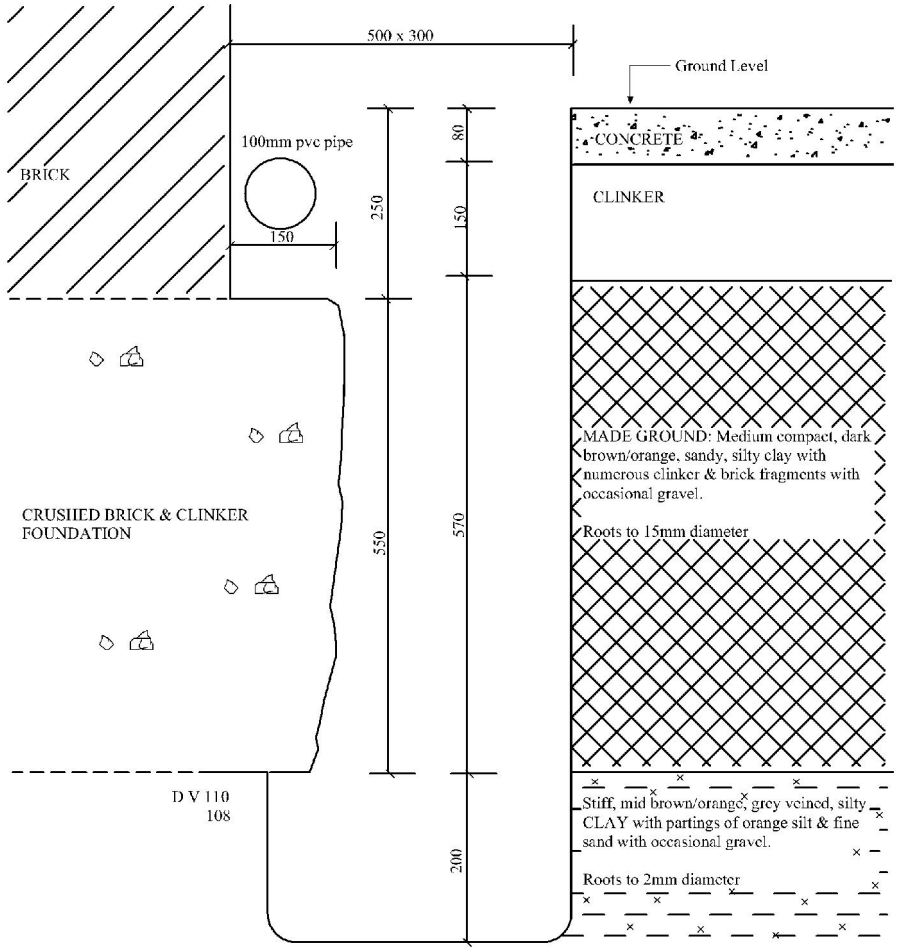
Key:		
Combined Gullcy	RWWG	Surface Water Drain
Manhole	MH	Foul Water Drain
Rain Water Pipe	RWP	Tree / Bush (approx. ht in m)
Rain Water Gulley	RWG	
Soil Vent Pipe	SVP	Trial Pit
Waste Gulley	WG	Borehole
Waste Pipe	WP	O/D - Open Discharge

Trial Pit No: 1

Sheet: 1 of 1
Job No: 246035E
Date: 13/01/15
Drawn by: DVC
Ground Level mOD:

Site: 57 Aberdare Gardens, London NW6
Work carried out for: Cunningham Lindsey

Excavation Method: Hand Tools
Weather: DRY



FOR STRATA BELOW 1000mm SEE BH LOG 1

Remarks: All measurements in millimetres.

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

Logged: SP | Checked: SE | Approved: | Scale: N.T.S.

Borehole No: 1 & Datum			Sheet: 1 of 1							
			Job No: 246035E			Site: 57 Aberdare Gardens, London NW6				
Boring Method: Hand Auger			Date: 13.01.15							
Diameter: 80mm	Coordinates:		Ground Level mOD:			Work Carried out for: Cunningham Lindsey				

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	1.00							
1.00	Stiff, mid brown/orange, grey veined, silty CLAY with partings of orange silt & fine sand with occasional gravel.	0.50	.x					Roots to 1mm diameter to 1.8m	
1.50				D	V	122 116	1.50		
	Stiff, as above, with occasional carbon deposits.	1.00	.x x	D	V	128 130	2.00	No roots observed below 1.8m	
2.50				D	V	132 126	2.50		
	Stiff, mid brown/orange, grey veined, silty CLAY with partings of orange silt & fine sand & occasional crystals.	1.00	.x x	D	V	120 118	3.00		
3.50				D	V	140+ 140+	3.50		
	Very stiff, mid brown/orange, grey veined, silty CLAY with partings of orange silt & fine sand with occasional crystals.	1.50	.x x x.	D	V	140+ 140+	4.00		
5.00			x	D	V	140+ 140+	4.50		
	Borehole ends at 5m						5.00		

Remarks: Borehole dry and open on completion. Datum installed at 5m

Key: T.D.T.D. Too Dense to Drive

D	Small disturbed sample	J	Jar sample
B	Bulk disturbed sample	V	Pilcon Vane (kPa)
W	Water sample	M	Mackintosh Probe

Logged: SP	Checked: SE	Typed by: DVC	Scale: NTS	Weather: DRY

Our Ref : 246035

Laboratory Testing Results

Date Sampled: 13/01/2015

Location : 57, Aberdare Gardens, NW6

Work carried out for: Cunningham Lindsey - Maidstone

Date Received : 14/01/2015

Date Tested : 14/01/2015

Date of Report : 22/01/2015

Sample Ref		Type	Moisture Content	Soil Fraction > 0.425mm	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Modified Plasticity Index	Soil Class	Filter Paper Contact Time	Soil Sample Suction	In situ Shear Vane Strength	Organic Content	pH Value	Sulphate Content (g / l)		Class
TP/BH No	Depth (m)		(%) *[1]*	(%) *[2]*	(%) *[3]*	(%) *[4]*	(%) *[5]*	*[5]*	(%) [6	*[7]*	(h) *[8]*	(kPa)	(kPa) *[9]*	(%)*[10]*	*[11]*	SO_3 *[12]*	SO_4 *[13]*	*[14]*
1	0.80(U/S)	D	37	<5	78	30	48	0.15	48	CV	168	146	109					
	1.5	D	35	<5									119					
	2.0	D	33	<5	85	29	56	0.06	56	CV	168	257	129					
	2.5	D	32	<5	79	28	51	0.07	51	CV	168	325	129					
	3.0	D	34	<5									119					
	3.5	D	34	<5	81	30	51	0.09	51	CV	168	292	> 140					
	4.0	D	31	<5									> 140					
	4.5	D	35	<5							168	308	> 140					
	5.0	D	31	<5							168	375	> 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] Values of shear strength were determined in situ by CEL using a Pilcon hand vane or Geonor vane (GV).

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

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

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

[13] $SO_4 = 1.2 \times SO_3$

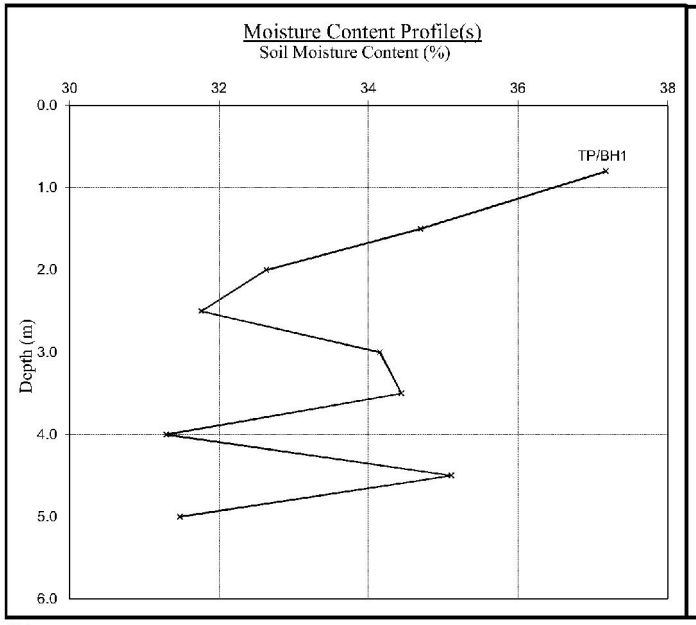
[14] BRE Special Digest One (Concrete in Aggressive Ground) August 2005
Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the sample as falling into the DS-4m or DS-5m class respectively unless water soluble magnesium testing is undertaken to prove otherwise

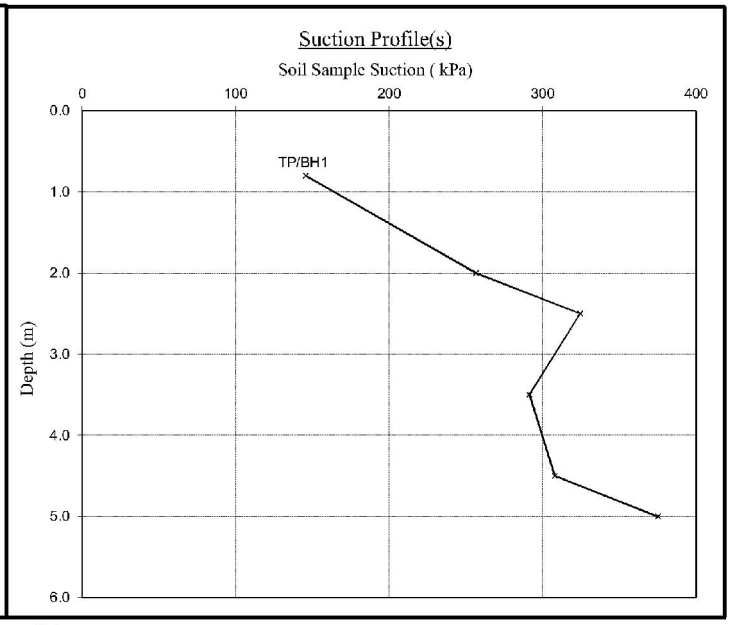
Key

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

Moisture Content and Suction Profiles

Our Ref :	246035	Date Sampled :	13/01/2015
Location :	57, Aberdare Gardens, NW6	Date Received :	14/01/2015
Work carried out for:	Cunningham Lindsey - Maidstone	Date Tested :	14/01/2015
	Note : Unless specifically noted the profiles have not been related to a site datum.	Date of Report :	22/01/2015





Notes

1. If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.

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.

Moisture Content and Shear Strength Profiles

Our Ref : 246035

Location : 57, Aberdare Gardens, NW6

Work carried out for: Cunningham Lindsey - Maidstone

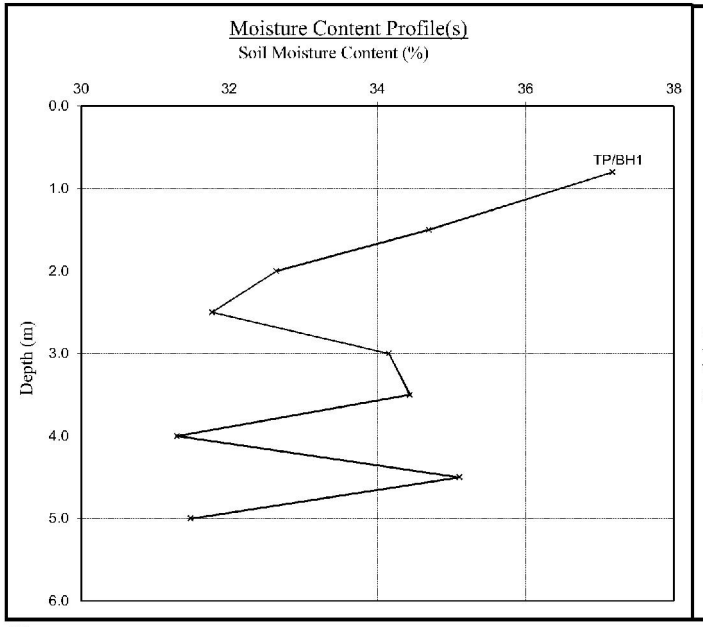
Note : Unless specifically noted the profiles have not been related to a site datum.

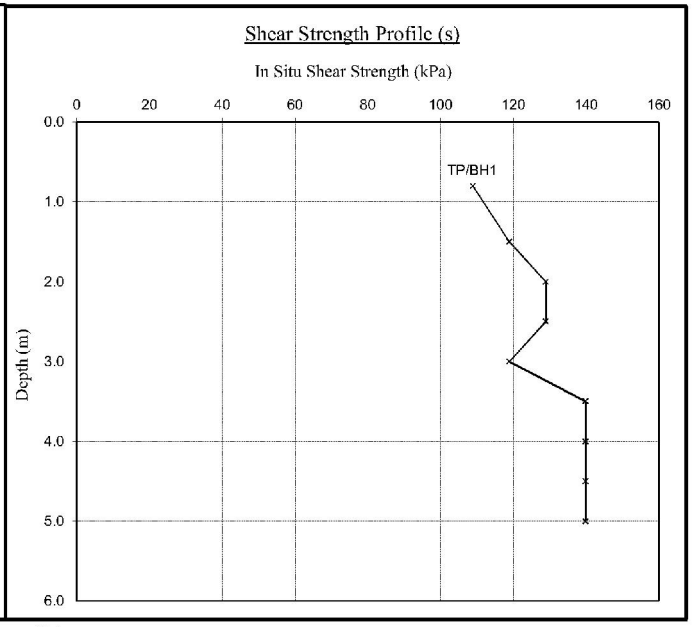
Date Sampled : 13/01/2015

Date Received : 14/01/2015

Date Tested : 14/01/2015

Date of Report : 22/01/2015





Notes

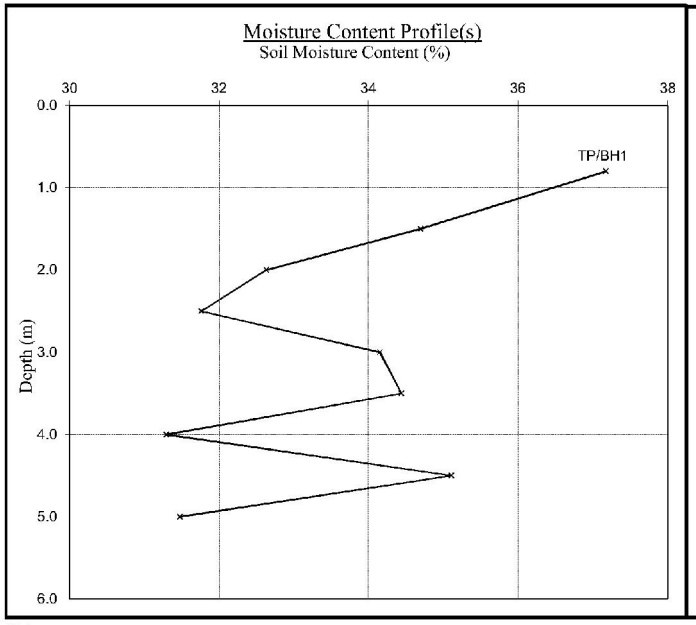
1. If plotted, 0.4 LL and PL−2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.

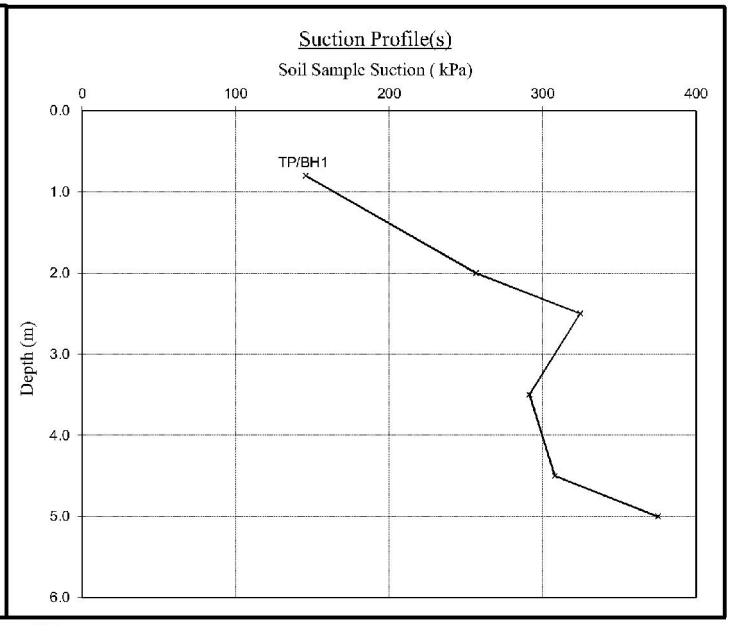
Note

Unless otherwise stated, values of Shear Strength were determined in situ by CET using a Pilcon Hand Vane the calibration of which is limited to a maximum reading of 140 kPa.

Moisture Content and Suction Profiles

Our Ref :	246035	Date Sampled :	13/01/2015
Location :	57, Aberdare Gardens, NW6	Date Received :	14/01/2015
Work carried out for:	Cunningham Lindsey - Maidstone	Date Tested :	14/01/2015
	Note : Unless specifically noted the profiles have not been related to a site datum.	Date of Report :	22/01/2015





Notes

1. If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.

Note

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Tree Root Identification Ltd

Sheet: 1 of 1

Job No: 246035
Date: 16/01/2015
Order No: 652024
Our Ref: CETT160115

Site: 57 Aberdare Gardens, London.

Work carried out for: Cunningham Lindsey

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 (underside)	0.5-1.0	Platanus (plane) (1 root)	positive
BH1 (roots to a depth of 1.8m)	thread-like*	too immature to analyse (1 root)	____

The presence of starch indicates that the root was alive in the recent past.

* There were no 1.0mm in diameter roots in this sample.

[redacted]
DR RONALD D MACLEOD
Principal Scientist

Address for correspondence: 'Mandaya', Highfield Place, BANKFOOT, By Perth, PH1 4AX.
[redacted]
Principal Scientist: R.D. MacLeod, B.Sc., Ph.D.,
Accounts/Quality Manager: Fiona M. Sinclair, BA English Studies (Merit)
Registered in Scotland, No. 388668. Registered Office: "Mandaya", Highfield Place, Bankfoot, PH1 4AX.

To: Cunningham Lindsey - Maidstone
4 North Court
South Park Business Village
Armstrong Road
Kent
ME15 6JZ

Our Ref: **246035**

Your Ref: **7851572**

Date: **14-Jan-15**

Attn: Yin-Shan Wong

ESTIMATE

Site:- **57, Aberdare Gardens**

Item		Amount
	No recommendations required to the private drainage surveyed.	

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 2 Job No: 246035 Date: 13-Jan-15	Site: 57, Aberdare Gardens Work carried out for: Cunningham Lindsey - Maidstone

MANHOLE DETAILS

Manhole	Depth to Invert	Condition
MH1	940mm	As built

CCTV Survey:-

1. Drainage Run:

From manhole 1 run 1 to soil vent pipe 1 - 100mm plastic foul water - upstream (shared with flats)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.0	SA	Survey abandoned - unable to put camera into run	

2 Drainage Run:

Break in rain water waste gully 1 run 2 to manhole 1 - 100mm plastic combined - downstream (shared with flats)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.3	FH	Finish - reached MH1	

3 Drainage Run:

From manhole 1 run 3 to DSWC - 100mm plastic foul water - upstream (not shared) (shared with flats)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete for 5.3m
5.3	LU	Line up	then decking for 0.1m
5.6	FH	Finish - reached DSWC	

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 2 Job No: 246035 Date: 13-Jan-15	Site: 57, Aberdare Gardens Work carried out for: Cunningham Lindsey - Maidstone

4 Drainage Run:

From manhole 1 run 4 to upstream - 100mm clay foul water - upstream (shared with flats)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete
0.0	DE	Debris 5%	
0.0	MC	Material changes 100mm lined	
4.0	LL	Line left	
4.0	SA	Survey abandoned - unable to push	

5 Drainage Run:

From manhole 1 run 5 to downstream - 100mm clay combined - downstream (shared with flats)

Metres:	Code:	Observations:	Surface Material/ Condition:
0.0		Start	Concrete 4.1m
4.3	CN	Connection at 12 o'clock 100mm WG1	then under building
7.0	FH	Finish - reached D/S	

- 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… mm
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-sectional 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… to… 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
ZH	End of survey

Contract: 246035

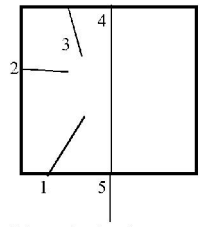
Site Address: 57, Aberdare Gardens

Date: 13-Jan-15

Operative Initial: SP

Page: 1 of 1

M/H: 1 **Depth:** 940mm



Chamber Dimension (mm):

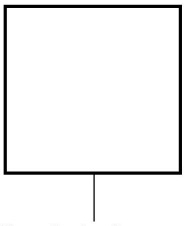
Depths of run if different to invert level:-

Run
1 - 200mm
2 - 180mm
3 - 350mm

Manhole Condition

As built

M/H: **Depth:**



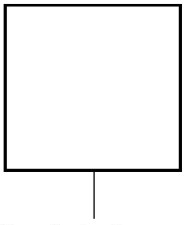
Chamber Dimension (mm):

Depths of run if different to invert level:-

Run

Manhole Condition

M/H: **Depth:**



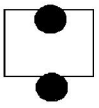
Chamber Dimension (mm):

Depths of run if different to invert level:-

Run

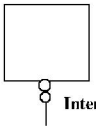
Manhole Condition

KEY….



Internal Back Drop

External Back Drop



Interceptor

Water Pressure Test Results

From: To: Pass / Fail