



◆ **DAVID SMITH ASSOCIATES LLP** ◆ Consulting Structural & Civil Engineers ◆
◆ London ◆ Northampton ◆ Cheltenham ◆ Birmingham ◆
www.dsagroup.co.uk

North Northamptonshire Council
4 Robinson Way
Telford Way Industrial Estate
Kettering
Northamptonshire, NN16 8PP

Dylan.Smith@NorthNorthants.gov.uk

F A O: Mr Dylan Smith

6th November 2023

Our Ref: JB/23/52720/CS

Dear Dylan

RE: RAVEN HOUSE, ROCKINGHAM ROAD, CORBY

Further to our report dated 29th August 2023, with regards to the subsidence movement noted to the above property, we confirm having carried out the further site investigations by way of trial holes and a CCTV Survey on Monday 18th September 2023.

Subsequent to these investigations, soil samples and a root sample were sent off to their respective laboratories for analysis. We confirm having received a copy of these laboratory results and can now report as follows: -

- (i) The existing perimeter wall is constructed on a mass concrete strip footing which is founded at approximately 650mm below ground level. The approximate size of the strip footing is 500mm wide and 180mm to 200mm deep. Typical details of the foundation can be seen in Photographs 1 and 2 in Appendix A.

DSA LLP VAT REG : 443 6613 95

Eur Ing **David Smith** BSc(Hons), C.Eng, MICE, FStructE, CMApS, MFPWS, FCABE, ACI Arb,
Hitesh Jethwa BSc Eng (Hons), I.Eng, AMIStructE **Steven Ainge** B.Eng (Hons), I.Eng, AMIStructE
Thomas Garrod B.Eng (Hons), **Ben Mason** BSc (Hons), I.Eng, MICE



London
16 Upper Woburn Place
London
WC1H 0AF
0203 741 8042
london@dsagroup.co.uk

Northampton
8 Duncan Close
Moulton Park
Northampton, NN3 6WL
01604 782620
northampton@dsagroup.co.uk

Cheltenham
Unit 2, 1 The Hayloft
Far Peak
Northleach, GL54 3AP
01285 657328
cheltenham@dsagroup.co.uk

Birmingham
Central Boulevard,
Blythe Valley Business Park
Solihull, B90 8AG.
01564 711008
birmingham@dsagroup.co.uk



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- (ii) The bearing strata was brown slightly sandy, slightly gravelly CLAY. The laboratory testing revealed that the modified Plasticity Index of the clay samples was 27% and 35% which would classify it as a medium shrinkable clay. The Moisture content was 17%. A copy of the laboratory test results can be found in Appendix B of this report.
- (iii) The root sample obtained from the trial hole revealed it to have originated from the Sycamore trees located approximately 5 metres away from the side (Northeast) elevation of the property. A copy of the laboratory report confirming this can be found in Appendix C of this report.
- (iv) Based on the soil type and the proximity of the trees, the recommended foundation depths along the North East elevation, based on the NHBC Chapter 4.2 "Building near trees" should vary between 1.75 metres at approximately 9 metres from the front corner of the building to 2.15 metres deep at the rear corner. Please refer to the extracts from NHBC Chapter 4.2 "Building Near trees" in Appendix D.
- (v) We can confirm that the CCTV Survey report of the adjacent below ground drainage indicated several defects within the adjacent below ground drainage system. In principle some of these defects are as indicated below: -
- Root masses in the pipework between Manhole MH1 and MH2.
 - Fine roots along Lateral 1 from Manhole MH1.
 - Settled deposits along Lateral 2 upstream of Manhole MH 1 giving 5% reduction in cross-sectional area.

A copy of the CCTV survey report can be found in Appendix E of this report.

From our previous report, it is our opinion that the subsidence noted to this property has been caused by a combination of the following two mechanisms:

Mechanism 1

Shrinkage of the clay-based bearing stratum which has been exacerbated by the recent hot, dry summer and the adjacent trees. This effectively causes the bearing stratum to shrink away from the underside of the foundation. This causes the foundation to drop onto the new position of the bearing stratum leading to the indicative subsidence cracking noted.

Mechanism 2

Escape of water from the existing drainage system causing an increase in the moisture content of the bearing stratum. This leads to a reduction in its shear strength and hence bearing capacity causing the subsidence noted.

From the above therefore, we would recommend that consideration be given to the removal of the adjacent trees or underpinning the existing foundation to a depth of 1.75 metres. If underpinning is the preferred option, please contact us for advice.

In addition to this, the drainage runs should also be jetted out, de-rooted. The pipes should then be relined. Based on the condition of the pipe between Manholes MH1 and MH2, the pipe may need to be replaced.

Following completion of the above remedial works we would recommend that the property be monitored for approximately 12 months to ensure that no further movement is occurring. At the end of the monitoring period the type and extent of any final remedial works, to the affected part of the structure, would be determined.

Should you wish us to formally monitor the cracking for you, we would respectfully suggest that you allow for the following fees: -

<u>ITEM</u>	<u>FEE</u>
1. Carry out initial visit to set up the monitoring locations and take initial readings.	£250.00 + VAT
2. Carry out subsequent monitoring visits at 3 monthly intervals (4 No. visits @ £150 + VAT per visit)	£600.00 + VAT
3. Carry out final monitoring visit and prepare a report on our findings and recommendations for remedial works, if required.	£300.00 + VAT
 TOTAL	 ----- £1,150.00 + VAT =====

We trust the above is satisfactory for your immediate requirements, however, should you have any queries or require any further information, please do not hesitate to contact the Northampton office.

Yours sincerely



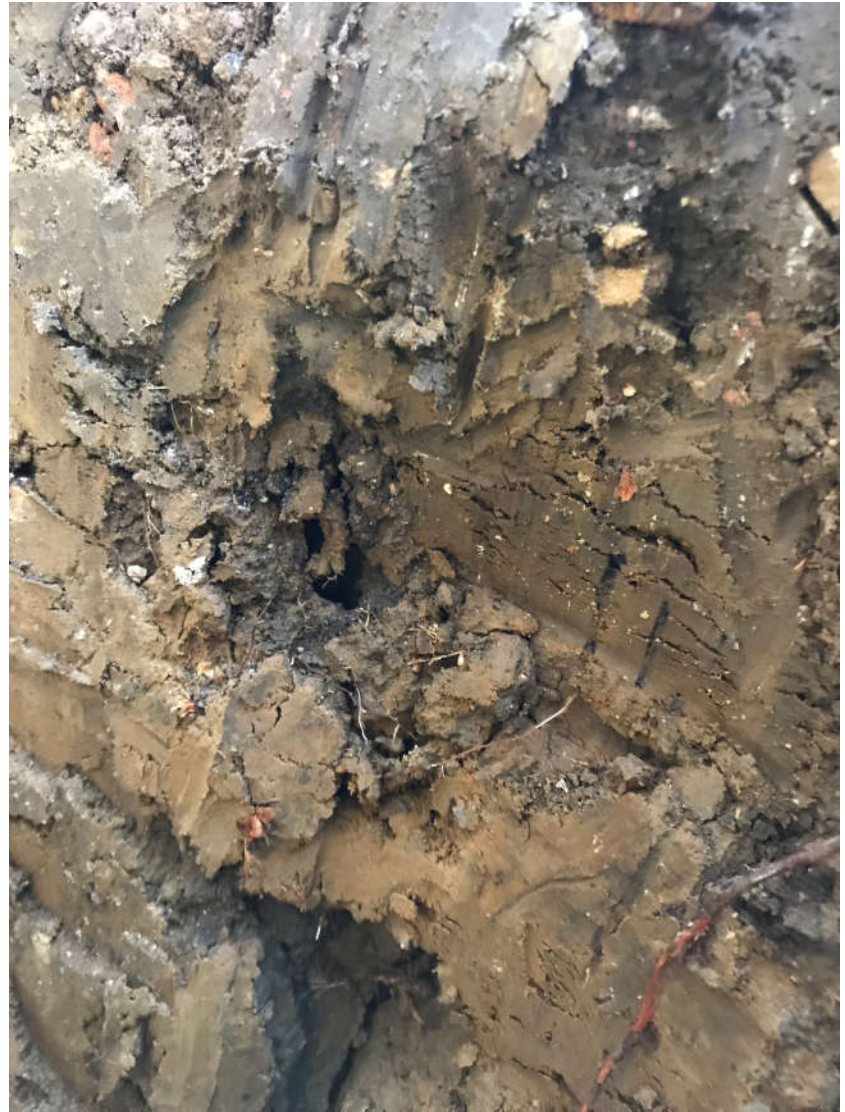
JACQUELINE BARNABY
David Smith Associates LLP

APPENDIX 'A'

Typical Details



Photograph 1



Photograph 2

APPENDIX 'B'

Laboratory Test Results – Plasticity Index & Moisture Content



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
 Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



4041

Client: ST Consult Ltd
 Client Address: Twigden Barns, Brixworth Road,
 Creaton, Northamptonshire,
 NN6 8NN
 Contact: Chris Nolan
 Site Address: GN0647 Raven

Client Reference: GN0647
 Job Number: 23-58622-1
 Date Sampled: Not Given
 Date Received: 22/09/2023
 Date Tested: 03/10/2023
 Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

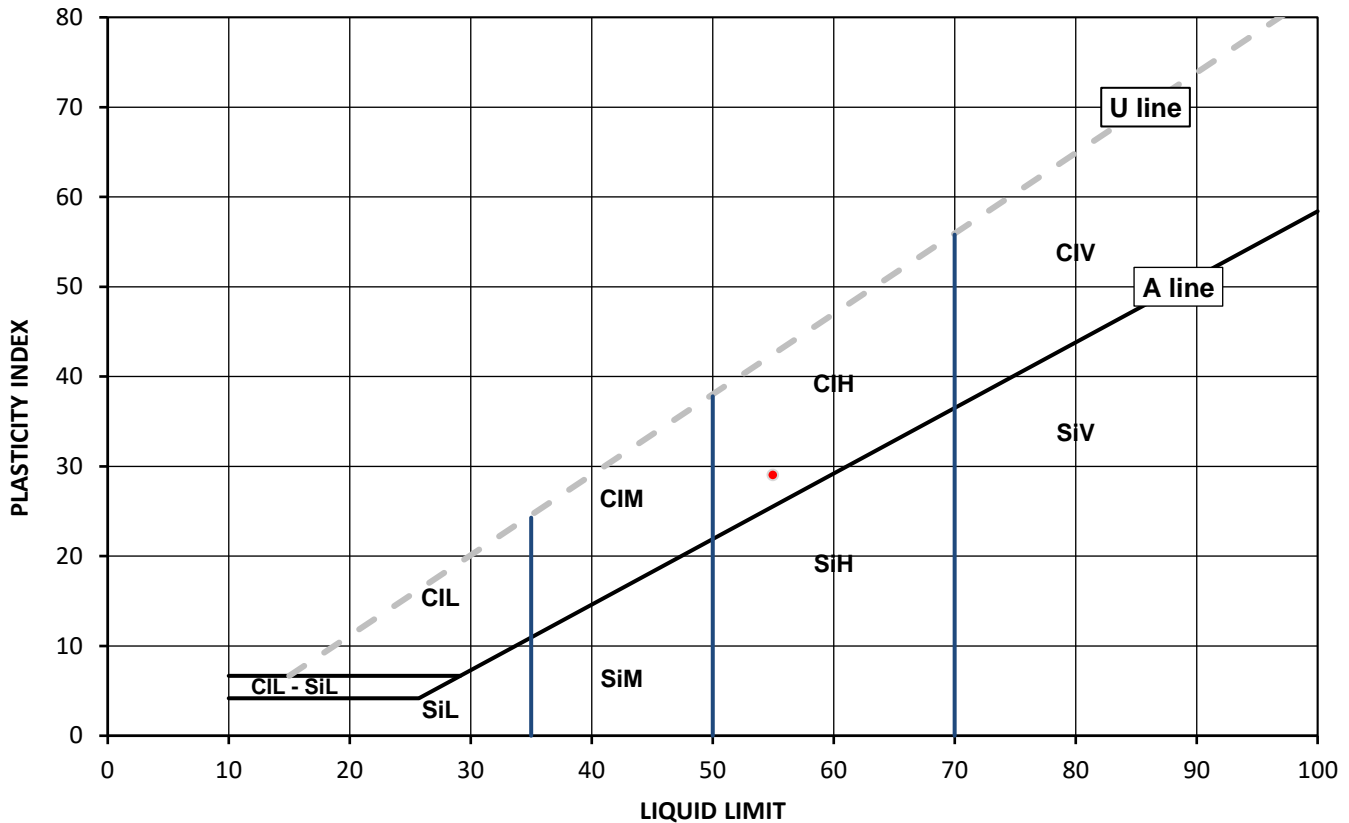
Test Results:

Laboratory Reference: 2823662
 Hole No.: TH2
 Sample Reference: Not Given
 Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: Not Given
 Depth Base [m]: Not Given
 Sample Type: B

Sample Preparation: Tested after washing to remove >425 µm

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	55	26	29	92



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L	below 35
		M	35 to 50
		H	50 to 70
		V	exceeding 70
		O	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks: Sample tested under Red Lab condition

Signed:

Monika Janoszek
 PL Environmental & Geotechnical Lab Production Specialist
 for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: ST Consult Ltd
Client Address: Twigden Barns, Brixworth Road,
Creaton, Northamptonshire,
NN6 8NN

Contact: Chris Nolan
Site Address: GN0647 Raven

Client Reference: GN0647
Job Number: 23-58622-1
Date Sampled: Not Given
Date Received: 22/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC %	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2823662	TH2	Not Given	Not Given	Not Given	B	Brown slightly gravelly slightly sandy CLAY	16	Sample was quartered, oven dried at 108.8 °C				

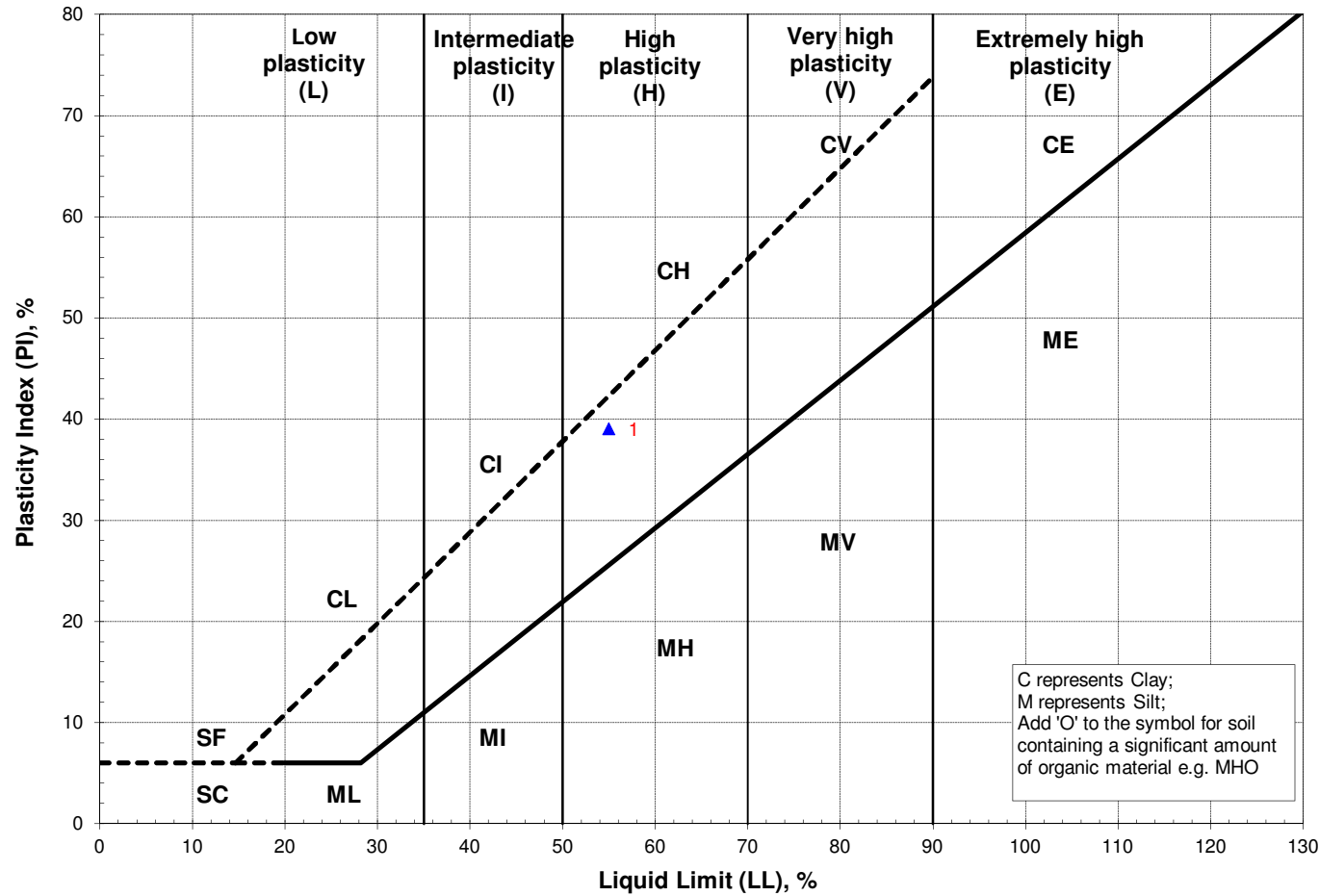
Comments: Sample tested under Red Lab condition

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Monika Janoszek
PL Environmental & Geotechnical Lab Production Specialist
for and on behalf of i2 Analytical Ltd

Plasticity Chart for Atterberg Limit Test Results



Sample List

1 TH1@N/Am

Statistics

Liquid Limit	
Max	55
Min	55
Average	55
Plastic Limit	
Max	16
Min	16
Average	16
Plasticity Index	
Max	39
Min	39
Average	39

Project Name: Raven House, Rockingham Rd, Corby

Project No: GN0647

Project Engineer: CN

Client: DSA

Date: 28/09/2023

Figure No. 2

Atterberg Limits Test Result Summary Sheet

Test carried out in accordance with BS 1377-2:1990(2003) cl. 3.2, 4.2, 4.3, 5.3 & 5.4

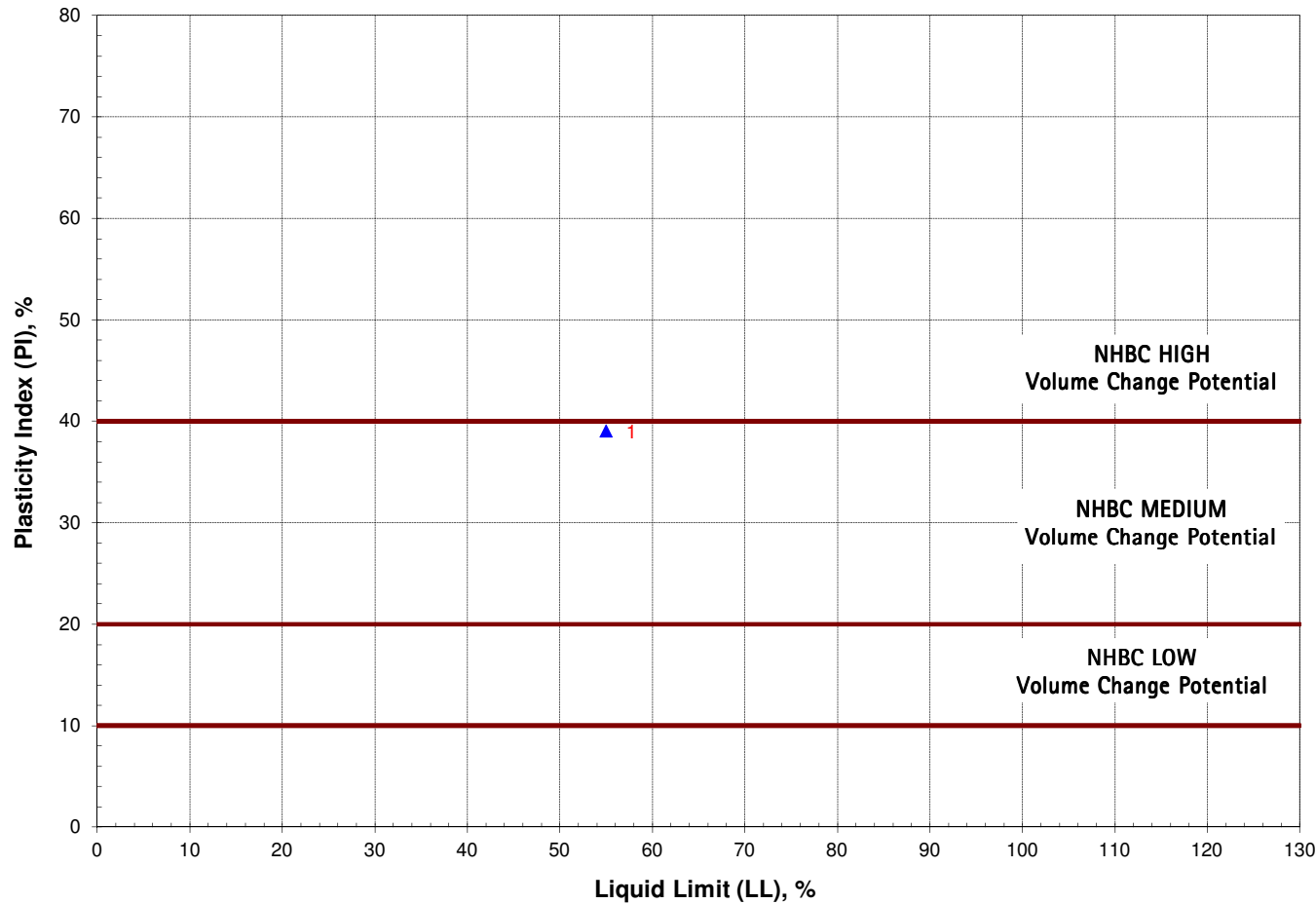
Project No : GN0647 **Checked By :** CN **Date:** 28-Sep-2023

Project Name : Raven House, Rockingham Rd, Corby

Client : DSA

Plot No	TH No.	Depth (m)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Classification	% Passing 425µm (%)	Visual Description
1	TH1	N/A	17.5	55	16	39	CH	91	<i>Brown mottled grey and orange brown slightly sandy slightly gravelly calcareous CLAY. Gravel consists of fine and medium angular to rounded chalk and flint.</i>

Plot Relating Soil Plasticity to NHBC Classification for Volume Change Potential



Sample List	Statistics
1 TH1@N/Am	Liquid Limit
	Max 55
	Min 55
	Average 55
	Plastic Limit
	Max 16
	Min 16
	Average 16
	Plasticity Index
	Max 39
	Min 39
	Average 39

Project Name: Raven House, Rockingham Rd, Corby

Project No: GN0647

Project Engineer: CN

Client: DSA

Date: 28/09/2023

Figure No. 3

APPENDIX 'C'

Laboratory Test Results – Root Samples



Richardson's Botanical Identifications

Root identification
Vegetation surveys
Tree/Building investigations
Plant taxonomy

David Smith Associates
8 Duncan Close
Moulton Park
NORTHAMPTON
NN3 6WL

05/10/2023

Dr Ian B K Richardson
BSc, MSc, PhD, MRSB, FLS

James Richardson
BSc (Hons. Biology)

Enterprise House
49-51 Whiteknights Road
Reading
RG6 7BB

Tel: (0118) 986 9552 (*Direct line*)

E-mail: richardsons@botanical.net

Web: www.botanical.net

Your ref: **JB-23-52720-MH**

Our ref: **87/4913**

Dear Sirs

Raven House, Corby NN17 1AJ

The samples you sent in relation to the above on 20/09/2023 have been examined. Their structures were referable as follows:

Smaller sample	
1 no.	Examined root: ACER (Maples, Sycamores).
Larger sample	
1 no.	Examined root: a conifer - particularly like the family CUPRESSACEAE (cypresses ('macrocarpa', 'Leylandii' etc.), Thuja (Western Red Cedar), Junipers).

Click here for more information: [ACER](#) [CUPRESSACEAE](#)

I trust this is of help. Please call us if you have any queries; our Invoice is enclosed.

Yours faithfully

Dr Ian B K Richardson

** Try out our web site on www.botanical.net **

APPENDIX 'D'

NHBC Chapter 4.2 "Building Near Trees"

Table 14: MEDIUM volume change potential soil and HIGH water demand tree

Broad-leafed trees													Coniferous trees												
Foundation depth (m)													Foundation depth (m)												
Distance D (m)	Tree height H (m)												Distance D (m)	Tree height H (m)											
	8	10	12	14	16	18	20	22	24	26	28	30		8	10	12	14	16	18	20	22	24	26	28	30
1																									
2																									
3	2.40	2.50																							
4	2.20	2.35	2.45																						
5	1.95	2.20	2.30	2.40	2.50																				
6	1.75	2.00	2.20	2.30	2.40	2.45	2.50																		
7	1.55	1.85	2.05	2.20	2.30	2.35	2.45	2.50																	
8	1.35	1.70	1.90	2.05	2.20	2.25	2.35	2.40	2.45	2.50															
9	1.15	1.50	1.75	1.95	2.10	2.20	2.25	2.35	2.40	2.45	2.50	2.50													
10	0.90	1.35	1.60	1.80	1.95	2.10	2.20	2.25	2.30	2.35	2.40	2.45													
11	0.90	1.15	1.50	1.70	1.85	2.00	2.10	2.20	2.25	2.30	2.35	2.40													
12	0.90	1.00	1.35	1.60	1.75	1.90	2.00	2.10	2.20	2.25	2.30	2.35													
13		0.90	1.20	1.45	1.65	1.80	1.95	2.05	2.10	2.20	2.25	2.30													
14		0.90	1.05	1.35	1.55	1.70	1.85	1.95	2.05	2.10	2.20	2.25													
15			0.90	1.20	1.45	1.60	1.75	1.85	1.95	2.05	2.10	2.20													
16			0.90	1.10	1.35	1.55	1.70	1.80	1.90	2.00	2.05	2.10													
17			0.90	1.00	1.25	1.45	1.60	1.70	1.85	1.90	2.00	2.05													
18				0.90	1.15	1.35	1.50	1.65	1.75	1.85	1.95	2.00													
19				0.90	1.05	1.25	1.40	1.55	1.70	1.80	1.90	1.95													
20					0.90	1.15	1.35	1.50	1.60	1.75	1.80	1.90													
21					0.90	1.05	1.25	1.40	1.55	1.65	1.75	1.85													
22					0.90	0.95	1.15	1.35	1.50	1.60	1.70	1.80													
23						0.90	1.10	1.25	1.40	1.55	1.65	1.75													
24						0.90	1.00	1.20	1.35	1.45	1.60	1.70													
25							0.90	1.10	1.25	1.40	1.50	1.60													
26							0.90	1.05	1.20	1.35	1.45	1.55													
27							0.90	0.95	1.15	1.30	1.40	1.50													
28								0.90	1.05	1.20	1.35	1.45													
29								0.90	1.00	1.15	1.30	1.40													
30									0.90	1.10	1.20	1.35													
31									0.90	1.00	1.15	1.30													
32									0.90	0.95	1.10	1.25													
33										0.90	1.05	1.15													
34										0.90	1.00	1.10													
35											0.90	1.05													
36												0.90	1.00												
37													0.90	0.95											
38														0.90											

4.2

APPENDIX 'E'

CCTV Survey Report

CLAYDON

254A MAIN ROAD
DUSTON
NORTHAMPTON
NN5 6PP

Tel 01604 580836
email: bob-claydon@btconnect.com

CCTV DRAIN SURVEY REPORT

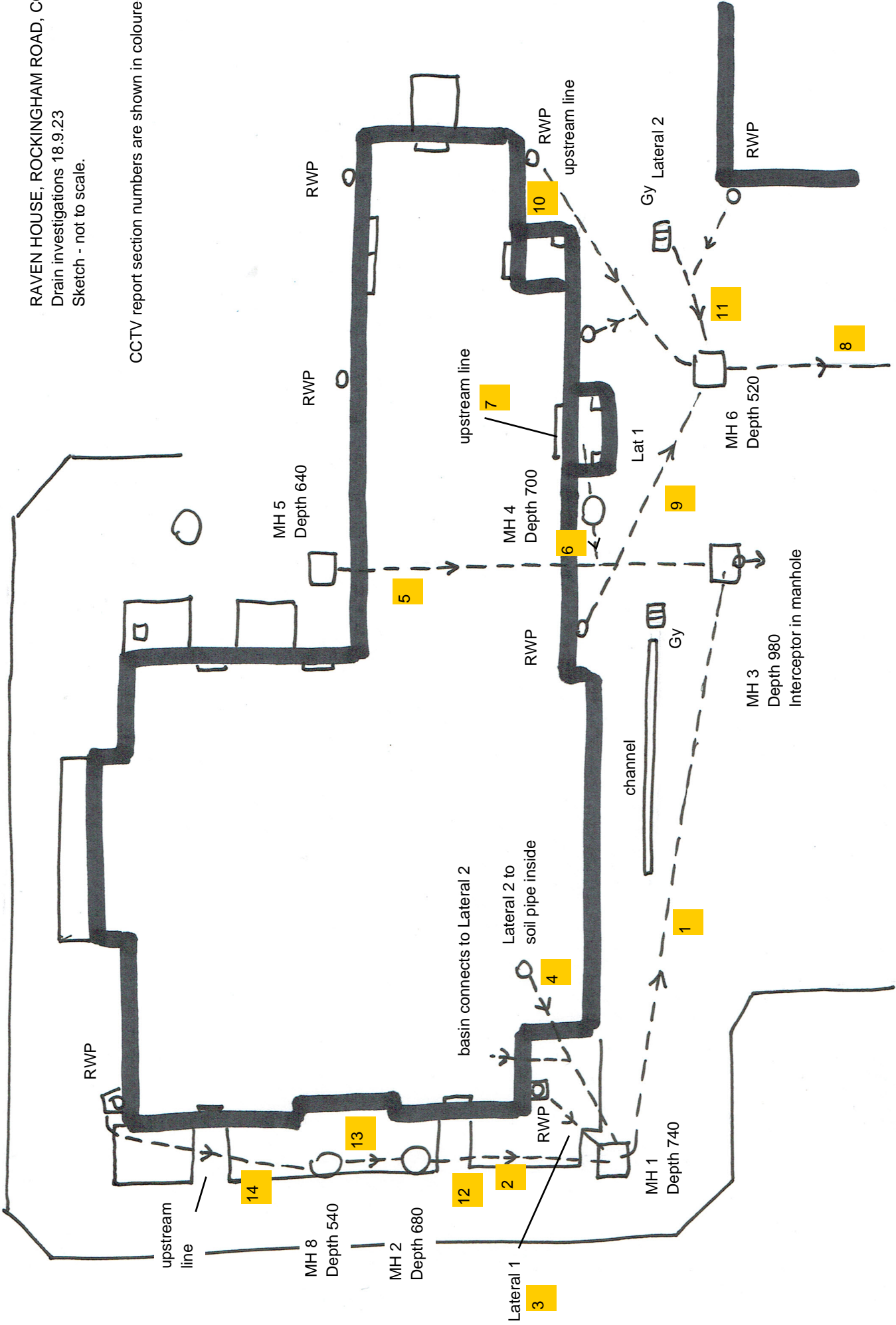
Client: David Smith Associates LLP
Location: RAVEN HOUSE, ROCKINGHAM ROAD, CORBY
Details: Drain investigation works as requested
Date: 18.9.23

The CCTV recordings are accompanied by a plan and survey report.

CCTV section numbers are referenced on the drawing.

The information contained on these recordings is given without obligation. Every effort is taken to provide accurate data. The exact position of a defect should be verified and established on site before undertaking any excavation or repair work. Claydon cannot be responsible for any misplaced excavation or repair costs.

CCTV report section numbers are shown in coloured boxes




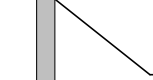

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 1	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 1 (D/S) MH 3	Location details: Catchment: Tape number : Pipe Length		U/S MH : U/S Depth : D/S MH : D/S Depth :	MH 1 MH 3
---------------------------------------------	---------------------------------------------------------------------	-----------------------------------------------------------------	--	----------------------------------------------------	--------------------------------

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 10.20 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
----------------------------------------------------	---------------------------------------------------------------------------------	------------------------------------------------------------	---------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		0.00	MH	Start node type, manhole, reference number : MH 1	
		0.00	WL	Water level, 5% of the vertical dimension Remarks: silt underwater	
		10.20	MHF	Finish node type, manhole reference number: MH 3	CCTV 01 pic 1.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
1

PLR Suffix :
X



Photo: CCTV 01 pic 1.jpg
10.2m, Finish node type, manhole reference number: MH 3

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 2	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 1 (U/S) MH 2	Location details: Catchment: Tape number : Pipe Length	U/S MH : MH 2 U/S Depth : D/S MH : MH 1 D/S Depth :
---------------------------------------------	-------------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------------------------------

Use: Combined Year laid : Purpose : Routine inspection of condition Total length : 2.40 m	Pipe shape : Circular Pipe size : 100 mm Pipe material : Polyvinyl chloride Lining :
-------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 1		
	0.00	WL	Water level, 5% of the vertical dimension		
	2.10	REM	General remark Remarks: joint slightly open		
	2.25	JN	Junction, at 2 o'clock, diameter 100mm		CCTV 02 pic 1.jpg
	2.40	SA	Survey abandoned Remarks: bunch of roots		CCTV 02 pic 2.jpg
	2.40	REM	General remark Remarks: see downstream survey 12 after roots removed		

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
2

PLR Suffix :
X



Photo: CCTV 02 pic 1.jpg
2.25m, Junction, at 2 o'clock, diameter 100mm



Photo: CCTV 02 pic 2.jpg
2.4m, Survey abandoned

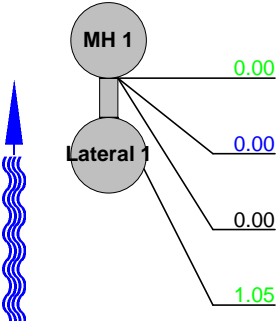
Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 3	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 1 (U/S) Lateral 1	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 1 MH 1
---------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	-------------------------------------

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 1.05 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
----------------------------------------------------	-------------------------------------------------------------------------	------------------------------------------------------------	--------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 1		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	REM	General remark Remarks: roots round sides of pipe		CCTV 03 pic 1 .jpg
	1.05	MHF	Finish node type, manhole reference number: Lateral 1 Remarks: RWP gully		CCTV 03 pic 2.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
3

PLR Suffix :
X



Photo: CCTV 03 pic 1.jpg
0m, General remark



Photo: CCTV 03 pic 2.jpg
1.05m, Finish node type, manhole reference number: Lateral 1

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 4	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 1 (U/S) Lateral 2	Location details: Catchment: Tape number : Pipe Length		U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 2 MH 1
---------------------------------------------	--------------------------------------------------------------------------	-----------------------------------------------------------------	--	----------------------------------------------------	-------------------------------------

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 3.75 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
----------------------------------------------------	--------------------------------------------------------------------------------	------------------------------------------------------------	---------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
					
	0.00	MH	Start node type, manhole, reference number : MH 1		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	DES	Settled deposits, fine, 5% cross-sectional area loss		CCTV 04 pic 1.jpg
	0.00	REM	General remark Remarks: cobwebs in pipe		
	1.65	JN	Junction, at 11 o'clock, diameter 100mm		CCTV 04 pic 2.jpg
	3.15	LU	Line deviates up		
	3.75	MHF	Finish node type, manhole reference number: Lateral 2 Remarks: soil pipe inside		CCTV 04 pic 3.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.27	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
4

PLR Suffix :
X



Photo: CCTV 04 pic 1.jpg
0m, Settled deposits, fine, 5% cross-sectional area loss

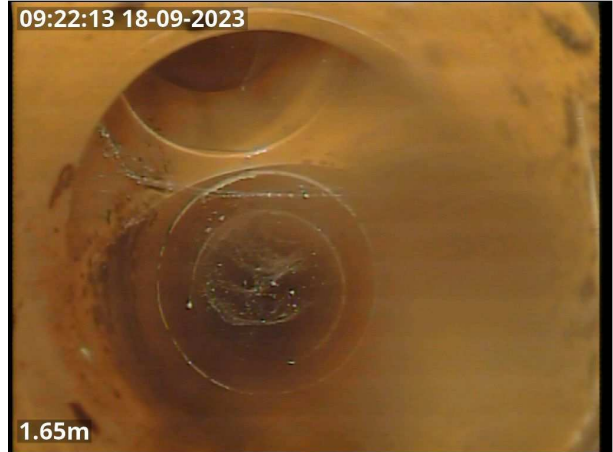


Photo: CCTV 04 pic 2.jpg
1.65m, Junction, at 11 o'clock, diameter 100mm



Photo: CCTV 04 pic 3.jpg
3.75m, Finish node type, manhole reference number: Lateral 2

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 5	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 3 (U/S) MH 5	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH 5 MH 3
---------------------------------------------	------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	--------------------------------

Use: Year laid : Purpose : Total length :	Foul Routine inspection of condition 12.75 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
----------------------------------------------------	----------------------------------------------------------------------	------------------------------------------------------------	---------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
	<u>0.00</u>	MH	Start node type, manhole, reference number : MH 3		
	<u>0.00</u>	WL	Water level, 5% of the vertical dimension		
	<u>0.45</u>	REM	General remark Remarks: greasy water splashed on lens		
	<u>2.85</u>	JN	Junction, at 2 o'clock, diameter 100mm		CCTV 05 pic 1.jpg
	<u>12.75</u>	MHF	Finish node type, manhole reference number: MH 5		CCTV 05 pic 2.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
5

PLR Suffix :
X



Photo: CCTV 05 pic 1.jpg
2.85m, Junction, at 2 o'clock, diameter 100mm



Photo: CCTV 05 pic 2.jpg
12.75m, Finish node type, manhole reference number: MH 5

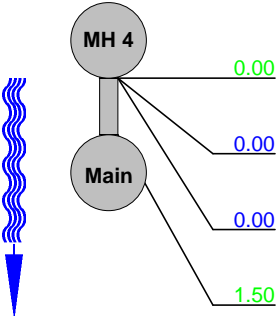
Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 6	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 4 (D/S) Main	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH 4 Main
---------------------------------------------	------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	--------------------------------

Use: Year laid : Purpose : Total length :	Foul Routine inspection of condition 1.50 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
----------------------------------------------------	---------------------------------------------------------------------	------------------------------------------------------------	-----------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 4		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	DES	Settled deposits, fine, 5% cross-sectional area loss		
	1.50	MHF	Finish node type, manhole reference number: Main Remarks: joins line from MH 5 to MH 3		CCTV 06 pic 1.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.67	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
6

PLR Suffix :
X

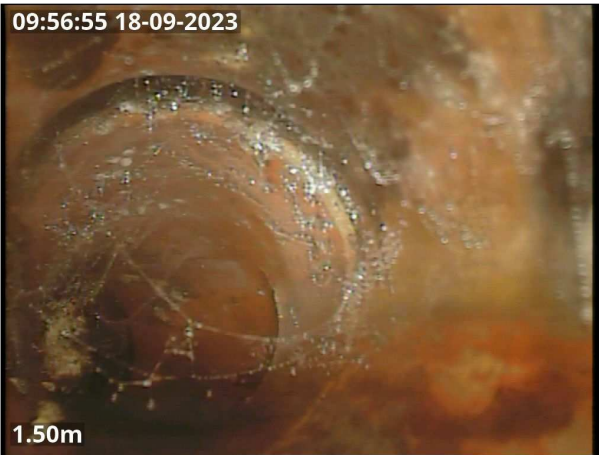


Photo: CCTV 06 pic 1.jpg
1.5m, Finish node type, manhole reference number: Main

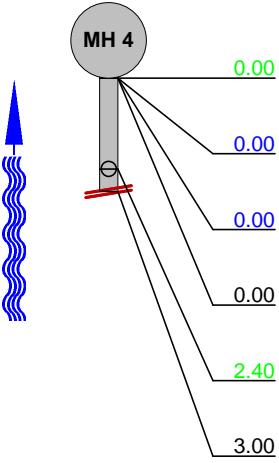
Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 7	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 4 (U/S) Upstream	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	Upstream MH 4
---------------------------------------------	-------------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	------------------------------------

Use: Year laid : Purpose : Total length :	Foul Routine inspection of condition 3.00 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
----------------------------------------------------	---------------------------------------------------------------------	------------------------------------------------------------	-----------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 4		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	DES	Settled deposits, fine, 5% cross-sectional area loss		
	0.00	REM	General remark Remarks: cobwbs in pipe		
	2.40	JN	Junction, at 12 o'clock, diameter 100mm		CCTV 07 pic 1.jpg
	3.00	SA	Survey abandoned Remarks: unable to push further - line blocked off		

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.42	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
7

PLR Suffix :
X



Photo: CCTV 07 pic 1.jpg
2.4m, Junction, at 12 o'clock, diameter 100mm

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 8	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 6 (D/S) MH 7	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH 6 MH 7
---------------------------------------------	------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	--------------------------------

Use: Year laid : Purpose : Total length :	Surface water Routine inspection of condition 16.95 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
----------------------------------------------------	-------------------------------------------------------------------------------	------------------------------------------------------------	-----------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
	0.00	MH	Start node type, manhole, reference number : MH 6		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	LL	Line deviates left		
	0.00	WL	Water level, 0% of the vertical dimension		
	1.50	WL	Water level, 5% of the vertical dimension		
	2.10	JN	Junction, at 9 o'clock, diameter 100mm		CCTV 08 pic 1.jpg
	4.50	WL	Water level, 5% of the vertical dimension		
	16.50	LR	Line deviates right		
	16.95	MHF	Finish node type, manhole reference number: MH 7 Remarks: outside front boundary of premises		

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
8

PLR Suffix :
X



Photo: CCTV 08 pic 1.jpg
2.1m, Junction, at 9 o'clock, diameter 100mm

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 9	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 6 (U/S) Lateral 1	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 1 MH 6
---------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	-------------------------------------

Use: Year laid : Purpose : Total length :	Surface water Routine inspection of condition 6.90 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
----------------------------------------------------	------------------------------------------------------------------------------	------------------------------------------------------------	----------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
	0.00	MH	Start node type, manhole, reference number : MH 6		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	S01	Settled deposits, fine, 20% cross-sectional area loss, Start		
	1.20	REM	General remark Remarks: camera pushing debris		
	1.95	JN	Junction, at 2 o'clock, diameter 100mm		CCTV 09 pic 1.jpg
	6.00	F01	Settled deposits, fine, 20% cross-sectional area loss, End		
	6.00	CUD	Loss of vision, silt		
	6.90	MHF	Finish node type, manhole reference number: Lateral 1 Remarks: RWP - camera heard in pipe		

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	2	1.74	12	3

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
9

PLR Suffix :
X



Photo: CCTV 09 pic 1.jpg
1.95m, Junction, at 2 o'clock, diameter 100mm

Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 10	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 6 (U/S) Upstream	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	Upstream MH 6
---------------------------------------------	-----------------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	------------------------------------

Use: Surface water Year laid : Purpose : Routine inspection of condition Total length : 12.75 m	Pipe shape : Circular Pipe size : 100 mm Pipe material : Vitrified clay Lining :
-------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
	MH 6				
	0.00	MH	Start node type, manhole, reference number : MH 6		
	0.00	WL	Water level, 0% of the vertical dimension		
	0.00	LR	Line deviates right		
	1.50	DES	Settled deposits, fine, 5% cross-sectional area loss		
	1.80	JN	Junction, at 3 o'clock, diameter 100mm		CCTV 10 pic 1.jpg
	6.15	WL	Water level, 5% of the vertical dimension		
	11.50	WL	Water level, 0% of the vertical dimension		
	11.50	LL	Line deviates left		
	12.15	LU	Line deviates up		
	12.75	MHF	Finish node type, manhole reference number: Upstream Remarks: RWP		
	Upstream				

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.08	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
10

PLR Suffix :
X



Photo: CCTV 10 pic 1.jpg
1.8m, Junction, at 3 o'clock, diameter 100mm

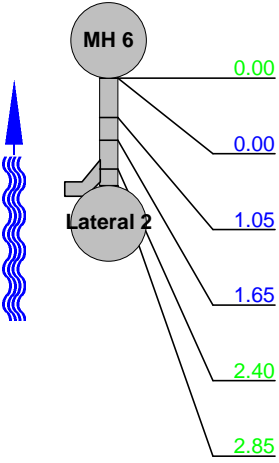
Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 11	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 6 (U/S) Lateral 2	Location details: Catchment: Tape number : Pipe Length		U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 2 MH 6
---------------------------------------------	--------------------------------------------------------------------------	-----------------------------------------------------------------	--	----------------------------------------------------	-------------------------------------

Use: Year laid : Purpose : Total length :	Surface water Routine inspection of condition 2.85 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
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Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 6		
	0.00	WL	Water level, 0% of the vertical dimension		
	1.05	DES	Settled deposits, fine, 5% cross-sectional area loss		
	1.65	WL	Water level, 5% of the vertical dimension		
	2.40	JN	Junction, at 3 o'clock, diameter 100mm		
	2.85	MHF	Finish node type, manhole reference number: Lateral 2 Remarks: gully		CCTV 11 pic 1.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.35	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
11

PLR Suffix :
X



Photo: CCTV 11 pic 1.jpg
2.85m, Finish node type, manhole reference number: Lateral 2



Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 12	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 2 (D/S) MH 1	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :
			MH 2 MH 1

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 4.95 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
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Comment : **after bunch of roots removed**

1:200	Position	Code	Observation	MPEG	Photo
					
	0.00	MH	Start node type, manhole, reference number : MH 2		
		WL	Water level, 0% of the vertical dimension		
	0.00	WL	Water level, 0% of the vertical dimension		
	1.35	WL	Water level, 5% of the vertical dimension		
	1.35	WL	Water level, 5% of the vertical dimension		
	2.25	REM	General remark Remarks: roots poking through joint		CCTV 12 pic 1.jpg
	2.40	JN	Junction, at 9 o'clock, diameter 100mm		CCTV 12 pic 2.jpg
	2.55	REM	General remark Remarks: joint slightly open		CCTV 12 pic 3.jpg
	4.95	MHF	Finish node type, manhole reference number: MH 1		

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
12

PLR Suffix :
X



Photo: CCTV 12 pic 1.jpg
2.25m, General remark



Photo: CCTV 12 pic 2.jpg
2.4m, Junction, at 9 o'clock, diameter 100mm



Photo: CCTV 12 pic 3.jpg
2.55m, General remark




Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 13	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 8 (D/S) MH 2	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH 8 MH 2
---------------------------------------------	---------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	----------------------------

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 5.10 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
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Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 8		
		WL	Water level, 5% of the vertical dimension		
		MHF	Finish node type, manhole reference number: MH 2		CCTV 13 pic 1.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
13

PLR Suffix :
X



Photo: CCTV 13 pic 1.jpg
5.1m, Finish node type, manhole reference number: MH 2

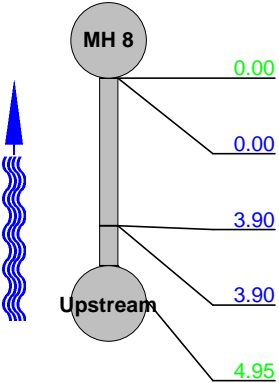
Inspection report

Date : 18/09/2023	Job number :	Weather : no rain or snow	Operator : W Bottrill	Section number : 14	PLR SUFFIX: X
Weather no rain or snow	Vehicle : Unit 1	Camera : Push rod	Preset :	Cleaned :	Operator : W Bottrill

Place : Road : Location Inspection	Corby 53 Rockingham Road MH 8 (U/S) Upstream	Location details: Catchment: Tape number : Pipe Length	U/S MH : U/S Depth : D/S MH : D/S Depth :	Upstream MH 8
---------------------------------------------	-------------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	------------------------------------

Use: Year laid : Purpose : Total length :	Combined Routine inspection of condition 4.95 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride
----------------------------------------------------	--------------------------------------------------------------------------------	------------------------------------------------------------	---------------------------------------------------------------

Comment :

1:200	Position	Code	Observation	MPEG	Photo
		MH	Start node type, manhole, reference number : MH 8		
	0.00	WL	Water level, 0% of the vertical dimension		
	3.90	LR	Line deviates right		
	3.90	RF	Roots, fine		CCTV 14 pic 1.jpg
	4.95	MHF	Finish node type, manhole reference number: Upstream Remarks: at RWP gully, full of roots		CCTV 14 pic 2.jpg

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	1	0.2	1	2

Place :

CLAYDON
Northampton NN5 6PP
254A Main Road
Tel: 01604 580836
Fax:
Email: bob-claydon@btconnect.com

Inspection pictures

Place :
Corby

Road :
53 Rockingham Road

Date :
18/09/2023

Section number :
14

PLR Suffix :
X



Photo: CCTV 14 pic 1.jpg
3.9m, Roots, fine



Photo: CCTV 14 pic 2.jpg
4.95m, Finish node type, manhole reference number: Upstream