

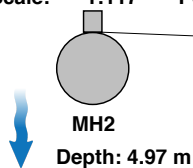
**Drain Doctor**

Tel. 08000 266623

Section Inspection - 25/02/2020 - MH1X

Section 3	Inspection 3	Date 25/02/20	Time 15:13	Client's Job Ref Not Specified	Weather Rain	Pre Cleaned No	PLR MH1X
Operator Not Specified		Vehicle Not Specified		Camera Not Specified	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Scale: 1:117 Position [m] 13.70 Code MHF Observation Finish node type, manhole, reference number: MH2 MPEG 00:01:41 Photo Grade

**Construction Features****Structural Defects****Miscellaneous Features****Service & Operational Observations**

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	10.0	1.6	21.0	2.0	8	2.0	1.1	14.0	3.0

Section Pictures - 25/02/2020 - MH1X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	MH1X		



MH1X_e82f07f4-4278-4096-a40b-4d0c8a52a017_20200225_151916_131.jpg, 00:00:18, 0.12 m
Joint displaced, medium



MH1X_53f2d50c-f3e5-431f-b108-4a90485e6efe_20200225_152004_133.jpg, 00:00:47, 5.67 m
Attached deposits, encrustation at joint from 01 o'clock to 06 o'clock, 20% cross-sectional area loss



MH1X_6d548981-5f12-419a-b0c6-33c25c06ac12_20200225_152045_590.jpg, 00:00:57, 6.97 m
Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 5% cross-sectional area loss



MH1X_48eec4de-904f-4be5-ba33-f21f81524477_20200225_152140_366.jpg, 00:01:05, 7.92 m
Attached deposits, encrustation at joint from 02 o'clock to 09 o'clock, 15% cross-sectional area loss

Section Pictures - 25/02/2020 - MH1X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	MH1X		



MH1X_60aa83a6-cc65-408f-b89e-f3a013ebb865_20200225_152153_002.jpg, 00:01:06, 8.16 m
Crack, longitudinal at 11 o'clock



MH1X_f37de10b-7df3-403f-99df-838bb01db9db_20200225_152216_384.jpg, 00:01:14, 9.10 m
Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 10% cross-sectional area loss



MH1X_7ed44ac0-38be-47e1-a4fb-6f627d3fb9fa_20200225_152240_818.jpg, 00:01:15, 9.46 m
Crack, longitudinal at 12 o'clock



MH1X_10743e70-1bdd-4d25-af42-1f804335d3ec_20200225_152256_324.jpg, 00:01:16, 9.58 m
Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 10% cross-sectional area loss

Section Pictures - 25/02/2020 - MH1X

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	MH1X		



MH1X_d09dd2a7-3195-485d-a33c-282457107e09_20200225_152318_902.jpg, 00:01:22, 11.00 m
Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 5% cross-sectional area loss



MH1X_30e8334b-3829-497f-ab2e-a0ecc3aaf3e5_20200225_152335_298.jpg, 00:01:25, 11.70 m
Attached deposits, encrustation at joint from 02 o'clock to 06 o'clock, 10% cross-sectional area loss

Ref: 14155

CCTV DRAINAGE REPORT

LOW ROAD WHITEHAVEN



MAYSON BROS LTD
EGREMONT
CUMBRIA CA22 2DU
Tel: 01946 822308, Fax: 01946 824904

Project-information

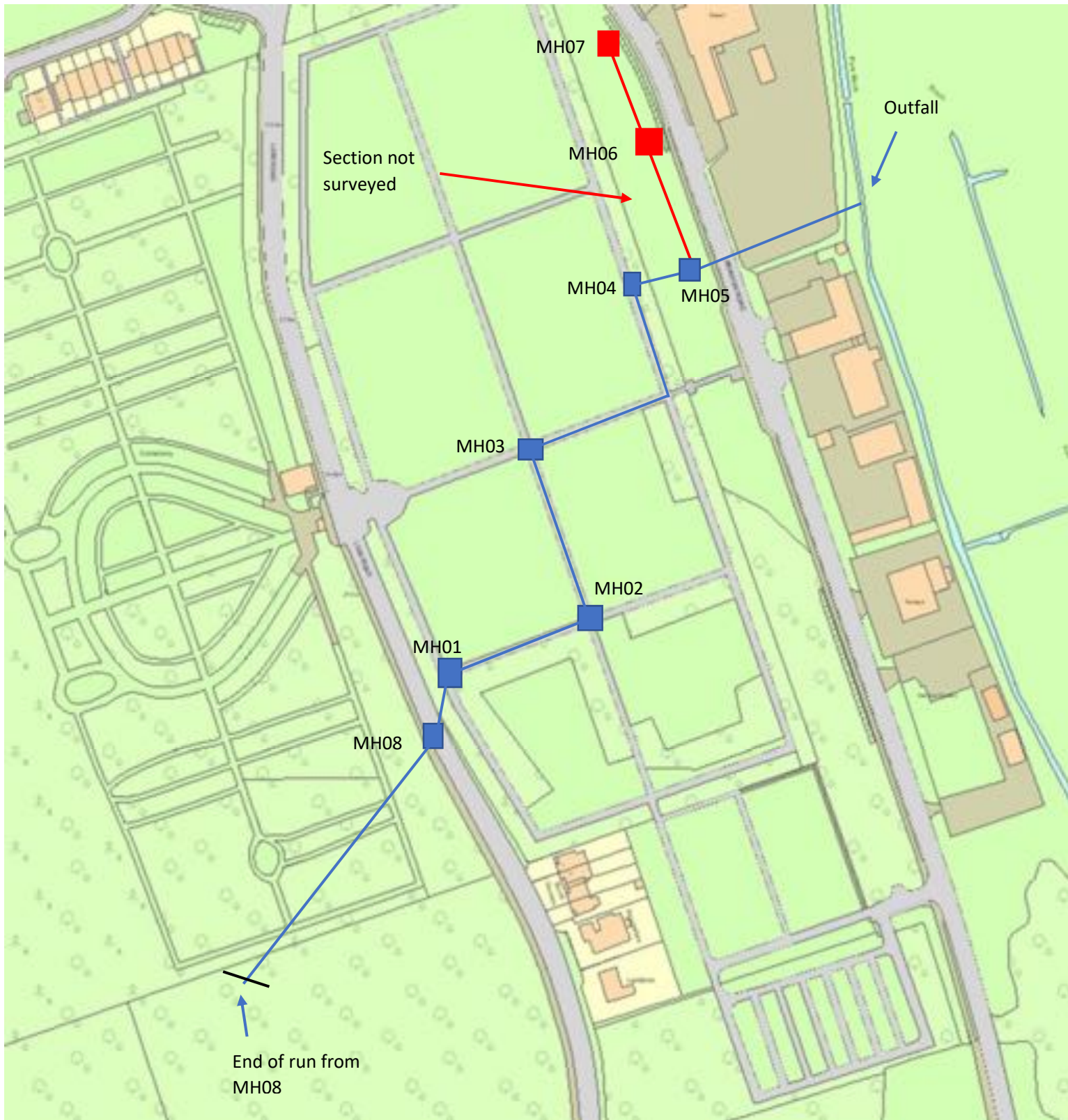
Project name: Low Road Whitehaven	Contract number: 14155	Contact:	Date: 19/03/2019
Client: R G Parkins & Partners Ltd Contact: Troy Melhuish Position: Road: Meadowside Shap Road Town: Kendal County: Cumbria, LA9 6NY Telephone: Fax: Mobile: E-Mail:			
Site: Low Road Whitehaven Contact: Position: Road: Low Road Town: Whitehaven County: Cumbria Fax: Mobile: E-Mail:			
Contractor Contact		MAYSON BROS	
Position			
Road			
Town		Chapel Street	
County		Egremont	
Telephone		Cumbria CA22 2DU	
Fax		01946 822308	
Mobile			
E-Mail		Maysonbros247@aol.com	



Mayson Bros Ltd.
Drainage Report

Chapel Street Depot,
Chapel Street,
Egremont,
Cumbria
CA22 2DU
www.maysonbros.co.uk
maysonbros247@aol.com

Job Details			
Job Title	Low Road Whitehaven CCTV Survey		
Job Number	14155		
Client	R G Parkins & Partners		
Instruction Number		Date	19/03/2019
DESCRIPTION OF SURVEY			
Location	Low Road Whitehaven		
Access	On foot.		
Duration	1 day		
When (day or night)	Day		
Weather Conditions	Clear	Flow Level	Low flow
BRIEF DESCRIPTION OF THE SURVEY			
CCTV with crawler unit and constant rod was carried out over 7 to ascertain the general condition of the drainage system			
HEALTH AND SAFETY			
<p>No TM was required as manholes are located in cemetery and public path and vans were parked on road side in a 30-mph zone.</p> <p>As the conditions in the old cemetery are wet under foot and the ground is uneven care should be taken while on site.</p>			
OBSERVATIONS & ANOMALIES			
<p>From MH08 upstream pipe is broken at 47.77m, from 50m onwards root ingress is also present which continues to the end of the survey at 64m.</p> <p>From MH02 downstream to MH03 a longitudinal crack present at 26.70m and pipe has collapsed at 43.63m, from MH03 to MH02 upstream pipe has collapsed at 15.43m unable to survey beyond these points.</p> <p>Downstream from MH03 to MH04 pipe has collapsed at 31.88m, and from MH04 upstream to MH03 collapse at 2.61m, CCTV unable to pass these points.</p> <p>From MH04 to MH05 downstream pipe has collapsed at 4.70m and from MH05 upstream to MH04 its collapsed at 21.10m again CCTC unable to continue further.</p>			
RECOMMENDATIONS			
<p>Excavate and repair sections that are damaged and collapsed and carry out root cutting from MH08 upstream.</p> <p>It is recommended that test pits be used to prove the condition and existence of the drainage system in the old cemetery, especially along the line of the old workhouse land.</p>			





MAYSON BROS LTD EGREMONT
CUMBRIA CA22 2DU
Tel: 01946 822308, Fax: 01946 824904

Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Constant rod		No	
Road: Low Road Location: Whitehaven				Start – MH01 Total length: 57.36m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Pipe 375mm Material: Clay Lining: Pipe length: 57.36m Category:		
Comment:					
Location details:					

1:75 position code Observation

MH01 0.00 m

Start at MH01 at 0.00



57.36m
MH02

End at 57.36m unable to reach MH02 CCTV (constant rod)
cable at maximum extension.

Structural Defects


Constructional
Features

Service Defects

Miscellaneous
Features



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 01 Depth of 2.94m Width of 0.70m Outlet and inlet both 375mm 4 connections 100mm located 1.70m above base of manhole.
				Description Start from MH01 at 0.00m Downstream to MH02



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Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				End at 57.36m unable to reach MH02 CCTV cable at maximum extension.

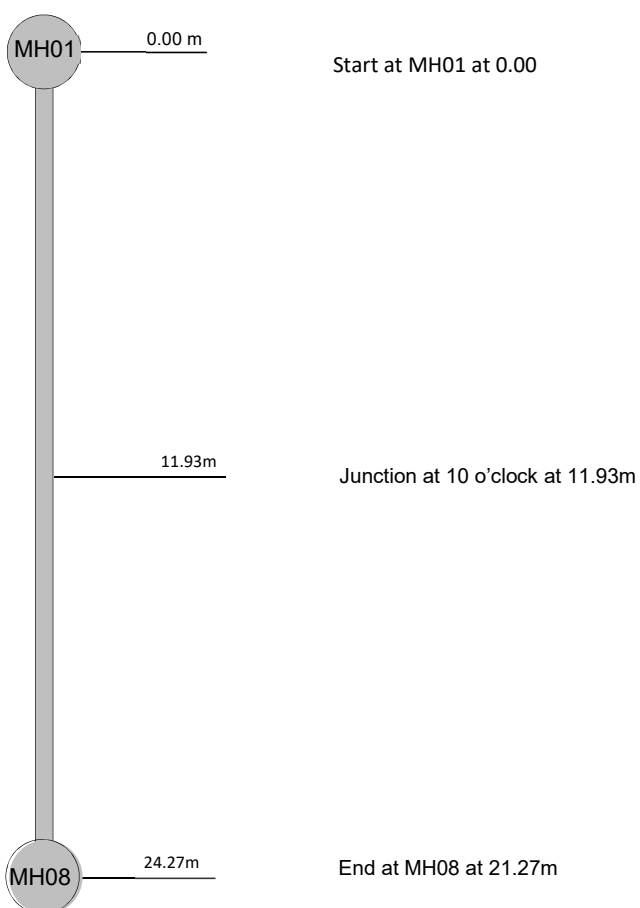


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Tel: 01946 822308, Fax: 01946 824904

Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH01 Total length: 21.27m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Material: Clay Lining: Category:	Pipe 375mm Pipe length: 21.27m	
Comment:					
Location details:					

1:75 position code Observation



Structural Defects



Constructional
Features

Service Defects

Miscellaneous
Features





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 01 Depth of 2.94m Width of 0.70m Outlet and inlet are both 375mm 4 connections 100mm at 1.70m from bottom
				Description Start from MH01 at 0.00m Upstream to MH08



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Junction at 10 o'clock at 11.93m
				Description
				End at MH08 at 21.27m

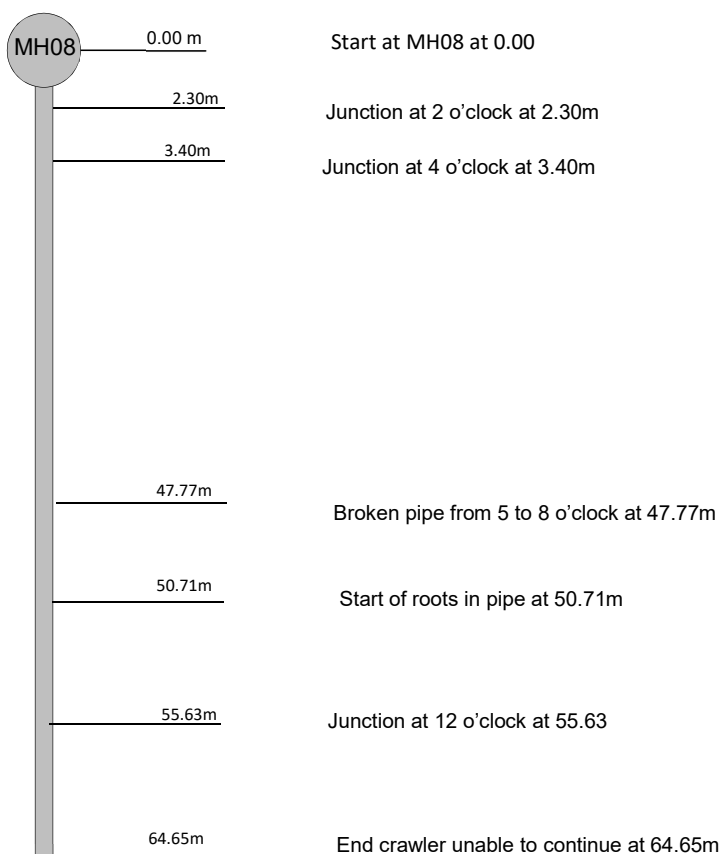


MAYSON BROS LTD EGREMONT
CUMBRIA CA22 2DU
Tel: 01946 822308, Fax: 01946 824904

Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH08 Total length: 64.65m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Material: Clay Lining: Category:	Pipe 375mm Pipe length: 64.65m	
Comment:					
Location details:					

1:75 position code Observation



Structural Defects



Constructional Features

Service Defects

Miscellaneous Features





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 08 Depth 2.50m Width 0.53m x 0.68m Outlet and inlet both 375mm Connection 225mm, 1.70m from top of MH08. Connection 450mm, 2m from top of MH08
				Description Start from MH08 at 0.00m Upstream





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Junction at 2 o'clock at 2.30m
				Description
				Junction at 4 o'clock at 3.40m





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Broken pipe from 5 to 8 o'clock at 47.77m
				Description
				Start of roots ingress into pipe at 50.71m



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				<p>Junction at 12 o'clock at 55.63m</p> <p>Spiral crack from 7 o'clock to 8 o'clock</p> <p>Slight displaced joint visible in next section of pipe from 7 o'clock to 10 o'clock</p> <p>Slight horizontal deformation <5%</p>
				Description
				<p>End crawler unable to continue due to root ingress debris at 64.65m</p> <p>Displaced joint at 1 o'clock.</p> <p>Line of pipe deviates down.</p>



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Tel: 01946 822308, Fax: 01946 824904

Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road				Start – MH02	
Location: Whitehaven				Total length: 43.63m	

Purpose: find and report problems	Shape/Size:	Pipe 375mm
Use: surface	Material: Clay	Pipe length: 43.63m
Catchment:	Lining:	
	Category:	

Comment:
Location details:

1:75 position code Observation



0.00 m

Start at MH02 at 0.00



26.70m

Crack longitudinal at 12 o'clock at 26.70m

43.63m

Collapsed pipe at 43.63m end unable to pass

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 02 Depth 1.60m Width 0.70m x 0.70m Outlet 1.36m and inlet 1.36m from top both 375mm pipes
				Description Start from MH02 at 0.00m downstream to MH03



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Crack longitudinal at 12 o'clock at 26.70m
				Description Collapsed pipe at 43.63m end unable to pass



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Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH03 Total length:15.43m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Pipe 375mm Material: Clay Lining: Category:		

Comment:

Location details:

1:75 position code Observation

MH03

0.00 m

Start at MH03 at 0.00



15.43m

Collapsed pipe at 15.43m end unable to pass

Structural Defects



Service Defects

Constructional
Features

Miscellaneous
Features




Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				<p>Description</p> <p>Manhole 03 Depth 3.80m Width 0.70m Outlet 3.55m from top and inlet 3.35m from top both 375mm pipes Connections 1) 3.57m from top 2) 2.25m from top 3) 1.20m from top All 3 are 225mm pipes</p>
				<p>Description</p> <p>Start from MH03 at 0.00m Upstream to MH02</p>



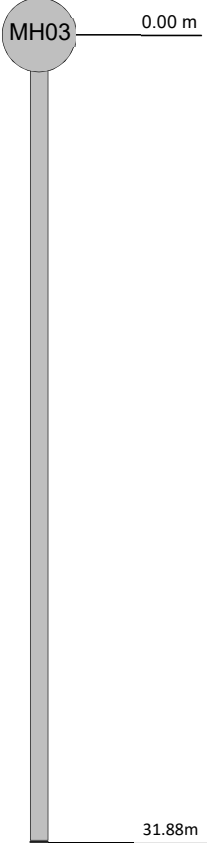
Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Collapsed pipe at 15.43m end unable to pass





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Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH03 Total length:31.88m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Material: Clay Lining: Category:	Pipe 375mm Pipe length: 31.88m	
Comment:					
Location details:					
1:75	position	code	Observation		
					
Structural Defects			Constructional Features		
Service Defects			Miscellaneous Features		



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				<p>Description</p> <p>Manhole 03 Depth 3.80m Width 0.70m Outlet 3.55m from top and inlet 3.35m from top both 375mm pipes Connections 1) 3.57m from top 2) 2.25m from top 3) 1.20m from top All 3 are 225mm pipes</p>
				<p>Description</p> <p>Start from MH03 at 0.00m Downstream to MH04 Junction at 12 o'clock Cracks longitudinal</p>





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Pipe collapsed no bottom in pipe at 31.88m



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 04 Depth 2.80m Width 0.70m 600mm outlet 2.66m from top 375mm inlet 1.10m from top
				Description Start from MH04 at 0.00m Upstream to MH03 Junction at 2 o'clock Displaced joint





Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Bottom of pipe missing at 2.61m end




Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
 <p>1. At: -2.69m mh04</p> <p>15:51:00 19-MAR-2019 -2.69m</p>				Description Manhole 04 Depth of 2.80m Width of 0.70m 600mm outlet 2.66m from top 375mm inlet 1.10m from top
 <p>15:59:58 19-MAR-2019 0.00m</p>				Description Start from MH04 at 0.00m Downstream to MH05



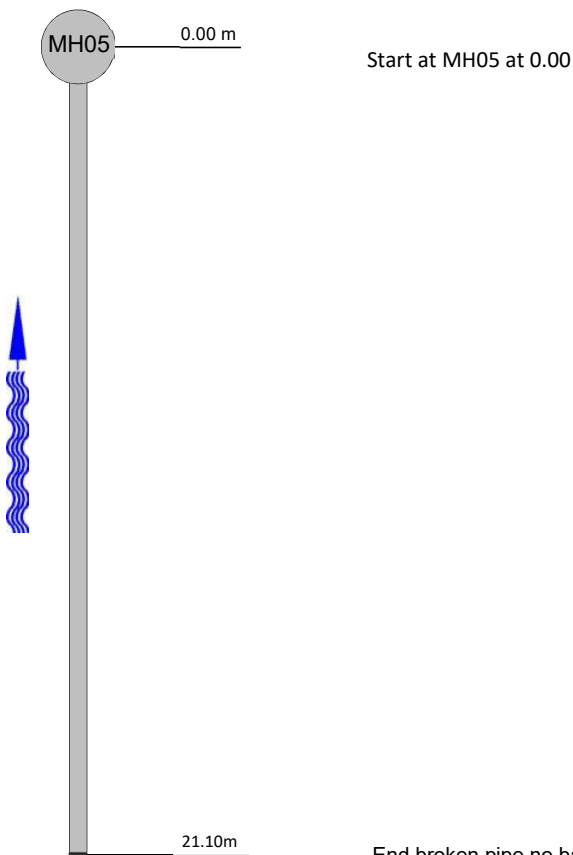
Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				Bottom of pipe collapsed at 4.70m end Standing water 10% Obstruction visible



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Tel: 01946 822308, Fax: 01946 824904

Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH05 Total length: 21.10m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Material: Clay Lining: Category:	Pipe 600mm Pipe length: 21.10m	
Comment:					
Location details:					
1:75	position	code	Observation		
					
Structural Defects			Constructional Features		
Service Defects			Miscellaneous Features		



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 05 Depth of 1.70m Width of 1m 600mm outlet 600mm inlet Connections 225mm x2
				Description Start from MH05 at 0.00m Upstream to MH04



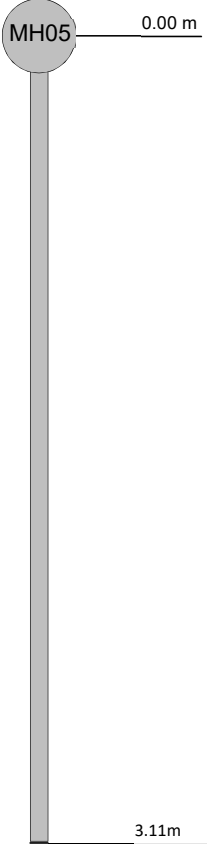
Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description
				End pipe base has collapsed at 21.10m Medium displaced joint.





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CUMBRIA CA22 2DU
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Inspection report

Date:	Job N°:	Weather:	Operator:	section number:	
19/03/2019	14155	Wet	J Robertson	1	
Present:	Vehicle:	Camera:	Preset:	Cleaned:	Grade:
	KN61 ZPF	Crawler unit		No	
Road: Low Road Location: Whitehaven				Start – MH05 Total length: 3.11m	
Purpose: find and report problems Use: surface Catchment:			Shape/Size: Pipe 600mm Material: Clay Pipe length: 3.11m Lining: Category:		
Comment:					
Location details:					
1:75	position	code	Observation		
 <p>Start at MH05 at 0.00</p> <p>Unable to pass due to rocks in pipe but able to see light from outlet at the end of pipe at 3.11m</p>					
Structural Defects			Constructional Features		
Service Defects			Miscellaneous Features		



Inspection photos

Place:	Road:	Date:	section number:	PLR:
Whitehaven	Low Road	19/03/2019	1	X
				Description Manhole 05 Depth 1.70m Width 1m 600mm outlet 600mm inlet Connections 225mm x2
				Description Unable to pass due to rocks in pipe but able to see light from outlet at the end of pipe at 3.11m

APPENDIX D: UU CORRESPONDENCE

Chris Abram

From: Wong , Josephine <Josephine.Wong@uuplc.co.uk>
Sent: 23 July 2019 11:39
To: 'Stuart Woodall'; 'Andrew Streeter'; troy.melhuish@rgparkins.com
Cc: Wastewater Developer Services
Subject: FW: : Residential Development, Low Road, Whitehaven - wastewater pre-development enquiry 4200027050

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning, Troy, Stuart and Andrew

107 Dwellings on land at Low Road Whitehaven LA10 5HB (Grid 297533, 516334)
JU reference: 4200027050

We have carried out an assessment of your application which is based on the information provided; this pre development advice will be valid for 12 months.

Foul Water

Foul water will be allowed to drain to the public combined/ foul sewer network. Our preferred point of discharge would be to the 225mm diameter combined sewer on Low Road.

Surface Water

Surface water from this site should drain directly to watercourse. Discharge rates and consents must be discussed and agreed with all interested parties. Under no circumstance should surface water discharge into public combined/foul sewer directly or indirectly.

Connection Application

Although we may discuss and agree discharge points & rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below
<http://www.unitedutilities.com/connecting-public-sewer.aspx>

Sewer Adoption Agreement

You may wish to offer the proposed new sewers for adoption. United Utilities assess adoption application based on Sewers adoption 6th Edition and for any pumping stations our company addenda document. Please refer to link below to obtain further guidance and application pack:
<http://www.unitedutilities.com/sewer-adoption.aspx>

Water Supply Enquiry

If you have any query about water supply, please contact the water supply team at
developerserviceswater@uuplc.co.uk

Sewer Map

United Utilities offer a fully supported mapping service at a modest cost for our water mains and sewerage assets. This is a service, which is constantly updated by our Property Searches Team (Tel No: 0870 7510101) and I recommend that the applicant give early consideration in project design as it is better value than traditional methods of data gathering. It is, however, the applicant's responsibility to demonstrate the exact relationship on site between any assets that may cross the site and any proposed development.

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, Planning Conditions and local flood authority guidelines, we would recommend that you liaise and make suitable agreements with the relevant statutory bodies.

Should you have any query, please feel free to contact me.

Many thanks.

Regards,

Josephine Wong

Wastewater Development Engineer

Developer Services

Network Delivery

United Utilities

T: 01925 679 406 (internal 79406)

Email: josephine.wong@uuplc.co.uk

unitedutilities.com

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From: Troy Melhuish [mailto:troy.melhuish@rgparkins.com]

Sent: 19 July 2019 15:39

To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>

Cc: Wong, Josephine <Josephine.Wong@uuplc.co.uk>; 'Stuart Woodall' <greenswallow@btinternet.com>; 'Andrew Streeter' <Andrew@streetergroup.co.uk>

Subject: RE: : Residential Development, Low Road, Whitehaven - wastewater pre-development enquiry 4200027050

Sharon,

I assume this enquiry is now with Josephine. Please can you ask her to copy in both Stuart and Andrew (cc'd above) with her response as I will be on holiday now until Tues 6th August.

Many thanks,

Troy Melhuish MEng PhD CEng MICE

Associate

R G Parkins & Partners Ltd Meadowside Shap Road KENDAL Cumbria LA9 6NY

Tel: 01539 729393 Fax: 01539 740609

www.rgparkins.com

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From: Wastewater Developer Services [<mailto:WastewaterDeveloperServices@uuplc.co.uk>]

Sent: 09 July 2019 13:00

To: 'Troy Melhuish'

Subject: : Residential Development, Low Road, Whitehaven - wastewater pre-development enquiry 4200027050

Good /Afternoon

Your enquiry has been logged and sent to an engineer to respond your reference is 4200027050. Our service Level agreement is to respond to you within 15 working days.

Many thanks

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. this will be much appreciated

Sharon Hitch

Developers Services & Metering

Network Delivery

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From: Troy Melhuish [<mailto:troy.melhuish@rgparkins.com>]

Sent: 09 July 2019 08:40

To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>

Cc: Wong , Josephine <Josephine.Wong@uuplc.co.uk>

Subject: Residential Development, Low Road, Whitehaven - wastewater pre-development enquiry

Dear sir/madam,

Please find attached our wastewater pre-development enquiry for a proposed residential development comprising 107 dwellings located on land at Low Road in Whitehaven. The supporting information can be downloaded by clicking on the following link:

[Link](#)

Password: Low

The supporting information includes the following:

1. Site location plan
2. Site layout plan
3. Planning Permission Ref: 4/15/2007/OF1 – Copeland Borough Council
4. Original FRA Report, prepared by Tweddell & Slater Consulting Engineers – Greenfield runoff assessment included in Appendix F
5. Culvert CCTV Drainage survey report prepared by Mayson Bros – this investigation was undertaken recently to confirm the condition of a known surface water drainage culvert (Ordinary Watercourse) that runs through the cemetery located to the north of the development site. The original drainage strategy presented by Tweddell & Slater had proposed to discharge attenuated SW into this culverted system. Discharge to this culvert was duly conditioned by Copeland Borough Council pending a detailed camera survey. Unfortunately, the culvert has been proven to be in poor condition with several downstream sections on the verge of collapse (see page 15 as an example). Therefore, this culvert does not offer a viable solution for surface water drainage discharge from the proposed housing development site. Replacing these sections of culvert would be unfeasible, due to the depth of the pipework and the need to work within consecrated ground.
6. BRE365 Soakaway Test Results prepared by e3p – 4 no. machine excavated trial pits and BRE365 percolation tests were attempted on the site recently to determine the feasibility of infiltration based SuDS. Unfortunately, these tests proved to be unsuccessful due to a combination of groundwater ingress at shallow depth and the presence of impermeable sub-strata.
7. Plan showing proposed point of connection into UU combined sewer – based on the existing site topography it is proposed that both foul and surface water drainage serving the development would be conveyed using conventional gravity sewers towards the north-east corner of the site. Surface water is to be stored on-site using a combination of above ground (e.g. detention basin/pond) and below ground (e.g. oversized pipes/box culverts etc.) SuDS with the outfall to the head of the combined sewer attenuated to the Greenfield QBAR using a conventional flow control device (e.g. Hydro-brake).

We trust that the attached information is satisfactory for UU to determine that both foul and surface water drainage can be discharged into the public combined sewer located in Low Road. Please do not hesitate to contact us if you require any further information.

Kind regards,

Troy Melhuish MEng PhD CEng MICE
Associate

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