R G PARKINS
Meadowside | Shap Road | Kendal | Cumbria | LA9 6NY
Tel:01539 729393
Email: mail@rgparkins.com

Pringle Homes Ltd
The Coach House
Hollowforth Lane
Woodplumpton
Preston
PR4 0BD

18 May 2026
Our Ref: K39346.003/TM

For the attention of Elliot Burns

Dear Elliot

RESIDENTIAL DEVELOPMENT, CROW TREES FARM, CROW TREES BROW, CHATBURN, BB7 4AA
RIBBLE VALLEY BOROUGH COUNCIL APPLICATION NO: 3/2022/0966
DISCHARGE OF CONDITION 16
SURFACE WATER DRAINAGE VERIFICATION REPORT – PLOTS 1 - 37

1. Introduction

As per your instruction R.G. Parkins & Partners (RGP) have undertaken a site-specific verification report for the surface water sustainable drainage system for the residential development at Crow Trees Farm in Chatburn. The primary focus is to ensure that the surface water drainage systems serving Plots 1 – 37 have been installed and constructed in accordance with RGP's design and specification. This report is produced to satisfy the requirements of Planning Condition 16 associated with approved Planning Permission 3/2022/0966.

2. Drawings & Reports

Reference should be made to the following RGP as-built drawing (included in Appendix A):

- K39346-20J Foul and Surface Water Drainage Plan
- K39346-21A Foul and Surface Water Drainage Construction Details – Sheet 1 of 2
- K39346-22A Foul and Surface Water Drainage Construction Details – Sheet 2 of 2

And following RGP reports:

- K39346.OM/004C – Operation & Maintenance Plan for Sustainable Drainage Systems *[updated and issued on 12th May to discharge Planning Condition 15]*

3. Construction Stage

Principal construction activities commenced in January 2025, with the formation of the main access road and installation of the main drainage elements (i.e. sewers and manholes). RGP have attended site on several occasions and photographic record of the installation/construction of the main elements of surface water drainage serving Plots 1 – 37 is included in Appendix B for reference. Where necessary, RGP have requested additional photographic evidence directly from Pringle Homes and their appointed groundworker (NMS Civil Engineering Ltd) to confirm that certain elements of works have been completed in accordance with the RGP drawings and specifications. These photos are also included in Appendix B for reference.

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4. Installation of Geocellular Attenuation Tank

Excavation for the installation of the main attenuation tank commenced on 19th February 2025 (see Photos 1 – 4). Lose material at formation level was removed and the ground compacted prior to installation min. 100mm thick coarse sand material and geotextile protection fleece (Photo 5). The impermeable geomembrane was then rolled out on top of the geotextile with all joints lapped and sealed to provide a watertight base. The Polystorm geocellular units by Polypipe were then installed and clipped together in accordance with the manufacturer's installation guidelines (Photos 6 – 8). Proprietary inspection units were placed in the bottom row of the tank as per RGP's specification (Photo 9) and the geomembrane extended and welded around the position of the inlet and outlet pipes to the tank (Photo 10). The geomembrane was wrapped and welded over the top of the tank, prior to laying the top geotextile protection fleece (Photo 11). Polystorm access units and vertical turrets were installed as per the RGP specification (Photo 12) prior to backfilled with 100mm clean sand over the top of the tank (Photo 13). The excavation was then backfilled with well compacted granular engineered fill as required to form the sub-base to the new access roads.

NMS Civil Engineering have provided delivery notes for all Polypipe products used in the construction of the geocellular tank. Installation of the tank was completed in March 2025 and RGP are satisfied that the tank was installed fully in accordance with our specification and drawings.

5. Drainage CCTV Survey

Pringle Homes have arranged for a full CCTV drainage survey to be completed for both the installed surface water and foul water sewers within the development site. Drain Doctor attended site on 20th February 2026 and understood jetting/cleaning of all below ground pipework before completing the CCTV survey. A copy of the Drain Doctor report is included in Appendix C for reference.

Following a review of the Drain Doctor report and associated CCTV video files it was identified by both RGP and Pringle Homes that the final section of combined sewer pipework, from manhole C03 to manhole C02, had developed an issue/blockage where water was being held within the pipe to approx. 30% loss of cross-sectional area (see Item No. 11, at 22.94m downstream of C03). Pringle Homes therefore instructed NMS Civil Engineering to return to site and remediate this issue by replacing the affected section of pipework. Once this work was completed, Drain Doctor returned to site on 27th April 2026 and resurveyed the sewer pipe from C03 to C02 and demonstrated that there was no longer an issue (see Item No. 19 in the Drain Doctor report).

RGP are therefore satisfied that at the time of the drainage CCTV surveys the installed foul and surface water sewers were adequate and fit for purpose.

6. Flow Controls

NMS Civil Engineering have engaged with Crown Water Ltd with regards to providing alternative flow control devices for the geocellular attenuation tanks. The original drainage design and specification undertaken by RGP used Hydrobrake flow control by Hydro International. Equivalent head vs flow characteristic curves have been provided by Crown Water to match the performance of the Hydro International devices. A copy of this data is included in Appendix D for reference. RGP have re-run our hydraulic modelling analysis to include these alternative flow control devices and a copy of the updated output results are included in Appendix E for reference. As can be seen, for the Q100 +50% climate change critical storm event, no flooding occurs on any part of the network and the total discharge rate into the existing UU combined sewer is still 10.6 lit/sec as per the original approved drainage design.

NMS Civil Engineering have ordered the Crown Water flow control devices and installed them on 18th May 2026. Photographic evidence of the installation has been provided.

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7. As-Built Drainage Survey

NMS Civil Engineering have undertaken an as-built drainage survey of all installed manholes and associated sewer pipes. This information has been provided to RGP as an AutoCAD drawing which has been used to update RGP drawing no. K39346-20J Foul and Surface Water Drainage Plan (included in Appendix A). Easting and northing setting out co-ordinates to National Grid Reference have been provided for the centre point of each installed manhole with the invert level of the incoming/outgoing pipes to Ordnance Datum also provided. This information has been added to the RGP as-built drawing with the overall pipe lengths and gradients adjusted to suit. This has been compared to the original RGP design and it has been identified that pipe gradients have generally steepened slightly, thereby improving pipe conveyance capacity and the overall hydraulic performance of the pipe network and attenuation storage.

8. Conclusion

In conclusion, RGP are satisfied that the construction and installation of the geocellular attenuation tank and associated pipework are in accordance with our approved designs and specifications. As with all traditional drainage systems, SuDS need to be inspected and maintained regularly to ensure that they operate correctly and efficiently. If SuDS are not properly maintained, then there is a risk that the components become overloaded during periods of prolonged heavy rainfall potentially resulting in localised flooding within the development. Recommendations for the maintenance of the SuDS components are detailed in the SuDS Operation & Maintenance Plan provided by RGP (ref: K39346.OM.004C, dated 12th May 2026).

Yours sincerely

[redacted]

Troy Melhuish MEng PhD CEng MICE
Associate
R G Parkins & Partners Ltd

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APPENDIX A
As-Built Drawings

Drainage Key

- Existing Combined Water Public Sewer
- 150Ø Foul Water Main Drainage
- 100Ø Foul Water Plot Drainage
- 225/300Ø Surface Water Main Drainage
- 100/150Ø Surface Water Plot Drainage
- 100/150Ø Surface Water Channel Drain
- 150Ø Highways Drainage
- 150Ø Combined Sewer Drainage

Manhole Ref.	Easting (m)	Northing (m)
S01	376723.032	443941.260
S02	376719.909	443933.298
S03	376756.216	443873.589
S04	376779.190	443875.563
S05	376795.924	443887.906
S06	376801.957	443911.006
S07	376817.510	443922.496
S08	376805.520	443961.953
S09	376796.148	443974.223
S10	376778.986	443983.863
F01	376779.969	443878.549
F02	376794.690	443891.608
F03	376798.603	443909.983
F04	376814.661	443923.760
F05	376796.606	443956.456
F06	376801.653	443964.529
F07	376796.345	443971.935
C03	376769.432	444000.342
C02	376751.065	444033.245

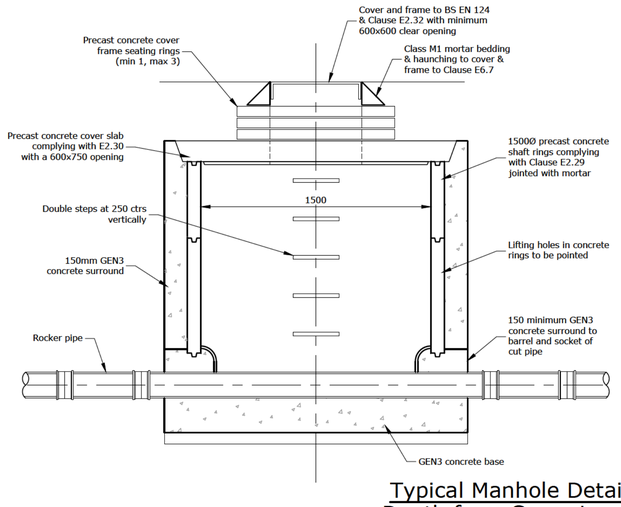
Rev	Description	Date	Revised by	Checked by	Approved
J	Updated for as-built survey information & co-ordinates	11/05/26	TM	TM	TM
H	Updated as requested by Pringle Homes	27/08/25	TM	TM	TM
G	Updated for revised manhole connection onto UU sewer in highway	28/04/25	TM	TM	TM
F	Minor addition to SW plot drainage to garden room to barn conversion	10/03/25	TM	TM	TM
E	Plot drainage to barn conversion and Dutch barn updated	25/02/25	TM	TM	TM
D	Manholes S10 & F08 replaced with C03 as requested by Pringle Homes	09/01/25	TM	TM	TM
C	Connection onto UU sewer changed to single combined sewer	16/12/24	TM	TM	TM
B	Road gullies added to private farm access	11/12/24	TM	TM	TM
A	Plot 26 & 27 FFLs updated	17/04/24	TM	TM	TM

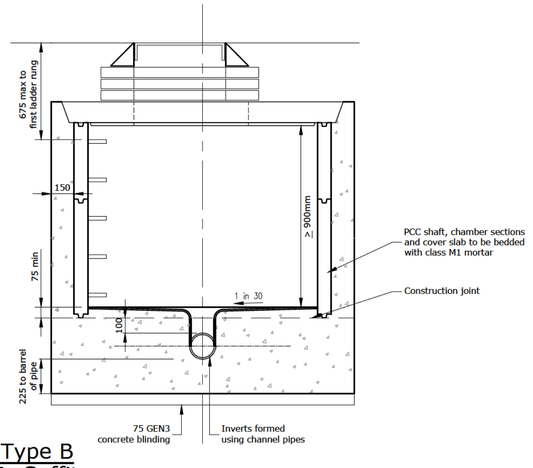
Issue Purpose: **As-Built**

Do not scale from this drawing

R G PARKINS
Kendal | 01539 729393 Lancaster | 01524 32548

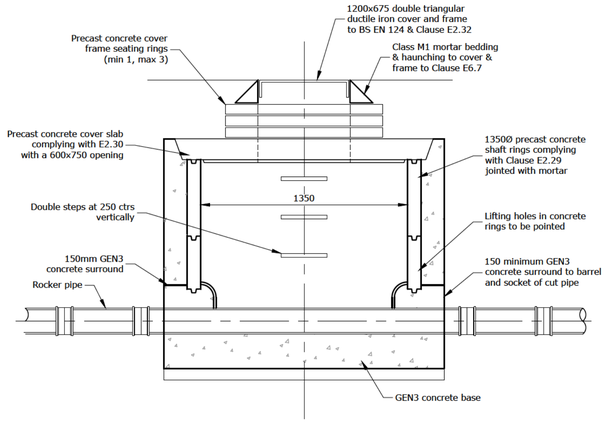
Client:	Pringle Homes		
Project:	Crow Trees Farm, Chatburn		
Drawing Title:	Foul and Surface Water Drainage Plan		
Scale @ A1: 1:250	First Issue: 21/03/24	Office of Origin: Kendal	
Drawn by: JB	Checked by: TM	Approved: TM	
Project No: K39346	Drawing No: 20	Rev: J	
BIM No: -			

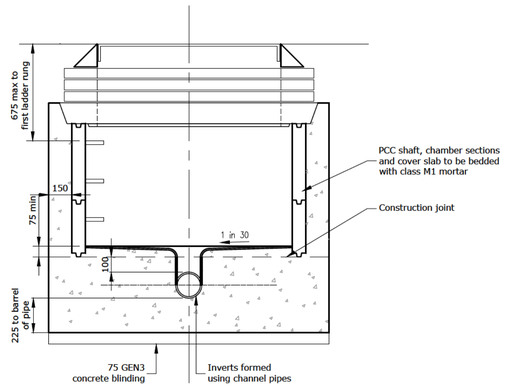




Typical Manhole Detail - Type B Depth from Cover Level To Soffit Of Pipe 1.5m to 3m (1500Ø)

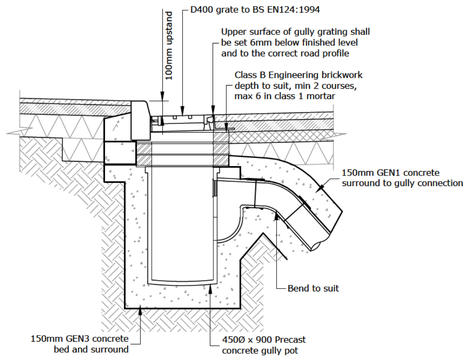
Scale 1:20





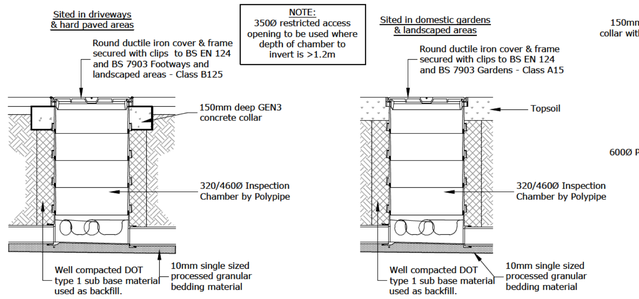
Typical Manhole Detail - Type C Depth from Cover Level To Soffit Of Pipe Less Than 1.5m (1350Ø)

Scale 1:20



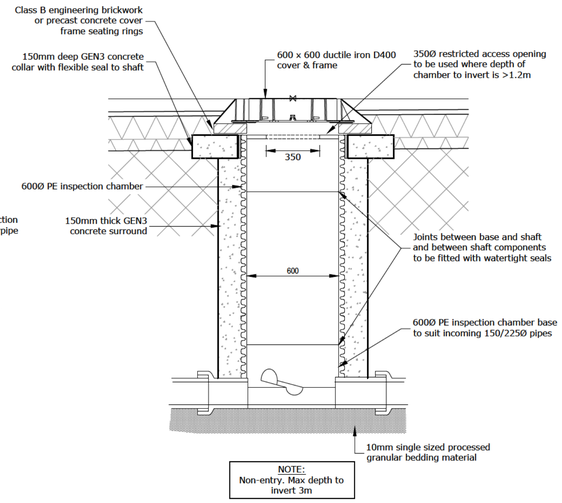
Typical PCC Road Gully Detail

Scale 1:20



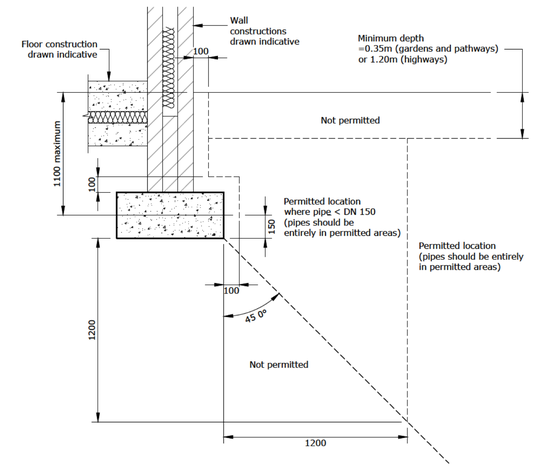
Typical Inspection Chamber Detail

Scale 1:20



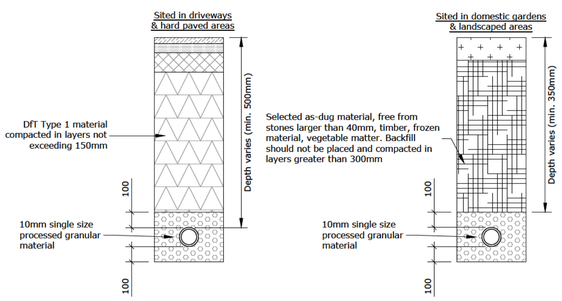
600Ø Inspection Chamber Detail

Scale 1:20



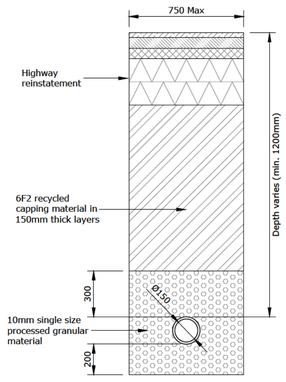
Permitted Location of Sewers and Lateral Drains in Proximity to Buildings

Scale 1:20



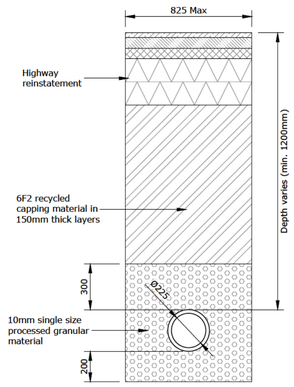
Pipe Bedding for 100Ø/150Ø/225Ø Plot Drainage Pipes

scale 1:20



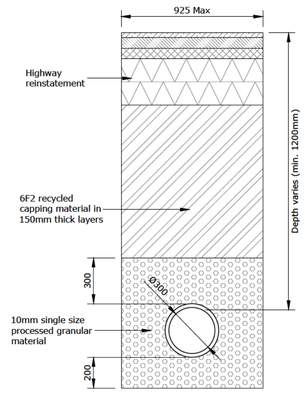
Type 7 Embedment Class S for 150Ø Pipe in Access Road

Scale 1:20



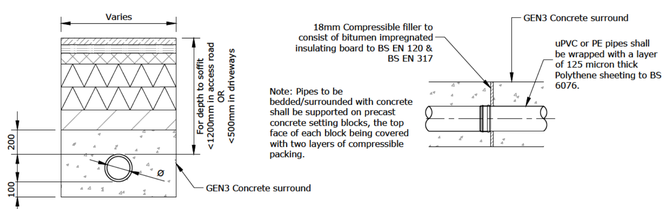
Type 7 Embedment Class S for 225Ø Pipe in Access Road

Scale 1:20



Type 7 Embedment Class S for 300Ø Pipe in Access Road

Scale 1:20



Concrete surround for Shallow Pipes

scale 1:20

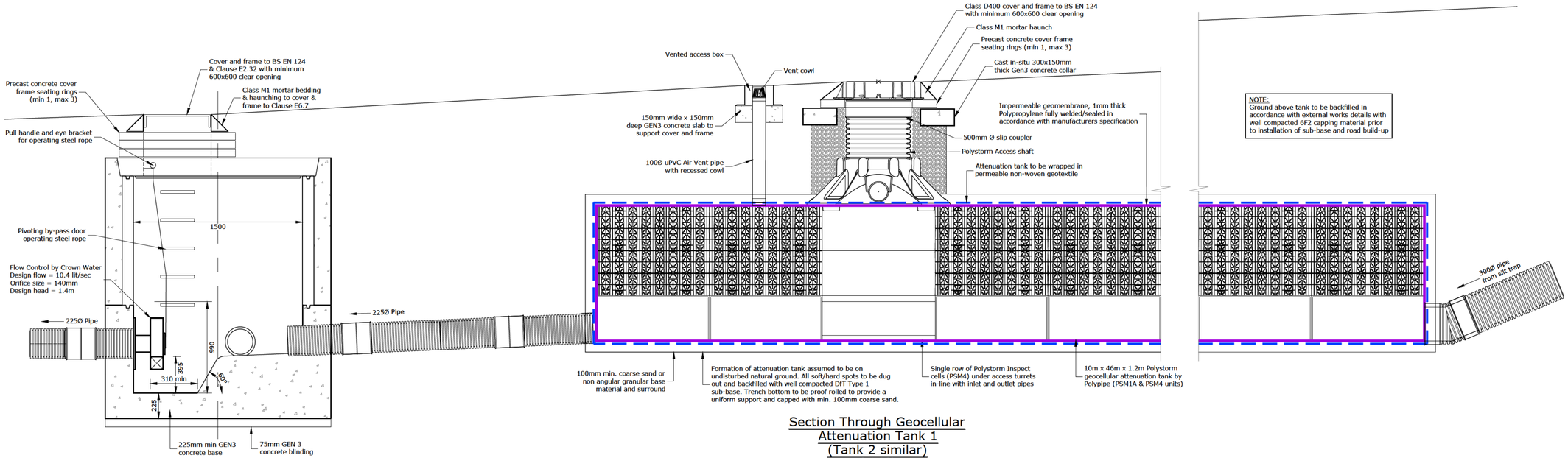
Rev	Description	Date	Revised by	Checked by	Approved
A	As-built issue	07/05/26	TM	TM	TM

Issue Purpose: Approval

Do not scale from this drawing

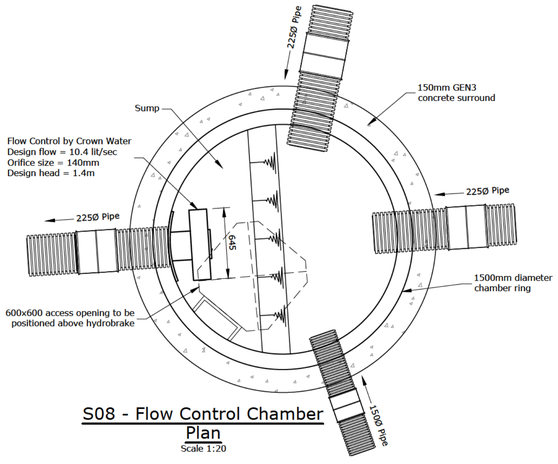
R G PARKINS
Kendal | 01539 729393 Lancaster | 01524 32548

Client:	Pringle Homes	Scale @ A1: 1:20	First Issue: 21/03/24	Office of Origin: Kendal	
Project:	Crow Trees Farm, Chatburn	Drawn by: JB	Checked by: TM	Approved: TM	
Drawing Title:	Foul and Surface Water Drainage Construction Details - 1 of 2	Project No: K39346	Drawing No: 21	Rev: A	
		BIM No: -			

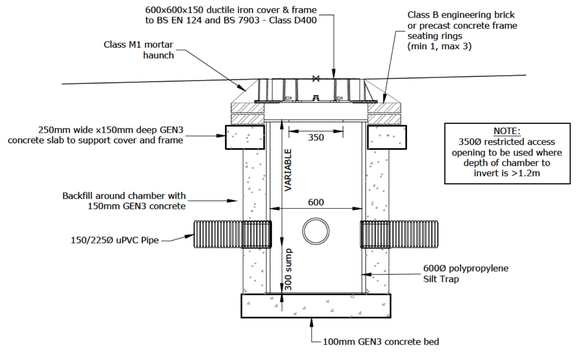


S08 - Flow Control Chamber Section
Scale 1:20

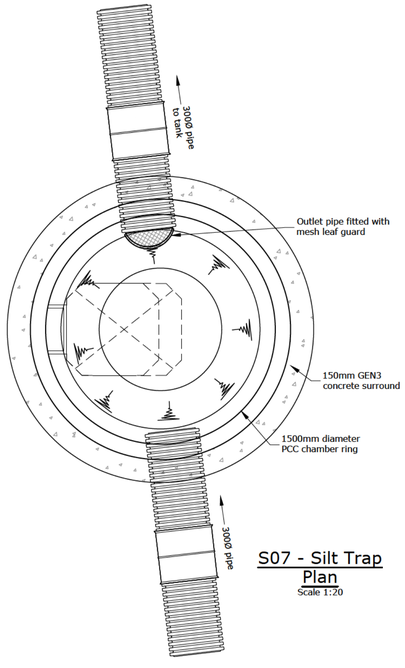
Section Through Geocellular Attenuation Tank 1 (Tank 2 similar)
Scale 1:20



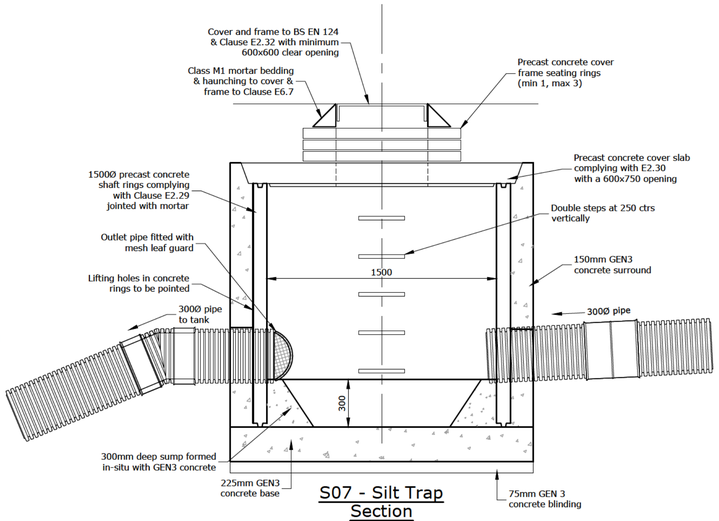
S08 - Flow Control Chamber Plan
Scale 1:20



TYPICAL 600Ø SILT TRAP
scale 1:20



S07 - Silt Trap Plan
Scale 1:20



S07 - Silt Trap Section
Scale 1:20

Rev	Description	Date	Revised by	Checked by	Approved
A	Flow control details changed. As-built issue	07/05/26	TM	TM	TM

Issue Purpose: **As-Built**

Do not scale from this drawing

R G PARKINS
Kendal | 01539 729393 Lancaster | 01524 32548

Client:	Pringle Homes	Scale @ A1: 1:20	First Issue: 21/03/24	Office of Origin: Kendal
Project:	Crow Trees Farm, Chatburn	Drawn by: JB	Checked by: TM	Approved: TM
Drawing Title:	Foul and Surface Water Drainage Construction Details - 2 of 2	Project No: K39346	Drawing No: 22	Rev. A
		BIM No: -		

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APPENDIX B
Site Photographs

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Photo 1 – excavation for geocellular attenuation tank

Photo 2 – excavation for geocellular attenuation tank

R G PARKINS
Meadowside | Shap Road | Kendal | Cumbria | LA9 6NY
Tel:01539 729393
Email: mail@rgparkins.com

Photo 3 – excavation for geocellular attenuation tank

Photo 4 – excavation for geocellular attenuation tank

R G PARKINS
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Photo 5 – installation of sand bedding course and geotextile protection fleece

Photo 6 – installation of geomembrane and geocellular units

R G PARKINS
Meadowside | Shap Road | Kendal | Cumbria | LA9 6NY
Tel:01539 729393
Email: mail@rgparkins.com

Photo 7 – installation of geomembrane and geocellular units

Photo 8 – installation of geomembrane and geocellular units

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Photo 9 – proprietary “inspection” cells were placed in the bottom row as per specification

Photo 10 – geomembrane detail at inlet/outlet pipes

R G PARKINS
Meadowside | Shap Road | Kendal | Cumbria | LA9 6NY
Tel:01539 729393
Email: mail@rgparkins.com

Photo 11 – geomembrane and geotextile installed over top of tank

Photo 12 – installation of access units

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Tel:01539 729393
Email: mail@rgparkins.com

Photo 13 – installation of access turrets and sand backfill

R G PARKINS
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Email: mail@rgparkins.com

APPENDIX C

Drain Doctor Report

Table of Contents

Project Name	Project Number	Project Date
2026-02-34111 Pringle Homes Crows Tree Farm		25/02/2026

DRAIN DOCTOR

Tel. 08000 266623

Project Information

Project Name	Project Number	Project Date
2026-02-34111 Pringle Homes Crows Tree Farm		25/02/2026

Client

Company: PRINGLE HOMES
Department: THE COACH HOUSE
Street: HOLLOWFORTH LANE
Town or City: WOODPLUMPTON
Post Code: PR4 0BD

Site

Company: PRINGLE HOMES
Street: CROWSTREE FARM
Town or City: CHATBURN

Contractor

Company: DRAIN DOCTOR
Phone: 08000 266623

DRAIN DOCTOR
Tel. 08000 266623

Section Inspection - 26/02/2026 - SO1X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	26/02/26	12:31	Not Specified	Not Specified	Yes	SO1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	SO1
Road:	Crow Trees Farm	**Inspected Length:**	7.09 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	7.09 m	**Downstream Node:**	SO2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:62

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m **SO1**			
0.00	MH	Start node, manhole, reference: SO1	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:45		
7.09	MHF	Finish node, manhole, reference: SO2	00:00:45		
		SO2 **Depth: m**			

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - SO2X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	20/02/26	16:46	Not Specified	Not Specified	Yes	SO2X

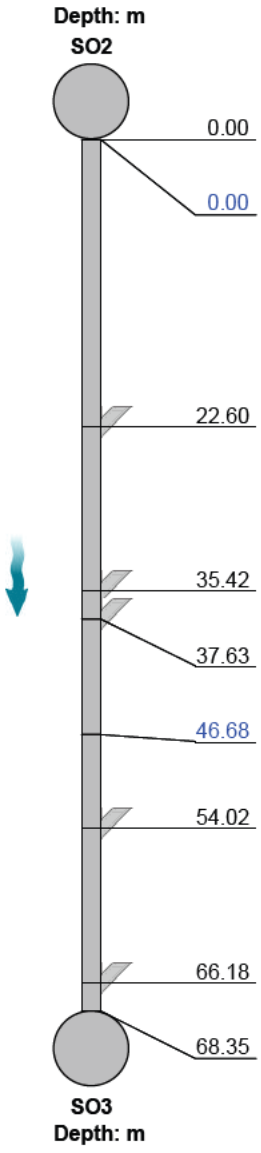
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	SO2
Road:	Crow Trees Farm	**Inspected Length:**	68.35 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	68.35 m	**Downstream Node:**	SO3
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:592



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: SO2	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:02		
22.60	JN	Junction at 11 o'clock, 150mm dia	00:01:30		
35.42	JN	Junction at 11 o'clock, 150mm dia	00:02:14		
37.63	JN	Junction at 11 o'clock, 150mm dia	00:02:21		
46.68	WL	Water level, 20% of the vertical dimension	00:02:52		
54.02	JN	Junction at 10 o'clock, 150mm dia	00:03:17		
66.18	JN	Junction at 11 o'clock, 150mm dia	00:04:01		
68.35	MHF	Finish node, manhole, reference: SO3	00:04:07		

Construction Features					Miscellaneous Features				
Structural Defects					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
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

DRAIN DOCTOR
Tel. 08000 266623

Section Inspection - 20/02/2026 - SO3X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	20/02/26	16:46	Not Specified	Not Specified	Yes	SO3X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	SO3
Road:	Crow Trees Farm	**Inspected Length:**	22.02 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	22.02 m	**Downstream Node:**	SO4
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:191

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: SO3	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:13		
15.63	JN	Junction at 10 o'clock, 150mm dia	00:01:16		
22.02	MHF	Finish node, manhole, reference: SO4	00:01:43		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - S04X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	1	20/02/26	16:46	Not Specified	Not Specified	Yes	S04X

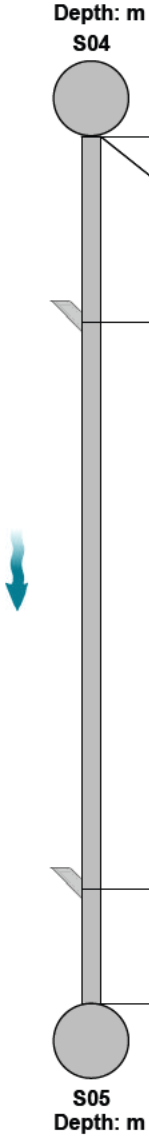
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	S04
Road:	Crow Trees Farm	**Inspected Length:**	18.61 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	18.61 m	**Downstream Node:**	S05
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:162



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: S04	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
4.00	JN	Junction at 2 o'clock, 150mm dia	00:00:23		
16.14	JN	Junction at 2 o'clock, 150mm dia	00:01:04		
18.61	MHF	Finish node, manhole, reference: S05	00:01:13		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - S05X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	20/02/26	16:46	Not Specified	Not Specified	Yes	S05X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	S05
Road:	Crow Trees Farm	**Inspected Length:**	22.12 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	22.12 m	**Downstream Node:**	S06
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:192

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m			
		S05			
0.00	MH	Start node, manhole, reference: S05	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:03		
0.00	WL	Water level, 0% of the vertical dimension	00:00:07		
10.96	JN	Junction at 1 o'clock, 150mm dia	00:00:46		
12.36	JN	Junction at 1 o'clock, 150mm dia	00:00:52		
22.12	MHF	Finish node, manhole, reference: S06	00:01:24		
		S06			
		Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - S06X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	20/02/26	16:47	Not Specified	Not Specified	Yes	S06X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	S06
Road:	Crow Trees Farm	**Inspected Length:**	18.79 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	18.79 m	**Downstream Node:**	S07
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:163

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: S06	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
7.64	JN	Junction at 12 o'clock, 150mm dia	00:00:35		
15.80	JN	Junction at 1 o'clock, 150mm dia	00:01:02		
18.79	MHF	Finish node, manhole, reference: S07	00:01:11		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - S07X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	1	20/02/26	16:47	Not Specified	Not Specified	Yes	S07X

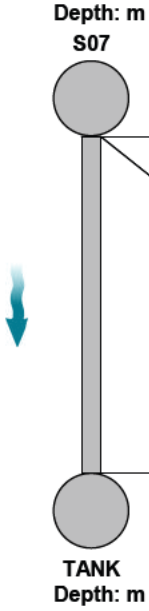
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	S07
Road:	Crow Trees Farm	**Inspected Length:**	2.23 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.23 m	**Downstream Node:**	TANK
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: S07	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
2.23	OCF	Finish node, other special chamber, reference: TANK: Attenuation	00:00:21		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - TANKX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	1	20/02/26	16:47	Not Specified	Not Specified	Yes	TANKX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Upstream	**Upstream Node:**	TANK
Road:	Crow Trees Farm	**Inspected Length:**	0.78 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.78 m	**Downstream Node:**	S08
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m S08						
	0.00	MH	Start node, manhole, reference: S08	00:00:00		
	0.00	WL	Water level, 0% of the vertical dimension	00:00:10		
	0.78	OCF	Finish node, other special chamber, reference: TANK: Attenuation	00:00:17		
TANK Depth: m						

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - S08X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	1	20/02/26	16:47	Not Specified	Not Specified	Yes	S08X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Upstream	**Upstream Node:**	S08
Road:	Crow Trees Farm	**Inspected Length:**	14.64 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	14.64 m	**Downstream Node:**	S09
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

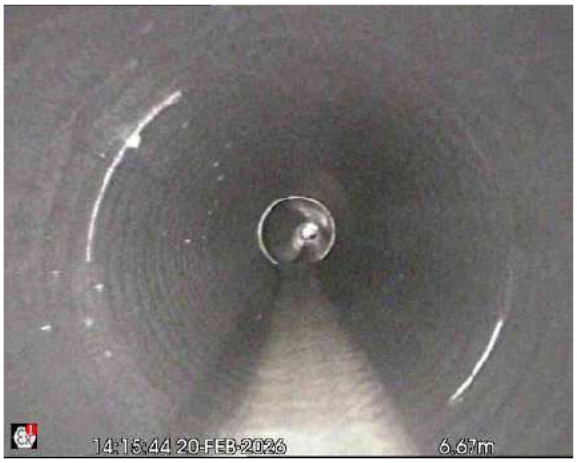
Scale: 1:127

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: S09	00:00:00		
0.00	WL	Water level, 10% of the vertical dimension: flowing	00:00:14		
6.67	GP	General photograph taken at this point: possible crack	00:00:38	1	
14.64	MHF	Finish node, manhole, reference: S08: buried	00:01:12		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 20/02/2026 - S08X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
9	Upstream	S08X		



1, 00:00:38, 6.67 m
General photograph taken at this point, possible crack

Section Inspection - 20/02/2026 - S09X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	1	20/02/26	16:47	Not Specified	Not Specified	Yes	S09X

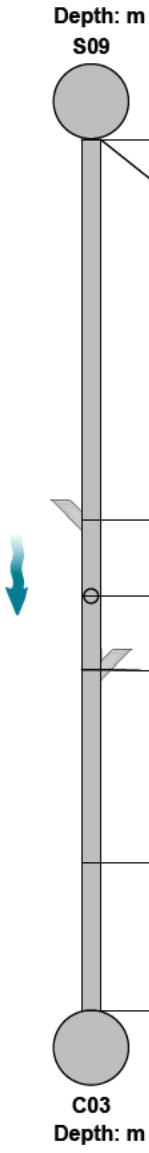
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	S09
Road:	Crow Trees Farm	**Inspected Length:**	35.99 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	35.99 m	**Downstream Node:**	C03
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:312



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: S09	00:00:00		
0.00	WL	Water level, 10% of the vertical dimension	00:00:00		
15.74	JN	Junction at 3 o'clock, 150mm dia	00:01:17		
18.90	JN	Junction at 12 o'clock, 150mm dia	00:01:30		
21.91	JN	Junction at 11 o'clock, 150mm dia	00:01:42		
29.88	OJM	Open joint, medium: Pipe deviates left on joint	00:02:17	1	1
35.99	MHF	Finish node, manhole, reference: C03	00:02:46		

Construction Features					Miscellaneous Features				
Structural Defects					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**
1	1.0	0.0	1.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 20/02/2026 - S09X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
10	Downstream	S09X		

1, 00:02:17, 29.88 m
Open joint, medium, Pipe deviates left on joint

Section Inspection - 20/02/2026 - C03X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	1	20/02/26	16:47	Not Specified	Not Specified	Yes	C03X

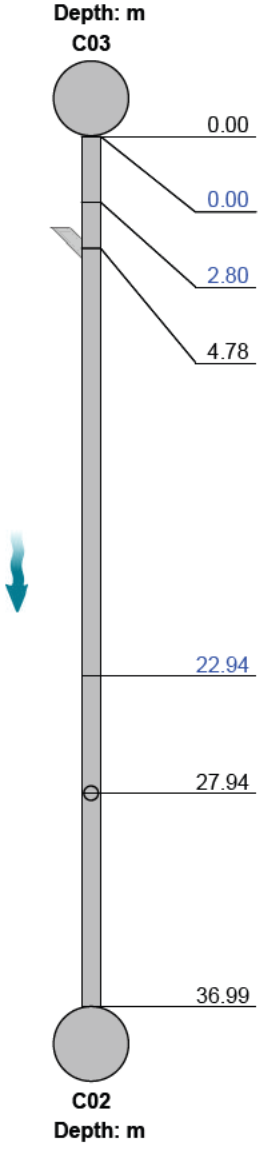
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	C03
Road:	Crow Trees Farm	**Inspected Length:**	36.99 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	36.99 m	**Downstream Node:**	C02
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:321



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: C03	00:00:00		
0.00	WL	Water level, 10% of the vertical dimension: flowing	00:00:02		
2.80	GP	General photograph taken at this point: line bending left without fitting	00:00:29	1	
4.78	JN	Junction at 1 o'clock, 150mm dia	00:00:42		
22.94	WL	Water level, 30% of the vertical dimension	00:02:27		
27.94	JN	Junction at 12 o'clock, 150mm dia	00:02:55		
36.99	MHF	Finish node, manhole, reference: C02	00:03:48		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 20/02/2026 - C03X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
11	Downstream	C03X		

1, 00:00:29, 2.80 m
General photograph taken at this point, line bending left without fitting

Section Inspection - 20/02/2026 - F01X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	1	20/02/26	16:47	Not Specified	Not Specified	Yes	F01X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F01
Road:	Crow Trees Farm	**Inspected Length:**	19.00 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	19.00 m	**Downstream Node:**	F02
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:165

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m			
		F01			
0.00	MH	Start node, manhole, reference: F01	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
19.00	MHF	Finish node, manhole, reference: F02	00:01:50		
		F02			
		Depth: m			

Construction Features / Structural Defects

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade
0	0.0	0.0	0.0	1.0

Miscellaneous Features / Service & Operational Observations

SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - F02X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	1	20/02/26	16:48	Not Specified	Not Specified	Yes	F02X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F02
Road:	Crow Trees Farm	**Inspected Length:**	18.29 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	18.29 m	**Downstream Node:**	F03
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:159

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m			
		F02			
0.00	MH	Start node, manhole, reference: F02	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:05		
18.29	MHF	Finish node, manhole, reference: F03	00:01:47		
		F03			
		Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 20/02/2026 - F03X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	1	20/02/26	16:48	Not Specified	Not Specified	Yes	F03X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F03
Road:	Crow Trees Farm	**Inspected Length:**	20.42 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	20.42 m	**Downstream Node:**	F04
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:177

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: F03	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:02		
10.55	WL	Water level, 5% of the vertical dimension	00:01:09		
20.42	MHF	Finish node, manhole, reference: F04	00:02:05		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 25/02/2026 - F04X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
15	1	25/02/26	10:26	Not Specified	Not Specified	Yes	F04X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F04
Road:	Crow Trees Farm	**Inspected Length:**	36.86 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	36.86 m	**Downstream Node:**	F05
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:320

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m F04					
0.00	MH	Start node, manhole, reference: F04	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension: flowing	00:00:00		
36.86	MHF	Finish node, manhole, reference: F05	00:03:25		
F05 Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 25/02/2026 - F05X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
16	1	25/02/26	10:25	Not Specified	Not Specified	Yes	F05X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Upstream	**Upstream Node:**	F05
Road:	Crow Trees Farm	**Inspected Length:**	8.68 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	8.68 m	**Downstream Node:**	F06
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:76

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m **F06**			
0.00	MH	Start node, manhole, reference: F06	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
8.68	MHF	Finish node, manhole, reference: F05	00:00:59		
		F05 **Depth: m**			

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 25/02/2026 - F06X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
17	1	25/02/26	10:26	Not Specified	Not Specified	Yes	F06X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F06
Road:	Crow Trees Farm	**Inspected Length:**	8.31 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	8.31 m	**Downstream Node:**	F07
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:72

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: m F06			
0.00	MH	Start node, manhole, reference: F06	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:00		
0.56	GP	General photograph taken at this point	00:00:10	1	
8.31	MHF	Finish node, manhole, reference: F07	00:00:53		
		F07 Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 25/02/2026 - F06X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
17	Downstream	F06X		

1, 00:00:10, 0.56 m
General photograph taken at this point

Section Inspection - 25/02/2026 - F07X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	1	25/02/26	10:26	Not Specified	Not Specified	Yes	F07X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	F07
Road:	Crow Trees Farm	**Inspected Length:**	39.50 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	39.50 m	**Downstream Node:**	C03
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post completion condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:342

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: F07	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:01		
17.44	JN	Junction at 1 o'clock, 150mm dia	00:01:46		
39.50	MHF	Finish node, manhole, reference: C03	00:03:47		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 27/04/2026 - C03X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
19	1	27/04/26	10:15	Not Specified	Not Specified	Yes	C03X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Chatburn	**Inspection Direction:**	Downstream	**Upstream Node:**	C03
Road:	Crow Trees Farm	**Inspected Length:**	38.01 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	38.01 m	**Downstream Node:**	C02
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Post rehab inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:330

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: C03	00:00:00		
0.00	WL	Water level, 0% of the vertical dimension	00:00:01		
5.81	JN	Junction at 12 o'clock, 150mm dia	00:00:46		
28.94	JN	Junction at 12 o'clock, 150mm dia	00:02:54		
38.01	MHF	Finish node, manhole, reference: C02	00:03:46		

Construction Features					Miscellaneous Features				
Structural Defects					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**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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APPENDIX D

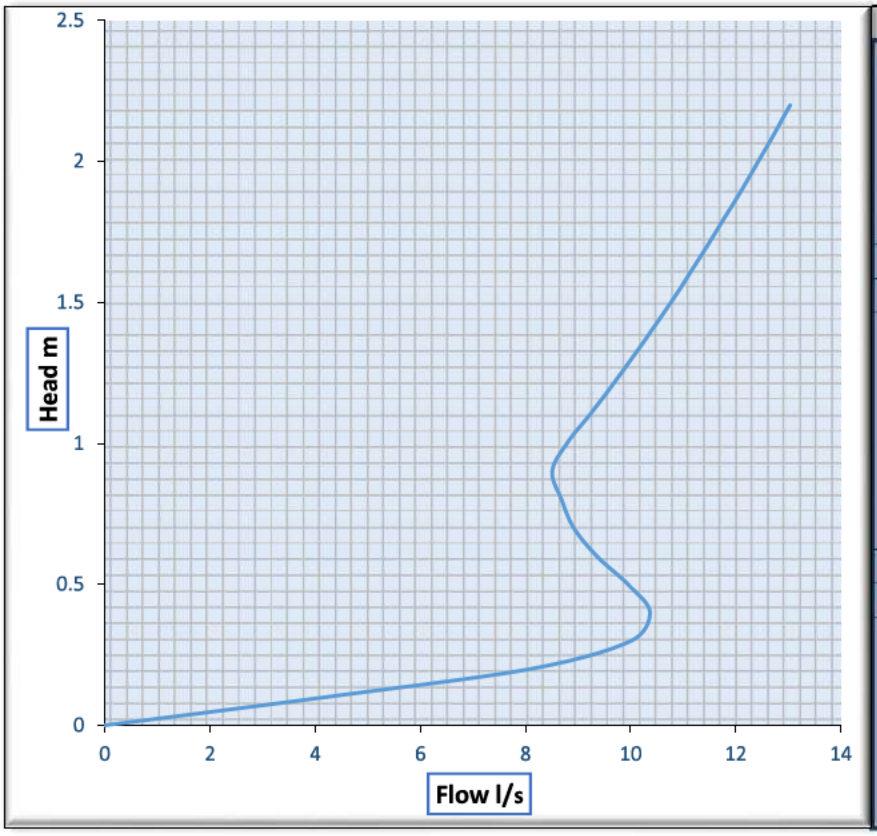
Alternative Flow Control Specification

CROWN WATER Data Sheet

140 mm QR5 Type Vortex Flow Control

Job Ref 24230426

Client Name	**NMS Ltd**	**Date**	**01/05/2026**
Project Name	**Clitheroe**	**For the attention of**	**Matthew Houghton**



Head m	Flow l/s
0	0.000
0.1	4.200
0.2	8.090
0.3	10.010
0.4	10.370
0.5	9.950
0.6	9.360
0.7	8.920
0.8	8.690
0.9	8.510
1	8.790
1.1	9.220
1.2	9.630
1.3	10.020
1.4	10.400
1.5	10.770
1.6	11.120
1.7	11.460
1.8	11.790
1.9	12.120
2	12.430
2.1	12.740
2.2	13.040

Design Flow	**10.4 l/s**	**Flush Flow**	**10.4 l/s**
Design Head	**1.4 m**	**At Head**	**0.372 m**
Minimum Pipe	**Curved 225 mm**	**Kickback Flow**	**8.5 l/s**
Sump Depth	**380 mm**	**At Head**	**0.908 m**

Note: Surface Water Only

Crown Water Ltd
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sales@crownwater.com
Company Registration Number *9514593*

Citation ISO Certification
Quality management ISO 9001: 2015
REGISTERED
Certificate No:71592021

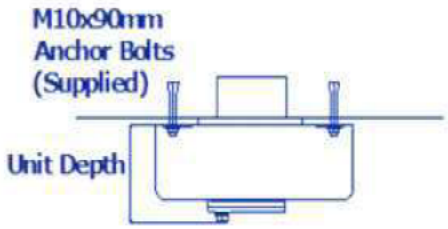
CROWN WATER

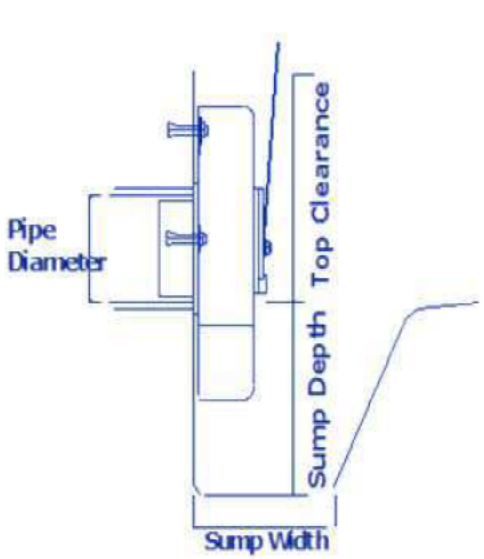
Job Ref 24230426

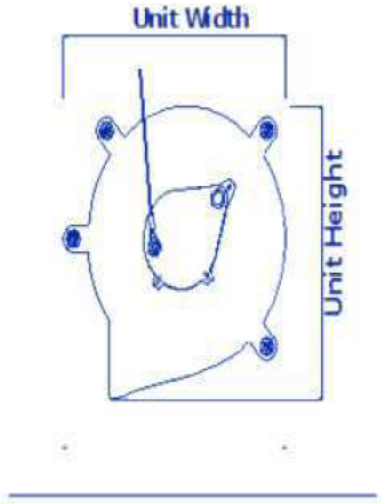
140 mm QR5 Type Vortex Flow Control

Client Name	NMS Ltd	**Date**	01/05/2026
Project Name	Clitheroe	**For the attention of**	Matthew Houghton

Crown Water Radial Type Vortex Flow Control Unit Installation Guide







Unit Outlet Diameter	140mm	**Sump Depth (Min)**	380 mm
Unit Height	740 mm	**Sump Width (Min)**	330 mm
Unit Width	690 mm	**Pipe Diameter (Min)**	Curved 225mm
Unit Depth	180 mm	**Top Clearance(Min)**	440 mm

Note: Surface Water Only

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Certificate No:71592021

CROWN WATER
FLOW CONTROL QUOTATION REF. 24230426

Product Information and FAQ's

DESIGN

Individual Design.

All of our Vortex Flow Control Units are individually designed to meet the client's optimum performance criteria.

Will our Vortex Flow Control's Block?

The relatively large cross sectional areas and high internal velocities greatly reduce the risk of blockage.

How Long Will They Last?

Crown Water Vortex Flow Control Units have no moving parts to wear or fail. Made from stainless steel plate they will resist scour, degradation and chemical attack. A Vortex Flow Control should outlast the sewer in which it is installed.

MANUFACTURE

Crown Water Vortex Flow Control Units are manufactured to a high standard

- 304 Grade Stainless Steel as standard. Other material optional.
- Plate thickness 3mm as standard Thicker plate used where required.
- Pulse arc Tungsten Inert Gas Welding. All seams continuous for maximum strength.
- Emergency Bypass Door fitted as standard to allow drain down and rodding access.
- Externally regulated ISO 9001:2008 Quality Assurance System

INSTALLATION

All of our Vortex Flow Controls are purpose built to suit the specific site and to fit easily into the drainage infrastructure. Units can be specially designed for retrofitting or for installation in difficult spaces

MAINTENANCE

Vortex Flow Control units themselves require no routine maintenance. Inspection chambers require inspection & maintenance in line with current practice.

WHAT DESIGN INFORMATION DO WE NEED?

We require the following basic information to specify a Vortex Flow Control for you.

1) The design Flow - *Maximum Discharge*
2) The design Head - *Invert to Top Water Level*

From this information we will size and design the Vortex Flow Control to meet the design criteria and to suit the proposed infrastructure.

SPECIFICATION

Includes: -

1) Data Sheet showing the Head/Discharge Characteristic, both graphically and numerically.

2) Installation Guide showing the outline dimensions of the specified Vortex Flow Control and the method of fixing.

Note: Surface Water Only

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Citation ISO Certification
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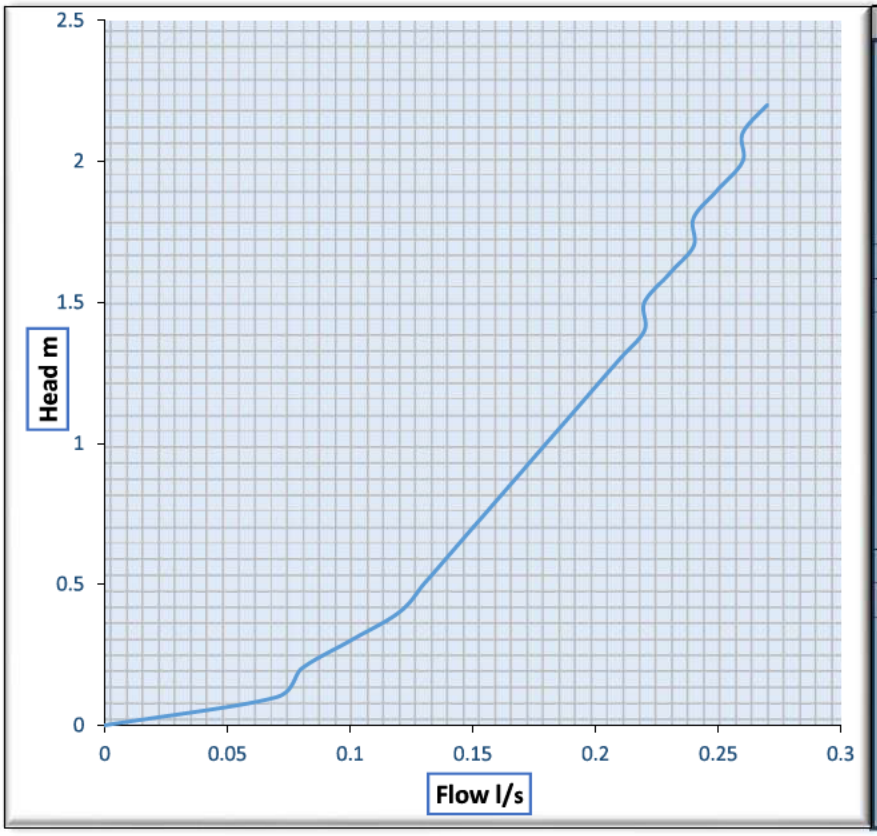
Certificate No:71592021

CROWN WATER Data Sheet
20 mm QR5 Type Vortex Flow Control

Job Ref 24230426

Client Name	**NMS Ltd**	**Date**	**23/04/2026**
Project Name	**Crow Trees Farm**	**For the attention of**	**Savita Hirani**



Head m	Flow l/s
0	0.000
0.1	0.070
0.2	0.080
0.3	0.100
0.4	0.120
0.5	0.130
0.6	0.140
0.7	0.150
0.8	0.160
0.9	0.170
1	0.180
1.1	0.190
1.2	0.200
1.3	0.210
1.4	0.220
1.5	0.220
1.6	0.230
1.7	0.240
1.8	0.240
1.9	0.250
2	0.260
2.1	0.260
2.2	0.270

Design Flow	**0.2 l/s**	**Flush Flow**	**0.08 l/s**
Design Head	**1.2 m**	**At Head**	**0.054 m**
Minimum Pipe	**150 mm**	**Kickback Flow**	**0.07 l/s**
Sump Depth	**250 mm**	**At Head**	**0.131 m**

Note: Surface Water Only

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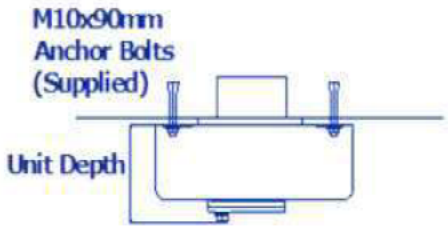
CROWN WATER

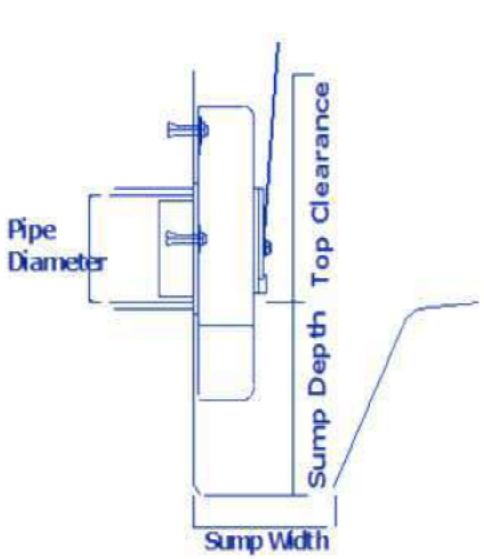
Job Ref 24230426

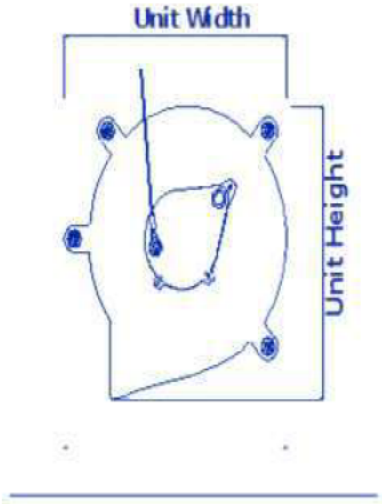
20 mm QR5 Type Vortex Flow Control

Client Name	NMS Ltd	**Date**	23/04/2026
Project Name	Crow Trees Farm	**For the attention of**	Savita Hirani

Crown Water Radial Type Vortex Flow Control Unit Installation Guide







Unit Outlet Diameter	20mm	**Sump Depth (Min)**	250 mm
Unit Height	200 mm	**Sump Width (Min)**	210 mm
Unit Width	200 mm	**Pipe Diameter (Min)**	150mm
Unit Depth	60 mm	**Top Clearance(Min)**	260 mm

Note: Surface Water Only

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CROWN WATER
FLOW CONTROL QUOTATION REF. 24230426

Product Information and FAQ's

DESIGN

Individual Design.

All of our Vortex Flow Control Units are individually designed to meet the client's optimum performance criteria.

Will our Vortex Flow Control's Block?

The relatively large cross sectional areas and high internal velocities greatly reduce the risk of blockage.

How Long Will They Last?

Crown Water Vortex Flow Control Units have no moving parts to wear or fail. Made from stainless steel plate they will resist scour, degradation and chemical attack. A Vortex Flow Control should outlast the sewer in which it is installed.

MANUFACTURE

Crown Water Vortex Flow Control Units are manufactured to a high standard

- 304 Grade Stainless Steel as standard. Other material optional.
- Plate thickness 3mm as standard Thicker plate used where required.
- Pulse arc Tungsten Inert Gas Welding. All seams continuous for maximum strength.
- Emergency Bypass Door fitted as standard to allow drain down and rodding access.
- Externally regulated ISO 9001:2008 Quality Assurance System

INSTALLATION

All of our Vortex Flow Controls are purpose built to suit the specific site and to fit easily into the drainage infrastructure. Units can be specially designed for retrofitting or for installation in difficult spaces

MAINTENANCE

Vortex Flow Control units themselves require no routine maintenance. Inspection chambers require inspection & maintenance in line with current practice.

WHAT DESIGN INFORMATION DO WE NEED?

We require the following basic information to specify a Vortex Flow Control for you.

1) The design Flow - *Maximum Discharge*
2) The design Head - *Invert to Top Water Level*

From this information we will size and design the Vortex Flow Control to meet the design criteria and to suit the proposed infrastructure.

SPECIFICATION

Includes: -

1) Data Sheet showing the Head/Discharge Characteristic, both graphically and numerically.

2) Installation Guide showing the outline dimensions of the specified Vortex Flow Control and the method of fixing.

Note: Surface Water Only

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Citation ISO Certification — Quality management — ISO 9001: 2015 — REGISTERED
Certificate No:71592021

Certificate of Conformity

Manufacture
All Crown Water Flow Controls are Manufactured as follows:-

Material Used
304 Grade Stainless Steel as Standard (Other materials available on request)

Plate Thickness
Generally made in 3mm thick Stainless Steel (Thicker Material to be used where necessary)

Welding
All welded seems to be continuous for maximum Strength

Rodding Access & Drain Down
Each unit is fitted with a By Pass Door, Operated from Cover Level by means of a wire rope to allow the system to drain down.
This is also used when Rodding and will give access to the downstream pipe

How Long Will they Last?
Crown Vortex Flow Controls have no moving parts to wear or fail.
Made from Stainless Steel Plate they will resist scour, degradation and chemical attack
A Crown Vortex Flow Control Should easily outlasts the sewer in which it is installed
Product is guaranteed for 120 Years

Quality Assurance
Crown Water Ltd has been assessed and approved by QMS International PLC to ISO 9001: 2015
The Approved Quality Management system applies to the provision of Flow Control Devices

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APPENDIX E

Updated RGP Hydraulic Assessment

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S01	0.054	5.00	105.167	1200	376722.908	443941.301	2.167
S02	0.085	5.00	105.222	1500	376720.042	443933.832	2.472
S03	0.017	5.00	103.833	1500	376755.997	443873.772	1.783
S04	0.110	5.00	103.263	1500	376779.410	443875.794	1.959
S05	0.124	5.00	102.481	1500	376795.881	443888.821	1.844
S06	0.132	5.00	101.653	1500	376801.513	443910.605	1.730
S07			101.117	1500	376817.496	443922.627	1.828
TANK 1_IN_S07	0.021	15.00	101.033		376820.225	443924.602	2.918
IC01	0.157	5.00	100.385	600	376810.175	443960.626	1.135
TANK 1_IN_IC01			100.250		376807.804	443958.818	2.135
TANK 1_OUT		5.00	100.256		376806.904	443958.783	2.256
S08	0.010	5.00	100.132	1500	376805.153	443961.507	2.158
S09			99.234	1350	376796.421	443974.387	1.742
S10_JUNCTION			99.220		376783.068	443987.300	1.839
C03			99.374	1350	376769.715	444000.212	2.104
C02			98.700	1350	376753.275	444032.736	1.648
IC02	0.037	5.00	100.248	450	376768.951	443973.702	1.350
TANK 2_IN			100.104		376769.655	443974.414	2.562
TANK 2_OUT		5.00	99.630		376778.097	443982.943	2.130
S10			99.549	1350	376779.155	443984.006	2.059

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S01	S02	8.000	0.600	103.000	102.900	0.100	80.0	150	5.12	50.0
1.001	S02	S03	70.000	0.600	102.750	102.050	0.700	100.0	300	5.86	50.0
1.002	S03	S04	23.500	0.600	102.050	101.304	0.746	31.5	300	6.00	50.0
1.003	S04	S05	21.000	0.600	101.304	100.637	0.667	31.5	300	6.12	50.0
1.004	S05	S06	22.500	0.600	100.637	99.923	0.714	31.5	300	6.26	50.0
1.005	S06	S07	20.000	0.600	99.923	99.289	0.634	31.5	300	6.38	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.125	19.9	9.7	2.017	2.172	0.054	0.0	74	1.119
1.001	1.572	111.1	25.0	2.172	1.483	0.138	0.0	96	1.277
1.002	2.811	198.7	27.9	1.483	1.659	0.155	0.0	75	2.001
1.003	2.811	198.7	47.7	1.659	1.544	0.264	0.0	100	2.327
1.004	2.811	198.7	70.1	1.544	1.430	0.388	0.0	123	2.575
1.005	2.809	198.5	93.9	1.430	1.528	0.519	0.0	145	2.770

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.006	S07	TANK 1_IN_S07	3.369	0.600	99.289	98.135	1.154	2.9	300	6.38	50.0
1.007	TANK 1_OUT	S08	3.238	0.600	98.000	97.974	0.026	124.5	225	5.05	50.0
1.008	S08	S09	15.561	0.600	97.974	97.492	0.482	32.3	225	5.16	50.0
1.009	S09	S10_JUNCTION	18.575	0.600	97.492	97.381	0.111	167.3	225	5.47	50.0
1.0091	S10_JUNCTION	C03	18.575	0.600	97.381	97.270	0.111	167.3	225	5.77	50.0
1.010	C03	C02	36.443	0.600	97.270	97.052	0.218	167.2	225	6.38	50.0
2.000	TANK 2_OUT	S10	1.500	0.600	97.500	97.490	0.010	150.0	150	5.03	50.0
2.001	S10	S10_JUNCTION	5.115	0.600	97.490	97.456	0.034	150.4	150	5.13	50.0
5.000	IC02	TANK 2_IN	1.001	0.600	98.898	98.346	0.552	1.8	150	5.00	50.0
4.000	IC01	TANK 1_IN_IC01	2.982	0.600	99.250	98.847	0.403	7.4	225	5.01	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.006	9.264	654.8	93.9	1.528	2.598	0.519	0.0	76	6.658
1.007	1.170	46.5	0.0	2.031	1.933	0.000	0.0	0	0.000
1.008	2.310	91.9	1.7	1.933	1.517	0.010	0.0	22	0.910
1.009	1.008	40.1	1.7	1.517	1.614	0.010	0.0	32	0.508
1.0091	1.008	40.1	1.7	1.614	1.879	0.010	0.0	32	0.508
1.010	1.008	40.1	1.7	1.879	1.423	0.010	0.0	32	0.508
2.000	0.818	14.5	0.0	1.980	1.909	0.000	0.0	0	0.000
2.001	0.817	14.4	0.0	1.909	1.614	0.000	0.0	0	0.000
5.000	7.542	133.3	6.7	1.200	1.608	0.037	0.0	23	3.930
4.000	4.840	192.4	28.3	0.910	1.178	0.157	0.0	58	3.474

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	8.000	80.0	150	Circular	105.167	103.000	2.017	105.222	102.900	2.172
1.001	70.000	100.0	300	Circular	105.222	102.750	2.172	103.833	102.050	1.483
1.002	23.500	31.5	300	Circular	103.833	102.050	1.483	103.263	101.304	1.659
1.003	21.000	31.5	300	Circular	103.263	101.304	1.659	102.481	100.637	1.544
1.004	22.500	31.5	300	Circular	102.481	100.637	1.544	101.653	99.923	1.430
1.005	20.000	31.5	300	Circular	101.653	99.923	1.430	101.117	99.289	1.528
1.006	3.369	2.9	300	Circular	101.117	99.289	1.528	101.033	98.135	2.598
1.007	3.238	124.5	225	Circular	100.256	98.000	2.031	100.132	97.974	1.933
1.008	15.561	32.3	225	Circular	100.132	97.974	1.933	99.234	97.492	1.517
1.009	18.575	167.3	225	Circular	99.234	97.492	1.517	99.220	97.381	1.614

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S01	1200	Manhole	Adoptable	S02	1500	Manhole	Adoptable
1.001	S02	1500	Manhole	Adoptable	S03	1500	Manhole	Adoptable
1.002	S03	1500	Manhole	Adoptable	S04	1500	Manhole	Adoptable
1.003	S04	1500	Manhole	Adoptable	S05	1500	Manhole	Adoptable
1.004	S05	1500	Manhole	Adoptable	S06	1500	Manhole	Adoptable
1.005	S06	1500	Manhole	Adoptable	S07	1500	Manhole	Adoptable
1.006	S07	1500	Manhole	Adoptable	TANK 1_IN_S07		Junction	
1.007	TANK 1_OUT		Junction		S08	1500	Manhole	Adoptable
1.008	S08	1500	Manhole	Adoptable	S09	1350	Manhole	Adoptable
1.009	S09	1350	Manhole	Adoptable	S10_JUNCTION		Junction	

Pipeline Schedule

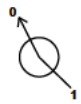
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.0091	18.575	167.3	225	Circular	99.220	97.381	1.614	99.374	97.270	1.879
1.010	36.443	167.2	225	Circular	99.374	97.270	1.879	98.700	97.052	1.423
2.000	1.500	150.0	150	Circular	99.630	97.500	1.980	99.549	97.490	1.909
2.001	5.115	150.4	150	Circular	99.549	97.490	1.909	99.220	97.456	1.614
5.000	1.001	1.8	150	Circular	100.248	98.898	1.200	100.104	98.346	1.608
4.000	2.982	7.4	225	Circular	100.385	99.250	0.910	100.250	98.847	1.178

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.0091	S10_JUNCTION		Junction		C03	1350	Manhole	Adoptable
1.010	C03	1350	Manhole	Adoptable	C02	1350	Manhole	Adoptable
2.000	TANK 2_OUT		Junction		S10	1350	Manhole	Adoptable
2.001	S10	1350	Manhole	Adoptable	S10_JUNCTION		Junction	
5.000	IC02	450	Manhole	Adoptable	TANK 2_IN		Junction	
4.000	IC01	600	Manhole	Adoptable	TANK 1_IN_IC01		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S01	376722.908	443941.301	105.167	2.167	1200	 0	1.000	103.000	150
S02	376720.042	443933.832	105.222	2.472	1500	 1 0	1.000 1.001	102.900 102.750	150 300
S03	376755.997	443873.772	103.833	1.783	1500	 1 0	1.001 1.002	102.050 102.050	300 300
S04	376779.410	443875.794	103.263	1.959	1500	 1 0	1.002 1.003	101.304 101.304	300 300
S05	376795.881	443888.821	102.481	1.844	1500	 1 0	1.003 1.004	100.637 100.637	300 300
S06	376801.513	443910.605	101.653	1.730	1500	 1 0	1.004 1.005	99.923 99.923	300 300
S07	376817.496	443922.627	101.117	1.828	1500	 1 0	1.005 1.006	99.289 99.289	300 300
TANK 1_IN_S07	376820.225	443924.602	101.033	2.918		 1	1.006	98.135	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
IC01	376810.175	443960.626	100.385	1.135	600	 0	4.000	99.250	225
TANK 1_IN_IC01	376807.804	443958.818	100.250	2.135		1 	4.000	98.847	225
TANK 1_OUT	376806.904	443958.783	100.256	2.256		 0	1.007	98.000	225
S08	376805.153	443961.507	100.132	2.158	1500	1  0	1.007 1.008	97.974 97.974	225 225
S09	376796.421	443974.387	99.234	1.742	1350	1  0	1.008 1.009	97.492 97.492	225 225
S10_JUNCTION	376783.068	443987.300	99.220	1.839		1  2 0	2.001 1.009 1.0091	97.456 97.381 97.381	150 225 225
C03	376769.715	444000.212	99.374	2.104	1350	1  0	1.0091 1.010	97.270 97.270	225 225
C02	376753.275	444032.736	98.700	1.648	1350	1 	1.010	97.052	225
IC02	376768.951	443973.702	100.248	1.350	450	 0	5.000	98.898	150
TANK 2_IN	376769.655	443974.414	100.104	2.562		1 	5.000	98.346	150
TANK 2_OUT	376778.097	443982.943	99.630	2.130		 0	2.000	97.500	150
S10	376779.155	443984.006	99.549	2.059	1350	1  0	2.000 2.001	97.490 97.490	150 150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	50	0	0

Node S08 Online Head/Flow Control

Flap Valve	x	Invert Level (m)	97.974	Design Flow (l/s)	10.4
Replaces Downstream Link	x	Design Depth (m)	1.400		

Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
0.100	4.200	0.500	9.950	0.900	8.510	1.300	10.020	1.700	11.460	2.100	12.740
0.200	8.090	0.600	9.360	1.000	8.790	1.400	10.400	1.800	11.790	2.200	13.040
0.300	10.010	0.700	8.920	1.100	9.220	1.500	10.770	1.900	12.120		
0.400	10.370	0.800	8.690	1.200	9.630	1.600	11.120	2.000	12.430		

Node S10 Online Head/Flow Control

Flap Valve	x	Invert Level (m)	97.490	Design Flow (l/s)	0.2
Replaces Downstream Link	✓	Design Depth (m)	1.200		

Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
0.100	0.070	0.500	0.130	0.900	0.170	1.300	0.210	1.700	0.240	2.100	0.260
0.200	0.080	0.600	0.140	1.000	0.180	1.400	0.220	1.800	0.240	2.200	0.270
0.300	0.100	0.700	0.150	1.100	0.190	1.500	0.220	1.900	0.250		
0.400	0.120	0.800	0.160	1.200	0.200	1.600	0.230	2.000	0.260		

Node TANK 1_OUT Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Main Channel Length (m)	46.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	98.000	Main Channel Slope (1:X)	400.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.030

Inlets

TANK 1_IN_S07 | TANK 1_IN_IC01

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	460.0	0.0	1.199	460.0	0.0	1.200	0.0	0.0

Node TANK 2_OUT Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Main Channel Length (m)	17.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	97.500	Main Channel Slope (1:X)	400.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.030

Inlets

TANK 2_IN

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	36.0	0.0	1.199	36.0	0.0	1.200	0.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S01	10	103.070	0.070	7.8	0.0791	0.0000	OK
15 minute summer	S02	10	102.840	0.090	20.0	0.1585	0.0000	OK
15 minute summer	S03	11	102.117	0.067	22.0	0.1184	0.0000	OK
15 minute summer	S04	11	101.393	0.089	37.2	0.1571	0.0000	OK
15 minute summer	S05	11	100.745	0.108	54.6	0.1900	0.0000	OK
15 minute summer	S06	11	100.071	0.148	73.2	0.2616	0.0000	OK
15 minute summer	S07	11	99.365	0.076	73.4	0.1334	0.0000	OK
360 minute winter	TANK 1_IN_S07	256	98.297	0.182	18.3	0.0000	0.0000	OK
15 minute summer	IC01	10	99.307	0.057	22.8	0.0161	0.0000	OK
360 minute winter	TANK 1_IN_IC01	256	98.296	0.181	6.4	0.0000	0.0000	OK
360 minute winter	TANK 1_OUT	256	98.295	0.295	15.6	0.0000	0.0000	SURCHARGED
360 minute winter	S08	256	98.293	0.319	9.4	0.5639	0.0000	SURCHARGED
360 minute winter	S09	256	97.567	0.075	9.4	0.1077	0.0000	OK
360 minute winter	S10_JUNCTION	256	97.457	0.076	9.5	0.0000	0.0000	OK
360 minute winter	C03	256	97.346	0.076	9.5	0.1085	0.0000	OK
360 minute winter	C02	256	97.126	0.074	9.5	0.0000	0.0000	OK
15 minute summer	IC02	10	98.921	0.023	5.4	0.0036	0.0000	OK
2880 minute summer	TANK 2_IN	1860	97.842	0.299	0.5	0.0000	0.0000	OK
2880 minute summer	TANK 2_OUT	1860	97.842	0.342	0.3	0.0000	0.0000	SURCHARGED
2880 minute summer	S10	1860	97.842	0.352	0.1	0.5038	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S01	1.000	S02	7.7	1.007	0.388	0.0613	
15 minute summer	S02	1.001	S03	19.6	1.354	0.177	1.0220	
15 minute summer	S03	1.002	S04	22.0	1.519	0.111	0.3426	
15 minute summer	S04	1.003	S05	37.4	1.867	0.188	0.4213	
15 minute summer	S05	1.004	S06	54.8	1.917	0.276	0.6448	
15 minute summer	S06	1.005	S07	73.4	3.072	0.370	0.4852	
15 minute summer	S07	1.006	TANK 1_IN_S07	73.5	5.781	0.112	0.0429	
360 minute winter	TANK 1_IN_S07	Flow through Pond	TANK 1_OUT	15.6	0.059	0.001	103.7370	
15 minute summer	IC01	4.000	TANK 1_IN_IC01	22.8	3.076	0.118	0.0221	
360 minute winter	TANK 1_IN_IC01	Flow through Pond	TANK 1_OUT	15.6	0.059	0.001	103.7370	
360 minute winter	TANK 1_OUT	1.007	S08	9.3	0.410	0.201	0.1288	
360 minute winter	S08	1.008	S09	9.4	1.066	0.103	0.1393	
360 minute winter	S09	1.009	S10_JUNCTION	9.4	0.810	0.236	0.2167	
360 minute winter	S10_JUNCTION	1.0091	C03	9.5	0.813	0.238	0.2178	
360 minute winter	C03	1.010	C02	9.5	0.825	0.238	0.4213	199.7
15 minute summer	IC02	5.000	TANK 2_IN	5.4	3.557	0.040	0.0015	
2880 minute summer	TANK 2_IN	Flow through Pond	TANK 2_OUT	0.3	0.011	0.000	10.9537	
2880 minute summer	TANK 2_OUT	2.000	S10	0.1	0.076	0.008	0.0264	
2880 minute summer	S10	Head/Flow	S10_JUNCTION	0.1				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S01	10	103.132	0.132	18.8	0.1495	0.0000	OK
15 minute summer	S02	10	102.895	0.145	48.2	0.2567	0.0000	OK
15 minute summer	S03	11	102.155	0.105	53.3	0.1859	0.0000	OK
15 minute summer	S04	10	101.452	0.148	90.7	0.2611	0.0000	OK
15 minute summer	S05	11	100.839	0.202	133.1	0.3567	0.0000	OK
15 minute summer	S06	11	100.323	0.400	177.7	0.7073	0.0000	SURCHARGED
15 minute summer	S07	11	99.414	0.125	174.5	0.2215	0.0000	OK
360 minute winter	TANK 1_IN_S07	280	98.596	0.481	33.9	0.0000	0.0000	OK
15 minute summer	IC01	10	99.344	0.094	54.9	0.0267	0.0000	OK
360 minute winter	TANK 1_IN_IC01	280	98.595	0.480	10.1	0.0000	0.0000	OK
360 minute winter	TANK 1_OUT	288	98.594	0.594	26.7	0.0000	0.0000	SURCHARGED
360 minute winter	S08	288	98.592	0.618	10.4	1.0917	0.0000	SURCHARGED
60 minute winter	S09	102	97.571	0.079	10.4	0.1133	0.0000	OK
720 minute winter	S10_JUNCTION	705	97.461	0.080	10.5	0.0000	0.0000	OK
960 minute summer	C03	765	97.350	0.080	10.5	0.1143	0.0000	OK
960 minute summer	C02	765	97.130	0.078	10.5	0.0000	0.0000	OK
15 minute summer	IC02	10	98.934	0.036	13.0	0.0058	0.0000	OK
10080 minute summer	TANK 2_IN	6180	98.143	0.601	0.4	0.0000	0.0000	OK
10080 minute summer	TANK 2_OUT	6180	98.144	0.644	0.3	0.0000	0.0000	SURCHARGED
10080 minute summer	S10	6180	98.144	0.654	0.1	0.9357	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S01	1.000	S02	18.6	1.200	0.934	0.1234	
15 minute summer	S02	1.001	S03	47.5	1.714	0.427	1.9441	
15 minute summer	S03	1.002	S04	53.2	1.898	0.268	0.6615	
15 minute summer	S04	1.003	S05	90.4	2.191	0.455	0.8886	
15 minute summer	S05	1.004	S06	131.8	2.159	0.663	1.3594	
15 minute summer	S06	1.005	S07	174.5	3.428	0.879	0.9829	
15 minute summer	S07	1.006	TANK 1_IN_S07	174.4	7.054	0.266	0.0899	
360 minute winter	TANK 1_IN_S07	Flow through Pond	TANK 1_OUT	26.7	0.065	0.002	234.2751	
15 minute summer	IC01	4.000	TANK 1_IN_IC01	54.8	3.810	0.285	0.0429	
360 minute winter	TANK 1_IN_IC01	Flow through Pond	TANK 1_OUT	26.7	0.065	0.002	234.2751	
360 minute winter	TANK 1_OUT	1.007	S08	10.3	0.404	0.222	0.1288	
360 minute winter	S08	1.008	S09	10.4	1.093	0.113	0.1489	
60 minute winter	S09	1.009	S10_JUNCTION	10.4	0.830	0.259	0.2321	
720 minute winter	S10_JUNCTION	1.0091	C03	10.5	0.834	0.262	0.2337	
960 minute summer	C03	1.010	C02	10.5	0.847	0.262	0.4517	478.6
15 minute summer	IC02	5.000	TANK 2_IN	13.0	4.455	0.097	0.0029	
10080 minute summer	TANK 2_IN	Flow through Pond	TANK 2_OUT	0.3	0.011	0.000	21.2670	
10080 minute summer	TANK 2_OUT	2.000	S10	0.1	0.076	0.010	0.0264	
10080 minute summer	S10	Head/Flow	S10_JUNCTION	0.1				

Results for 100 year +50% CC Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S01	20	103.478	0.478	34.1	0.5402	0.0000	SURCHARGED
30 minute summer	S02	20	103.218	0.468	87.8	0.8272	0.0000	SURCHARGED
30 minute summer	S03	20	102.903	0.853	96.1	1.5064	0.0000	SURCHARGED
30 minute summer	S04	19	102.748	1.444	141.3	2.5523	0.0000	SURCHARGED
30 minute summer	S05	19	102.367	1.730	200.1	3.0562	0.0000	FLOOD RISK
30 minute summer	S06	19	101.418	1.494	274.2	2.6407	0.0000	FLOOD RISK
30 minute summer	S07	20	99.453	0.164	272.7	0.2899	0.0000	OK
480 minute winter	TANK 1_IN_S07	432	99.370	1.255	50.3	0.0000	0.0000	OK
15 minute summer	IC01	10	99.392	0.142	102.6	0.0403	0.0000	OK
480 minute winter	TANK 1_IN_IC01	432	99.370	1.255	14.6	0.0000	0.0000	OK
480 minute winter	TANK 1_OUT	432	99.363	1.363	36.5	0.0000	0.0000	SURCHARGED
480 minute winter	S08	432	99.363	1.389	10.5	2.4552	0.0000	SURCHARGED
30 minute summer	S09	216	97.571	0.079	10.4	0.1133	0.0000	OK
5760 minute summer	S10_JUNCTION	3900	97.461	0.080	10.6	0.0000	0.0000	OK
5760 minute summer	C03	3900	97.350	0.080	10.6	0.1147	0.0000	OK
5760 minute summer	C02	3900	97.130	0.078	10.6	0.0000	0.0000	OK
10080 minute summer	IC02	6240	99.278	0.380	0.7	0.0604	0.0000	SURCHARGED
10080 minute summer	TANK 2_IN	6240	99.277	1.735	0.7	0.0000	0.0000	OK
10080 minute summer	TANK 2_OUT	6240	99.278	1.778	0.4	0.0000	0.0000	SURCHARGED
10080 minute summer	S10	6240	99.278	1.788	0.3	2.5581	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S01	1.000	S02	34.0	1.931	1.710	0.1408	
30 minute summer	S02	1.001	S03	85.6	1.882	0.770	4.9294	
30 minute summer	S03	1.002	S04	99.5	1.843	0.501	1.6549	
30 minute summer	S04	1.003	S05	140.0	2.104	0.705	1.4788	
30 minute summer	S05	1.004	S06	199.6	2.835	1.005	1.5844	
30 minute summer	S06	1.005	S07	272.7	4.401	1.374	1.0983	
30 minute summer	S07	1.006	TANK 1_IN_S07	272.6	6.814	0.416	0.1850	
480 minute winter	TANK 1_IN_S07	Flow through Pond	TANK 1_OUT	36.5	0.073	0.003	528.1685	
15 minute summer	IC01	4.000	TANK 1_IN_IC01	102.5	4.346	0.532	0.0702	
480 minute winter	TANK 1_IN_IC01	Flow through Pond	TANK 1_OUT	36.5	0.073	0.003	528.1685	
480 minute winter	TANK 1_OUT	1.007	S08	10.3	0.388	0.222	0.1288	
480 minute winter	S08	1.008	S09	10.3	1.091	0.112	0.1483	
30 minute summer	S09	1.009	S10_JUNCTION	10.4	0.830	0.259	0.2322	
5760 minute summer	S10_JUNCTION	1.0091	C03	10.6	0.836	0.264	0.2348	
5760 minute summer	C03	1.010	C02	10.6	0.849	0.264	0.4538	1611.9
10080 minute summer	IC02	5.000	TANK 2_IN	0.7	1.987	0.005	0.0176	
10080 minute summer	TANK 2_IN	Flow through Pond	TANK 2_OUT	0.4	0.006	0.000	41.3116	
10080 minute summer	TANK 2_OUT	2.000	S10	0.3	0.017	0.020	0.0264	
10080 minute summer	S10	Head/Flow	S10_JUNCTION	0.2				