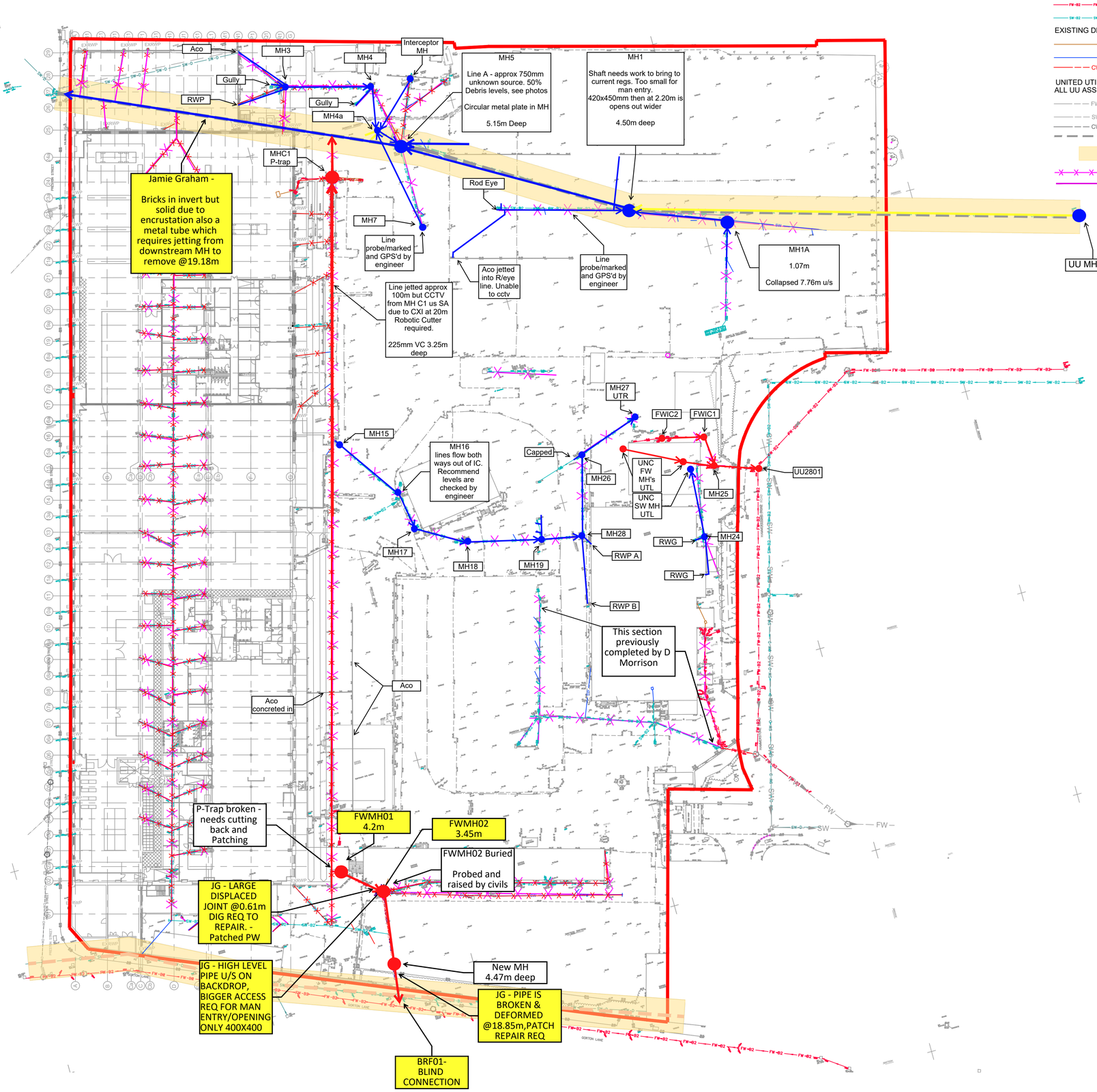
APPENDIX D2 - CCTV SURVEY PLAN



LEGEND

- SITE BOUNDARY BASED ON HRD-FRA-00-XX-DR-A-90-0200

EXISTING SERVICES BASED ON GPR SURVEY S17480-U DEC 2018

- BT-B2 — BT
- EL-B2 — ELECTRICITY CABLE
- TC-B2 — TELECOM CABLE
- GPR — UNKNOWN SERVICE
- FW-B2 — FOUL WATER PIPE
- SW-B2 — SURFACE WATER PIPE

EXISTING DRAINAGE BASED ON CCTV SURVEY DEC 2018

- FOUL WATER PIPE
- SURFACE WATER PIPE
- CW — COMBINED WATER PIPE

UNITED UTILITIES RECORDS UUPS-ORD-76950
ALL UU ASSETS ARE SHOWN INDICATIVELY

- FW — UU FOUL WATER SEWER
- SW — UU SURFACE WATER SEWER
- CW — UU COMBINED WATER SEWER
- WATERCOURSE
- 8M EASEMENT BASED ON SEWER FOR ADOPTION 6TH EDITION
- ABANDONED
- EXISTING DRAINAGE UNSURVEYED, ROUTE ASSUMED

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.

DRAWING BASED ON:
TOPOGRAPHICAL SURVEY BY SEP S15724-T
GPR SURVEY BY SEP S17480-U DEC 2018 JUNE 2018
CCTV SURVEY BY SEP DRAINAGE SURVEYS LTD DEC 2018
ADDITIONAL CCTV SURVEY AUG 2020
ADDITIONAL CCTV SURVEY DECEMBER 2021
EXISTING BUILDING SURVEY BY SEP S15724-GA JUNE 2018
UU RECORDS UUPS-ORD-76950
ARCHITECT RWP SKETCH PROVIDED 13.01.22

Rev:	Description:	Date:	By:	Chkd:
C01	CONSTRUCTION ISSUE	26.09.22	MW	MW
P02	UPDATED FOLLOWING CCTV SURVEY& RWPS POSITION PROVIDED ON ARCHITECT SKETCH	21.01.22	MW	MW
P01	STAGE 4 ISSUE	05.08.21	TH	MW

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status: STAGE 5

Project: HAMMERSTONE ROAD

Drg Title: ASSUMED EXISTING DRAINAGE AND ADDITIONAL SURVEY

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	05.08.21	TH	MW	MW
	Scale: 1:500				

Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
HRD	- CUR	- XX	- 00	- DR	- C	- 92-514	-C01

\\mafs02\Projects\068001 - 069000\068065 - Hammerstone Road Depot\CAD\5. 4 Production\4B Models & Drawings_Civil (C/CAD)

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

WEB PROJECT
CLICK TO OPEN THIS PROJECT

Project

Project Name:	DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24
Project Date:	25/01/2024
Inspection Standard:	MSCC5 Sewers & Drainage GB (SRM5 Scoring)

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Table of Contents

Project Name	Project Number	Project Date
DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24		25/01/2024

Project Information P-1

Section Item 1: MH5 > OFFSITE (MH5X) 1

Section Item 2: MH1 > MH5 (MH1X) 3

Section Item 3: MH1A > MH1 (MH1AX) 5

Section Item 4: UU MH3803 > MH1A (UU MH3803X) 6

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Project Information

Project Name	Project Number	Project Date
DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24		25/01/2024

Client

Company: ADANA CONSTRUCTION
Description: ADANA HOUSE
Contact: 140 HIGHER HILLGATE
Department: STOCKPORT
Street: SK1 3QT

Site

Company: ADANA CONSTRUCTION
Contact: DK0758 Adana Hammerstone rd Goreton Manchester 25-

Contractor

Company: NRCWWS
Contact: Derek Kearns
Department: Director
Street: unit D. Russell Road
Town or City: Rock Ferry
County: Wirral
Post Code: CH42 1LU
Phone: 0151 643 0800
Email: [redacted]

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Section Inspection - 01/02/2024 - MH5X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	3	01/02/24	16:38	NRC WWS LTD	No Rain Or Snow	Yes	MH5X

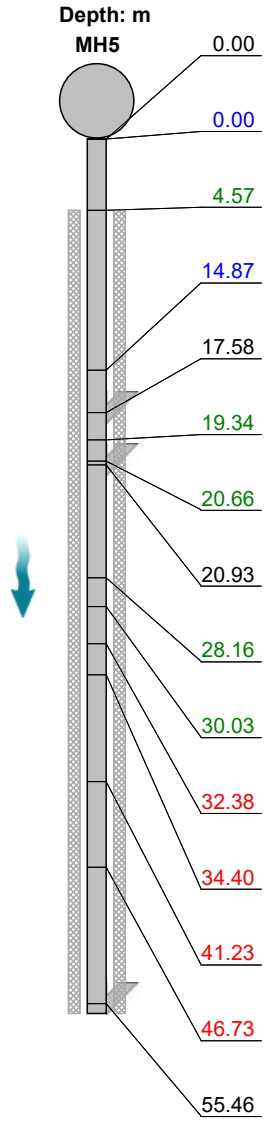
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
K.Graham	PK68 XZZ	Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH5
Road:	Hammerstone Rd	**Inspected Length:**	81.84 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	81.84 m	**Downstream Node:**	OFFSITE
Surface Type:	Asphalt Highway	**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	600 mm
Flow Control:	No flow control	**Pipe Material:**	Brick
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:486



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MH5	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:05		
4.57	S01	DEE	Attached deposits, encrustation from 01 o'clock to 11 o'clock, 5% cross-sectional area loss, start	00:01:30		
14.87		WL	Water level, 10% of the vertical dimension	00:03:01		
17.58		JX	Junction, defective at 09 o'clock, 450mm dia: lose bricks in jnction	00:04:39		
19.34		DEZ	Attached deposits, other from 05 o'clock to 07 o'clock, 15% cross-sectional area loss: bricks and poss concrete in invert	00:05:39		3
20.66		DEZ	Attached deposits, other from 05 o'clock to 07 o'clock, 15% cross-sectional area loss: concrete in invert	00:06:41		3
20.93		CN	Connection other than junction at 09 o'clock, 225mm dia	00:06:59		
28.16		IG	Infiltration, gushing at 09 o'clock: from joint on brick work	00:09:05		
30.03		IG	Infiltration, gushing at 08 o'clock: from joint on brick work	00:09:42		
32.38		FL	Fracture, longitudinal at 12 o'clock	00:10:11		4 / 2
34.40		FL	Fracture, longitudinal at 12 o'clock	00:10:37		4 / 2
41.23		D	Deformed sewer or drain, 10%	00:11:49		
46.73		MB	Missing bricks at 11 o'clock	00:12:54		4
55.46		CN	Connection other than junction at 09 o'clock, 300mm dia	00:14:36		

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

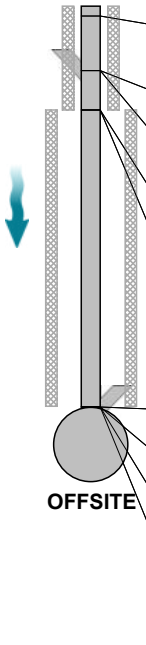
Section Inspection - 01/02/2024 - MH5X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	3	01/02/24	16:38	NRC WWS LTD	No Rain Or Snow	Yes	MH5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
K.Graham	PK68 XZZ	Crawler	Not Specified	Not Specified	Not Specified

Scale: 1:486



Position [m]		Code	Observation	MPEG	Photo	Grade
56.76		ID	Infiltration, dripping at 12 o'clock: from encrustation	00:15:02		
60.28		JX	Junction, defective at 03 o'clock, 600mm dia: loose bricks	00:16:20		
60.28		ID	Infiltration, dripping at 12 o'clock	00:16:28		
62.80	F01	DEE	Attached deposits, encrustation from 1 o'clock to 11 o'clock, 5% cross-sectional area loss, finish	00:17:00		3
62.80	S02	DEE	Attached deposits, encrustation from 12 o'clock to 05 o'clock, 5% cross-sectional area loss, start	00:17:18		
81.84		LD	Line deviates down: sharp	00:20:16		
81.84		CN	Connection other than junction at 09 o'clock, 225mm dia: in poss old chamber	00:20:41		
81.84	F02	DEE	Attached deposits, encrustation from 12 o'clock to 5 o'clock, 5% cross-sectional area loss, finish	00:20:56		3
81.84		MHF	Finish node, manhole, reference: OFFSITE: MH in view	00:21:16		

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
3	120.0	3.9	320.0	4.0	6	4.0	2.0	164.0	3.0

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Section Inspection - 25/01/2024 - MH1X

WEB PROJECT CLICK TO OPEN THIS SECTION

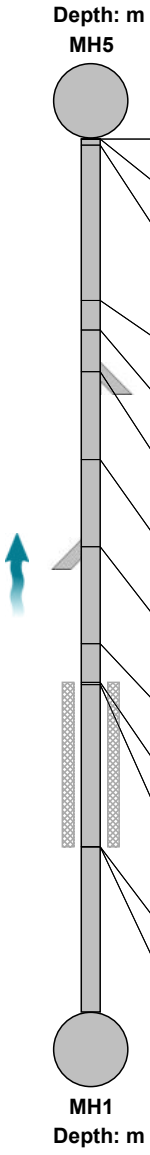
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	25/01/24	9:17	NRC WWS LTD	No Rain Or Snow	Yes	MH1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
K.Graham	PK68 XZZ	Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	MH1
Road:	Hammerstone Rd	**Inspected Length:**	51.87 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	63.99 m	**Downstream Node:**	MH5
Surface Type:	Asphalt Highway	**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	750 mm
Flow Control:	No flow control	**Pipe Material:**	Brick
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:555 Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MH5	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:07		
0.47		MCCO	Pipe material changes to concrete at this point	00:00:28		
11.86		LL	Line deviates left	00:01:23		
14.00		FLJ	Fracture, longitudinal at joint at 9 o'clock	00:04:10	MH1X_51f353b9-360a-4272-9e	
17.07		CN	Connection other than junction at 10 o'clock, 300mm dia	00:02:22		
23.52		DEG	Attached deposits, grease at 08 o'clock, 5% cross-sectional area loss: grease	00:03:13	MH1X_012cdac9-bc28-4f1c-bf	3
29.88		CN	Connection other than junction at 01 o'clock, 225mm dia	00:03:52		
37.00		FLJ	Fracture, longitudinal at joint at 8 o'clock	00:04:23	MH1X_d86746ce-af0b-49ac-bf	
39.80	S02	FL	Fracture, longitudinal at 12 o'clock, start	00:02:42		
40.00		FLJ	Fracture, longitudinal at joint at 9 o'clock	00:04:38	MH1X_cd383f44-f452-42c0-b12	
51.86	F02	FL	Fracture, longitudinal at 12 o'clock, finish	00:02:42		4 / 2
51.87		MHF	Finish node, manhole, reference: MH1	00:06:21		

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**
1	120.0	24.4	1560.0	4.0	2	4.0	0.3	17.0	3.0

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Section Pictures - 25/01/2024 - MH1X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Upstream	MH1X	NRC WWS LTD	



MH1X_51f353b9-360a-4272-9ee9-2f0bf5299c1e_20240201_102217_287.jpg, 00:04:10, 14.00 m
Fracture, longitudinal at joint at 9 o'clock



MH1X_012cdac9-bc28-4f1c-bf1c-46af3d245a1e_20240201_101857_282.jpg, 00:03:13, 23.52 m
Attached deposits, grease at 08 o'clock, 5% cross-sectional area loss, grease



MH1X_d86746ce-af0b-49ac-bf60-ade12876c7f0_20240201_102241_993.jpg, 00:04:23, 37.00 m
Fracture, longitudinal at joint at 8 o'clock



MH1X_cd383f44-f452-42c0-b12e-c7d4cdfae8e6_20240201_102311_947.jpg, 00:04:38, 40.00 m
Fracture, longitudinal at joint at 9 o'clock

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Section Inspection - 25/01/2024 - MH1AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	25/01/24	9:25	NRC WWS LTD	No Rain Or Snow	Yes	MH1AX

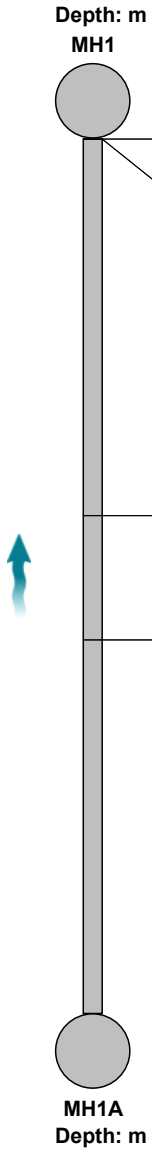
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
K.Graham	PK68 XZZ	Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	MH1A
Road:	Hammerstone Rd	**Inspected Length:**	38.00 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	46.53 m	**Downstream Node:**	MH1
Surface Type:	Asphalt Highway	**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	750 mm
Flow Control:	No flow control	**Pipe Material:**	Brick
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:403



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH1	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:06		
20.03	REM	General remark: rope running through invert	00:01:50		
26.67	MHF	Finish node, manhole, reference: MH1A	00:02:34		

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	0.0	2.6	120.0	4.0	1	0.0	0.0	1.0	1.0

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

Section Inspection - 25/01/2024 - UU MH3803X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	2	25/01/24	13:24	NRC WWS LTD	No Rain Or Snow	Yes	UU MH3803X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
K.Graham	PK68 XZZ	Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	UU MH3803
Road:	Hammerstone Rd	**Inspected Length:**	10.68 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	10.68 m	**Downstream Node:**	MH1A
Surface Type:	Asphalt Highway	**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	750 mm
Flow Control:	No flow control	**Pipe Material:**	Brick
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Sample condition survey	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:93



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH1A	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:05		
6.73	H	Hole in drain or sewer at 12 o'clock: MISSING BRICK	00:01:37	UU MH3803X _7de389c	
10.68	MHF	Finish node, manhole, reference: UU MH3803	00:03:11		

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

NRCWWS
unit D. Russell Road, Rock Ferry
Tel. 0151 643 0800
derek.kearns@nrcwws.co.uk

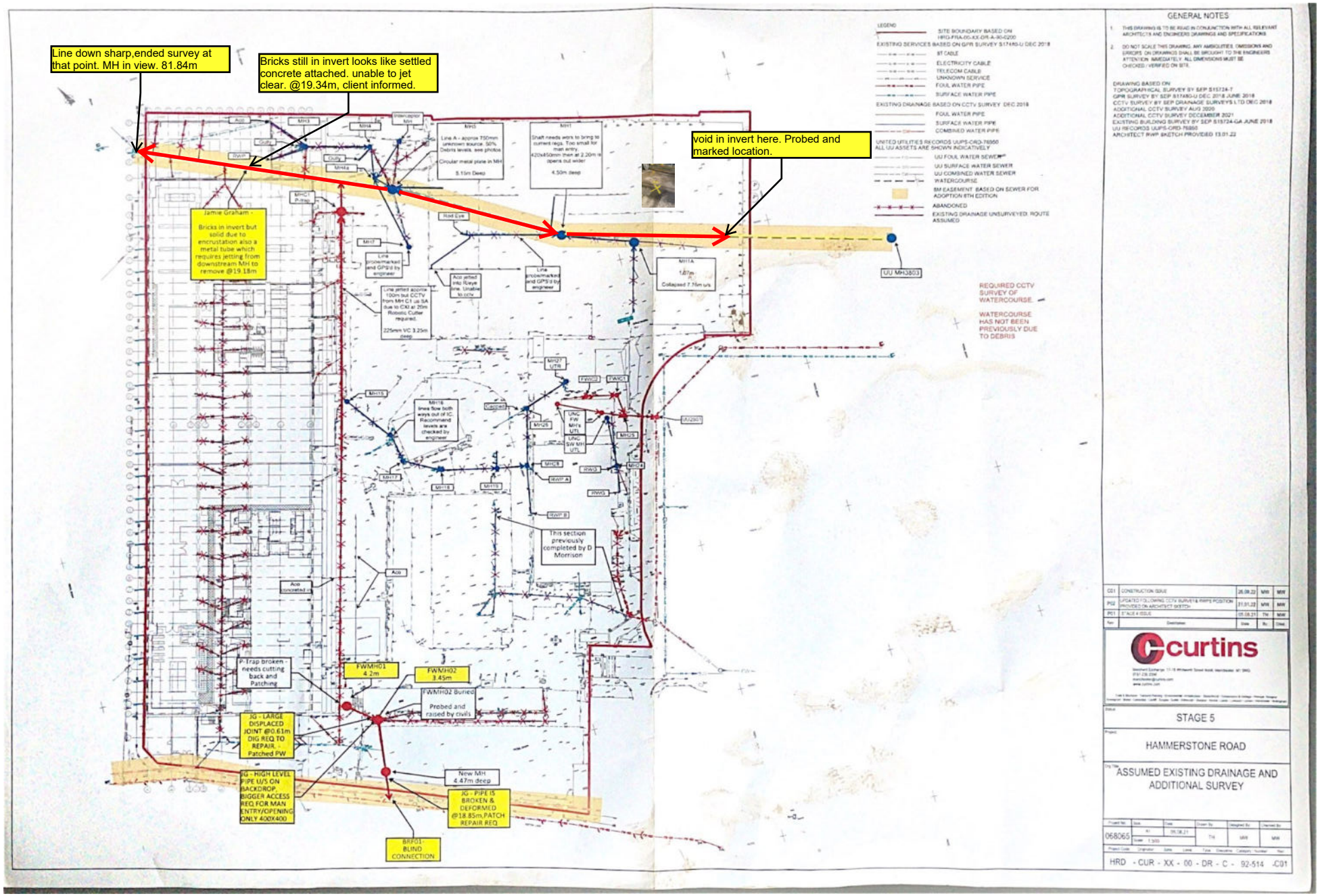
Section Pictures - 25/01/2024 - UU MH3803X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Upstream	UU MH3803X	NRC WWS LTD	



UU
MH3803X_7de389c4-e6ec-4690-9aac-c2fc7a252f20_20240201_170816_726.jpg, 00:01:37, 6.73 m
Hole in drain or sewer at 12 o'clock, MISSING BRICK

APPENDIX D4 - CULVERT SURVEY PLAN



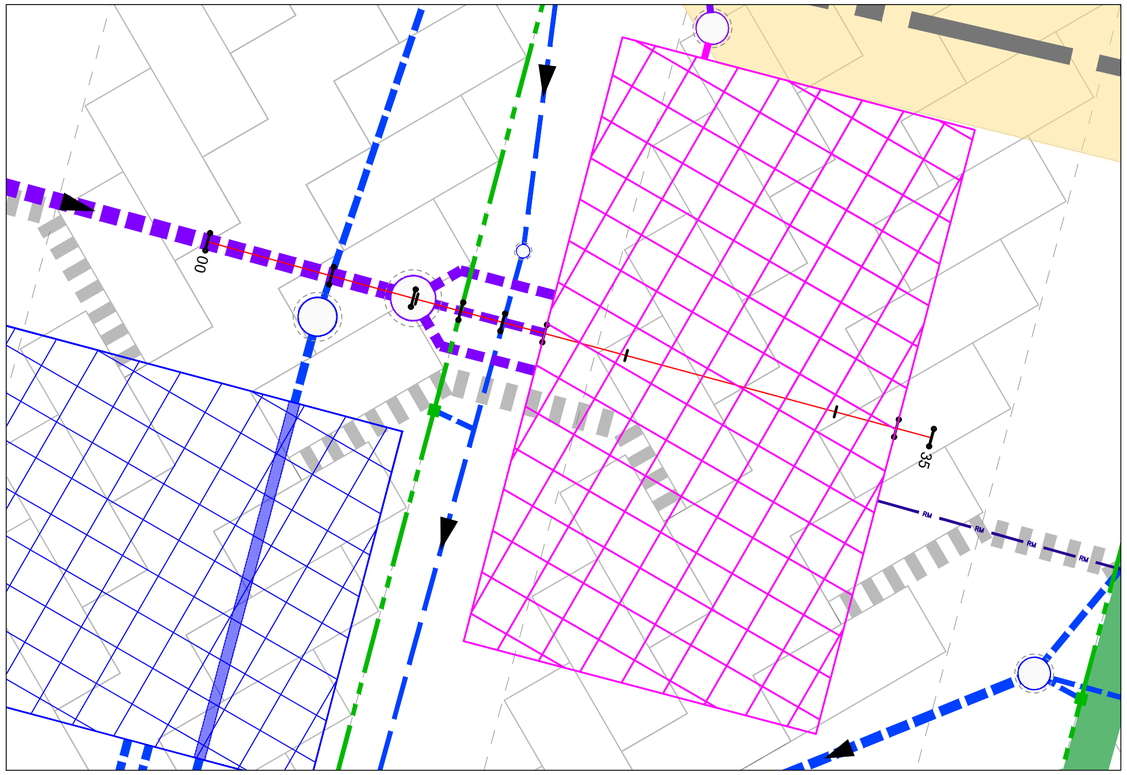
Appendix E

Section Through Tank Connections

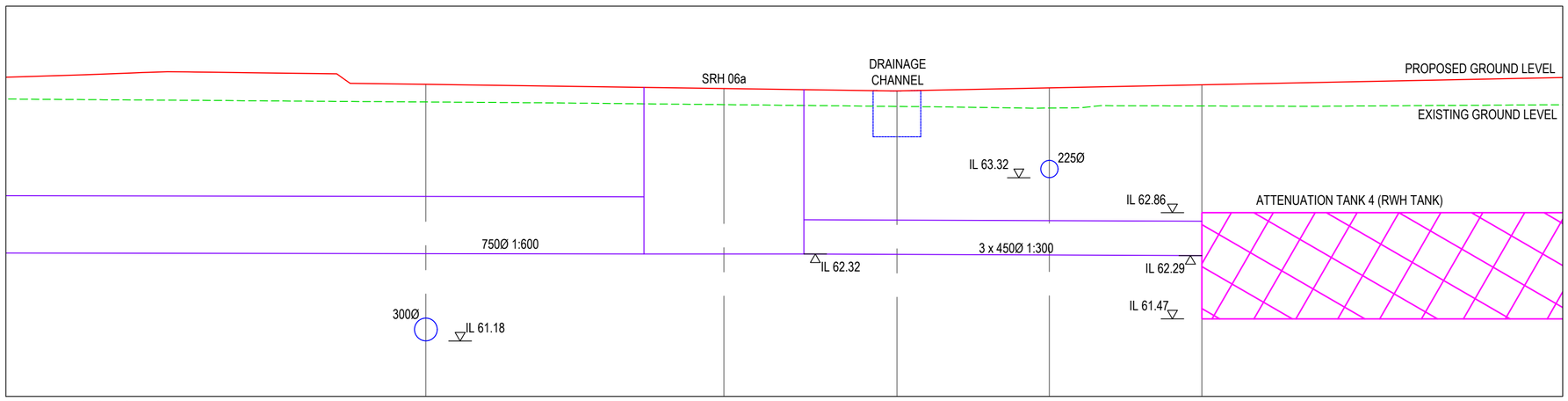
Attenuation Tank Details

Rainwater Harvesting Tank Information

Rev P02 | Copyright © 2025 Curtins Consulting Ltd



SECTION LOCATION
SCALE 1:200



SECTION THROUGH CONNECTION
SCALE 1:50

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

Rev:	Description:	Date:	By:	Chkd:
P01	ISSUED FOR PLANNING CONDITION DISCHARGE	31.01.24	ATL	ATL

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status: INFORMATION

Project: HAMMERSTONE ROAD

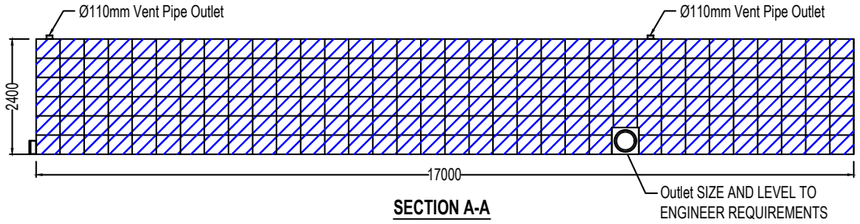
Drg Title: ATTENUATION TANK SECTION THROUGH CONNECTION

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A2	31/01/25	ATL	ATL	ATL
	Scale: AS SHOWN				

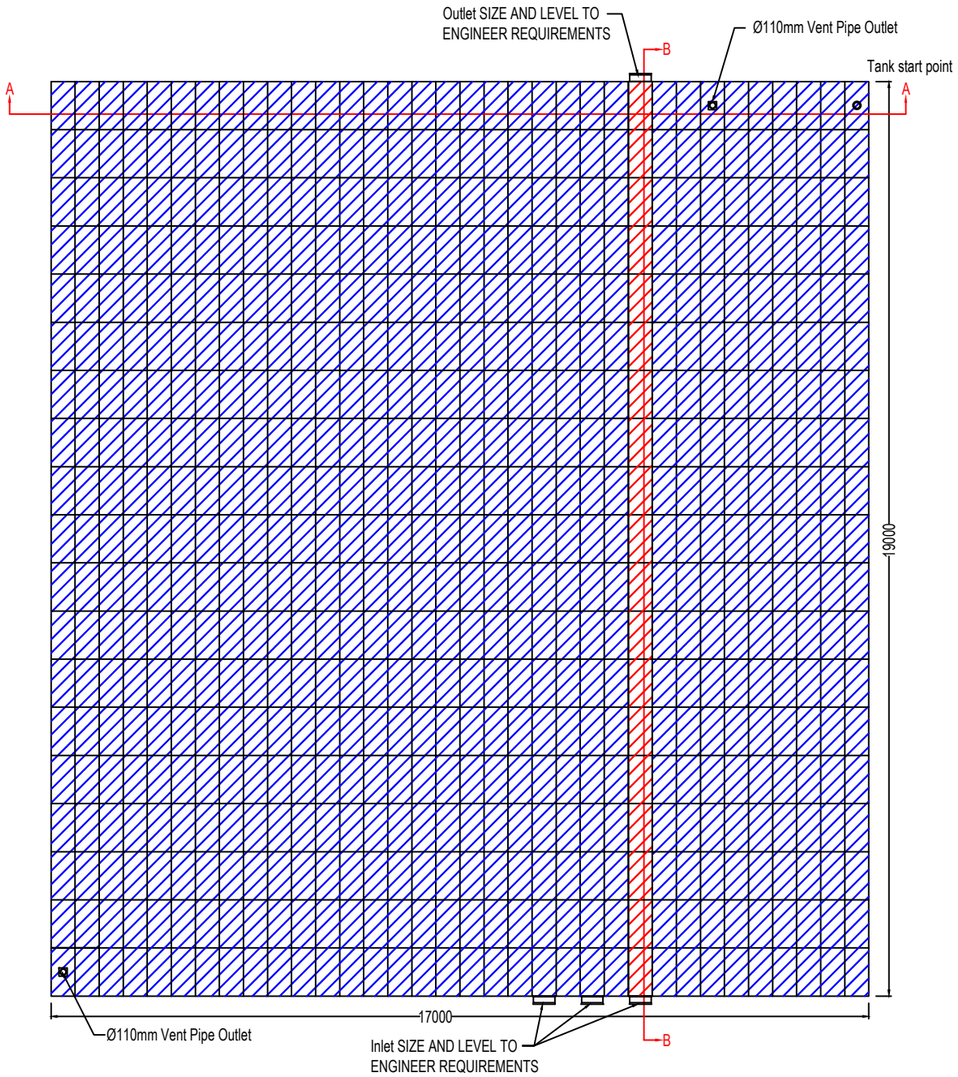
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
HRD	CUR	XX	00	DR	C	92540	P01

\\ma-fs-1\Projects\068001 - 069000\068065 - Hammerstone Road Depot\0MS 4 Production\4B Models & Drawings_Civil-C\CAD\92\

APPENDIX E2 - ATTENUATION TANK 1 DETAILS



SECTION A-A

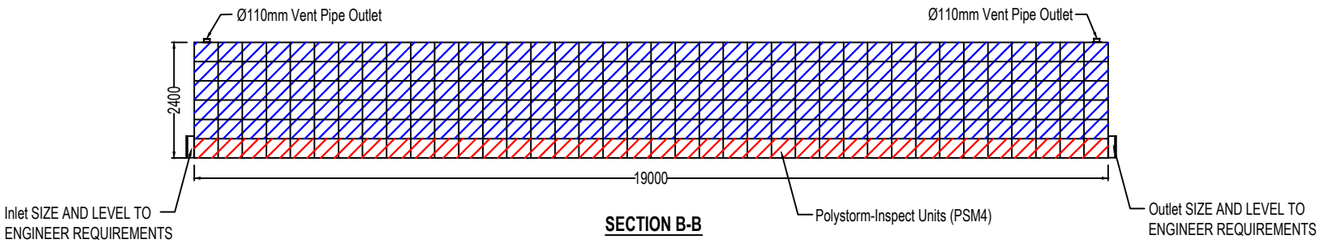


PROPOSED POLYSTORM STRUCTURE	
Plan Area	323m²
Tank Volume	775.2m³
Storage	736.44m³
Polystorm-R Units	3857 (PSM1A)
Polystorm-Inspect Units	19 (PSM4)

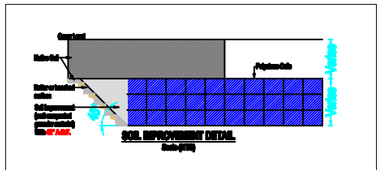
LEGEND:

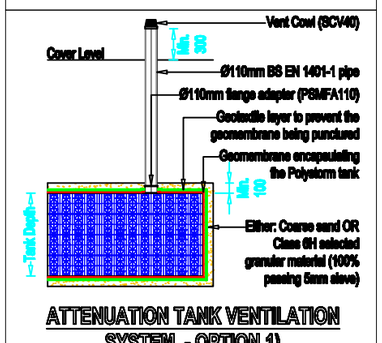
Polystorm-R Units (PSM1A)

Polystorm-Inspect Units (PSM4)

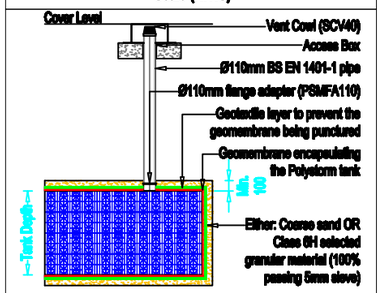


SECTION B-B

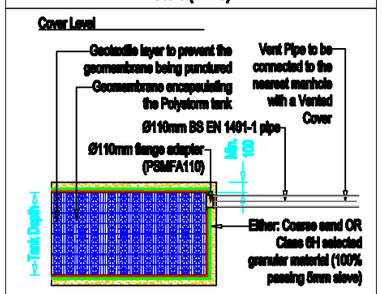




ATTENUATION TANK VENTILATION SYSTEM - OPTION 1)
Scale (N.T.S)



ATTENUATION TANK VENTILATION SYSTEM - OPTION 2)
Scale (N.T.S)



ATTENUATION TANK VENTILATION SYSTEM
Scale (N.T.S)

NOTES:-

1. THIS DRAWING DETAILS A PROPOSED POLYPIPE CIVILS & GREEN URBANISATION PRODUCT GENERAL ARRANGEMENT, REFLECTING OUR INTERPRETATION OF THE INFORMATION PROVIDED.
2. POLYPIPE CIVILS & GREEN URBANISATION (PCGU) PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH PCGU RECOMMENDATIONS (REFER TO PCGU TECHNICAL GUIDANCE FOR FURTHER INFORMATION); GIVING DUE CONSIDERATION TO THE SITE SPECIFIC CONDITIONS AND REQUIREMENTS, IN ADDITION TO ANY REQUIREMENTS MANDATED BY THE RELEVANT APPROVING AND ULTIMATE OWNER ORGANISATIONS).
3. DO NOT SCALE, REFER TO FIGURED DIMENSIONS ONLY.
4. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED.
5. ALL DIMENSIONS ARE NOMINAL AND MAY VARY WITHIN MANUFACTURING OR CONSTRUCTION TOLERANCES.
6. ALL SITE TEMPORARY AND ENABLING WORKS BY OTHERS.
7. THIS DRAWING IS INTENDED FOR GUIDANCE ONLY. CONFIRMATION OF THE INFORMATION CONTAINED WITHIN THIS DOCUMENT SHOULD BE SOUGHT FROM THE OVERSEEING ENGINEER(S) PRIOR TO THE COMMENCEMENT OF FINAL DESIGN OR CONSTRUCTION ACTIVITIES.
8. PLEASE REFER TO POLYSTORM & POLYSTORM LITE TECHNICAL GUIDE.
9. THE PROPOSED POLYSTORM STRUCTURE GENERAL ARRANGEMENT HAS BEEN BASED ON PROVIDING THE MINIMUM STRUCTURE VOLUME STATED ONLY. NO STRUCTURAL OR HYDRAULIC ASSESSMENT HAS BEEN MADE OF THE SUITABILITY OF THE PROPOSED POLYSTORM STRUCTURE FOR THE PROPOSED APPLICATION, NOR HOW IT WILL INTEGRATES INTO THE PROPOSED DRAINAGE SYSTEM.
10. ALL MEMBRANE JOINTS TO BE WELDED RATHER THAN GLUED.

R1	06/09/24	INLET PIPE CONNECTION LOCATION HAS CHANGED TO SUIT.

Notes :- All the Dimensions by Millimeters

KEYTEC INSTALLATION SERVICES

KEYTEC INSTALLATION SERVICES
ROYLE HOUSE
COWM TOP BUSINESS PARK
COWM TOP LANE
OL11 2PU
TEL: 01706 374416
EMAIL: TECHNICAL@KEYTEC.CO.UK

PROJECT
HAMMERSTONE ROAD DEPOT
ATTENUATION TANK

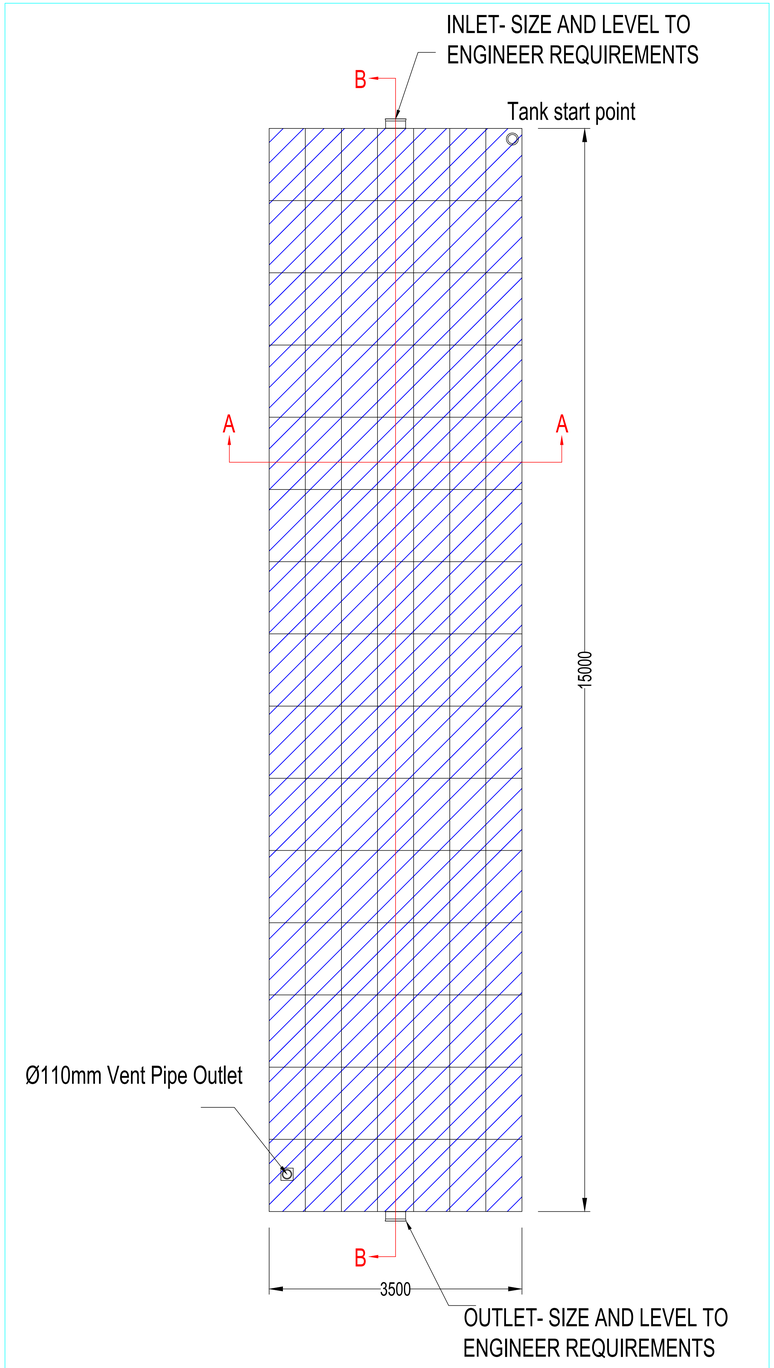
TITLE
DETAILS OF ATTENUATION/STORAGE TANK DETAILS USING POLYSTORM PSM1A UNITS.

Scale	Drawn	Checked
N.T.S.	AY	KD

Date	Drawing No.	Revision
14/06/2024	PSM - 6.0	R1

© Copyright

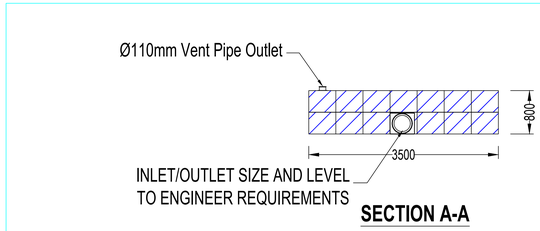
SCALE: 1:30



PLAN

APPENDIX E3 - ATTENUATION TANK 2 DETAILS

SCALE: 1:40



SECTION A-A

PROPOSED POLYSTORM STRUCTURE	
Plan Area	52.50m²
Tank Volume	42m³
Storage	39.90m³
Polystorm-R Units	210 (PSM1A)

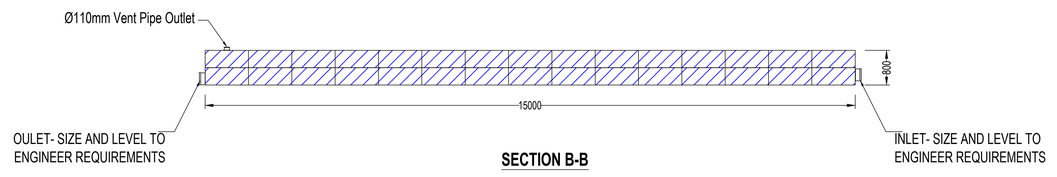
LEGEND:

Polystorm-R Units (PSM1A)

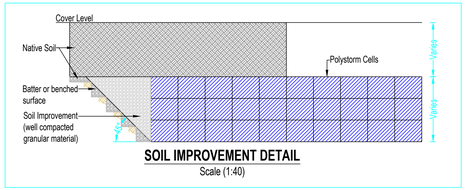
NOTE:

- Fall Arrest Grill to be provided by the developer / contractor (please refer to Consultant's drawings.
- The final position of the access cover should be confirmed by the Consultant and detailed on their drawing.
-Lifting Eyes are to be pointed type - to be provided by the Developer / Contractor (please refer to Consultant's drawings).
- All Polystorm tanks to be installed with a 1:500 fall, please note tank would still drain even if left flat due to our cells 3D flow.

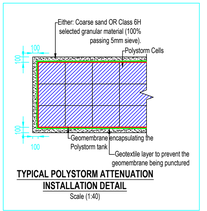
SCALE 1:50



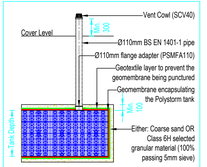
SECTION B-B



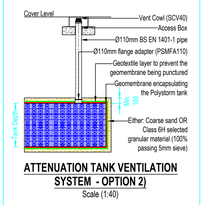
SOIL IMPROVEMENT DETAIL
Scale (1:40)



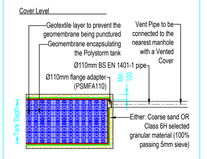
TYPICAL POLYSTORM ATTENUATION INSTALLATION DETAIL
Scale (1:40)



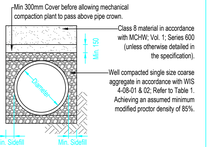
ATTENUATION TANK VENTILATION SYSTEM - OPTION 1)
Scale (1:40)



ATTENUATION TANK VENTILATION SYSTEM - OPTION 2)
Scale (1:40)



ATTENUATION TANK VENTILATION SYSTEM - OPTION 3)
Scale (N.T.S)



TYPICAL SINGLE PIPE INSTALLATION
Scale (1:40)

Table 1 -Pipe Bed & Surround Coarse Aggregate Material Grading

Product	Pipe Size (mm)	Minimum Sidefill (mm)	Material Grading (BS EN 13242, Clause 4.3.2)
Ridgistorm-XL	Ø750 - Ø900	150	4/10, 6/14, 10/20 or 20/40
	Ø1050 - Ø1200	425	
	Ø1500 - Ø3000	500	

NOTES
1. Coarse aggregate materials shall be in accordance with the relevent provisions of BS EN 13242; as detailed within WIS 4-08-02 amendment (Nov 2008). Tables A4 & 5.
2. Alternative pipe bed & surround material specifications shall not be used without prior written approval from the overseeing engineer.
3. For loading specific installation details, where concrete protection may be required, please request RST_SD_001 & 002.

NOTES - PE STUB PIPE ADAPTERS

	PIPE ADAPTOR
Ø160mm SDR26 PE - Ø150mm Polysewer	PS689
Ø250mm SDR26 PE - Ø225mm Polysewer	PS1089
Ø315mm SDR41 PE - Ø300mm Polysewer	PS1289
Ø450mm SDR17 PE - Ø400mm Ridgisewer	see note below*
Ø500mm SDR17 PE - Ø450mm Ridgisewer	see note below*
Ø560mm SDR17 PE - Ø500mm Ridgisewer	see note below*
Ø630mm SDR33 PE - Ø600mm Ridgisewer	see note below*

* - For this transition, Flexseals are required, please refer to their website.

LIFTING POINTS - UNSUITABLE FOR LIFT

1. Fabricated chamber supplied to site without direct means of lifting incorporated. The lift supervisor must assess and plan the lift, in the circumstances of the lift, and provide slings and / or other controls as deemed necessary to ensure a safe lift.

POLYSTORM NOTES

1. This drawing needs to be read in conjunction with all relevant Architects, Engineers and specialist drawings.
2. Stormwater Attenuation / Infiltration system shall be Polypipe Civil's Polystorm pre-formed geocellular system, with minimum 94% volumetric void. Units shall be installed using recommended jointing clips to maintain rigidity and minimise deflection.
3. Multi-layered Polystorm tank configurations shall be fixed with proprietary shear connectors between each vertical layer to maintain rigidity and minimise lateral displacement.
4. Drawings should be read in conjunction with the supportings structural calculations, which are illustrative and should be validated by a suitably qualified Engineer, or similar
5. For Field conditions, backfill should be placed and compacted in layers no greater than 300mm and for trafficked areas, backfill should be placed and compacted in layers no greater than 150mm.
6. The installer shall ensure that all expected temporary construction transient loads have been considered as part of the structural design and a minimum of 300mm backfill should be placed prior to initial compaction.
7. Polystorm Tanks should be installed in accordance with Polypipe Civils recommendations (refer to technical guidance for further information).

COVER SLAB THICKNESS

1. Where cover slabs are applicable, the slab thickness (shown in red) has been assumed and therefore needs to be confirmed by others.

STANDARD TOLERANCES

ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED.

Benching Slope	1:10 to 1:30 (1.9° - 5.7°)
Angles	+/- 1.5°
All Dimensions	+50mm / -30mm

STANDARD SPIGOTS IN ACCORDANCE WITH SPEC. ES23.

Team Leader inspection points identified by: (1) (2) (3)

JOINTING KEY

Socket — RS Ring seal joint; IEW Internal extrusion welding joint
Spigot — EF Electro-fusion joint

GENERAL NOTES

1. This drawing details Polypipe Civils proposed offering, reflecting our interpretation of the information provided.
2. Polypipe bespoke Ridgistorm-XL chambers are complete pre-formed units.
3. Polypipe products to be installed in accordance with Polypipe Civils recommendations (refer to Polypipe technical guidance for further information), giving due consideration to the requirements of the organisation who will take ultimate ownership of the installation.
4. Site conditions may require specific installation requirements. The installer should verify that the proposed installation method is acceptable, giving due consideration to the requirements of the relevant approving and adopting authorities, before construction activities commence.
5. Advice on any system requirements specific to the proposed Ridgistorm XL system should be sought from Polypipe Civils.
6. All PE stub connections will require adaptors (to be supplied by Contractor / Developer).

DRAWING NOTES

1. Drawings should not be scaled, refer to figured dimensions only.
2. All dimensions in millimetres, unless otherwise stated.
3. All dimensions are nominal and may vary within manufacturing or construction tolerances.
4. All site temporary and enabling works by others.
5. This drawing is intended for guidance only. Confirmation of the information contained within this document should be sought from the consulting engineers before final design or construction activities commence.

R1 14/01/2025 TANK SHAPE/SIZE REVISED BY CUSTOMER

KEYTEC INSTALLATION SERVICES

KEYTEC INSTALLATION SERVICES
BOYLE HOUSE
COWM TOP BUSINESS PARK
COWM TOP LANE
OL11 2PU
TEL: 01706 374416
EMAIL: TECHNICAL@KEYTEC.CO.UK

PROJECT

HAMMERSTONE ROAD

ATTENUATION TANK

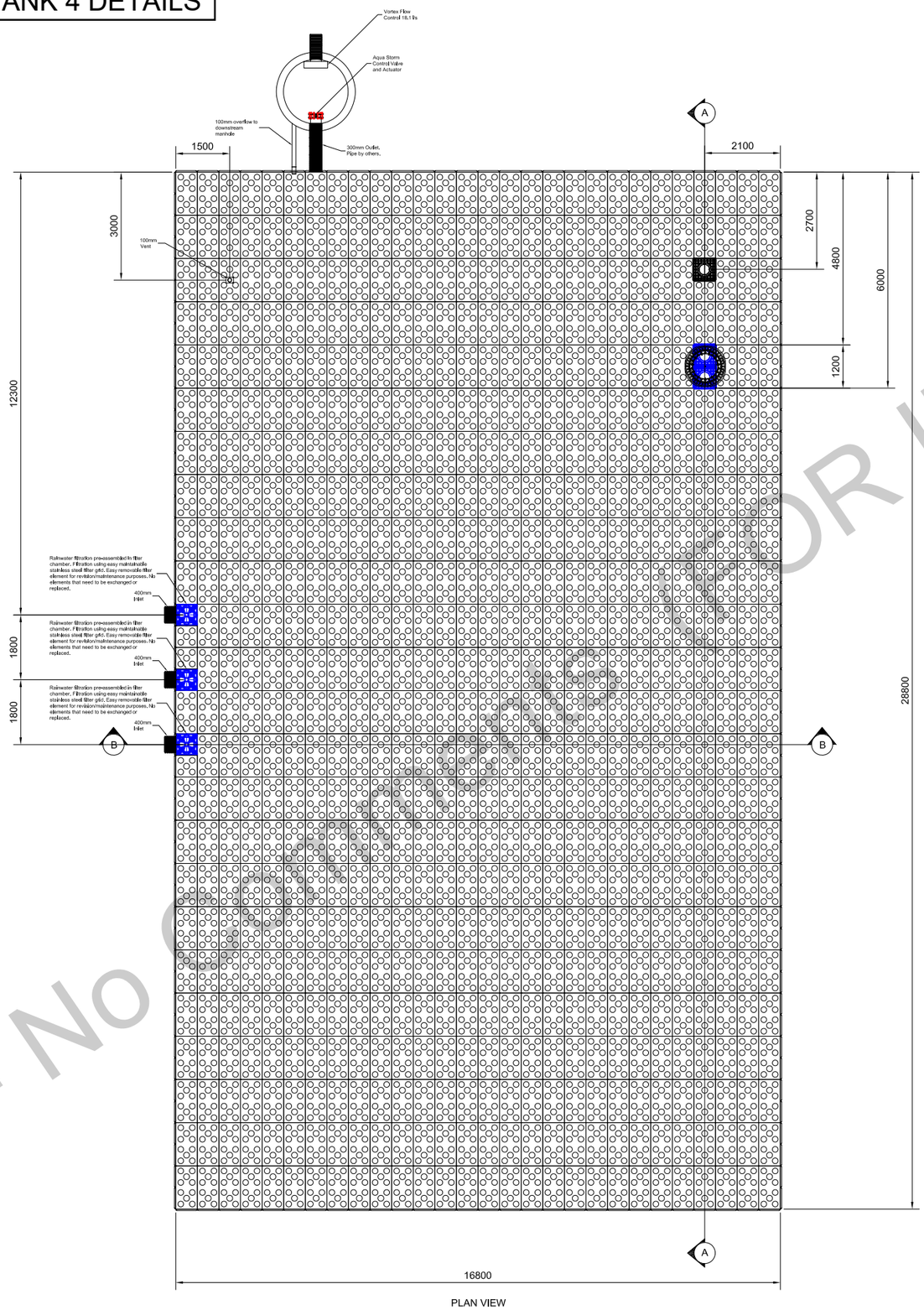
TITLE

DETAILS OF ATTENUATION/STORAGE TANK DETAILS USING POLYSTORM PAM1A UNITS

Scale	Drawn	Checked
AS SHOWN	FA	KD

Date	Drawing No.	Revision
16/01/2025	PSM - 2.0	R0

APPENDIX E4 - ATTENUATION TANK 4 DETAILS



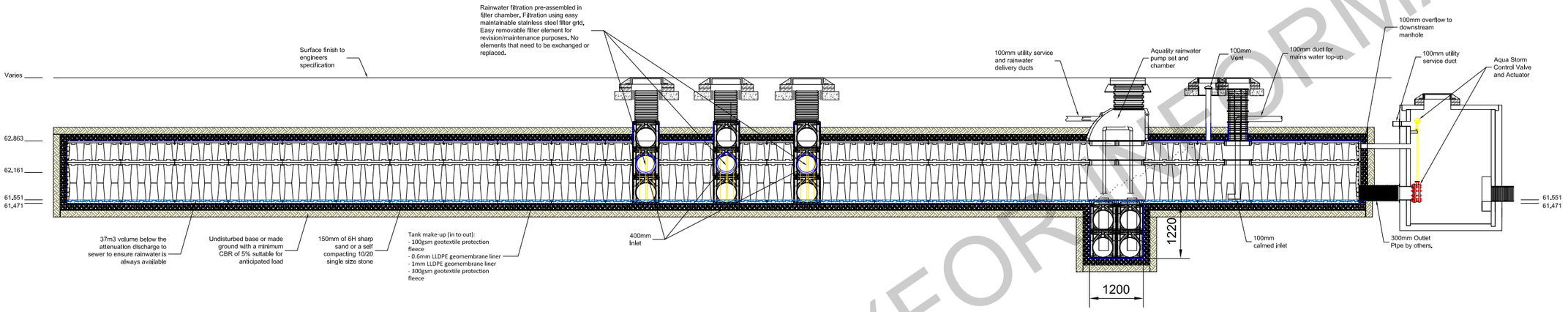
Project: Manchester - Hammerstone Road	
Title: Plantroom Layout Tank Layout	
System: **Geocellular Tank made from Aquality Storage Block SD** 28.8m x 16.8m x 1.392m	
Project-No: HRD-ABE-ZZ-ZZ-DR-M-5031	
Project state: S2	Date: 23/11/2023
Scale: NTS @A3	Revision: P03
Drawn by: AR	Checked by: CF

Aquality Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aqua-lity.co.uk
Tel.: +44 (0)20 8991 3725

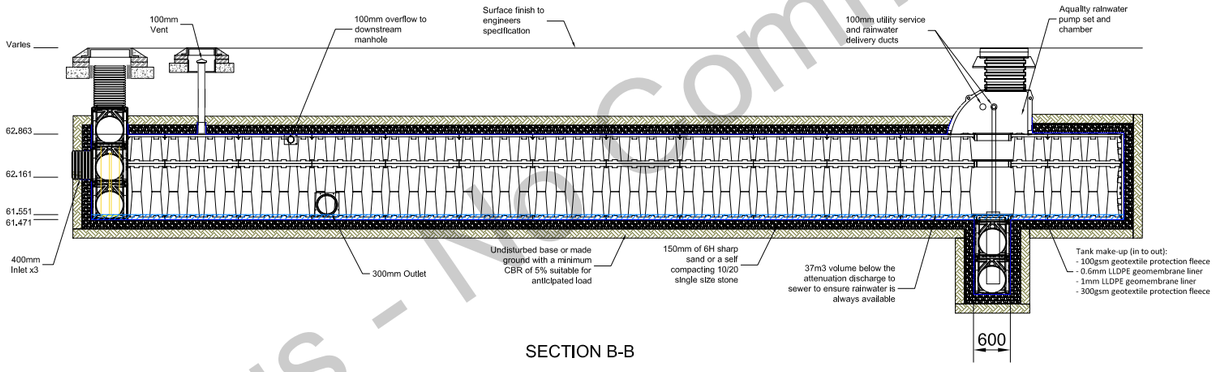
A Status - No Comments (FOR INFORMATION)

THIS DRAWING IS THE PROPERTY OF AQUALITY TRADING & CONSULTING LTD AND IS NOT TO BE COPIED IN PART OR WHOLE OR SHARED WITH THIRD PARTIES WITHOUT OUR WRITTEN PERMISSION.

APPENDIX E5 - ATTENUATION TANK 4 DETAILS



SECTION A-A



SECTION B-B

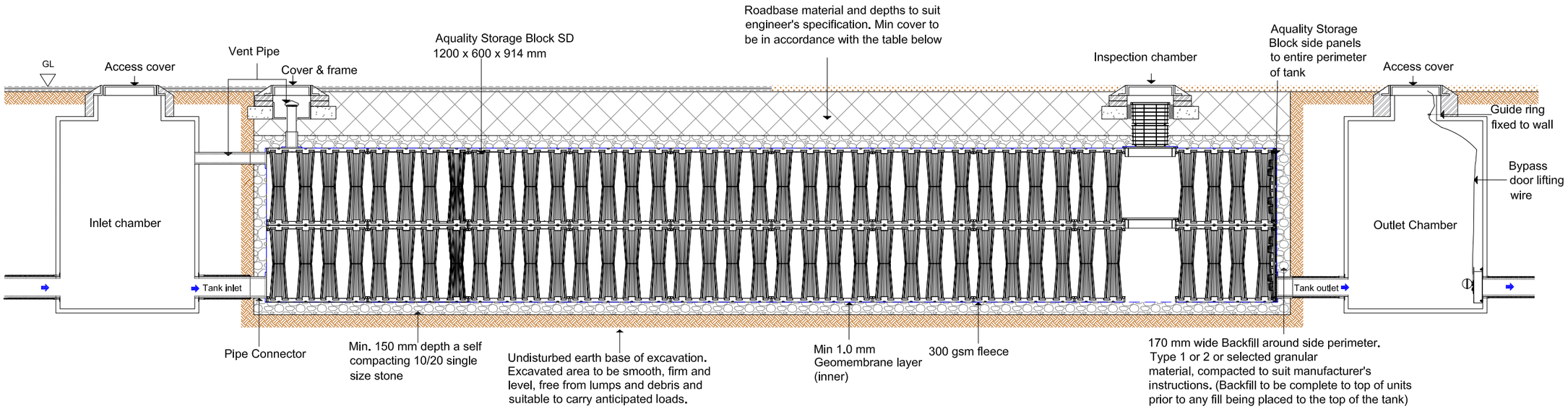
Project: Manchester - Hammerstone Road	
Title: Tank Layout	
System: **Geocellular Tank made from Aquality Storage Block SD** 28.8m x 16.8m x 1.392m	
Project-No: HRD-ABE-ZZ-ZZ-DR-M-5032	
Project state: S2	Date: 23/11/2023
Scale: NTS @A3	Revision: P03
Drawn by: AR	Checked by: CF

Aquality Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aqua-lity.co.uk
Tel.: +44 (0)20 8991 3725

A Status - No Comments (FOR INFORMATION)

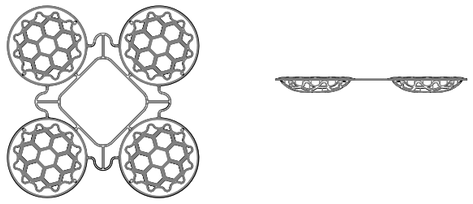
THIS DRAWING IS THE PROPERTY OF AQUALITY TRADING & CONSULTING LTD AND IS NOT TO BE COPIED IN PART OR WHOLE OR SHARED WITH THIRD PARTIES WITHOUT OUR WRITTEN PERMISSION.

APPENDIX E6 - ATTENUATION TANK 4 DETAILS



Note:

Top cover shown below to be installed on top layer of Aquality Modules only.



Minimum cover depths (1) over the top of Aquality Geocellular	
Location	Minimum cover depth (m) (4)
Non-Trafficked areas i.e. Landscaping	0.5
Car parks, vehicle up to 2500kg gross mass	0.6
Car parks, occasional vehicle greater than 2500kg (3) gross mass	Please contact Aquality
Occasional HGV traffic up to 44000kg GVW (HA loading)	Please consult with Aquality

(1) Assumes 27 degree load distribution through fill material and overlaying surface asphalt or block paving
(2) Minimum cover depth to avoid accidental damage from gardening/landscaping work
(3) Occasional Trafficking by refuse collection or similar vehicles (typically one per week)
(4) Please check minimum frost cover depths for geographical location

Project:	Manchester - Hammerstone Road
Title:	Aquality Sorage Block SD attenuation
System:	Aquality Storage Block SD attenuation (on-line)
Project-No:	HRD-ABE-ZZ-ZZ-DR-M-5033
Project state: S2	Date: 22/09/2023
Scale: NTS @A3	Revision: P01
Drawn by: AR	Checked by: CF

Aquality Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aqua-lity.co.uk
Tel.: +44 (0)20 8991 3725

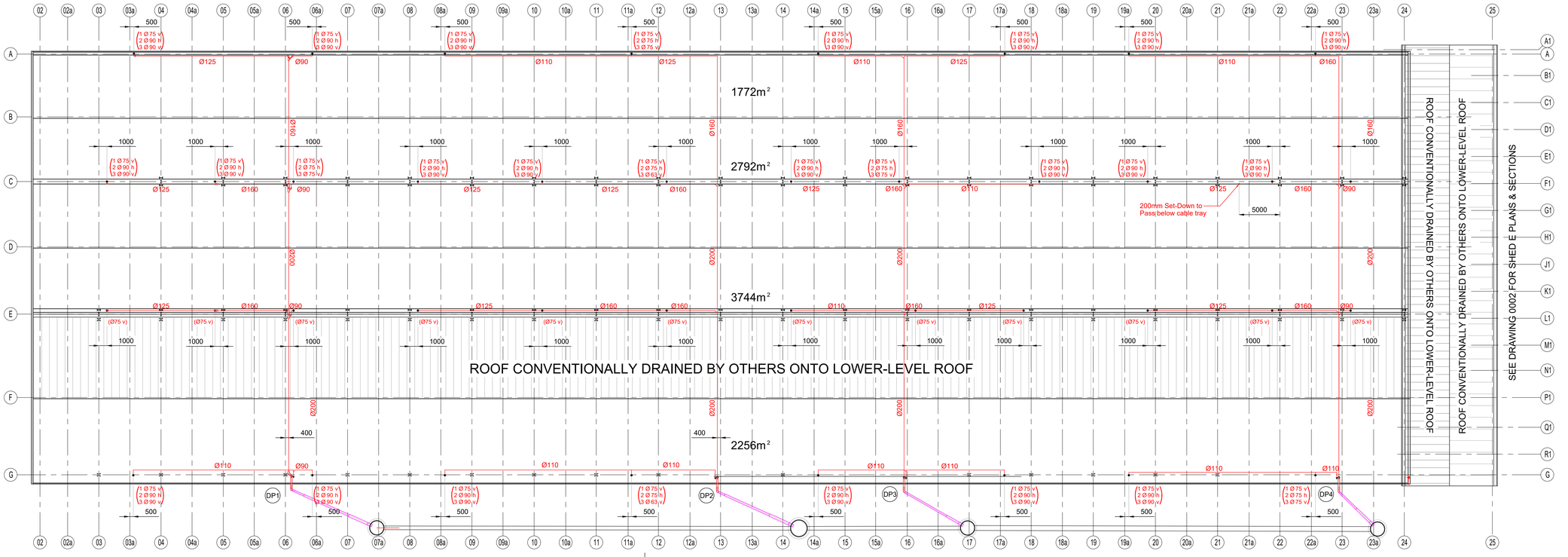
THIS DRAWING IS THE PROPERTY OF AQUALITY TRADING & CONSULTING LTD AND IS NOT TO BE COPIED IN PART OR WHOLE OR SHARED WITH THIRD PARTIES WITHOUT OUR WRITTEN PERMISSION.

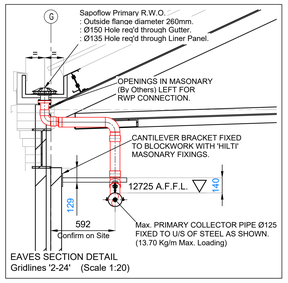
Appendix F

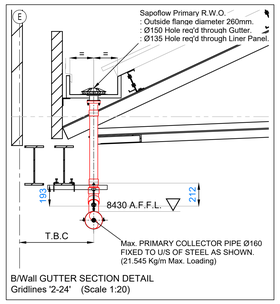
Sapoflow Details (Siphonic Drainage)

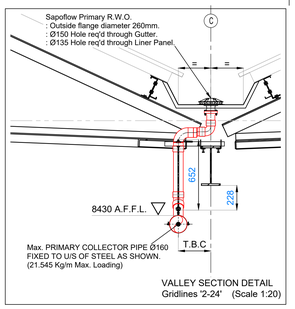
Vented Manhole Details

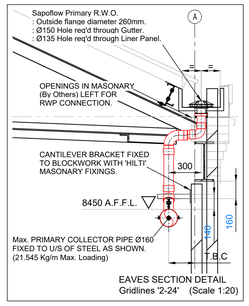
Rev P02 | Copyright © 2025 Curtins Consulting Ltd

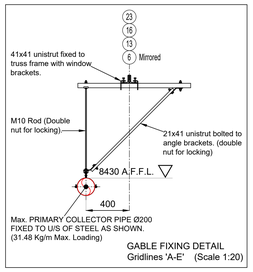


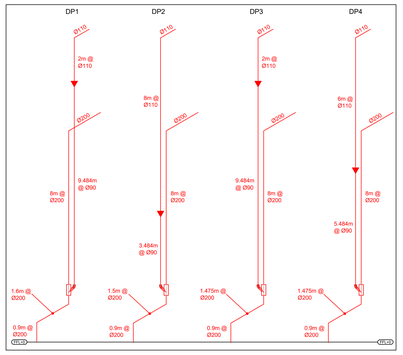


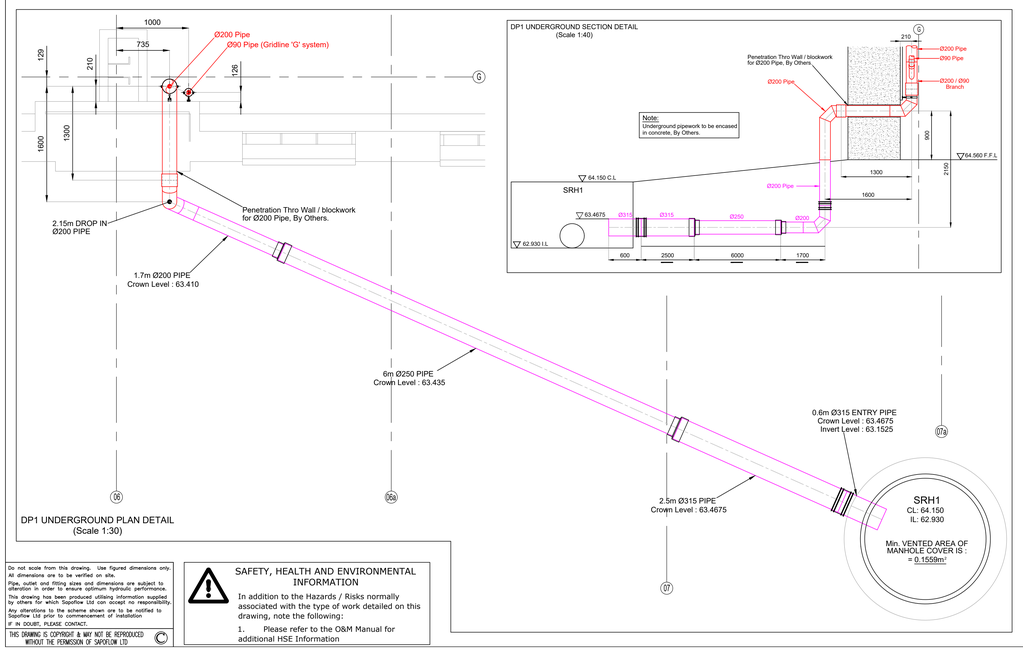


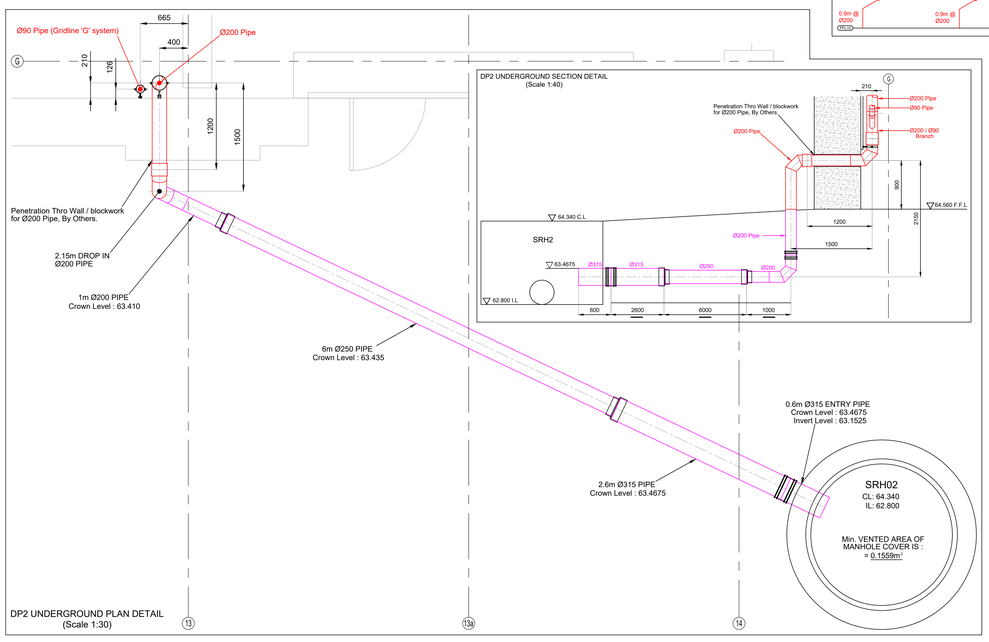












BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
#50	2000	6.76 Kg	#125	2000	27.40 Kg
#63	2000	9.07 Kg	#160	2000	43.09 Kg
#75	2000	11.68 Kg	#200	2000	62.96 Kg
#90	2000	15.58 Kg	#250	1500	73.71 Kg
#110	2000	21.87 Kg	#315	1500	120.0 Kg

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL: NOTE: 41x21 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160, 41X41 UNISTRUT Ø200 & ABOVE.

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
#50	1000	3.38 Kg	#125	1500	20.55 Kg
#63	1000	4.54 Kg	#160	2000	43.09 Kg
#75	1000	5.84 Kg	#200	2000	62.96 Kg
#90	1500	11.69 Kg	#250	2000	98.28 Kg
#110	1500	16.40 Kg	#315	2000	160.0 Kg

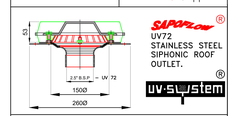
RAINFALL INTENSITY 212 mm/hr | #90 DENOTES PIPE DIAMETER. (#63) DENOTES TAIL PIPE DIAMETER.

DOWNPIPE NUMBER.	DIMENSION DATA.	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)
212 mm/hr Primary Systems.			
DP1	Downpipe To F.F.L. See Isometric	155.53	2.34
DP2	Downpipe To F.F.L. See Isometric	155.53	2.34
DP3	Downpipe To F.F.L. See Isometric	155.53	2.34
DP4	Downpipe To F.F.L. See Isometric	155.53	2.34
DP5	Downpipe To F.F.L. See Isometric	77.73	2.90

REV	DATE	DESCRIPTION
C04	14/08/23	UG Details amended
C03	06/07/23	Pipe route along gridline 'F1' on DP4 system amended.
C02	02/06/23	UG Details amended
C01	02/05/23	DP Isometric & UG Section details amended
P07	27/04/23	Pipe sizes & UG details added for DP's 3 & 4
P06	17/03/23	Pipe flipped on Grid 'C', were 'B' side now 'D'
P05	14/03/23	Pipe sizes & UG details added for DP's 1 & 2
P04	21/02/23	Roof Area's added
P03	27/01/23	Sections amended for grids '25' & '29'
P02	27/01/23	Issued for 'Co-Ordination'
P01	19/12/22	Issued for Rainwater Outlet Positions

UNISTRUT CHANNEL PIPE FIXING

FIXING TOP OF DOWNPIPE



MIN GUTTER SOLE 300mm / HOLE ø150mm

SAPOFLOW
Siphonic Roof Drainage Systems.

SAPOFLOW LIMITED ,
FALL BANK INDUSTRIAL ESTATE ,
DODWORTH , BARNSLEY ,
SOUTH YORKSHIRE , S75 3LS .
Telephone 01226 297200
Fax 01226 204038
E-mail info@sapoflow.com
Website www.sapoflow.com

PROJECT
ANCHORAGE 2
HAMMERSTONE ROAD
SALFORD QUAYS

TITLE
SIPHONIC ROOF DRAINAGE PLAN

DESIGN	DRAWN	Checked
W. Beaumont	W.B /AutoCAD.	T.C
SCALE 1:200 @ A0	DATE 16/12/22	
PROJECT No. 21397	DRAWING No. HRD-SAP-01-RL-DR-X-0001	REV C04

Construction

KEY REFERENCE :-
- Sapoflow Primary System R.W.O.
- Sapoflow Primary System Pipe Route.
- Sapoflow Primary Down Pipe.
- Sapoflow Primary Underground Pipe Route.

Do not scale from this drawing. Use figured dimensions only. All dimensions are to be verified on site.
Pipe, outlet and fitting sizes and dimensions are subject to change to meet specific hydraulic performance.
The drawing has been produced utilising information supplied by others for which Sapoflow Ltd can accept no responsibility.
Any alterations to the scheme shown are to be notified to Sapoflow Ltd prior to commencement of installation
IF IN DOUBT, PLEASE CONTACT.

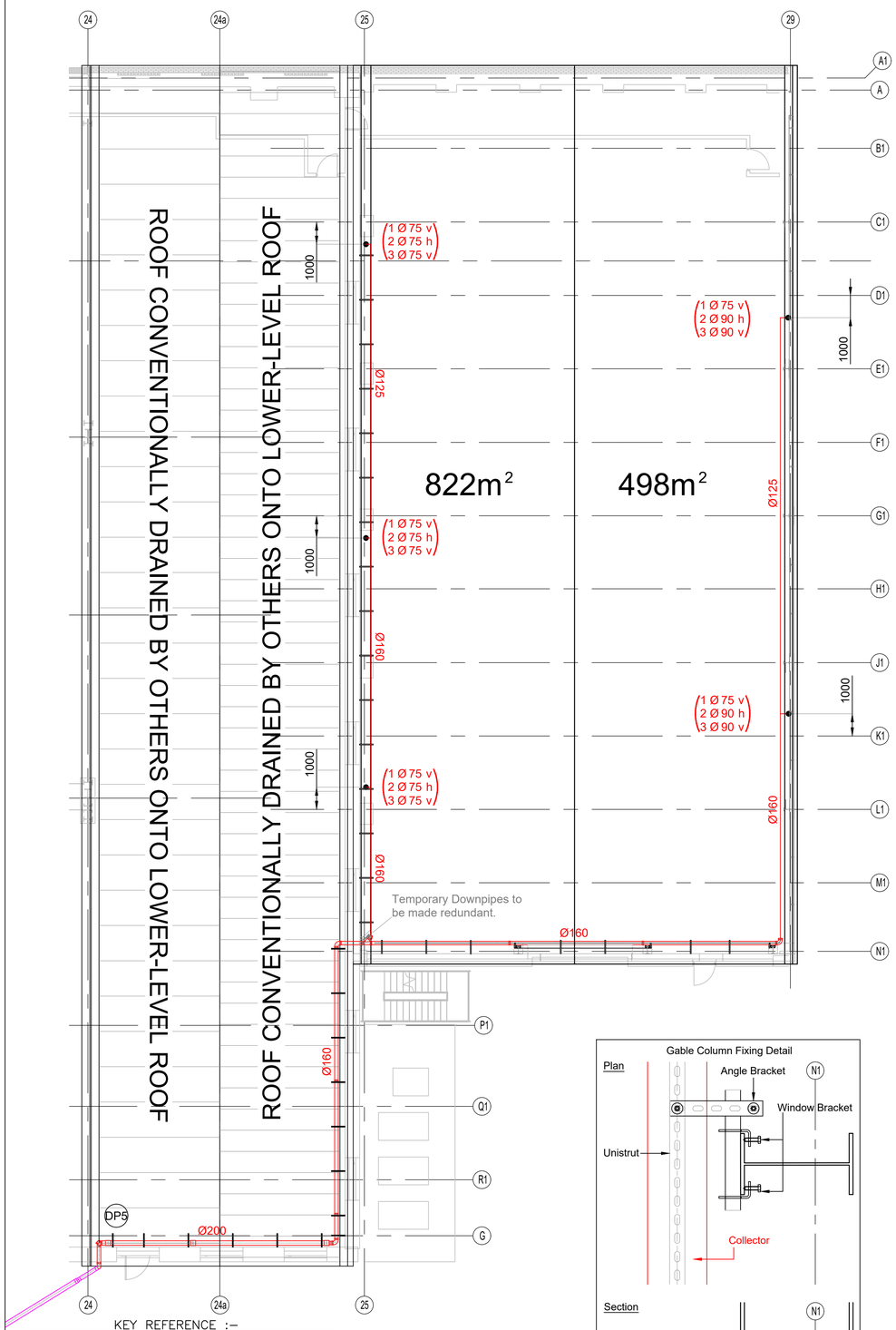
THIS DRAWING IS COPYRIGHT & MAY NOT BE REPRODUCED WITHOUT THE PERMISSION OF SAPOFLOW LTD

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the Hazards / Risks normally associated with the type of work detailed on this drawing, note the following:

1. Please refer to the O&M Manual for additional HSE Information

UK Representative of Uh-System Registered in England No. 2717962
Document Ref: SAP-D001(1)



KEY REFERENCE :–

- ● Sapoflow Primary System R.W.O.
- Sapoflow Primary System Pipe Route.
- ⊗ Sapoflow Primary Down Pipe.
- Sapoflow Primary Underground Pipe Route.

Do not scale from this drawing. Use figured dimensions only. All dimensions are to be verified on site.

Pipe, outlet and fitting sizes and dimensions are subject to alteration in order to ensure optimum hydraulic performance.

This drawing has been produced utilising information supplied by others for which Sapoflow Ltd can accept no responsibility.

Any alterations to the scheme shown are to be notified to Sapoflow Ltd prior to commencement of installation

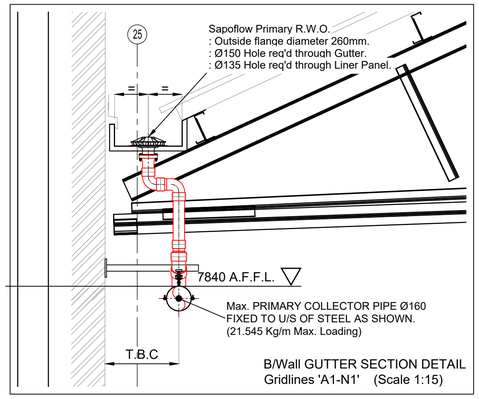
~~IF IN DOUBT, PLEASE CONTACT~~

THIS DRAWING IS COPYRIGHT & MAY NOT BE REPRODUCED WITHOUT THE PERMISSION OF SAPOFLOW LTD ©

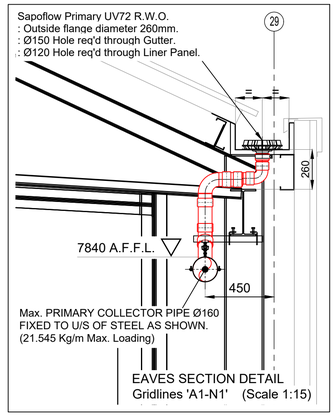
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the Hazards / Risks normally associated with the type of work detailed on this drawing, note the following:

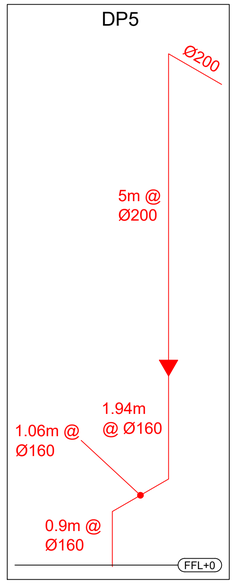
1. Please refer to the O&M Manual for additional HSE Information

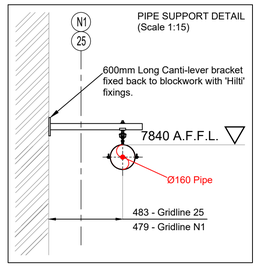


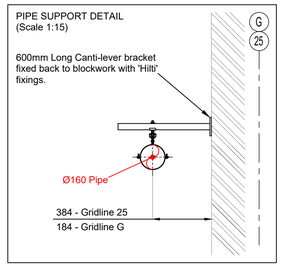
B/Wall GUTTER SECTION DETAIL
Gridlines 'A1-N1' (Scale 1:15)

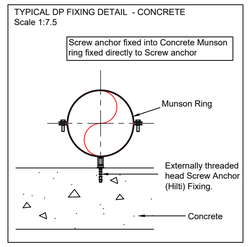


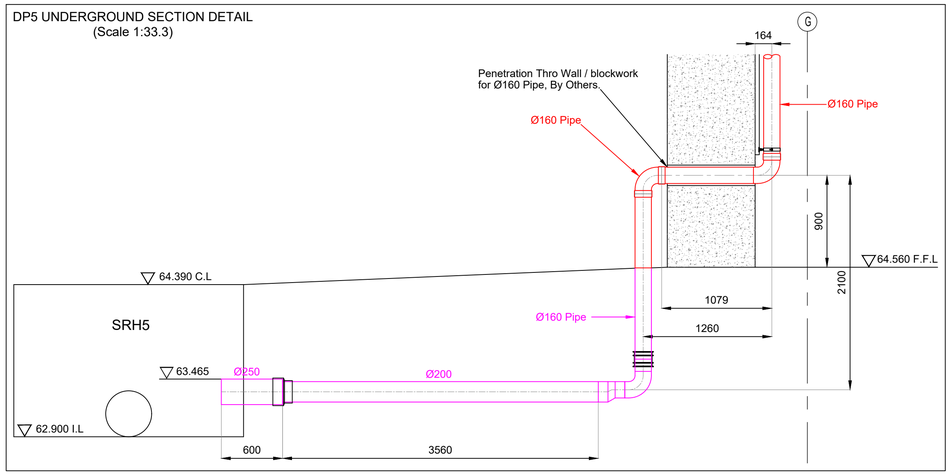
EAVES SECTION DETAIL
Gridlines 'A1-N1' (Scale 1:15)











BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	2000	6.76 Kg	ø125	2000	27.40 Kg
ø63	2000	9.07 Kg	ø160	2000	43.09 Kg
ø75	2000	11.68 Kg	ø200	2000	62.96 Kg
ø90	2000	15.58 Kg	ø250	1500	73.71 Kg
ø110	2000	21.87 Kg	ø315	1500	120.0 Kg

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL: NOTE: 41x21 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160, 41X41 UNISTRUT Ø200 & ABOVE.

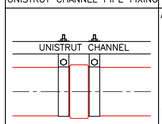
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	1000	3.38 Kg	ø125	1500	20.55 Kg
ø63	1000	4.54 Kg	ø160	2000	43.09 Kg
ø75	1000	5.84 Kg	ø200	2000	62.96 Kg
ø90	1500	11.69 Kg	ø250	2000	98.28 Kg
ø110	1500	16.40 Kg	ø315	2000	160.0 Kg

RAINFALL INTENSITY: 212 mm/hr — ø90 DENOTES PIPE DIAMETER. (ø63) DENOTES TAIL PIPE DIAMETER.

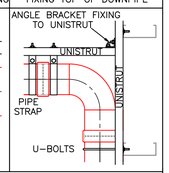
DOWNPIPE NUMBER.	DIMENSION DATA.	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)
212 mm/hr Primary Systems.			
DP5	Downpipe To F.F.L. See Isometric	77.73	2.90

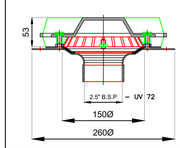
REV	DATE	DESCRIPTION
C05	05/09/23	UG Details amended
C04	14/08/23	UG Details amended
C03	02/06/23	Pipe route extended + UG Details added
C02	21/02/23	Roof Area's added
C01	03/02/23	Issued for Construction

UNISTRUT CHANNEL PIPE FIXING



FIXING TOP OF DOWNPIPE





SAPOFLOW ®
UV72
STAINLESS STEEL
SIPHONIC ROOF
OUTLET.
® uv-system

MIN GUTTER SOLE 300mm / HOLE ø150mm

SAPOFLOW ®
Siphonic Roof Drainage Systems.

SAPOFLOW LIMITED ,
FALL BANK INDUSTRIAL ESTATE ,
DODWORTH , BARNSLEY ,
SOUTH YORKSHIRE , S75 3LS .

Telephone 01226 297200
Fax 01226 204038
E–mail info@sapoflow.com
Website www.sapoflow.com

PROJECT
ANCHORAGE 2
HAMMERSTONE ROAD
SALFORD QUAYS

TITLE
SHED E
SIPHONIC ROOF DRAINAGE PLAN

DESIGN	DRAWN	Checked
W. Beaumont	W.B /AutoCAD.	T.G

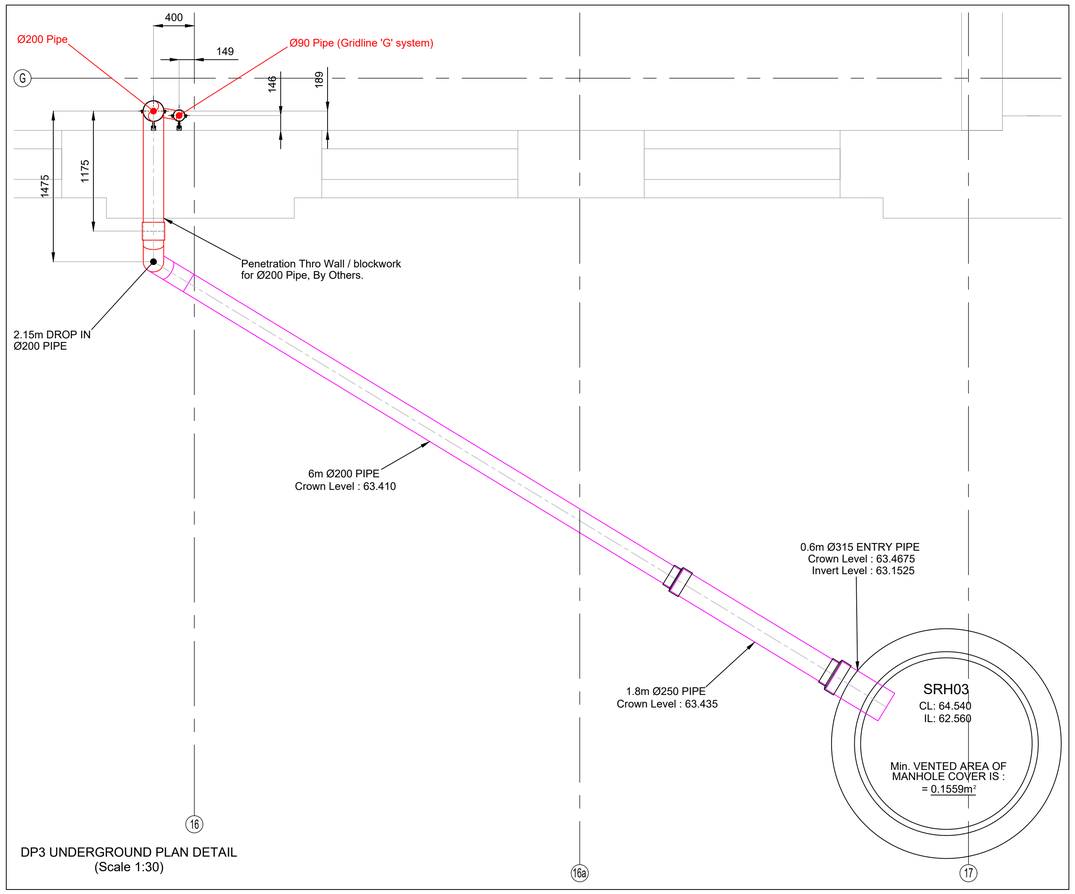
SCALE	DATE
1:125	03/01/23

PROJECT No.	DRAWING No.	REV
21397	HRD–SAP–01–RL–DR–X–0002	C05

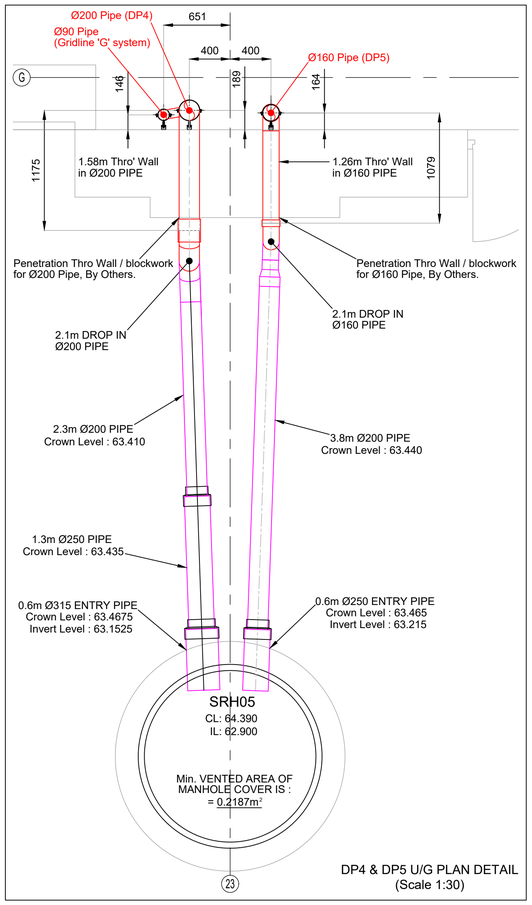
BBA · Founding member of the Siphonic roof drainage association · UV System · Siphonic roof drainage · IAPMO

UK Representative of UV–System
Registered in England No. 2717962

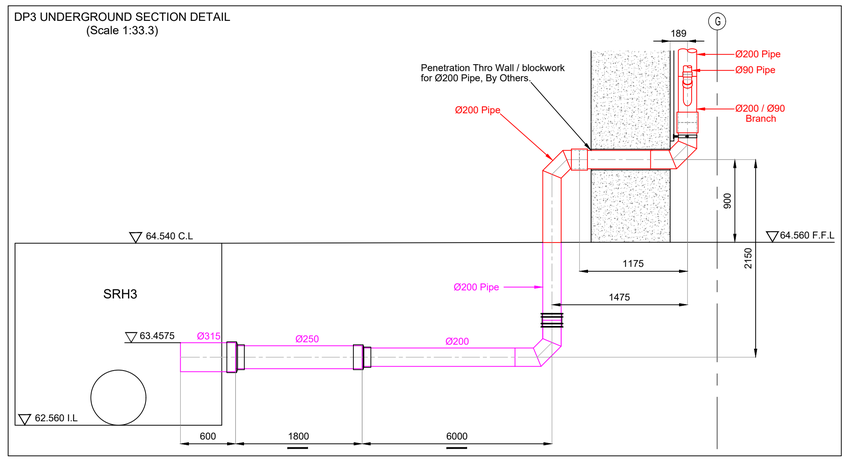
Document Ref: SAP.D001(1)

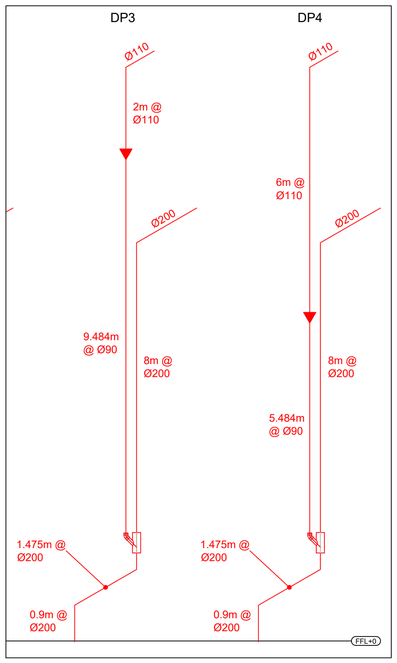


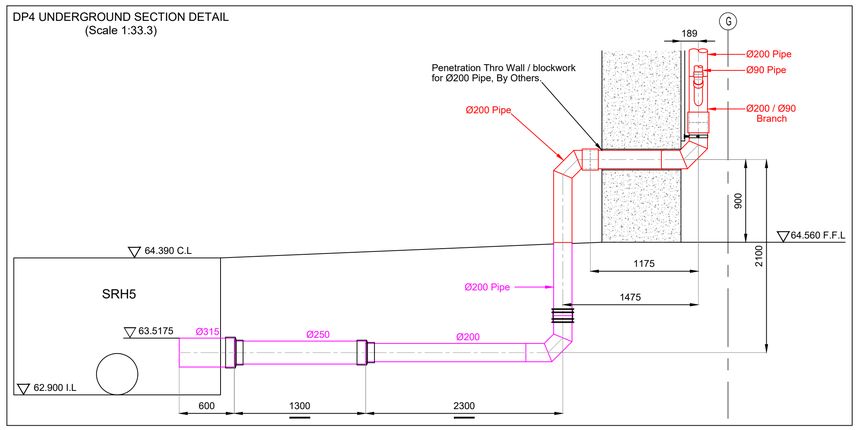
DP3 UNDERGROUND PLAN DETAIL
(Scale 1:30)



DP4 & DP5 U/G PLAN DETAIL
(Scale 1:30)







Construction

KEY REFERENCE :–

- Sapoflow Primary System R.W.O.
- Sapoflow Primary System Pipe Route.
- Sapoflow Primary Down Pipe.
- Sapoflow Primary Underground Pipe Route.

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	2000	6.76 Kg	ø125	2000	27.40 Kg
ø63	2000	9.07 Kg	ø160	2000	43.09 Kg
ø75	2000	11.68 Kg	ø200	2000	62.96 Kg
ø90	2000	15.58 Kg	ø250	1500	73.71 Kg
ø110	2000	21.87 Kg	ø315	1500	120.0 Kg

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL:
NOTE: 41x21 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160, 41X41 UNISTRUT Ø200 & ABOVE.

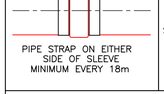
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	1000	3.38 Kg	ø125	1500	20.55 Kg
ø63	1000	4.54 Kg	ø160	2000	43.09 Kg
ø75	1000	5.84 Kg	ø200	2000	62.96 Kg
ø90	1500	11.69 Kg	ø250	2000	98.28 Kg
ø110	1500	16.40 Kg	ø315	2000	160.0 Kg

RAINFALL INTENSITY 212 mm/hr — ø90 DENOTES PIPE DIAMETER. (ø63) DENOTES TAIL PIPE DIAMETER.

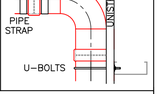
DOWNPIPE NUMBER.	DIMENSION DATA.	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)
212 mm/hr Primary Systems.			
DP3	Downpipe To F.F.L. See Isometric	155.53	2.34
DP4	Downpipe To F.F.L. See Isometric	155.53	2.34

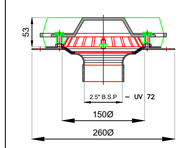
REV	DATE	DESCRIPTION
C05	05/09/23	UG Details amended
C04	14/08/23	UG Details amended
C03	10/07/23	Status amended on portal
C02	02/06/23	UG Details amended
C01	02/05/23	DP Isometric & UG Section details amended
P01	03/02/23	Issued for Comment/Approval

UNISTRUT CHANNEL PIPE FIXING



FIXING TOP OF DOWNPIPE





SAPOFLOW®
UV72
STAINLESS STEEL
SIPHONIC ROOF
OUTLET.
UV-SYSTEM®

MIN GUTTER SOLE 300mm / HOLE ø150mm

SAPOFLOW®
Siphonic Roof Drainage Systems.

SAPOFLOW LIMITED ,
FALL BANK INDUSTRIAL ESTATE ,
DODWORTH , BARNSLEY ,
SOUTH YORKSHIRE , S75 3LS .
Telephone 01226 297200
Fax 01226 204038
E–mail info@sapoflow.com
Website www.sapoflow.com

PROJECT
ANCHORAGE 2
HAMMERSTONE ROAD
SALFORD QUAYS

TITLE
SIPHONIC UNDERGROUND DRAINAGE DETAILS

DESIGN	DRAWN	Checked
W. Beaumont	W.B /AutoCAD.	T.G

SCALE	DATE
1:30	27/04/23

PROJECT No.	DRAWING No.	REV
21397	HRD–SAP–01–RL–DR–X–0003	C05

BBA CERTIFICATE NO. 08/4382 — Founding member of SUDS UK — UK System — Approved Contractor

UK Representative of UV-System
Registered in England No. 2717962

Document Ref: SAP.0001(1)

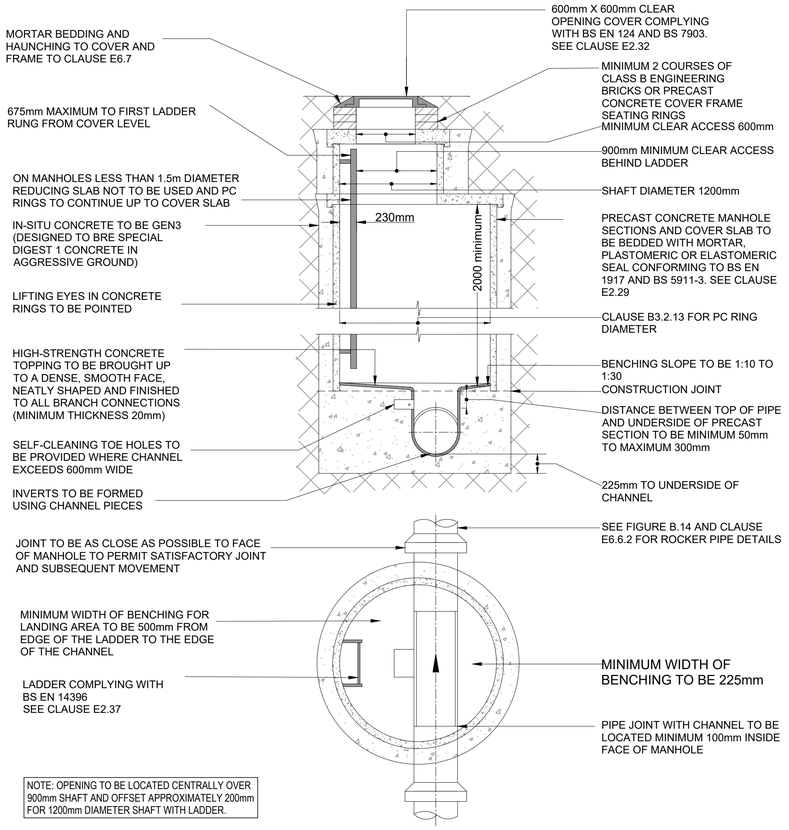
Do not scale from this drawing. Use figured dimensions only. All dimensions are to be verified on site.
Pipe, outlet and fitting sizes and dimensions are subject to alteration in order to ensure optimum hydraulic performance.
This drawing has been produced utilising information supplied by others for which Sapoflow Ltd can accept no responsibility.
Any alterations to the scheme shown are to be notified to Sapoflow Ltd prior to commencement of installation
IF IN DOUBT, PLEASE CONTACT.

THIS DRAWING IS COPYRIGHT & MAY NOT BE REPRODUCED WITHOUT THE PERMISSION OF SAPOFLOW LTD ©

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

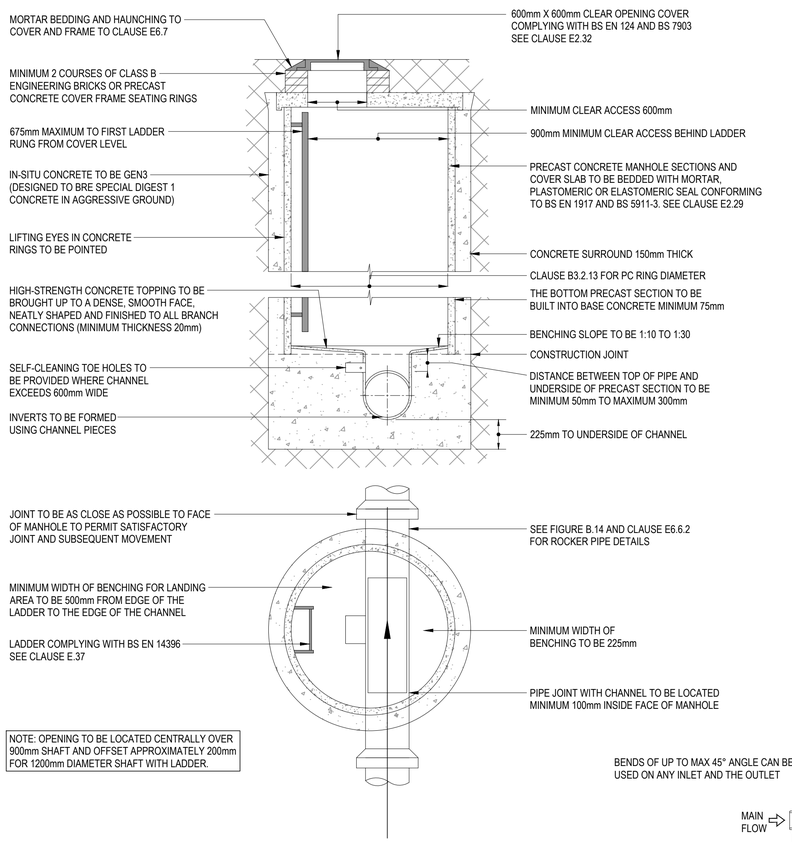
In addition to the Hazards / Risks normally associated with the type of work detailed on this drawing, note the following:

1. Please refer to the O&M Manual for additional HSE Information



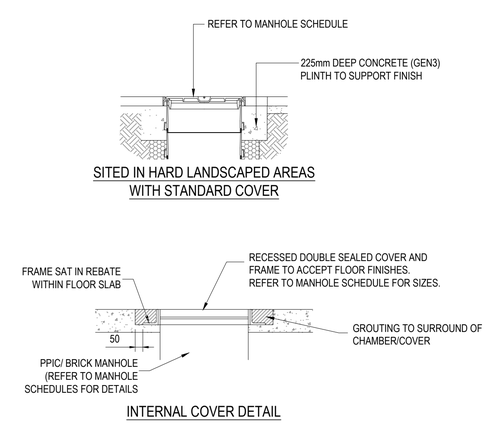
NOTE: OPENING TO BE LOCATED CENTRALLY OVER 900mm SHAFT AND OFFSET APPROXIMATELY 200mm FOR 1200mm DIAMETER SHAFT WITH LADDER.

TYPICAL MANHOLE DETAIL - TYPE A1
(DEPTH FROM COVER TO SOFFIT OF PIPE 3m TO 6m)



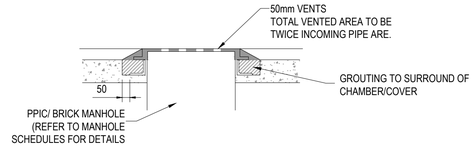
NOTE: OPENING TO BE LOCATED CENTRALLY OVER 900mm SHAFT AND OFFSET APPROXIMATELY 200mm FOR 1200mm DIAMETER SHAFT WITH LADDER.

TYPICAL MANHOLE DETAIL - TYPE A2
(DEPTH FROM COVER TO SOFFIT OF PIPE 3m TO 6m)



SITED IN HARD LANDSCAPED AREAS
WITH STANDARD COVER

INTERNAL COVER DETAIL

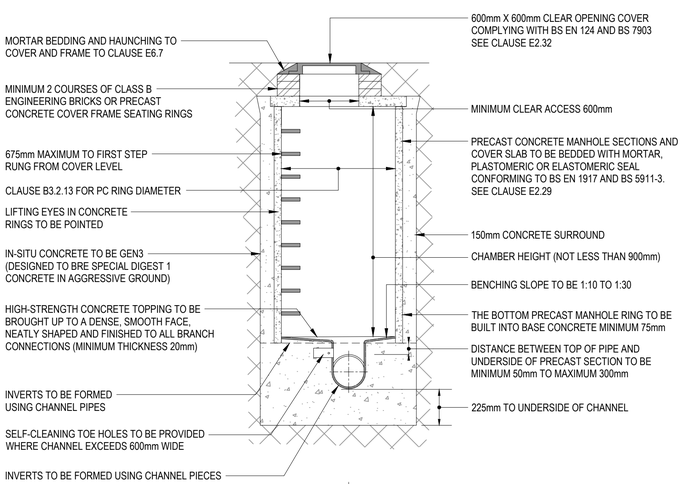


VENTED COVER DETAIL

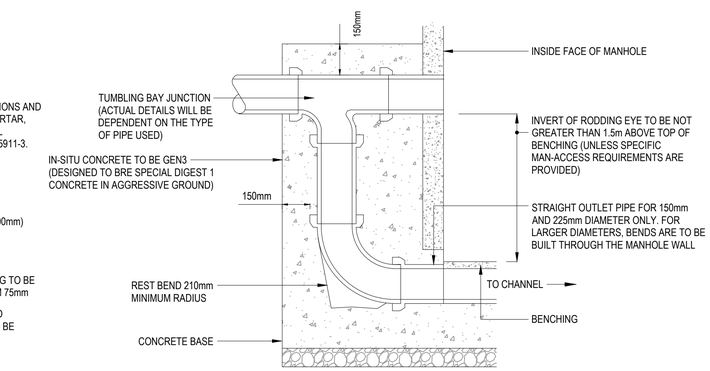
TYPICAL INSPECTION CHAMBER COVER DETAILS

GENERAL NOTES:

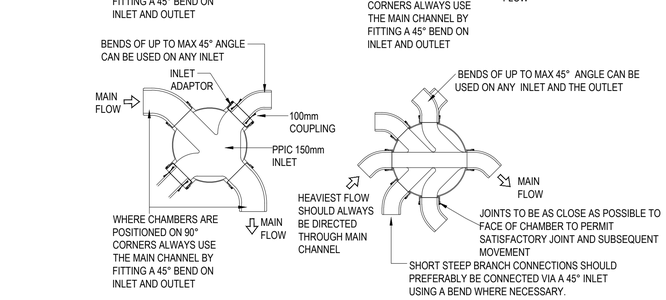
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.



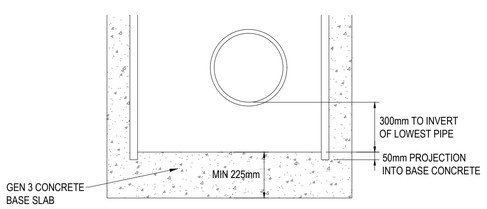
TYPICAL MANHOLE DETAIL - TYPE B
(MAXIMUM DEPTH FROM COVER TO SOFFIT OF PIPE 3.0 m)



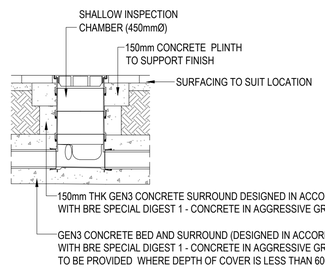
EXTERNAL VERTICAL BACKDROP



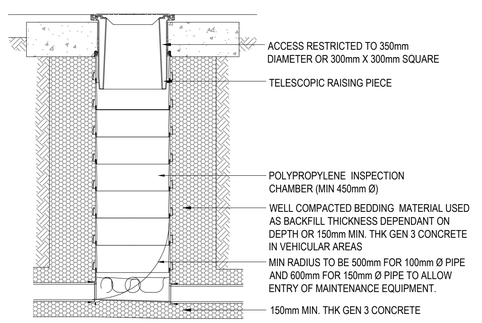
INSPECTION CHAMBER BASE DETAILS



CATCH PIT DETAIL



SHALLOW INSPECTION CHAMBER
MAX DEPTH 0.6m



DEEP INSPECTION CHAMBER
DEPTHS BETWEEN 1.2m AND 3.0m

TYPICAL INSPECTION CHAMBER DETAILS - PPIC

C02	STAGE 5 ISSUE	24.09.24	JC	ATL
P05	VENTED COVER DETAIL ADDED	29.04.24	JC	ATL
P04	UPDATED FOR NEW TENDER	02.02.24	ATL	MW
C01	CONSTRUCTION ISSUE	23.09.22	ATL	MW
P03	STAGE 4 ISSUE	09/04/21	MW	MW
P02	STAGE 3 ISSUE	18/11/20	MW	MW
P01	STAGE 3 ISSUE	29/01/19	MW	CG
Rev:	Description:	Date:	By:	Chkd:

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status:
STAGE 5

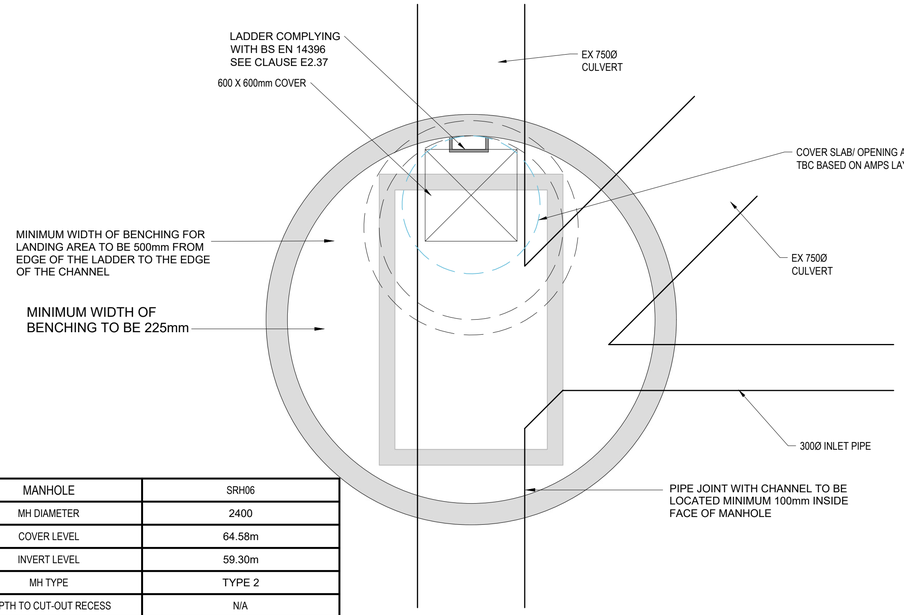
Project:
HAMMERSTONE ROAD DEPOT

Drg Title:
DRAINAGE DETAILS
SHEET 1

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	29/01/19	MW	MW	CG
	Scale: 1:NTS				

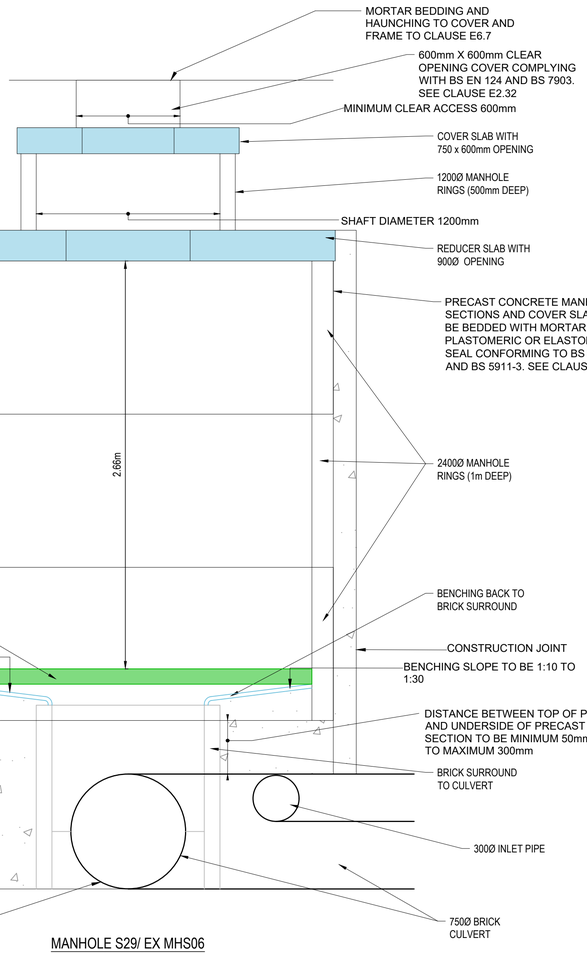
Project Code: HRD | Originator: CUR | Zone: XX | Level: ZZ | Type: DR | Discipline: C | Category / Number: 92520 | Rev: -C02

\\ma-fs-1P\Projects\068001 - 069000\068065 - Hammerstone Road Depot\AMS 4 Production\IB Models & Drawings_Civil C\CAD\[92]

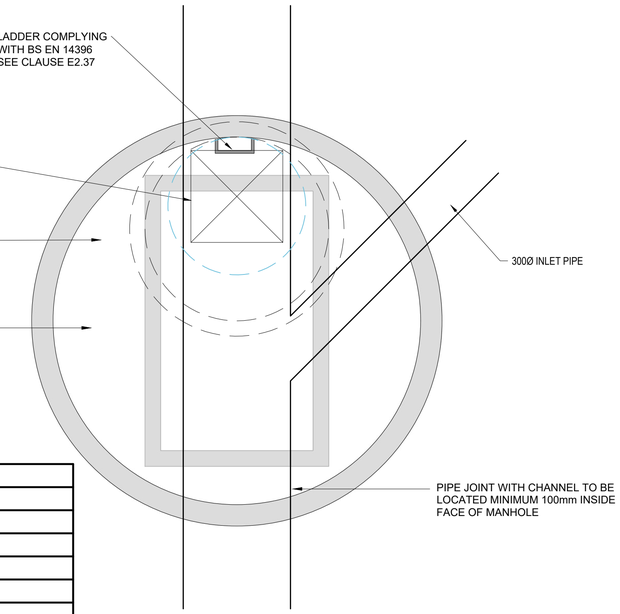


MANHOLE	SRH06
MH DIAMETER	2400
COVER LEVEL	64.58m
INVERT LEVEL	59.30m
MH TYPE	TYPE 2
DEPTH TO CUT-OUT RECESS	N/A
DEPTH TO SOFFIT	4530mm
COVER SIZE	600x600mm
COVER DEPTH	150mm
COVER SPEC	D400
LADDER OR DOUBLE STEPS	LADDER
SAFETY CHAIN	N/A - AMPS SYSTEM
SAFETY RAILS	N/A - AMPS SYSTEM
INVERT ACCESS STEP	N/A - AMPS SYSTEM
HOLE SIZE IN COVER SLAB	750X600 ECCENTRIC OPENING

MANHOLE S29/ EX MHS06
PLAN VIEW

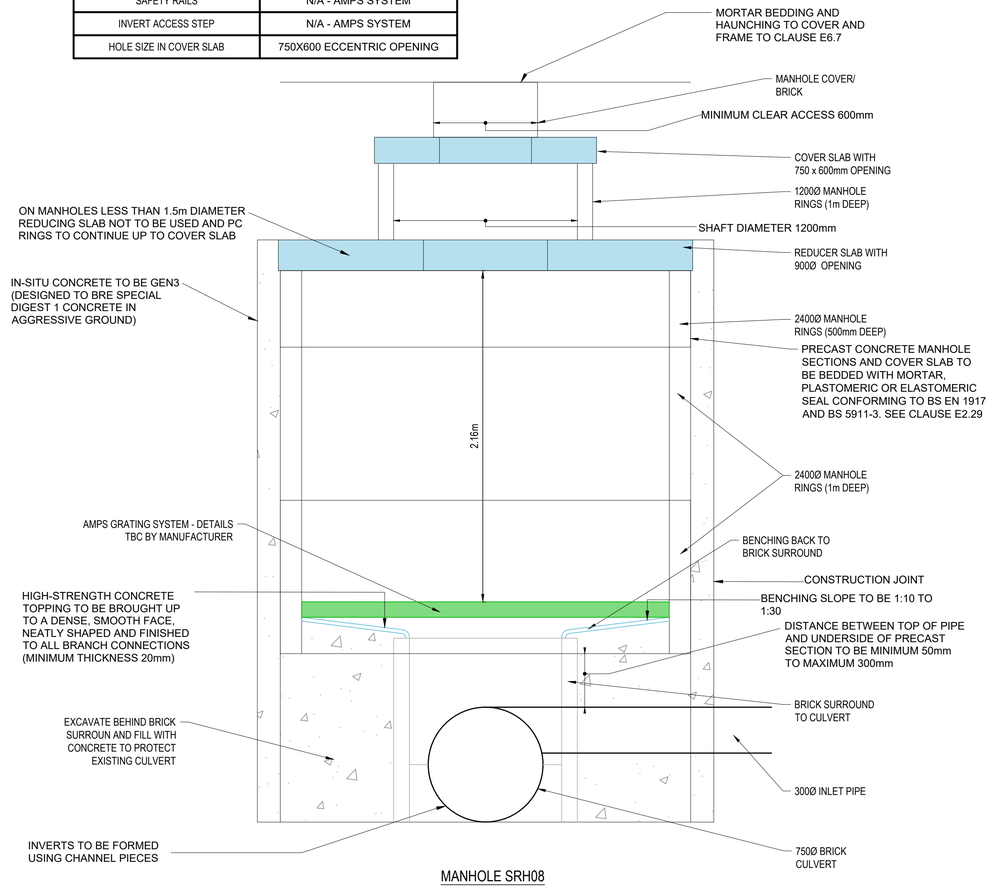


MANHOLE S29/ EX MHS06
SECTION



MANHOLE	SRH08
MH DIAMETER	2400
COVER LEVEL	64.57m
INVERT LEVEL	59.74m
MH TYPE	TYPE 2
DEPTH TO CUT-OUT RECESS	N/A
DEPTH TO SOFFIT	4080mm
COVER SIZE	600x600mm
COVER DEPTH	150mm
COVER SPEC	D400
LADDER OR DOUBLE STEPS	LADDER
SAFETY CHAIN	N/A - AMPS SYSTEM
SAFETY RAILS	N/A - AMPS SYSTEM
INVERT ACCESS STEP	N/A - AMPS SYSTEM
HOLE SIZE IN COVER SLAB	750X600 ECCENTRIC OPENING

MANHOLE SRH08
PLAN VIEW



MANHOLE SRH08
SECTION

GENERAL NOTES:

1. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.

Rev:	Description:	Date:	By:	Chkd:
P03	ANNOTATION ADDED	29.04.24	JC	ATL
P02	UPDATED FOR NEW TENDER	02.02.24	ATL	MW
P01	ISSUED FOR INFORMATION	23.11.23	KS	ATL

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status:
STAGE 5

Project:
HAMMERSTONE ROAD DEPOT

Drg Title:
DRAINAGE DETAILS
SHEET 8
CONNECTIONS TO CULVERT

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	27/11/23	KS	KS	ATL
	Scale: 1:20				

Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
HRD	- CUR	- XX	- ZZ	- DR	- C	- 92-528	- P03

\\ms-fs-1\Projects\068001 - 069000\068065 - Hammerstone Road Depot\4MB Models & Drawings_Civil-C\CAD\92-