

Drainage Planning Conditions

Subject: Jersey Wharf – Land at 66 Jersey Street, Manchester M4 6JW

Ref: 077879/DPC Rev V01

Date: 31/01/2023

The Planning Permission Ref: 133769/FO/2022
Condition 8 relates to drainage proposals for the development.

Condition 8

Notwithstanding the Risk Assessment and Drainage Strategy prepared by Curtins stamped as received by the City Council, as Local Planning Authority, on the 13 May 2022: (a) the development shall not commence until a scheme for the drainage of surface water from that phase of the new development shall be submitted for approval in writing by the City Council as the Local Planning Authority. This shall include: • Evidence that the rain gardens have been sized appropriately to ensure efficient lifetime functionality and no/limited flooding to the highway. • Construction details of flow control and SuDS elements. • Details of how the scheme shall be maintained and managed after completion and confirmation on who will be responsible for maintaining the SuDS systems.	Pre-Commencement
--	-------------------------

The development shall not commence until a scheme for the drainage of surface water from that phase of the new development shall be submitted for approval in writing by the City Council as the Local Planning Authority.

The proposed drainage system consists of two outfalls from the site. There is a separate foul and surface water network which combines prior to outfall into the combined public sewer north-west of the site within Jersey Street and a second outfall for foul only into the combined public sewer north-west of the site within Jersey Street.

Reference should be made to the following drainage design documents in Appendix A:

- JWA-CUR-XX-XX-DR-C-92500-P05 Drainage Strategy
- JWA-CUR-XX-XX-DR-C-92510-P02 Drainage Notes
- JWA-CUR-XX-XX-DR-C-92511-P02 Drainage Details Sheet 1
- JWA-CUR-XX-XX-DR-C-92512-P02 Drainage Details Sheet 2
- JWA-CUR-XX-XX-DR-C-92513-P02 Drainage Details Sheet 3
- JWA-CUR-XX-XX-DR-C-92514-P01 Drainage Details Sheet 4
- JWA-CUR-XX-XX-DR-C-92520-P04_Manhole Schedule
- Proposed Surface Water Calculations - 1 Year, 30 Year, 100 Year +40%
- Proposed Surface Water Calculations - 100 Year +40% with 1m Surcharged Outfall

Evidence that the rain gardens have been sized appropriately to ensure efficient lifetime functionality and no/limited flooding to the highway.

Rain Gardens to Jersey Street will form part of the adopted public realm land. Correspondence from MCC to be referred to for confirmation of public realm works.

For the private garden areas south of the west block, refer to Landscape Architect Landscaping sections through the Garden Area enclosed in Appendix B which details permeable construction and tree pit details

Construction details of flow control and SuDS elements.

Refer to the Drainage Details drawings enclosed in Appendix A.

Details of how the scheme shall be maintained and managed after completion and confirmation on who will be responsible for maintaining the SuDS systems.

The proposed drainage system on site will be privately maintained.

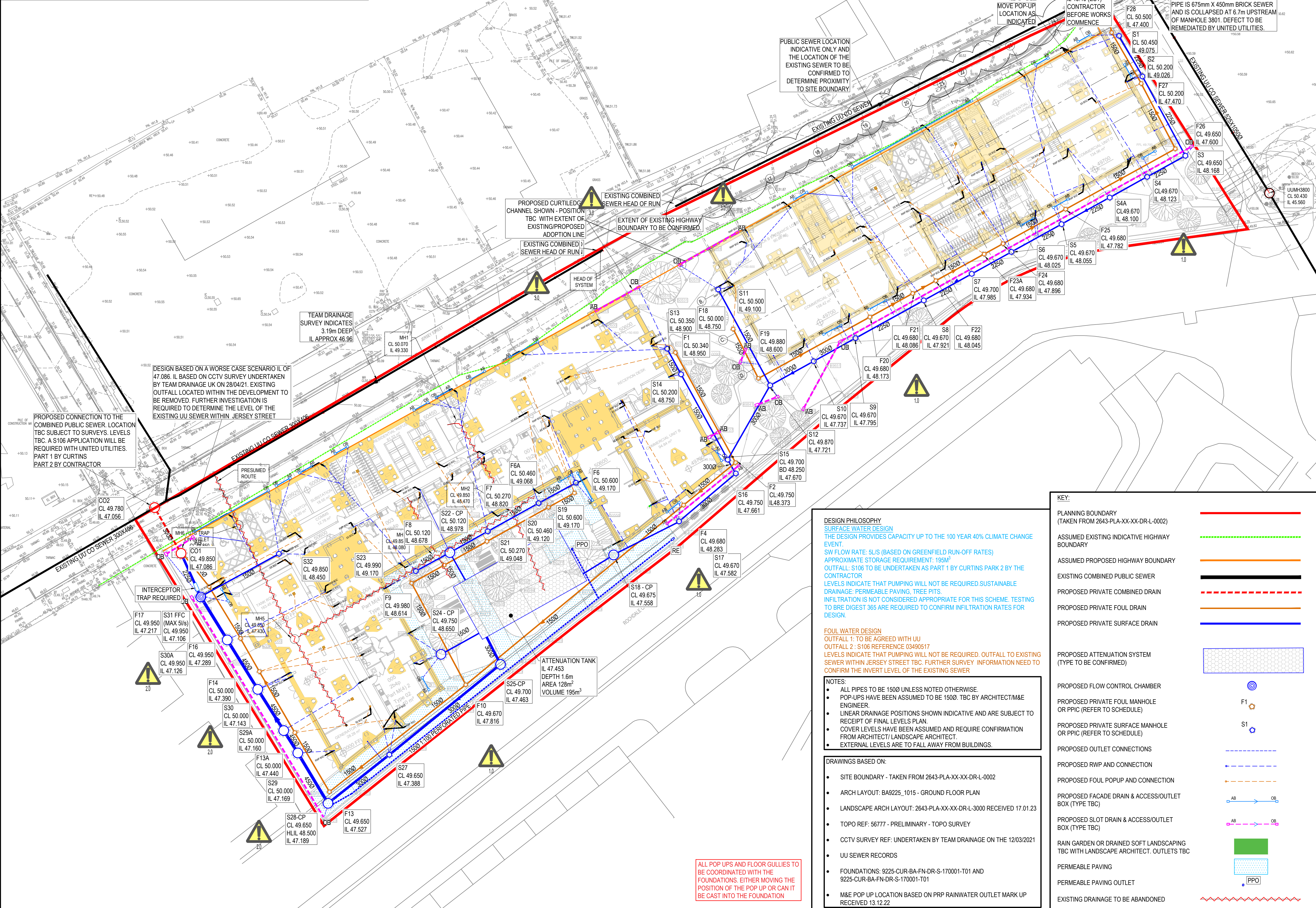
A suitable maintenance strategy will be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented. Maintenance requirements should be prepared and submitted under pre-occupation conditions.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event. Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

Appendix A

- JWA-CUR-XX-XX-DR-C-92500-P05 Drainage Strategy
- JWA-CUR-XX-XX-DR-C-92510-P02 Drainage Notes
- JWA-CUR-XX-XX-DR-C-92511-P02 Drainage Details Sheet 1
- JWA-CUR-XX-XX-DR-C-92512-P02 Drainage Details Sheet 2
- JWA-CUR-XX-XX-DR-C-92513-P02 Drainage Details Sheet 3
- JWA-CUR-XX-XX-DR-C-92514-P01 Drainage Details Sheet 4
- JWA-CUR-XX-XX-DR-C-92520-P04_Manhole Schedule
- Proposed Surface Water Calculations - 1 Year, 30 Year, 100 Year +40%
- Proposed Surface Water Calculations - 100 Year +40% with 1m Surcharged Outfall

RESIDUAL HAZARD REGISTER		
HAZARDS THAT SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED, THE CONTRACTOR SHOULD NOTIFY ALL RELEVANT PROJECT TEAM MEMBERS.		
HAZARD REF No.	ITEM (FEATURE, ELEMENT OR ACTIVITY)	RESIDUAL HAZARD
1.0	WORKING CLOSE TO WATERWAYS	EXISTING CANAL WITHIN CLOSE PROXIMITY TO THE SITE
2.0	UNDERMINING EXISTING FOUNDATIONS/BASEMENT	EXISTING NEIGHBOURING FOUNDATIONS WITHIN CLOSE PROXIMITY TO SITE BOUNDARY
3.0	SERVICES	EXISTING SERVICES TO REMAIN ARE TO BE PROTECTED OR DIVERTED



GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
- ALL EXISTING SEWERS, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS TO ENSURE CONNECTIVITY. ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
- 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.
- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
- WHERE EXISTING DRAINAGE IS BEING USED, ALLOWANCES SHOULD BE MADE TO REMEDIATE THIS DRAINAGE IN LINE WITH AVAILABLE CCTV SURVEY INFORMATION. IF NO SURVEY IS AVAILABLE, IT IS ADVISED TO OBTAIN ONE PRIOR TO COMMENCEMENT OF WORKS.
- ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS, AND WHERE NECESSARY PROTECTION OR DIVERSIONS TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORK.
- COVER LEVELS, SLOT DRAIN POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT.
- ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS. THESE ARE TO BE CONFIRMED ONCE A DETAILED CAPACITY CHECK HAS BEEN UNDERTAKEN AT A LATER DESIGN STAGE.
- OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
- ALL POP-UPS AND RWPS SETTING OUT BY OTHERS.
- FLOOR GULLY REQUIREMENTS WITHIN PLANT ROOMS, BIN STORES ETC HAVE NOT BEEN ACCOUNTED FOR. ARCHITECT TO CONFIRM REQUIREMENTS.
- FOUL DRAINAGE SIZES INDICATIVE SUBJECT TO DETAILED DESIGN OF ABOVE GROUND DRAINAGE DISCHARGE UNITS/FLOWS.
- COVER AND INVERT LEVELS ARE INDICATIVE SUBJECT TO DETAILED DESIGN.
- IT IS ASSUMED THAT THE AREA FRONTING THE BUILDING BETWEEN THE FACADE AND EXISTING HIGHWAY BOUNDARY WILL BE OFFERED FOR ADOPTION.
- ALL LEVELS TO FALL AWAY FROM THE BUILDING. FACADE DRAINAGE HAS BEEN ALLOWED FOR AT THRESHOLDS HOWEVER CAN BE REMOVED SUBJECT TO CLIENT APPROVAL AND LEVELS DESIGNED TO FALL AWAY FROM THE THRESHOLDS.
- PROPOSED STRATEGY TO DISCHARGE SURFACE WATER FROM THIS DEVELOPMENT TO BE AGREED BY UNITED UTILITIES AND MANCHESTER LLFA.
- LANDSCAPE ARCHITECT TO CONSIDER TREE POSITIONS ABOVE TANK AND IS SUFFICIENT COVER PROVIDED TO INSTALL TREE/PITS ETC.
- THIS DRAWING HAS BEEN BASED ON STAGE 3 DESIGN TEAM INFORMATION AND IS SUBJECT TO CHANGE.

P05	UPDATE FOR PLANNING CONDITIONS ISSUE	01/02/23	CS	CG
P04	ISSUED FOR PLANNING	04/05/22	CS	CG
T01	ISSUED FOR TENDER	05/04/22	CS	CG
P03	STAGE 3 UPDATE - LATEST POP UPS	16/12/21	CS	CG
P02	STAGE 3 ISSUE	12/11/21	CS	CD
P01	ISSUED FOR INFORMATION	23/06/21	CS	CG

Rev:

Description:

Date:

By:

Chkd:

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 235 2394
manchester@curtins.com
www.curtins.com

City & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kentish • Leeds • Liverpool • London • Manchester • Nottingham

Status:

SUITABLE FOR INFORMATION

S2

Project:

MANLIFE BOA PLOT C

Orig Title:

PROPOSED DRAINAGE STRATEGY

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	21/06/21	CS	CD	CD

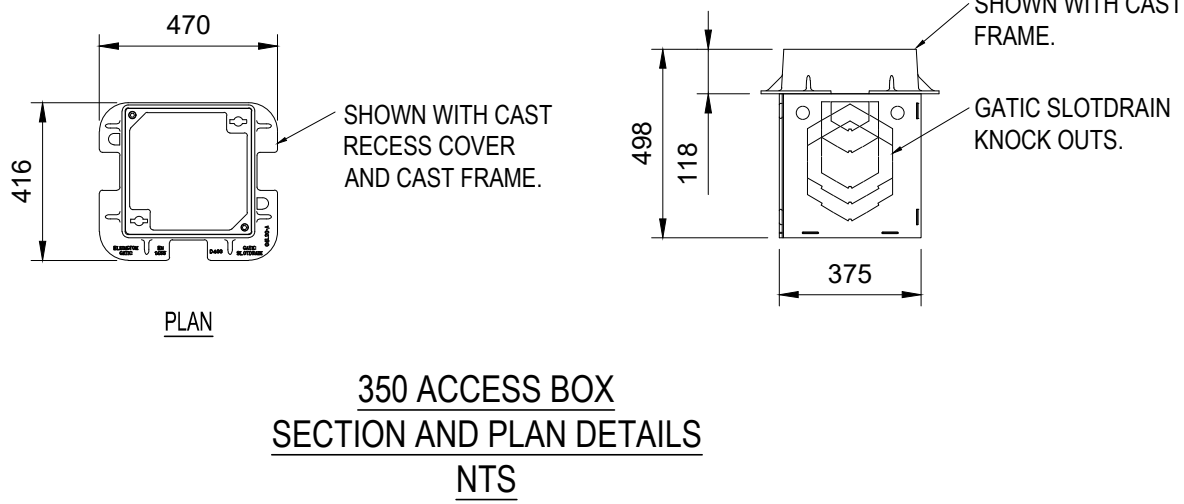
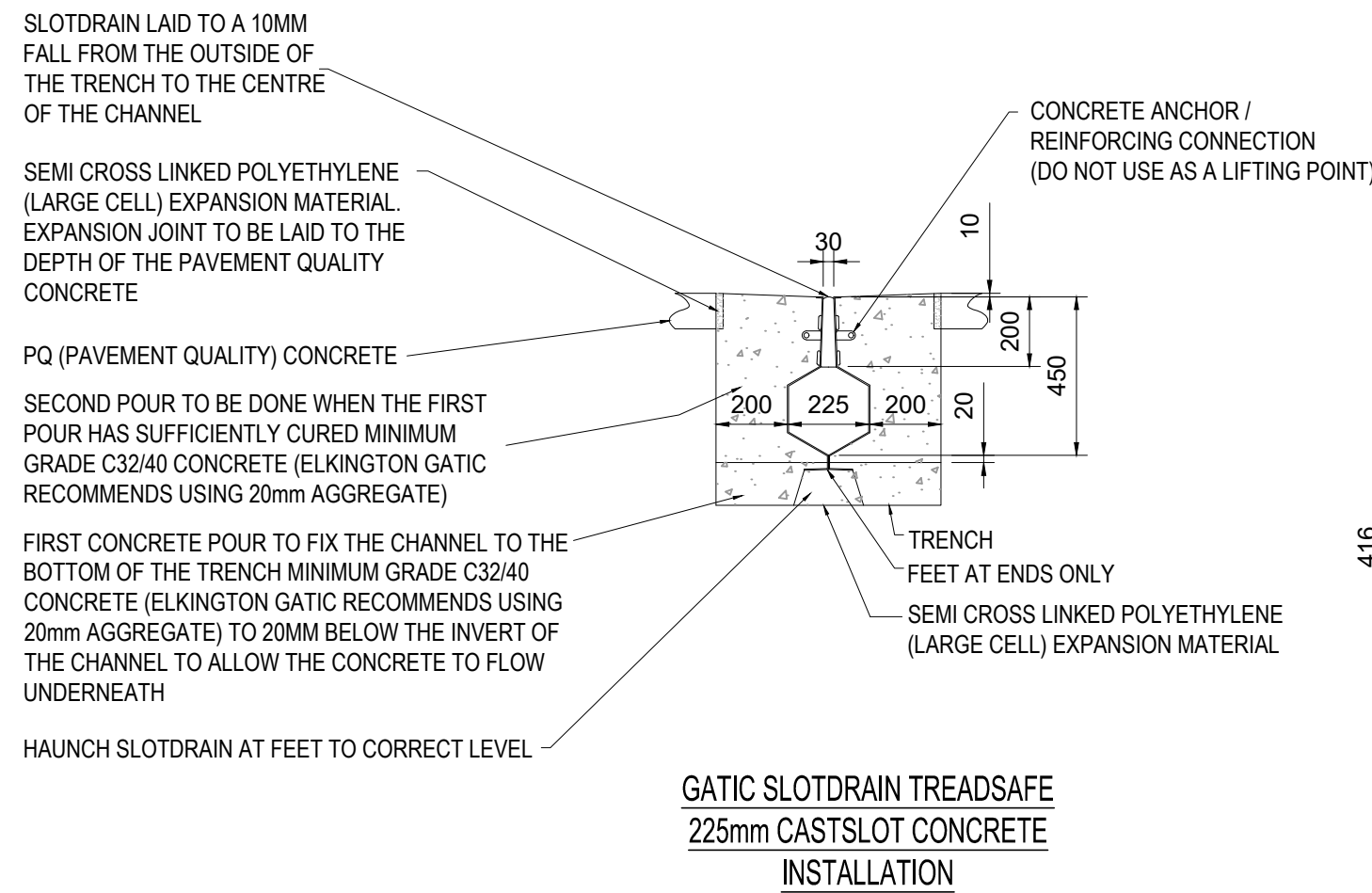
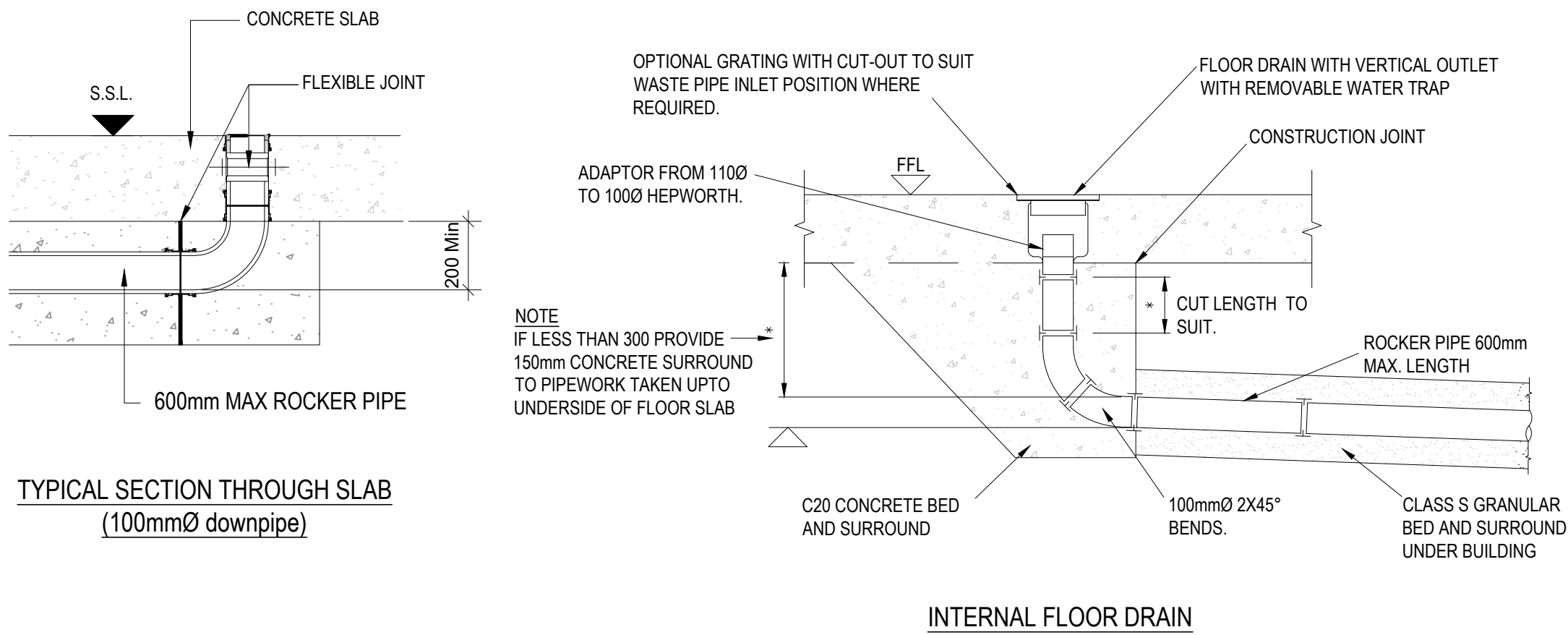
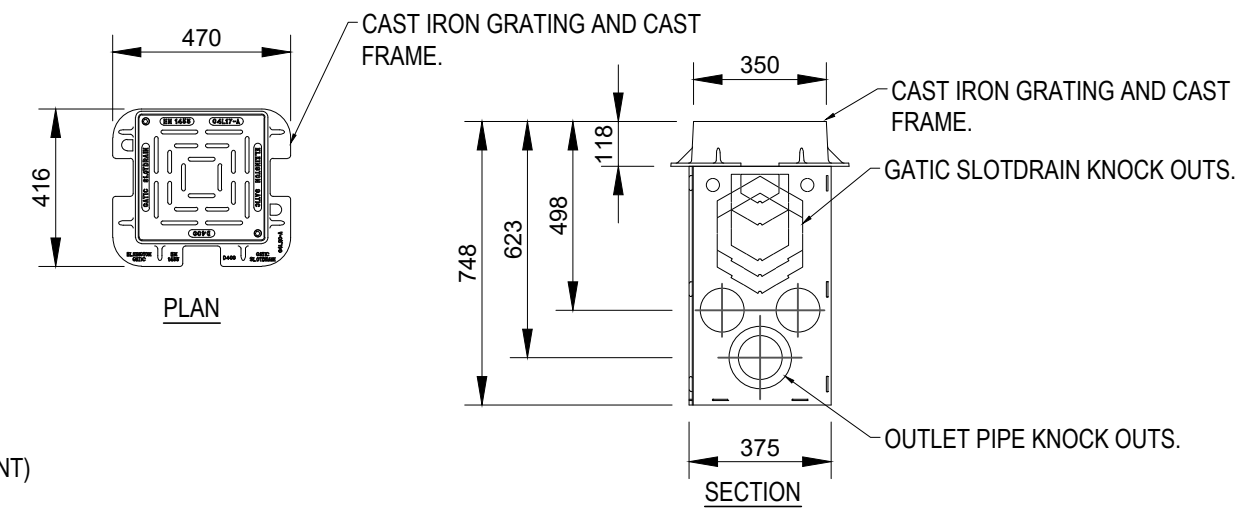
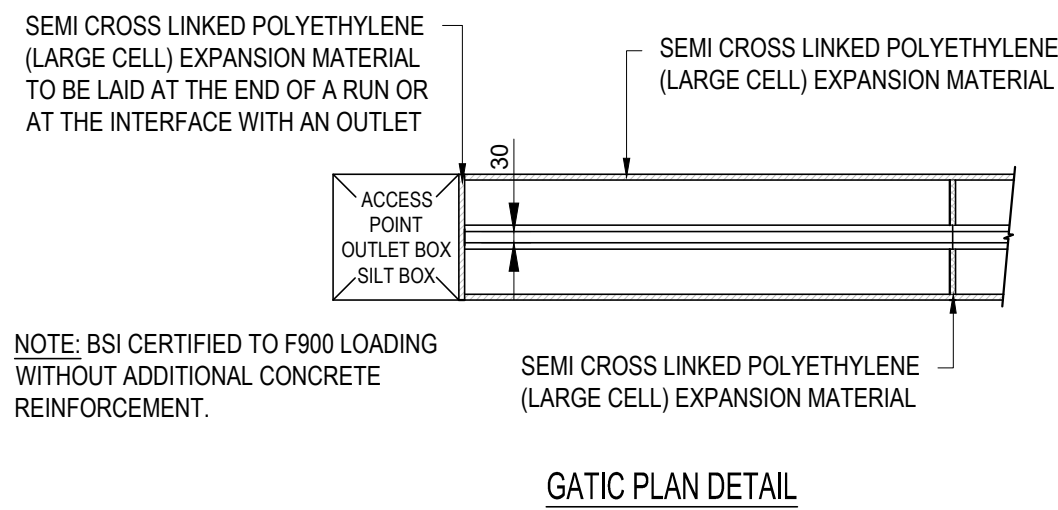
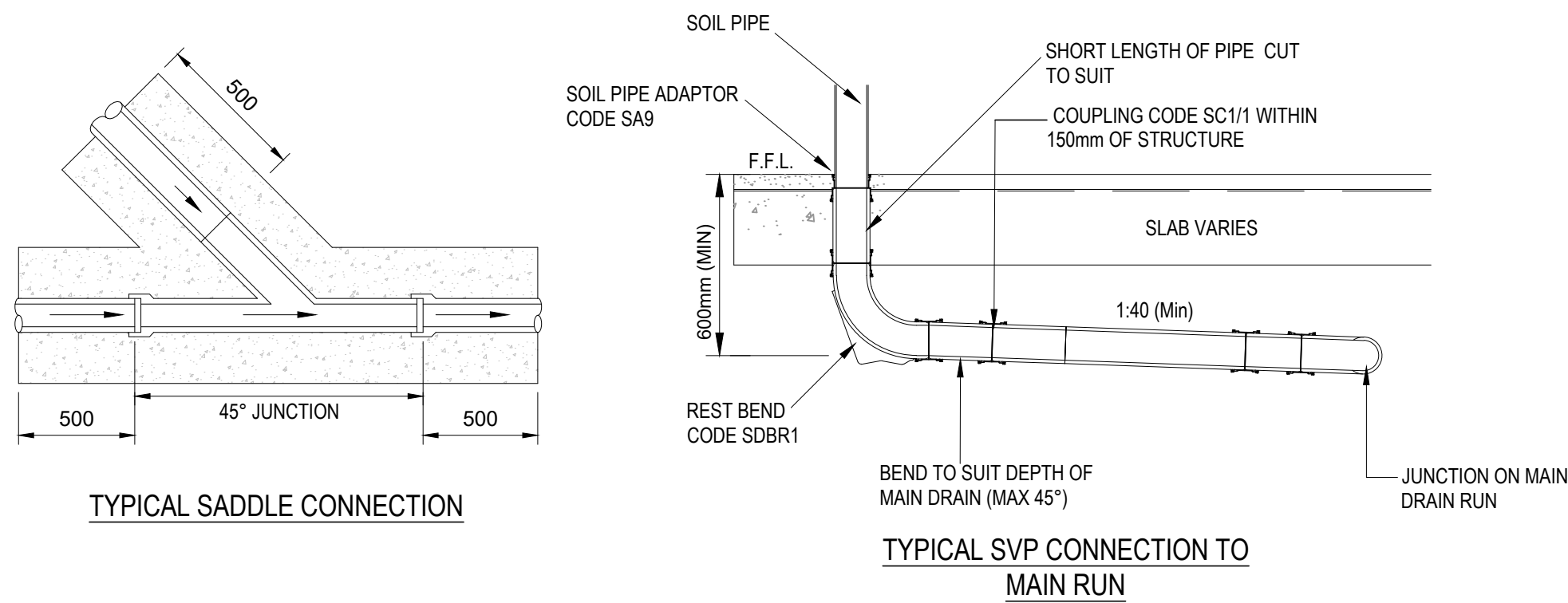
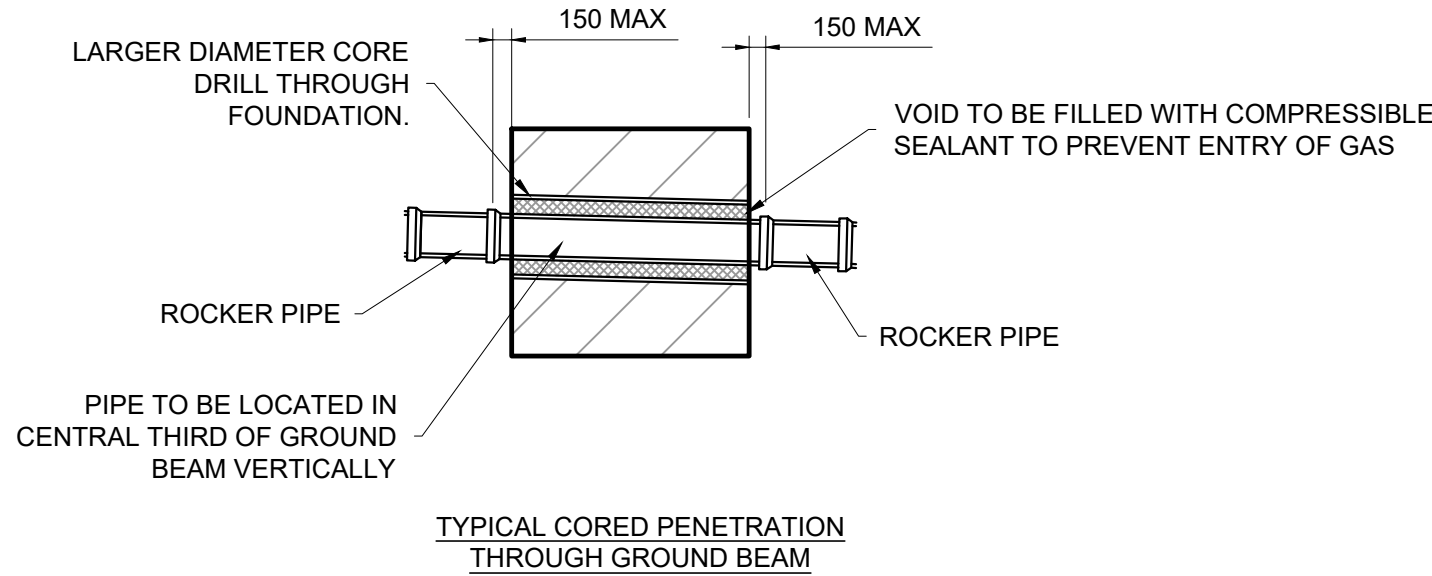
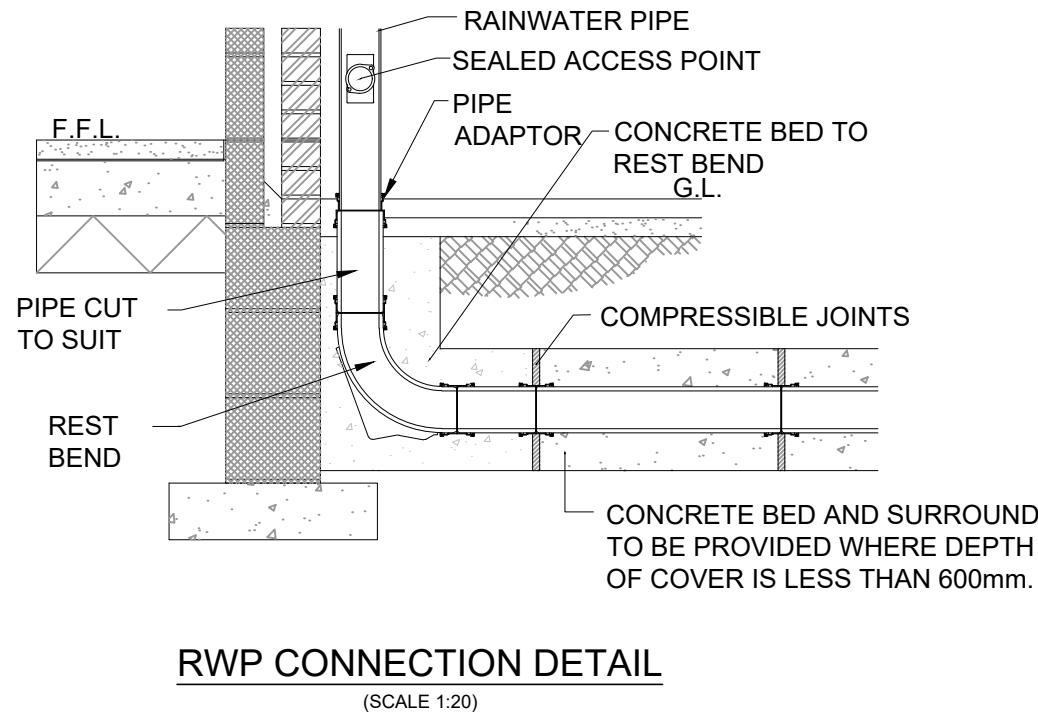
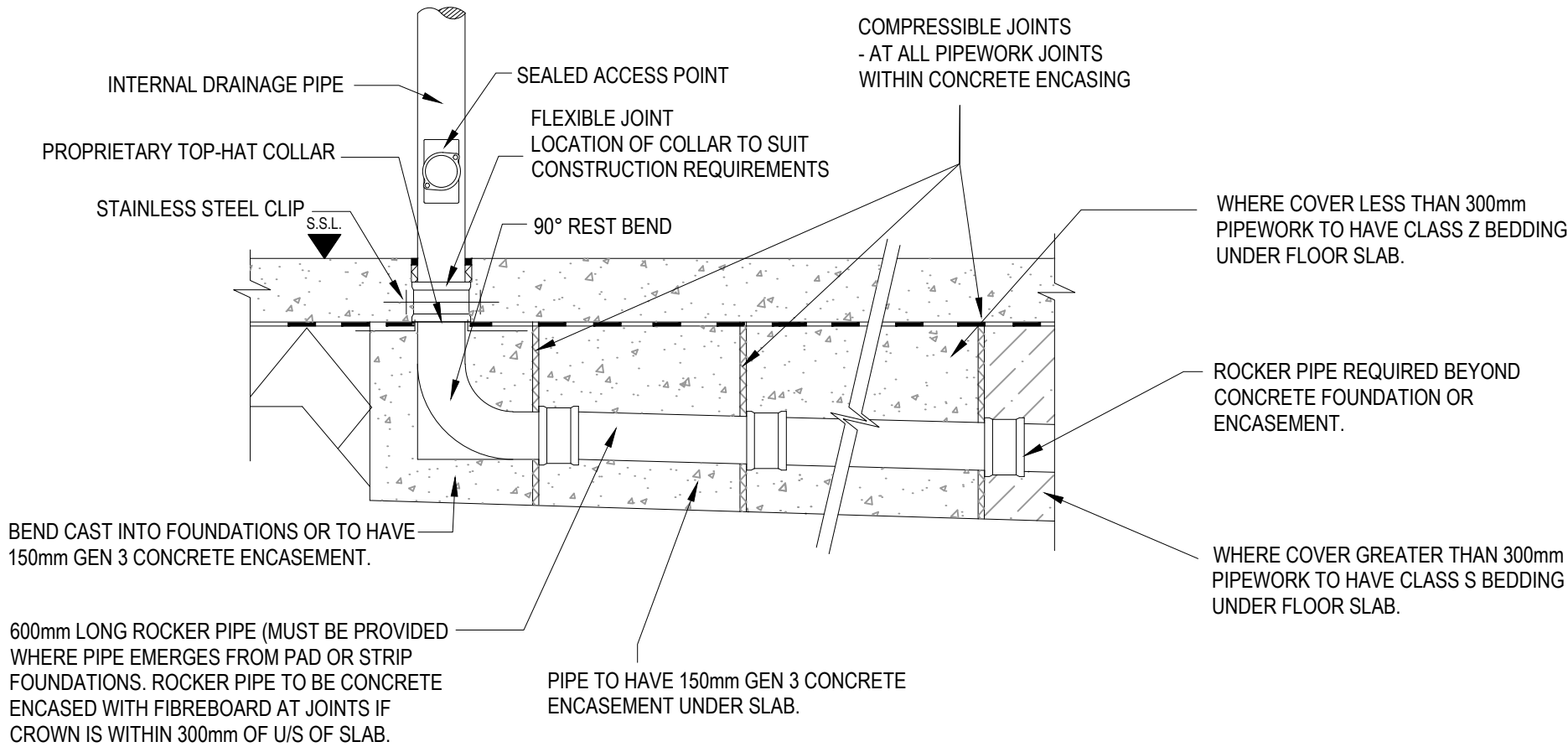
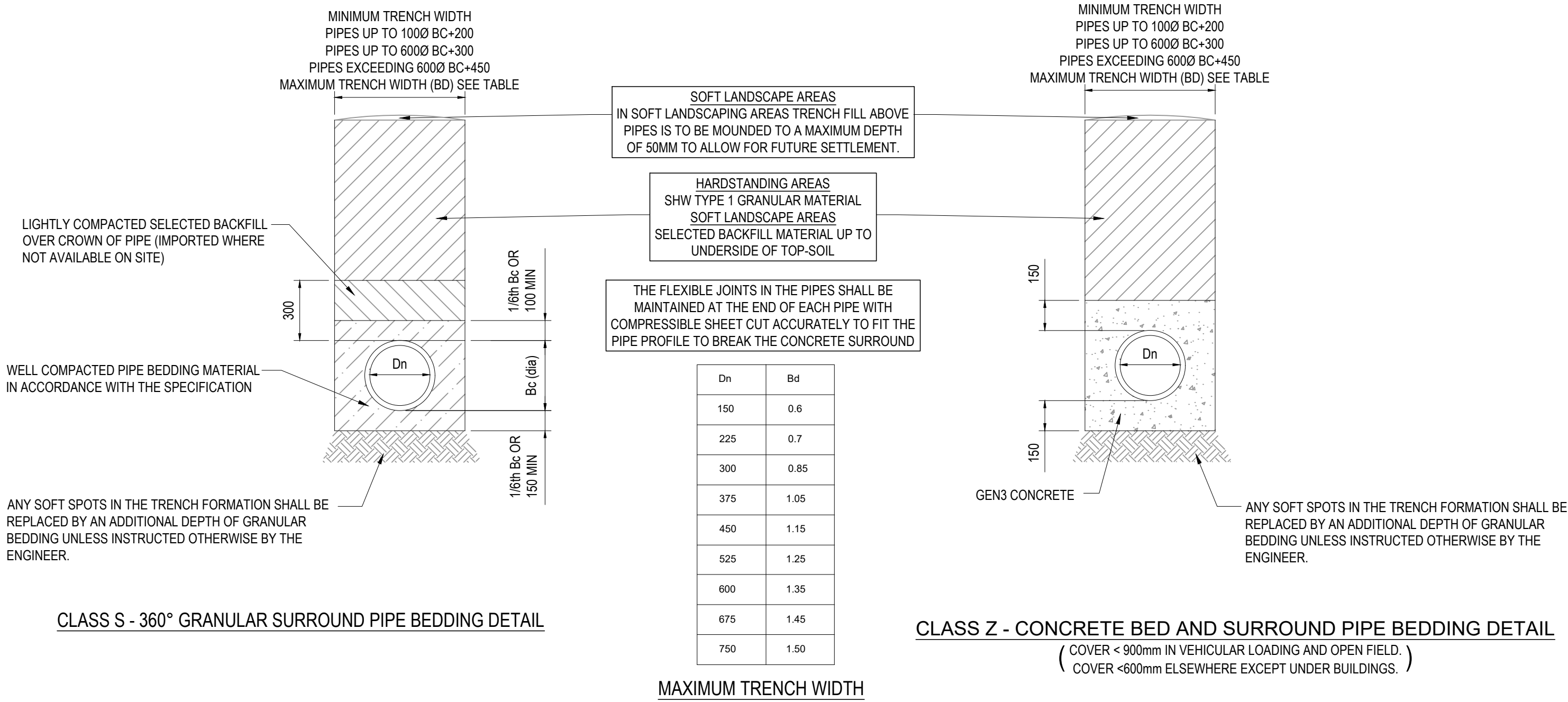
Scale: 1/250

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category/Number:	Rev:
JWA	-CUR	-XX	-XX	-DR	-C	-92500	-P05

0600070915 - Manlife BOA Plot C04-Production-Maxwell Drawings/CAD/0600070915

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.



P02	UPDATED FOR PLANNING CONDITIONS ISSUE	01/02/23	CS	CG
P01	ISSUED FOR STAGE 3		CS	CD
Rev:	Description:	Date:	By:	Chkd:

curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 235 2354
manchester@curtins.com
www.curtins.com

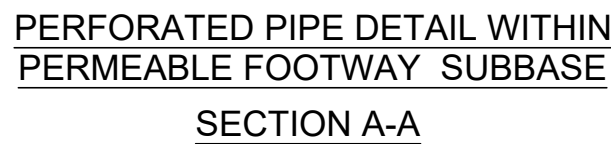
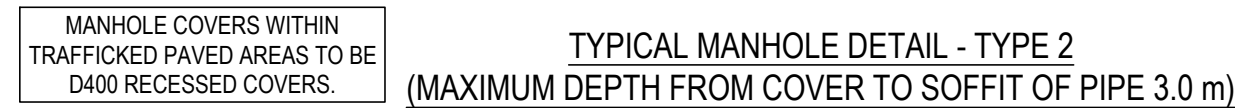
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kentville • Leeds • Liverpool • London • Manchester • Nottingham

Status: **SUITABLE FOR INFORMATION** **S2**

Project: **MANLIFE BOA PLOT C**

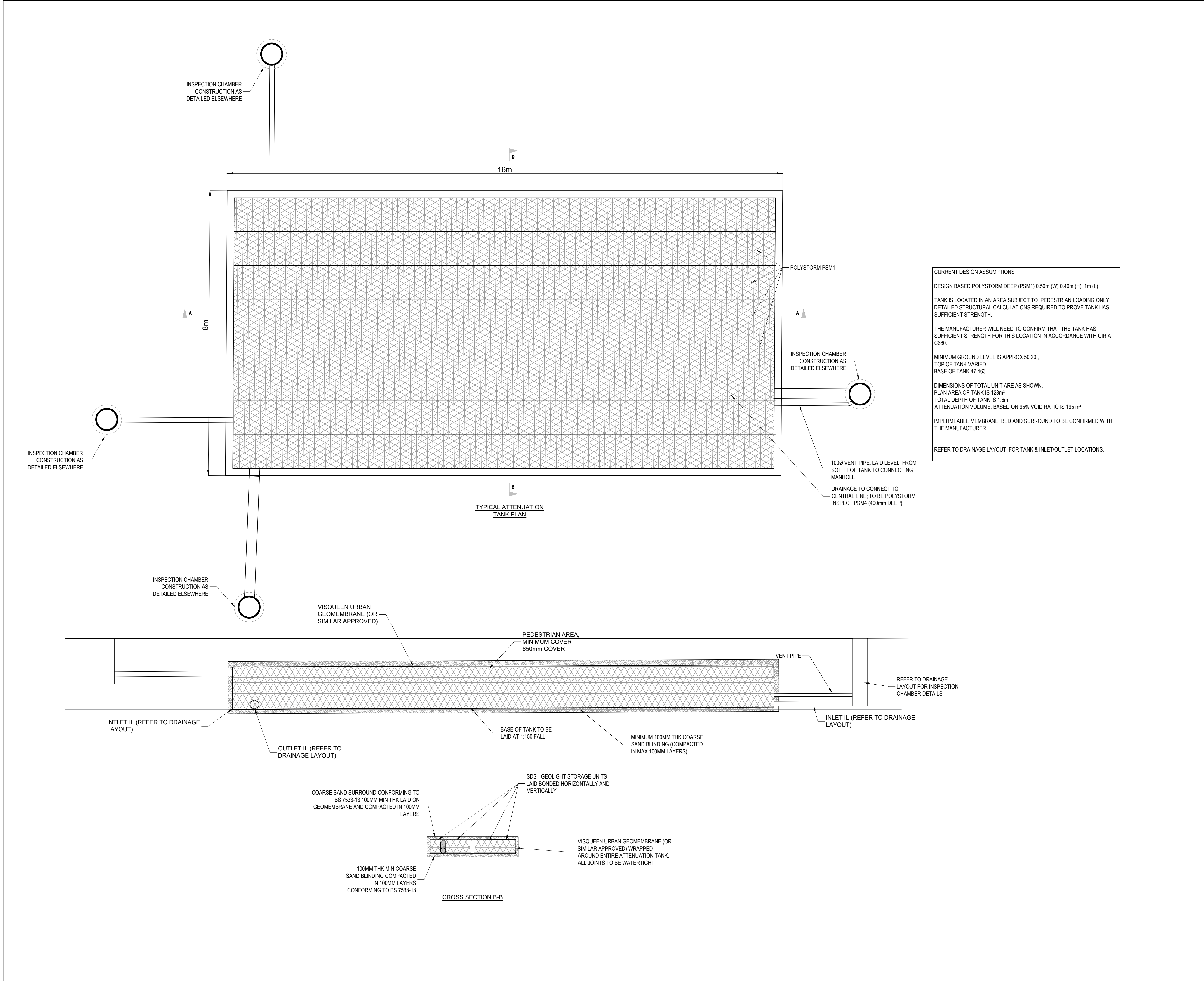
Orig Title: **TYPICAL DRAINAGE DETAILS
SHEET 1**

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	28/10/21	CS	CS	CD
Scale:	NTS			
Project No:	Originator:	Volume:	Level:	Type:
JWA	- CUR	- XX	- XX	- DR
C	- C	- 92511	- P02	



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.

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
JWA	- CUR	- XX	- XX	- DR	- C	- 92512	- P02



CURRENT DESIGN ASSUMPTIONS

DESIGN BASED POLYSTORM DEEP (PSM1) 0.50m (W) 0.40m (H), 1m (L)

TANK IS LOCATED IN AN AREA SUBJECT TO PEDESTRIAN LOADING ONLY. DETAILED STRUCTURAL CALCULATIONS REQUIRED TO PROVE TANK HAS SUFFICIENT STRENGTH.

THE MANUFACTURER WILL NEED TO CONFIRM THAT THE TANK HAS SUFFICIENT STRENGTH FOR THIS LOCATION IN ACCORDANCE WITH CIRIA C680.

MINIMUM GROUND LEVEL IS APPROX 50.20 ,
TOP OF TANK VARIED
BASE OF TANK 47.463

DIMENSIONS OF TOTAL UNIT ARE AS SHOWN.
PLAN AREA OF TANK IS 128m²
TOTAL DEPTH OF TANK IS 1.6m.
ATTENUATION VOLUME, BASED ON 95% VOID RATIO IS 195 m³

IMPERMEABLE MEMBRANE, BED AND SURROUND TO BE CONFIRMED WITH THE MANUFACTURER.

REFER TO DRAINAGE LAYOUT FOR TANK & INLET/OUTLET LOCATIONS.

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.

P02	UPDATED FOR PLANNING CONDITION ISSUE	01/02/23	CS	CG
P01	ISSUED FOR STAGE 3	02/11/21	CS	CD
Rev:	Description:	Date:	By:	Chkd:

Curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG

0161 235 2354

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 • Kentish • Leeds • Liverpool • London • Manchester • Nottingham

Status:

SUITABLE FOR INFORMATION

S2

Project:

MANLIFE BOA PLOT C

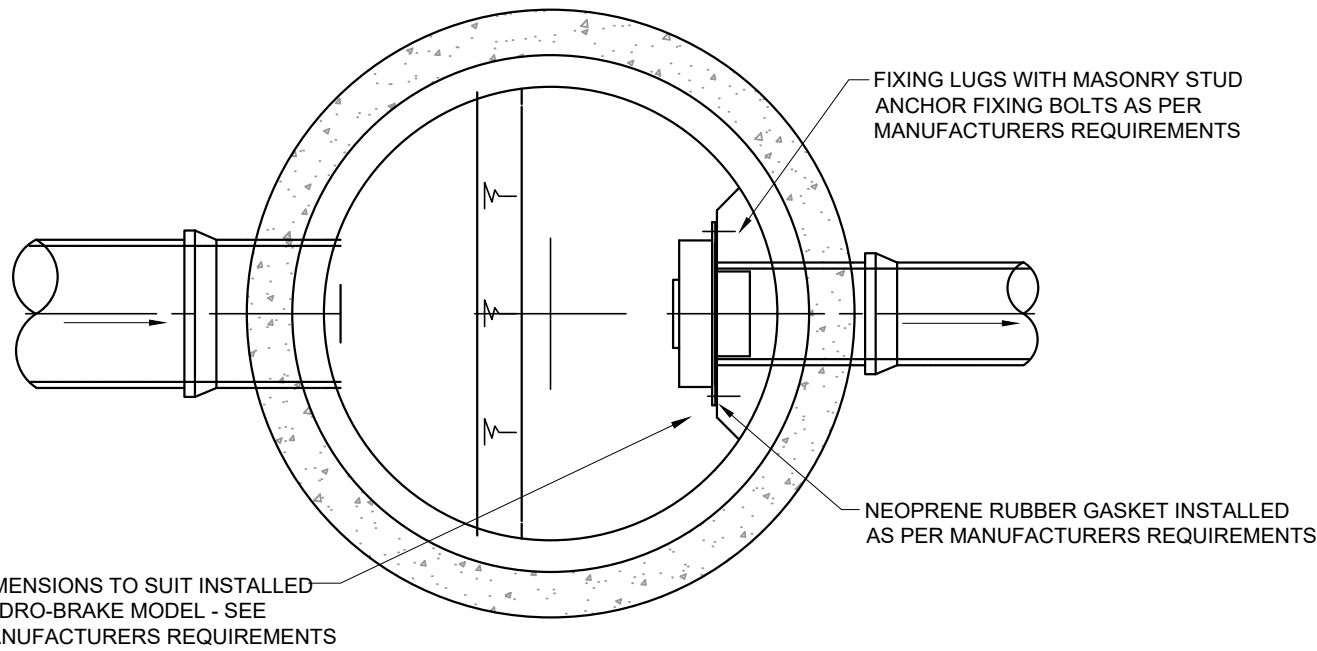
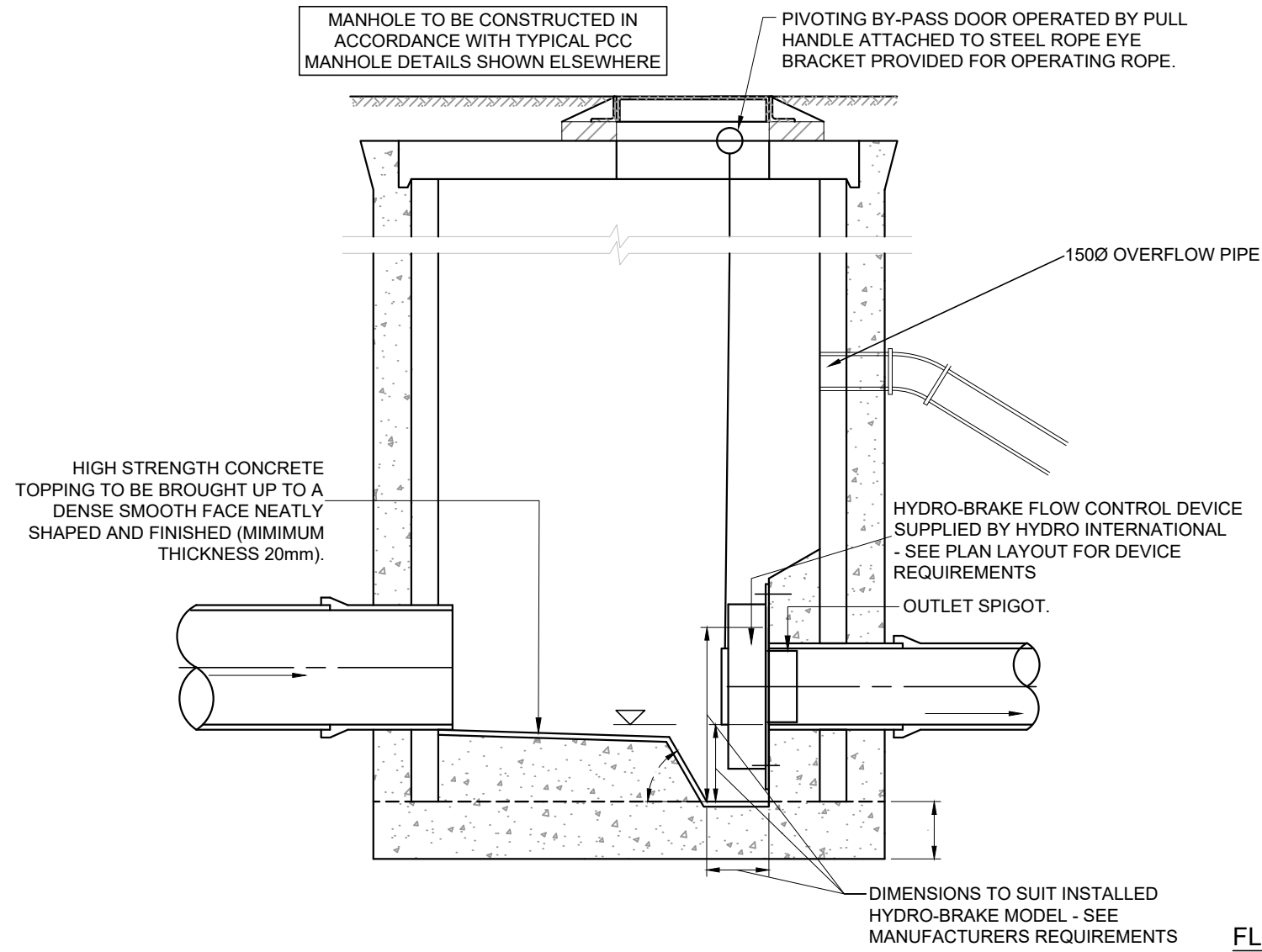
Orig Title:

TYPICAL DRAINAGE DETAILS
SHEET 3

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	28/10/21	CS	CS	CD

Scale:	NTS						
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
077879	- CUR	- XX	- XX	- DR	- C	- 92513	- P01

077879 - CUR - XX - XX - DR - C - 92513 - P01



FLOW CONTROL MANHOLE
(HYDRO-BRAKE)

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.

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.400	5.000
Flush-Flo™	0.416	4.991
Kick-Flo®	0.855	3.980
Mean Flow	4.382	

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, o/w stainless steel operating rope
- Bead blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Indicative Weight: 18 kg

hydro-int.com/patents

IMPORTANT: LIMIT OF HYDRO INTERNATIONAL SUPPLY THE DEVICE WILL BE HANDLED TO SUIT SITE CONDITIONS FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL. ALL CIVIL AND INSTALLATION WORK BY OTHERS *WHERE SUPPLIED HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVISE !

The head/flow characteristics of this SHE-0100-5000-1400-5000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve. The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International

SHE-0100-5000-1400-5000 Hydro-Brake® Optimum

DATE	31/01/2023 09:36
SITE	Jersey Wharf
DESIGNER	Charlie Smith
REF	SW31

© 2023 Hydro International Ltd, Shearwater House, Clevedon Hall Estate, Victoria Road, Clevedon, BS21 7RD. Tel: 01275 878371 Fax: 01275 874879 Web: www.hydro-int.com Email: enquiries@hydro-int.com charlie.smith@curtins.com

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.400	5.000
Flush-Flo	0.416	4.991
Kick-Flo®	0.855	3.980
Mean Flow		4.382

hydro-int.com/patents

Head (m)	Flow (l/s)
0.000	0.000
0.048	1.130
0.097	3.168
0.145	4.196
0.193	4.532
0.241	4.747
0.290	4.880
0.338	4.954
0.386	4.986
0.434	4.989
0.483	4.971
0.531	4.936
0.579	4.885
0.628	4.817
0.676	4.723
0.724	4.597
0.772	4.424
0.821	4.194
0.869	4.010
0.917	4.111
0.966	4.209
1.014	4.305
1.062	4.399
1.110	4.490
1.159	4.579
1.207	4.667
1.255	4.752
1.303	4.836
1.352	4.918
1.400	4.999

DESIGN ADVISE !

The head/flow characteristics of this SHE-0100-5000-1400-5000 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve. The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International

SHE-0100-5000-1400-5000 Hydro-Brake Optimum®

DATE	31/01/2023 09:36
Site	Jersey Wharf
DESIGNER	Charlie Smith
Ref	SW31

© 2018 Hydro International, Shearwater House, Clevedon Hall Estate, Victoria Road, Clevedon, BS21 7RD. Tel: 01275 878371 Fax: 01275 874879 Web: www.hydro-int.com Email: designtools@hydro-int.com

P01 UPDATED FOR PLANNING CONDITIONS ISSUE

01/02/23

CS

CG

Rev:

Description:

Date:

By:

Chkd:

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG

0161 235 2334

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 • Kentish • Leeds • Liverpool • London • Manchester • Nottingham

Status:

SUITABLE FOR INFORMATION

S2

Project:

MANLIFE BOA PLOT C

Orig Title:

TYPICAL DRAINAGE DETAILS SHEET 4

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	28/10/21	CS	CS	CD

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
JWA	- CUR	- XX	- XX	- DR	- C	- 92514	- P01

Manhole schedule- Surface Water													
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (mm)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	COVER TYPE	RECESSED	RESTRICTED ACCESS	BACK DROP	COMMENTS
S1	50.450	49.075	1.15	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S2	50.200	49.026	0.95	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S3	49.650	48.168	1.26	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S4	49.670	48.123	1.32	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S4A	49.670	48.100	1.35	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S5	49.670	48.055	1.39	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S6	49.670	48.003	1.44	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S7	49.700	47.985	1.49	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S8	49.670	47.921	1.52	225	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S9	49.670	47.795	1.58	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S10	49.670	47.737	1.63	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S11	50.500	49.100	1.25	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S12	49.870	47.721	1.85	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S13	50.350	48.900	1.30	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S14	50.200	48.750	1.30	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S15	49.700	47.670	1.73	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	Y	BD IL = 48.250, ACCESS RESTRICTED TO 350mm
S16	49.750	47.661	1.79	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S17	49.670	47.582	1.79	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S18	49.675	47.558	1.82	300	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm, CATCHPIT 300mm SUMP
S19	50.600	49.170	1.28	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S20	50.460	49.120	1.19	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S21	50.270	49.048	1.07	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S22	50.120	48.978	0.99	150	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm, CATCHPIT 300mm SUMP
S23	49.990	49.170	0.67	150	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S24	49.750	48.650	0.95	150	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm, CATCHPIT 300mm SUMP
S25	49.700	47.463	1.94	300	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm, CATCHPIT 300mm SUMP
S26	OMITTED												
S27	49.650	47.388	1.96	300	600	PPIC	600X600	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
S28	49.650	47.189	2.01	450	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	HIGH LEVEL INVERT CONNECTIL: 48.500, CATCHPIT 300mm SUMP
S29	50.000	47.169	2.38	450	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
S29A	50.000	47.160	2.39	450	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
S30	50.000	47.143	2.41	450	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
S30A	49.950	47.126	2.37	450	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
S31	49.950	47.106	2.62	225	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	Y	FLOW CONTROL CHAMBER. F;OW RESTRICTED TO MAX 5l/s
S32	49.850	48.450	1.25	150	600	PPIC	600X600	D400	DOUBLE SEALED	TBC BY LA	N	N	BD IL = 48.340

Manhole schedule- Foul/Combined Water													
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (mm)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	COVER TYPE	RECESSED	RESTRICTED ACCESS	BACK DROP	COMMENTS
F1	50.340	48.950	1.24	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F2	49.750	48.373	1.23	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F3	OMITTED												
F4	49.680	48.283	1.25	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F5	OMITTED												
F6	50.600	49.170	1.28	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F6A	50.460	49.068	1.24	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F7	50.270	48.820	1.30	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F8	50.120	48.678	1.29	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F9	49.980	48.614	1.22	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F10	49.670	47.816	1.70	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F11	OMITTED												
F12	OMITTED												
F13	49.650	47.527	1.97	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F13A	50.000	47.440	2.41	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F14	50.000	47.390	2.46	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F15	OMITTED												
F16	49.950	47.289	2.51	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F17	49.950	47.217	2.58	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F18	50.000	48.750	1.10	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	N	N	
F19	49.880	48.600	1.13	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	N	N	
F20	49.680	48.173	1.36	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	N	N	
F21	49.680	48.086	1.44	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F22	49.680	48.045	1.49	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F23	OMITTED												
F23A	49.680	47.934	1.60	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F24	49.680	47.896	1.63	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F25	49.680	47.782	1.75	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F26	49.650	47.600	1.90	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F27	50.200	47.470	2.58	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
F28	50.500	47.400	2.95	150	450	PPIC	450x450	D400	SINGLE SEALED	TBC BY LA	Y	N	ACCESS RESTRICTED TO 350mm
CO1	49.950	47.086	2.56	300	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
CO2	49.780	47.056 EST		TBC	1500	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	
CO3	50.500	46.400 EST		TBC	1200	TYPE 2	600X600	D400	SINGLE SEALED	TBC BY LA	N	N	

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. ALL ADOPTABLE DRAINAGE WORKS INCLUDING WORKS TO EXISTING PUBLIC SEWERS TO BE UNDERTAKEN IN ACCORDANCE WITH "SEWERS FOR ADOPTION 7th EDITION" AND "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION" AND CONSTRUCTED TO THE RELEVANT STATUTORY UNDERTAKERS DETAILS.
3. ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH CURTINS DRAINAGE SPECIFICATION, "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION", BS EN 752 2017 'DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS' AND THE BUILDING REGULATIONS APPROVED 'DOCUMENT H'.
4. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
5. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
6. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.
7. COVER LEVELS HAVE BEEN ASSUMED AND REQUIRE CONFIRMATION FROM THE LANDSCAPE ARCHITECT.
8. ALL MANHOLE COVERS IN BLOCK/SLAB AND EXTERNAL PAVING AREAS MAY REQUIRE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT THE LANDSCAPE ARCHITECT'S PAVING PROPOSAL. TBC BY LANDSCAPE ARCHITECT.
9. THE LANDSCAPE ARCHITECT MAY REQUIRE THE ORIENTATION OF CHAMBER COVERS TO BE CO-ORDINATED WITH THE PAVING PATTERN. THIS WILL BE SUBJECT TO REVIEW WITH THE MANHOLE INTERNAL BENCHING ARRANGEMENT, LANDING AND STEP LOCATION AND IF REQUIRED, SHOULD BE ADVISED TO US AS SOON AS POSSIBLE.
10. ALL MANHOLE, GULLY AND CHANNEL (ACCESS/OUTLET) COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
 - B125 LOAD CLASS IN PEDESTRIAN AREAS
 - D400 LOAD CLASS IN VEHICULAR AREAS.ANY AMBIGUITIES ON DRAWINGS/ACCESS AND MAINTENANCE STRATEGY SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

P04	ISSUED FOR PLANNING CONDITIONS UPDATE	01/02/23	CS	CG
P03	ISSUED FOR PLANNING	03/05/22	CS	CG
P02	STAGE 3 UPDATE	14/12/21	CS	CG
P01	STAGE 3 ISSUE	02/11/21	CS	CD
Rev:	Description:	Date:	By:	Chkd:



Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 238 2384
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 • Kentish • Leeds • Liverpool • London • Manchester • Nottingham

Status:STAGE 3

Project:MANLIFE BOA PLOT C

Orig Title:MANHOLE SCHEDULE

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	27/10/21	CS	CS	CD			
Scale:	NTS						
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
JWA - CUR - XX - XX - DR - C - 92520 - P04							

\\ms02\Projects\07701 - 07800\077815 - Manlife BOA Plot C\4-Production\4-Models Drawings\CD\0201

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SW1	0.004	5.00	50.450	600	385336.393	398820.325	1.375
SW2	0.008	5.00	50.200	600	385339.329	398813.982	1.174
SW3			49.650	600	385343.766	398805.245	1.482
SW4	0.003	5.00	49.670	600	385337.175	398801.611	1.547
SW4A			49.670	600	385333.800	398799.746	1.570
SW5	0.013	5.00	49.670	600	385327.124	398796.067	1.615
SW6	0.039	5.00	49.670	600	385322.805	398793.682	1.645
SW7	0.024	5.00	49.700	600	385316.908	398790.433	1.715
SW8	0.022	5.00	49.670	600	385310.621	398786.966	1.749
SW9	0.006	5.00	49.670	600	385298.519	398780.292	1.875
SW10	0.008	5.00	49.670	600	385294.411	398778.025	1.933
SW11	0.013	5.00	50.500	600	385281.458	398788.625	1.400
SW12	0.035	5.00	49.870	600	385288.858	398774.964	2.170
SW13	0.015	5.00	50.350	600	385275.434	398779.253	1.450
SW14	0.009	5.00	50.200	600	385277.062	398776.279	1.450
SW15	0.009	5.00	49.700	600	385283.281	398764.893	2.030
SW16			49.760	600	385284.316	398763.023	2.099
SW17	0.032	5.00	49.670	600	385276.795	398756.668	2.088
SW18			49.675	1200	385268.060	398752.191	2.117
SW19	0.008	5.00	50.600	600	385262.404	398761.501	1.430
SW20	0.026	5.00	50.460	600	385258.052	398759.093	1.340
SW21	0.003	5.00	50.270	600	385251.271	398755.334	1.228
SW22	0.017	5.00	50.120	1200	385245.825	398752.315	1.142
SW23	0.018	5.00	49.990	600	385241.666	398750.029	0.820
SW24	0.008	5.00	49.750	1200	385244.712	398739.572	1.100
SW25	0.056	5.00	49.700	1200	385252.972	398737.591	2.237
SW27	0.003	5.00	49.650	600	385238.242	398725.414	2.262
SW28	0.008	5.00	49.650	1200	385229.948	398719.063	2.461
SW29	0.005	5.00	50.000	1200	385225.921	398725.776	2.831
SW29A			50.000	1200	385224.040	398728.762	2.840
SW30	0.011	5.00	50.000	1200	385220.577	398734.258	2.857
SW30A			49.950	1200	385216.509	398740.854	2.827
SW31	0.019	5.00	49.950	1200	385212.980	398746.576	2.844
SW32	0.024	5.00	49.850	600	385222.159	398752.336	1.400
CO1			49.850	1200	385210.339	398752.397	2.764
CO2			49.780	1200	385206.807	398758.498	2.724

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	SW1	SW2	6.990	0.600	49.075	49.026	0.049	142.6	225	5.11	50.0
1.001	SW2	SW3	9.799	0.600	49.026	48.168	0.858	11.4	225	5.15	50.0
1.002	SW3	SW4	7.526	0.600	48.168	48.123	0.045	167.3	225	5.27	50.0
1.003	SW4	SW4A	3.856	0.600	48.123	48.100	0.023	170.0	225	5.34	50.0
1.004	SW4A	SW5	7.623	0.600	48.100	48.055	0.045	169.4	225	5.46	50.0
1.005	SW5	SW6	4.934	0.600	48.055	48.025	0.030	164.5	225	5.55	50.0
1.006	SW6	SW7	6.733	0.600	48.025	47.985	0.040	168.3	225	5.66	50.0
1.007	SW7	SW8	7.180	0.600	47.985	47.921	0.064	112.2	225	5.75	50.0
1.008	SW8	SW9	13.820	0.600	47.921	47.870	0.051	271.0	225	6.05	50.0
1.009	SW9	SW10	4.692	0.600	47.795	47.767	0.028	170.0	300	6.11	50.0
1.010	SW10	SW12	6.341	0.600	47.737	47.700	0.037	170.0	300	6.20	50.0
2.000	SW11	SW12	15.537	0.600	49.100	47.871	1.229	12.6	150	5.09	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)
1.000	1.092	43.4	0.5	1.150	0.949	0.004	0.0
1.001	3.893	154.8	1.6	0.949	1.257	0.012	0.0
1.002	1.008	40.1	1.6	1.257	1.322	0.012	0.0
1.003	1.000	39.7	2.0	1.322	1.345	0.015	0.0
1.004	1.001	39.8	2.0	1.345	1.390	0.015	0.0
1.005	1.017	40.4	3.8	1.390	1.420	0.028	0.0
1.006	1.005	39.9	9.1	1.420	1.490	0.067	0.0
1.007	1.233	49.0	12.3	1.490	1.524	0.091	0.0
1.008	0.789	31.4	15.3	1.524	1.575	0.113	0.0
1.009	1.203	85.0	16.1	1.575	1.603	0.119	0.0
1.010	1.203	85.0	17.2	1.633	1.870	0.127	0.0
2.000	2.849	50.3	1.8	1.250	1.849	0.013	0.0

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)
1.011	11.512	225.0	300	Circular	49.870	47.721	1.849	49.700	47.670	1.730
3.000	3.390	22.6	150	Circular	50.350	48.900	1.300	50.200	48.750	1.300
3.001	12.974	25.9	150	Circular	50.200	48.750	1.300	49.700	48.250	1.300
1.012	2.137	225.0	300	Circular	49.700	47.670	1.730	49.760	47.661	1.799
1.013	9.846	225.0	300	Circular	49.760	47.661	1.799	49.670	47.617	1.753
1.014	9.815	409.0	300	Circular	49.670	47.582	1.788	49.675	47.558	1.817
1.015	20.995	225.0	300	Circular	49.675	47.558	1.817	49.700	47.465	1.935
5.000	4.974	100.0	150	Circular	50.600	49.170	1.280	50.460	49.120	1.190
5.001	7.753	100.0	150	Circular	50.460	49.120	1.190	50.270	49.042	1.078
5.002	6.227	89.0	150	Circular	50.270	49.048	1.072	50.120	48.978	0.992
6.000	4.746	24.7	150	Circular	49.990	49.170	0.670	50.120	48.978	0.992
4.000	48.650	59.5	150	Circular	49.750	48.650	0.950	49.700	47.832	1.718
5.003	16.367	43.3	150	Circular	50.120	48.978	0.992	49.700	48.600	0.950
1.016	19.112	254.8	300	Circular	49.700	47.463	1.937	49.650	47.388	1.962
1.017	10.446	213.2	300	Circular	49.650	47.388	1.962	49.650	47.339	2.011
1.018	7.828	400.0	450	Circular	49.650	47.189	2.011	50.000	47.169	2.381
1.019	3.529	385.6	450	Circular	50.000	47.169	2.381	50.000	47.160	2.390
1.020	6.496	385.6	450	Circular	50.000	47.160	2.390	50.000	47.143	2.407
1.021	7.750	391.1	450	Circular	50.000	47.143	2.407	49.950	47.123	2.377
1.022	6.723	391.1	450	Circular	49.950	47.123	2.377	49.950	47.106	2.394
7.000	10.837	100.0	150	Circular	49.850	48.450	1.250	49.950	48.342	1.458
1.023	6.392	319.6	225	Circular	49.950	47.106	2.619	49.850	47.086	2.539
1.024	7.050	235.0	225	Circular	49.850	47.086	2.539	49.780	47.056	2.499

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.011	SW12	600	Manhole	Adoptable	SW15	600	Manhole	Adoptable
3.000	SW13	600	Manhole	Adoptable	SW14	600	Manhole	Adoptable
3.001	SW14	600	Manhole	Adoptable	SW15	600	Manhole	Adoptable
1.012	SW15	600	Manhole	Adoptable	SW16	600	Manhole	Adoptable
1.013	SW16	600	Manhole	Adoptable	SW17	600	Manhole	Adoptable
1.014	SW17	600	Manhole	Adoptable	SW18	1200	Manhole	Adoptable
1.015	SW18	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
5.000	SW19	600	Manhole	Adoptable	SW20	600	Manhole	Adoptable
5.001	SW20	600	Manhole	Adoptable	SW21	600	Manhole	Adoptable
5.002	SW21	600	Manhole	Adoptable	SW22	1200	Manhole	Adoptable
6.000	SW23	600	Manhole	Adoptable	SW22	1200	Manhole	Adoptable
4.000	SW24	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
5.003	SW22	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
1.016	SW25	1200	Manhole	Adoptable	SW27	600	Manhole	Adoptable
1.017	SW27	600	Manhole	Adoptable	SW28	1200	Manhole	Adoptable
1.018	SW28	1200	Manhole	Adoptable	SW29	1200	Manhole	Adoptable
1.019	SW29	1200	Manhole	Adoptable	SW29A	1200	Manhole	Adoptable
1.020	SW29A	1200	Manhole	Adoptable	SW30	1200	Manhole	Adoptable
1.021	SW30	1200	Manhole	Adoptable	SW30A	1200	Manhole	Adoptable
1.022	SW30A	1200	Manhole	Adoptable	SW31	1200	Manhole	Adoptable
7.000	SW32	600	Manhole	Adoptable	SW31	1200	Manhole	Adoptable
1.023	SW31	1200	Manhole	Adoptable	CO1	1200	Manhole	Adoptable
1.024	CO1	1200	Manhole	Adoptable	CO2	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SW1	385336.393	398820.325	50.450	1.375	600		0	1.000	49.075	225
SW2	385339.329	398813.982	50.200	1.174	600		1	1.000	49.026	225
SW3	385343.766	398805.245	49.650	1.482	600		0	1.001	49.026	225
SW4	385337.175	398801.611	49.670	1.547	600		1	1.001	48.168	225
SW4A	385333.800	398799.746	49.670	1.570	600		0	1.002	48.168	225
SW5	385327.124	398796.067	49.670	1.615	600		1	1.002	48.123	225
SW6	385322.805	398793.682	49.670	1.645	600		0	1.003	48.123	225
							1	1.003	48.100	225
							0	1.004	48.100	225
							1	1.004	48.055	225
							0	1.005	48.055	225
							1	1.005	48.025	225
							0	1.006	48.025	225

CAUSEWAY		Curtins Consulting Ltd 17-19 WHITWORTH STREET WEST, MANCHESTER M1 5WG				File: 077879-CUR-XX-XX-CA-C-92500-P01_SW Network: Storm Network Charlie Smith 29.10.2021				Page 4 JWA-CUR-XX-XX-CA-C-92500-P01 SURFACE WATER NETWORK NON-SURCHARGED OUTFALL	
Manhole Schedule											
Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)		
SW7	385316.908	398790.433	49.700	1.715	600	1 0	1.006	47.985	225		
						0	1.007	47.985	225		
SW8	385310.621	398786.966	49.670	1.749	600	1 0	1.007	47.921	225		
						0	1.008	47.921	225		
SW9	385298.519	398780.292	49.670	1.875	600	1 0	1.008	47.870	225		
						0	1.009	47.795	300		
SW10	385294.411	398778.025	49.670	1.933	600	1 0	1.009	47.767	300		
						0	1.010	47.737	300		
SW11	385281.458	398788.625	50.500	1.400	600	0	2.000	49.100	150		
SW12	385288.858	398774.964	49.870	2.170	600	1 2 0	2.000	47.871	150		
						2	1.010	47.700	300		
						0	1.011	47.721	300		
SW13	385275.434	398779.253	50.350	1.450	600	0	3.000	48.900	150		
SW14	385277.062	398776.279	50.200	1.450	600	1 0	3.000	48.750	150		
						0	3.001	48.750	150		
SW15	385283.281	398764.893	49.700	2.030	600	1 2 0	3.001	48.250	150		
						2	1.011	47.670	300		
						0	1.012	47.670	300		
SW16	385284.316	398763.023	49.760	2.099	600	1 0	1.012	47.661	300		
						0	1.013	47.661	300		
SW17	385276.795	398756.668	49.670	2.088	600	1 0	1.013	47.617	300		
						0	1.014	47.582	300		
SW18	385268.060	398752.191	49.675	2.117	1200	1 0	1.014	47.558	300		
						0	1.015	47.558	300		
SW19	385262.404	398761.501	50.600	1.430	600	0	5.000	49.170	150		
SW20	385258.052	398759.093	50.460	1.340	600	1 0	5.000	49.120	150		
						0	5.001	49.120	150		
SW21	385251.271	398755.334	50.270	1.228	600	1 0	5.001	49.042	150		
						0	5.002	49.048	150		
SW22	385245.825	398752.315	50.120	1.142	1200	1 2 0	6.000	48.978	150		
						2	5.002	48.978	150		
						0	5.003	48.978	150		
SW23	385241.666	398750.029	49.990	0.820	600	0	6.000	49.170	150		
SW24	385244.712	398739.572	49.750	1.100	1200	0	4.000	48.650	150		
						0	5.003	48.600	150		
SW25	385252.972	398737.591	49.700	2.237	1200	1 2 3 0	4.000	47.832	150		
						2	1.015	47.465	300		
						0	1.016	47.463	300		
SW27	385238.242	398725.414	49.650	2.262	600	1 0	1.016	47.388	300		
						0	1.017	47.388	300		

Flow+ v10.2 Copyright © 1988-2023 Causeway Technologies Ltd

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW28	385229.948	398719.063	49.650	2.461	1200	 1	1.017	47.339	300
						0	1.018	47.189	450
SW29	385225.921	398725.776	50.000	2.831	1200	 1	1.018	47.169	450
						0	1.019	47.169	450
SW29A	385224.040	398728.762	50.000	2.840	1200	 1	1.019	47.160	450
						0	1.020	47.160	450
SW30	385220.577	398734.258	50.000	2.857	1200	 1	1.020	47.143	450
						0	1.021	47.143	450
SW30A	385216.509	398740.854	49.950	2.827	1200	 1	1.021	47.123	450
						0	1.022	47.123	450
SW31	385212.980	398746.576	49.950	2.844	1200	 1 2	7.000	48.342	150
						0	1.022	47.106	450
						0	1.023	47.106	225
SW32	385222.159	398752.336	49.850	1.400	600	 0			
						0	7.000	48.450	150
CO1	385210.339	398752.397	49.850	2.764	1200	 1	1.023	47.086	225
						0	1.024	47.086	225
CO2	385206.807	398758.498	49.780	2.724	1200	 1	1.024	47.056	225

Simulation Settings

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m³/ha)	20.0
M5-60 (mm)	17.000	Analysis Speed	Detailed	Check Discharge Rate(s)	x
Ratio-R	0.400	Skip Steady State	x	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	0	0	0				

Node SW31 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	47.106	Product Number	CTL-SHE-0100-5000-1400-5000
Design Depth (m)	1.400	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node SW25 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	47.463
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	244

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	128.0	0.0	1.600	128.0	0.0	1.601	0.0	0.0

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW1	10	49.092	0.017	0.5	0.0058	0.0000	OK
15 minute winter	SW2	10	49.041	0.015	1.5	0.0065	0.0000	OK
15 minute winter	SW3	11	48.197	0.029	1.4	0.0083	0.0000	OK
15 minute winter	SW4	11	48.157	0.034	1.8	0.0108	0.0000	OK
15 minute winter	SW4A	11	48.132	0.032	1.7	0.0090	0.0000	OK
15 minute winter	SW5	11	48.103	0.048	3.2	0.0214	0.0000	OK
15 minute winter	SW6	11	48.099	0.074	7.6	0.0557	0.0000	OK
15 minute winter	SW7	11	48.063	0.078	10.3	0.0438	0.0000	OK
15 minute winter	SW8	11	48.026	0.105	12.9	0.0561	0.0000	OK
15 minute winter	SW9	11	47.884	0.089	13.6	0.0309	0.0000	OK
15 minute winter	SW10	11	47.848	0.111	14.5	0.0406	0.0000	OK
15 minute winter	SW11	11	49.118	0.018	1.5	0.0084	0.0000	OK
15 minute winter	SW12	11	47.841	0.141	19.9	0.0855	0.0000	OK
15 minute winter	SW13	10	48.923	0.023	1.8	0.0110	0.0000	OK
15 minute winter	SW14	10	48.780	0.030	2.9	0.0120	0.0000	OK
15 minute winter	SW15	11	47.811	0.141	23.6	0.0523	0.0000	OK
15 minute winter	SW16	11	47.787	0.126	23.5	0.0357	0.0000	OK
15 minute winter	SW17	11	47.735	0.153	27.0	0.0899	0.0000	OK
15 minute winter	SW18	12	47.689	0.131	26.8	0.1477	0.0000	OK
15 minute winter	SW19	10	49.194	0.024	1.0	0.0094	0.0000	OK
15 minute winter	SW20	10	49.171	0.051	4.1	0.0344	0.0000	OK
15 minute winter	SW21	10	49.101	0.059	4.4	0.0194	0.0000	OK
15 minute winter	SW22	11	49.037	0.059	8.4	0.0845	0.0000	OK
15 minute winter	SW23	10	49.195	0.025	2.1	0.0178	0.0000	OK
15 minute winter	SW24	11	48.670	0.020	1.0	0.0259	0.0000	OK
120 minute winter	SW25	92	47.607	0.144	14.2	17.7597	0.0000	OK
60 minute winter	SW27	52	47.609	0.221	17.3	0.0682	0.0000	OK
60 minute winter	SW28	52	47.609	0.420	15.1	0.5027	0.0000	OK
60 minute winter	SW29	52	47.610	0.441	13.0	0.5137	0.0000	OK
60 minute winter	SW29A	52	47.610	0.450	10.9	0.5085	0.0000	OK
60 minute winter	SW30	52	47.610	0.467	9.6	0.5638	0.0000	SURCHARGE
60 minute winter	SW30A	52	47.610	0.487	7.0	0.5505	0.0000	SURCHARGE
60 minute winter	SW31	49	47.610	0.504	6.6	0.6372	0.0000	SURCHARGE
15 minute winter	SW32	10	48.492	0.042	2.9	0.0263	0.0000	OK
240 minute summer	CO1	152	47.148	0.062	5.0	0.0697	0.0000	OK
240 minute winter	CO2	148	47.113	0.057	5.0	0.0000	0.0000	OK

58.2

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	49.101	0.026	1.2	0.0090	0.0000	OK
15 minute winter	SW2	10	49.049	0.023	3.5	0.0097	0.0000	OK
15 minute winter	SW3	10	48.214	0.046	3.4	0.0130	0.0000	OK
15 minute winter	SW4	11	48.180	0.057	4.3	0.0183	0.0000	OK
15 minute winter	SW4A	11	48.165	0.065	4.3	0.0183	0.0000	OK
15 minute winter	SW5	11	48.163	0.108	7.9	0.0480	0.0000	OK
15 minute winter	SW6	11	48.160	0.135	18.7	0.1020	0.0000	OK
15 minute winter	SW7	11	48.135	0.150	25.3	0.0842	0.0000	OK
15 minute winter	SW8	11	48.108	0.187	31.4	0.0997	0.0000	OK
180 minute winter	SW9	176	48.035	0.240	8.1	0.0834	0.0000	OK
180 minute winter	SW10	176	48.036	0.299	8.6	0.1093	0.0000	OK
15 minute winter	SW11	10	49.128	0.028	3.8	0.0130	0.0000	OK
180 minute winter	SW12	176	48.036	0.336	11.9	0.2030	0.0000	SURCHARGED
15 minute winter	SW13	10	48.936	0.036	4.4	0.0179	0.0000	OK
15 minute winter	SW14	10	48.797	0.047	7.0	0.0191	0.0000	OK
180 minute winter	SW15	176	48.036	0.366	14.1	0.1357	0.0000	SURCHARGED
180 minute winter	SW16	176	48.036	0.375	14.0	0.1060	0.0000	SURCHARGED
180 minute winter	SW17	176	48.036	0.454	16.1	0.2672	0.0000	SURCHARGED
180 minute winter	SW18	176	48.036	0.477	15.7	0.5401	0.0000	SURCHARGED
15 minute winter	SW19	10	49.207	0.037	2.3	0.0144	0.0000	OK
15 minute winter	SW20	10	49.209	0.089	9.8	0.0596	0.0000	OK
15 minute winter	SW21	10	49.141	0.099	10.6	0.0329	0.0000	OK
15 minute winter	SW22	10	49.082	0.104	20.7	0.1491	0.0000	OK
15 minute winter	SW23	10	49.209	0.039	5.2	0.0278	0.0000	OK
15 minute winter	SW24	11	48.682	0.032	2.3	0.0402	0.0000	OK
180 minute winter	SW25	176	48.035	0.572	24.1	70.5179	0.0000	SURCHARGED
180 minute winter	SW27	176	48.035	0.647	12.3	0.1999	0.0000	SURCHARGED
180 minute winter	SW28	176	48.035	0.846	10.6	1.0116	0.0000	SURCHARGED
180 minute winter	SW29	176	48.035	0.866	8.9	1.0095	0.0000	SURCHARGED
180 minute winter	SW29A	176	48.035	0.875	7.5	0.9894	0.0000	SURCHARGED
180 minute winter	SW30	176	48.035	0.892	6.7	1.0772	0.0000	SURCHARGED
180 minute winter	SW30A	176	48.035	0.912	5.3	1.0312	0.0000	SURCHARGED
180 minute winter	SW31	176	48.035	0.929	5.9	1.1748	0.0000	SURCHARGED
15 minute winter	SW32	10	48.519	0.069	7.0	0.0431	0.0000	OK
120 minute summer	CO1	322	47.148	0.062	5.0	0.0697	0.0000	OK
120 minute summer	CO2	322	47.113	0.057	5.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	1.000	SW2	1.2	0.497	0.027	0.0166	94.6
15 minute winter	SW2	1.001	SW3	3.4	0.894	0.022	0.0391	
15 minute winter	SW3	1.002	SW4	3.4	0.507	0.085	0.0512	
15 minute winter	SW4	1.003	SW4A	4.3	0.579	0.107	0.0332	
15 minute winter	SW4A	1.004	SW5	4.4	0.390	0.110	0.1077	
15 minute winter	SW5	1.005	SW6	8.0	0.423	0.197	0.1077	
15 minute winter	SW6	1.006	SW7	18.7	0.713	0.469	0.1779	
15 minute winter	SW7	1.007	SW8	25.4	0.798	0.517	0.2271	
15 minute winter	SW8	1.008	SW9	31.4	0.991	1.002	0.4356	
15 minute winter	SW9	1.009	SW10	32.9	0.826	0.386	0.2340	
15 minute winter	SW10	1.010	SW12	34.7	0.553	0.408	0.3973	
15 minute winter	SW11	2.000	SW12	3.8	1.523	0.075	0.1055	
15 minute winter	SW12	1.011	SW15	47.4	0.746	0.642	0.7297	
15 minute winter	SW13	3.000	SW14	4.4	1.096	0.116	0.0136	
15 minute winter	SW14	3.001	SW15	6.9	1.507	0.197	0.0594	
15 minute winter	SW15	1.012	SW16	56.3	0.886	0.763	0.1355	
15 minute winter	SW16	1.013	SW17	55.9	0.922	0.758	0.5975	
15 minute winter	SW17	1.014	SW18	64.2	1.018	1.179	0.6146	
15 minute winter	SW18	1.015	SW25	64.1	1.194	0.869	1.3393	
15 minute winter	SW19	5.000	SW20	2.2	0.330	0.125	0.0352	
15 minute winter	SW20	5.001	SW21	9.7	0.840	0.549	0.0899	
15 minute winter	SW21	5.002	SW22	10.5	0.855	0.558	0.0764	
15 minute winter	SW22	5.003	SW25	20.3	1.622	0.751	0.2051	
15 minute winter	SW23	6.000	SW22	5.2	0.651	0.144	0.0395	
15 minute winter	SW24	4.000	SW25	2.2	0.826	0.096	0.1301	
15 minute winter	SW25	1.016	SW27	40.6	0.895	0.586	1.3459	
15 minute summer	SW27	1.017	SW28	30.4	0.894	0.401	0.7356	
15 minute summer	SW28	1.018	SW29	25.3	0.262	0.158	1.2403	
15 minute winter	SW29	1.019	SW29A	-20.5	0.347	-0.125	0.5591	
15 minute winter	SW29A	1.020	SW30	-18.8	0.231	-0.115	1.0292	
15 minute winter	SW30	1.021	SW30A	-13.7	0.274	-0.084	1.2279	
15 minute winter	SW30A	1.022	SW31	-8.4	0.141	-0.051	1.0652	
15 minute winter	SW31	Hydro-Brake®	CO1	5.0				
15 minute winter	SW32	7.000	SW31	6.9	0.910	0.389	0.0821	
120 minute summer	CO1	1.024	CO2	5.0	0.599	0.148	0.0589	

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	49.110	0.035	2.1	0.0119	0.0000	OK
15 minute winter	SW2	10	49.057	0.031	6.3	0.0129	0.0000	OK
240 minute winter	SW3	232	48.724	0.556	1.2	0.1573	0.0000	SURCHARGED
240 minute winter	SW4	232	48.724	0.601	1.5	0.1935	0.0000	SURCHARGED
240 minute winter	SW4A	232	48.724	0.624	1.5	0.1766	0.0000	SURCHARGED
240 minute winter	SW5	232	48.724	0.669	2.8	0.2970	0.0000	SURCHARGED
240 minute winter	SW6	232	48.724	0.699	6.7	0.5291	0.0000	SURCHARGED
240 minute winter	SW7	232	48.724	0.739	9.1	0.4160	0.0000	SURCHARGED
240 minute winter	SW8	232	48.724	0.803	11.0	0.4287	0.0000	SURCHARGED
240 minute winter	SW9	232	48.724	0.929	11.4	0.3223	0.0000	SURCHARGED
240 minute winter	SW10	232	48.724	0.987	11.4	0.3612	0.0000	SURCHARGED
15 minute winter	SW11	10	49.137	0.037	6.8	0.0174	0.0000	OK
240 minute winter	SW12	232	48.724	1.024	15.3	0.6194	0.0000	SURCHARGED
15 minute winter	SW13	10	48.951	0.051	7.9	0.0251	0.0000	OK
15 minute winter	SW14	10	48.815	0.065	12.6	0.0266	0.0000	OK
240 minute winter	SW15	232	48.724	1.054	18.2	0.3909	0.0000	SURCHARGED
240 minute winter	SW16	232	48.724	1.063	17.9	0.3007	0.0000	SURCHARGED
240 minute winter	SW17	236	48.724	1.142	20.9	0.6724	0.0000	SURCHARGED
240 minute winter	SW18	236	48.724	1.166	20.6	1.3182	0.0000	SURCHARGED
15 minute winter	SW19	12	49.493	0.323	4.2	0.1277	0.0000	SURCHARGED
15 minute winter	SW20	12	49.490	0.370	16.2	0.2481	0.0000	SURCHARGED
15 minute winter	SW21	12	49.416	0.374	16.4	0.1240	0.0000	SURCHARGED
15 minute winter	SW22	12	49.339	0.361	31.9	0.5158	0.0000	SURCHARGED
15 minute winter	SW23	12	49.353	0.183	9.5	0.1322	0.0000	SURCHARGED
240 minute winter	SW24	236	48.724	0.074	0.8	0.0943	0.0000	OK
240 minute winter	SW25	236	48.723	1.260	34.6	155.3263	0.0000	SURCHARGED
240 minute winter	SW27	236	48.723	1.335	9.0	0.4125	0.0000	SURCHARGED
240 minute winter	SW28	236	48.723	1.534	8.0	1.8343	0.0000	SURCHARGED
240 minute winter	SW29	236	48.723	1.554	7.1	1.8115	0.0000	SURCHARGED
240 minute winter	SW29A	236	48.723	1.563	6.3	1.7673	0.0000	SURCHARGED
240 minute winter	SW30	236	48.723	1.580	6.0	1.9081	0.0000	SURCHARGED
240 minute winter	SW30A	236	48.723	1.600	5.2	1.8090	0.0000	SURCHARGED
240 minute winter	SW31	236	48.722	1.616	5.5	2.0448	0.0000	SURCHARGED
240 minute winter	SW32	236	48.722	0.272	2.4	0.1706	0.0000	SURCHARGED
240 minute winter	CO1	236	47.149	0.063	5.3	0.0718	0.0000	OK
240 minute winter	CO2	236	47.115	0.059	5.3	0.0000	0.0000	OK

Flow+ v10.2 Copyright © 1988-2023 Causeway Technologies Ltd

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SW1	0.004	5.00	50.450	600	385336.393	398820.325	1.375
SW2	0.008	5.00	50.200	600	385339.329	398813.982	1.174
SW3			49.650	600	385343.766	398805.245	1.482
SW4	0.003	5.00	49.670	600	385337.175	398801.611	1.547
SW4A			49.670	600	385333.800	398799.746	1.570
SW5	0.013	5.00	49.670	600	385327.124	398796.067	1.615
SW6	0.039	5.00	49.670	600	385322.805	398793.682	1.645
SW7	0.024	5.00	49.700	600	385316.908	398790.433	1.715
SW8	0.022	5.00	49.670	600	385310.621	398786.966	1.749
SW9	0.006	5.00	49.670	600	385298.519	398780.292	1.875
SW10	0.008	5.00	49.670	600	385294.411	398778.025	1.933
SW11	0.013	5.00	50.500	600	385281.458	398788.625	1.400
SW12	0.035	5.00	49.870	600	385288.858	398774.964	2.170
SW13	0.015	5.00	50.350	600	385275.434	398779.253	1.450
SW14	0.009	5.00	50.200	600	385277.062	398776.279	1.450
SW15	0.009	5.00	49.700	600	385283.281	398764.893	2.030
SW16			49.760	600	385284.316	398763.023	2.099
SW17	0.032	5.00	49.670	600	385276.795	398756.668	2.088
SW18			49.675	1200	385268.060	398752.191	2.117
SW19	0.008	5.00	50.600	600	385262.404	398761.501	1.430
SW20	0.026	5.00	50.460	600	385258.052	398759.093	1.340
SW21	0.003	5.00	50.270	600	385251.271	398755.334	1.228
SW22	0.017	5.00	50.120	1200	385245.825	398752.315	1.142
SW23	0.018	5.00	49.990	600	385241.666	398750.029	0.820
SW24	0.008	5.00	49.750	1200	385244.712	398739.572	1.100
SW25	0.056	5.00	49.700	1200	385252.972	398737.591	2.237
SW27	0.003	5.00	49.650	600	385238.242	398725.414	2.262
SW28	0.008	5.00	49.650	1200	385229.948	398719.063	2.461
SW29	0.005	5.00	50.000	1200	385225.921	398725.776	2.831
SW29A			50.000	1200	385224.040	398728.762	2.840
SW30	0.011	5.00	50.000	1200	385220.577	398734.258	2.857
SW30A			49.950	1200	385216.509	398740.854	2.827
SW31	0.019	5.00	49.950	1200	385212.980	398746.576	2.844
SW32	0.024	5.00	49.850	600	385222.159	398752.336	1.400
CO1			49.850	1200	385210.339	398752.397	2.764
CO2			49.780	1200	385206.807	398758.498	2.724

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	SW1	SW2	6.990	0.600	49.075	49.026	0.049	142.6	225	5.11	50.0
1.001	SW2	SW3	9.799	0.600	49.026	48.168	0.858	11.4	225	5.15	50.0
1.002	SW3	SW4	7.526	0.600	48.168	48.123	0.045	167.3	225	5.27	50.0
1.003	SW4	SW4A	3.856	0.600	48.123	48.100	0.023	170.0	225	5.34	50.0
1.004	SW4A	SW5	7.623	0.600	48.100	48.055	0.045	169.4	225	5.46	50.0
1.005	SW5	SW6	4.934	0.600	48.055	48.025	0.030	164.5	225	5.55	50.0
1.006	SW6	SW7	6.733	0.600	48.025	47.985	0.040	168.3	225	5.66	50.0
1.007	SW7	SW8	7.180	0.600	47.985	47.921	0.064	112.2	225	5.75	50.0
1.008	SW8	SW9	13.820	0.600	47.921	47.870	0.051	271.0	225	6.05	50.0
1.009	SW9	SW10	4.692	0.600	47.795	47.767	0.028	170.0	300	6.11	50.0
1.010	SW10	SW12	6.341	0.600	47.737	47.700	0.037	170.0	300	6.20	50.0
2.000	SW11	SW12	15.537	0.600	49.100	47.871	1.229	12.6	150	5.09	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)
1.000	1.092	43.4	0.5	1.150	0.949	0.004	0.0
1.001	3.893	154.8	1.6	0.949	1.257	0.012	0.0
1.002	1.008	40.1	1.6	1.257	1.322	0.012	0.0
1.003	1.000	39.7	2.0	1.322	1.345	0.015	0.0
1.004	1.001	39.8	2.0	1.345	1.390	0.015	0.0
1.005	1.017	40.4	3.8	1.390	1.420	0.028	0.0
1.006	1.005	39.9	9.1	1.420	1.490	0.067	0.0
1.007	1.233	49.0	12.3	1.490	1.524	0.091	0.0
1.008	0.789	31.4	15.3	1.524	1.575	0.113	0.0
1.009	1.203	85.0	16.1	1.575	1.603	0.119	0.0
1.010	1.203	85.0	17.2	1.633	1.870	0.127	0.0
2.000	2.849	50.3	1.8	1.250	1.849	0.013	0.0

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)
1.011	SW12	SW15	11.512	0.600	47.721	47.670	0.051	225.0	300	6.38	50.0
3.000	SW13	SW14	3.390	0.600	48.900	48.750	0.150	22.6	150	5.03	50.0
3.001	SW14	SW15	12.974	0.600	48.750	48.250	0.500	25.9	150	5.14	50.0
1.012	SW15	SW16	2.137	0.600	47.670	47.661	0.009	225.0	300	6.42	50.0
1.013	SW16	SW17	9.846	0.600	47.661	47.617	0.044	225.0	300	6.57	50.0
1.014	SW17	SW18	9.815	0.600	47.582	47.558	0.024	409.0	300	6.79	50.0
1.015	SW18	SW25	20.995	0.600	47.558	47.465	0.093	225.0	300	7.12	50.0
5.000	SW19	SW20	4.974	0.600	49.170	49.120	0.050	100.0	150	5.08	50.0
5.001	SW20	SW21	7.753	0.600	49.120	49.042	0.078	100.0	150	5.21	50.0
5.002	SW21	SW22	6.227	0.600	49.048	48.978	0.070	89.0	150	5.31	50.0
6.000	SW23	SW22	4.746	0.600	49.170	48.978	0.192	24.7	150	5.04	50.0
4.000	SW24	SW25	48.650	0.600	48.650	47.832	0.818	59.5	150	5.62	50.0
5.003	SW22	SW25	16.367	0.600	48.978	48.600	0.378	43.3	150	5.49	50.0
1.016	SW25	SW27	19.112	0.600	47.463	47.388	0.075	254.8	300	7.45	50.0
1.017	SW27	SW28	10.446	0.600	47.388	47.339	0.049	213.2	300	7.61	50.0
1.018	SW28	SW29	7.828	0.600	47.189	47.169	0.020	400.0	450	7.74	50.0
1.019	SW29	SW29A	3.529	0.600	47.169	47.160	0.009	385.6	450	7.79	50.0
1.020	SW29A	SW30	6.496	0.600	47.160	47.143	0.017	385.6	450	7.90	50.0
1.021	SW30	SW30A	7.750	0.600	47.143	47.123	0.020	391.1	450	8.03	50.0
1.022	SW30A	SW31	6.723	0.600	47.123	47.106	0.017	391.1	450	8.14	50.0
7.000	SW32	SW31	10.837	0.600	48.450	48.342	0.108	100.0	150	5.18	50.0
1.023	SW31	CO1	6.392	0.600	47.106	47.086	0.020	319.6	225	8.28	50.0
1.024	CO1	CO2	7.050	0.600	47.086	47.056	0.030	235.0	225	8.42	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)
1.011	1.044	73.8	23.7	1.849	1.730	0.175	0.0
3.000	2.127	37.6	2.0	1.300	1.300	0.015	0.0
3.001	1.984	35.1	3.3	1.300	1.300	0.024	0.0
1.012	1.044	73.8	28.2	1.730	1.799	0.208	0.0
1.013	1.044	73.8	28.2	1.799	1.753	0.208	0.0
1.014	0.771	54.5	32.5	1.788	1.817	0.240	0.0
1.015	1.044	73.8	32.5	1.817	1.935	0.240	0.0
5.000	1.005	17.8	1.1	1.280	1.190	0.008	0.0
5.001	1.005	17.8	4.6	1.190	1.078	0.034	0.0
5.002	1.066	18.8	5.0	1.072	0.992	0.037	0.0
6.000	2.033	35.9	2.4	0.670	0.992	0.018	0.0
4.000	1.306	23.1	1.1	0.950	1.718	0.008	0.0
5.003	1.533	27.1	9.8	0.992	0.950	0.072	0.0
1.016	0.980	69.3	51.0	1.937	1.962	0.376	0.0
1.017	1.073	75.8	51.4	1.962	2.011	0.379	0.0
1.018	1.010	160.7	52.4	2.011	2.381	0.387	0.0
1.019	1.029	163.7	53.1	2.381	2.390	0.392	0.0
1.020	1.029	163.7	53.1	2.390	2.407	0.392	0.0
1.021	1.022	162.5	54.6	2.407	2.377	0.403	0.0
1.022	1.022	162.5	54.6	2.377	2.394	0.403	0.0
7.000	1.005	17.8	3.3	1.250	1.458	0.024	0.0
1.023	0.726	28.9	60.4	2.619	2.539	0.446	0.0
1.024	0.848	33.7	60.4	2.539	2.499	0.446	0.0

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	6.990	142.6	225	Circular	50.450	49.075	1.150	50.200	49.026	0.949
1.001	9.799	11.4	225	Circular	50.200	49.026	0.949	49.650	48.168	1.257
1.002	7.526	167.3	225	Circular	49.650	48.168	1.257	49.670	48.123	1.322
1.003	3.856	170.0	225	Circular	49.670	48.123	1.322	49.670	48.100	1.345
1.004	7.623	169.4	225	Circular	49.670	48.100	1.345	49.670	48.055	1.390
1.005	4.934	164.5	225	Circular	49.670	48.055	1.390	49.670	48.025	1.420
1.006	6.733	168.3	225	Circular	49.670	48.025	1.420	49.700	47.985	1.490
1.007	7.180	112.2	225	Circular	49.700	47.985	1.490	49.670	47.921	1.524
1.008	13.820	271.0	225	Circular	49.670	47.921	1.524	49.670	47.870	1.575
1.009	4.692	170.0	300	Circular	49.670	47.795	1.575	49.670	47.767	1.603
1.010	6.341	170.0	300	Circular	49.670	47.737	1.633	49.870	47.700	1.870
2.000	15.537	12.6	150	Circular	50.500	49.100	1.250	49.870	47.871	1.849

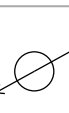
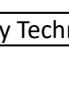
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SW1	600	Manhole	Adoptable	SW2	600	Manhole	Adoptable
1.001	SW2	600	Manhole	Adoptable	SW3	600	Manhole	Adoptable
1.002	SW3	600	Manhole	Adoptable	SW4	600	Manhole	Adoptable
1.003	SW4	600	Manhole	Adoptable	SW4A	600	Manhole	Adoptable
1.004	SW4A	600	Manhole	Adoptable	SW5	600	Manhole	Adoptable
1.005	SW5	600	Manhole	Adoptable	SW6	600	Manhole	Adoptable
1.006	SW6	600	Manhole	Adoptable	SW7	600	Manhole	Adoptable
1.007	SW7	600	Manhole	Adoptable	SW8	600	Manhole	Adoptable
1.008	SW8	600	Manhole	Adoptable	SW9	600	Manhole	Adoptable
1.009	SW9	600	Manhole	Adoptable	SW10	600	Manhole	Adoptable
1.010	SW10	600	Manhole	Adoptable	SW12	600	Manhole	Adoptable
2.000	SW11	600	Manhole	Adoptable	SW12	600	Manhole	Adoptable

Pipeline Schedule

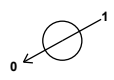
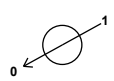
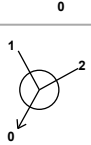
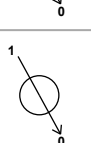
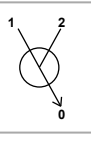
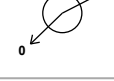
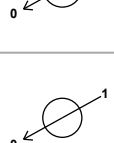
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.011	11.512	225.0	300	Circular	49.870	47.721	1.849	49.700	47.670	1.730
3.000	3.390	22.6	150	Circular	50.350	48.900	1.300	50.200	48.750	1.300
3.001	12.974	25.9	150	Circular	50.200	48.750	1.300	49.700	48.250	1.300
1.012	2.137	225.0	300	Circular	49.700	47.670	1.730	49.760	47.661	1.799
1.013	9.846	225.0	300	Circular	49.760	47.661	1.799	49.670	47.617	1.753
1.014	9.815	409.0	300	Circular	49.670	47.582	1.788	49.675	47.558	1.817
1.015	20.995	225.0	300	Circular	49.675	47.558	1.817	49.700	47.465	1.935
5.000	4.974	100.0	150	Circular	50.600	49.170	1.280	50.460	49.120	1.190
5.001	7.753	100.0	150	Circular	50.460	49.120	1.190	50.270	49.042	1.078
5.002	6.227	89.0	150	Circular	50.270	49.048	1.072	50.120	48.978	0.992
6.000	4.746	24.7	150	Circular	49.990	49.170	0.670	50.120	48.978	0.992
4.000	48.650	59.5	150	Circular	49.750	48.650	0.950	49.700	47.832	1.718
5.003	16.367	43.3	150	Circular	50.120	48.978	0.992	49.700	48.600	0.950
1.016	19.112	254.8	300	Circular	49.700	47.463	1.937	49.650	47.388	1.962
1.017	10.446	213.2	300	Circular	49.650	47.388	1.962	49.650	47.339	2.011
1.018	7.828	400.0	450	Circular	49.650	47.189	2.011	50.000	47.169	2.381
1.019	3.529	385.6	450	Circular	50.000	47.169	2.381	50.000	47.160	2.390
1.020	6.496	385.6	450	Circular	50.000	47.160	2.390	50.000	47.143	2.407
1.021	7.750	391.1	450	Circular	50.000	47.143	2.407	49.950	47.123	2.377
1.022	6.723	391.1	450	Circular	49.950	47.123	2.377	49.950	47.106	2.394
7.000	10.837	100.0	150	Circular	49.850	48.450	1.250	49.950	48.342	1.458
1.023	6.392	319.6	225	Circular	49.950	47.106	2.619	49.850	47.086	2.539
1.024	7.050	235.0	225	Circular	49.850	47.086	2.539	49.780	47.056	2.499

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.011	SW12	600	Manhole	Adoptable	SW15	600	Manhole	Adoptable
3.000	SW13	600	Manhole	Adoptable	SW14	600	Manhole	Adoptable
3.001	SW14	600	Manhole	Adoptable	SW15	600	Manhole	Adoptable
1.012	SW15	600	Manhole	Adoptable	SW16	600	Manhole	Adoptable
1.013	SW16	600	Manhole	Adoptable	SW17	600	Manhole	Adoptable
1.014	SW17	600	Manhole	Adoptable	SW18	1200	Manhole	Adoptable
1.015	SW18	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
5.000	SW19	600	Manhole	Adoptable	SW20	600	Manhole	Adoptable
5.001	SW20	600	Manhole	Adoptable	SW21	600	Manhole	Adoptable
5.002	SW21	600	Manhole	Adoptable	SW22	1200	Manhole	Adoptable
6.000	SW23	600	Manhole	Adoptable	SW22	1200	Manhole	Adoptable
4.000	SW24	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
5.003	SW22	1200	Manhole	Adoptable	SW25	1200	Manhole	Adoptable
1.016	SW25	1200	Manhole	Adoptable	SW27	600	Manhole	Adoptable
1.017	SW27	600	Manhole	Adoptable	SW28	1200	Manhole	Adoptable
1.018	SW28	1200	Manhole	Adoptable	SW29	1200	Manhole	Adoptable
1.019	SW29	1200	Manhole	Adoptable	SW29A	1200	Manhole	Adoptable
1.020	SW29A	1200	Manhole	Adoptable	SW30	1200	Manhole	Adoptable
1.021	SW30	1200	Manhole	Adoptable	SW30A	1200	Manhole	Adoptable
1.022	SW30A	1200	Manhole	Adoptable	SW31	1200	Manhole	Adoptable
7.000	SW32	600	Manhole	Adoptable	SW31	1200	Manhole	Adoptable
1.023	SW31	1200	Manhole	Adoptable	CO1	1200	Manhole	Adoptable
1.024	CO1	1200	Manhole	Adoptable	CO2	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SW1	385336.393	398820.325	50.450	1.375	600		0	1.000	49.075	225
SW2	385339.329	398813.982	50.200	1.174	600		1	1.000	49.026	225
SW3	385343.766	398805.245	49.650	1.482	600		1	1.001	49.026	225
SW4	385337.175	398801.611	49.670	1.547	600		0	1.002	48.168	225
SW4A	385333.800	398799.746	49.670	1.570	600		1	1.002	48.123	225
SW5	385327.124	398796.067	49.670	1.615	600		0	1.003	48.123	225
SW6	385322.805	398793.682	49.670	1.645	600		1	1.004	48.100	225
							0	1.005	48.055	225
							1	1.004	48.055	225
							0	1.005	48.025	225
							1	1.006	48.025	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW7	385316.908	398790.433	49.700	1.715	600	 0 1	1.006	47.985	225
SW8	385310.621	398786.966	49.670	1.749	600	 0 1	1.007 1.007	47.985 47.921	225 225
SW9	385298.519	398780.292	49.670	1.875	600	 0 1	1.008 1.008	47.921 47.870	225 225
SW10	385294.411	398778.025	49.670	1.933	600	 0 1	1.009 1.009	47.795 47.767	300 300
SW11	385281.458	398788.625	50.500	1.400	600	 0	2.000	49.100	150
SW12	385288.858	398774.964	49.870	2.170	600	 1 2 0	2.000 1.010	47.871 47.700	150 300
SW13	385275.434	398779.253	50.350	1.450	600	 0	3.000	48.900	150
SW14	385277.062	398776.279	50.200	1.450	600	 1 0	3.000 3.001	48.750 48.750	150 150
SW15	385283.281	398764.893	49.700	2.030	600	 1 2 0	3.001 1.011	48.250 47.670	150 300
SW16	385284.316	398763.023	49.760	2.099	600	 1 0	1.012 1.012	47.670 47.661	300 300
SW17	385276.795	398756.668	49.670	2.088	600	 0 1	1.013 1.013	47.661 47.617	300 300
SW18	385268.060	398752.191	49.675	2.117	1200	 0 1	1.014 1.014	47.582 47.558	300 300
SW19	385262.404	398761.501	50.600	1.430	600	 0	5.000	49.170	150
SW20	385258.052	398759.093	50.460	1.340	600	 0 1	5.000 5.001	49.120 49.120	150 150
SW21	385251.271	398755.334	50.270	1.228	600	 0 1	5.001 5.002	49.042 49.048	150 150
SW22	385245.825	398752.315	50.120	1.142	1200	 1 2 0	6.000 5.002	48.978 48.978	150 150
SW23	385241.666	398750.029	49.990	0.820	600	 0	5.003	48.978	150
SW24	385244.712	398739.572	49.750	1.100	1200	 0	6.000	49.170	150
SW25	385252.972	398737.591	49.700	2.237	1200	 1 2 3 0	4.000 5.003 4.000 1.015	48.650 48.600 47.832 47.465	150 150 300 300
SW27	385238.242	398725.414	49.650	2.262	600	 0 1	1.016 1.017	47.463 47.388	300 300

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
SW28	385229.948	398719.063	49.650	2.461	1200		1	1.017	47.339	300
SW29	385225.921	398725.776	50.000	2.831	1200		0	1.018	47.189	450
							1	1.018	47.169	450
SW29A	385224.040	398728.762	50.000	2.840	1200		0	1.019	47.169	450
							1	1.019	47.160	450
SW30	385220.577	398734.258	50.000	2.857	1200		0	1.020	47.160	450
							1	1.020	47.143	450
SW30A	385216.509	398740.854	49.950	2.827	1200		1	1.021	47.123	450
							0	1.022	47.123	450
SW31	385212.980	398746.576	49.950	2.844	1200		1	7.000	48.342	150
							2	1.022	47.106	450
							0	1.023	47.106	225
SW32	385222.159	398752.336	49.850	1.400	600		0	7.000	48.450	150
CO1	385210.339	398752.397	49.850	2.764	1200		1	1.023	47.086	225
							0	1.024	47.086	225
CO2	385206.807	398758.498	49.780	2.724	1200		1	1.024	47.056	225

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m³/ha)	20.0
M5-60 (mm)	17.000	Analysis Speed	Detailed	Check Discharge Rate(s)	x
Ratio-R	0.400	Skip Steady State	x	Check Discharge Volume	x

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	0	0	0				

Overrides Design Area	x	Depression Storage Area (m ²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		
Applies to 100yr+40% CC 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 minute storms					

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	1.400	180	1.400	360	1.400	540	1.400	720	1.400	900	1.400	1080	1.400	1260	1.400	1440	1.400
60	1.400	240	1.400	420	1.400	600	1.400	780	1.400	960	1.400	1140	1.400	1320	1.400		
120	1.400	300	1.400	480	1.400	660	1.400	840	1.400	1020	1.400	1200	1.400	1380	1.400		

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	47.106	Product Number	CTL-SHE-0100-5000-1400-5000
Design Depth (m)	1.400	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	47.463
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	128.0	0.0	1.600	128.0	0.0	1.601	0.0	0.0

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	49.110	0.035	2.1	0.0119	0.0000	OK
15 minute winter	SW2	10	49.057	0.031	6.3	0.0129	0.0000	OK
720 minute winter	SW3	540	49.017	0.849	0.5	0.2404	0.0000	SURCHARGED
720 minute winter	SW4	540	49.017	0.894	0.5	0.2880	0.0000	SURCHARGED
720 minute winter	SW4A	540	49.017	0.917	0.5	0.2596	0.0000	SURCHARGED
720 minute winter	SW5	540	49.017	0.962	0.9	0.4273	0.0000	SURCHARGED
720 minute winter	SW6	540	49.017	0.992	2.4	0.7512	0.0000	SURCHARGED
720 minute winter	SW7	540	49.017	1.032	3.3	0.5812	0.0000	SURCHARGED
720 minute winter	SW8	540	49.017	1.096	4.1	0.5854	0.0000	SURCHARGED
720 minute winter	SW9	540	49.017	1.222	4.3	0.4241	0.0000	SURCHARGED
720 minute winter	SW10	540	49.017	1.280	4.5	0.4685	0.0000	SURCHARGED
15 minute winter	SW11	10	49.137	0.037	6.8	0.0174	0.0000	OK
720 minute winter	SW12	540	49.017	1.317	6.5	0.7968	0.0000	SURCHARGED
720 minute winter	SW13	540	49.017	0.117	0.6	0.0573	0.0000	OK
720 minute winter	SW14	540	49.017	0.267	1.0	0.1087	0.0000	SURCHARGED
720 minute winter	SW15	540	49.017	1.347	7.7	0.4997	0.0000	SURCHARGED
720 minute winter	SW16	540	49.017	1.356	7.5	0.3837	0.0000	SURCHARGED
720 minute winter	SW17	540	49.017	1.435	8.8	0.8451	0.0000	SURCHARGED
720 minute winter	SW18	540	49.017	1.459	8.7	1.6498	0.0000	SURCHARGED
15 minute winter	SW19	12	49.493	0.323	4.2	0.1277	0.0000	SURCHARGED
15 minute winter	SW20	12	49.490	0.370	16.2	0.2481	0.0000	SURCHARGED
15 minute winter	SW21	12	49.416	0.374	16.4	0.1240	0.0000	SURCHARGED
15 minute winter	SW22	12	49.339	0.361	31.9	0.5158	0.0000	SURCHARGED
15 minute winter	SW23	12	49.353	0.183	9.5	0.1322	0.0000	SURCHARGED
720 minute winter	SW24	540	49.017	0.367	0.3	0.4677	0.0000	SURCHARGED
720 minute winter	SW25	540	49.017	1.554	15.7	191.4463	0.0000	SURCHARGED
720 minute winter	SW27	540	49.016	1.628	4.7	0.5031	0.0000	SURCHARGED
720 minute winter	SW28	540	49.016	1.827	4.8	2.1850	0.0000	SURCHARGED
720 minute winter	SW29	540	49.016	1.847	4.8	2.1535	0.0000	SURCHARGED
720 minute winter	SW29A	540	49.016	1.856	4.8	2.0990	0.0000	SURCHARGED
720 minute winter	SW30	540	49.016	1.873	4.9	2.2624	0.0000	SURCHARGED
720 minute winter	SW30A	540	49.016	1.893	4.9	2.1408	0.0000	SURCHARGED
720 minute winter	SW31	540	49.016	1.910	5.1	2.4159	0.0000	SURCHARGED
720 minute winter	SW32	540	49.016	0.566	1.0	0.3542	0.0000	SURCHARGED
240 minute winter	CO1	192	48.457	1.371	5.0	1.5507	0.0000	SURCHARGED
15 minute summer	CO2	1	48.456	1.400	0.0	0.0000	0.0000	OK

Flow+ v10.2 Copyright © 1988-2023 Causeway Technologies Ltd

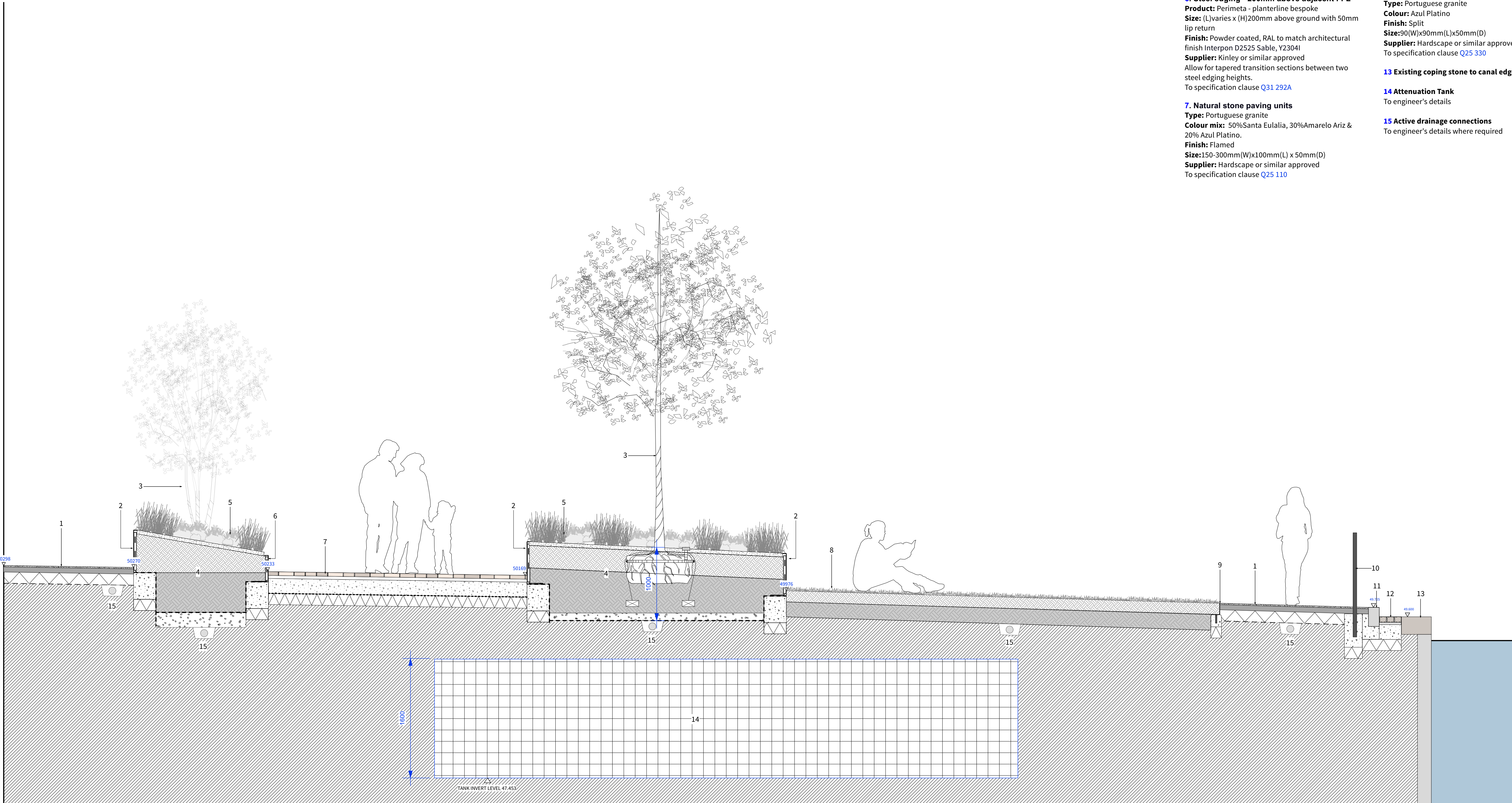
Merchant Exchange
17-19 Whitworth Street West
Manchester
M1 5WG

T. 0161 236 2394
manchester@curtins.com
www.curtins.com



Appendix B

- Landscape Architects Section through Garden Areas



KEY

1 Permeable resin bound gravel
Product: Natural Aggregate, pedestrian and light vehicular use.
Size: 6mm aggregate, medium texture
Colour: Aztec Gold
Finish: As supplied
Supplier: Sureset or similar approved
To specification clause [Q23 110](#)

2 Steel edging - 500mm above adjacent FFL
Product: Perimeta - planterline
Size: (L)varies x (H)500mm above ground with 50mm lip return
Finish: Powder coated, RAL to match architectural finish Interpon D2525 Sable, Y2304I
Supplier: Kinley or similar approved
Allow for tapered transition sections between two steel edging heights.
To specification clause [Q31 292B](#)

3 Semi-mature tree planting
Refer to softworks plan
2643-PLA-XX-XX-DR-L-2001

4 Typical soil build up
Refer to soils plan 2643-PLA-XX-XX-DR-L-0004

5 Ornamental herbaceous planting
Refer to softworks plan
2643-PLA-XX-XX-DR-L-2001

6. Steel edging - 200mm above adjacent FFL
Product: Perimeta - planterline bespoke
Size: (L)varies x (H)200mm above ground with 50mm lip return
Finish: Powder coated, RAL to match architectural finish Interpon D2525 Sable, Y2304I
Supplier: Kinley or similar approved
Allow for tapered transition sections between two steel edging heights.
To specification clause [Q31 292A](#)

7. Natural stone paving units
Type: Portuguese granite
Colour mix: 50%Santa Eulalia, 30%Amarelo Ariz & 20% Azul Platino.
Finish: Flamed
Size:150-300mm(W)x100mm(L) x 50mm(D)
Supplier: Hardscape or similar approved
To specification clause [Q25 110](#)

8. Amenity turf planting
Supplier: Turfgrass Growers Association (TGA) member, to TGA quality standards.
Seed mixture: [15-30% of fine leaved rye grass and 15% smooth stalked meadowgrass].
Supplier: Professional Lawns
Product ref.: Olympic Pro Turf

9 Flush steel edging
Product: Excell Edge - Contour
Size: 8.5mm(W) X (H) 150mm
Finish: Weathered
Supplier: Kinley or similar approved.
To specification clause [Q10 200](#)

10 Balustrade to canal edge
Design to tie in to architecttural steel balustrades.
Height 1100mm
Finish: All steel parts are hot dip galvanized and powder coated. RAL to match architectural finish Interpon D2525 Sable, Y2304I
Root fixed in concrete foundations to engineer's details.
To specification clause [L37 160](#)

11 Conservation kerb edge
Product: Marshall X conservation kerb
Size: 255mm(D) x 145mm (W)
Colour: Silver grey

12 Natural stone setts
Type: Portuguese granite
Colour: Azul Platino
Finish: Split
Size:90(W)x90mm(L)x50mm(D)
Supplier: Hardscape or similar approved
To specification clause [Q25 330](#)

13 Existing coping stone to canal edge

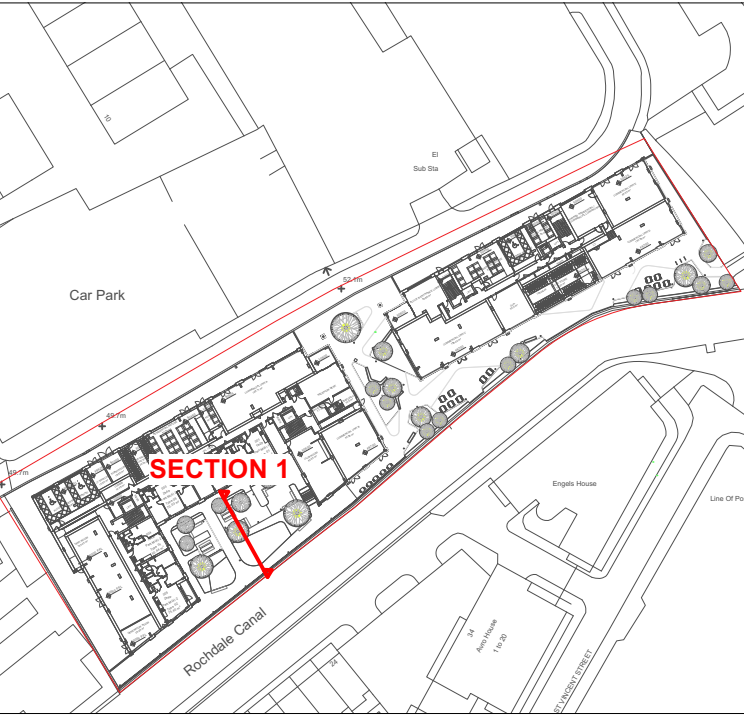
14 Attenuation Tank
To engineer's details

15 Active drainage connections
To engineer's details where required

THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY FROM THE OWNER.

NOTES:
1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

DESIGN INTENT ONLY
FOUNDATION SUBJECT TO ENGINEER'S DETAILS.
SUBJECT TO APPROVAL OF MANUFACTURER'S DRAWINGS.
ALL MEASUREMENTS TO BE CHECKED ON SITE PRIOR TO ORDERING.



Location Plan (scale 1:1500)

S4 P01	13.01.23	Stage 4	SAB	LH
Revision	Date	Description	Drawn	Apprvd.



Planit I.E. Limited

E: info@planit-ie.com W: planit-ie.com

MANCHESTER
2 Back Grafton St., Altrincham, WA14 1DY
T: 0161 928 9281

LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX
T: 0207 253 5678

LIVERPOOL
Tempest 5.3, 12 Titebarn Street, Liverpool, L2 2DT
T: 0151 363 1230

Client	Manchester Life
Project	Jersey Wharf, Ancoats Manchester
Drg Title	Section through Residents Garden

Created on	Created by	Approved by
05/01/2023	CS	LH
Scale	Size	Workstage
As Shown	A1	STAGE 3

Drg No.	Suitability	Revision
2643-PLA-XX-XX-DR-L-5003	S4	P01