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Drainage Planning Conditions

Subject: Oldham Road, Newton Heath

Ref: 074031/Site 2 DPC Rev V01

Date: 22.09.2022

The Planning Permission Ref: 133849/FO/2022
Condition 4 relates to drainage proposals for the development.

Condition 4

Prior to the commencement of the development, a surface water drainage layout for the site, based on sustainable drainage principles together with details of how the scheme shall be maintained and managed after completion, shall be submitted for approval in writing by the City Council, as local planning authority. The development shall be constructed in accordance with the agreed details and thereafter retained and maintained in accordance with the management arrangements. **Reason:** To prevent the increased risk of flooding, to improve and protect water quality and ensure future maintenance of the surface water drainage system pursuant to policy EN17 of the Manchester Core Strategy.	**Pre-Commencement**

Proposed Drainage:

The proposed drainage system consists of a separate foul and surface water network.
Reference should be made to the following drainage design documents:

- 074031- CUR-00-XX-DR-C-92501_ P07 DRAINAGE LAYOUT SITE 2
- 074031- CUR-00-XX-DR-C-92510_ P03 MANHOLE SCHEDULE (SW)
- 074031- CUR-00-XX-DR-C-92511_ P02 MANHOLE SCHEDULE (FW)
- 074031- CUR-00-XX-DR-C-92511_ P01 DRAINAGE NOTES
- Micro-Drainage Calculations 1, 30 and 100 Year +40%cc events (Site 2)

The Drainage Strategy is in accordance with the principles described as part of Planning Approval Number 125990/2020.
This document and the enclosed information refer to the proposed changes to the Site 2 layout only.
Reference to the original planning documents should be made.

The proposed drainage system on site will be privately maintained, a drainage maintenance strategy will be issued with final construction/as built information.

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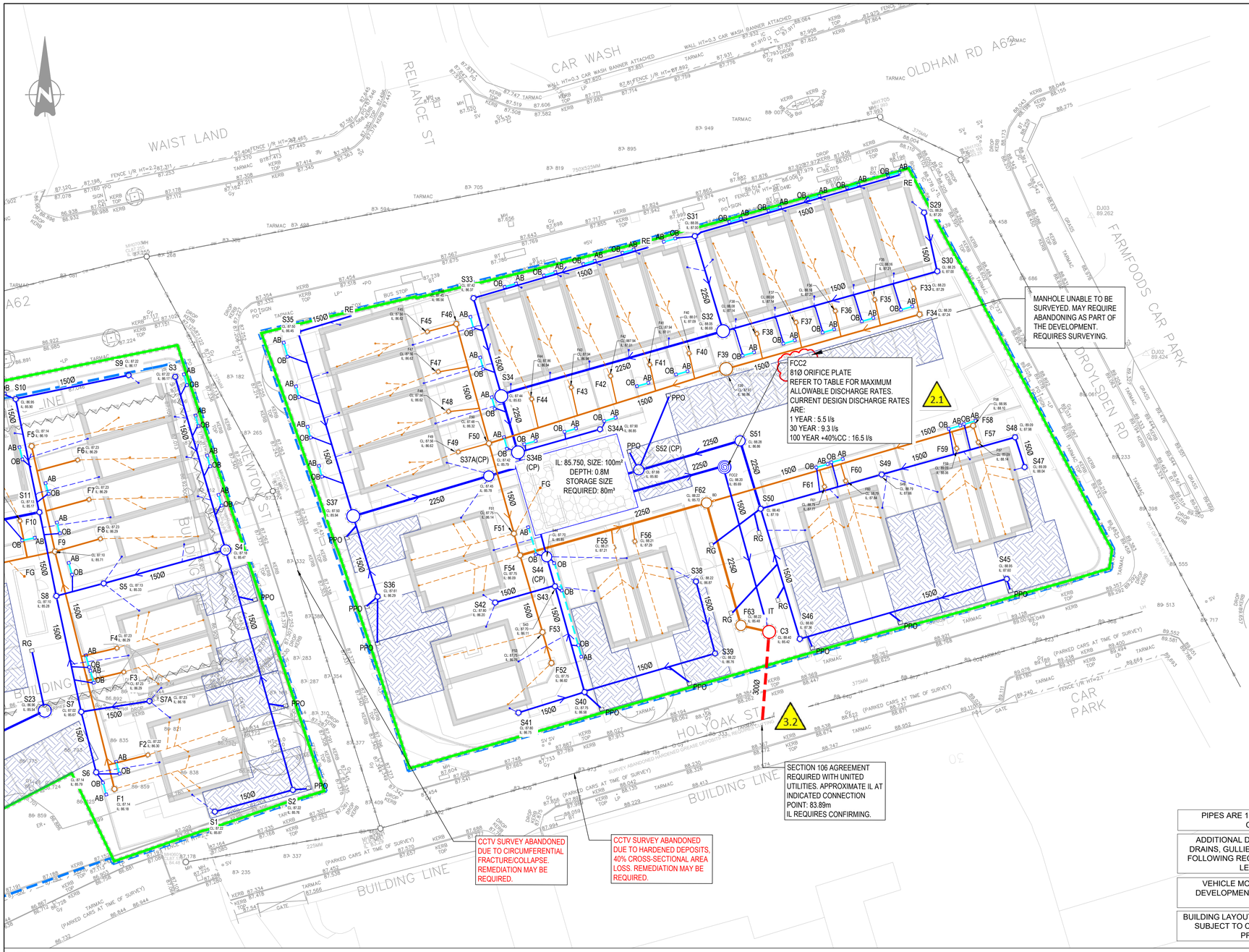
Appendix A

Proposed Drawings:

- 074031- CUR-00-XX-DR-C-92501_ P04 DRAINAGE LAYOUT SITE 2
- 074031- CUR-00-XX-DR-C-92510_ P01 MANHOLE SCHEDULE (SW)
- 074031- CUR-00-XX-DR-C-92511_ P02 MANHOLE SCHEDULE (FW)
- 074031- CUR-00-XX-DR-C-92511_ P01 DRAINAGE NOTES



DRAWING BASED ON:

- TOPOGRAPHICAL SURVEY BY: SEP, SEP11190L, DATED NOVEMBER 2019.
- CCTV SURVEY BY: LAYER SURVEYS, LAY0243, DATED NOVEMBER 2019.
- UU RECORDS UU REF: UUPS-ORD-122012, DATED 06.09.19.
- LANDSCAPE EXTERNAL LEVELS: TPM LANDSCAPE, DRAWING REF 103 & 104, REV A DATED 09.11.20.
- ARCHITECT SITE LAYOUT: TP BENNETT, T8130-G-0-020-P01. DATED 12/10/20.
- POPUP LOCATIONS BASED ON SITE SERVICES PLAN; TP BENNETT, T8130-R-0-042-P01 DATED 12/10/20.
- FOUNDATIONS: CURTINS, CUR-1A-FN-DR-S-16001, CUR-1B-FN-DR-S-16002 AND CUR-ZZ-FN-DR-S-16201 TO 16205, DATED 29.10.20.

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. 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.
4. 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.
5. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
6. 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.
7. 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.
8. ALL RAINWATER AND FOUL POP UPS LOCATIONS AND SIZES TO BE CONFIRMED BY THE ARCHITECT AND M&E ENGINEER.
9. COVER LEVELS AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT.
10. OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
11. ALL PROPOSED DRAINAGE IS TO REMAIN PRIVATE AND IS NOT TO BE ADOPTED.
12. ALL DRAINAGE TO BE CONFIRMED REDUNDANT PRIOR TO ANY WORKS
13. DRAINAGE ENGINEER TO BE MADE AWARE OF ANY EXISTING LIVE DRAINAGE WITHIN THE SITE BOUNDARY.
14. FOR DRAINAGE NOTES REFER TO DRAWING 074031-CUR-00-XX-DR-C-92512.

PROPOSED FLOW RATES (50% EXISTING) AS AGREED UU/LLFA			
SITE	FLOW RATE 1:1 YEAR (L/S)	FLOW RATE 1:30 YEAR (L/S)	FLOW RATE 1:100 YEAR (L/S)
PROPOSED SITE (SITE 1 + SITE 2)	15.3	42.2	52.4

EXTERNAL LEVELS TO FALL AWAY FROM BUILDINGS.

THRESHOLD DRAINAGE HAS NOT BEEN SHOWN AS LEVELS ARE FALL AWAY FROM BUILDINGS. CLIENT TO CONFIRM IF REQUIRED.

PIPES ARE 100mmØ UNLESS NOTED OTHERWISE.

LINEAR AND HIGHWAY DRAINAGE POSITIONS SHOWN INDICATIVELY AND ARE SUBJECT TO RECEIPT OF FINAL LEVELS PLAN.

ADDITIONAL DRAINAGE RUNS, LINEAR DRAINS, GULLIES ETC MAY BE REQUIRED FOLLOWING RECEIPT OF FINAL EXTERNAL LEVEL DESIGN.

NO EXTERNAL AREAS ARE TO DRAIN DIRECTLY ON TO THE ADOPTED HIGHWAY. INTERCEPTING DRAINAGE WILL BE REQUIRED TO PREVENT THIS.

VEHICLE MOVEMENTS WITHIN THE DEVELOPMENT TO BE CONFIRMED BY OTHERS.

FOUL POPUPS HAVE BEEN ASSUMED TO BE 100mmØ IN SIZE. M&E TO CONFIRM SIZING AND LOCATIONS OF FOUL POPUPS.

BUILDING LAYOUTS, EXTERNAL LAYOUT ARE SUBJECT TO CHANGE AS THE SCHEME PROGRESSES.

ALL DRAINAGE WITHIN TRAFFICKED AREAS TO HAVE A LOADING CLASS OF D400 OR GREATER.

KEY:

- INDICATIVE HIGHWAY BOUNDARY
- SITE BOUNDARY (TAKEN FROM T8130G0020 12.10.20)
- EXISTING PRIVATE SURFACE WATER SEWER/DRAIN
- EXISTING PRIVATE FOUL WATER SEWER/DRAIN
- EXISTING PRIVATE COMBINED WATER SEWER/DRAIN
- EXISTING COMBINED PUBLIC SEWER AND MANHOLE
- PROPOSED PRIVATE COMBINED DRAIN
- PROPOSED PRIVATE FOUL DRAIN
- PROPOSED PRIVATE SURFACE DRAIN
- PROPOSED ATTENUATION SYSTEM (TYPE TO BE CONFIRMED)
- PERMEABLE BLOCK PAVING
- PROPOSED FLOW CONTROL CHAMBER — FCC
- EXISTING DRAINAGE TO BE ABANDONED
- PROPOSED PRIVATE FOUL MANHOLE OR PPIC — F1
- PROPOSED PRIVATE SURFACE MANHOLE OR PPIC — S1
- PROPOSED PRIVATE COMBINED MANHOLE OR PPIC — C1
- SURFACE WATER POPUP & CONNECTION
- FOUL WATER POPUP & CONNECTION
- SLOT DRAINS AND ASSOCIATED ACCESS/OUTLET BOXES (SIZE AND TYPE TBC) — AB, OB
- FLOOR GULLY — FG
- ROAD GULLY — RG
- PERMEABLE PAVING OUTLET — PPO
- INTERCEPTOR TRAP — IT
- PROPOSED RODDING EYE — RE

RESIDUAL HAZARD REGISTER (RELATES TO CIVIL MATTERS ONLY)

MUST BE READ IN CONJUNCTION WITH CURTINS RESIDUAL HAZARD REGISTER 074031-CUR-XX-XX-HA-Z-00001.

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
2.1	Discarded used needles found across the site by surveyors.	Injury from discarded needles.
3.2	Existing deep drainage	Falls from height.

Rev:	Description:	Date:	By:	Chkd:
P07	REVISED IN LIEN WITH UPDATED SITE PLAN	22/09/22	ATL	CG
P06	S34, S46 AND F46 CL AND IL UPDATED	11/02/22	CS	CG
P05	COVER AND INVERT LEVELS ADDED	28/01/22	TH	CG
P04	UPDATED WITH AGREED FLOW RATES	04/11/21	CG	CG
P03	STAGE 3 ISSUE	16/11/20	AH	CD
P02	ISSUED FOR PLANNING	24/01/20	AH	CD
P01	DRAFT ISSUE FOR COMMENT	17/01/20	AH	CD

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Status: STAGE 3 ISSUE

Project: OLDHAM ROAD, NEWTON HEATH

Drg Title: DRAINAGE LAYOUT SHEET 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	17/01/20	AH	AH	CD

Scale: 1:250

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
074031	CUR	00	XX	DR	C	92501	P07

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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	87.220	85.870	1.200	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S2	87.220	85.755	1.315	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S3	87.220	86.170	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S4	87.180	85.474	1.556	150	1200	TYPE 2	750 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S5	87.130	85.332	1.648	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S6	87.140	85.790	1.200	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S7A	87.230	86.180	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S7	87.020	85.670	1.200	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S8	87.100	85.277	1.673	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S9	87.220	86.170	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S10	86.950	85.900	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S11	87.130	85.168	1.737	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.770	ACCESS RESTRICTED TO MAX. 350
S12	86.860	85.810	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S13	86.200	84.850	1.200	150	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S14	86.200	84.808	1.242	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S15	86.250	84.717	1.308	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S16	86.470	84.400	1.845	225	1200	TYPE 2	600 X 600	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S17A	85.150	84.100	0.900	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S17	85.110	83.940	1.020	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S18A	85.110	83.805	1.155	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S18	85.110	83.695	1.265	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S19	85.750	84.300	1.300	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S20	86.200	84.213	1.837	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S21	85.110	83.632	1.253	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S22	86.160	83.300	2.635	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	N/A	N	BD IL: 84.036	CATCHPIT WITH 500mm SUMP
S23	86.960	85.535	1.200	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S24	86.440	85.015	1.200	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S25	85.790	84.365	1.200	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S26	85.290	83.865	1.200	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S27	85.750	83.598	1.927	225	1200	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S28	85.800	83.340	2.235	225	1500	TYPE 2	600 X 600	D400	SINGLE SEALED	N/A	N	N/A	CATCHPIT WITH 500mm SUMP
FCC1	85.300	83.028	2.122	150	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
C1	85.230	82.590	2.340	300	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
C2	AS EXISTING	AS EXISTING	AS EXISTING	300	1500	TYPE 1B	1200 X 675	D400	SINGLE SEALED	N/A	N	BD IL: 82.376	TO BE BUILT ON EXISTING MH9602 LEVELS TBC ON SITE. PROPOSED CONNECTION BD IL: 82.376
S29	88.250	87.200	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S30	88.250	87.000	1.100	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S31	88.050	87.000	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S32	88.050	86.687	1.138	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	N/A	N	N/A	N/A
S33	87.420	86.370	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S34	87.440	85.830	1.385	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S34A	87.900	86.850	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S34B	87.420	85.790	1.405	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	BD IL: 86.754	CATCHPIT WITH 500mm SUMP
S35	87.500	86.450	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
S36	87.610	86.290	1.170	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S37	87.500	85.938	1.337	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S37A	87.450	85.778	1.447	225	1500	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	CATCHPIT WITH 500mm SUMP
S38	88.220	86.870	1.200	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S39	88.220	86.764	1.306	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S40	87.750	86.576	1.024	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S41	87.800	86.750	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S42	87.800	86.200	1.450	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S43	87.700	86.111	1.439	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S44	87.700	85.850	1.700	150	1200	TYPE 2	1200 X 675	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	CATCHPIT WITH 500mm SUMP
S45	88.950	87.600	1.200	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S46	88.600	87.356	1.094	150	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
S47	89.090	88.040	0.900	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S48	89.090	87.976	0.964	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S49	88.790	87.659	0.981	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S50	88.400	87.186	0.989	225	600	PPIC	450 X 450	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S51	88.280	86.855	1.200	225	1200	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
S52	87.880	85.800	1.855	225	1200	TYPE 2	600 X 600	D400	SINGLE SEALED	LA TO CONFIRM	N	BD IL 86.637	CATCHPIT WITH 500mm SUMP
FCC2	88.200	85.690	2.360	150	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
C3	88.400	85.420	2.755	225	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A

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 BASED ON LANDSCAPE GENERAL ARRANGEMENTS TPM LANDSCAPE, DRAWING REF 103 & 104, REV A DATED 09.11.20.
8. COVER LEVELS, GULLY POSITIONS, AND BUILDING LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.
9. 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.
10. 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.
11. 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.

13. ALL SURFACE CHANNEL ACCESS BOXES/OUTLET BOXES 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 AND SUBJECT TO AVAILABILITY FROM MANUFACTURER.
14. ALL SURFACE CHANNELS TO BE OF THE TREADSAFE TYPE, UNLESS OTHERWISE SPECIFIED.
15. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.

Rev:	Description:	Date:	By:	Chkd:
P03	SW MH36 AMENDED	22/09/22	ATL	CG
P02	SW MH S14 AND S15 UPDATED	11/02/22	CS	CG
P01	STAGE 3 ISSUE	16/11/20	AH	CD

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Status: STAGE 3 ISSUE

Project: OLDHAM ROAD, NEWTON HEATH

Drg Title: MANHOLE SCHEDULE SURFACE WATER

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	16/11/20	AH	AH	CD

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
074031	CUR	00	XX	DR	C	92510	P03

\\matfs02\Projects\074001 - 075000\074031 - Oldham Road Newton Heath\04-Production\4A-Models-Drawings\C\CAD\92\

Manhole schedule- Foul 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	87.140	86.180	0.810	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F2	87.220	86.300	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F3	87.230	86.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F4	87.230	86.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F5	87.140	86.190	0.800	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F6	87.230	86.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F7	87.230	86.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F8	87.230	86.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F9	87.100	85.710	1.240	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F10	86.940	86.000	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F11	86.860	85.920	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F12	86.790	85.850	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F13	86.710	85.770	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F14	86.640	85.700	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F15	86.540	85.620	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F16	86.540	85.620	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F17	86.140	84.660	1.255	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F18	86.260	84.600	1.435	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.130	ACCESS RESTRICTED TO MAX. 350
F19	86.190	84.540	1.425	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.120	ACCESS RESTRICTED TO MAX. 350
F20	86.190	84.420	1.545	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.130	ACCESS RESTRICTED TO MAX. 350
F21	86.190	84.330	1.635	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.090	ACCESS RESTRICTED TO MAX. 350
F22	86.190	84.170	1.795	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.090	ACCESS RESTRICTED TO MAX. 350
F23	86.190	84.100	1.865	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 85.090	ACCESS RESTRICTED TO MAX. 350
F24A	86.200	84.520	1.530	150	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F24	85.150	83.325	1.600	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL: 84.40	ACCESS RESTRICTED TO MAX. 350
F25	85.750	84.240	1.360	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F26	85.270	84.050	1.070	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F27A	85.260	84.030	1.080	150	600	PPIC	450 X450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F27	85.150	83.940	1.060	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F28	85.130	83.280	1.625	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F29A	85.130	83.255	1.650	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F29B	85.130	83.183	1.722	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL 83.946	ACCESS RESTRICTED TO MAX. 350
F29	85.130	83.155	1.750	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL 83.946	ACCESS RESTRICTED TO MAX. 350
F30	85.130	83.040	1.865	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL 83.950	ACCESS RESTRICTED TO MAX. 350
F31	85.130	82.940	1.965	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	BD IL 83.910	ACCESS RESTRICTED TO MAX. 350
F32	85.030	82.830	1.975	225	1200	TYPE 2	600 X 600	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F33	88.230	87.290	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F34	88.200	87.240	0.810	150	600	PPIC	450 X 450	D400	SINGLE SEALED	N/A	N	N/A	N/A
F35	88.160	87.210	0.850	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F36	88.160	87.210	0.850	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F37	88.080	87.140	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F38	88.080	87.140	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F39	87.970	86.860	0.960	150	1500	TYPE 2	1200 X 675	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F40	88.010	87.090	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F41	87.940	87.010	0.830	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F42	87.940	87.010	0.830	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F43	87.940	86.940	0.900	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F44	87.860	86.940	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F45	87.560	86.620	0.840	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F46	87.450	86.560	0.740	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F47	87.560	87.450	0.010	100	400	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F48	87.560	86.620	0.840	100	400	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F49	87.560	86.620	0.840	100	400	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F50	87.480	86.320	1.010	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F51	87.750	86.140	1.460	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F52	87.750	86.820	0.780	150	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F53	87.750	86.760	0.840	150	600	PPIC	450 X 450	B125	SINGLE SEALED	N/A	N	N/A	N/A
F54	87.750	86.090	1.435	225	600	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	Y	N/A	ACCESS RESTRICTED TO MAX. 350
F55	88.210	87.210	0.900	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F56	88.210	87.290	0.820	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F57	89.090	88.140	0.850	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F58	88.950	88.100	0.700	150	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F59	89.090	88.060	0.930	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F60	88.790	87.840	0.850	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F61	88.790	87.770	0.920	100	450	PPIC	450 X 450	B125	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A
F62	88.220	85.720	2.275	225	1200	TYPE 2	600 X 600	D400	SINGLE SEALED	LA TO CONFIRM	N	BD IL: 86.50	N/A
F63	88.220	85.480	2.515	225	1200	TYPE 2	600 X 600	D400	SINGLE SEALED	LA TO CONFIRM	N	N/A	N/A

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 BASED ON LANDSCAPE GENERAL ARRANGEMENTS TPM LANDSCAPE, DRAWING REF 103 & 104, REV A DATED 09.11.20.
8. COVER LEVELS, GULLY POSITIONS, AND BUILDING LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.
9. 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.
10. 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.
11. 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.

13. ALL SURFACE CHANNEL ACCESS BOXES/OUTLET BOXES 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 AND SUBJECT TO AVAILABILITY FROM MANUFACTURER.
14. ALL SURFACE CHANNELS TO BE OF THE TREADSAFE TYPE, UNLESS OTHERWISE SPECIFIED.
15. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.

Rev:	Description:	Date:	By:	Chkd:
P02	MH F46 UPDATED	11/02/22	CS	CG
P01	STAGE 3 ISSUE	16/11/20	AH	CD

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Status: STAGE 3 ISSUE

Project: OLDHAM ROAD, NEWTON HEATH

Drg Title: MANHOLE SCHEDULE FOUL WATER

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	16/11/20	AH	AH	CD
Scale: NTS				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
074031	CUR	00	XX	DR	C	92511	P02

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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. 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.

5. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF THE DESIGN.

6. OUTFALL CONNECTIONS SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.

7. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.

8. COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.

9. ALL INTERNAL DRAINAGE CONNECTIONS ARE PROVIDED TO THE PENETRATION POSITIONS SHOWN ON ARCHITECT AND M&E DRAWINGS. REFER TO DIMENSIONED LOCATIONS AND DIAMETERS ON ARCHITECT'S GROUND FLOOR SETTING-OUT PLANS.

10. ALL UNDERGROUND FOUL DRAINAGE SHOULD BE SUITABLY VENTED AT OR NEAR TO THE HEAD OF RUNS.

11. ALL ACCESS FITTINGS, STACKS, RWP'S AND GULLIES TO BE RODDABLE. ALL TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL.

12. LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12M UP TO 22M TO A JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12M TO A JUNCTION.

13. ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.

14. WHERE NO WC'S ARE CONNECTED UPSTREAM, UNDERSLAB FW DRAINAGE TO BE LAID AT 1:40 MIN. AFTER THE CONNECTION OF AT LEAST 1NO WC, A MIN. FALL OF 1:80 APPLIES.

15. ALL CONNECTIONS FROM POP-UPS TO BE LAID AT A CONSTANT GRADIENT TO JUNCTION/ INSPECTION CHAMBER/ MANHOLE UNLESS NOTED OTHERWISE. ANY ISSUES RELATING TO CLASHES WITH FOUNDATIONS ARE TO BE FORWARDED TO THE ENGINEER, ALLOWING SUFFICIENT TIME FOR AN ALTERNATIVE SOLUTION TO BE PROPOSED.

16. INVERT LEVELS AT MANHOLES/ INSPECTION CHAMBERS TO BE USED TO SET OUT PIPEWORK. PIPE GRADIENTS ARE SHOWN INDICATIVELY ONLY.

17. ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.

18. ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE:
- 100mm to 300mm DIA TO BE VITRIFIED CLAY.
- 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.

19. AS AN ALTERNATIVE THE CONTRACTOR MAY USE AN APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU) WITH APPROVAL FROM THE ENGINEER.

20. SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.

21. THE FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.

22. ALL NEW CONNECTIONS INTO EXISTING MANHOLES (OR INTO EXISTING SEWERS) TO BE 'SOFFITS LEVEL' UNLESS OTHERWISE NOTED.

23. ALL ADOPTABLE DRAINAGE PIPES WILL REQUIRE A MINIMUM OF 1200mm COVER, IN ACCORDANCE WITH SEWERAGE UNDERTAKERS REQUIREMENTS. WHERE THIS IS NOT ACHIEVED, IT WILL BE NECESSARY TO AGREE THE BED AND SURROUND DETAIL.

24. ALL PRIVATE DRAINAGE PIPES WITH A COVER OF LESS THAN 600mm IN NON-TRAFFICKED AREAS AND LESS THAN 1200mm IN TRAFFICKED AREAS TO BE BEDDED AND SURROUNDED IN CONCRETE (CLASS Z). COMPRESSIBLE MATERIAL SHALL BE PROVIDED AT EVERY PIPE JOINT. WHERE COVER EXCEEDS THIS DEPTH, PIPES ARE TYPICALLY BEDDED AND SURROUNDED IN CLASS S. REFER TO PIPE EMBEDMENT DETAILS DRAWING FOR SPECIFIC TYPES.

25. WHERE DRAINAGE PIPES ARE LESS THAN 300mm BELOW THE UNDERSIDE OF THE GROUND FLOOR SLAB, CONCRETE ENCASEMENT IS REQUIRED (CLASS Z). COMPRESSIBLE JOINTS ARE TO BE PROVIDED AT EVERY PIPE JOINT WITHIN THE CONCRETE.

26. WHERE PIPES ARE MORE THAN 300mm BELOW THE UNDERSIDE OF THE SLAB, CLASS S BEDDING IS ACCEPTABLE.

27. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.

28. WHERE FOUL SEWERS RUN ABOVE SURFACE SEWERS, CONCRETE PROTECTION MAY BE REQUIRED AT CROSSOVERS TO PREVENT ANY POTENTIAL CONTAMINATION.

29. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVELY CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150MM FROM FACE OF CONCRETE.

30. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.

31. ALL MANHOLE COVERS IN BLOCK/SLAB AND EXTERNAL PAVING AREAS TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.

32. ALL INTERNAL COVERS TO HAVE MECHANICALLY JOINTED CORNERS AND DOUBLE SEALED WITH RECESSED TRAY TO ALLOW FOR FINISHES.

33. UNLESS NOTED OTHERWISE IN THE MANHOLE SCHEDULE, ALL MANHOLE, GULLY AND CHANNEL COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
- B125 LOAD CLASS IN PEDESTRIAN AREAS
- D400 LOAD CLASS IN VEHICULAR AREAS.

35. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.

Rev:	Description:	Date:	By:	Chkd:
P01	STAGE 3 ISSUE	16/11/20	AH	CD

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Status:
STAGE 3 ISSUE

Project:
OLDHAM ROAD, NEWTON HEATH

Drg Title:
DRAINAGE NOTES

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	16/11/20	AH	AH	CD
Scale: NTS				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
074031	CUR	00	XX	DR	C	92512	P01

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Appendix B

Proposed Surface Water Drainage Calculations – 1 year, 30 year and 100 year +40%cc events.

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	6.743	0.200	33.7	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit
1.001	25.047	0.313	80.0	0.006	0.00	0.0	0.600	o	150	Pipe/Conduit
2.000	11.246	0.313	35.9	0.017	5.00	0.0	0.600	o	150	Pipe/Conduit
1.002	26.098	0.261	100.0	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit
3.000	11.238	0.112	100.0	0.027	5.00	0.0	0.600	o	150	Pipe/Conduit
1.003	6.785	0.040	169.6	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit
4.000	9.619	0.096	100.0	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit
1.004	1.986	0.040	49.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
5.000	24.381	0.244	100.0	0.012	5.00	0.0	0.600	o	150	Pipe/Conduit
5.001	15.353	0.095	161.6	0.021	0.00	0.0	0.600	o	150	Pipe/Conduit
6.000	3.527	0.064	55.3	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit
6.001	15.591	0.318	49.1	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit
6.002	14.174	0.457	31.0	0.002	0.00	0.0	0.600	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.000	87.200	0.002	0.0	1.74	30.7
1.001	87.000	0.008	0.0	1.12	19.9
2.000	87.000	0.017	0.0	1.68	29.8
1.002	86.687	0.040	0.0	1.31	52.0
3.000	86.370	0.027	0.0	1.00	17.8
1.003	85.830	0.081	0.0	1.00	39.8
4.000	86.850	0.000	0.0	1.00	17.8
1.004	85.790	0.081	0.0	1.86	74.0
5.000	87.600	0.012	0.0	1.00	17.8
5.001	87.356	0.033	0.0	0.79	13.9
6.000	88.040	0.002	0.0	1.36	24.0
6.001	87.976	0.010	0.0	1.44	25.4
6.002	87.659	0.012	0.0	1.81	32.1

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Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
5.002	7.996	0.331	24.2	0.023	0.00	0.0	0.600	o	225	Pipe/Conduit
5.003	11.777	0.218	54.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
5.004	13.201	0.050	264.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
7.000	21.692	0.512	42.4	0.020	5.00	0.0	0.600	o	150	Pipe/Conduit
8.000	9.407	0.352	26.7	0.005	5.00	0.0	0.600	o	150	Pipe/Conduit
7.001	15.977	0.160	99.9	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit
7.002	3.828	0.028	136.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
9.000	8.451	0.106	80.0	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit
9.001	15.008	0.188	80.0	0.005	5.00	0.0	0.600	o	150	Pipe/Conduit
10.000	8.176	0.174	47.0	0.012	5.00	0.0	0.600	o	150	Pipe/Conduit
9.002	12.368	0.465	26.6	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit
11.000	7.228	0.089	81.2	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit
9.003	3.496	0.037	94.3	0.002	0.00	0.0	0.600	o	150	Pipe/Conduit
9.004	10.182	0.100	101.8	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
5.002	87.186	0.068	0.0	2.67	106.3
5.003	86.855	0.068	0.0	1.78	70.9
5.004	85.800	0.068	0.0	0.80	31.8
7.000	86.450	0.020	0.0	1.55	27.4
8.000	86.290	0.005	0.0	1.96	34.6
7.001	85.938	0.035	0.0	1.31	52.0
7.002	85.778	0.035	0.0	1.12	44.4
9.000	86.870	0.002	0.0	1.12	19.9
9.001	86.764	0.007	0.0	1.12	19.9
10.000	86.750	0.012	0.0	1.47	26.0
9.002	86.576	0.023	0.0	1.96	34.6
11.000	86.200	0.009	0.0	1.12	19.7
9.003	86.111	0.035	0.0	1.03	18.3
9.004	85.850	0.065	0.0	1.00	17.6

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Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.005	22.571	0.060	376.2	0.054	0.00	0.0	0.600	o	225	Pipe/Conduit
1.006	19.402	0.270	71.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.007	9.573	1.530	6.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.005	85.750	0.303	0.0	0.67	26.6
1.006	85.690	0.303	0.0	1.19	21.0
1.007	85.420	0.303	0.0	6.32	447.0

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
29	88.250	1.050	Open Manhole	600	1.000	87.200	150				
30	88.250	1.250	Open Manhole	600	1.001	87.000	150	1.000	87.000	150	
31	88.050	1.050	Open Manhole	600	2.000	87.000	150				
32	88.050	1.363	Open Manhole	1500	1.002	86.687	225	1.001	86.687	150	
								2.000	86.687	150	
33	87.420	1.050	Open Manhole	600	3.000	86.370	150				
34	87.440	1.610	Open Manhole	1500	1.003	85.830	225	1.002	86.426	225	596
								3.000	86.258	150	353
34A	87.900	1.050	Open Manhole	600	4.000	86.850	150				
34B	87.420	1.630	Open Manhole	1500	1.004	85.790	225	1.003	85.790	225	
								4.000	86.754	150	889
45	88.950	1.350	Open Manhole	600	5.000	87.600	150				
46	88.600	1.244	Open Manhole	600	5.001	87.356	150	5.000	87.356	150	
47	89.090	1.050	Open Manhole	600	6.000	88.040	150				
48	89.090	1.114	Open Manhole	600	6.001	87.976	150	6.000	87.976	150	
49	88.790	1.132	Open Manhole	600	6.002	87.659	150	6.001	87.659	150	
50	88.400	1.214	Open Manhole	600	5.002	87.186	225	5.001	87.261	150	
								6.002	87.202	150	
51	88.280	1.425	Open Manhole	1200	5.003	86.855	225	5.002	86.855	225	
52	87.880	2.080	Open Manhole	1200	5.004	85.800	225	5.003	86.637	225	837
35	87.500	1.050	Open Manhole	600	7.000	86.450	150				
36	87.610	1.320	Open Manhole	600	8.000	86.290	150				
37	87.500	1.562	Open Manhole	1500	7.001	85.938	225	7.000	85.938	150	
								8.000	85.938	150	
37A	87.450	1.672	Open Manhole	1200	7.002	85.778	225	7.001	85.778	225	
38	88.220	1.350	Open Manhole	600	9.000	86.870	150				
39	88.220	1.456	Open Manhole	600	9.001	86.764	150	9.000	86.764	150	
41	87.800	1.050	Open Manhole	600	10.000	86.750	150				
40	87.750	1.174	Open Manhole	600	9.002	86.576	150	9.001	86.576	150	
								10.000	86.576	150	
42	87.800	1.600	Open Manhole	600	11.000	86.200	150				
43	87.700	1.589	Open Manhole	600	9.003	86.111	150	9.002	86.111	150	
								11.000	86.111	150	
44	87.700	1.850	Open Manhole	1200	9.004	85.850	150	9.003	86.074	150	224
TANK	88.000	2.250	Open Manhole	1500	1.005	85.750	225	1.004	85.750	225	
								5.004	85.750	225	
								7.002	85.750	225	
								9.004	85.750	150	

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
FCC2	88.200	2.510	Open Manhole	1500	1.006	85.690	150	1.005	85.690	225	
C2	88.400	2.980	Open Manhole	1500	1.007	85.420	300	1.006	85.420	150	
	88.300	4.410	Open Manhole	0		OUTFALL		1.007	83.890	300	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	29	88.250	87.200	0.900	Open Manhole	600
1.001	o	150	30	88.250	87.000	1.100	Open Manhole	600
2.000	o	150	31	88.050	87.000	0.900	Open Manhole	600
1.002	o	225	32	88.050	86.687	1.138	Open Manhole	1500
3.000	o	150	33	87.420	86.370	0.900	Open Manhole	600
1.003	o	225	34	87.440	85.830	1.385	Open Manhole	1500
4.000	o	150	34A	87.900	86.850	0.900	Open Manhole	600
1.004	o	225	34B	87.420	85.790	1.405	Open Manhole	1500
5.000	o	150	45	88.950	87.600	1.200	Open Manhole	600
5.001	o	150	46	88.600	87.356	1.094	Open Manhole	600
6.000	o	150	47	89.090	88.040	0.900	Open Manhole	600
6.001	o	150	48	89.090	87.976	0.964	Open Manhole	600
6.002	o	150	49	88.790	87.659	0.981	Open Manhole	600

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	6.743	33.7	30	88.250	87.000	1.100	Open Manhole	600
1.001	25.047	80.0	32	88.050	86.687	1.213	Open Manhole	1500
2.000	11.246	35.9	32	88.050	86.687	1.213	Open Manhole	1500
1.002	26.098	100.0	34	87.440	86.426	0.789	Open Manhole	1500
3.000	11.238	100.0	34	87.440	86.258	1.032	Open Manhole	1500
1.003	6.785	169.6	34B	87.420	85.790	1.405	Open Manhole	1500
4.000	9.619	100.0	34B	87.420	86.754	0.516	Open Manhole	1500
1.004	1.986	49.6	TANK	88.000	85.750	2.025	Open Manhole	1500
5.000	24.381	100.0	46	88.600	87.356	1.094	Open Manhole	600
5.001	15.353	161.6	50	88.400	87.261	0.989	Open Manhole	600
6.000	3.527	55.3	48	89.090	87.976	0.964	Open Manhole	600
6.001	15.591	49.1	49	88.790	87.659	0.982	Open Manhole	600
6.002	14.174	31.0	50	88.400	87.202	1.048	Open Manhole	600

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.002	o	225	50	88.400	87.186	0.989	Open Manhole	600
5.003	o	225	51	88.280	86.855	1.200	Open Manhole	1200
5.004	o	225	52	87.880	85.800	1.855	Open Manhole	1200
7.000	o	150	35	87.500	86.450	0.900	Open Manhole	600
8.000	o	150	36	87.610	86.290	1.170	Open Manhole	600
7.001	o	225	37	87.500	85.938	1.337	Open Manhole	1500
7.002	o	225	37A	87.450	85.778	1.447	Open Manhole	1200
9.000	o	150	38	88.220	86.870	1.200	Open Manhole	600
9.001	o	150	39	88.220	86.764	1.306	Open Manhole	600
10.000	o	150	41	87.800	86.750	0.900	Open Manhole	600
9.002	o	150	40	87.750	86.576	1.024	Open Manhole	600
11.000	o	150	42	87.800	86.200	1.450	Open Manhole	600

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.002	7.996	24.2	51	88.280	86.855	1.200	Open Manhole	1200
5.003	11.777	54.0	52	87.880	86.637	1.018	Open Manhole	1200
5.004	13.201	264.0	TANK	88.000	85.750	2.025	Open Manhole	1500
7.000	21.692	42.4	37	87.500	85.938	1.412	Open Manhole	1500
8.000	9.407	26.7	37	87.500	85.938	1.412	Open Manhole	1500
7.001	15.977	99.9	37A	87.450	85.778	1.447	Open Manhole	1200
7.002	3.828	136.7	TANK	88.000	85.750	2.025	Open Manhole	1500
9.000	8.451	80.0	39	88.220	86.764	1.306	Open Manhole	600
9.001	15.008	80.0	40	87.750	86.576	1.024	Open Manhole	600
10.000	8.176	47.0	40	87.750	86.576	1.024	Open Manhole	600
9.002	12.368	26.6	43	87.700	86.111	1.439	Open Manhole	600
11.000	7.228	81.2	43	87.700	86.111	1.439	Open Manhole	600

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.003	o	150	43	87.700	86.111	1.439	Open Manhole	600
9.004	o	150	44	87.700	85.850	1.700	Open Manhole	1200
1.005	o	225	TANK	88.000	85.750	2.025	Open Manhole	1500
1.006	o	150	FCC2	88.200	85.690	2.360	Open Manhole	1500
1.007	o	300	C2	88.400	85.420	2.680	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.003	3.496	94.3	44	87.700	86.074	1.476	Open Manhole	1200
9.004	10.182	101.8	TANK	88.000	85.750	2.100	Open Manhole	1500
1.005	22.571	376.2	FCC2	88.200	85.690	2.285	Open Manhole	1500
1.006	19.402	71.9	C2	88.400	85.420	2.830	Open Manhole	1500
1.007	9.573	6.3		88.300	83.890	4.110	Open Manhole	0

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.002	0.002	0.002
1.001	User	-	100	0.006	0.006	0.006
2.000	User	-	100	0.001	0.001	0.001
	User	-	100	0.015	0.015	0.017
1.002	User	-	100	0.006	0.006	0.006
	User	-	100	0.009	0.009	0.015
3.000	User	-	100	0.014	0.014	0.014
	User	-	100	0.014	0.014	0.027
1.003	User	-	100	0.014	0.014	0.014
4.000	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
5.000	User	-	100	0.012	0.012	0.012
5.001	User	-	100	0.016	0.016	0.016
	User	-	100	0.005	0.005	0.021
6.000	User	-	100	0.002	0.002	0.002
6.001	User	-	100	0.004	0.004	0.004
	User	-	100	0.004	0.004	0.008
6.002	User	-	100	0.002	0.002	0.002
5.002	User	-	100	0.018	0.018	0.018
	User	-	100	0.005	0.005	0.023
5.003	-	-	100	0.000	0.000	0.000
5.004	-	-	100	0.000	0.000	0.000
7.000	User	-	100	0.020	0.020	0.020
8.000	User	-	100	0.005	0.005	0.005
7.001	User	-	100	0.006	0.006	0.006
	User	-	100	0.005	0.005	0.010
7.002	-	-	100	0.000	0.000	0.000
9.000	User	-	100	0.002	0.002	0.002
9.001	User	-	100	0.005	0.005	0.005
10.000	User	-	100	0.012	0.012	0.012
9.002	User	-	100	0.005	0.005	0.005
11.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.002	0.002	0.009
9.003	User	-	100	0.002	0.002	0.002
9.004	User	-	100	0.018	0.018	0.018
	User	-	100	0.005	0.005	0.022
	User	-	100	0.008	0.008	0.030
1.005	User	-	100	0.052	0.052	0.052
	User	-	100	0.002	0.002	0.054
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.303	0.303	0.303

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Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007		88.300	83.890	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.600	Storm Duration (mins)	30
Ratio R	0.321		

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Online Controls for Storm

Orifice Manhole: FCC2, DS/PN: 1.006, Volume (m³): 5.3

Diameter (m) 0.081 Discharge Coefficient 0.600 Invert Level (m) 85.690

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Storage Structures for Storm

Cellular Storage Manhole: TANK, DS/PN: 1.005

Invert Level (m) 85.750 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	100.0	0.0	0.801	0.0	0.0
0.800	100.0	0.0			

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.334
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 18.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	29	15 Winter	1	+0%					87.207
1.001	30	15 Winter	1	+0%	100/120 Winter				87.021
2.000	31	15 Winter	1	+0%	100/120 Winter				87.027
1.002	32	15 Winter	1	+0%	100/60 Winter				86.733
3.000	33	15 Winter	1	+0%	100/30 Winter				86.416
1.003	34	60 Winter	1	+0%	30/15 Winter				85.921
4.000	34A	60 Winter	1	+0%	100/120 Winter				86.850
1.004	34B	60 Winter	1	+0%	30/15 Summer				85.920
5.000	45	15 Winter	1	+0%					87.629
5.001	46	15 Winter	1	+0%	100/15 Summer				87.409
6.000	47	15 Winter	1	+0%					88.053
6.001	48	15 Winter	1	+0%					87.998
6.002	49	15 Winter	1	+0%					87.680
5.002	50	15 Winter	1	+0%					87.231
5.003	51	15 Winter	1	+0%	100/120 Winter				86.907
5.004	52	60 Winter	1	+0%	30/15 Summer				85.921
7.000	35	15 Winter	1	+0%	100/60 Winter				86.480
8.000	36	15 Winter	1	+0%	100/30 Summer				86.304
7.001	37	15 Winter	1	+0%	30/60 Winter				85.983
7.002	37A	60 Winter	1	+0%	30/15 Summer				85.919
9.000	38	15 Winter	1	+0%	100/120 Winter				86.880

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	29	-0.143	0.000	0.01		0.2	OK	
1.001	30	-0.129	0.000	0.05		0.9	OK	
2.000	31	-0.123	0.000	0.07		2.0	OK	
1.002	32	-0.179	0.000	0.09		4.4	OK	
3.000	33	-0.104	0.000	0.20		3.2	OK	
1.003	34	-0.134	0.000	0.18		5.3	OK	
4.000	34A	-0.150	0.000	0.00		0.0	OK	
1.004	34B	-0.095	0.000	0.17		5.0	OK	
5.000	45	-0.121	0.000	0.08		1.4	OK	
5.001	46	-0.097	0.000	0.27		3.5	OK	
6.000	47	-0.137	0.000	0.02		0.3	OK	
6.001	48	-0.128	0.000	0.05		1.2	OK	
6.002	49	-0.129	0.000	0.05		1.4	OK	
5.002	50	-0.180	0.000	0.09		7.3	OK	
5.003	51	-0.173	0.000	0.12		7.3	OK	
5.004	52	-0.104	0.000	0.16		4.3	OK	
7.000	35	-0.120	0.000	0.09		2.3	OK	
8.000	36	-0.136	0.000	0.02		0.6	OK	
7.001	37	-0.180	0.000	0.09		4.0	OK	
7.002	37A	-0.084	0.000	0.07		2.0	OK	
9.000	38	-0.140	0.000	0.01		0.2	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
9.001	39	15 Winter	1	+0%	100/60 Winter				86.784
10.000	41	15 Winter	1	+0%	100/60 Winter				86.774
9.002	40	15 Winter	1	+0%	100/60 Winter				86.606
11.000	42	15 Winter	1	+0%	100/15 Summer				86.225
9.003	43	15 Winter	1	+0%	100/15 Summer				86.171
9.004	44	60 Winter	1	+0%	30/15 Summer				85.924
1.005	TANK	60 Winter	1	+0%	30/15 Summer				85.919
1.006	FCC2	60 Winter	1	+0%	1/15 Summer				85.907
1.007	C2	240 Winter	1	+0%					85.447

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
9.001	39	-0.130	0.000	0.04		0.8	OK	
10.000	41	-0.126	0.000	0.06		1.4	OK	
9.002	40	-0.120	0.000	0.08		2.7	OK	
11.000	42	-0.125	0.000	0.06		1.1	OK	
9.003	43	-0.090	0.000	0.33		4.0	OK	
9.004	44	-0.076	0.000	0.27		4.2	OK	
1.005	TANK	-0.056	0.000	0.24		5.9	OK	
1.006	FCC2	0.067	0.000	0.29		5.7	SURCHARGED	
1.007	C2	-0.273	0.000	0.02		5.5	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.334
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 18.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	29	15 Winter	30	+0%					87.216
1.001	30	15 Winter	30	+0%	100/120 Winter				87.037
2.000	31	15 Winter	30	+0%	100/120 Winter				87.043
1.002	32	15 Winter	30	+0%	100/60 Winter				86.763
3.000	33	15 Winter	30	+0%	100/30 Winter				86.445
1.003	34	120 Winter	30	+0%	30/15 Winter				86.230
4.000	34A	60 Winter	30	+0%	100/120 Winter				86.850
1.004	34B	120 Winter	30	+0%	30/15 Summer				86.227
5.000	45	15 Winter	30	+0%					87.646
5.001	46	15 Winter	30	+0%	100/15 Summer				87.456
6.000	47	15 Winter	30	+0%					88.060
6.001	48	15 Winter	30	+0%					88.011
6.002	49	15 Winter	30	+0%					87.694
5.002	50	15 Winter	30	+0%					87.263
5.003	51	15 Winter	30	+0%	100/120 Winter				86.946
5.004	52	120 Winter	30	+0%	30/15 Summer				86.231
7.000	35	15 Winter	30	+0%	100/60 Winter				86.498
8.000	36	15 Winter	30	+0%	100/30 Summer				86.311
7.001	37	120 Winter	30	+0%	30/60 Winter				86.229
7.002	37A	120 Winter	30	+0%	30/15 Summer				86.226
9.000	38	15 Winter	30	+0%	100/120 Winter				86.888

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	29	-0.134	0.000	0.02		0.6	OK	
1.001	30	-0.113	0.000	0.13		2.5	OK	
2.000	31	-0.107	0.000	0.18		4.9	OK	
1.002	32	-0.149	0.000	0.25		11.9	OK	
3.000	33	-0.075	0.000	0.50		7.9	OK	
1.003	34	0.175	0.000	0.26		7.9	SURCHARGED	
4.000	34A	-0.150	0.000	0.00		0.0	OK	
1.004	34B	0.212	0.000	0.25		7.4	SURCHARGED	
5.000	45	-0.104	0.000	0.20		3.3	OK	
5.001	46	-0.050	0.000	0.76		9.8	OK	
6.000	47	-0.130	0.000	0.04		0.7	OK	
6.001	48	-0.115	0.000	0.12		2.9	OK	
6.002	49	-0.115	0.000	0.12		3.6	OK	
5.002	50	-0.148	0.000	0.25		20.6	OK	
5.003	51	-0.134	0.000	0.34		20.4	OK	
5.004	52	0.206	0.000	0.24		6.7	SURCHARGED	
7.000	35	-0.102	0.000	0.22		5.7	OK	
8.000	36	-0.129	0.000	0.05		1.5	OK	
7.001	37	0.066	0.000	0.07		3.1	SURCHARGED	
7.002	37A	0.223	0.000	0.08		2.4	SURCHARGED	
9.000	38	-0.132	0.000	0.03		0.6	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
9.001	39	15 Winter	30	+0%	100/60 Winter				86.797
10.000	41	15 Winter	30	+0%	100/60 Winter				86.789
9.002	40	15 Winter	30	+0%	100/60 Winter				86.624
11.000	42	15 Winter	30	+0%	100/15 Summer				86.241
9.003	43	120 Winter	30	+0%	100/15 Summer				86.235
9.004	44	120 Winter	30	+0%	30/15 Summer				86.233
1.005	TANK	120 Winter	30	+0%	30/15 Summer				86.226
1.006	FCC2	120 Winter	30	+0%	1/15 Summer				86.361
1.007	C2	120 Winter	30	+0%					85.456

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
9.001	39	-0.117	0.000	0.11		2.0	OK	
10.000	41	-0.111	0.000	0.15		3.4	OK	
9.002	40	-0.102	0.000	0.22		6.8	OK	
11.000	42	-0.109	0.000	0.16		2.6	OK	
9.003	43	-0.026	0.000	0.29		3.5	OK	
9.004	44	0.233	0.000	0.40		6.3	SURCHARGED	
1.005	TANK	0.251	0.000	0.48		11.7	SURCHARGED	
1.006	FCC2	0.521	0.000	0.47		9.3	SURCHARGED	
1.007	C2	-0.264	0.000	0.03		9.3	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.334
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 18.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	29	15 Winter	100	+40%					87.220
1.001	30	120 Winter	100	+40%	100/120 Winter				87.212
2.000	31	120 Winter	100	+40%	100/120 Winter				87.212
1.002	32	120 Winter	100	+40%	100/60 Winter				87.206
3.000	33	120 Winter	100	+40%	100/30 Winter				87.207
1.003	34	120 Winter	100	+40%	30/15 Winter				87.195
4.000	34A	120 Winter	100	+40%	100/120 Winter				87.189
1.004	34B	120 Winter	100	+40%	30/15 Summer				87.187
5.000	45	15 Winter	100	+40%					87.663
5.001	46	15 Winter	100	+40%	100/15 Summer				87.582
6.000	47	15 Winter	100	+40%					88.068
6.001	48	15 Winter	100	+40%					88.024
6.002	49	15 Winter	100	+40%					87.707
5.002	50	15 Winter	100	+40%					87.293
5.003	51	120 Winter	100	+40%	100/120 Winter				87.207
5.004	52	120 Winter	100	+40%	30/15 Summer				87.196
7.000	35	120 Winter	100	+40%	100/60 Winter				87.209
8.000	36	120 Winter	100	+40%	100/30 Summer				87.200
7.001	37	120 Winter	100	+40%	30/60 Winter				87.197
7.002	37A	120 Winter	100	+40%	30/15 Summer				87.187
9.000	38	120 Winter	100	+40%	100/120 Winter				87.219

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	29	-0.130	0.000	0.04		1.1	OK	
1.001	30	0.062	0.000	0.08		1.6	SURCHARGED	
2.000	31	0.062	0.000	0.12		3.1	SURCHARGED	
1.002	32	0.294	0.000	0.15		7.5	SURCHARGED	
3.000	33	0.687	0.000	0.32		5.0	FLOOD RISK	
1.003	34	1.140	0.000	0.47		14.1	FLOOD RISK	
4.000	34A	0.189	0.000	0.01		0.1	SURCHARGED	
1.004	34B	1.172	0.000	0.45		13.3	FLOOD RISK	
5.000	45	-0.087	0.000	0.36		6.1	OK	
5.001	46	0.076	0.000	1.34		17.2	SURCHARGED	
6.000	47	-0.122	0.000	0.08		1.2	OK	
6.001	48	-0.102	0.000	0.22		5.2	OK	
6.002	49	-0.102	0.000	0.22		6.5	OK	
5.002	50	-0.118	0.000	0.44		36.0	OK	
5.003	51	0.127	0.000	0.21		12.7	SURCHARGED	
5.004	52	1.171	0.000	0.44		12.2	SURCHARGED	
7.000	35	0.609	0.000	0.14		3.7	FLOOD RISK	
8.000	36	0.760	0.000	0.03		0.9	SURCHARGED	
7.001	37	1.034	0.000	0.11		5.2	SURCHARGED	
7.002	37A	1.184	0.000	0.16		4.7	FLOOD RISK	
9.000	38	0.199	0.000	0.02		0.4	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
9.001	39	120 Winter	100	+40%	100/60 Winter				87.218
10.000	41	120 Winter	100	+40%	100/60 Winter				87.218
9.002	40	120 Winter	100	+40%	100/60 Winter				87.214
11.000	42	120 Winter	100	+40%	100/15 Summer				87.210
9.003	43	120 Winter	100	+40%	100/15 Summer				87.207
9.004	44	120 Winter	100	+40%	30/15 Summer				87.204
1.005	TANK	120 Winter	100	+40%	30/15 Summer				87.184
1.006	FCC2	120 Winter	100	+40%	1/15 Summer				87.145
1.007	C2	120 Winter	100	+40%					85.464

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
9.001	39	0.304	0.000	0.07		1.3	SURCHARGED	
10.000	41	0.318	0.000	0.10		2.2	SURCHARGED	
9.002	40	0.488	0.000	0.14		4.4	SURCHARGED	
11.000	42	0.860	0.000	0.09		1.5	SURCHARGED	
9.003	43	0.946	0.000	0.49		5.9	SURCHARGED	
9.004	44	1.204	0.000	0.70		11.0	SURCHARGED	
1.005	TANK	1.209	0.000	0.71		17.1	SURCHARGED	
1.006	FCC2	1.305	0.000	0.83		16.3	SURCHARGED	
1.007	C2	-0.256	0.000	0.05		16.3	OK	

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