

LB/9762

12th of September 2024**Former Mather & Platt Foundry, Grimshaw Lane, Manchester, M40 2BA****Planning Application Number: 135454/JO/2022****Discharge Condition Reference: CDN/24/0682**

Please find below responses and accompanying information in relation to latest comments on the submission to clear planning condition 13 on surface water drainage.

Planning Condition 13

Photographic evidence of all installed hydro-brakes and SuDS components must be submitted. The developer must provide photographic evidence, during and following construction, for all the components listed below:

- *Hydro-brakes; S157, 153, S138, S214.*
- *Attenuation tanks, 1, 2, and 3*
- *Attenuation pond*

Please see additional photographic evidence enclosed showing installation of the vortex flow controls within manhole references SW138, SW153 & SW157.

The photographic evidence of the installation of attenuation tanks 1 & 2 has been previously provided within the initial submission.

The remaining requested photographic information relates to SuDS features within Phase 2 of this development which is not currently being considered for the discharge of this condition.

The developer needs to confirm drawing no. 9762-PTA-XX-XX-DR-C-8101, 2, 3 are the submitted as built details.

We can confirm that the below referenced drawings represent the as-built drainage networks for development phase 1.

9762-PTA-XX-XX-DR-C-8100 - Proposed Sitewide Drainage Layout - Rev C04

9762-PTA-XX-XX-DR-C-8101 - Proposed Drainage Sheet 1 of 7 - Rev C08

9762-PTA-XX-XX-DR-C-8102 - Proposed Drainage Sheet 2 of 7 - Rev C07

9762-PTA-XX-XX-DR-C-8103 - Proposed Drainage Sheet 3 of 7 - Rev C07

The developer must also provide the remaining four sheets, as the developer has currently only provided 1 – 3, out of a total 7 sheets.

Sheets 4 to 7 of the proposed drainage layout show Phase 2 area which is not currently being considered for the discharge of this condition, and as such have not been included.

The proposed attenuation tanks volume, positioning, and engineering parameters have been amended from the previously approved layout under application no. CDN/21/0850. Therefore, the developer will need to provide a fully updated model supporting the most recent submission. The

hydraulic modelling up to 1:100 + cc% must be provided reflective of the as built layout. Any above ground flooding must be reflected within an overland flow routing plan. Numerous manholes invert and cover levels have been amended throughout the proposed layout. The updated hydraulic model must include all engineering parameters and accurately reflect the engineering detail submitted under this application. Please see standard comment below.

Minor alterations to manhole numbering and levels have been the result of construction design and final services coordination. These have been achieved without any detriment to the planning approved drainage strategy. Please see updated calculations enclosed with manhole references corrected.

The developer has included a 300mm pipe, referenced as "Stone House Site, pipe to be capped at site boundary". Any additional flows discharging into the public sewer will need agreement from UU. This will need to be agreed under a separate application.

The ø300mm capped spur has been introduced for a potential future redevelopment of the adjacent land which will require consultation with United Utilities (UU) during the planning process for its final surface water discharge into UU sewer network. Furthermore, a S106 consent from UU will be required prior to any discharge from this potential future development.

The latest engineering drawing no. 9762-PTA-XX-XX-DR-C-8101 now indicates a section of the 375mm combined sewer to be 'abandoned / removed'. The developer will need to provide an agreement in principle from United Utilities, this can be via email format.

This is a private sewer and as such no consultation/agreement with United Utilities is required. This ø375mm sewer is not shown on UU record asset map, see public sewer map enclosed. Also, the S106 consent has been granted for a connection through a private drain within private land, see S106 consent enclosed

Yours sincerely,

Luís Brito
Senior Civil Engineer

Email: luis.brito@ptaconsult.co.uk

Site Pictures



Picture 1 shows the installation of Vortex Flow Control within manhole reference SWMH153.



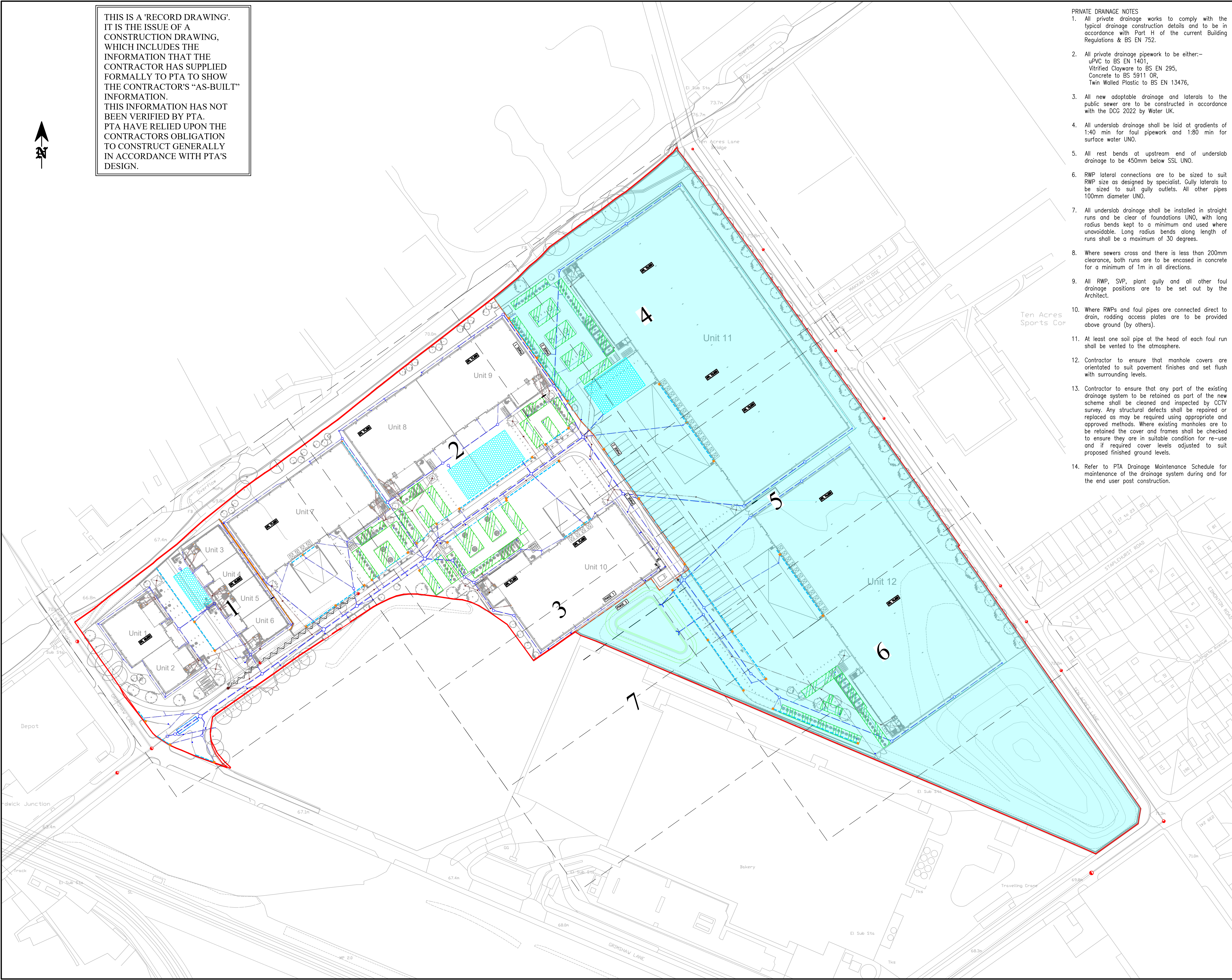
Picture 2 shows the installation of Vortex Flow Control within manhole reference SWMH138.



Picture 3 shows the installation of Vortex Flow Control within manhole reference SWMH157.

Drainage Layout Record Drawings

THIS IS A 'RECORD DRAWING'.
IT IS THE ISSUE OF A
CONSTRUCTION DRAWING,
WHICH INCLUDES THE
INFORMATION THAT THE
CONTRACTOR HAS SUPPLIED
FORMALLY TO PTA TO SHOW
THE CONTRACTOR'S "AS-BUILT"
INFORMATION.
THIS INFORMATION HAS NOT
BEEN VERIFIED BY PTA.
PTA HAVE RELIED UPON THE
CONTRACTORS OBLIGATION
TO CONSTRUCT GENERALLY
IN ACCORDANCE WITH PTA'S
DESIGN.



- PRIVATE DRAINAGE NOTES
- All private drainage works to comply with the typical drainage construction details and to be in accordance with Part H of the current Building Regulations & BS EN 752.
 - All private drainage pipework to be either:-
uPVC to BS EN 1401,
Vitrified Clayware to BS EN 295,
Concrete to BS 5911 OR,
Twin Walled Plastic to BS EN 13476,
 - All new adoptable drainage and laterals to the public sewer are to be constructed in accordance with the DCG 2022 by Water UK.
 - All underslab drainage shall be laid at gradients of 1:40 min for foul pipework and 1:80 min for surface water UNO.
 - All rest bends at upstream end of underslab drainage to be 450mm below SSL UNO.
 - RWP lateral connections are to be sized to suit RWP size as designed by specialist. Gully laterals to be sized to suit gully outlets. All other pipes 100mm diameter UNO.
 - All underslab drainage shall be installed in straight runs and be clear of foundations UNO, with long radius bends kept to a minimum and used where unavoidable. Long radius bends along length of runs shall be a maximum of 30 degrees.
 - Where sewers cross and there is less than 200mm clearance, both runs are to be encased in concrete for a minimum of 1m in all directions.
 - All RWP, SVP, plant gully and all other foul drainage positions are to be set out by the Architect.
 - Where RWPs and foul pipes are connected direct to drain, rodding access plates are to be provided above ground (by others).
 - At least one soil pipe at the head of each foul run shall be vented to the atmosphere.
 - Contractor to ensure that manhole covers are orientated to suit pavement finishes and set flush with surrounding levels.
 - Contractor to ensure that any part of the existing drainage system to be retained as part of the new scheme shall be cleaned and inspected by CCTV survey. Any structural defects shall be repaired or replaced as may be required using appropriate and approved methods. Where existing manholes are to be retained the cover and frames shall be checked to ensure they are in suitable condition for re-use and if required cover levels adjusted to suit proposed finished ground levels.
 - Refer to PTA Drainage Maintenance Schedule for maintenance of the drainage system during and for the end user post construction.

Notes:

- Do not scale from this drawing.
- In case of any discrepancies in drawings, details or bills, refer to engineers for clarification; unilateral decisions by the Contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA's Civil Engineering Department.

Key:

- Site Boundary
- Attenuation Tank
- Proposed Foul Water Drainage
- Proposed Surface Water Drainage
- Existing Combined Sewers
- Existing Combined Sewers to be abandoned/removed
- Drainage Channel
- Drainage Channel Chamber
- Proposed Gully
- Trapped Gully
- Perforated Pipe
- Proposed Permeable Car Park
- Phase 2

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FOR CONSTRUCTION

C04	Record Issue.	LB	25.07.24	SLW
C03	SW & FW Adjustments; notes Added.	LB	29.09.23	SLW
C02	SW Drainage Adjustments.	LB	07.08.23	SLW
C01	Construction Issue.	LB	26.07.23	SLW
P11	Phasing Boundary Revised; Stone House Entrance Added.	LB	27.06.23	
P10	Phasing Hatch Added; Attenuation Tanks Updated.	LB	03.02.23	
P09	Indicative Attenuation Tank Connections Added.	LB	07.06.22	
P08	Minor Adjustments.	LB	19.05.22	
P07	Redesigned SW Network.	LB	12.04.22	
P06	Site Layout Updated; SW Network Adjusted; Pond Added.	LB	13.08.21	
P05	Site Layout Updated; SW Network Redesigned.	LB	07.06.21	
P04	Site Layout Updated.	LB	19.03.21	
P03	Site Layout Updated.	LB	12.02.21	
P02	Tank 1 Label Amended.	LB	03.11.20	
REV	DESCRIPTION	BY	DATE	CHK'D

PROJECT TITLE
Grimshaw Lane, Manchester

DRAWING TITLE
Proposed Sitewide
Drainage Layout

DATE	October 2020	CHECKED DO	CHECKED ENG	PTA PROJ No
DRAWN	LB			9762
SCALE	1:1000	LB	SLW	REVISION
DRG SIZE	A1			C04

DRAWING No
9762-PTA-XX-XX-DR-C- 8100

Consulting Civil & Structural Engineers

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HP5 1EJ
Tel. 01494 772721

www.placonsult.co.uk

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- Contractor to allow for RWP, drainage channels, gullies and attenuation tank connections.

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- Drainage Channel Chamber
- Proposed Gully
- Trapped Gully
- Perforated Pipe
- Proposed Permeable Car Park
- Phase 2
- Tree Protection Construction Exclusion Zone
- Root Protection Barrier, refer to PTA drawing 9762-8310

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DRAWING STATUS

FOR CONSTRUCTION

C08	Record Issue.	LB	25.07.24	SLW
C07	RWP Locations Adjusted.	LB	16.11.23	SLW
C06	RWP Locations Added And Adjusted; Cover Levels Updated.	LB	31.10.23	SLW
C05	Drainage Channel Moved & RWPs Locations Adjusted.	LB	05.10.23	SLW
C04	FW Route & RWPs Locations Adjusted.	LB	29.09.23	SLW
C03	Minor Adjustments To Foul Water Drain Points.	LB	22.09.23	LB
C02	SW Drainage Layout & RWP Locations Adjusted.	LB	07.08.23	SLW
C01	Construction Issue.	LB	26.07.23	SLW
P09	Phasing Boundary Revised; Stone House Entrance Added & Manhole References Updated.	LB	27.06.23	
P08	Phasing Hatch Added; Attenuation Tanks Updated.	LB	03.02.23	
P07	Indicative Attenuation Tank Connections Added.	LB	07.06.22	
REV	DESCRIPTION	BY	DATE	CHKD

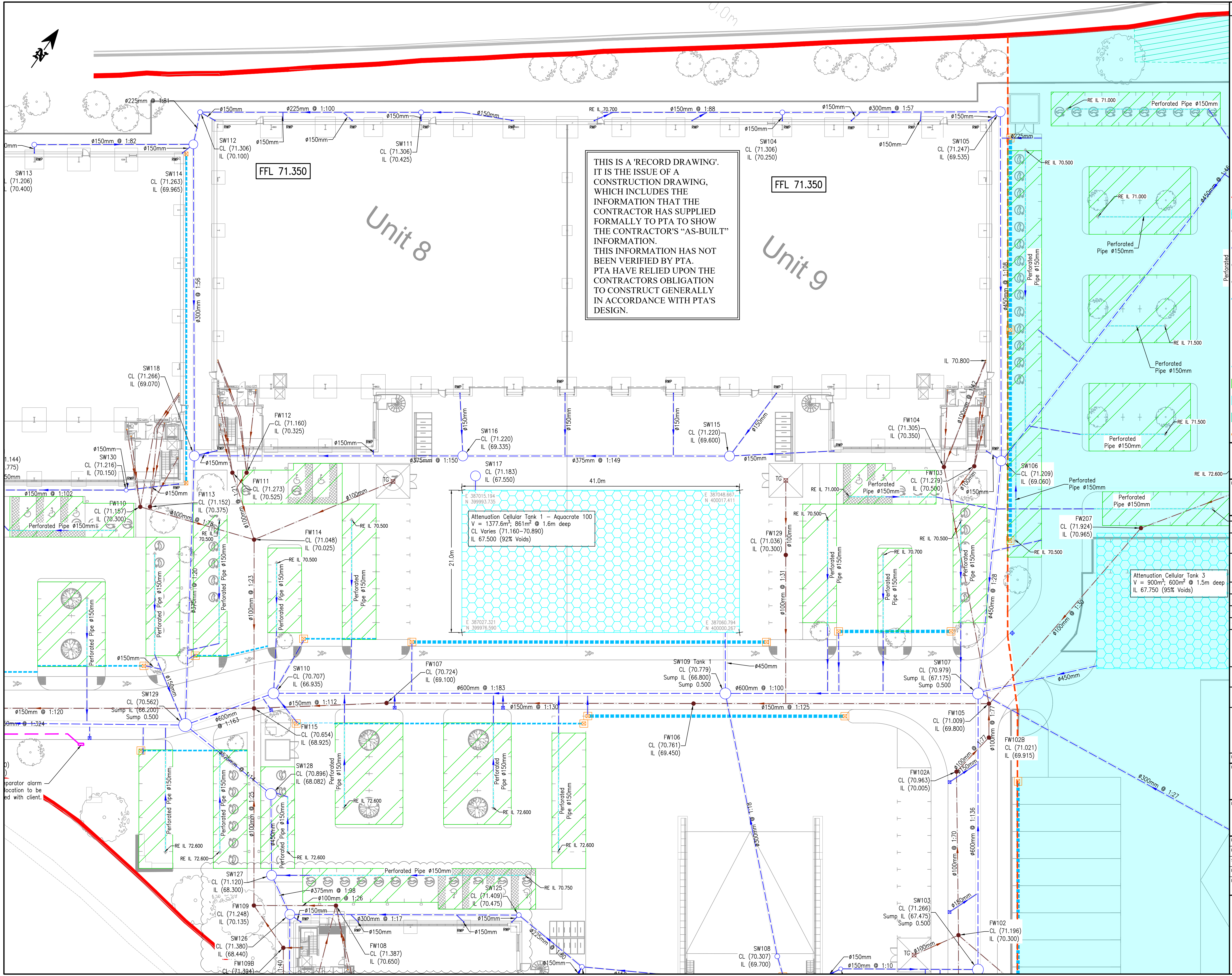
Grimshaw Lane, Manchester

Proposed Drainage Sheet 1 of 7

DATE	March 2021	CHECKED DO	CHECKED ENG	PTA PROJ No
DRAWN	LB			9762
SCALE	1:250	LB	SLW	REVISION
DRG SIZE	A1			C08
DRAWING No	9762-PTA-XX-XX-DR-C- 8101			

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- Refer to BEA drawings for details on Tree Root Protection Areas.

Key:

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- Perforated Pipe
- Proposed Permeable Car Park
- Phase 2
- Tree Protection
- Construction Exclusion Zone
- Root Protection Barrier, refer to PTA drawing 9762-8310

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DRAWING STATUS

REV	DESCRIPTION	BY	DATE	CHK'D
C07	Record Issue.		25.07.24	SLW
C06	RWP Locations Adjusted & FW Network Moved.		16.11.23	SLW
C05	RWP Locations Added And Adjusted; Cover Levels Updated.		31.10.23	SLW
C04	SW Route Adjusted.		29.09.23	SLW
C03	Attenuation Tank 1 Updated.		22.09.23	LB
C02	RWP Connections Added.		07.08.23	SLW
C01	Construction Issue.		26.07.23	SLW
P09	Phasing Boundary Revised; Stone House Entrance Added & Manhole References Updated.		27.06.23	LB
P08	Phasing Hatch Added; Attenuation Tanks Updated.		03.02.23	LB
P07	Indicative Attenuation Tank Connections Added.		07.06.22	LB
P06	Drainage Channel Laterals & Permeable Paving Drainage Added; Manhole Cover Levels Updated; Attenuation Tank 1 Revised.		19.05.22	LB

PROJECT TITLE

Grimshaw Lane, Manchester

DRAWING TITLE

Proposed Drainage Sheet 2 of 7

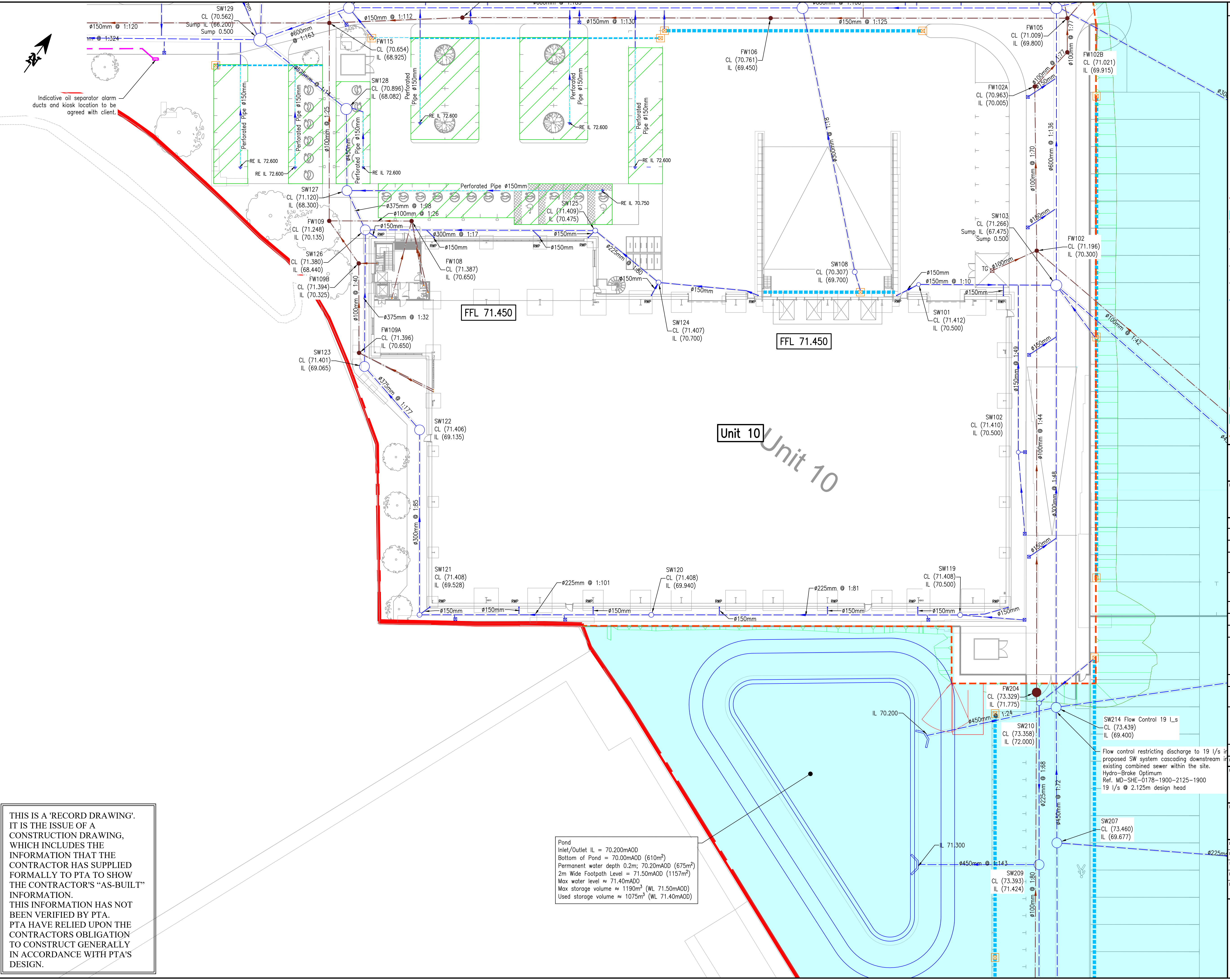
DATE	MARCH 2021	CHECKED DO	CHECKED ENG	PTA PROJ No
DRAWN	LB			9762
SCALE	1:250	LB	SLW	REVISION
DWG SIZE	A1			C07
DRAWING No	9762-PTA-XX-XX-DR-C- 8102			

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Pond
Inlet/Outlet IL = 70.200mAOD
Bottom of Pond = 70.00mAOD (610m²)
Permanent water depth 0.2m; 70.20mAOD (675m²)
2m Wide Footpath Level = 71.50mAOD (1157m²)
Max water level ≈ 71.40mAOD
Max storage volume ≈ 1190m³ (WL 71.50mAOD)
Used storage volume ≈ 1075m³ (WL 71.40mAOD)

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- Tree Protection Construction Exclusion Zone
- Root Protection Barrier, refer to PTA drawing 9762-8310

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DRAWING STATUS

FOR CONSTRUCTION			
REV	DESCRIPTION	BY	DATE
C07	Record Issue.	LB	25.07.24
C06	FW Network Adjusted.	LB	07.06.24
C05	RWP Locations Adjusted & FW Network Moved.	LB	16.11.23
C04	RWP Locations Added And Adjusted; Cover Levels Updated.	LB	31.10.23
C03	SW Route Adjusted.	LB	29.09.23
C02	Gullies Position Adjusted.	LB	07.08.23
C01	Construction Issue.	LB	26.07.23
P09	Phasing Boundary Revised; Stone House Entrance Added & Manhole References Updated.	LB	27.06.23
P08	Phasing Hatch Added.	LB	03.02.23
P07	Indicative Attenuation Tank Connections Added.	LB	07.06.22
P06	Drainage Channel Laterals & Permeable Paving Drainage Added; Manhole Cover Levels Updated.	LB	19.05.22
P05	Redesigned SW Network.	LB	12.04.22

PROJECT TITLE
Grimshaw Lane, Manchester

DRAWING TITLE
Proposed Drainage Sheet 3 of 7

DATE	CHECKED DO	CHECKED ENG	PTA PROJ No
March 2021	LB	SLW	9762

SCALE	REVISION
1:250	C07

DWG SIZE A1

DRAWING No 9762-PTA-XX-XX-DR-C- 8103

Consulting Civil & Structural Engineers

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Surface Water Drainage Model As-built Results

PTA		Page 1
29 Red Lion Street Chesham Bucks HP5 1EJ	Phase 1 Only Grimshaw Lane Manchester	
Date 10/09/2024 13:08 File 9762 SW Phase 1 at 95 l...	Designed by LB Checked by	
XP Solutions	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 9762 - SW

Pipe Sizes PTA Manhole Sizes PTA

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	18.100	Add Flow / Climate Change (%)	0
Ratio R	0.352	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.000
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 9762 - SW

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	2.186	4-8	1.394

Total Area Contributing (ha) = 3.580

Total Pipe Volume (m³) = 196.196

Network Design Table for 9762 - SW

« - Indicates pipe capacity < flow

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	Auto Design
S3.000	31.153	0.565	55.1	0.069	3.00	0.0	0.600	o	300	Pipe/Conduit	
S3.001	51.248	0.475	107.9	0.061	0.00	0.0	0.600	o	450	Pipe/Conduit	
S3.002	34.522	1.234	28.0	0.052	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.000	20.254	1.841	11.0	0.053	3.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S3.000	50.00	3.24	70.250	0.069	0.0	0.0	0.0	2.12	150.0	9.3
S3.001	50.00	3.68	69.535	0.130	0.0	0.0	0.0	1.96	311.2	17.6
S3.002	50.00	3.83	69.060	0.182	0.0	0.0	0.0	3.86	613.2	24.7
S4.000	50.00	3.11	70.500	0.053	0.0	0.0	0.0	3.06	54.0	7.2

PTA											Page 2	
29 Red Lion Street Chesham Bucks HP5 1EJ						Phase 1 Only Grimshaw Lane Manchester						
Date 10/09/2024 13:08 File 9762 SW Phase 1 at 95 l...						Designed by LB Checked by						
XP Solutions						Network 2020.1.3						
<u>Network Design Table for 9762 - SW</u>												
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	Auto Design	
S5.000	62.060	1.124	55.2	0.042	3.00	0.0	0.600	o	300	Pipe/Conduit		
S4.001	40.758	0.300	135.9	0.021	0.00	0.0	0.600	o	600	Pipe/Conduit		
S3.003	37.327	0.375	99.5	0.045	0.00	0.0	0.600	o	600	Pipe/Conduit		
S6.000	39.566	2.072	19.1	0.036	5.00	0.0	0.600	o	300	Pipe/Conduit		
S3.004	66.709	0.365	182.8	0.420	0.00	0.0	0.600	o	600	Pipe/Conduit		
S3.005	13.861	0.085	163.1	0.409	0.00	0.0	0.600	o	600	Pipe/Conduit		
S7.000	32.637	0.325	100.5	0.069	3.00	0.0	0.600	o	225	Pipe/Conduit		
S7.001	4.844	0.059	81.5	0.073	0.00	0.0	0.600	o	225	Pipe/Conduit		
S8.000	23.493	0.285	82.3	0.046	3.00	0.0	0.600	o	150	Pipe/Conduit		
S7.002	45.993	0.814	56.5	0.051	0.00	0.0	0.600	o	300	Pipe/Conduit		
S9.000	39.390	0.265	148.5	0.096	3.00	0.0	0.600	o	375	Pipe/Conduit		
S9.001	39.657	0.264	150.2	0.080	0.00	0.0	0.600	o	375	Pipe/Conduit		
<u>Network Results Table</u>												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
S5.000	50.00	3.49	69.400	0.042	0.0	0.0	0.0	2.12	149.9	5.7		
S4.001	50.00	3.81	67.975	0.117	0.0	0.0	0.0	2.09	590.2	15.9		
S3.003	50.00	4.09	67.675	0.344	0.0	0.0	0.0	2.44	690.2	46.6		
S6.000	45.83	5.18	69.750	0.036	0.0	0.0	0.0	3.61	255.5	4.4		
S3.004	43.65	5.80	67.300	0.799	0.0	0.0	0.0	1.80	508.4	94.5		
S3.005	43.25	5.92	66.935	1.208	0.0	0.0	0.0	1.90	538.4	141.5		
S7.000	50.00	3.42	70.425	0.069	0.0	0.0	0.0	1.30	51.9	9.3		
S7.001	50.00	3.47	70.100	0.142	0.0	0.0	0.0	1.45	57.6	19.3		
S8.000	50.00	3.35	70.400	0.046	0.0	0.0	0.0	1.11	19.6	6.3		
S7.002	50.00	3.84	69.965	0.240	0.0	0.0	0.0	2.10	148.2	32.4		
S9.000	50.00	3.44	69.600	0.096	0.0	0.0	0.0	1.48	164.0	13.0		
S9.001	50.00	3.89	69.335	0.176	0.0	0.0	0.0	1.48	163.0	23.8		
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PTA										Page 3	
29 Red Lion Street Chesham Bucks HP5 1EJ					Phase 1 Only Grimshaw Lane Manchester						
Date 10/09/2024 13:08 File 9762 SW Phase 1 at 95 l...					Designed by LB Checked by						
XP Solutions					Network 2020.1.3						
Network Design Table for 9762 - SW											
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	Auto Design
S7.003	39.755	1.893	21.0	0.056	0.00	0.0	0.600	o	375	Pipe/Conduit	
S10.000	45.414	0.560	81.1	0.058	3.00	0.0	0.600	o	225	Pipe/Conduit	
S10.001	34.090	0.335	101.8	0.079	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.002	27.181	0.320	84.9	0.086	0.00	0.0	0.600	o	300	Pipe/Conduit	
S10.003	12.357	0.070	176.5	0.009	0.00	0.0	0.600	o	375	Pipe/Conduit	
S10.004	20.090	0.626	32.1	0.004	0.00	0.0	0.600	o	375	Pipe/Conduit	
S11.000	12.041	0.150	80.2	0.073	3.00	0.0	0.600	o	225	Pipe/Conduit	
S11.001	33.820	1.955	17.3	0.043	0.00	0.0	0.600	o	300	Pipe/Conduit	
S10.005	6.363	0.065	97.9	0.067	0.00	0.0	0.600	o	375	Pipe/Conduit	
S10.006	12.004	0.144	83.3	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S10.007	16.234	1.082	15.0	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
S3.006	48.606	0.150	324.0	0.098	0.00	0.0	0.600	o	750	Pipe/Conduit	
S12.000	22.877	0.225	101.5	0.047	3.00	0.0	0.600	o	150	Pipe/Conduit	
S12.001	27.742	0.841	33.0	0.092	0.00	0.0	0.600	o	300	Pipe/Conduit	
S13.000	32.912	0.346	95.0	0.042	5.00	0.0	0.600	o	225	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
S7.003	50.00	4.06	69.071	0.472		0.0	0.0	0.0	3.97	438.4	63.9
S10.000	50.00	3.52	70.500	0.058		0.0	0.0	0.0	1.45	57.8	7.8
S10.001	50.00	3.96	69.940	0.137		0.0	0.0	0.0	1.30	51.5	18.5
S10.002	49.78	4.22	69.530	0.223		0.0	0.0	0.0	1.71	120.7	30.1
S10.003	49.10	4.38	69.135	0.232		0.0	0.0	0.0	1.36	150.3	30.8
S10.004	48.65	4.48	69.065	0.236		0.0	0.0	0.0	3.21	354.3	31.1
S11.000	50.00	3.14	70.700	0.073		0.0	0.0	0.0	1.46	58.1	9.9
S11.001	50.00	3.29	70.475	0.116		0.0	0.0	0.0	3.80	268.5	15.7
S10.005	48.40	4.54	68.439	0.420		0.0	0.0	0.0	1.83	202.3	55.0
S10.006	48.02	4.63	68.300	0.420		0.0	0.0	0.0	2.23	354.5	55.0
S10.007	47.83	4.67	68.081	0.420		0.0	0.0	0.0	5.80	1256.5	55.0
S3.006	41.62	6.45	66.700	2.197		0.0	0.0	0.0	1.55	684.4	247.6
S12.000	50.00	3.38	70.150	0.047		0.0	0.0	0.0	1.00	17.6	6.3
S12.001	50.00	3.55	69.775	0.139		0.0	0.0	0.0	2.75	194.1	18.9
S13.000	45.01	5.41	69.350	0.042		0.0	0.0	0.0	1.34	53.3	5.2
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Network Design Table for 9762 - SW											
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	Auto Design
S12.002	10.494	1.749	6.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.007	23.830	0.065	366.6	0.132	0.00	0.0	0.600	o	750	Pipe/Conduit	
S14.000	23.325	0.270	86.4	0.046	3.00	0.0	0.600	o	150	Pipe/Conduit	
S14.001	43.326	0.425	101.9	0.050	0.00	0.0	0.600	o	225	Pipe/Conduit	
S14.002	43.450	2.287	19.0	0.056	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.008	44.646	1.175	38.0	0.131	0.00	0.0	0.600	o	600	Pipe/Conduit	
S15.000	20.896	0.240	87.0	0.040	3.00	0.0	0.600	o	150	Pipe/Conduit	
S15.001	44.756	0.335	133.6	0.042	0.00	0.0	0.600	o	225	Pipe/Conduit	
S15.002	29.717	1.340	22.2	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S16.000	25.750	0.395	65.2	0.019	3.00	0.0	0.600	o	150	Pipe/Conduit	
S16.001	37.015	0.275	134.6	0.032	0.00	0.0	0.600	o	225	Pipe/Conduit	
S16.002	29.798	0.365	81.6	0.118	0.00	0.0	0.600	o	300	Pipe/Conduit	
S17.000	15.493	0.190	81.7	0.007	3.00	0.0	0.600	o	150	Pipe/Conduit	
S17.001	29.694	0.660	45.0	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	
S17.002	27.634	0.187	147.8	0.086	0.00	0.0	0.600	o	300	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
S12.002	44.91	5.44	68.850	0.182		0.0	0.0	0.0	6.46	456.5	22.1
S3.007	40.83	6.72	66.550	2.510		0.0	0.0	0.0	1.46	643.1	277.5
S14.000	50.00	3.36	70.200	0.046		0.0	0.0	0.0	1.08	19.1	6.3
S14.001	50.00	3.92	69.855	0.097		0.0	0.0	0.0	1.30	51.5	13.1
S14.002	50.00	4.12	69.355	0.153		0.0	0.0	0.0	3.62	256.2	20.7
S3.008	40.30	6.91	66.485	2.794		0.0	0.0	0.0	3.96	1119.3	304.9
S15.000	50.00	3.32	68.500	0.040		0.0	0.0	0.0	1.08	19.1	5.5
S15.001	50.00	3.98	68.185	0.083		0.0	0.0	0.0	1.13	44.9	11.2
S15.002	50.00	4.16	67.850	0.111		0.0	0.0	0.0	2.79	111.0	15.0
S16.000	50.00	3.34	68.750	0.019		0.0	0.0	0.0	1.25	22.0	2.6
S16.001	50.00	3.89	68.280	0.051		0.0	0.0	0.0	1.13	44.7	7.0
S16.002	49.99	4.18	67.930	0.169		0.0	0.0	0.0	1.74	123.1	22.9
S17.000	50.00	3.23	68.750	0.007		0.0	0.0	0.0	1.11	19.7	0.9
S17.001	50.00	3.49	68.485	0.022		0.0	0.0	0.0	1.96	77.7	3.0
S17.002	50.00	3.84	67.750	0.108		0.0	0.0	0.0	1.29	91.3	14.6
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Network Design Table for 9762 - SW

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	Auto Design
S16.003	20.882	0.385	54.2	0.086	0.00	0.0	0.600	o	375	Pipe/Conduit	
S16.004	4.706	0.038	123.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S18.000	21.978	1.374	16.0	0.023	3.00	0.0	0.600	o	150	Pipe/Conduit	
S16.005	36.627	0.610	60.0	0.038	0.00	0.0	0.600	o	300	Pipe/Conduit	
S15.003	13.207	0.167	79.1	0.032	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.009	43.948	0.586	75.0	0.035	0.00	0.0	0.600	o	675	Pipe/Conduit	
S19.000	10.877	0.144	75.5	0.062	3.00	0.0	0.600	o	375	Pipe/Conduit	
S20.000	11.268	0.094	119.9	0.035	3.00	0.0	0.600	o	300	Pipe/Conduit	
S3.010	18.237	0.412	44.3	0.086	0.00	0.0	0.600	o	375	Pipe/Conduit	
S3.011	4.709	0.053	88.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S16.003	49.35	4.32	67.485	0.364	0.0	0.0	0.0	2.47	272.3	48.6
S16.004	49.14	4.37	67.100	0.364	0.0	0.0	0.0	1.63	179.7	48.6
S18.000	50.00	3.14	68.750	0.023	0.0	0.0	0.0	2.53	44.7	3.1
S16.005	47.86	4.67	67.060	0.424	0.0	0.0	0.0	2.03	143.7	55.0
S15.003	47.35	4.79	66.435	0.568	0.0	0.0	0.0	1.77	125.1	72.8
S3.009	39.64	7.15	65.350	3.396	0.0	0.0	0.0	3.03	1083.8	364.6
S19.000	50.00	3.09	65.500	0.062	0.0	0.0	0.0	2.09	230.5	8.4
S20.000	50.00	3.13	65.500	0.035	0.0	0.0	0.0	1.43	101.4	4.8
S3.010	39.35	7.26	64.750	3.580	0.0	0.0	0.0	2.73	301.5«	381.5
S3.011	39.24	7.30	64.550	3.580	0.0	0.0	0.0	1.92	212.4«	381.5

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Area Summary for 9762 - SW

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
3.009	User	-	100	0.035	0.035	0.035
19.000	User	-	100	0.062	0.062	0.062
20.000	User	-	100	0.035	0.035	0.035
3.010	User	-	100	0.086	0.086	0.086
3.011	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				3.580	3.580	3.580

Simulation Criteria for 9762 - SW

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 Coefficient	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	2
Number of Online Controls	3	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)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.200	Storm Duration (mins)	30
Ratio R	0.350		

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Online Controls for 9762 - SW

Hydro-Brake® Optimum Manhole: SW138 Flow Control 80 l/s, DS/PN: S3.008,
Volume (m³): 21.8

Unit Reference	MD-SHE-0321-8000-3750-8000
Design Head (m)	3.750
Design Flow (l/s)	80.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	321
Invert Level (m)	66.485
Minimum Outlet Pipe Diameter (mm)	Site Specific Design (Contact Hydro International)
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	3.750	79.9
Flush-Flo™	1.078	79.9
Kick-Flo®	2.273	62.7
Mean Flow over Head Range	-	69.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.6	1.200	79.7	3.000	71.7	7.000	108.2
0.200	32.8	1.400	78.9	3.500	77.3	7.500	111.9
0.300	57.7	1.600	77.4	4.000	82.5	8.000	115.5
0.400	68.3	1.800	75.1	4.500	87.3	8.500	119.0
0.500	72.4	2.000	71.4	5.000	91.9	9.000	122.4
0.600	75.3	2.200	65.6	5.500	96.3	9.500	125.6
0.800	78.6	2.400	64.4	6.000	100.4		
1.000	79.8	2.600	66.9	6.500	104.4		

Hydro-Brake® Optimum Manhole: SW153 Flow Control 5 l/s, DS/PN: S15.003,
Volume (m³): 6.9

Unit Reference	MD-SHE-0088-5000-2350-5000
Design Head (m)	2.350
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	88
Invert Level (m)	66.435
Minimum Outlet Pipe Diameter (mm)	150

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Hydro-Brake® Optimum Manhole: SW153 Flow Control 5 l/s, DS/PN: S15.003,
Volume (m³): 6.9

Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.350	5.0
Flush-Flo™	0.382	3.8
Kick-Flo®	0.786	3.0
Mean Flow over Head Range	-	3.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.7	1.200	3.7	3.000	5.6	7.000	8.3
0.200	3.5	1.400	3.9	3.500	6.0	7.500	8.6
0.300	3.7	1.600	4.2	4.000	6.4	8.000	8.9
0.400	3.8	1.800	4.4	4.500	6.8	8.500	9.2
0.500	3.7	2.000	4.6	5.000	7.1	9.000	9.4
0.600	3.6	2.200	4.8	5.500	7.4	9.500	9.7
0.800	3.0	2.400	5.0	6.000	7.8		
1.000	3.4	2.600	5.2	6.500	8.1		

Hydro-Brake® Optimum Manhole: SW157 Flow Control 95 l/s, DS/PN: S3.010,
Volume (m³): 23.6

Unit Reference	MD-SHE-0374-9500-1985-9500
Design Head (m)	1.985
Design Flow (l/s)	95.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	374
Invert Level (m)	64.750
Minimum Outlet Pipe Diameter (mm)	450
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.985	94.9
Flush-Flo™	0.658	94.9
Kick-Flo®	1.400	80.2
Mean Flow over Head Range	-	80.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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<u>Hydro-Brake® Optimum Manhole: SW157 Flow Control 95 l/s, DS/PN: S3.010,</u> <u>Volume (m³): 23.6</u> <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>10.6</td><td>1.200</td><td>88.7</td><td>3.000</td><td>116.0</td><td>7.000</td><td>175.5</td></tr><tr><td>0.200</td><td>37.4</td><td>1.400</td><td>80.4</td><td>3.500</td><td>125.1</td><td>7.500</td><td>181.5</td></tr><tr><td>0.300</td><td>70.7</td><td>1.600</td><td>85.5</td><td>4.000</td><td>133.5</td><td>8.000</td><td>187.3</td></tr><tr><td>0.400</td><td>91.0</td><td>1.800</td><td>90.5</td><td>4.500</td><td>141.4</td><td>8.500</td><td>193.0</td></tr><tr><td>0.500</td><td>93.7</td><td>2.000</td><td>95.3</td><td>5.000</td><td>148.9</td><td>9.000</td><td>198.5</td></tr><tr><td>0.600</td><td>94.8</td><td>2.200</td><td>99.8</td><td>5.500</td><td>156.0</td><td>9.500</td><td>203.8</td></tr><tr><td>0.800</td><td>94.4</td><td>2.400</td><td>104.1</td><td>6.000</td><td>162.7</td><td></td><td></td></tr><tr><td>1.000</td><td>92.3</td><td>2.600</td><td>108.2</td><td>6.500</td><td>169.2</td><td></td><td></td></tr></table>			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	10.6	1.200	88.7	3.000	116.0	7.000	175.5	0.200	37.4	1.400	80.4	3.500	125.1	7.500	181.5	0.300	70.7	1.600	85.5	4.000	133.5	8.000	187.3	0.400	91.0	1.800	90.5	4.500	141.4	8.500	193.0	0.500	93.7	2.000	95.3	5.000	148.9	9.000	198.5	0.600	94.8	2.200	99.8	5.500	156.0	9.500	203.8	0.800	94.4	2.400	104.1	6.000	162.7			1.000	92.3	2.600	108.2	6.500	169.2		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																			
0.100	10.6	1.200	88.7	3.000	116.0	7.000	175.5																																																																			
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Storage Structures for 9762 - SW

Cellular Storage Manhole: SW109 Tank 1, DS/PN: S3.004

Invert Level (m) 67.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.92
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	861.0	0.0	1.601	0.0	0.0
1.600	861.0	0.0	2.000	0.0	0.0

Cellular Storage Manhole: SW150 Tank 2, DS/PN: S16.004

Invert Level (m) 67.200 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	250.0	0.0	1.201	0.0	0.0
1.200	250.0	0.0	2.000	0.0	0.0

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29 Red Lion Street Chesham Bucks HP5 1EJ	Phase 1 Only Grimshaw Lane Manchester	
Date 10/09/2024 13:08 File 9762 SW Phase 1 at 95 l...	Designed by LB Checked by	
XP Solutions	Network 2020.1.3	

Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood
S10.001		SW120 15 Winter	100	+40%	100/15 Summer	
S10.002		SW121 15 Winter	100	+40%	100/15 Summer	
S10.003		SW122 15 Summer	100	+40%	30/15 Summer	
S10.004		SW123 15 Summer	100	+40%	30/15 Summer	
S11.000		SW124 15 Summer	100	+40%		
S11.001		SW125 15 Summer	100	+40%		
S10.005		SW126 15 Winter	100	+40%	30/15 Summer	
S10.006		SW127 15 Winter	100	+40%	30/15 Summer	
S10.007		SW128 15 Winter	100	+40%	30/15 Summer	
S3.006		SW129 15 Winter	100	+40%	1/15 Summer	
S12.000		SW130 15 Summer	100	+40%	100/15 Summer	
S12.001		SW131 15 Summer	100	+40%		
S13.000		SW134 15 Winter	100	+40%	100/15 Summer	
S12.002		SW132 15 Winter	100	+40%	30/15 Summer	
S3.007		SW133 15 Winter	100	+40%	1/15 Summer	
S14.000		SW135 15 Summer	100	+40%	100/15 Summer	
S14.001		SW136 15 Summer	100	+40%	100/15 Summer	
S14.002		SW137 15 Summer	100	+40%	100/15 Summer	
S3.008	SW138 Flow Control 80 l/s	15 Winter	100	+40%	1/15 Summer	
S15.000		SW139 480 Winter	100	+40%	100/15 Summer	
S15.001		SW140 480 Winter	100	+40%	100/15 Summer	
S15.002		SW141 480 Winter	100	+40%	100/15 Summer	
S16.000		SW142 480 Winter	100	+40%	100/360 Winter	
S16.001		SW143 480 Winter	100	+40%	100/240 Winter	
S16.002		SW144 480 Winter	100	+40%	100/120 Winter	
S17.000		SW145 480 Winter	100	+40%	100/360 Winter	
S17.001		SW146 480 Winter	100	+40%	100/360 Winter	
S17.002		SW147 480 Winter	100	+40%	100/60 Winter	
S16.003		SW148 480 Winter	100	+40%	100/30 Winter	
S16.004	SW150 Tank 2	480 Winter	100	+40%	30/15 Winter	
S18.000		SW149 480 Winter	100	+40%	100/360 Winter	
S16.005		SW152 480 Winter	100	+40%	1/15 Summer	
S15.003	SW153 Flow Control 5 l/s	480 Winter	100	+40%	1/15 Summer	
S3.009		SW154 30 Winter	100	+40%	100/15 Summer	
S19.000		SW155 30 Winter	100	+40%	100/15 Summer	
S20.000		SW156 30 Winter	100	+40%	100/15 Summer	
S3.010	SW157 Flow Control 95 l/s	30 Winter	100	+40%	1/15 Summer	
S3.011		SW158 240 Summer	100	+40%		

PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.
				Level (m)	Depth (m)	Volume (m³)	
S10.001		SW120		71.340	1.175	0.000	1.16
S10.002		SW121		70.868	1.038	0.000	0.88
S10.003		SW122		70.632	1.122	0.000	0.95
S10.004		SW123		70.519	1.079	0.000	0.41
S11.000		SW124		70.877	-0.048	0.000	0.94

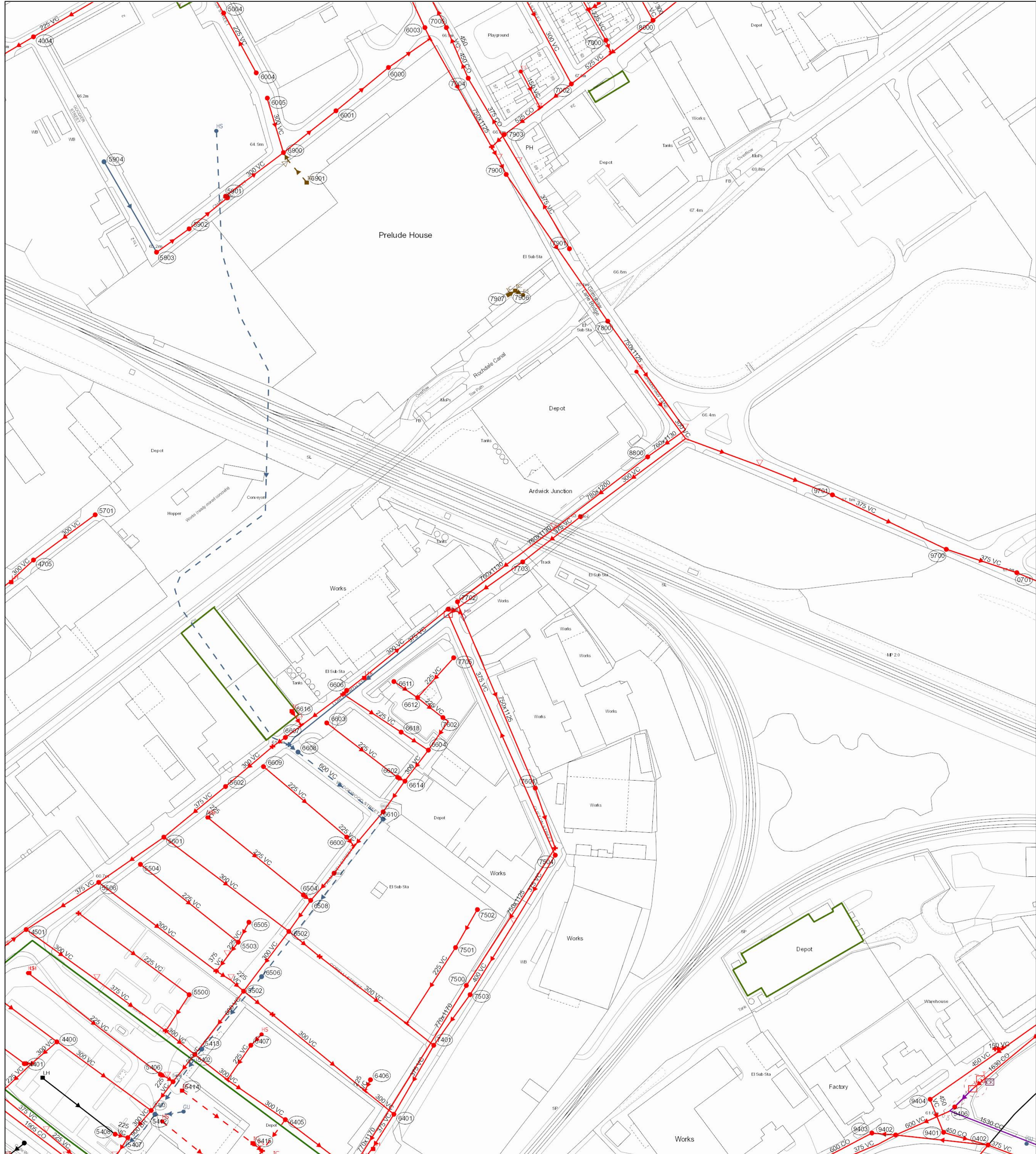
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29 Red Lion Street Chesham Bucks HP5 1EJ	Phase 1 Only Grimshaw Lane Manchester	
Date 10/09/2024 13:08 File 9762 SW Phase 1 at 95 l...	Designed by LB Checked by	
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Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW

PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S11.001	SW125			70.586	-0.189	0.000	0.28
S10.005	SW126			70.245	1.431	0.000	1.73
S10.006	SW127			70.023	1.273	0.000	0.87
S10.007	SW128			69.896	1.290	0.000	0.24
S3.006	SW129			69.542	2.092	0.000	0.38
S12.000	SW130			70.743	0.443	0.000	1.68
S12.001	SW131			70.001	-0.074	0.000	0.47
S13.000	SW134			69.878	0.303	0.000	0.46
S12.002	SW132			69.825	0.675	0.000	0.30
S3.007	SW133			69.616	2.316	0.000	0.23
S14.000	SW135			70.827	0.477	0.000	1.42
S14.001	SW136			70.292	0.212	0.000	1.06
S14.002	SW137			69.833	0.178	0.000	0.34
S3.008	SW138 Flow Control	80 l/s		69.631	2.546	0.000	0.08
S15.000	SW139			69.129	0.479	0.000	0.15
S15.001	SW140			69.127	0.717	0.000	0.13
S15.002	SW141			69.125	1.050	0.000	0.07
S16.000	SW142			69.134	0.234	0.000	0.06
S16.001	SW143			69.133	0.628	0.000	0.08
S16.002	SW144			69.132	0.902	0.000	0.10
S17.000	SW145			69.131	0.231	0.000	0.03
S17.001	SW146			69.131	0.421	0.000	0.02
S17.002	SW147			69.131	1.081	0.000	0.09
S16.003	SW148			69.130	1.270	0.000	0.11
S16.004	SW150 Tank 2			69.128	1.653	0.000	0.08
S18.000	SW149			69.128	0.228	0.000	0.04
S16.005	SW152			69.127	1.767	0.000	0.05
S15.003	SW153 Flow Control	5 l/s		69.122	2.387	0.000	0.05
S3.009	SW154			66.953	0.928	0.000	0.10
S19.000	SW155			66.707	0.832	0.000	0.15
S20.000	SW156			66.707	0.907	0.000	0.16
S3.010	SW157 Flow Control	95 l/s		66.705	1.580	0.000	0.38
S3.011	SW158			64.824	-0.101	0.000	0.88

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S10.001	SW120			56.4	FLOOD RISK	
S10.002	SW121			96.0	SURCHARGED	
S10.003	SW122			101.3	SURCHARGED	
S10.004	SW123			120.7	SURCHARGED	
S11.000	SW124			46.6	OK	
S11.001	SW125			69.4	OK	
S10.005	SW126			185.2	SURCHARGED	
S10.006	SW127			186.1	SURCHARGED	
S10.007	SW128			190.2	SURCHARGED	
S3.006	SW129			220.4	SURCHARGED	

United Utilities Sewer Map



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
6501	60.01	CO	57.92	225			VC	12.52966	1 in 27
6505	60.01	CO	57.92	225			VC	12.52966	1 in 27
6506	60.85	CO	63.47	375			VC	69.7822	1 in 218
6506	60.84	CO	63.47	375			VC	47.70744	1 in 218
6601	61.26	CO	58.47	300			VC	43.44056	1 in 218
7501	61.12	CO	58.88	225			VC	46.52095	1 in 218
7600	69.5	CO	60.04	750			BR	73.81734	1 in 70
9402	61.85	CO	53.15	600			CO	13.23559	1 in 48
5903	65.02	CO	61.61	300			VC	22.2036	1 in 48
9406	61.75	CO	53.9	600			VC	36.16651	1 in 48
7500	61.27	CO	53.67	770			BR	198.8623	1 in 112
6005	65.62	CO	62.7	300			VC	31.32002	1 in 112
6005	65.62	CO	62.7	300			VC	31.32002	1 in 112
7701	62.08	CO	57.22	375			VC	7.28011	1 in 67
5413	58.88	SW	54.74	900			VC	22.2036	1 in 82
6405	58.5	CO	47.80167	300			VC	19.29537	1 in 65
6502	59.99	CO	58.12	300			VC	22.22271	1 in 33
6608	61.14	SW	57.21	600			VC	59.81639	1 in 16
6502	64.98	CO	62.73	300			VC	42.2019	1 in 180
6502	64.98	CO	62.73	300			VC	42.2019	1 in 180
5900	65.01	CO	62.49	300			VC	40	1 in 364
5900	65.01	CO	62.49	300			VC	40	1 in 364
6610	61.21	SW	57.42	600			VC	109.8089	1 in 62
6600	65.43	CO	62.04	780			BR	65.0488	1 in 108
6600	65.09	CO	62.36	300			VC	37.81351	1 in 195
6600	65.09	CO	62.36	300			VC	37.81351	1 in 195
5406	58.45	CO	56.38	225			VC	4.472136	1 in 10
6609	61.49	CO	60.07	225			VC	60.30754	1 in 39
9402	61.49	CO	53.63	600			CO	51.38205	1 in 107
9402	61.49	CO	53.63	600			CO	51.38205	1 in 107
6614	61.6	CO	58.83	300			VC	20.89965	1 in 65
6100	67.3	CO	61.95	750			BR	99.31787	1 in 83
5403	58.57	CO	53.52	300			VC	19.34963	1 in 83
7602	62.09	CO	60.37	300			VC	23.02204	1 in 19
9402	61.85	CO	0	375			VC	102.7245	1 in 18
7704	63.98	CO	62.12	375			VC	40.80788	1 in 18
7003	67.38	CO	64.43	300			VC	86.35382	1 in 96
5904	65.41	SW	63.8	300			VC	57.80138	1 in 29
5904	65.41	SW	63.8	300			VC	57.80138	1 in 29
7104	67.97	CO	55.37	300			VC	77.89784	1 in 86
6604	61.81	CO	59.14	300			VC	21.40093	1 in 92
9406	61.75	OV	54.5	1530			CO	143.3621	1 in 92
5004	66.39	CO	63.89	225			VC	39.44617	1 in 329
5004	66.39	CO	63.89	225			VC	39.44617	1 in 329
7005	66.98	CO	63.42	450			VC	19.23538	1 in 329
7005	66.98	CO	63.42	450			VC	19.23538	1 in 329
5502	58.8	CO	55.75	300			VC	44.20407	1 in 402
6608	61.81	CO	57.66	225			VC	2.828427	1 in 402
4400	59.48	CO	56.59	300			VC	18.43909	1 in 63
5601	61.11	CO	57.8	375			VC	43.23021	1 in 63
6603	61.8	CO	60.77	225			VC	49.20386	1 in 63
5506	60.84	CO	57.66	300			VC	81.40025	1 in 59
7503	60.05	CO	57.96	400			VC	34.41016	1 in 59
9404	61.89	CO	57.49	450			VC	19.87255	1 in 9
9404	61.89	CO	57.49	450			VC	19.87255	1 in 9
7001	67.31	CO	65.7	225			VC	38.87622	1 in 75
5500	59.8	CO	57.87	225			VC	23.8372	1 in 75
7903	62.5	CO	0	525			CO	8.898465	1 in 120
7903	62.5	CO	0	525			CO	8.898465	1 in 120
6004	65.89	CO	62.84	225			VC	37.58989	1 in 220
6004	65.89	CO	62.84	225			VC	37.58989	1 in 220
5902	61.42	CO	58.03	375			VC	44.05453	1 in 123
0502	62.14	CO	58.24	450			VC	91.92485	1 in 123
7504	63.15	CO	60.35	375			VC	44.1846	1 in 38
7601	62.82	CO	61.15	750			BR	34.78805	1 in 139
8000	67.5	CO	62.79	525			VC	57.09004	1 in 166
8000	67.5	CO	62.79	525			VC	57.09004	1 in 166
5003	66.62	CO	0	225			VC	47.50789	1 in 80
9403	61.72	CO	52.96	600			CO	101.156	1 in 161
6508	60.3	CO	57.33	300			VC	20.89965	1 in 161
7705	62.1	CO	59.38	225			VC	29.72114	1 in 161
7900	66.9	CO	60.65	750			BR	98.47334	1 in 161
7900	66.9	CO	60.65	750			BR	98.47334	1 in 161
6600	60.86	CO	58.45	225			VC	6.493124	1 in 121
6001	65.73	CO	62.15	300			VC	37.84306	1 in 121
6001	65.73	CO	62.15	300			VC	37.84306	1 in 121
5504	60.86	CO	59.87	225			VC	69.02888	1 in 28
4400	59.48	CO	56.71	300			VC	64.04987	1 in 15
0701	67.62	CO	62.88	375			VC	101.7693	1 in 237
0701	67.62	CO	62.88	375			VC	101.7693	1 in 237
7002	67.08	CO	61.94	525			VC	22.804	1 in 41
7002	67.08	CO	61.94	525			VC	22.804	1 in 41
7401	60.36	CO	57.38	375			VC	43.859	1 in 13
6407	58.85	CO	57.54	225			VC	23.02173	1 in 13
6602	61.56	CO	59.97	225			VC	4.472136	1 in 13
4004	0	CO	0	225			VC	19.72308	1 in 13
4004	0	CO	0	225			VC	19.72308	1 in 13
5402	58.74	CO	55.93	300			VC	61.63649	1 in 324
6504	60.33	CO	58.56	225			VC	5	1 in 324
6607	61.6	CO	57.88	300			VC	8.602325	1 in 762
7004	66.85	CO	63.46	450			CO	15.23155	1 in 762
7004	66.85	CO	63.46	450			CO	15.23155	1 in 762
5405	58.57	CO	55.47	225			VC	20	1 in 7
5502	59.99	CO	57.06	300			VC	41.40048	1 in 32
5601	61.11	CO	57.77	300			VC	86.40023	1 in 127
6000	66.7	CO	61.8	300			VC	28.81785	1 in 127
6000	66.7	CO	61.8	300			VC	28.81785	1 in 127
4401	59.31	CO	58.21	225			VC	48.01041	1 in 10
4501	60.69	CO	57.75	300			VC	10	1 in 10
5503	59.86	CO	57.4	225			VC	7.28011	1 in 61
5408	58.16	CO	56.28	225			VC	51.85557	1 in 23
6506	59.53	SW	55.59	600			VC	15.81139	1 in 23
6111	61.88	CO	60.6	225			VC	18.92776	1 in 856
6618	61.56	CO	59.88	225			VC	25.87782	1 in 856
9401	61.68	CO	55.2	450			CO	25.87782	1 in 856
9401	61.68	CO	55.2	450			CO	25.87782	1 in 856
6606	61.81	CO	57.66	300			VC	71.8416	1 in 171
5407	58.13	CO	52.26	300			VC	13.0384	1 in 59
5901	65.03	CO	62.58	300			VC	1.414214	1 in 13
5901	65.03	CO	62.58	300			VC	1.414214	1 in 13
9700	67.3	CO	63.15	375			VC	41.10961	1 in 164
9700	67.3	CO	63.15	375			VC	41.10961	1 in 164
6003	66.07	CO	62.27	750			BR	75.87196	1 in 54
6003	66.07	CO	62.27	750			BR	75.87196	1 in 54
4705	63.08	CO	56.64	300			VC	67.66406	1 in 111
7702	62.06	CO	56.83	750			BR	111.6336	1 in 164
7502	62.06	CO	56.83	750			BR	111.6336	1 in 164
6406	61.72	CO	60.39	225			VC	24.18677	1 in 47
6406	61.72	CO	60.39	225			VC	24.18677	1 in 47
7901	68.53	CO	64.92	375			VC	54.78832	1 in 77
7901	68.53	CO	64.92	375			VC	54.78832	1 in 77
5502	58.8	CO	56.09	300			VC	20.81553	1 in 111
9402	61.49	CO	0	762			VC	256.0365	1 in 141
9402	61.49	CO	0	762			VC	256.0365	1 in 141
7703	62.3	CO	0	375			VC	50.32041	1 in 141
7504	63.15	CO	60.35	375			VC	145.4991	1 in 141
8001	67.9	CO	63.84	525			VC	57.82812	1 in 91
5501	62.13	CO	54.85	1630			CO	77.88866	1 in 269

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
6501	60.01	CO	57.92	225			VC	12.52966	1 in 27
6505	60.01	CO	57.92	225			VC	12.52966	1 in 27
6506	60.85	CO	63.47	375			VC	69.7822	1 in 218
6506	60.84	CO	63.47	375			VC	47.70744	1 in 218
6601	61.26	CO	58.47	300			VC	43.44056	1 in 218
7501	61.12	CO	58.88	225			VC	46.52095	1 in 218
7600	69.5	CO	60.04	750			BR	73.81734	1 in 70
9402	61.85	CO	53.15	600			CO	13.23559	1 in 48
5903	65.02	CO	61.61	300			VC	22.2036	1 in 48
9406	61.75	CO	53.9	600			VC	36.16651	1 in 48
7500	61.27	CO	53.67	770			BR	198.8623	1 in 112
6005	65.62	CO	62.7	300			VC	31.32002	1 in 112
6005	65.62	CO	62.7	300			VC	31.32002	1 in 112
7701	62.08	CO	57.22	375			VC	7.28011	1 in 67
5413	58.88	SW	54.74	900			VC	22.2036	1 in 82
6405	58.5	CO	47.80167	300			VC	19.29537	1 in 65
6502	59.99	CO	58.12	300					

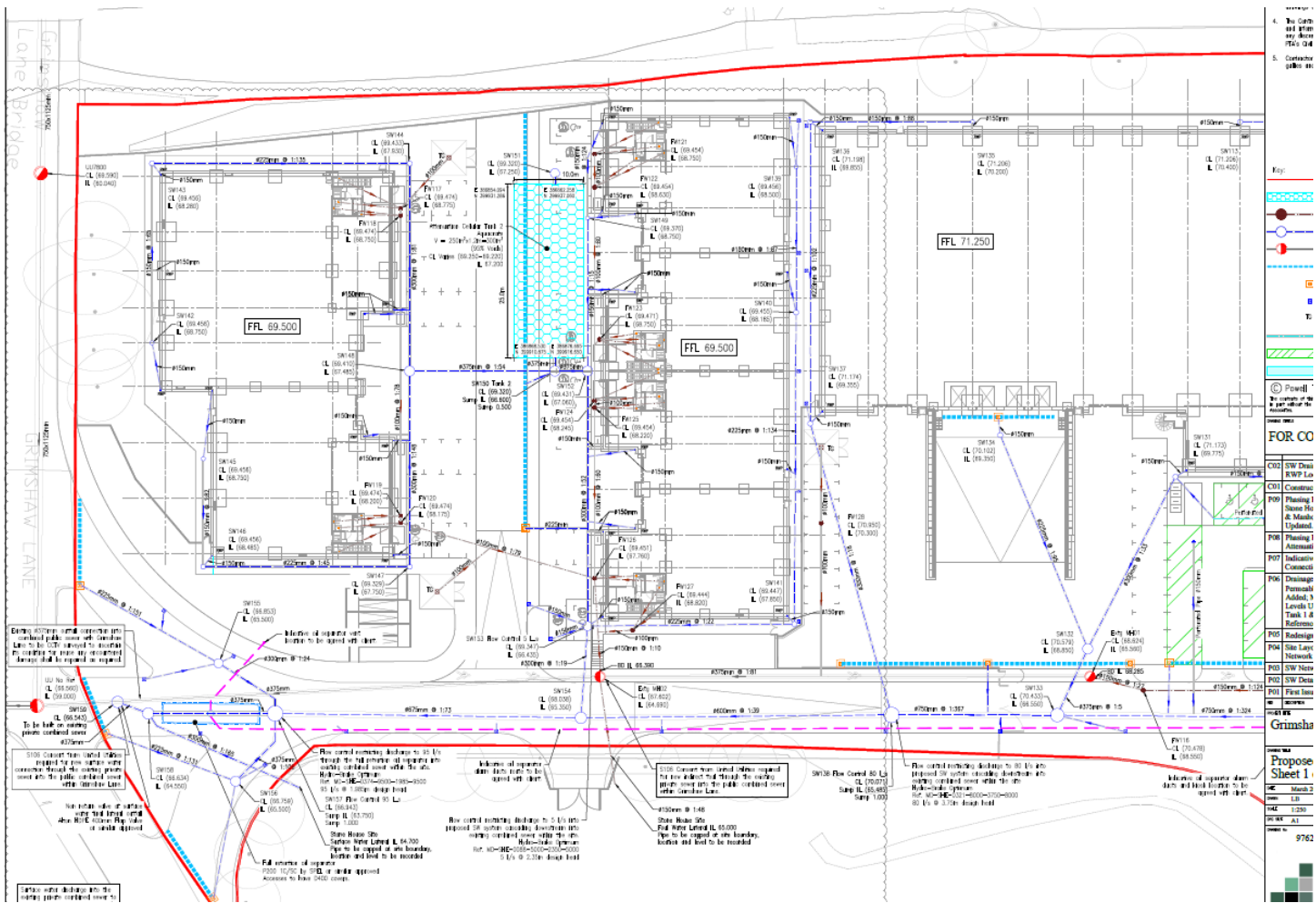
United Utilities S106 Consent

S106 Part 1 'Application to connect to a public sewer' Approval Notice



United Utilities Reference Number:		04564000			
Applicant details					
Applicant name	Luis Brito				
Applicant address (including postcode)	PTA Limited 29 Red Lion Street Chesham Buckinghamshire HP5 1EJ				
Applicant email	luisfrbrito@gmail.com				
Site details: The site / property which is proposed for connection to the public sewer					
Site address (including postcode)	Former Mather & Platt Foundry , Grimshaw Lane, Manchester, M40 2BA				
APPROVED Your application for connection to the public sewer has been approved, to be made via a new connection:					
To a private drain	☒	You may appoint your contractor and advise your appointed building control body (who should inspect the work). United Utilities should be advised when this work is complete.			
Direct to the public sewer	☐	<u>Further action required</u> You may now appoint an appropriately qualified contractor. Your appointed contractor is responsible for obtaining authorisation to work on a public sewer. (The S106 Part 2 application form ' Request for permission to work on a public sewer ' is available on our website; unitedutilities.com).			
Mode of connection approved	Other - please see comments box				
Sewer connection type	Foul	☒	Surface water	☒	Combined ☐
This approval is valid for 12 months from the date below. This approval does not grant access to third party land, permission should be sought if required between applicant and land owner If the new connection renders access unsafe or is otherwise detrimental to the manhole or sewer, a new/upgraded manhole will be requested.					
Comments					
(Phase 1 and 2 with an overall site discharge rate of 95l/s agreed at planning and UU engineer Shiaib Tauqeer on ref DC/22/4406) Approval granted for a 2x150mm foul connections utilising and existing private drain which outfalls to the 750x1125mm combined sewer in Grimshaw Lane Approval granted for 375mm surface water connection utilising an existing private drain which outfalls to the 750x1125mm combined sewer in Grimshaw Lane attenuation indicated with a flow control restricted at 95l/s as per the drainage plan below referenced – 9762-PTA-XX-XX-DR-C-8101 For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist it could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme. Please note, if you are proposing to connect to an existing, unchartered drain or sewer then it is the developer's responsibility to confirm that it communicates with the Public Sewer.					

Connections may be made to private lateral drains or to existing neighbouring drain. A part 1 approval does not give permission to access third party land. The applicant must seek permission from the relevant land owner.



Developer Services Inspector

Lynne Berry

Contact number

07881 034558

Date	30/08/2023
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