Sedgemere Road Discharge Summary

TECHNICAL NOTE

4-8 Sedgemere Road

Client: Abbey Wood Sedgemere Limited

Date: 16/09/2025

P451519-WW-XX-XX-TN-C-0007

Rev	Date	Description	Prepared	Reviewed	Approved
P1	12/09/2025	For Comments	TT	TT	TT
P2	16/09/2025	Revised for Comments	TT	RW	RW
P3	16/09/2025	Final Issue	TT	RW	RW
P4	16/09/2025	Final Issue	TT	RW	RW

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1 INTROCUTION

This technical note has been produced to provide an overall summary of Whitby Wood's involvement in producing the Flood Risk Assessment and proposed Drainage Strategy over the previous year and a half for the proposed development at 4-8 Sedgemere Road, London, SE2 9SW, under planning application reference 24/02488/FULM. The following items are to demonstrate the the practical approach that has been taken to establish the proposed foul and surface water outfall and overarching drainage strategy.

2 TIMELINE

The design team have worked with the Lead Local Flood Authority (LLFA), Greater London authority (GLA) and Thames Water to evidence and come to a suitable solution, that aims to meet all the planning conditions and regulations as far as practically possible.

In addition, the design team have obtained and undertaken additional surveys to evidence that the current approach, is the best solution given the constraints.

2.1 LLFA

Several technical notes were undertaken and evidence provided dating from December 2024 to September 2025. And a meeting was also held in March 2025.

2.2 Thames Water

Capacity and connection correspondence has taken place since April 2024 up to September 2025, with capacity consent received on December 2024.

2.3 Surveys

Further Asset mapping was obtained on August 2025 and an additional onsite CCTV survey was undertaken on September 2025.

3 DRAINAGE STRATEGY

3.1 Existing Drainage

A CCTV survey has been undertaken as shown in **Appendix A** which confirms that there are three outfalls present on site.

- The first being to Sedgemere Road where foul and surface water flows combine on site and discharge unrestricted to the foul sewer within the road.
- A second outfall to the southeast of the site has been located and discharges surface water unrestricted directly to the existing Thames Water foul drainage within Sedgemere Road.
- The third outfall was located on the western boundary of the site. This is a surface water manhole with a connection towards the Thames Water assets within Harrow Manorway.

The CCTV survey has confirmed that both combined flows and surface water flows enter the Thames Water foul drainage system through three separate outfalls at an unrestricted rate. The survey result reaffirms the previous assumptions provided at the pre and post planning submission stages. This therefore provides the

GLA and LLFA with sufficient evidence that the Harrow Manorway outfall is a suitable connection point for 4-8 Sedgemere Road.

3.2 Surface Water Strategy

The design of a surface water drainage system to serve the new development considers both water treatment and on-site attenuation in accordance with CIRIA C753. The proposed Stustainable Drainage Systems (SuDS) components aim to emulate the natural drainage system of the site through attenuation of flows and imitating natural percolation where possible. This has the added benefit of alleviating water quality issues associated with urban drainage runoff.

The current proposals for the surface water drainage strategy network include blue/green roof system and a below ground attenuation tank located under the parking area alongside rain gardens and permeable paving across the site. These measures will provide a total attenuation volume of 274m3 for all associated runoff up to and including the 100-year storm event plus a 40% allowance for climate change. The controlled discharge of rainwater will be restricted to 1 l/s as requested by Thames Water and the LLFA.

3.3 Foul Water Strategy

Foul wastewater is to increase from the existing development due to the increase in number of units and change in building use. Foul water design flow rates have been calculated at this time using 0.05 litres per second per dwelling, with a peak flow of 9.85l/s. The proposed foul water connection is into the Thames Water sewer in Harrow Manorway. This location was agreed with Thames Water, as a connection to Sedgemere Road would have capacity issues due to the sewer only being 150mm diameter.

4 PROPOSED OUTFALL LOCATION

4.1 Drainage Hierarchy

The drainage hierarchy should be considered for any new development. The following list details these requirements and which elements can be achieved for this site. Where possible elements as high up the hierarchy have been selected:

- Rainwater use as a resource (for example rainwater harvesting, green roofs for irrigation);
    - This is the current strategy with the incorporation of a rainwater butts, a green/blue roof and rain garden features.
- Rainwater infiltration to ground at or close to source;
    - Infiltration is not currently deemed feasible due to the presence of London Clay, high groundwater levels and spatial constraints not allowing for 5 meters between the building and an infiltration structure.
- Rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens);
    - This is the current strategy with rain garden features at ground floor level and green/blue roof elements on the roof.
- Attenuate rainwater by storing in tanks or sealed water features for gradual release;

  - This is the current strategy with a below ground attenuation tank, green/blue roofs, permeable paving and rain gardens being utilised in the external area providing a total attenuation volume of 274m^3.
- Discharge rainwater direct to a watercourse;
  - This is deemed unfeasible due to the requirement of excavation across third party land to the nearest watercourse.
- Discharge rainwater to a surface water sewer/drain;
  - There are no local Thames Water surface water sewers within close proximity to The Site. The closest Thames Water sewer with capacity is over 170 meters away on Lensbury Way and would involve extensive dig through highway land and include an adoptable pumping station with a minimum discharge rate of 5l/s to be compliant with Thames Water's adoption requirements.
- Discharge rainwater to the combined sewer;
  - This is the proposed strategy to connect to the existing Thames Water sewer within Harrow Manorway, which as confirmed by the asset mapping and more recent CCTV survey has surface and foul water flows entering the system. It should be noted that although the sewer takes surface and combined flow, the Thames Waster Asset mapping designates this as foul water.

4.2 Proposed Outfall

The existing surface water outfall location leading from the site onto Sedgemere Road will be abandoned as the drainage run extends below the footprint of the proposed building. The proposed outfall will be a gravity connection into Thames Water manhole 3201 in Harrow Manorway, which is a 950mm diameter network at the point of connection. The Thames Water sewer within Harrow Manorway is a foul sewer, that has surface water flows entering it. As such, Thames Water granted connection rights as per the pre-planning consent (December 2024) as shown in **Appendix D**. Evidence of Surface Water and Combined Water flows entering the system has been obtained directly from Thames Water and shown on their Asset Records.

5 DISCHARGE RATES

5.1 Pre-development Discharge Rates

As the site is currently being used as a trade counter, car repair garage, workshop and ancillary storage space. The domestic design flow should be calculated in accordance with BS EN 12056-2 System II (see also BS EN 16933-2) or, in the absence of appropriate information, 0.6 litres per second per hectare of developable land as per the Sewage Sector Guidance. Therefore the approximate foul water flow rate for the site is estimated to be **0.16 l/s**.

The existing surface water discharge rates have been calculated using the Modified Rational Method. A percentage of impermeable area (PIMP) of 100% and a time of concentration of 5 minutes were assumed. A runoff coefficient of 1 has been used as the existing site is almost entirely impermeable. The results for the highlighted return periods can be shown in **Table 1** and **Appendix B**.

TABLE 1 – EXISTING DISCHARGE RATES

Return Period	Existing Discharge Rates (l/s)
1-year	53.8
2-year	69.1
30-year	127.1
100-year	161.1

5.2 Post- development discharge rates

The proposed development will consist of the demolition of the existing commercial buildings and phased redevelopment for residential use (Use Class C3) and ancillary amenity, including basement, ground floor non-residential unit (Use Class E(a), E(b), E(c), E(c)i, E(c)ii, E(c)iii, E(e), E(g)i, E(g)ii, F2(b), boundary treatment, soft and hard landscaping, public realm improvements, highways works, cycle and car parking infrastructure and associated works.

Foul wastewater is to increase from the existing development due to the increase in number of units and change in building use. Foul water design flow rates have been calculated at this time using 0.05 litres per second per dwelling, with a peak flow of **9.85 l/s**. The proposed outfall will be a gravity connection into Thames Water manhole 3201 in Harrow Manorway, which is a 950mm diameter network at the point of connection.

As shown in Table 1, the existing surface water discharge rates for the site area have been calculated for the specified return periods. The proposed development should aim to achieve discharge rates as close to greenfield as possible as stated within the Local Plan. A discharge rate of **1 l/s** will be the proposed discharge rate for surface water which is greater than a 98% betterment from the existing 1-year discharge rate, while maintaining a self-cleansing velocity. The amount of attenuation required for the proposed drainage scheme has been calculated to be 274m^3.

A pre-planning enquiry has been submitted, and Thames Water have confirmed capacity consent for both foul and surface water discharging into Thames Water manhole 3201 in Harrow Manorway.

5.3 Betterment

The pre-development and post development combined discharge rates are shown in **Table 2** below. This demonstrates that in all storm return periods there is a betterment compared to the existing scenario. This confirms that the proposed drainage design will increase capacity within the Thames Water network with a minimum 79.9% betterment from existing during a 1 year storm return period and for the foreseeable future will contribute to reducing sewer flooding within the local area by freeing over 150 l/s worth of capacity relief during a 100 year storm event.

TABLE 2 – PRE-DEVELOPMENT VS POST-DEVELOPMENT DISCHARGE RATES

Return Period	Pre-Development Discharge Rate (l/s)			Post-Development Discharge Rate (l/s)			Betterment from existing
	Foul Water	Surface Water	Combined	Foul Water	Surface Water	Combinded	
1-year	0.16	53.80	**53.96**	9.85	1.00	**10.85**	79.9
2-year	0.16	69.10	**69.26**	9.85	1.00	**10.85**	84.3
30-year	0.16	127.10	**127.26**	9.85	1.00	**10.85**	91.5
100-year	0.16	161.10	**161.26**	9.85	1.00	**10.85**	93.3

6 CONCLUSION

Adopting a 'do nothing' approach in response to flood risk would likely result in adverse consequences, particularly when compared to the implementation of the proposed drainage strategy. Without proactive intervention, the existing vulnerabilities within the site's drainage infrastructure would remain unaddressed, thereby increasing the likelihood of flooding and the associated impacts on property, safety, and the environment. In contrast, the proposed strategy offers a structured and effective means of mitigating these risks, enhancing resilience and ensuring long-term sustainability in line with the LLFA polices on flood risk and sustainable drainage.

In Summary:

- The sewer in Harrow Manorway is classified as foul, but evidence has been obtained from Thames Water Asset Maps (August 2025) that it takes surface and combined water flows.
- A CCTV survey has been undertaken for our site (September 2025) which confirms combined flows to the Sedgemere Road 'foul sewer', and surface water flows to the Harrow Manorway 'foul sewer'.
- Thames water confirmed they would never recategorize a foul sewer on their asset mapping, as the purpose of the foul sewer does not change, even if other flows enter it.
- Proposals demonstrate an overall betterment from the site, meaning no increase in flows into the sewer.
- Thames Water have already provided pre-planning consent for the connection after reviewing the proposal

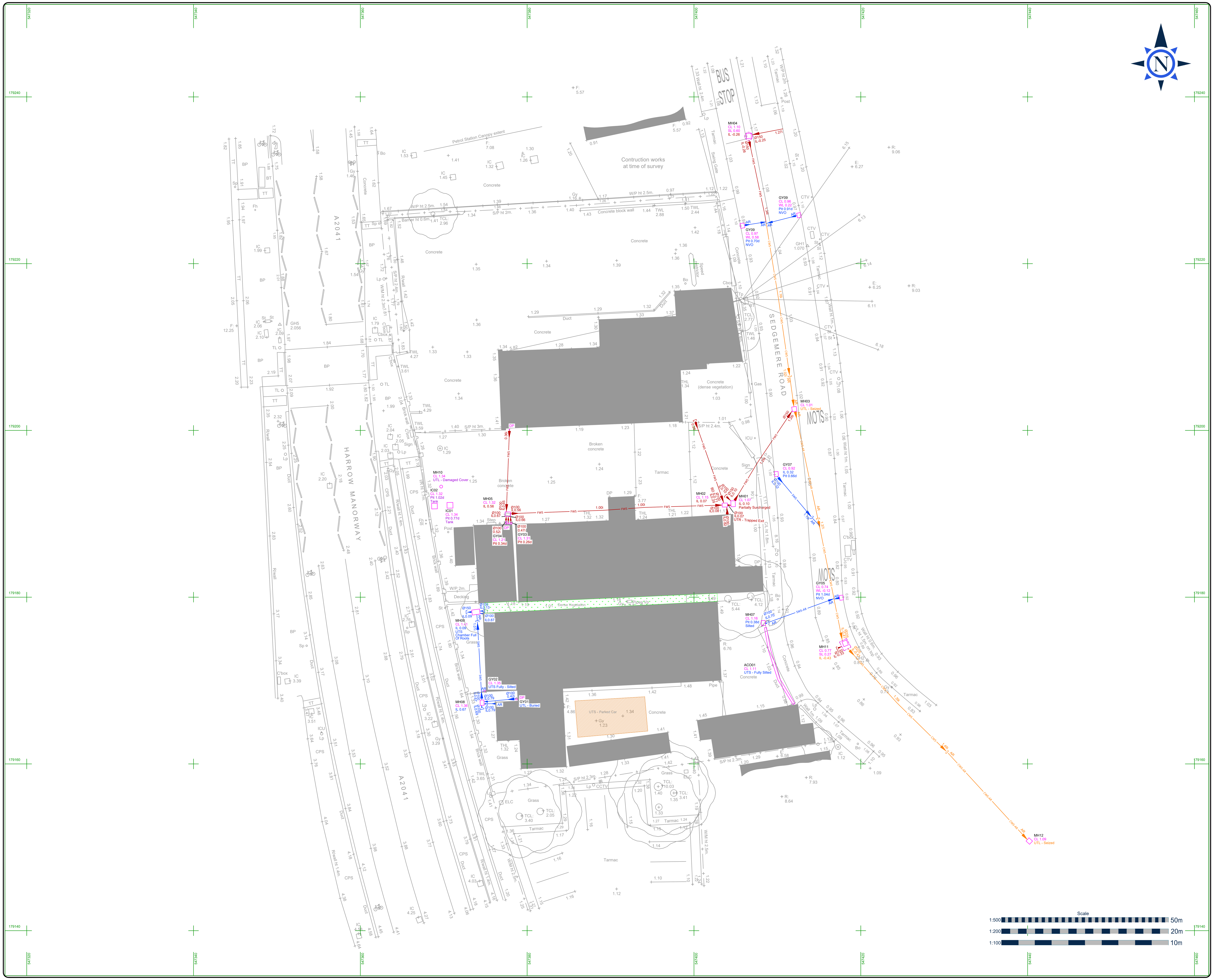
Based on the above and discussions the LLFA and Thames Water to date, it can categorically be confirmed that:

- Proposals will improve the existing scenario significantly.
- The proposals will not result in further combined sewage overflows (it in fact reduces the likelihood)
- The proposals will not increase flood risk elsewhere.

As such, the current proposals should look to be approved as they are compliant with all the Local Borough planning policies including but not limited to:

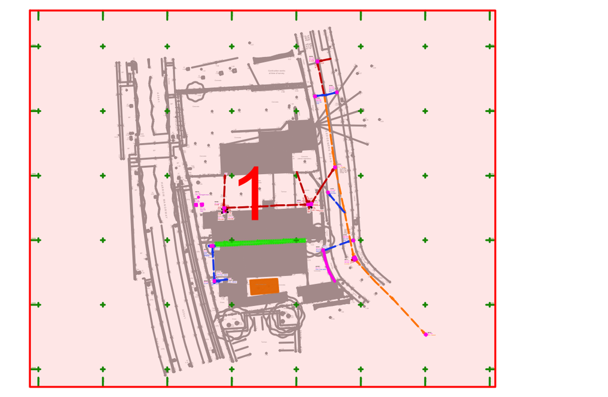
- Policy SI of the London Plan 2021
- Policy DP32 Flood Risk Management (LBB Local Plan)
- Policy DP33 Sustainable drainage systems (LBB Local Plan)

APPENDIX A – CCTV SURVEY



Scale
1:500 50m
1:200 20m
1:100 10m

Sheet Layout



Legend

AR	Assumed Route	G/Run	Gully Run	RS	Road Sign
AV	Air Valve	GR	Gas Riser	RWP	Rain Water Pipe
BD	Backdrop	GV	Gas Valve	SA	Soakaway
BLK	Blocked	HOR	Head of Run	SL	Soffit Level
BP	Block Paving	HT	Height	ST	Stop Tap
Boll.	Bollard	IB	Illuminous Bollard	STN	Survey Control Station
BH	Borehole	IC	Inspection Chamber	SV	Stop Valve
BTIC	BT Inspection Chamber	IGP	Illuminated Guidepost	SVP	Soil Vent Pipe
C/Box	Control Box	IL	Invert Level	TBM	Temporary Benchmark
C/Pit	Catchpit	KO	Kerb Outlet	TFR	Taken From Records
CHE	Chamber Extents	LB	Lighting Bollard	THL	Threshold Level
CL	Cover Level	LC	Lighting Column	TL	Traffic Light
Conc.	Concrete	LH	Lamphole	TOS	Top of Silt
CPS	Concrete Paving Slabs	LP	Lamppost	TP	Telegraph Pole
CR	Cable Riser	MH	Manhole	U/S	Underside
CTV	Cable TV	MKR	Marker	UL	Uplight
D/Chan.	Drainage Channel	MTR	Meter	UND	Undefined
DFP	Down Facing Pipe	MW	Monitoring Well	UTA	Unable to Access
DL	Directly Laid	NDU	Number of Ducts Unknown	UTF	Unable to Find
DV	Dense Vegetation	NVI	No Visible Incoming	UTL	Unable to Lift
DP	Down Pipe	NVO	No Visible Outgoing	UTR	Unable to Rod
DR	Duct Riser	NVP	No Visible Pipe	UTS	Unable to Survey
EJB	Electricity Junction Box	OH	Overhead	UTT	Unable to Trace
EOT	End of Trace	OSA	Off Survey Area	VP	Vent Pipe
EP	Electricity Pole	OSBM	Ordinance Survey Benchmark	VR	Vapour Recovery
ER	Earth Rod	PR	Pipe Riser	WFC	Water Filled Chamber
FFL	Finished Floor Level	PT	Poor Trace	WM	Water Meter
FH	Fire Hydrant	RE	Rodding Eye	WO	Wash Out
FP	Flag Pole	R/Wall	Retaining Wall	WR	Water Riser
FS	Fire Switch			Ø	Diameter
GY	Gully			3SI	3-Stage Interceptor

Pipeline Material Abbreviations

AC	Asbestos Cement	PVC	Polyvinyl Chloride
CI	Cast Iron	RC	Reinforced Concrete
DI	Ductile Iron	S	Steel
HDPE	High Density Polyethylene	SS	Stainless Steel
MS	Mild Steel	VC	Vitrified Clay
PE	Polyethylene	WI	Wrought Iron

Utility Legend

EHV	Extra High Voltage Electricity	FWS	Foul Drainage
HV	High Voltage Electricity	SWS	Surface Drainage
LV	Low Voltage Electricity	CWS	Combined Drainage
SL	Street Lighting	EWS	Effluent Drainage
ES	Earthing Strip	ADB	AdBlue Line
TS	Traffic Signals	O	Offset Fill Line
CATV	Cable Television	V	Vent Line
CCTV	Closed Circuit Television	F	Fuel Line
COM	Communications	VR	Vapour Recovery
BT	British Telecoms	G	Gauge Line
FO	Fibre Optics	OIL	Oil Pipe
GAS	Gas	HPL	Heating Pipe
HPG	High Pressure Gas	A	Compressed Air
IPG	Intermediate Pressure Gas	O2	Oxygen Supply
LHPG	Localised High Pressure Gas	AL	Alarm Cable
MPG	Medium Pressure Gas	ED	Empty Duct
W	Water	MU	Multi Service Duct
P	Pipeline	FM	Foam Service Pipe
UNK	Unknown Asset		Survey Boundary
U-GPR	Unknown GPR		Chamber Extents
			Approx. CE

Utility Location Depth Explanation

The located depth of a service obtained during a survey may be received to 3 different locations;

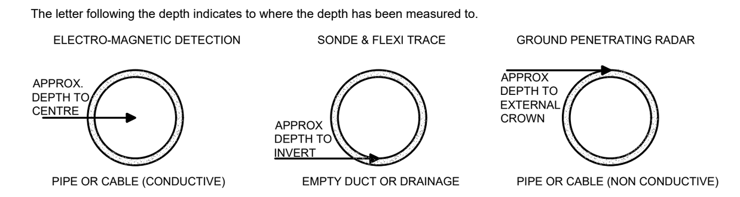
Center (c); EML Electromagnetic locating provides a depth to the center of the magnetic field received which is also the center of the pipe or cable.

Invert (i); Depths obtained during drainage surveys or using Flexi Trace or Sonde are taken at the invert of a pipe.

Top (t); GPR Ground Penetrating Radar provides depths to the top or crown of a pipe.

LV 0.30c   SWS 0.30i   UNK 0.30t

The letter following the depth indicates to where the depth has been measured to.



Utility Block Legend

End of Trace | Capped Service | End of Service End of Record | Diameter Change | Junction Observed On Drainage CCTV

PAS 128 Quality Level Classifications

Quality Level labeling of located utilities with a classification code allows the user of the information to understand clearly how it was obtained and then apply appropriate confidence and reliance upon it. Project risks relating to underground utilities can then be properly managed.

QL A Information is obtained by visually confirming the utility location, type, position and size. Services can be visually proven by way of Non destructive digging (NDD) using Vacuum Excavation or hand digging techniques to expose the buried service. Once accurately surveyed tolerances for a QL-A classification are: +/- 50mm of given depth and +/- 25mm horizontally.

QL B1 Information is obtained using Electromagnetic Pipe & Cable locators EML, Sonde or Flexi trace and Ground Penetrating Radar GPR equipment. in order to achieve a B1 classification at least two methods must accurately locate and agree on a buried service location. Once accurately surveyed tolerances for a QL-B1 classification are: +/- 15% of given depth and +/- 150mm horizontally.

QL B2 Information is obtained using Electromagnetic Pipe & Cable locators EML, Sonde or Flexi trace and Ground Penetrating Radar GPR equipment. in order to achieve a B2 classification one method must accurately locate a buried service location. Once accurately surveyed tolerances for a QL-B2 classification are: +/- 40% of given depth and +/- 250mm horizontally.

QL B3 Information is obtained using Electromagnetic Pipe & Cable locators EML, Sonde or Flexi trace and Ground Penetrating Radar GPR equipment. in order to achieve a B3 classification one method may indicate a possible position for a service location however due to possible interference or poor results no depth can be achieved. Once accurately surveyed tolerances for a QL-B3 classification are: no given depth and +/- 500mm horizontally.

QL B4 Information is has been unable to be located using Electromagnetic Pipe & Cable locators EML, Sonde or Flexi trace and Ground Penetrating Radar GPR equipment but is believed to exist until proven otherwise. This type of information could also be associated with assumed routes and Taken from records. There are no design tolerances associated with a B4 quality level and information should be treated with caution.

QL C Information is collected by correlating the survey of visible surface features such as marker plates, manholes or trench scars with existing drawing or record information to enable the approximate position of a utility to be determined. There are no design tolerances associated with a QL-C quality level.

QL D Information is the most basic level of Utility information derived from existing drawing and record information . This method should always be treated as an indication of the presence of a service and should not be used for design.

Drawing Notes

Utility depths and levels shown are in meters.

Pipe sizes and materials which cannot be obtained by visual survey are taken from record drawings or marker plates where available.

Cable routes shown as a single line may actually consist on many cables please refer to annotated configuration details where provided.

Drainage pipe sizes and invert levels have been determined without man entry into chambers. Every effort has been made to correctly obtain this information however accuracy is dependant on the visibility of the service.

For all equipment specifications, site procedures and limitations encountered on this project please see the survey report.

Coordinates and Levels are derived from Ordnance Survey datum OSGB36 through a series of GNSS RTK Observations.

Third Party Disclaimer:
All features shown in grey have been taken from external sources and as such Utility mapping Group cannot verify the accuracy of this information. Contacting the relevant provider is recommended for the latest information.

Detection Disclaimer: Electromagnetic locating techniques as well as Ground Penetrating Radar have been utilized in the location of underground services. These results are non infallible and a NDD non destructive process should be carried out to confirm service identification positions and particularly depths where these are critical. Although all reasonable effort has been made in the locating and mapping of underground services the complete extents of this Utility survey information cannot be guaranteed.

Client Logo:

whitby wood

Project Address:
Sedgemere Road
Abbey Wood
London
SE2 9SW

Project Title
2D Drainage Mapping & CCTV Survey

Surveyor	Drawn	Checked	Survey Date:	Scale:
NG	BB	ER	28/08/2025	1:200 @ A1

Project Number:	Sheet No:	Revision:
UM25-3444-WBW	01 OF 01	1

Revision	Revision Notes	Date
1	Final Issue	09/09/25

Utility MAPPING
0800 024 UMAP (8627)
www.u-map.co.uk info@u-map.co.uk

APPENDIX B – EXISTING DEVELOPMENT SURFACE WATER CALCS

PROPOSED RATES

Pre-development discharge

Site Makeup	Brownfield
Brownfield Method	MRM
Contributing Area (ha)	0.272
PIMP (%)	100
CV	1.000
Time of Concentration (mins)	5.00
Betterment (%)	0

Calc

Return Period (years)	Q (l/s)
1	53.8
2	69.1
30	127.1
100	161.1

EXISITING DISCHARGE RATES - 0% BETTERMENT

Pre-development discharge

Site Makeup	Brownfield
Brownfield Method	MRM
Contributing Area (ha)	0.272
PIMP (%)	100
CV	1.000
Time of Concentration (mins)	5.00
Betterment (%)	50

Calc

Return Period (years)	Q (l/s)
1	26.9
2	34.5
30	63.6
100	80.6

DISCHARGE RATES - 50% BETTERMENT

Pre-development discharge

Site Makeup	Brownfield
Brownfield Method	MRM
Contributing Area (ha)	0.272
PIMP (%)	100
CV	1.000
Time of Concentration (mins)	5.00
Betterment (%)	98

Calc

Return Period (years)	Q (l/s)
1	1.1
2	1.4
30	2.5
100	3.2

GREENFIELD DISCHARGE RATES - > 98% BETTERMENT

SEDGEMERE ROAD
PRE-DEVELOPMENT EXISTING DISCHARGE RATES
P451519
28.07.2025

whitby wood

APPENDIX C – HYDRAULIC SIMULATIONS

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	40	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Outfall			2.200	1200	547353.785	179218.798	4.140
Blue roof - roof level	0.053	5.00	69.625	1200	547385.852	179187.097	0.150
Attenuation tank			1.360	1200	547397.090	179221.392	1.984
SW21	0.008	5.00	1.180	450	547400.712	179169.148	1.003
SW05	0.006	5.00	1.420	1200	547403.193	179197.558	1.709
SW10	0.007	5.00	1.440	450	547376.216	179159.618	1.010
SW09	0.014	5.00	1.310	1200	547392.373	179162.868	1.211
SW07	0.004	5.00	1.145	1200	547403.000	179181.607	1.263
SW18	0.003	5.00	2.086	450	547368.199	179196.161	2.066
SW11	0.007	5.00	1.800	450	547372.039	179176.059	0.946
SW17	0.014	5.00	1.890	450	547370.618	179202.311	1.936
SW01	0.005	5.00	1.880	1200	547366.796	179209.929	2.793
SW22	0.011	5.00	1.137	450	547409.540	179169.590	0.739
SW20	0.002	5.00	1.300	1200	547406.170	179180.040	1.110
SW03	0.013	5.00	1.300	1200	547391.194	179213.976	1.963
SW08	0.007	5.00	1.190	1200	547400.225	179174.898	1.235
SW16	0.006	5.00	1.630	450	547366.050	179217.993	1.510
SW15	0.006	5.00	1.880	450	547367.528	179212.046	1.821
SW14	0.008	5.00	1.390	450	547377.944	179225.881	1.300
SW13	0.016	5.00	1.390	450	547386.595	179226.852	1.518
Blue roof - L01	0.008	5.00	6.560	1200	547380.431	179166.702	1.300
SW04	0.013	5.00	1.240	1200	547399.191	179212.247	1.681
SW02	0.007	5.00	1.650	1200	547381.462	179210.730	2.416
SW06	0.006	5.00	1.190	1200	547400.040	179190.974	1.406
SW12	0.006	5.00	1.890	450	547370.360	179184.491	0.821

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.002	SW10	SW09	16.481	0.600	0.430	0.224	0.206	80.0	100	5.67	50.0
1.003	SW09	SW08	14.366	0.600	0.099	-0.045	0.144	99.8	225	5.85	50.0
7.000	SW18	SW17	6.609	0.600	0.020	-0.046	0.066	100.0	100	5.14	50.0
1.001	SW11	SW10	16.963	0.600	0.854	0.430	0.424	40.0	100	5.35	50.0
7.001	SW17	SW01	8.523	0.600	-0.046	-0.131	0.085	100.0	100	5.33	50.0
1.012	SW01	Outfall	15.746	0.600	-0.912	-1.940	1.028	15.3	300	6.93	50.0
1.009	Attenuation tank	SW03	9.474	0.600	-0.624	-0.663	0.039	242.9	300	6.60	50.0
1.010	SW03	SW02	10.259	0.600	-0.663	-0.766	0.103	100.0	300	6.71	50.0
4.000	SW22	SW21	8.839	0.600	0.398	0.177	0.221	40.0	100	5.12	50.0
4.001	SW21	SW08	5.771	0.600	0.177	0.033	0.144	40.0	100	5.20	50.0
1.004	SW08	SW07	7.260	0.600	-0.045	-0.118	0.073	99.5	225	5.94	50.0
5.000	SW20	SW07	3.536	0.600	0.190	-0.118	0.308	11.5	100	5.03	50.0
6.001	SW13	Attenuation tank	11.830	0.600	-0.128	-0.424	0.296	40.0	100	5.28	50.0
8.000	SW16	SW15	6.128	0.600	0.120	0.059	0.061	100.0	100	5.13	50.0
8.001	SW15	SW01	2.240	0.600	0.059	0.037	0.022	100.0	100	5.18	50.0
1.000	SW12	SW11	8.598	0.600	1.069	0.854	0.215	40.0	100	5.12	50.0
2.000	Blue roof - roof level	SW09	25.091	0.600	69.475	0.224	69.251	0.4	100	5.03	50.0
6.000	SW14	SW13	8.705	0.600	0.090	-0.128	0.218	40.0	100	5.12	50.0
1.008	SW04	Attenuation tank	9.383	0.600	-0.441	-0.480	0.039	240.6	300	6.44	50.0
3.000	Blue roof - L01	SW09	12.542	0.600	5.260	0.224	5.036	2.5	100	5.04	50.0
1.007	SW05	SW04	15.224	0.600	-0.289	-0.441	0.152	100.2	300	6.29	50.0
1.011	SW02	SW01	14.688	0.600	-0.766	-0.913	0.147	100.0	300	6.86	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.002	0.861	6.8	5.2	0.910	0.986	0.020	0.0
1.003	1.308	52.0	23.9	0.986	1.010	0.094	0.0
7.000	0.769	6.0	0.8	1.966	1.836	0.003	0.0
1.001	1.223	9.6	3.4	0.846	0.910	0.013	0.0
7.001	0.769	6.0	4.4	1.836	1.911	0.017	0.0
1.012	4.037	285.3	58.2	2.492	3.840	0.230	0.0
1.009	1.004	71.0	44.5	1.684	1.663	0.176	0.0
1.010	1.572	111.1	47.8	1.663	2.116	0.189	0.0
4.000	1.223	9.6	2.8	0.639	0.903	0.011	0.0
4.001	1.223	9.6	5.0	0.903	1.057	0.020	0.0
1.004	1.310	52.1	30.7	1.010	1.038	0.121	0.0
5.000	2.293	18.0	0.4	1.010	1.163	0.002	0.0
6.001	1.223	9.6	6.0	1.418	1.684	0.024	0.0
8.000	0.769	6.0	1.5	1.410	1.721	0.006	0.0
8.001	0.769	6.0	3.1	1.721	1.743	0.012	0.0
1.000	1.223	9.6	1.5	0.721	0.846	0.006	0.0
2.000	12.969	101.9	13.4	0.050	0.986	0.053	0.0
6.000	1.223	9.6	2.1	1.200	1.418	0.008	0.0
1.008	1.009	71.3	38.5	1.381	1.540	0.152	0.0
3.000	4.939	38.8	2.0	1.200	0.986	0.008	0.0
1.007	1.570	111.0	35.3	1.409	1.381	0.140	0.0
1.011	1.572	111.1	49.5	2.116	2.493	0.196	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.005	SW07	SW06	9.824	0.600	-0.118	-0.216	0.098	100.2	300	6.05	50.0
1.006	SW06	SW05	7.300	0.600	-0.216	-0.289	0.073	100.0	300	6.12	50.0
1.000	SW12	SW11	8.676	0.600	0.717	0.517	0.200	43.4	100	5.12	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.005	1.570	111.0	32.1	0.963	1.106	0.127	0.0
1.006	1.572	111.1	33.7	1.106	1.409	0.133	0.0
1.000					1.183		

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.002	16.481	80.0	100	Circular	1.440	0.430	0.910	1.310	0.224	0.986
1.003	14.366	99.8	225	Circular	1.310	0.099	0.986	1.190	-0.045	1.010
7.000	6.609	100.0	100	Circular	2.086	0.020	1.966	1.890	-0.046	1.836
1.001	16.963	40.0	100	Circular	1.800	0.854	0.846	1.440	0.430	0.910
7.001	8.523	100.0	100	Circular	1.890	-0.046	1.836	1.880	-0.131	1.911
1.012	15.746	15.3	300	Circular	1.880	-0.912	2.492	2.200	-1.940	3.840
1.009	9.474	242.9	300	Circular	1.360	-0.624	1.684	1.300	-0.663	1.663
1.010	10.259	100.0	300	Circular	1.300	-0.663	1.663	1.650	-0.766	2.116
4.000	8.839	40.0	100	Circular	1.137	0.398	0.639	1.180	0.177	0.903
4.001	5.771	40.0	100	Circular	1.180	0.177	0.903	1.190	0.033	1.057
1.004	7.260	99.5	225	Circular	1.190	-0.045	1.010	1.145	-0.118	1.038
5.000	3.536	11.5	100	Circular	1.300	0.190	1.010	1.145	-0.118	1.163
6.001	11.830	40.0	100	Circular	1.390	-0.128	1.418	1.360	-0.424	1.684
8.000	6.128	100.0	100	Circular	1.630	0.120	1.410	1.880	0.059	1.721
8.001	2.240	100.0	100	Circular	1.880	0.059	1.721	1.880	0.037	1.743
1.000	8.598	40.0	100	Circular	1.890	1.069	0.721	1.800	0.854	0.846
2.000	25.091	0.4	100	Circular	69.625	69.475	0.050	1.310	0.224	0.986

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.002	SW10	450	Manhole	Adoptable	SW09	1200	Manhole	Adoptable
1.003	SW09	1200	Manhole	Adoptable	SW08	1200	Manhole	Adoptable
7.000	SW18	450	Manhole	Adoptable	SW17	450	Manhole	Adoptable
1.001	SW11	450	Manhole	Adoptable	SW10	450	Manhole	Adoptable
7.001	SW17	450	Manhole	Adoptable	SW01	1200	Manhole	Adoptable
1.012	SW01	1200	Manhole	Adoptable	Outfall	1200	Manhole	Adoptable
1.009	Attenuation tank	1200	Manhole	Adoptable	SW03	1200	Manhole	Adoptable
1.010	SW03	1200	Manhole	Adoptable	SW02	1200	Manhole	Adoptable
4.000	SW22	450	Manhole	Adoptable	SW21	450	Manhole	Adoptable
4.001	SW21	450	Manhole	Adoptable	SW08	1200	Manhole	Adoptable
1.004	SW08	1200	Manhole	Adoptable	SW07	1200	Manhole	Adoptable
5.000	SW20	1200	Manhole	Adoptable	SW07	1200	Manhole	Adoptable
6.001	SW13	450	Manhole	Adoptable	Attenuation tank	1200	Manhole	Adoptable
8.000	SW16	450	Manhole	Adoptable	SW15	450	Manhole	Adoptable
8.001	SW15	450	Manhole	Adoptable	SW01	1200	Manhole	Adoptable
1.000	SW12	450	Manhole	Adoptable	SW11	450	Manhole	Adoptable
2.000	Blue roof - roof level	1200	Manhole	Adoptable	SW09	1200	Manhole	Adoptable

Pipeline Schedule

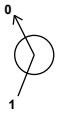
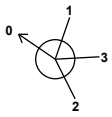
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
6.000	8.705	40.0	100	Circular	1.390	0.090	1.200	1.390	-0.128	1.418
1.008	9.383	240.6	300	Circular	1.240	-0.441	1.381	1.360	-0.480	1.540
3.000	12.542	2.5	100	Circular	6.560	5.260	1.200	1.310	0.224	0.986
1.007	15.224	100.2	300	Circular	1.420	-0.289	1.409	1.240	-0.441	1.381
1.011	14.688	100.0	300	Circular	1.650	-0.766	2.116	1.880	-0.913	2.493
1.005	9.824	100.2	300	Circular	1.145	-0.118	0.963	1.190	-0.216	1.106
1.006	7.300	100.0	300	Circular	1.190	-0.216	1.106	1.420	-0.289	1.409
1.000	8.676	43.4	100			0.717		1.800	0.517	1.183

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
6.000	SW14	450	Manhole	Adoptable	SW13	450	Manhole	Adoptable
1.008	SW04	1200	Manhole	Adoptable	Attenuation tank	1200	Manhole	Adoptable
3.000	Blue roof - L01	1200	Manhole	Adoptable	SW09	1200	Manhole	Adoptable
1.007	SW05	1200	Manhole	Adoptable	SW04	1200	Manhole	Adoptable
1.011	SW02	1200	Manhole	Adoptable	SW01	1200	Manhole	Adoptable
1.005	SW07	1200	Manhole	Adoptable	SW06	1200	Manhole	Adoptable
1.006	SW06	1200	Manhole	Adoptable	SW05	1200	Manhole	Adoptable
1.000					SW11	450	Manhole	Adoptable

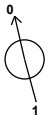
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Outfall	547353.785	179218.798	2.200	4.140	1200	1	1.012	-1.940	300
Blue roof - roof level	547385.852	179187.097	69.625	0.150	1200	0	2.000	69.475	100
Attenuation tank	547397.090	179221.392	1.360	1.984	1200	1	6.001	-0.424	100
						2	1.008	-0.480	300
						0	1.009	-0.624	300
SW21	547400.712	179169.148	1.180	1.003	450	1	4.000	0.177	100
						0	4.001	0.177	100
SW05	547403.193	179197.558	1.420	1.709	1200	1	1.006	-0.289	300
						0	1.007	-0.289	300
SW10	547376.216	179159.618	1.440	1.010	450	1	1.001	0.430	100
						0	1.002	0.430	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW09	547392.373	179162.868	1.310	1.211	1200		1	3.000	0.224	100
							2	2.000	0.224	100
							3	1.002	0.224	100
							0	1.003	0.099	225
SW07	547403.000	179181.607	1.145	1.263	1200		1	5.000	-0.118	100
							2	1.004	-0.118	225
							0	1.005	-0.118	300
SW18	547368.199	179196.161	2.086	2.066	450		0	7.000	0.020	100
SW11	547372.039	179176.059	1.800	0.946	450		1	1.000	0.854	100
							0	1.001	0.854	100
SW17	547370.618	179202.311	1.890	1.936	450		1	7.000	-0.046	100
							0	7.001	-0.046	100
SW01	547366.796	179209.929	1.880	2.793	1200		1	8.001	0.037	100
							2	7.001	-0.131	100
							3	1.011	-0.913	300
							0	1.012	-0.912	300
SW22	547409.540	179169.590	1.137	0.739	450		0	4.000	0.398	100
SW20	547406.170	179180.040	1.300	1.110	1200		0	5.000	0.190	100
SW03	547391.194	179213.976	1.300	1.963	1200		1	1.009	-0.663	300
							0	1.010	-0.663	300
SW08	547400.225	179174.898	1.190	1.235	1200		1	4.001	0.033	100
							2	1.003	-0.045	225
							0	1.004	-0.045	225
SW16	547366.050	179217.993	1.630	1.510	450		0	8.000	0.120	100
SW15	547367.528	179212.046	1.880	1.821	450		1	8.000	0.059	100
							0	8.001	0.059	100
SW14	547377.944	179225.881	1.390	1.300	450		0	6.000	0.090	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW13	547386.595	179226.852	1.390	1.518	450	1	6.000	-0.128	100
									
						0	6.001	-0.128	100
Blue roof - L01	547380.431	179166.702	6.560	1.300	1200				
						0	3.000	5.260	100
SW04	547399.191	179212.247	1.240	1.681	1200		1	1.007	-0.441	300
							0	1.008	-0.441	300
SW02	547381.462	179210.730	1.650	2.416	1200		1	1.010	-0.766	300
							0	1.011	-0.766	300
SW06	547400.040	179190.974	1.190	1.406	1200		1	1.005	-0.216	300
							0	1.006	-0.216	300
SW12	547370.360	179184.491	1.890	0.821	450		0	1.000	1.069	100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	35	0	0
100	40	0	0

Node SW01 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.012	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0038-1000-2400-1000
Invert Level (m)	-0.912	Min Outlet Diameter (m)	0.075
Design Depth (m)	2.400	Min Node Diameter (mm)	1200
Design Flow (l/s)	1.0		

Node Blue roof - roof level Online Depth/Flow Control

Flap Valve	x	Invert Level (m)	69.475	Design Flow (l/s)	6.0
Replaces Downstream Link	✓	Design Depth (m)	0.100		

Depth (m)	Flow (l/s)
0.100	6.000

Node Blue roof - L01 Online Depth/Flow Control

Flap Valve	x	Invert Level (m)	5.260	Design Flow (l/s)	3.0
Replaces Downstream Link	✓	Design Depth (m)	0.100		

Depth (m)	Flow (l/s)
0.100	3.000

Node Attenuation tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	-0.624
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	145.0	0.0	1.200	145.0	0.0	1.201	0.0	0.0

Node Blue roof - L01 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	5.260
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	5

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	56.0	0.0	0.100	56.0	0.0	0.101	0.0	0.0

Node Blue roof - roof level Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	69.475
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	255.0	0.0	0.100	255.0	0.0	0.101	0.0	0.0

Node SW22 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.600	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	8.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node SW09 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.750	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.760	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	6.000		

Node SW21 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.900	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	4.000		

Node SW08 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.800	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW07 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.490	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.000		

Node SW04 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.690	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW03 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.790	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW16 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.870	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	90	Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW15 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.780	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	255	Depth (m)	0.400
Safety Factor	2.0	Width (m)	7.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Node SW17 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.790	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	210	Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	7.000		

Node SW01 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.780	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	240	Depth (m)	0.400
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	4.000		

Node SW02 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.800	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	195	Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	4.000		

Node SW06 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.490	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	3.000		

Node SW05 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.600	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.000		

Node SW20 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.800	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.400
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	2.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Outfall	456	-1.930	0.010	0.5	0.0000	0.0000	OK
180 minute summer	Blue roof - roof level	116	69.497	0.022	3.5	5.4291	0.0000	OK
480 minute winter	Attenuation tank	456	-0.345	0.279	4.1	38.8109	0.0000	OK
15 minute summer	SW21	10	0.221	0.044	3.5	0.0145	0.0000	OK
15 minute summer	SW05	11	-0.214	0.075	14.1	0.0899	0.0000	OK
15 minute summer	SW10	11	0.482	0.052	3.5	0.0155	0.0000	OK
15 minute summer	SW09	11	0.153	0.054	6.4	0.0728	0.0000	OK
15 minute summer	SW07	11	-0.047	0.071	12.0	0.0848	0.0000	OK
15 minute winter	SW18	11	0.039	0.019	0.5	0.0037	0.0000	OK
15 minute summer	SW11	10	0.887	0.033	2.3	0.0105	0.0000	OK
15 minute summer	SW17	10	0.006	0.052	3.0	0.0158	0.0000	OK
480 minute winter	SW01	456	-0.345	0.568	1.5	0.6628	0.0000	SURCHARGED
15 minute summer	SW22	10	0.429	0.031	2.0	0.0143	0.0000	OK
15 minute winter	SW20	11	0.199	0.009	0.3	0.0105	0.0000	OK
480 minute winter	SW03	456	-0.345	0.318	1.1	0.4025	0.0000	SURCHARGED
15 minute summer	SW08	11	0.031	0.076	11.0	0.0949	0.0000	OK
15 minute summer	SW16	11	0.148	0.028	1.0	0.0066	0.0000	OK
15 minute summer	SW15	11	0.104	0.045	2.1	0.0104	0.0000	OK
15 minute summer	SW14	10	0.117	0.027	1.5	0.0076	0.0000	OK
15 minute summer	SW13	10	-0.080	0.048	4.2	0.0174	0.0000	OK
120 minute summer	Blue roof - L01	74	5.270	0.010	0.7	0.5669	0.0000	OK
15 minute summer	SW04	11	-0.338	0.103	16.2	0.1325	0.0000	OK
480 minute winter	SW02	456	-0.345	0.421	1.2	0.4994	0.0000	SURCHARGED
15 minute summer	SW06	11	-0.140	0.076	13.1	0.0920	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	Blue roof - roof level	Depth/Flow	SW09	1.3				
480 minute winter	Attenuation tank	1.009	SW03	1.0	0.397	0.014	0.6573	
15 minute summer	SW21	4.001	SW08	3.4	1.073	0.359	0.0185	
15 minute summer	SW05	1.007	SW04	14.1	0.806	0.127	0.2675	
15 minute summer	SW10	1.002	SW09	3.5	0.853	0.510	0.0667	
15 minute summer	SW09	1.003	SW08	6.4	0.680	0.124	0.1369	
15 minute summer	SW07	1.005	SW06	12.1	0.909	0.109	0.1305	
15 minute winter	SW18	7.000	SW17	0.5	0.210	0.083	0.0164	
15 minute summer	SW11	1.001	SW10	2.3	0.719	0.237	0.0540	
15 minute summer	SW17	7.001	SW01	2.9	0.741	0.487	0.0338	
480 minute winter	SW01	1.012	Outfall	0.5	0.791	0.002	0.0105	19.1
15 minute summer	SW22	4.000	SW21	2.0	0.736	0.207	0.0239	
15 minute winter	SW20	5.000	SW07	0.3	0.110	0.017	0.0107	
480 minute winter	SW03	1.010	SW02	1.1	0.411	0.010	0.7224	
15 minute summer	SW08	1.004	SW07	11.0	0.981	0.212	0.0817	
15 minute summer	SW16	8.000	SW15	1.0	0.389	0.166	0.0159	
15 minute summer	SW15	8.001	SW01	2.1	0.652	0.348	0.0072	
15 minute summer	SW14	6.000	SW13	1.5	0.559	0.154	0.0233	
15 minute summer	SW13	6.001	Attenuation tank	4.1	1.148	0.431	0.0426	
120 minute summer	Blue roof - L01	Depth/Flow	SW09	0.3				
15 minute summer	SW04	1.008	Attenuation tank	16.0	0.785	0.224	0.1912	
480 minute winter	SW02	1.011	SW01	1.0	0.065	0.009	1.0343	
15 minute summer	SW06	1.006	SW05	13.1	0.951	0.118	0.1005	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW12	11	1.091	0.022	1.0	0.0066	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW12	1.000	SW11	1.0	0.578	0.104	0.0152	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Outfall	720	-1.928	0.012	0.8	0.0000	0.0000	OK
120 minute summer	Blue roof - roof level	80	69.549	0.074	15.7	18.5199	0.0000	OK
720 minute winter	Attenuation tank	720	0.462	1.086	12.7	150.7741	0.0000	SURCHARGED
720 minute winter	SW21	705	0.464	0.287	1.0	0.0938	0.0000	SURCHARGED
720 minute winter	SW05	720	0.461	0.750	12.1	0.9038	0.0000	SURCHARGED
15 minute summer	SW10	13	0.864	0.434	12.3	0.4510	0.0000	SURCHARGED
720 minute winter	SW09	705	0.463	0.364	4.1	0.4938	0.0000	SURCHARGED
720 minute winter	SW07	705	0.464	0.582	5.8	0.6968	0.0000	SURCHARGED
720 minute winter	SW18	720	0.461	0.441	0.2	0.0838	0.0000	SURCHARGED
15 minute summer	SW11	12	1.168	0.314	8.9	0.0992	0.0000	SURCHARGED
720 minute winter	SW17	720	0.462	0.508	0.9	0.1550	0.0000	SURCHARGED
720 minute winter	SW01	720	0.462	1.375	1.7	1.6032	0.0000	SURCHARGED
15 minute summer	SW22	11	0.602	0.204	7.9	0.0961	0.0000	SURCHARGED
720 minute winter	SW20	705	0.465	0.275	0.2	0.3189	0.0000	SURCHARGED
720 minute winter	SW03	720	0.462	1.125	1.8	1.4223	0.0000	SURCHARGED
720 minute winter	SW08	705	0.464	0.509	5.5	0.6341	0.0000	SURCHARGED
720 minute winter	SW16	720	0.460	0.340	0.3	0.0809	0.0000	SURCHARGED
720 minute winter	SW15	720	0.461	0.402	0.6	0.0921	0.0000	SURCHARGED
15 minute summer	SW14	12	0.463	0.373	5.8	0.1072	0.0000	SURCHARGED
720 minute winter	SW13	720	0.462	0.590	1.2	0.2148	0.0000	SURCHARGED
60 minute summer	Blue roof - L01	41	5.298	0.038	3.4	2.0567	0.0000	OK
720 minute winter	SW04	720	0.461	0.902	7.1	1.1560	0.0000	SURCHARGED
720 minute winter	SW02	720	0.461	1.227	1.5	1.4544	0.0000	SURCHARGED
720 minute winter	SW06	705	0.461	0.677	10.1	0.8252	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	Blue roof - roof level	Depth/Flow	SW09	4.4				
720 minute winter	Attenuation tank	1.009	SW03	-1.8	0.364	-0.025	0.6672	
720 minute winter	SW21	4.001	SW08	1.0	0.775	0.104	0.0452	
720 minute winter	SW05	1.007	SW04	6.5	0.570	0.059	1.0721	
15 minute summer	SW10	1.002	SW09	10.4	1.330	1.539	0.1276	
720 minute winter	SW09	1.003	SW08	4.1	0.712	0.079	0.5714	
720 minute winter	SW07	1.005	SW06	9.8	0.773	0.089	0.6918	
720 minute winter	SW18	7.000	SW17	0.2	0.189	0.038	0.0517	
15 minute summer	SW11	1.001	SW10	7.5	0.964	0.785	0.1327	
720 minute winter	SW17	7.001	SW01	0.9	0.544	0.149	0.0667	
720 minute winter	SW01	1.012	Outfall	0.8	0.887	0.003	0.0138	36.0
15 minute summer	SW22	4.000	SW21	7.1	0.910	0.741	0.0692	
720 minute winter	SW20	5.000	SW07	-0.2	0.081	-0.012	0.0277	
720 minute winter	SW03	1.010	SW02	1.5	0.366	0.013	0.7224	
720 minute winter	SW08	1.004	SW07	5.5	0.855	0.105	0.2887	
720 minute winter	SW16	8.000	SW15	0.3	0.291	0.050	0.0479	
720 minute winter	SW15	8.001	SW01	0.6	0.470	0.099	0.0175	
15 minute summer	SW14	6.000	SW13	5.2	0.668	0.544	0.0681	
720 minute winter	SW13	6.001	Attenuation tank	1.2	0.706	0.125	0.0926	
60 minute summer	Blue roof - L01	Depth/Flow	SW09	1.1				
720 minute winter	SW04	1.008	Attenuation tank	9.8	0.513	0.137	0.6607	
720 minute winter	SW02	1.011	SW01	1.4	0.068	0.013	1.0343	
720 minute winter	SW06	1.006	SW05	11.8	0.766	0.106	0.5141	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW12	12	1.201	0.132	4.2	0.0402	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW12	1.000	SW11	3.9	0.784	0.408	0.0673	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.19%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Outfall	945	-1.927	0.013	0.9	0.0000	0.0000	OK
120 minute summer	Blue roof - roof level	80	69.575	0.100	21.2	25.0138	0.0000	OK
960 minute winter	Attenuation tank	945	1.115	1.739	12.1	167.3354	0.0000	FLOOD RISK
960 minute winter	SW21	945	1.116	0.939	1.3	2.7836	0.0000	FLOOD RISK
960 minute winter	SW05	945	1.115	1.404	11.1	19.0002	0.0000	SURCHARGED
960 minute winter	SW10	945	1.116	0.686	1.1	1.4320	0.0000	SURCHARGED
960 minute winter	SW09	945	1.117	1.018	4.7	2.6833	0.0000	FLOOD RISK
960 minute winter	SW07	945	1.116	1.234	6.0	2.6419	0.0000	FLOOD RISK
960 minute winter	SW18	945	1.116	1.096	0.2	0.2082	0.0000	SURCHARGED
15 minute summer	SW11	12	1.429	0.575	10.4	0.1818	0.0000	SURCHARGED
960 minute winter	SW17	945	1.115	1.161	0.9	1.6493	0.0000	SURCHARGED
960 minute winter	SW01	945	1.114	2.027	1.7	3.9211	0.0000	SURCHARGED
960 minute winter	SW22	945	1.116	0.718	1.6	9.3471	0.0000	FLOOD RISK
960 minute winter	SW20	945	1.117	0.927	0.3	2.0139	0.0000	FLOOD RISK
960 minute winter	SW03	945	1.114	1.777	1.9	3.2054	0.0000	FLOOD RISK
960 minute winter	SW08	945	1.117	1.162	5.9	3.3190	0.0000	FLOOD RISK
960 minute winter	SW16	945	1.116	0.996	0.4	0.5261	0.0000	SURCHARGED
960 minute winter	SW15	945	1.114	1.055	0.6	1.6237	0.0000	SURCHARGED
960 minute winter	SW14	945	1.113	1.023	0.4	0.2937	0.0000	FLOOD RISK
960 minute winter	SW13	945	1.114	1.242	1.2	0.4521	0.0000	FLOOD RISK
60 minute summer	Blue roof - L01	41	5.312	0.052	4.7	2.8196	0.0000	OK
960 minute winter	SW04	945	1.115	1.556	7.5	4.3672	0.0000	FLOOD RISK
960 minute winter	SW02	945	1.115	1.881	1.4	2.9625	0.0000	SURCHARGED
960 minute winter	SW06	945	1.116	1.332	7.8	2.3308	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	Blue roof - roof level	Depth/Flow	SW09	6.0				
960 minute winter	Attenuation tank	1.009	SW03	-1.8	0.354	-0.025	0.6672	
960 minute winter	SW21	4.001	SW08	-1.1	0.775	-0.116	0.0452	
960 minute winter	SW05	1.007	SW04	6.9	0.549	0.062	1.0721	
960 minute winter	SW10	1.002	SW09	1.1	0.630	0.163	0.1290	
960 minute winter	SW09	1.003	SW08	4.5	0.705	0.087	0.5714	
960 minute winter	SW07	1.005	SW06	7.5	0.753	0.067	0.6918	
960 minute winter	SW18	7.000	SW17	0.2	0.187	0.033	0.0517	
15 minute summer	SW11	1.001	SW10	8.9	1.142	0.931	0.1327	
960 minute winter	SW17	7.001	SW01	0.9	0.508	0.148	0.0667	
960 minute winter	SW01	1.012	Outfall	0.9	0.932	0.003	0.0156	50.8
960 minute winter	SW22	4.000	SW21	-1.2	0.548	-0.130	0.0692	
960 minute winter	SW20	5.000	SW07	-0.3	0.080	-0.018	0.0277	
960 minute winter	SW03	1.010	SW02	1.3	0.336	0.012	0.7224	
960 minute winter	SW08	1.004	SW07	5.7	0.816	0.110	0.2887	
960 minute winter	SW16	8.000	SW15	0.3	0.291	0.057	0.0479	
960 minute winter	SW15	8.001	SW01	0.6	0.470	0.099	0.0175	
960 minute winter	SW14	6.000	SW13	0.4	0.404	0.042	0.0681	
960 minute winter	SW13	6.001	Attenuation tank	1.1	0.642	0.118	0.0926	
60 minute summer	Blue roof - L01	Depth/Flow	SW09	1.6				
960 minute winter	SW04	1.008	Attenuation tank	9.3	0.469	0.131	0.6607	
960 minute winter	SW02	1.011	SW01	1.4	0.072	0.012	1.0343	
960 minute winter	SW06	1.006	SW05	10.8	0.720	0.097	0.5141	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.19%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW12	12	1.475	0.406	5.6	0.1233	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW12	1.000	SW11	4.2	0.746	0.438	0.0673	

APPENDIX D – PRE PLANNING CONSENT

Tom Tosetti

Whitby Wood
91-94 Lower Marsh
Waterloo
London SE1 7AB

Wastewater pre-planning
Our ref DS6119937

11 December 2024

Pre-planning enquiry: Confirmation of sufficient capacity

Site: ABBEY WOOD, SEDGEMERE ROAD, LONDON, SE2 9SW

Dear Tom,

Thank you for providing information on your development.

Proposed site (0.272ha): Demolishment of the existing car repair shop and other units and construction of a residential building up to 228 flats.

Proposed foul water and surface water (2720m2) to discharge by gravity to manhole TQ47793201. Surface water restricted to 2 l/s.

We have completed the assessment of the foul water flows and surface water run-off based on the information submitted in your application with the purpose of assessing sewerage capacity within the existing Thames Water sewer network.

Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the adjacent foul water sewer network to serve your development.
This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

Surface Water

Where feasible Surface water should discharge to a surface sewer in preference. The requirement to pass through third party land does not preclude this requirement. Thames Water would expect the developer to engage with any third party to pursue this option.

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. Before we can consider your surface water needs, you'll need written approval from the lead local flood authority that you have followed the sequential approach to the disposal of surface water and considered all practical means.

When developing a site, policy SI 13 of the London Plan states "Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as

close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:"

The disposal hierarchy being:

1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
2. rainwater infiltration to ground at or close to source
3. rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
4. rainwater discharge direct to a watercourse (unless not appropriate)
5. controlled rainwater discharge to a surface water sewer or drain
6. controlled rainwater discharge to a combined sewer

Where connection to the public sewerage network is still required to manage surface water flows, we will accept these flows at a discharge rate in line with CIRIA's best practice guide on SuDS or that stated within the sites planning approval.

Thames Water would request the developer aim for a discharge rate of 2 l/s/ha where feasible or 1 l/s total. Provided the above surface water hierarchy has been followed and if the flows are restricted as described above, for all storms up to and including 1:100+40%CC, provided approved by the LLFA, then Thames Water would not have any objections to the proposal.

Please see the attached 'Planning your wastewater' leaflet for additional information.

Combined connections & trade effluent

Foul and surface water must not be combined. This will only be permitted when a combined public sewerage system exists. When it is proposed to connect to a combined public sewer, the site drainage should be separate and combined at the final manhole nearest the boundary. Connections are not permitted for the removal of Ground Water. The discharge of non-domestic effluent is not permitted until a valid trade effluent consent has been issued by Thames Water. If anything other than domestic sewage is discharged into the public sewers without the above agreement an offence is committed and the applicant will be liable to the penalties contained in Section 109(1) (WIA 1991). Applicants should contact Trade Effluent prior to seeking a connection approval, to discuss trade effluent consent and conditions of discharge. A Trade Effluent reference number should be obtained and included in the relevant box of the attached application form. The address for Trade Effluent is - Thames Water Utilities Limited, Waste Water Quality, Crossness Sewage Treatment Works, Belvedere Road, Abbeywood, London. SE2 9AQ. Alternatively you can telephone them on 020 8507 4321.

Diversion

Where there are any existing public sewers crossing the site, new buildings will need to be kept between 3 and 6.5m away from existing sewer depending on the size and depth of the sewer. Alternatively, it may be possible for sewers to be diverted around the new development. If you wish us to review a diversion proposal, please submit this via a Section 185 Diversion application. On some occasions it may be possible to abandon existing public sewers. Please contact us for further information on this process.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

The views expressed by Thames Water in this letter are in response to this pre-planning enquiry at this time and do not represent our final views on any future planning applications made in relation to this site.

If you have any further questions, please contact me on 0800 009 3921.

Best Regards

James Kitching
Development Engineer
Developer Services – Sewer Adoptions Team