FOUL SEWERAGE DESIGN

Design Criteria for Foul - Unit

Pipe Sizes STANDARD Manhole Sizes STANDARD

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Calculation Method	EN 752	Maximum Backdrop Height (m)	1.500
Frequency Factor	0.50	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul - Unit

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Units	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	8.986	0.250	35.9	0.000	18.4	0.0	1.500	o	150	Pipe/Conduit	
F2.000	6.769	0.070	96.7	0.000	55.2	0.0	1.500	o	150	Pipe/Conduit	
F1.001	13.883	0.200	69.4	0.000	18.4	0.0	1.500	o	150	Pipe/Conduit	
F3.000	25.831	1.300	19.9	0.000	73.6	0.0	1.500	o	150	Pipe/Conduit	
F4.000	4.503	0.050	90.1	0.000	18.4	0.0	1.500	o	150	Pipe/Conduit	
F1.002	3.312	0.040	82.8	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F1.003	4.800	0.460	10.4	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F1.004	13.012	0.120	108.4	0.000	9.2	0.0	1.500	o	150	Pipe/Conduit	
F1.005	7.590	1.760	4.3	0.000	18.4	0.0	1.500	o	150	Pipe/Conduit	
F1.006	20.197	2.020	10.0	0.000	18.4	0.0	1.500	o	150	Pipe/Conduit	
F1.007	15.208	0.940	16.2	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Units	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	83.250	0.000	0.0	18.4	0.0	29	0.88	1.46	25.9	2.1
F2.000	83.070	0.000	0.0	55.2	0.0	50	0.73	0.89	15.7	3.7
F1.001	83.000	0.000	0.0	92.0	0.0	52	0.88	1.05	18.6	4.8
F3.000	84.100	0.000	0.0	73.6	0.0	36	1.33	1.97	34.8	4.3
F4.000	82.850	0.000	0.0	18.4	0.0	37	0.64	0.92	16.3	2.1
F1.002	82.800	0.000	0.0	184.0	0.0	66	0.91	0.96	17.0	6.8
F1.003	82.760	0.000	0.0	184.0	0.0	38	1.91	2.72	48.1	6.8
F1.004	82.300	0.000	0.0	193.2	0.0	72	0.83	0.84	14.9	6.9
F1.005	82.180	0.000	0.0	211.6	0.0	32	2.67	4.24	74.9	7.3
F1.006	80.420	0.000	0.0	230.0	0.0	40	2.01	2.78	49.2	7.6
F1.007	78.400	0.000	0.0	230.0	0.0	45	1.69	2.19	38.6	7.6

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Manhole Schedules for Foul - Unit

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
F2	86.296	3.046	Open Manhole	900	F1.000	83.250	150				
F5	85.571	2.501	Open Manhole	900	F2.000	83.070	150				
F3	85.578	2.578	Open Manhole	1200	F1.001	83.000	150	F1.000	83.000	150	
								F2.000	83.000	150	
F23	85.643	1.543	Open Manhole	1200	F3.000	84.100	150				
F37	85.008	2.158	Open Manhole	900	F4.000	82.850	150				
F4	85.125	2.325	Open Manhole	1200	F1.002	82.800	150	F1.001	82.800	150	
								F3.000	82.800	150	
								F4.000	82.800	150	
F5	84.887	2.127	Open Manhole	1200	F1.003	82.760	150	F1.002	82.760	150	
F6	83.485	1.185	Open Manhole	1200	F1.004	82.300	150	F1.003	82.300	150	
F7	83.673	1.493	Open Manhole	1200	F1.005	82.180	150	F1.004	82.180	150	
F8	82.836	2.416	Open Manhole	1200	F1.006	80.420	150	F1.005	80.420	150	
F9	80.258	1.858	Open Manhole	1200	F1.007	78.400	150	F1.006	78.400	150	
F	0.000		Open Manhole	0		OUTFALL		F1.007	77.460	150	

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PIPELINE SCHEDULES for Foul - Unit

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	o	150	F2	86.296	83.250	2.896	Open Manhole	900
F2.000	o	150	F5	85.571	83.070	2.351	Open Manhole	900
F1.001	o	150	F3	85.578	83.000	2.428	Open Manhole	1200
F3.000	o	150	F23	85.643	84.100	1.393	Open Manhole	1200
F4.000	o	150	F37	85.008	82.850	2.008	Open Manhole	900
F1.002	o	150	F4	85.125	82.800	2.175	Open Manhole	1200
F1.003	o	150	F5	84.887	82.760	1.977	Open Manhole	1200
F1.004	o	150	F6	83.485	82.300	1.035	Open Manhole	1200
F1.005	o	150	F7	83.673	82.180	1.343	Open Manhole	1200
F1.006	o	150	F8	82.836	80.420	2.266	Open Manhole	1200
F1.007	o	150	F9	80.258	78.400	1.708	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	8.986	35.9	F3	85.578	83.000	2.428	Open Manhole	1200
F2.000	6.769	96.7	F3	85.578	83.000	2.428	Open Manhole	1200
F1.001	13.883	69.4	F4	85.125	82.800	2.175	Open Manhole	1200
F3.000	25.831	19.9	F4	85.125	82.800	2.175	Open Manhole	1200
F4.000	4.503	90.1	F4	85.125	82.800	2.175	Open Manhole	1200
F1.002	3.312	82.8	F5	84.887	82.760	1.977	Open Manhole	1200
F1.003	4.800	10.4	F6	83.485	82.300	1.035	Open Manhole	1200
F1.004	13.012	108.4	F7	83.673	82.180	1.343	Open Manhole	1200
F1.005	7.590	4.3	F8	82.836	80.420	2.266	Open Manhole	1200
F1.006	20.197	10.0	F9	80.258	78.400	1.708	Open Manhole	1200
F1.007	15.208	16.2	F	0.000	77.460		Open Manhole	0

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Area Summary for Foul - Unit

Pipe Number	Gross Area (ha)	Pipe Total (ha)
1.000	0.000	0.000
2.000	0.000	0.000
1.001	0.000	0.000
3.000	0.000	0.000
4.000	0.000	0.000
1.002	0.000	0.000
1.003	0.000	0.000
1.004	0.000	0.000
1.005	0.000	0.000
1.006	0.000	0.000
1.007	0.000	0.000
	Total	Total
	0.000	0.000

Free Flowing Outfall Details for Foul - Unit

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F1.007	F	0.000	77.460	0.000	0	0

Simulation Criteria for Foul - Unit

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

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

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.339		

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