

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
PS15-RE	0.009	180	Type E	17.550	17.075	0.325	494856.335	106209.065
PS16	0.000	450	Type D	17.550	16.997	0.403	494845.918	106214.285
PS32-RE	0.006	180	Type E	17.530	17.188	0.242	494864.805	106229.492
PS34-RE	0.000	180	Type E	17.525	17.157	0.268	494862.669	106214.799
PS33	0.000	450	Type D	17.552	17.031	0.371	494861.562	106222.338
PS41-ACO	0.002	180	Type E	17.551	17.401	0.050	494854.004	106218.814
PS42-ACO	0.000	180	Type E	17.552	17.372	0.080	494855.351	106221.453
PS17	0.004	450	Type D	17.597	16.902	0.545	494852.392	106227.072
PS35-RE	0.000	180	Type E	17.534	17.105	0.278	494839.187	106227.517
PS10	0.009	450	Type E	17.617	17.079	0.389	494842.856	106226.035
PS11-RE	0.001	180	Type E	17.723	17.373	0.250	494847.749	106235.781
PS39-ACO	0.003	180	Type E	17.561	17.411	0.050	494842.729	106234.277
PS40-ACO	0.000	180	Type E	17.585	17.377	0.108	494845.783	106232.719
PS35	0.000	450	Type D	17.640	17.049	0.441	494844.849	106230.006
PS36-DIF	0.009	300x300	Type E	17.735	17.038	0.547	494846.404	106229.244
PS21-DIF	0.000	300x300	Type E	17.638	16.887	0.601	494850.440	106228.026
PP5-Dummy Outfall	0.000	100	Unknown	17.554	16.814	0.590	494843.677	106219.273

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	PS15-RE	17.075	PS16	16.997	Circ	150	11.652	150	0.600	0.325	0.403
1.001	PS16	16.997	PS17	16.902	Circ	150	14.333	150	0.600	0.403	0.545
2.000	PS32-RE	17.188	PS33	17.081	Circ	100	7.854	74	0.600	0.242	0.371
3.000	PS34-RE	17.157	PS33	17.081	Circ	100	7.619	100	0.600	0.268	0.371
2.001	PS33	17.031	PS17	16.902	Circ	150	10.320	80	0.600	0.371	0.545
4.000	PS41-ACO	17.401	PS42-ACO	17.372	Circ	100	2.963	101	0.600	0.050	0.080
4.001	PS42-ACO	17.372	PS17	16.952	Circ	100	6.350	15	0.600	0.080	0.545
1.002	PS17	16.902	PS21-DIF	16.887	Circ	150	2.172	150	0.600	0.545	0.601
5.000	PS35-RE	17.105	PS10	17.079	Circ	150	3.956	150	0.600	0.278	0.389
5.001	PS10	17.079	PS35	17.049	Circ	150	4.444	148	0.600	0.389	0.441
6.000	PS11-RE	17.373	PS35	17.099	Circ	100	6.462	24	0.600	0.250	0.441
7.000	PS39-ACO	17.411	PS40-ACO	17.377	Circ	100	3.428	101	0.600	0.050	0.108
7.001	PS40-ACO	17.377	PS35	17.099	Circ	100	2.869	10	0.600	0.108	0.441
5.002	PS35	17.049	PS36-DIF	17.038	Circ	150	1.731	153	0.600	0.441	0.547
5.003	PS36-DIF	17.038	PS21-DIF	16.887	Circ	150	4.216	28	0.600	0.547	0.601
1.003	PS21-DIF	16.887	PP5-Dummy Outfall	16.814	Circ	150	11.061	150	0.600	0.601	0.590

Outfall Details

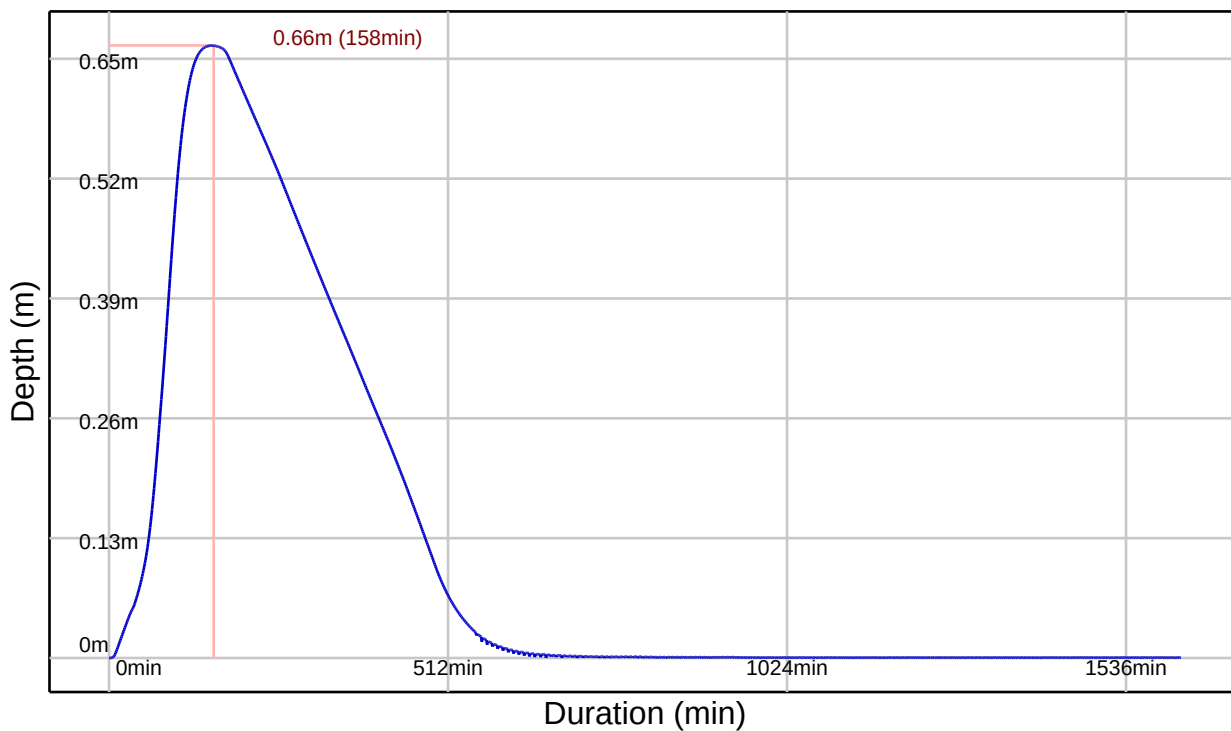
Outfall Manhole PP5-Dummy Outfall : Free Discharge

Flow Control Details

Tank Structure at Manhole PS21-DIF

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
16.850	0.675	30.00	94.049	28.215	19.045	0.07812000	0.07812000	2.00

Permeable Paving 5 at PS21-DIF (100Yr+45% 180Min Winter)



Controls within Manhole PP5-Dummy Outfall

Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.000	0.600

Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494812_106233_v5_1_0.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440

Return Periods (yrs) + Climate Change: (1, +0%), (30, +40%), (100, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Item Volume Continuity Errors
1Yr 15Min Winter	15.628	0.00	1.93	
1Yr 15Min Summer	15.628	0.00	2.08	
1Yr 30Min Winter	10.316	0.00	-18.74	PS21-DIF -0.69m3, PP5-Dummy Outfall 0.19m3
1Yr 30Min Summer	10.316	0.00	-20.35	PS21-DIF -0.67m3, PP5-Dummy Outfall 0.24m3
1Yr 60Min Winter	6.595	0.00	-20.00	PS21-DIF -0.77m3, PP5-Dummy Outfall 0.24m3
1Yr 60Min Summer	6.595	0.00	-19.25	PS21-DIF -0.78m3, PP5-Dummy Outfall 0.25m3
1Yr 120Min Summer	5.323	0.00	-8.81	PS21-DIF -0.61m3, PP5-Dummy Outfall 0.21m3
1Yr 120Min Winter	5.323	0.00	-9.40	PS21-DIF -0.59m3, PP5-Dummy Outfall 0.27m3
1Yr 180Min Winter	4.511	0.00	-9.92	PS21-DIF -0.79m3, PP5-Dummy Outfall 0.28m3
1Yr 180Min Summer	4.511	0.00	-8.32	PS21-DIF -0.69m3, PP5-Dummy Outfall 0.25m3
1Yr 240Min Winter	3.753	0.00	-7.20	PS21-DIF -0.65m3, PP5-Dummy Outfall 0.24m3
1Yr 240Min Summer	3.753	0.00	-8.22	PS21-DIF -0.78m3, PP5-Dummy Outfall 0.21m3
1Yr 360Min Winter	2.919	0.00	-5.39	PS21-DIF -0.58m3, PP5-Dummy Outfall 0.23m3
1Yr 360Min Summer	2.919	0.00	-5.81	PS21-DIF -0.63m3, PP5-Dummy Outfall 0.22m3
1Yr 480Min Summer	2.427	0.00	-4.08	
1Yr 480Min Winter	2.427	0.00	-4.87	
1Yr 600Min Winter	2.074	0.00	-4.25	
1Yr 600Min Summer	2.074	0.00	-3.76	
1Yr 720Min Summer	1.811	0.00	-4.96	
1Yr 720Min Winter	1.811	0.00	-4.22	
1Yr 960Min Summer	1.465	0.00	-4.84	
1Yr 960Min Winter	1.465	0.00	0.00	
1Yr 1440Min Winter	1.102	0.00	0.00	
1Yr 1440Min Summer	1.102	0.00	0.33	
30Yr+40% 15Min Winter	115.253	0.00	-3.05	
30Yr+40% 15Min Summer	115.253	0.00	-4.39	
30Yr+40% 30Min Summer	76.731	0.00	-2.18	
30Yr+40% 30Min Winter	76.731	0.00	-3.20	
30Yr+40% 60Min Summer	48.847	0.00	-2.32	
30Yr+40% 60Min Winter	48.847	0.00	-1.83	
30Yr+40% 120Min Summer	29.859	0.00	-1.79	
30Yr+40% 120Min Winter	29.859	0.00	-1.56	
30Yr+40% 180Min Winter	22.126	0.00	-1.16	
30Yr+40% 180Min Summer	22.126	0.00	-1.45	
30Yr+40% 240Min Summer	17.757	0.00	-1.25	
30Yr+40% 240Min Winter	17.757	0.00	-1.58	
30Yr+40% 360Min Summer	12.891	0.00	-1.27	
30Yr+40% 360Min Winter	12.891	0.00	-1.02	
30Yr+40% 480Min Summer	10.228	0.00	-1.21	
30Yr+40% 480Min Winter	10.228	0.00	-1.01	
30Yr+40% 600Min Summer	8.522	0.00	-1.48	
30Yr+40% 600Min Winter	8.522	0.00	-1.02	
30Yr+40% 720Min Summer	7.326	0.00	-1.03	
30Yr+40% 720Min Winter	7.326	0.00	-1.06	
30Yr+40% 960Min Summer	5.766	0.00	-1.51	
30Yr+40% 960Min Winter	5.766	0.00	-0.99	
30Yr+40% 1440Min Summer	4.126	0.00	-0.96	
30Yr+40% 1440Min Winter	4.126	0.00	-1.04	
100Yr+45% 15Min Summer	149.272	0.00	-2.93	
100Yr+45% 15Min Winter	149.272	0.00	-3.31	
100Yr+45% 30Min Summer	100.198	0.00	-1.76	
100Yr+45% 30Min Winter	100.198	0.00	-1.61	
100Yr+45% 60Min Summer	64.450	0.00	-1.17	
100Yr+45% 60Min Winter	64.450	0.00	-1.64	

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Item Volume Continuity Errors
100Yr+45% 120Min Summer	38.652	0.00	-1.07	
100Yr+45% 120Min Winter	38.652	0.00	-1.29	
100Yr+45% 180Min Summer	28.339	0.00	-0.99	
100Yr+45% 180Min Winter	28.339	0.00	-0.83	
100Yr+45% 240Min Summer	22.782	0.00	-0.92	
100Yr+45% 240Min Winter	22.782	0.00	-1.07	
100Yr+45% 360Min Summer	16.530	0.00	-0.91	
100Yr+45% 360Min Winter	16.530	0.00	-0.75	
100Yr+45% 480Min Summer	13.117	0.00	-0.81	
100Yr+45% 480Min Winter	13.117	0.00	-0.92	
100Yr+45% 600Min Summer	10.952	0.00	-0.81	
100Yr+45% 600Min Winter	10.952	0.00	-0.73	
100Yr+45% 720Min Summer	9.434	0.00	-0.87	
100Yr+45% 720Min Winter	9.434	0.00	-0.73	
100Yr+45% 960Min Summer	7.431	0.00	-0.84	
100Yr+45% 960Min Winter	7.431	0.00	-0.92	
100Yr+45% 1440Min Winter	5.311	0.00	-0.74	
100Yr+45% 1440Min Summer	5.311	0.00	-0.76	

Simulation Results

Return Period (yrs) + Climate Change (%):

1yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	15 min Summer	8	17.100	0.025	0.853		OK
PS16	15 min Summer	9	17.022	0.025	0.858		OK
PS32-RE	15 min Summer	8	17.207	0.019	0.555		OK
PS34-RE	15 min Winter	0	17.157	0.000	0.000		OK
PS33	15 min Summer	9	17.048	0.017	0.539		OK
PS41-ACO	15 min Summer	9	17.414	0.013	0.194		OK
PS42-ACO	15 min Summer	9	17.380	0.008	0.197		OK
PS17	15 min Summer	9	16.941	0.039	1.931		OK
PS35-RE	15 min Winter	0	17.105	0.000	0.000		OK
PS10	15 min Summer	8	17.103	0.024	0.853		OK
PS11-RE	15 min Summer	9	17.378	0.005	0.053		OK
PS39-ACO	15 min Summer	9	17.425	0.014	0.237		OK
PS40-ACO	15 min Summer	9	17.385	0.008	0.241		OK
PS35	15 min Summer	9	17.077	0.028	1.123		OK
PS36-DIF	15 min Summer	9	17.063	0.025	1.962		OK
PS21-DIF	180 min Summer	110	16.933	0.083	0.875		OK
PP5-Dummy Outfall	240 min Winter	277	17.004	0.191	0.418		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	PS15-RE	PS16	0.024	0.450	0.844	0.058	OK
1.001	15 min Summer	9	PS16	PS17	0.032	0.320	0.867	0.060	OK
2.000	15 min Summer	8	PS32-RE	PS33	0.019	0.538	0.546	0.077	OK
3.000	15 min Winter	0	PS34-RE	PS33	0.000	0.000	0.000	0.000	OK
2.001	15 min Summer	9	PS33	PS17	0.028	0.242	0.543	0.027	OK
4.000	15 min Summer	9	PS41-ACO	PS42-ACO	0.010	0.464	0.197	0.033	OK
4.001	15 min Summer	9	PS42-ACO	PS17	0.008	0.696	0.197	0.013	OK
1.002	180 min Summer	110	PS17	PS21-DIF	0.039	0.479	1.018	0.071	OK
5.000	15 min Summer	8	PS35-RE	PS10	0.012	0.000	0.000	0.000	OK
5.001	15 min Summer	8	PS10	PS35	0.026	0.406	0.843	0.058	OK
6.000	15 min Summer	9	PS11-RE	PS35	0.005	0.397	0.053	0.004	OK
7.000	15 min Summer	9	PS39-ACO	PS40-ACO	0.011	0.512	0.241	0.040	OK
7.001	15 min Summer	9	PS40-ACO	PS35	0.008	0.860	0.241	0.013	OK
5.002	15 min Summer	9	PS35	PS36-DIF	0.027	0.531	1.130	0.079	OK
5.003	180 min Summer	106	PS36-DIF	PS21-DIF	0.029	0.841	1.049	0.031	OK
1.003	360 min Summer	291	PS21-DIF	PP5-Dummy Outfall	0.109	0.488	6.400	0.443	OK

Return Period (yrs) + Climate Change (%):

30yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	180 min Winter	146	17.364	0.289	0.265		Flood Risk
PS16	180 min Winter	146	17.364	0.366	0.275		Flood Risk
PS32-RE	180 min Winter	145	17.364	0.176	0.177		Flood Risk
PS34-RE	180 min Winter	145	17.364	0.207	0.000		Flood Risk
PS33	180 min Winter	146	17.364	0.333	0.173		Flood Risk
PS41-ACO	15 min Summer	8	17.435	0.034	1.495		OK
PS42-ACO	15 min Summer	8	17.392	0.020	1.481		OK
PS17	180 min Winter	146	17.364	0.462	0.620		Flood Risk
PS35-RE	180 min Winter	146	17.364	0.258	0.000		Flood Risk
PS10	180 min Winter	146	17.364	0.285	0.266		Flood Risk
PS11-RE	15 min Summer	8	17.385	0.012	0.408		OK
PS39-ACO	15 min Summer	8	17.449	0.038	1.824		OK
PS40-ACO	15 min Summer	8	17.397	0.020	1.808		OK
PS35	180 min Winter	146	17.364	0.315	0.365		Flood Risk
PS36-DIF	180 min Winter	146	17.364	0.326	0.635		Surcharged
PS21-DIF	180 min Winter	146	17.364	0.514	1.259		Surcharged
PP5-Dummy Outfall	180 min Winter	145	17.364	0.550	0.000		Flood Risk

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	30 min Winter	22	PS15-RE	PS16	0.150	0.706	4.495	0.312	Surcharged
1.001	15 min Summer	11	PS16	PS17	0.150	0.511	6.423	0.445	Surcharged
2.000	60 min Winter	42	PS32-RE	PS33	0.100	0.771	1.974	0.280	Surcharged
3.000	120 min Winter	149	PS34-RE	PS33	0.100	0.015	0.089	0.015	Surcharged
2.001	30 min Summer	19	PS33	PS17	0.150	0.343	3.536	0.178	Surcharged
4.000	15 min Summer	8	PS41-ACO	PS42-ACO	0.027	0.858	1.481	0.247	OK
4.001	15 min Summer	9	PS42-ACO	PS17	0.060	0.827	1.472	0.094	OK
1.002	15 min Summer	9	PS17	PS21-DIF	0.150	0.904	13.263	0.919	Surcharged
5.000	120 min Summer	129	PS35-RE	PS10	0.150	0.030	0.347	0.024	Surcharged
5.001	30 min Winter	23	PS10	PS35	0.150	0.618	4.457	0.307	Surcharged
6.000	60 min Summer	34	PS11-RE	PS35	0.054	0.617	0.276	0.022	OK
7.000	15 min Summer	8	PS39-ACO	PS40-ACO	0.029	0.956	1.808	0.301	OK
7.001	60 min Summer	33	PS40-ACO	PS35	0.058	1.347	1.234	0.065	OK
5.002	30 min Winter	20	PS35	PS36-DIF	0.150	0.845	5.902	0.413	Surcharged
5.003	30 min Winter	20	PS36-DIF	PS21-DIF	0.150	1.298	10.287	0.305	Surcharged
1.003	1440 min Summer	1292	PS21-DIF	PP5-Dummy Outfall	0.150	0.488	6.273	0.435	Surcharged

Return Period (yrs) + Climate Change (%):

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	180 min Winter	152	17.515	0.440	0.301		Flood Risk
PS16	180 min Winter	152	17.515	0.518	0.336		Flood Risk
PS32-RE	180 min Winter	156	17.515	0.328	0.182		Flood Risk
PS34-RE	180 min Winter	156	17.515	0.358	0.006		Flood Risk
PS33	180 min Winter	154	17.515	0.484	0.150		Flood Risk
PS41-ACO	180 min Winter	152	17.515	0.113	0.071		Flood Risk
PS42-ACO	180 min Winter	152	17.515	0.143	0.085		Flood Risk
PS17	180 min Winter	154	17.515	0.613	0.686		Flood Risk
PS35-RE	120 min Winter	115	17.517	0.411	0.028		Flood Risk
PS10	120 min Winter	115	17.516	0.437	0.258		Flood Risk
PS11-RE	180 min Winter	151	17.516	0.143	0.020		Flood Risk
PS39-ACO	180 min Winter	153	17.516	0.105	0.085		Flood Risk
PS40-ACO	120 min Winter	112	17.516	0.139	0.064		Flood Risk
PS35	120 min Winter	110	17.517	0.468	0.279		Flood Risk
PS36-DIF	180 min Winter	159	17.515	0.477	0.498		Flood Risk
PS21-DIF	180 min Winter	158	17.514	0.664	1.483		Surcharged
PP5-Dummy Outfall	180 min Winter	154	17.515	0.701	0.004		Flood Risk

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	12	PS15-RE	PS16	0.150	0.805	7.631	0.529	Surcharged
1.001	15 min Winter	9	PS16	PS17	0.150	0.517	6.962	0.482	Surcharged
2.000	30 min Winter	20	PS32-RE	PS33	0.100	0.910	3.857	0.547	Surcharged
3.000	60 min Winter	109	PS34-RE	PS33	0.100	0.017	0.133	0.022	Surcharged
2.001	15 min Winter	10	PS33	PS17	0.150	0.383	4.405	0.222	Surcharged
4.000	180 min Summer	137	PS41-ACO	PS42-ACO	0.100	0.670	0.658	0.110	Surcharged
4.001	60 min Winter	58	PS42-ACO	PS17	0.100	0.814	0.949	0.061	Surcharged
1.002	15 min Winter	8	PS17	PS21-DIF	0.150	0.921	14.815	1.027	Surcharged
5.000	60 min Summer	141	PS35-RE	PS10	0.150	0.027	0.369	0.026	Surcharged
5.001	15 min Winter	12	PS10	PS35	0.150	0.635	7.307	0.504	Surcharged
6.000	240 min Winter	209	PS11-RE	PS35	0.100	0.445	0.223	0.018	Surcharged
7.000	120 min Winter	102	PS39-ACO	PS40-ACO	0.100	0.719	0.712	0.118	Surcharged
7.001	180 min Summer	118	PS40-ACO	PS35	0.100	1.079	0.803	0.042	Surcharged
5.002	15 min Winter	11	PS35	PS36-DIF	0.150	0.810	9.661	0.677	Surcharged
5.003	15 min Winter	10	PS36-DIF	PS21-DIF	0.150	1.632	16.976	0.503	Surcharged
1.003	1440 min Winter	1233	PS21-DIF	PP5-Dummy Outfall	0.150	0.492	6.377	0.442	Surcharged