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Seawinds, Carpenters Lane,
Brook, Newport,
Isle of Wight PO30 4EU
Tel: 01983 740064

Job No.	1234/2010	
Sheet no.	1	
Date	24/09/10	
By	IJ	Checked
		SAAR
		660
Approved		

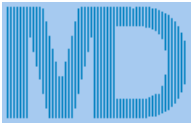
MasterDrain
SW 12.23

Project
Crown Estates

Location	Nat. Grid ref.	M5-60	r	WRAP
BECKENHAM	103769	20	0.41	1

Surcharge calcs (30 yrs storm) for COLLEGE.SW

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
:	:	M	mm	1 in	M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	:
1	1.01	20.0	167	120	0.91	0:52	4:52	131.99	16.2	4.86	150	0.30	0.0	I OK
2	1.02	60.0	500	120	0.91	1:37	5:57	121.63	16.2	13.43	150	0.83	0.0	I OK
3	2.01	17.0	680	25	2.02	0:25	4:38	134.39	35.7	9.89	150	0.28	0.0	B OK
4	1.03	40.0	222	180	0.97	0:15	6:39	116.05	38.5	34.17	225	0.89	0.0	I Marginal
5	3.01	20.0	167	120	0.91	0:52	4:52	131.99	16.2	4.86	150	0.30	0.0	B OK
6	3.02	60.0	723	83	1.10	0:26	5:46	123.26	19.5	15.88	150	0.82	0.0	B OK
7	4.01	32.0	267	120	0.91	0:60	5:05	129.75	16.2	19.10	150	1.18	2.9	B Surcharged
8	5.01	25.0	266	94	1.04	0:09	4:54	131.60	18.3	15.14	150	0.83	0.0	S OK
9	4.02	45.0	375	120	1.19	0:48	5:43	123.78	47.3	32.46	225	0.69	0.0	B OK
10	4.03	12.0	245	49	1.87	0:25	5:49	122.83	74.4	50.29	225	0.68	0.0	B OK
11	1.04	20.0	111	180	1.17	0:08	6:56	113.92	82.5	94.86	300	1.15	12.4	I Surcharged
12	6.01	75.0	926	81	1.75	0:56	5:13	128.44	123.4	170.18	300	1.38	46.7	B Surcharged
13	1.05	65.0	217	300	1.17	0:42	7:52	107.57	185.5	232.11	450	1.25	46.6	I Surcharged
14	7.01	75.0	1136	66	1.61	0:34	5:17	127.85	64.0	94.11	225	1.47	30.1	B Surcharged
15	8.01	75.0	1136	66	1.61	0:34	5:17	127.85	64.0	108.22	225	1.69	44.2	B Surcharged
16	1.06	40.0	111	360	1.28	0:21	8:23	104.37	360.7	390.36	600	1.08	29.7	I Surcharged
17	9.01	15.0	62	240	1.31	0:29	4:41	133.84	207.7	369.44	450	1.78	161.7	B Surcharged
18	9.02	30.0	125	240	1.31	0:58	5:04	129.84	207.7	373.34	450	1.80	165.6	B Surcharged
19	9.03	20.0	83	240	1.31	0:19	5:20	127.33	207.7	366.13	450	1.76	158.4	B Surcharged
20	10.01	25.0	417	60	1.30	0:15	4:49	132.45	23.0	15.23	150	0.66	0.0	S OK
21	9.04	25.0	893	28	1.91	0:06	5:33	125.28	33.7	0.00	150	0.00	0.0	I OK
22	1.07	10.0	28	360	1.47	0:49	5:40	124.24	648.1	836.24	750	1.29	188.1	I Surcharged



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Project Crown Estates
Title Surcharge calcs (30 yrs storm) for COLLEGE.SW

Data summary for printout

Total flow rate (l/s) = 836.24
 Final rainfall rate (mm/hr) = 124.0
 Time of concentration (mins) = 5.66
 Outfall diameter (mm) = 750
 Percentage runoff factor = 71.36

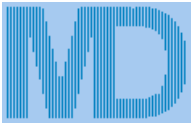
Summary Sheet

The following sections are likely to be surcharged after 5.66 minutes from the commencement of rainfall :-"
 4.01, 1.04,

Rainfall intensity used was 124.00 mm/hr.

Note - flow rates marked * are restricted by a flow restrictor if flow rate exceeds restriction rate

There are multiple cover levels with the same height - please check levels



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Project **Crown Estates**
Title **Surcharge calcs (30 yrs storm) for COLLEGE.SW**

Surcharge summary for 15, 30, 45 and 60 minute intensities.

System subjected to a 15 minute intensity (76 mm/hr) with the following results:-

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
		M	mm		M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	
7	4.01	32.0	267	120	0.91	35.0	5.08	124.00	16.16	19.10	150	1.13	2.1	B
11	1.04	20.0	111	180	1.17	17.1	6.93	124.00	82.47	94.86	300	1.17	13.9	I

Long surcharged sections required at 15 minutes intensity (76 mm/hr) for the following runs:-
4, 1,

System subjected to a 30 minute intensity (49 mm/hr) with the following results:-

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
		M	mm		M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	
7	4.01	32.0	267	120	0.91	35.0	5.08	124.00	16.16	19.10	150	1.13	2.1	B
11	1.04	20.0	111	180	1.17	17.1	6.93	124.00	82.47	94.86	300	1.17	13.9	I

Long surcharged sections required at 30 minutes intensity (49 mm/hr) for the following runs:-
4, 1,

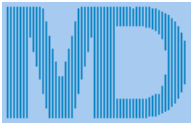
System subjected to a 45 minute intensity (37 mm/hr) with the following results:-

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
		M	mm		M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	
7	4.01	32.0	267	120	0.91	35.0	5.08	124.00	16.16	19.10	150	1.13	2.1	B
11	1.04	20.0	111	180	1.17	17.1	6.93	124.00	82.47	94.86	300	1.17	13.9	I

Long surcharged sections required at 45 minutes intensity (37 mm/hr) for the following runs:-
4, 1,

System subjected to a 60 minute intensity (31 mm/hr) with the following results:-

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
		M	mm		M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	
7	4.01	32.0	267	120	0.91	35.0	5.08	124.00	16.16	19.10	150	1.13	2.1	B
11	1.04	20.0	111	180	1.17	17.1	6.93	124.00	82.47	94.86	300	1.17	13.9	I



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Title Surcharge calcs (30 yrs storm) for COLLEGE.SW

Surcharge summary for 15, 30, 45 and 60 minute intensities (continued).

Entry No.	SECT. NO.	LENGTH	FALL	GRAD	VEL.	TIME	TIME OF	RATE OF	PIPE	RATE	PIPE	SURCHARGE	REF	COMMENTS
:	:	:	:	1 in	:	FLOW	CONC.	RAINFALL	FLOW FULL	FLOW	DIAM	:	:	:
:	M	mm	:	M/S	secs	min.	mm/Hr	l/s	l/s	mm	fract.	l/s	:	:

Long surcharged sections required at 60 minutes intensity (31 mm/hr) for the following runs:-
4, 1,