

13. APPENDIX G - LEVEL AND GRADIENT CHECK

Drainage changes from DOC to As Built.													
SW MH	As built level	DOC Level	Difference	Length	Upstream level (m)	Downstream level (m)	Outlet Pipe diameter (mm)	Downstream Pipe diameter (mm)	Invert level difference (Pipes laid soffit to soffit) (m)	Gradient 1 in x	Hydrock as-built Gradient 1 in x	Discrepancy on Hydrock As-built drawings / notes	
Main Carrier Drain													
SW 1000	0.967	0.945	22mm	65.781	0.967	0.831	450	450	0.000	484	400		Yes
SW 1001	0.831	0.830	1mm	47.640	0.831	0.682	450	450	0.000	320	400		Yes
SW 1002	0.682	0.680	2mm	74.050	0.682	0.517	450	450	0.000	449	400		Yes
SW 1003	0.517	0.500	17mm	78.835	0.517	0.313	450	450	0.000	386	400		Yes
SW 1004	0.313	0.295	18mm	16.598	0.313	0.262	450	450	0.000	325	400		Yes
SW 1005	0.262	0.265	3mm	8.325	0.262	0.251	450	450	0.000	757	400		Yes
Outfall 1	0.251	0.250	1mm										
Unit 2													
SW 200	1.813	1.820	7mm	43.259	1.813	1.442	450	450	0.000	117	450		Yes
SW 201a	1.442	1.460	18mm	48.783	1.442	1.076	450	450	0.000	133	450		Yes
SW 201	1.076	1.055	21mm	13.746	1.076	0.953	450	450	0.000	112	450		Yes
SW 202	0.953	0.935	18mm	12.393	0.953	0.810	450	450	0.000	87	450		Yes
SW 203	0.810	0.795	15mm	12.904	0.810	0.745	450	450	0.000	199	450		Yes
SW 204	0.745	0.730	15mm	71.041	0.745	0.567	450	450	0.000	399	400		No
SW 205a	0.567	0.550	17mm	5.939	0.567	0.501	450	300	0mm Laid invert level to invert level	90	400		n/a
SW 206	1.716	1.725	9mm	71.682	1.716	0.995	225	225	0.000	99	100		No
SW 207	0.995	0.975	20mm	11.276	0.995	0.539	225	225	0.000	25	40		Yes
SW 209	0.539	0.520	19mm	15.075	0.539	0.501	450	300	0mm Laid invert level to invert level	397		Note manhole position and upstream pipes not aligning properly on drawing	
SW 210	1.432	1.450	18mm	60.744	1.432	0.836	300	300	0.000	102	100		No
SW 211	0.836	0.850	14mm	14.418	0.836	0.716	300	300	0.000	120	100		Yes
SW 212	0.716	0.730	14mm	9.500	0.716	0.531	300	300	0.000	51	100		Yes
SW 211a	1.236	1.250	14mm	23.089	1.236	1.076	225	450	0mm Laid invert level to invert level	144	Not shown	Note this chamber is not shown on Hydrock Drawing	
SW 213	0.531	0.525	6mm	42.195	0.531	0.539	450	450	0.000	-5274	Tank	minor fall of 8mm in the wrong direction. Proportion of attenuation tank will have max 8mm standing water. ADBLY to check levels.	
FC 201	0.501	0.485	16mm	12.390	0.501	0.313	300	450	0.150	326	300		Yes
Access Road													
SW 501	2.069	2.085	16mm	74.508	2.069	1.726	300	300	0.000	217	300		Yes
SW 502	1.726	1.710	16mm	65.940	1.726	1.222	300	450	0.150	186	300	Note Hydrock Access Road Drainage Layout drawing (SAL-HYD) PH1-ZZ-DR-C-7022 Phase 1) differs from ADBLY as built drawing. SMH-502a now removed. Hydrock to update	
SW 503	1.222	1.230	8mm	89.059	1.222	0.932	450	600	0.150	636	400		Yes
SW 504	0.932	0.850	82mm	9.526	0.932	0.903	600	600	0.000	328	380	Note ADBLY manhole reference incorrect, differs from Hydrock as built drawing	
SW 505	0.903	0.830	73mm	49.498	0.903	0.795	600	600	0.000	458	not shown	Note ADBLY manhole reference incorrect, differs from Hydrock as built drawing	
SW 505a	0.795	0.770	25mm	48.134	0.795	0.728	tank	tank	0.000	718	not shown		
SW 505b	0.728	0.715	13mm	59.343	0.728	0.625	tank	tank	0.000	576	not shown		
FC 501	0.625	0.640	15mm	25.914	0.625	0.431	600	225	0mm Laid invert level to invert level	134	125	Note ADBLY manhole reference incorrect, differs from Hydrock as built drawing	
SW 507	0.431	0.445	14mm	5.383	0.431	0.384	225	225	0.000	115	not shown		
Outfall 2	0.384	0.390	6mm										
SW 508	0.988	1.000	12mm	34.750	0.988	0.625	225	225	0.000	96	100		Yes
SW 509	0.827	0.800	27mm	10.209	0.827	0.625	225	225	0.000	51	150		Yes
SW 510	1.621	1.610	11mm	56.113	1.621	1.222	300	450	150.000	225	220		Yes
SW 511b	1.617	1.420	21mm	38.443	1.617	1.441	300	300	0.000	218	210		Yes
SW 511	1.441	1.605	12mm	29.192	1.441	0.932	300	600	300.000	139	110		Yes
Unit 9													
SW 401	1.691	1.700	9mm	10.365	1.691	1.659	225	450	225.000	323	200	not laid soffit to soffit. Pipe gradient sub-standard	
SW 402	1.659	1.650	9mm	14.610	1.659	1.552	450	450	0.000	137	200		Yes
SW 403	1.552	1.575	23mm	15.904	1.552	1.487	450	450	0.000	245	200		Yes
SW 404	1.487	1.495	8mm	17.558	1.487	1.393	450	450	0.000	187	200		Yes
SW 405	1.393	1.390	3mm	14.647	1.393	1.353	450	450	0.000	366	Tank		n/a
SW 406	1.353	1.380	27mm	8.979	1.353	1.312	450	450	0.000	219	400		Yes
SW 408	1.312	1.335	23mm	4.518	1.312	1.302	450	450	0.000	452	400		Yes
SW 407	1.681	1.700	9mm	24.977	1.681	1.312	450	450	0.000	68	200		Yes
SW 409	1.302	1.320	18mm	41.169	1.302	1.126	450	450	0.000	234	400		Yes
SW 410	1.126	1.130	4mm	17.223	1.126	1.083	450	450	0.000	401	400		No
SW 411	1.083	1.095	12mm	9.698	1.083	1.028	450	450	0.000	176	400		Yes
FC 401	1.028	1.075	47mm	7.592	1.028	0.967	300	450	0mm Laid invert level to invert level	124	150		Yes
SW 413	1.719	1.700	19mm	24.219	1.719	1.519	225	225	0.000	121	150		Yes
SW 414	1.519	1.510	8mm	39.201	1.519	1.126	225	450	225.000	233	200		Yes
SW 415	1.854	1.825	29mm	7.465	1.854	1.759	225	225	0.000	79	150		Yes
SW 416	1.759	1.755	4mm	31.897	1.759	1.666	225	225	0.000	343	150		Yes
SW 417	1.666	1.660	6mm	5.277	1.666	1.464	225	450	225.000	26	150		Yes
SW 418	1.464	1.460	4mm	45.292	1.464	1.353	450	450	0.000	408	tank		Yes
SW 420	1.942	1.915	27mm	29.464	1.942	1.731	225	225	0.000	140	150		Yes
SW 421	1.731	1.720	11mm	16.641	1.731	1.353	225	450	0mm Laid invert level to invert level	44	50		Yes
SW 423	1.942	1.965	23mm	13.320	1.942	1.659	225	450	225.000	230	150		Yes
SW 424	1.874	1.905	31mm	15.495	1.874	1.552	225	450	225.000	159	50		Yes
SW 425	1.841	1.870	29mm	22.852	1.841	1.487	225	450	225.000	177	60		Yes
Unit 1													
SW 900	1.657	1.657	0mm	24.370	1.657	1.205	450	450	0.000	54	300		Yes
SW 901	1.205	1.210	5mm	102.606	1.205	0.887	450	450	0.000	323	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 902	0.887	0.880	7mm	115.788	0.887	0.479	450	450	0.000	284	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 903	0.479	0.485	6mm	66.351	0.479	0.271	450	450	0.000	319	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 904	0.271	0.265	6mm	19.234	0.271	0.225	450	450	0.000	418	300		Yes
SW 905	0.225	0.230	5mm	2.460	0.225	0.205	450	450	0.000	123	300		Yes
Outfall 3	0.205	0.205	0mm		0.205		450		-450.000				

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SW 1001	0.831	0.830	1mm	47.640	0.831	0.682	450	450	0.000	320	400		Yes
SW 1002	0.682	0.680	2mm	74.050	0.682	0.517	450	450	0.000	449	400		Yes
SW 1003	0.517	0.500	17mm	78.835	0.517	0.313	450	450	0.000	386	400		Yes
SW 1004	0.313	0.295	18mm	16.598	0.313	0.262	450	450	0.000	325	400		Yes
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SW 505b	0.728	0.715	13mm	59.343	0.728	0.625	tank	tank	0.000	576	not shown		
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Outfall 2	0.384	0.390	6mm										
SW 508	0.988	1.000	12mm	34.750	0.988	0.625	225	225	0.000	96	100		Yes
SW 509	0.827	0.800	27mm	10.209	0.827	0.625	225	225	0.000	51	150		Yes
SW 510	1.621	1.610	11mm	56.113	1.621	1.222	300	450	150.000	225	220		Yes
SW 511b	1.617	1.420	21mm	38.443	1.617	1.441	300	300	0.000	218	210		Yes
SW 511	1.441	1.605	12mm	29.192	1.441	0.932	300	600	300.000	139	110		Yes
Unit 9													
SW 401	1.691	1.700	9mm	10.365	1.691	1.659	225	450	225.000	323	200	not laid soffit to soffit. Pipe gradient sub-standard	
SW 402	1.659	1.650	9mm	14.610	1.659	1.552	450	450	0.000	137	200		Yes
SW 403	1.552	1.575	23mm	15.904	1.552	1.487	450	450	0.000	245	200		Yes
SW 404	1.487	1.495	8mm	17.558	1.487	1.393	450	450	0.000	187	200		Yes
SW 405	1.393	1.390	3mm	14.647	1.393	1.353	450	450	0.000	366	Tank		n/a
SW 406	1.353	1.380	27mm	8.979	1.353	1.312	450	450	0.000	219	400		Yes
SW 408	1.312	1.335	23mm	4.518	1.312	1.302	450	450	0.000	452	400		Yes
SW 407	1.681	1.700	9mm	24.977	1.681	1.312	450	450	0.000	68	200		Yes
SW 409	1.302	1.320	18mm	41.169	1.302	1.126	450	450	0.000	234	400		Yes
SW 410	1.126	1.130	4mm	17.223	1.126	1.083	450	450	0.000	401	400		No
SW 411	1.083	1.095	12mm	9.698	1.083	1.028	450	450	0.000	176	400		Yes
FC 401	1.028	1.075	47mm	7.592	1.028	0.967	300	450	0mm Laid invert level to invert level	124	150		Yes
SW 413	1.719	1.700	19mm	24.219	1.719	1.519	225	225	0.000	121	150		Yes
SW 414	1.519	1.510	8mm	39.201	1.519	1.126	225	450	225.000	233	200		Yes
SW 415	1.854	1.825	29mm	7.465	1.854	1.759	225	225	0.000	79	150		Yes
SW 416	1.759	1.755	4mm	31.897	1.759	1.666	225	225	0.000	343	150		Yes
SW 417	1.666	1.660	6mm	5.277	1.666	1.464	225	450	225.000	26	150		Yes
SW 418	1.464	1.460	4mm	45.292	1.464	1.353	450	450	0.000	408	tank		Yes
SW 420	1.942	1.915	27mm	29.464	1.942	1.731	225	225	0.000	140	150		Yes
SW 421	1.731	1.720	11mm	16.641	1.731	1.353	225	450	0mm Laid invert level to invert level	44	50		Yes
SW 423	1.942	1.965	23mm	13.320	1.942	1.659	225	450	225.000	230	150		Yes
SW 424	1.874	1.905	31mm	15.495	1.874	1.552	225	450	225.000	159	50		Yes
SW 425	1.841	1.870	29mm	22.852	1.841	1.487	225	450	225.000	177	60		Yes
Unit 1													
SW 900	1.657	1.657	0mm	24.370	1.657	1.205	450	450	0.000	54	300		Yes
SW 901	1.205	1.210	5mm	102.606	1.205	0.887	450	450	0.000	323	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 902	0.887	0.880	7mm	115.788	0.887	0.479	450	450	0.000	284	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 903	0.479	0.485	6mm	66.351	0.479	0.271	450	450	0.000	319	300	Length of run excessive. Future maintenance to allow for entry from both downstream and upstream ends	
SW 904	0.271	0.265	6mm	19.234	0.271	0.225	450	450	0.000	418	300		Yes
SW 905	0.225	0.230	5mm	2.460	0.225	0.205	450	450	0.000	123	300		Yes
Outfall 3	0.205	0.205	0mm		0.205		450		-450.000				