Drainage Maintenance & Management Manual

Phase 1a & 1b, Hoplands Farm, Hersden, Canterbury, Kent

Client

Redrow Homes South East
Prince Regent House
Quayside
Chatham, Kent
ME4 4QZ
7178/2.3B
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Schedule of Appendices

Issue	Issue date	Compiled	Checked
Initial Issue	05 September 2018	DS	MR
Rev A	07 November 2018	DS	MR
Rev B	04 January 2019	DS	MR
Rev B	17 April 2019	DS	MR

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Checked by: Martin Roberts IEng, ACIWEM, MCIHT

1 Introduction

1.1 This report has been prepared for Redrow Homes South East in relation to a development at Phase 1a & 1b, Hoplands Farm, Hersden, Canterbury, Kent. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

1.2 GTA Civils Ltd. was appointed by the client to provide a Drainage Maintenance & Management Manual (DMMM) as requested by Kent County Council, Sustainable Drainage Team, Flood & Water Management.

2 Existing and Proposed Site

2.1 Existing: the pre-development site was unoccupied agricultural land.

2.2 Proposal: development of the site to provide 176 new dwellings.

2.3 Drainage design: the site main drainage drawings for the development, by GTA Civils Ltd, are included in Appendix A. These drawings indicate that the proposed drainage is by way of gravity systems, with foul water connecting to existing public foul sewers which cross the site and surface water connecting to proposed attenuation ponds with restricted discharges to the existing watercourse network in the south east corner of the site by way of new discharge swales, the maintenance requirements of which are explained in this report. Due to the nature of the existing subsoils, infiltration techniques are not appropriate for this site.

2.4 Drainage, Site Outfall: the existing ditches fall towards the south eastern corner of the development site and convey surface water to the Stour catchment to the south of the railway line. The River Stour IDB have no objections for the proposed discharge of surface water. Surface Water is conveyed to the Stour catchment via an existing culvert beneath the railway line which is in the ownership and maintenance regime of Network Rail, checked and cleared bi-annually. There is a Basic Asset Protection Agreement in place between Network Rail and Redrow Homes.

3 Maintenance Schedule

3.1 The timescales for the installation for the on-site drainage is dependent on planning, however this will commence as soon as the planning permission is granted in February and the works will take 4-5 months as part of the main infrastructure package.

3.2 The following sections detail the main drainage items used within the scheme and details the maintenance requirements for each item.

3.3 To ensure ongoing compliance with the requirements of the maintenance schedule, an Estate Management Company will be set up by the Client to administer the site wide infrastructure including all the private drainage items listed in the schedule below and will undertake the inspections and maintenance activities in accordance with the schedules below.

3.4 The main sewers are technically approved for adoption by Southern Water who will be responsible for their maintenance on completion – confirmation of technical approval is contained in Appendix B. This excludes the attenuation ponds and swales which will be maintained by the Management Company in accordance with the schedules below. Reference should be made to the Section 104 Agreement Plans which highlights the drainage items to be adopted by Southern Water coloured as appropriate for the agreement.

3.5 The main access roads and road gullies are to be offered for adoption by Kent County Council who will be responsible for their maintenance on completion. Reference should be made to the Section 38 Agreement Plans which highlights the drainage items to be adopted by Kent County Council coloured as appropriate for the agreement.

3.6 The Estate Management Company will seek financial contributions (in the form of service charges), at regular intervals, from the leaseholders/owners of the development to include for the regular costs of the maintenance of the site drainage. A separate sinking fund will be maintained to provide for the anticipated replacement cost of the major components at the end of the manufacturer's design life. These funds are to be held in bank client accounts kept separate from the bank account of the Estate Management Company

4 Drains, Manholes, Gullies, Channel Drains

4.1 Regular inspection and maintenance is required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.

4.2 Prior to construction: a CCTV survey to be carried out on all receiving existing public sewer systems prior to connection with adopted sewers.

4.3 Post Completion: a CCTV survey to be carried out on all new and retained existing drainage systems and any downstream receiving systems, prior to connection with adopted sewers.

4.4 The report will be used to prove the integrity of the as-built drainage system prior to issue of practical completion certificate and will be handed over to the Client & Management Company for future reference.

4.5 Ongoing maintenance responsibility for all sewers are by Southern Water and adoptable road gullies by Kent County Council as shown coloured on the main drainage drawings. All other private gullies and drainage marked black on main drainage layouts are private and to be maintained by management company in shared areas and homeowner within conveyed land. Operation and maintenance requirements for all sewers manholes, gullies and channel drains are described in the following table:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	6 Monthly intervals.
	Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems.	Monthly.
	Debris removal from gullies & channel drains (where may cause risks to performance).	6 Monthly intervals, after autumn leaf fall, or as required based on specific

	Lift and inspect receiving manholes to check for any blockages.	observations. Monthly.
Remedial Actions	Repair any damaged gully or channel drain gratings. Replace / fix any loose channel drain covers.	As required. As required.
Monitoring	Carry out full CCTV survey to confirm ongoing integrity of all drains. Inspect all gullies and silt pits & drainage channels during the survey.	10-yearly intervals.

4.6 Where appropriate refer also to specialist drainage channel drain manufacturer's information and maintenance requirements.

4.7 In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in `Safe Working in Sewers and at Sewage Works' published by National Joint Health and Safety Committee for the Water Services.

5 Attenuation Ponds, Swales and Control Chambers

5.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass.	Monthly (during growing season),
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect permanent water depth for silt accumulation. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
	Remove build-up of silt accumulation from permanent water depth. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly
		As required.

	Remove and dispose of oils or petrol residues using safe standard practices	
Control Chambers and Hydrobrakes	Check hydrobrake orifices are clear and retention tank door is closed. Check function of retention tank door and oil if necessary. Similarly, check outfalls and inlets of attenuation ponds to ensure pipes are clear and freeflowing.	First 2 years of occupation – Monthly Then annually

6 Contamination or Dilution of Spillage

6.1 In the event of a spillage it is the responsibility of the resident to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

6.2 Environment Agency – Emergency Contact Number

In the event of a spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is 0800 80 70 60 (Freephone 24hrs).

- End of Report -

Appendix A

Site Drainage Layouts

GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate, any discrepancies shall be notified to gta prior to works commencing.

2. Tender or billing drawings shall not be used for construction or the ordering of materials.

3. Do not scale. All dimensions and levels to be site confirmed.

4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements

5. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

6. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

ADOPTABLE MANHOLE SCHEDULE

LATERAL FOUL WATER CHAMBERS

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
FWMH1A	619945.114	161702.142	34.885	33.940	0.945	450mm# Plastic Type 3 (B.16)	A15
FWMH1B	619975.309	161720.272	35.000	33.860	1.140	450mm# Plastic Type 3 (B.16)	A15
FWMH4.1	619992.270	161679.025	35.075	33.985	1.090	450mm# Plastic Type 3 (B.16)	A15
FWMH4.2	619971.142	161650.423	34.970	33.770	1.200	450mm# Plastic Type 3 (B.16)	A15
FWMH4.3	619990.485	161662.033	34.965	33.485	1.480	450mm# Plastic Type 3 (B.16)	A15
FWMH6.1	620024.030	161650.751	35.100	33.772	1.328	450mm# Plastic Type 3 (B.16)	A15
FWMH7.1	620024.898	161703.764	35.005	33.828	1.177	450mm# PCC Type 3 (B.18)	B125
FWMH7.2	620026.565	161680.867	35.195	33.541	1.654	450mm# Plastic Type 3 (B.16)	A15
FWMH9.1	619994.188	161613.599	35.095	33.795	1.300	450mm# PCC Type 3 (B.18)	B125
FWMH9.2	620005.580	161620.807	35.095	33.455	1.640	450mm# PCC Type 3 (B.18)	B125
FWMH10.1	620001.968	161603.798	34.550	33.500	1.050	450mm# Plastic Type 3 (B.16)	A15
FWMH11.1	620067.956	161641.439	33.900	33.146	0.754	450mm# PCC Type 3 (B.18)	B125
FWMH11.2	620044.382	161633.506	34.395	32.835	1.560	450mm# Plastic Type 3 (B.16)	A15
FWMH12.1	620040.370	161604.778	34.450	33.385	1.065	450mm# Plastic Type 3 (B.16)	A15
FWMH14.1	620034.006	161569.584	34.050	32.985	1.065	450mm# Plastic Type 3 (B.16)	A15
FWMH29.1	620054.384	161711.640	34.910	33.420	1.490	450mm# Plastic Type 3 (B.16)	A15
FWMH30.1	620067.802	161709.416	34.845	33.530	1.315	450mm# Plastic Type 3 (B.16)	A15
FWMH33.1	620114.517	161693.126	34.720	33.300	1.420	450mm# Plastic Type 3 (B.16)	A15
FWMH36.1	620200.930	161661.186	33.125	31.030	2.095	450mm# Plastic Type 3 (B.16)	A15
FWMH37.1	620112.556	161659.865	34.170	33.240	0.930	450mm# Plastic Type 3 (B.16)	A15
FWMH51.1	620192.449	161648.219	33.325	32.310	1.015	450mm# Plastic Type 3 (B.16)	A15
FWMH53.1	620268.080	161661.884	31.213	30.260	0.953	450mm# PCC Type 3 (B.18)	D400

STREET LIGHTING SPECIFICATION

1. THE LIGHTING DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH BS5489_2015 TO PROVIDE INDICATIVE COLUMN POSITIONS. FOR TRANSPARENCY AND THE AVOIDANCE OF DOUBT DRAWING No. ASD-SL-170077 IS NOT TO BE USED AS CONSTRUCTION DRAWING AS A SITE SURVEY HAS NOT BEEN CARRIED OUT IN ACCORDANCE WITH CDM 2015 AND HEA GUIDELINES. THEREFORE THE RESPONSIBILITIES OF ELIMINATING AND REDUCING RISK WILL NEED TO MITIGATED BY A COMPETENT PRINCIPLE DESIGNER.

2. ALL LANTERNS TO BE MOUNTED AT 0 DEGREES TILT UNLESS OTHERWISE SPECIFIED. IF A BRACKET ARM AS BEEN UTILISED THE APPOINTED CONTRACTOR WILL BE RESPONSIBLE FOR THE OVERALL TILT ANGLES.

3. COLUMN NUMBERING TO BE CONFIRMED BY THE LOCAL AUTHORITY/CONTRACTOR BEFORE WORKS COMMENCEMENT.

4. 6M LIGHTING COLUMN TO SPECIFICATION WITH 4K POST TOP MOUNTED HWD4KLED1250-S4 : ASD HIGHWAY DIAMOND OYSTER 400K AUTO DISCONNECT 12 LED 500mA CLO 7PIN NEMA SOCKET S4 OPTIC 1P66 MOUNTED AT 0 DEGREES TILT UNLESS OTHERWISE STATED. LANTERNS TO BE CONTROLLED IN LINE WITH THE SPECIFICATION.

Grid 1 (Phase 1a)
Results - Horizontal Illuminance (lux)
Eav = 5.56
Emin = 0.79
Emax = 17.29
Emin/Emax = 0.05
Emin/Eav = 0.14

MAIN FOUL WATER MANHOLES

PHASE 1a NETWORK TO EXISTING FW MH 0601

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
FWMH1	619969.643	161716.870	35.060	33.582	1.478	450mm# PCC Type 3 (B.18)	D400
FWMH2	619973.673	161710.158	35.140	33.484	1.656	450mm# PCC Type 3 (B.18)	D400
FWMH3A	619976.746	161675.935	34.960	33.054	1.906	450mm# PCC Type 3 (B.18)	D400
FWMH3	619980.975	161669.288	34.850	32.955	1.895	450mm# PCC Type 3 (B.18)	D400
FWMH4	619993.028	161670.343	34.725	32.165	2.560	1200mm# PCC Type 2	D400
FWMH5	620035.445	161653.050	34.605	33.250	1.355	450mm# PCC Type 3 (B.18)	D400
FWMH7	620035.403	161674.042	34.890	31.881	3.009	1200mm# PCC Type 2	D400
						+ BD IL33.400 ON LATERAL	
FWMH8	620041.778	161674.055	35.000	31.838	3.162	1200mm# PCC Type 1	B125

PHASE 1a NETWORK TO EXISTING FW MH 1401

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
FWMH9	620014.873	161619.538	34.700	33.285	1.415	450mm# PCC Type 3 (B.18)	D400
FWMH10	620032.250	161626.267	34.470	33.052	1.418	450mm# PCC Type 3 (B.18)	D400
FWMH11	620040.465	161630.024	34.315	32.769	1.546	450mm# PCC Type 3 (B.18)	D400
FWMH12	620050.495	161604.585	33.960	32.560	1.400	450mm# PCC Type 3 (B.18)	D400
FWMH13	620058.430	161587.602	33.485	31.220	2.265	1200mm# PCC Type 2	D400
FWMH13A	620059.341	161582.005	33.300	31.182	2.118	1200mm# PCC Type 2	D400
FWMH14	620047.082	161573.076	33.565	31.080	2.485	450mm# Plastic Type 3 (B.16)	A15
FWMH15	620083.175	161563.185	32.570	31.370	1.200	450mm# Plastic Type 3 (B.16)	A15
FWMH16	620106.066	161559.937	32.070	30.870	1.200	450mm# Plastic Type 3 (B.16)	A15
FWMH17	620124.769	161567.360	32.290	30.618	1.672	1200mm# PCC Type 2	B125
FWMH20	620097.674	161490.174	28.250	26.860	1.390	450mm# Plastic Type 3 (B.16)	A15

PHASE 1a NETWORK TO EXISTING FWMH 1501

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
FWMHA	620106.057	161607.703	33.345	32.315	1.030	450mm# PCC Type 3 (B.18)	D400

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
FWMH21	620050.848	161752.593	34.620	33.365	1.255	450mm# Plastic Type 3 (B.16)	A15
FWMH22	620054.437	161761.933	34.400	33.235	1.165	450mm# Plastic Type 3 (B.16)	A15
FWMH23	620071.618	161776.375	34.550	32.955	1.595	450mm# Plastic Type 3 (B.16)	A15
FWMH24	620089.775	161778.846	34.525	32.725	1.800	450mm# Plastic Type 3 (B.16)	A15
FWMH24	620111.446	161772.281	34.210	32.440	1.770	450mm# PCC Type 3 (B.18)	D400
FWMH25	620146.744	161786.231	34.150	33.145	1.005	450mm# Plastic Type 3 (B.16)	A15
FWMH25A	620135.822	161774.074	34.150	32.940	1.210	450mm# Plastic Type 3 (B.16)	A15
FWMH25B	620129.584	161770.700	33.950	32.850	1.100	450mm# Plastic Type 3 (B.16)	A15
FWMH26	620123.934	161771.657	34.005	32.778	1.227	450mm# Plastic Type 3 (B.18)	D400
FWMH27	620118.086	161766.405	34.090	31.982	2.108	1200mm# PCC Type 2	D400
FWMH28	620103.309	161746.495	34.400	31.816	2.584	1200mm# PCC Type 2	D400
FWMH28A	620095.902	161730.118	34.630	31.696	2.934	1200mm# PCC Type 2	D400
FWMH29	620053.246	161704.407	34.730	33.310	1.420	450mm# PCC Type 3 (B.18)	D400
FWMH30	620065.642	161702.457	34.550	33.150	1.400	450mm# PCC Type 3 (B.18)	D400
FWMH31	620083.243	161695.939	34.320	31.453	2.867	1200mm# PCC Type 2	D400
FWMH32	620099.052	161690.083	34.240	31.340	2.900	1200mm# PCC Type 2	D400
FWMH33	620116.222	161685.603	34.450	31.221	3.229	1200mm# PCC Type 2	D400
FWMH34	620132.419	161687.822	34.550	31.112	3.438	1200mm# PCC Type 2	D400
FWMH35A	620158.510	161711.844	34.175	32.735	1.440	450mm# PCC Type 3 (B.18)	D400
FWMH35	620147.405	161696.604	34.400	30.996	3.404	1200mm# PCC Type 2	D400
FWMH36	620188.532	161660.218	33.105	30.629	2.476	1200mm# PCC Type 2	D400
FWMH37	620130.703	161643.801	33.900	32.634	1.266	450mm# Plastic Type 3 (B.16)	A15
FWMH38	620133.416	161633.238	33.640	32.290	1.350	450mm# PCC Type 3 (B.18)	D400
FWMH39	620141.031	161626.850	33.505	32.155	1.350	450mm# PCC Type 3 (B.18)	D400
FWMH40	620154.173	161621.383	33.260	30.283	2.977	1200mm# PCC Type 2	D400
						+ BD IL 31.780 FROM PN10.002	
FWMH41	620172.113	161605.511	32.660	30.123	2.537	1200mm# PCC Type 2	D400
FWMH42	620172.144	161797.554	33.925	32.525	1.400	450mm# PCC Type 3 (B.18)	B125
FWMH43	620192.196	161783.968	33.750	32.153	1.597	450mm# Plastic Type 3 (B.16)	A15
FWMH44	620176.257	161736.207	33.800	32.450	1.350	450mm# PCC Type 3 (B.18)	D400
FWMH45	620207.750	161769.057	33.505	31.883	1.622	450mm# PCC Type 3 (B.18)	D400
FWMH46	620215.092	161762.018	33.655	31.755	1.900	450mm# Plastic Type 3 (B.16)	A15
FWMH47	620226.539	161719.037	32.600	31.149	1.451	450mm# Plastic Type 3 (B.16)	A15
FWMH48	620255.513	161693.105	31.500	30.372	1.128	450mm# PCC Type 3 (B.18)	D400
FWMH49	620242.105	161670.562	31.875	30.041	1.834	1200mm# PCC Type 2	D400
FWMH50	620231.199	161653.661	32.125	29.906	2.219	1200mm# PCC Type 2	D400
FWMH51	620210.258	161642.075	32.370	29.746	2.624	1200mm# PCC Type 2	D400
FWMH52	620216.299	161624.183	31.790	29.620	2.170	1200mm# PCC Type 2	D400
FWMH53	620276.960	161655.379	31.200	30.079	1.121	450mm# Plastic Type 3 (B.16)	A15
FWMH54	620289.640	161632.504	30.800	29.750	1.050	450mm# Plastic Type 3 (B.16)	A15
FWMH55	620264.619	161604.546	30.425	29.075	1.350	450mm# PCC Type 3 (B.18)	D400
FWMH56	620242.738	161600.518	30.530	28.796	1.734	450mm# PCC Type 3 (B.18)	D400
FWMH57	620235.260	161595.049	30.650	28.630	2.020	1200mm# PCC Type 2	D400
FWMH58	620226.272	161579.298	30.735	28.509	2.226	1200mm# PCC Type 2	D400
FWMH59	620180.409	161553.875	30.600	28.169	2.431	1200mm# PCC Type 2	B125

MAIN SURFACE WATER MANHOLES

PHASE 1a NETWORK

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
SWMH1	619941.645	161705.859	34.845	33.070	1.775	1200mm# PCC Type 2	D400
SWMH2	619957.927	161719.580	35.130	32.944	2.186	1200mm# PCC Type 2	D400
SWMH3	619978.500	161726.294	34.940	33.240	1.700	1200mm# PCC Type 2	D400
SWMH4	619969.214	161721.413	35.000	32.876	2.124	1200mm# PCC Type 2	D400
SWMH5	619974.994	161710.174	35.100	32.726	2.374	1200mm# PCC Type 2	D400
SWMH6	619979.436	161667.026	34.875	32.548	2.327	1200mm# PCC Type 2	D400
SWMH7	619998.475	161668.689	34.630	32.470	2.160	1200mm# PCC Type 2	D400
SWMH8	620029.588	161720.408	34.650	32.895	1.755	1200mm# PCC Type 2	D400
SWMH9	619945.549	161699.130	34.815	32.738	2.077	1200mm# PCC Type 2	D400
SWMH10	620035.380	161686.688	34.980	32.568	2.412	1200mm# PCC Type 2	D400
SWMH11	620032.352	161671.647	34.920	32.331	2.589	1200mm# PCC Type 2	D400
SWMH12	620067.720	161648.933	34.065	32.290	1.775	1200mm# PCC Type 2	D400
SWMH13	620057.020	161645.594	34.205	32.224	1.981	1200mm# PCC Type 2	D400
SWMH14	620036.075	161635.962	34.460	31.938	2.522	1350mm# PCC Type 2	D400
SWMH15	620009.782	161612.718	34.720	33.034	1.686	1200mm# PCC Type 2	D400
SWMH15A	620029.043	161624.291	34.500	32.753	1.747	450mm# PCC Type 3 (B.18)	D400
SWMH16	620039.153	161628.206	34.350	31.912	2.438	1350mm# PCC Type 2	D400
SWMH17	620049.186	161603.055	33.995	31.828	2.167	1350mm# PCC Type 2	D400
SWMH19A	620056.904	161585.459	33.500	31.768	1.732	1350mm# PCC Type 2	D400
SWMH18	620042.964	161566.763	33.600	32.200	1.400	450mm# PCC Type 3 (B.18)	D400
SWMH19	620057.877	161578.524	33.365	31.746	1.619	1350mm# PCC Type 2	D400
SWMH20	620066.120	161568.077	33.100	31.175	1.925	1350mm# PCC Type 2	D400
SWMH21	620086.868	161554.995	31.995	29.945	2.050	1350mm# PCC Type 2	D400
SWMH22	620112.552	161553.312	31.700	29.650	2.050	1350mm# PCC Type 2	D400
SWMH23	620123.050	161560.925	32.090	29.615	2.475	1350mm# PCC Type 2	D400
SWMH23A	620101.685	161633.065	33.950	32.319	1.631	450mm# Plastic Type 3 (B.16)	B125
SWMH23B	620126.320	161599.805	33.250	31.800	1.450	450mm# Plastic Type 3 (B.16)	B125
SWMH23C	620163.646	161549.410	31.200	28.035	3.165	1350mm# PCC Type 2	B125
SWMH24	620099.502	161782.628	34.420	33.129	2.291	450mm# PCC Type 3 (B.18)	D400
SWMH25	620134.526	161784.551	34.050	32.432	1.618	1200mm# PCC Type 2	D400
SWMH26	620120.879	161766.229	34.100	32.222	1.878	1200mm# PCC Type 2	D400
SWMH27	620107.525	161749.862	34.290	32.155	2.135	1200mm# PCC Type 2	D400
SWMH27A	620098.826	161733.936	34.540	32.060	2.480	1200mm# PCC Type 2	D400
SWMH28	620063.689	161701.147	34.530	32.830	1.700	1200mm# PCC Type 2	D400
SWMH29	620083.836	161693.466	34.240	31.883	2.357	1200mm# PCC Type 2	D400
SWMH30	620102.983	161686.166	34.230	31.799	2.431	1200mm# PCC Type 2	D400
SWMH31	620123.768	161683.558	34.465	31.713	2.752	1200mm# PCC Type 2	D400
SWMH32	620143.415	161690.822	34.430	31.627	2.803	1200mm# PCC Type 2	D400
SWMH33	620185.248	161797.844	33.845	32.145	1.700	1200mm# PCC Type 2	D400
SWMH34	620209.625	161768.182	33.465	31.415	2.050	1200mm# PCC Type 2	D400
SWMH35	620185.734	161744.418	33.600	31.216	2.384	1200mm# PCC Type 2	D400
SWMH36	620166.845	161718.495	33.980	30.815	3.165	1200mm# PCC Type 2	D400
SWMH37	620150.857	161696.553	34.305	30.325	3.980	1350mm# PCC Type 2	D400
SWMH38	620201.725	161651.494	32.575	30.047	2.528	1200mm# PCC Type 2	D400
SWMH39	620262.854	161677.483	31.400	29.356	2.044	1200mm# PCC Type 2	D400
SWMH40	620251.502	161683.538	31.625	29.280	2.345	1200mm# PCC Type 2	D400
SWMH41	620236.579	161656.582	32.000	28.980	3.020	1200mm# PCC Type 2	D400
SWMH42	620225.593	161647.146	32.200	28.800	3.400	1200mm# PCC Type 2	D400
SWMH43	620212.394	161645.933	32.375	28.400	3.975	1350mm# PCC Type 2	D400
SWMH44	620213.124	161636.773	32.150	28.362	3.788	1350mm# PCC Type 2	D400
SWMH45	620216.779	161626.885	31.805	28.318	3.487	1350mm# PCC Type 2	D400
SWMH46	620237.760	161594.720	30.585	27.900	2.685	1350mm# PCC Type 2	D400
						+ BD 1L29.875 ON LATERAL	
SWMH47	620261.648	161597.370	30.475	28.775	1.700	1200mm# PCC TYPE 2	D400
SWMH48	620173.328	161644.057	33.805	32.105	1.700	1200mm# PCC Type 2	D400
SWMH49	620136.781	161628.239	33.540	31.521	2.019	1200mm# PCC Type 2	D400
SWMH50	620174.796	161642.399	33.415	31.640	1.775	1200mm# PCC Type 2	D400
SWMH51	620153.981	161618.872	33.180	31.330	1.850	1200mm# PCC Type 2	D400
SWMH52	620169.392	161604.461	32.625	30.775	1.850	1200mm# PCC Type 2	D400
SWMH53	620177.898	161551.708	30.600	27.494	3.106	1350mm# PCC Type 2	B125
SWMH54	620207.588	161556.494	29.000	27.262	1.738	1350mm# PCC Type 2	B125
SWMH55	620250.098	161580.058	28.935	26.813	2.122	1350mm# PCC Type 2	B125

LATERAL SURFACE WATER CHAMBERS

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
SWMH6.1	619971.468	161662.293	35.020	33.620	1.400	450mm# PCC Type 3 (B.18)	D400
SWMH7.1	619957.960	161674.585	34.840	34.065	0.775	450mm# PCC Type 3 (B.18)	B125
SWMH8.1	620022.132	161715.821	34.825	33.635	1.190	450mm# Plastic Type 3 (B.16)	A15
SWMH8.2	620044.065	161758.205	34.430	33.498	0.932	450mm# PCC Type 3 (B.18)	D400
SWMH8.3	620036.989	161738.714	34.690	33.238	1.452	450mm# PCC Type 3 (B.18)	D400
SWMH8.4	620036.700	161726.957	34.810	33.091	1.719	450mm# PCC Type 3 (B.18)	D400
SWMH10.1	620027.615	161688.251	35.250	34.050	1.200	450mm# Plastic Type 3 (B.16)	A15
SWMH23A.1	620094.428	161629.608	33.600	32.420	1.180	450mm# Plastic Type 3 (B.16)	A15
SWMH23B.1	620113.261	161601.465	33.300	32.450	0.850	450mm# Plastic Type 3 (B.16)	A15
SWMH23B.2	620117.271	161594.557	33.400	32.250	1.150	450mm# Plastic Type 3 (B.16)	A15
SWMH31.1	620120.081	161693.530	34.650	33.735	0.915	450mm# Plastic Type 3 (B.16)	A15
SWMH32.1	620147.565	161685.433	34.635	33.435	1.200	450mm# Plastic Type 3 (B.16)	A15
SWMH35.1	620178.424	161750.910	33.925	32.645	1.280	450mm# PCC Type 3 (B.18)	B125
SWMH36.1	620157.790	161725.442	34.300	33.195	1.105	450mm# Plastic Type 3 (B.16)	A15
SWMH36.2	620191.992	161697.905	33.675	31.750	1.925	450mm# PCC Type 3 (B.18)	D400
SWMH38.1	620204.602	161657.015	32.730	31.670	1.060	450mm# PCC Type 3 (B.18)	B125
SWMH39.1	620270.975	161657.363	31.103	29.703	1.400	450mm# PCC Type 3 (B.18)	D400
SWMH46.1	620199.022	161573.247	31.400	30.665	0.735	450mm# Plastic Type 3 (B.16)	A15

K	PLOTS 119 & 126 GARAGES MOVED OUT OF WATER MAIN EASEMENT - DRAINAGE ADJUSTED TO SUIT	12.04.19	DMS	ds
Q	POND REDESIGNED AS SINGLE POND AND RELOCATED TO SUIT S106 PLAN	11.03.19	DMS	ds
P	FOUL DRAINAGE TO PLOT 7-15 ADJUSTED TO CLIENT COMMENTS - FWMH7 & 8 ADJUSTED TO SUIT - FWMH5 REMOVED FROM ROAD	14.02.19	DMS	ds
N	LOCAL FOUL DRAINAGE ADJUSTED TO ACCORD WITH NHBC COMMENTS	07.02.19	DMS	ds
M	S278 WORKS UPDATED TO APPROVED DESIGN & ON-SITE TIE-IN ADJUSTED TO SUIT	24.01.19	DMS	ds
L	LOCAL FOUL DRAINAGE ADJUSTED TO ACCORD WITH NHBC COMMENTS	17.01.19	DMS	ds
K	EASTERN POND OUTLET PIPED TO SW BEYOND EXISTING PUBLIC FOUL SEWER	19.12.18	DMS	ds
J	MINOR ADJUSTMENTS AS SWS LETTER DATED 20.11.18	23.11.18	DMS	ds
H	RED LINE BOUNDARIES ADJUSTED AT TEMPORARY TURNING FACILITIES	22.11.18	DMS	ds
G	DISCLAIMER NOTE REMOVED	06.11.18	DMS	ds
F	EXISTING SURFACE WATER DIVERSION REMOVED AS SWS COMMENTS	31.10.18	DMS	ds
E	FULL TENDER ISSUE	25.09.18	DMS	MR
D	MAIN DRAINAGE UPDATED TO SUIT CURRENT SITE LAYOUT - STORAGE PONDS REDESIGNED IN ACCORDANCE WITH KCC SPECIFICATIONS	03.09.18	DMS	MR
C	DRAWING NUMBER UPDATED	18.08.18	DMS	MR
B	PLANNING CONDITIONS ISSUE	22.03.18	DMS	MR
A	PLANNING ISSUE	01.03.18	DMS	MR
-	EXISTING DRAINAGE ISSUE	09.02.18	DMS	MR
Rev.	Amendments	Date	Dsn	Chk

Status: PRELIMINARY

Client: REDROW HOMES

Project: PHASE 1a, HOPLANDS FARM HERSDEN, KENT

Title: ROAD & MAIN SEWER LAYOUT

Date	Scale @ A0
FEBRUARY 2018	1:500
Base Layout Ref.	CAD File ref.
Clients Ref.	Project Ref.
2665	7178

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Drawing Number: 2665-21-06-506 Rev. R

KEY

- Site Boundary
- Existing Foul Drainage
- Existing Surface Water Drainage
- Proposed Surface Water Drainage
- Proposed Foul Drainage
- Main Foul Sewer Manhole - Type 2
- Main Foul Sewer Manhole - Type 3
- Main Surface Water Manhole - Type 2
- Main Surface Water Manhole - Type 3
- Road Gully
- Direction of Fall
- Sewer Easement
- Street Nameplate
- Adoptable Lighting Column
- Adoptable 'Mid-Hinged' Lighting Column

GENERAL NOTES

1. ALL ADOPTABLE HIGHWAY CONSTRUCTION WORKS SHALL BE CARRIED OUT TO THE STANDARD LAID DOWN IN THE KENT COUNTY COUNCIL SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
2. ALL ADOPTABLE SEWERS AND SHALL BE CONSTRUCTED TO THE STANDARDS LAID DOWN IN "SEWERS FOR ADOPTION" 7th EDITION, AND SOUTHERN WATER SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
3. BEFORE CONNECTIONS ARE MADE TO EXISTING DRAINAGE, IT'S LEVEL IS TO BE CHECKED AND CONFIRMED AGAINST LEVELS SHOWN ON THIS DRAWING AND THIS OFFICE INFORMED OF ANY SIGNIFICANT DIFFERENCE. **NO CONNECTIONS ARE TO BE MADE TO THE EXISTING PUBLIC SEWERS PRIOR TO A S106 AGREEMENT WITH SOUTHERN WATER.**
4. ALL SEWERS WITH LESS THAN 1.2m OF COVER WHEN LAID BENEATH THE ROADS, OR 0.9m OF COVER IN OTHER AREAS, SHALL BE PROTECTED WITH CONCRETE IN ACCORDANCE WITH EITHER OF THE DETAILS SHOWN ON THE STANDARD DRAWING PROVIDED (FOR BEDDING TYPE LOCATIONS, REFER TO SEWER SECTIONS).
5. THE MINIMUM SIZE OF PIPE CONNECTING GULLIES TO THE DRAINAGE SYSTEM SHALL BE 150mm DIA. LAID AT A MINIMUM GRADIENT OF 1 IN 80.
6. IN ORDER TO MAINTAIN THE SATISFACTORY FUNCTIONING OF THE DRAINAGE SYSTEM, ALL ROAD AND YARD GULLIES ARE TO BE "TRAPPED".
7. ALL NON ADOPTABLE LATERALS BENEATH THE HIGHWAY SHALL BE BACKFILLED WITH LEAN MIX CONCRETE UNLESS OTHERWISE AGREED WITH THE HIGHWAYS ENGINEER.
8. THE DESIGN IS SUCH THAT WATER FROM PRIVATE AREAS DOES NOT SHED TO ADOPTABLE AREAS AND VICA VERSA.
9. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
10. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
11. IT IS THE SUBCONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE WITH CURRENT BUILDING REGULATIONS AND CODES OF PRACTICE.

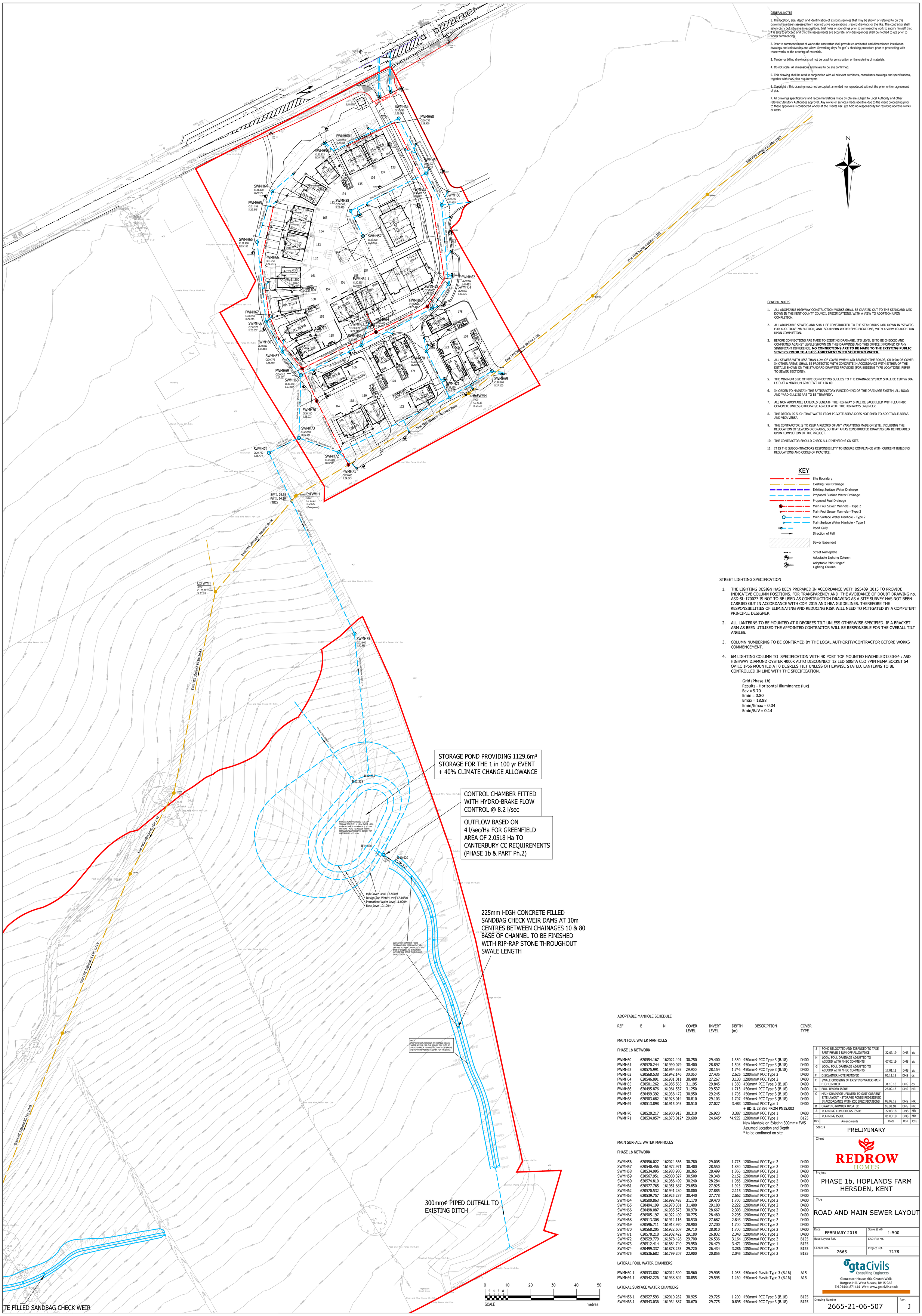
SCALE 0 2 4 6 8 10 20 30 40 50 metres

OUTFLOW BASED ON
4 l/sec/Ha FOR GREENFIELD
AREA OF 6.0978 Ha TO
CANTERBURY CC REQUIREMENTS

STORAGE POND PROVIDING 2335 m³
STORAGE FOR THE 1 in 100 yr EVENT + 40%
CLIMATE CHANGE ALLOWANCE
@ 24.4 l/sec OUTFLOW - POND TO INCLUDE
900mm PERMANENT WATER DEPTH

CONTROL CHAMBER FITTED
WITH HYDRO-BRAKE FLOW
CONTROL @ 24.4 l/sec 1.6m Head

225mm HIGH CONCRETE FILLED SANDBAG CHECK WEIR DAMS AT 10m CENTRES FROM CHAINAGE 10 & 40. BASE OF CHANNEL TO BE FINISHED WITH RIP-RAP STONE THROUGHOUT SWALE LENGTH



GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. any discrepancies shall be notified to gta prior to works commencing.

2. Prior to commencement of works the contractor shall provide co-ordinated and dimensioned installation drawings and calculations and allow 10 working days for gta`s checking procedure prior to proceeding with those works or the ordering of materials.

3. Tender or billing drawings shall not be used for construction or the ordering of materials.

4. Do not scale. All dimensions and levels to be site confirmed.

5. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements

6. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

7. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

GENERAL NOTES

1. ALL ADOPTABLE HIGHWAY CONSTRUCTION WORKS SHALL BE CARRIED OUT TO THE STANDARD LAID DOWN IN THE KENT COUNTY COUNCIL SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.

2. ALL ADOPTABLE SEWERS AND SHALL BE CONSTRUCTED TO THE STANDARDS LAID DOWN IN "SEWERS FOR ADOPTION" 7th EDITION, AND SOUTHERN WATER SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.

3. BEFORE CONNECTIONS ARE MADE TO EXISTING DRAINAGE, IT'S LEVEL IS TO BE CHECKED AND CONFIRMED AGAINST LEVELS SHOWN ON THIS DRAWINGS AND THIS OFFICE INFORMED OF ANY SIGNIFICANT DIFFERENCE. **NO CONNECTIONS ARE TO BE MADE TO THE EXISTING PUBLIC SEWERS PRIOR TO A S106 AGREEMENT WITH SOUTHERN WATER.**

4. ALL SEWERS WITH LESS THAN 1.2m OF COVER WHEN LAID BENEATH THE ROADS, OR 0.9m OF COVER IN OTHER AREAS, SHALL BE PROTECTED WITH CONCRETE IN ACCORDANCE WITH EITHER OF THE DETAILS SHOWN ON THE STANDARD DRAWING PROVIDED (FOR BEDDING TYPE LOCATIONS, REFER TO SEWER SECTIONS).

5. THE MINIMUM SIZE OF PIPE CONNECTING GULLIES TO THE DRAINAGE SYSTEM SHALL BE 150mm DIA. LAID AT A MINIMUM GRADIENT OF 1 IN 80.

6. IN ORDER TO MAINTAIN THE SATISFACTORY FUNCTIONING OF THE DRAINAGE SYSTEM, ALL ROAD AND YARD GULLIES ARE TO BE "TRAPPED".

7. ALL NON ADOPTABLE LATERALS BENEATH THE HIGHWAY SHALL BE BACKFILLED WITH LEAN MIX CONCRETE UNLESS OTHERWISE AGREED WITH THE HIGHWAYS ENGINEER.

8. THE DESIGN IS SUCH THAT WATER FROM PRIVATE AREAS DOES NOT SHED TO ADOPTABLE AREAS AND VICA VERSA.

9. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.

10. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.

11. IT IS THE SUBCONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE WITH CURRENT BUILDING REGULATIONS AND CODES OF PRACTICE.

KEY

- Site Boundary
- Existing Foul Drainage
- Existing Surface Water Drainage
- Proposed Surface Water Drainage
- Proposed Foul Drainage
- Main Foul Sewer Manhole - Type 2
- Main Foul Sewer Manhole - Type 3
- Main Surface Water Manhole - Type 2
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- RG Road Gully
- Direction of Fall
- Sewer Easement
- Street Nameplate
- Adoptable Lighting Column
- Adoptable 'Mid-Hinged' Lighting Column

STREET LIGHTING SPECIFICATION

1. THE LIGHTING DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH BS5489_2015 TO PROVIDE INDICATIVE COLUMN POSITIONS. FOR TRANSPARENCY AND THE AVOIDANCE OF DOUBT DRAWING no. ASD-SL-170077 IS NOT TO BE USED AS CONSTRUCTION DRAWING AS A SITE SURVEY HAS NOT BEEN CARRIED OUT IN ACCORDANCE WITH CDM 2015 AND HEA GUIDELINES. THEREFORE THE RESPONSIBILITIES OF ELIMINATING AND REDUCING RISK WILL NEED TO MITIGATED BY A COMPETENT PRINCIPLE DESIGNER.
2. ALL LANTERNS TO BE MOUNTED AT 0 DEGREES TILT UNLESS OTHERWISE SPECIFIED. IF A BRACKET ARM AS BEEN UTILISED THE APPOINTED CONTRACTOR WILL BE RESPONSIBLE FOR THE OVERALL TILT ANGLES.
3. COLUMN NUMBERING TO BE CONFIRMED BY THE LOCAL AUTHORITY/CONTRACTOR BEFORE WORKS COMMENCEMENT.
4. 6M LIGHTING COLUMN TO SPECIFICATION WITH 4K POST TOP MOUNTED HWD4KLED1250-S4 : ASD HIGHWAY DIAMOND OYSTER 4000K AUTO DISCONNECT 12 LED 500mA CLO 7PIN NEMA SOCKET S4 OPTIC 1P66 MOUNTED AT 0 DEGREES TILT UNLESS OTHERWISE STATED. LANTERNS TO BE CONTROLLED IN LINE WITH THE SPECIFICATION.

Grid (Phase 1b)
Results - Horizontal Illuminance (lux)
Eav = 5.70
Emin = 0.80
Emax = 18.88
Emin/Emax = 0.04
Emin/EaV = 0.14

ADOPTABLE MANHOLE SCHEDULE

REF	E	N	COVER LEVEL	INVERT LEVEL	DEPTH (m)	DESCRIPTION	COVER TYPE
MAIN FOUL WATER MANHOLES							
PHASE 1b NETWORK							
FWMH60	620554.167	162022.491	30.750	29.400	1.350	450mmø PCC Type 3 (B.18)	D400
FWMH61	620570.244	161990.079	30.400	28.897	1.503	450mmø PCC Type 3 (B.18)	D400
FWMH62	620575.991	161954.393	29.900	28.154	1.746	450mmø PCC Type 3 (B.18)	D400
FWMH63	620568.538	161942.146	30.060	27.435	2.625	1200mmø PCC Type 2	D400
FWMH64	620546.091	161931.011	30.400	27.267	3.133	1200mmø PCC Type 2	D400
FWMH65	620501.262	161985.565	31.195	29.845	1.350	450mmø PCC Type 3 (B.18)	D400
FWMH66	620495.876	161961.537	31.250	29.537	1.713	450mmø PCC Type 3 (B.18)	D400
FWMH67	620499.392	161938.472	30.950	29.245	1.705	450mmø PCC Type 3 (B.18)	D400
FWMH68	620503.682	161928.014	30.810	29.103	1.707	450mmø PCC Type 3 (B.18)	D400
FWMH69	620513.898	161915.043	30.510	27.027	3.483	1200mmø PCC Type 1 + BD IL 28.896 FROM PN15.003	D400
FWMH70	620520.217	161900.913	30.310	26.923	3.387	1200mmø PCC Type 1	D400
FWMH71	620534.057*	161873.012*	29.600	24.645*	*4.955	1200mmø PCC Type 1 New Manhole on Existing 300mmø FWS Assumed Location and Depth * to be confirmed on site	B125
MAIN SURFACE WATER MANHOLES							
PHASE 1b NETWORK							
SWMH56	620556.027	162024.366	30.780	29.005	1.775	1200mmø PCC Type 2	D400
SWMH57	620540.456	161972.971	30.400	28.550	1.850	1200mmø PCC Type 2	D400
SWMH58	620534.995	161983.980	30.365	28.499	1.866	1200mmø PCC Type 2	D400
SWMH59	620567.951	162000.327	30.500	28.348	2.152	1200mmø PCC Type 2	D400
SWMH60	620574.810	161986.499	30.240	28.284	1.956	1200mmø PCC Type 2	D400
SWMH61	620577.765	161951.887	29.850	27.925	1.925	1350mmø PCC Type 2	D400
SWMH62	620570.532	161941.280	30.000	27.885	2.115	1350mmø PCC Type 2	D400
SWMH63	620539.757	161925.237	30.440	27.778	2.662	1350mmø PCC Type 2	D400
SWMH64	620500.863	161992.493	31.170	29.470	1.700	1200mmø PCC Type 2	D400
SWMH65	620494.199	161970.331	31.400	29.180	2.222	1200mmø PCC Type 2	D400
SWMH66	620498.087	161935.573	30.970	28.667	2.303	1200mmø PCC Type 2	D400
SWMH67	620505.197	161922.409	30.775	28.480	2.295	1200mmø PCC Type 2	D400
SWMH68	620513.308	161912.116	30.530	27.687	2.843	1350mmø PCC Type 2	D400
SWMH69	620596.711	161913.970	28.900	27.200	1.700	1200mmø PCC Type 2	D400
SWMH70	620568.205	161922.607	29.710	28.010	1.700	1200mmø PCC Type 2	D400
SWMH71	620578.218	161902.422	29.180	26.832	2.348	1200mmø PCC Type 2	D400
SWMH72	620529.779	161878.428	29.700	26.536	3.164	1350mmø PCC Type 2	B125
SWMH73	620512.414	161884.740	29.950	26.479	3.471	1350mmø PCC Type 1	B125
SWMH74	620499.337	161878.253	29.720	26.434	3.286	1350mmø PCC Type 2	B125
SWMH75	620536.682	161799.207	22.900	20.855	2.045	1350mmø PCC Type 2	B125
LATERAL FOUL WATER CHAMBERS							
FWMH60.1	620533.802	162012.390	30.960	29.905	1.055	450mmø Plastic Type 3 (B.16)	A15
FWMH64.1	620542.226	161938.802	30.855	29.595	1.260	450mmø Plastic Type 3 (B.16)	A15
LATERAL SURFACE WATER CHAMBERS							
SWMH56.1	620527.593	162010.262	30.925	29.725	1.200	450mmø PCC Type 3 (B.18)	B125
SWMH63.1	620543.036	161934.887	30.670	29.775	0.895	450mmø PCC Type 3 (B.18)	B125

Rev	Amendments	Date	Dsn	Chk
J	POND RELOCATED AND EXPANDED TO TAKE PART PHASE 2 RUN-OFF ALLOWANCE	22.03.19	DMS	ds
H	LOCAL FOUL DRAINAGE ADJUSTED TO ACCORD WITH NHBC COMMENTS	07.02.19	DMS	ds
G	LOCAL FOUL DRAINAGE ADJUSTED TO ACCORD WITH NHBC COMMENTS	17.01.19	DMS	ds
F	DISCLAIMER NOTE REMOVED	06.11.18	DMS	ds
E	SWALE CROSSING OF EXISTING WATER MAIN HIGHLIGHTED	31.10.18	DMS	ds
D	FULL TENDER ISSUE	25.09.18	DMS	MR
C	MAIN DRAINAGE UPDATED TO SUIT CURRENT SITE LAYOUT - STORAGE PONDS REDESIGNED IN ACCORDANCE WITH KCC SPECIFICATIONS	03.09.18	DMS	MR
B	DRAWING NUMBER UPDATED	18.08.18	DMS	MR
A	PLANNING CONDITIONS ISSUE	22.03.18	DMS	MR
-	PLANNING ISSUE	01.03.18	DMS	MR

Status: PRELIMINARY

Client: REDROW HOMES

Project: PHASE 1b, HOPLANDS FARM HERSDEN, KENT

Title: ROAD AND MAIN SEWER LAYOUT

Date: FEBRUARY 2018	Scale @ A0: 1:500
Base Layout Ref.	CAD File ref.
Clients Ref.: 2665	Project Ref.: 7178

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Drawing Number: 2665-21-06-507

Rev.: J

Appendix B

S104 Technical Approval from Southern Water

Southern Water

7178 GTA Orig JS
2.7 Copy
02 JAN 2019 efile
RECEIVED

gta Civils,
Gloucester House,
66a Church Walk,
Burgess Hill,
West Sussex

Developer Services
Southern Water
Sparrowgrove House
Sparrowgrove
Otterbourne
Hampshire
SO21 2SW

Tel: 0330 303 0119
Email: developerservices@southernwater.co.uk

Fao Mr DM Smith:

Your Ref:
7178/2.7
Our Ref:
SWS-KENT-S104-002323
Date:
24 December 2018

Dear Sirs,

Adoption of Sewers – Section 104, Water Industry Act 1991
Development: Hoplands Farm Phase 1A and !B, Island Road, Hersden

Thank you for your letter dated 23 October 2018 with enclosures.

I have now completed technical assessment of your submission. Based on an estimated cost of £1121100.00 for constructing the proposed sewerage offered for ad28027.50 in accordance with the scale of charges set out in "Sewers for Adoption – 6th edition". I enclose a remittance advice sheet for that amount less any previous payment and I ask that this be returned with your client's payment to the address given at the bottom of the sheet. Legal fees will be separately invoiced by Southern Water's solicitor and must be paid before the agreement is engrossed. If there is a pumping station to be included within the S.104 Agreement we will request a further fee at a later date, but prior to handover for the signage, padlocks, monitoring and configuration of the telemetry unit.

In addition to the above fees a Bond is required and, based on the estimated cost of construction, the Agreement will incorporate a Bond in the sum of £112110.00.

I am also pleased to confirm that the technical assessment of your proposals is satisfactory and I can now proceed towards drawing up the agreement, which will be based on the model form published in the Sixth edition of "Sewers for Adoption". This document is regarded favourably by the House Builders Federation and Water UK and is the standard against which sewers are adopted by agreement. As a consequence, Southern Water will not agree to departures from that model form and you are strongly advised to make your solicitor aware of this, which will pave the way for a swift production and completion of the agreement.

This letter is for the purpose of technical review of submitted proposals, which have been checked for compliance with Sewers for Adoption and published Technical addendum and/or corrigendum. It is also an offer to enter into a Section 104 agreement. Please note

that this offer letter does not necessarily confirm that capacity is available for the proposed development in the public sewer network.

This is not an approval to connect to the public sewer, either directly or indirectly. Such connection will require S106 application and approval.

S104 compliance does not necessarily infer that planning conditions can be discharged.

Please note that the Bond must be arranged before any work on site is undertaken and the fees paid not later than the time of the first inspection by our Assistant Project Managers. A minimum of 48 hours notice of your intention to commence the Works should be given to this office. Please be aware that commencing the Works prior to the signing of the Agreement will not absolve you of your responsibility to construct the Works in accordance with the requirements of "Sewers for Adoption" and the relevant drawings.

In order that an Agreement may be drawn up I should be obliged if you would please provide the drawings for the agreement in accordance with the attached specification sheet.

N.B. The drawings deemed to comply with "Sewers for Adoption" are numbered:

Drawing No	Revision	Drawing Name
2665-21-06-001	A	Site Location Plan
2665-21-S104-516	A	S104 Agreement Plan Phase 1a
2665-21-S104-517	B	S104 Agreement Plan Phase 1b
2664-21-07-512	B	Main Drainage Construction Details Sheet 1 of 2
2665-21-06-655	A	Drainage Longitudinal Sections-Sheet 1 of 5
5665-21-06-656	A	Drainage Longitudinal Sections-Sheet 2 of 5
5665-21-06-657	-	Drainage Longitudinal Sections-Sheet 3 of 5
5665-21-06-658	A	Drainage Longitudinal Sections-Sheet 4 of 5
5665-21-06-659	-	Drainage Longitudinal Sections-Sheet 5 of 5

Where applicable, copies of any consents issued by the Environment Agency and/or the Land Drainage Authority to discharge surface water and/or a pumping station emergency overflow into a local watercourse will be required.

I also ask that you complete sections 1 to 11 and 15 of the attached Instruction Sheet, so that Southern Water's solicitor can enter the correct information into the draft agreement. Instructions will not be issued to Southern Water's solicitor until the complete package of this Instruction Sheet and the drawings requested above has been received.

Yours faithfully

David Marshall
Developer Services