



Drainage and Wastewater Management Plans

Technical Summary: Population Growth and Urban Creep

March 2023
Version 2



1. Background

This document is one of several technical summaries that provide more detail around the approaches taken in developing and producing the DWMP and which provide greater detail on the outputs of the assessment. The technical summaries may include technical appendices to provide supporting detail on the assessments and outputs.

In this technical summary, we describe the methods and approach that we have adopted in our DWMP to assess the impacts of:

- (a) Population Growth: this is growth in population that leads to new development including homes, businesses and associated infrastructure
- (b) Urban Creep: this is the gradual increase in rainwater inflows into the drainage and wastewater systems from extensions to buildings (including homes) and paving over permeable areas (such as front gardens) with impermeable paving.

2. Population Growth and Development

2.1. Experian Data

For our DWMP we have used Experian 7.1 / Sage16 population forecast data and a baseline population of 2020. This data is obtained from the Experian 7.1 database which provides current and projected (future) population levels across our operating region. The population data is collated for each wastewater system for the 2020 baseline and for the projected 2050 planning horizon.

The data obtained from Experian 7.1 for the 2050 horizon has been used in a hydraulic model to assess the volume of wastewater flow from future developments.

We have then estimated the impact of development in each wastewater system as part of our Baseline Risk and Vulnerability Assessments (BRAVA) for the following planning objectives:

- (a) PO4: Risk of flooding due a 1 in 50 year storm event
- (b) PO5: Storm overflow performance
- (c) PO7: Flood risk due to hydraulic overload (from storm events 1 in 1 year up to 1 in 30 years).

2.2. Data from Local Planning Authorities

Our Developer Services Team collates information and data from planning authorities and their Local Plans on proposed new developments in order to understand the future potential investment needs in our wastewater systems. Information collected includes the type, size and location in order to assess the need for upgrades for wastewater systems. This information comes from the adopted Local Plan and from planning applications that have been granted planning permission by the planning authority.

Using this information, we can forecast where and when development in any area is likely to be implemented. This is used in the modelling assessments to predict the future impact of developments on the sewer network and wastewater treatment works.

In some cases, until the location of the new development is confirmed, we are not able to determine which wastewater system it is intended that the development will be connected into. However, we assign each development site to the nearest wastewater system and incorporate this with the Experian 7.1 / Sage16 population data to estimate the future growth in each wastewater system.

There are uncertainties in growth forecasts and differences in actual rates of new development, so judgements need to be made for investment planning. As a rough guide, the growth rate for water companies is 7.5% every 5 years across the whole company operating area. The challenge is to forecast not only the amount of new development but which wastewater system it will be connected into.

We use the information from Local Planning authorities to adjust and improve the forecasts obtained from Experian. Where a Local Plan predicts growth of more than 7.5% in any future 5 year period (2020-2025, 2025-2030, 2030-2035) of the corresponding forecasts by Experian 7.1 / Sage16, then the Local Plan figure is adopted for our future growth assessment. Otherwise the Experian / Sage figures are used in the DWMP.

The growth forecasts that we have used in our DWMP for each wastewater system are listed in Appendix A.

It is important that we understand proposals for major growth schemes (for example, new garden cities and new villages) and forecast the timing, location and scale of the development to enable us to plan for the investment needed to enlarge / upgrade our wastewater treatment works and ensure future permit compliance.

3. Urban Creep

Urban creep is the increase in impervious surface within an urban area due to extension of properties or addition of new paved areas which leads to an increase in surface runoff.

The United Kingdom Water Industry Research (UKWIR) study: "Impact of Urban Creep on Sewerage Systems" (2010), sets out methods for estimating urban creep. We adopted a simplified version of Method 3 of the UKWIR study to estimate urban creep within our sewerage system service areas and used it as an input into our network modelling to assess network capacity and the risk of flooding.

The overall urban creep rate ($m^2/annum$) for a network model is calculated based on residential property types - Detached, Semi-Detached, Terraced and Flats in accordance with UKWIR Method 3 (see table 1 below). An urban creep uplift is calculated as a percentage of the mapped residential roof area based on OS Master Map and OS Address Base Premium. Urban creep for a modelled sub-catchment is calculated by multiplying the modelled residential roof area by the urban creep uplift. Urban creep is then applied as paved area.

Table 1: Urban Creep rate for residential properties

Property Type	Urban creep Rate (m ² /property/year)	Data Source
Detached	0.795	UKWIR
Semi-Detached	0.366	UKWIR
Terraced	0.196	UKWIR
Flats	0	UKWIR
Residential - Default	0.738	UKWIR
Non Residential	0	UKWIR

For models where the residential and non-residential areas are not defined separately by land use, a model sub-catchment property count is required. In this case, the creep area is calculated from the roof area and an urban creep uplift. A further modification is carried out based on the split between the residential/non-residential roof area to correct the urban creep calculation in mixed land use sub-catchments. This factor is not applied to some types of older models if it is not possible to carry out a reliable property count.

No urban creep is applied to non-residential properties. No urban creep is applied to modelled sub-catchments with impermeable area <5% of the contributing area.

4. Impact of Growth Creep on Wastewater Systems

4.1. Impact of Urban Creep on Wastewater networks

The rainfall runoff into sewers and drainage systems increases with urban creep. Every new patio or driveway can increase the flow into the sewer network by 400litres in one 20mm rainfall event. These additional contributions of rainfall into a combined sewer network could increase the risk of flooding and frequency of discharges from storm overflows, especially in the sewer networks which are already operating at their maximum capacity.

The DWMP will help to identify opportunities to work with partner organisations to minimise the impact of urban creep. For example, by ensuring homeowners, builders and developers utilise separate surface water drainage systems or attenuation techniques to slow the flow into the sewer network.

4.2. Impact of Growth on Wastewater treatment

Growth in a catchment also generates additional flows that needs to be conveyed through our network to our wastewater treatment works. The treatment of wastewater is regulated by the Environment Agency (EA) which sets the permits that water companies must comply with. The

permits include Dry Weather Flow (DWF) and the quality of the discharges back to the environment.

DWF is a measure of the flow entering the treatment works from properties connected to the system and flows that infiltrate into the sewer during dry periods. The more properties connected, the more flow is expected to arrive at the treatment works for treatment. We need to plan to ensure we have adequate capacity at the works for new development as it is completed and occupied.

Using the growth forecasts, and by estimating infiltration based on flows recorded at the works, we can estimate when the DWF permit may be exceeded if no further actions are taken to increase the capacity of the works. Any changes to the capacity at treatment works need the appropriate permit from EA.

The wastewater systems that will be more affected by growth and infiltration, in terms of the DWF, are listed in appendix B.

5. Alignment with the Water Resources Management Plan

We are working with our colleagues who are producing the statutory Water Resources Management Plan (WRMP), the water equivalent of the DWMP, to explore areas of common interest and whether a consistent approach can be utilised across both of these plans. Growth forecasting is one of these areas.

The WRMP follows guidance issued by the EA which states:

“Your planned property and population forecasts, and resulting supply, must not constrain planned growth. For companies supplying customers in England you should base your forecast population and property figures on local plans published by the local council or unitary authority ...

Where your area includes major strategic housing and growth developments such as the Oxcam Arc or Garden Communities, you should include an estimate of the planned growth in the baseline.”

Consequently, a plan-based growth forecast is being used as the baseline forecast for the 2023 WRSE regional plan and the 2024 WRMP. However, additional scenarios are also being used in the demand forecast, including trend-based forecasting.

The WRMP team are working with a specialist company to develop specific growth forecasts for water resource zones, with projections up to 2100. Forecasts by catchment are provided for 75 scenarios. There are differences in forecasts depending upon the methods used, and plan-based projections appear to be towards the higher end of the range. The use of plan-based scenarios for the DWMP would be consistent with WRMP but these forecasts tend to be over-optimistic, so an alternative forecast may need to be used for the DWMP.

This will be explored further to improve our growth forecasting for future rounds of the DWMP, and move towards greater alignment with the WRMP approach.

6. Other Pressures

Changes in population and climate change will place the greatest pressures on the existing wastewater systems, but there are other factors to consider too. These include the changes in water usage.

We are working to improve water efficiency and reduce consumption in our area. Our target, and the associated campaign, is to reduce consumption to an average of 100litres per person per day. This will mean that less water would need to be taken from the environment for water supply. It will also mean that less water is returned to the sewer network for recycling.

There are many benefits of this approach, including delaying the point at which the wastewater system may need to be upgraded to cope with the additional demand from population growth. However, reduced consumption means less wastewater will be returned to the sewer network leading to a decrease in flow. This may need to be modelled and assessed as it could lead to an increase in blockages.

Southern Water
March 2023

Appendix A: Growth forecasts used in our DWMP

Adur and Ouse River Basin Catchment



Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ANSTY	281	330	50	18%
ARDINGLY	1507	1744	237	16%
ASHINGTON	4884	5351	466	10%
BALCOMBE	1703	1961	259	15%
BARCOMBE CHURCH	24	30	6	27%
BARCOMBE NEW	3651	4393	741	20%
BARNS GREEN	1257	1467	210	17%
BLACKBOYS	1142	1431	289	25%
BLACKSTONE	131	150	19	15%
BROOK STREET CUCKFIELD	154	161	7	5%
BUXTED	2354	2769	415	18%
CHAILEY	29	37	8	26%
COOKSBRIDGE	402	480	78	19%
COOLHAM	270	327	56	21%
COWFOLD	1326	1587	260	20%
CUCKFIELD	3719	4211	492	13%
DANEHILL	1282	1491	209	16%
DIAL POST	204	250	46	23%
DITCHLING	1643	1837	194	12%
DRAGONS GREEN	95	100	5	5%
EAST WORTHING	146379	158106	11727	8%
FLETCHING	255	314	59	23%
FULKING	238	270	32	13%
GODDARDS GREEN	56830	66191	9361	16%
HALLAND	492	598	106	21%
HAMSEY	55	63	8	14%
HANDCROSS	1249	1565	316	25%
HENFIELD	5772	6250	478	8%
HIGH HURSTWOOD	159	204	45	28%
HIGHBRIDGE EAST CHILTINGTON	27	35	8	28%
HIGHBROOK	60	67	7	12%
HIGHCROSS ALBOURNE	59	72	13	22%
HOLLYCROFT EAST CHILTINGTON	112	143	31	28%
HORSTED KEYNES	1274	1422	149	12%

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ITCHINGFIELD	76	88	12	16%
KINGSTON HOLLOW	1065	1199	133	12%
LOWER BEEDING	372	424	52	14%
MARESFIELD	1934	2258	324	17%
MONKS GATE	207	215	8	4%
NEAVES LANE RINGMER	5336	6140	804	15%
NEWHAVEN EAST	63493	73343	9850	16%
NEWICK	3849	4698	849	22%
NUTHURST	39	40	0	1%
OFFHAM	76	86	10	13%
PARTRIDGE GREEN	2452	2796	344	14%
PLUMPTON	354	387	33	9%
PORTOBELLO BRIGHTON	305682	339327	33645	11%
POYNINGS	469	545	76	16%
PYECOMBE EAST	124	136	13	10%
PYECOMBE WEST	117	129	12	10%
RIPE	186	224	38	20%
RODMELL	479	569	89	19%
SCAYNES HILL	44338	51644	7305	16%
SHIPLEY	123	134	11	9%
SHOREHAM	57878	68238	10360	18%
SLAUGHAM	89	98	9	10%
SMALL DOLE	841	975	135	16%
SMALLHOLDINGS RINGMER	85	111	25	30%
STAMFORD BUILDINGS FIRLE	29	41	12	40%
STAPLEFIELD	220	256	36	16%
STEYNING	10211	11206	995	10%
STREAT	59	62	3	5%
UCKFIELD	21938	26325	4387	20%
WARNINGLID	254	289	34	14%
WESTMESTON	41	50	9	21%
WINEHAM	127	148	21	17%
WISTON	49	53	3	7%
WIVELSFIELD	1758	2079	321	18%

Arun and Western Streams River Basin Catchment



Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
AMBERLEY	587	652	64	11%
BILLINGSHURST	8280	9609	1329	16%
BOSHAM	4044	4880	836	21%
BURITON	523	545	22	4%
BURPHAM	177	220	43	24%
BURY	498	573	76	15%
CHEPHURST COPSE RUDGWICK	2588	2902	314	12%
CHICHESTER	38893	44556	5663	15%
CHIDDINGFOLD	3398	3808	410	12%
CLAPHAM	561	649	88	16%
COLDHARBOUR	153	163	10	6%
COLDWALTHAM	904	968	64	7%
DUNCTON	103	132	29	29%
ELSTED	20	23	3	17%
FAYGATE	382	461	79	21%
FERNHURST	2116	2605	488	23%
FITTLEWORTH	759	881	122	16%
FORD	142541	169968	27427	19%
FOREST GREEN	304	341	38	12%
GRAYSWOOD	524	577	53	10%
HARDHAM	27	31	4	14%
HILLBROW KNOWLES MEADOW	77	89	12	15%
HILLSIDE COTTAGES WEST STOKE	15	17	3	19%
HORSHAM NEW	81161	91320	10158	13%
HOUGHTON	123	136	12	10%
KIRDFORD	716	981	265	37%
LAVANT	2670	3214	544	20%
LIDSEY	28941	34390	5449	19%

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
LISS	6778	7577	800	12%
LISS HILLBROW	352	401	49	14%
LOXWOOD	3860	4727	867	22%
LURGASHALL	215	262	47	22%
MAGPIE LANE HORSHAM	39	42	3	8%
MANNINGS HEATH	1118	1213	95	9%
NORTHCHAPEL	621	812	191	31%
OCKLEY EAST	215	246	31	14%
OCKLEY WEST	323	378	55	17%
PAGHAM	8810	10118	1308	15%
PETERSFIELD	22147	23609	1461	7%
PETWORTH	2704	3264	560	21%
POLING	62	78	16	26%
PULBOROUGH	9475	10050	575	6%
ROGATE	1027	1237	210	20%
SIDLESHAM	35452	38423	2971	8%
SLINFOLD	1256	1444	188	15%
SOUTH AMBERSHAM	14007	15748	1741	12%
SOUTH HARTING	989	1203	213	22%
STORRINGTON	8191	8747	556	7%
TANGMERE	5337	6586	1249	23%
THORNHAM	23321	26665	3344	14%
TILLINGTON	415	482	68	16%
TROTTON	138	161	23	17%
WARNHAM	1331	1419	88	7%
WEST MARDEN	308	379	71	23%
WEST STOKE	60	69	9	15%
WISBOROUGH GREEN	1246	1389	143	11%

Cuckmere and Pevensey Levels River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ALFRISTON	858	908	50	6%
BERWICK	309	355	46	15%
BEXHILL AND HASTINGS	148316	162536	14220	10%
BODLE STREET GREEN	101	115	13	13%
CATSFIELD	633	770	138	22%
EAST DEAN	1651	1872	220	13%
EAST HOATHLY	1084	1314	230	21%
EASTBOURNE	123989	133800	9810	8%
HAILSHAM NORTH	17812	20411	2599	15%
HAILSHAM SOUTH	31623	36452	4829	15%
HOOE	1573	1902	329	21%
LIME PARK HERSTMONCEUX	63	76	13	21%
LUNSFORDS CROSS	256	297	41	16%
RUSHLAKE GREEN	198	234	36	18%
VINES CROSS	14383	17044	2661	19%
WARTLING	57	69	12	21%
WILMINGTON	211	254	43	20%
WINDMILL HILL HERSTMONCEUX	2189	2683	494	23%

East Hampshire River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
BISHOPS WALTHAM	15238	17308	2070	14%
BUDDS FARM HAVANT	391065	433364	42299	11%
DROXFORD	91	94	3	3%
EAST MEON	842	981	140	17%
PEEL COMMON	268490	298170	29680	11%
SOUTHWICK	1078	1166	89	8%
WICKHAM	2685	2912	227	8%

Isle of Wight River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ARRETON STREET ARRETON TOP	95	109	14	15%
BLACKWATER	90	103	13	15%
BRIGHSTONE	1685	1710	25	1%
CALBOURNE	196	225	29	15%
CHALE	588	701	113	19%
CHILLERTON	358	396	38	11%
GODSHILL	2045	2303	258	13%
HAZELEY COOMBE ARRETON	147	166	19	13%
HIGHWOOD LANE ROOKLEY	74	89	15	20%
KNIGHTON	15	16	1	9%
NEWLANDS MERSTONE	131	149	18	14%
NEWTOWN IOW	31	35	4	12%
NORTH VIEW THORLEY	162	192	30	18%
ROUD	1878	1998	120	6%
SANDOWN	147581	163762	16180	11%
SHALFLEET	834	870	36	4%
SHORWELL	493	564	71	14%
ST HELENS	1612	1677	65	4%
WILLOW WOOD ST LAWRENCE	372	382	10	3%
WROXALL	2850	3193	343	12%

Medway River Basin Catchment



Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
AYLESFORD	139704	172926	33222	24%
BETHERSDEN	964	1114	150	16%
BIDBOROUGH	9753	12256	2503	26%
BIDDENDEN	2672	3118	446	17%
BLACKHAM	339	444	105	31%
CHERRY GARDENS GOUDHURST	272	379	107	39%
CHIDDINGSTONE CASTLE	35	48	13	39%
CHIDDINGSTONE HOATH	177	257	81	46%
COWDEN	334	408	74	22%
COXHEATH	9348	11010	1662	18%
CRANBROOK	7630	8614	984	13%
DITTON	11517	14125	2608	23%
EAST PECKHAM	3291	3936	645	20%
EDEN VALE EAST GRINSTEAD	14758	17587	2829	19%
EDENBRIDGE	11618	14839	3220	28%
FELBRIDGE	7265	8327	1062	15%
FORDCOMBE	528	613	85	16%
FOREST ROW	4641	5436	795	17%
FRANT	778	958	180	23%
FRITTENDEN	412	524	113	27%
GODSTONE	5480	6791	1310	24%
GRAIN	1714	2394	679	40%
GRAVESEND	65468	76523	11054	17%
HADLOW	3575	4077	501	14%
HAM HILL	66117	82625	16508	25%
HARRIETSHAM	1858	2377	518	28%
HARTFIELD	993	1219	226	23%
HARVEL	63	71	8	12%
HEADCORN	3109	3657	549	18%
HIGH HALDEN	1174	1393	219	19%
HORSMONDEN	8007	9954	1947	24%
KILNDOWN	339	435	96	28%
LAMBERHURST	1123	1459	336	30%
LEEDS	4708	5541	832	18%
LINGFIELD	12050	14502	2452	20%

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
LINTON	295	346	51	17%
LUDDSDOWN	122	135	13	10%
LUXFORDS LANE EAST GRINSTEAD	10554	12394	1840	17%
MARKBEECH	51	60	9	17%
MOTNEY HILL	275006	362211	87204	32%
NORTHFLEET	60105	71017	10912	18%
NUTLEY	1165	1295	130	11%
OXTED	16671	19850	3179	19%
PADDOCK WOOD	10575	13210	2635	25%
PEMBURY	6287	7790	1503	24%
PENSHURST	480	650	170	35%
REDGATE MILL CROWBOROUGH	23339	28188	4849	21%
SISSINGHURST	1080	1269	189	17%
SMARDEN	945	1122	177	19%
SMITHS LANE GOUDHURST	242	313	71	29%
SPELDHURST	3795	4647	852	22%
ST JOHNS CROWBOROUGH	2712	3076	364	13%
ST MARY HOOD	34	42	8	24%
STAPLEHURST	6022	7468	1446	24%
STOKE	3036	3918	882	29%
STONE HILL ROAD EGERTON	706	826	120	17%
SUTTON VALENCE	1149	1452	302	26%
THRESHERS FIELD	25	36	11	46%
TONBRIDGE	51839	62028	10189	20%
TUNBRIDGE WELLS NORTH	32238	42132	9894	31%
TUNBRIDGE WELLS SOUTH	32729	41027	8298	25%
ULCOMBE	837	956	119	14%
UNDERHILL GOUDHURST	642	786	144	22%
WALLCROUCH	188	236	48	26%
WATERINGBURY	11228	13445	2216	20%
WEST HOATHLY	1559	1792	233	15%
WHITEGATES LANE WADHURST	3087	3805	718	23%
WHITEWALL CREEK	38842	47790	8948	23%
WOULDHAM	1551	2119	568	37%

New Forest River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ASHLETT CREEK FAWLEY	14915	17249	2334	16%
BANK	114	119	5	5%
BEAULIEU HUMMICKS	77	87	10	13%
BEAULIEU VILLAGE	206	220	14	7%
BOLDRE	650	675	24	4%
BROCKENHURST	4261	4657	396	9%
EAST BOLDRE	503	573	70	14%
EAST END	141	143	2	1%
EFFORD FARM COTTAGES LYMINGTON	41	39	-2	-4%
FLEXFORD LANE SWAY	2700	3084	384	14%
LYNDHURST	3795	4158	363	10%
MINSTEAD	113	120	7	6%
PASSFORD HOUSE SWAY	36	37	1	3%
PENNINGTON	55437	59841	4404	8%
SLOWHILL COPSE MARCHWOOD	75083	84279	9197	12%
THORNS BEACH	22	26	4	17%

North Kent River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
EASTCHURCH	9226	10440	1214	13%
FAVERSHAM	35943	42175	6232	17%
QUEENBOROUGH	44849	53983	9134	20%
SITTINGBOURNE	72707	90160	17452	24%
TEYNHAM	4073	4956	883	22%

Rother River Basin Catchment



Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
APPLEDORE	675	753	78	12%
BATTLE	6687	7642	955	14%
BECKLEY	1197	1393	195	16%
BENENDEN	1199	1302	103	9%
BILSINGTON	288	370	83	29%
BREDE WATERWORKS	19	20	2	9%
BROOKLAND	400	485	85	21%
BURWASH COMMON	601	721	120	20%
BURWASH VILLAGE	1414	1677	263	19%
CAMBER	3843	4119	276	7%
CROUCH FARM MAYFIELD	838	987	149	18%
DYMCHURCH	8123	9200	1077	13%
EWHURST GREEN	101	123	23	22%
FAIRLIGHT	1627	1672	45	3%
FERRY HILL WINCHELSEA	705	845	140	20%
GUESTLING GREEN	1274	1439	164	13%
HAMSTREET	1645	2030	384	23%
HAWKHURST NORTH	2385	3149	763	32%
HAWKHURST SOUTH	2024	2602	578	29%
HURST GREEN	1945	2420	476	24%
HYPHE	20695	23836	3140	15%
ICKLESHAM	905	966	61	7%
IDEN	1954	2115	161	8%
IDEN GREEN	302	376	74	24%
IVYCHURCH	174	217	43	25%
LEVETTS LANE BODIAM	174	236	62	35%
LYDD	4105	5213	1108	27%

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
MERES FARM MAYFIELD	1890	2238	348	18%
MILL CORNER NORTHIAM	184	208	23	13%
NETHERFIELD	391	542	150	38%
NEW ROMNEY	15467	17121	1654	11%
NEWENDEN	165	171	6	4%
QUARRY COTTAGES STONE IN OXNEY	33	39	5	16%
QUICKBOURNE LANE NORTHIAM	1926	2130	204	11%
READING STREET	32	40	9	27%
ROBERTSBRIDGE	2593	3201	608	23%
ROLVENDEN LAYNE	404	467	64	16%
RYE	6217	7045	828	13%
SANDHURST	1140	1367	227	20%
SEDLSCOMBE	1143	1346	203	18%
STAPLECROSS	818	920	102	13%
STONE GREEN STONE IN OXNEY	213	248	35	16%
STONEGATE	300	406	106	35%
STUBBS LANE BREDE	1396	1491	95	7%
TENTERDEN	8799	9765	966	11%
TICEHURST	3020	3667	647	21%
UDIMORE	53	59	7	12%
WAREHORNE	468	529	61	13%
WASHWELL LANE WADHURST	813	941	127	16%
WESTFIELD	2281	2639	359	16%
WHATLINGTON	60	74	14	23%
WINCHELSEA BEACH	1843	1919	76	4%
WITTERSHAM	920	1057	137	15%
WOODCHURCH	1741	1830	89	5%

Stour River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
ASHFORD	111517	134369	22851	20%
BROOMFIELD BANK	125040	146720	21680	17%
CANTERBURY	70779	81547	10768	15%
CHARING	2738	2997	259	9%
CHARTHAM	7172	8790	1618	23%
CHILHAM	979	1117	139	14%
DAMBRIDGE WINGHAM	24710	27111	2401	10%
EASTRY	2532	2897	365	14%
GOOD INTENT COTTAGES EGERTON	15	18	3	19%
LENHAM	3292	3845	553	17%
MARGATE AND BROADSTAIRS	96828	124174	27347	28%
MAY STREET HERNE BAY	44443	53396	8953	20%
MINSTER IOT	5158	6635	1477	29%
NATS LANE BROOK	309	353	44	14%
NEWNHAM VALLEY PRESTON	7538	9376	1838	24%
SELLINDGE	7940	9011	1070	13%
SWALECLIFFE	38712	45609	6897	18%
WEATHERLEES HILL	99251	119237	19986	20%
WESTBERE	6758	8397	1639	24%
WESTWELL	289	350	62	21%
WYE	2244	2418	174	8%

Test and Itchen River Basin Catchment

Catchment Code	Pop. Eq. 2020	Pop. Eq. 2050	Additional Pop. (2020-50)	Pop. Growth (2020-50)
BARN CLOSE ASHMANSWORTH	20	25	5	23%
BARTON STACEY	3961	4604	643	16%
CANTERTON LANE BROOK	51	55	5	10%
CHICKENHALL EASTLEIGH	107301	131352	24051	22%
CHILBOLTON	1278	1511	233	18%
DUNBRIDGE	111	140	29	26%
EAST GRATTON	430	502	72	17%
EAST GRIMSTEAD	3225	3703	479	15%
EVANS CLOSE OVER WALLOP	523	653	130	25%
FULLERTON	66107	78703	12596	19%
GRAEMAR COTTAGES	101	126	25	25%
HANNINGTON	57	65	8	15%
HARESTOCK	18720	20990	2270	12%
IVY DOWN LANE OAKLEY	5312	6045	734	14%
KINGS SOMBORNE	2399	2820	422	18%
LUDGERSHALL	4508	5291	783	17%
MILLBROOK	147109	167082	19973	14%
MORESTEAD ROAD WINCHESTER	44390	48631	4241	10%
NEW ALRESFORD	6124	6652	528	9%
NORTH WALTHAM	899	1100	201	22%
OVERTON	4835	5686	851	18%
PORTSWOOD	83462	95966	12505	15%
REDLYNCH	872	1012	140	16%
ROMSEY	19844	23253	3409	17%
SADDLERS CLOSE SUTTON SCOTNEY	711	847	136	19%
STOCKBRIDGE	850	893	43	5%
WEST WELLOW	4822	5552	730	15%
WHITCHURCH	5075	5970	895	18%
WHITEPARISH	1124	1286	162	14%
WOOLSTON	70328	81046	10719	15%

Appendix B: Wastewater Systems with limited spare DWF capacity

Site Code	Catchment Name	DWF permit (m ³ /d)	Population equivalent 2020 actual	Forecasted Population Equivalent (PE)		Spare DWF capacity	
				2020	2050	2020 - (based on actual population)	2050
LIHB	LISS HILLBROW	11	82	352	401	63%	-330%
WILL	WILLOW WOOD ST.LAWRENCE	28	271	372	382	-219%	-308%
STOC	STOCKBRIDGE	231	824	850	893	-88%	-97%
PLUM	PLUMPTON	55	153	354	387	29%	-53%
WCRK	WHITEWALLCREEK	5,000	31,173	38,842	47,790	1%	-44%
LIMP	OXTED	4,724	15,618	16,671	19,850	-13%	-34%
BOLD	BOLDRE	200	635	650	675	-28%	-34%
SITT	SITTINGBOURNE	11,800	59,931	72,707	90,160	5%	-33%
SAND	SANDOWN	29,703	130,771	147,581	163,762	-8%	-28%
CHLE	CHALE	117	579	588	701	-8%	-26%
CRAN	CRANBROOK	1,337	4,400	7,630	8,614	28%	-25%
HAMH	HAMHILL	12,200	59,642	66,117	82,625	4%	-25%
NFLE	NORTHFLEET	9,300	55,440	60,105	71,017	-1%	-24%
GRAI	GRAIN	402	1,664	1,714	2,394	7%	-24%
SIDL	SIDLESHAM	5,800	25,167	35,452	38,423	14%	-22%
HERN	MAY STREET HERNE BAY	5,903	43,011	44,443	53,396	1%	-22%
LIDS	LIDSEY	5,833	21,708	28,941	34,390	19%	-17%
LOXW	LOXWOOD	767	3,761	3,860	4,727	8%	-13%
MOTN	MOTNEY HILL	44,582	263,577	275,006	362,211	16%	-12%
FAVE	FAVERSHAM	7,000	26,291	35,943	42,175	23%	-12%
QUEE	QUEENBOROUGH	11,225	38,684	44,849	53,983	12%	-12%
FULL	FULLERTON	19,291	55,810	66,107	78,703	15%	-10%
VICL	NEWTOWN IOW	5	37	31	35	-15%	-9%
WOOD	WOODCHURCH	293	1,329	1,741	1,830	17%	-9%
SHST	SANDHURST	206	1,114	1,140	1,367	9%	-9%
HBKM	HILLBROW KNOWLES MEADOW	11	58	77	89	30%	-9%
CHAN	CHARING	605	2,056	2,738	2,997	19%	-8%
PETE	PETERSFIELD	4,980	17,104	22,147	23,609	15%	-8%
PENS	PENSHURST	130	462	480	650	18%	-7%
EDEN	EDENBRIDGE	2,240	10,073	11,618	14,839	24%	-7%

DWMP: Technical Summary

Population Growth and Urban Creep

Site Code	Catchment Name	DWF permit (m ³ /d)	Population equivalent 2020 actual	Forecasted Population Equivalent (PE)		Spare DWF capacity	
				2020	2050	2020 - (based on actual population)	2050
HAND	HANDCROSS	186	1,214	1,249	1,565	19%	-6%
BILL	BILLINGSHURST	1,445	7,999	8,280	9,609	10%	-6%
DAMB	DAMBRIDGE WINGHAM	3,510	14,211	24,710	27,111	38%	-5%
PEEL	PEEL COMMON	59,683	256,119	268,490	298,170	6%	-5%
SOAM	SOUTH AMBERSHAM	3,194	10,708	14,007	15,748	23%	-5%
TUWS	TUNBRIDGE WELLS SOUTH	8,850	29,800	32,729	41,027	18%	-5%
ALFR	ALFRISTON	307	816	858	908	3%	-4%
HAIN	HAILSHAM NORTH	3,162	12,023	17,812	20,411	35%	-4%
ASHF	ASHFORD	24,000	91,200	111,517	134,369	25%	-3%
BURG	GODDARDS GREEN	9,917	49,686	56,830	66,191	20%	-3%
GRAV	GRAVESEND	10,886	63,731	65,468	76,523	13%	-2%
MINS	MINSTER IOT	1,000	5,114	5,158	6,635	19%	-2%
OFFH	OFFHAM	10	61	76	86	31%	-1%
HELS	ST HELENS	300	1,436	1,612	1,677	11%	-1%
SMAR	SMARDEN	175	926	945	1,122	15%	-1%
WESM	WEST MARDEN	40	309	308	379	22%	0%

Southern Water
August 2021