

Water Resources Planning Tables 2019

v15 - June 2018

All queries on the content of this workbook should be sent to:
water-company-plan@environment-agency.gov.uk



**Environment
Agency**



**Cyfoeth Naturiol Cymru
Natural Resources Wales**

Water resource zone information

Company:	Essex & Suffolk Water
Resource Zone Name:	Hartismere
Resource Zone Number:	4
Planning Scenario Name:	Dry Year Annual Average
Chosen Level of Service:	Planned
Base Year:	2016/17
Responsible Officer:	William Robinson
Version:	Draft Final

Signed: William Robinson

Dated:

[Digital signature is acceptable]

Key to cells

<input style="width: 100px; height: 15px;" type="text"/>	Clear cells - indicate an input is required
<div style="background-color: yellow; width: 100px; height: 15px;"></div>	Yellow shaded cells - indicates a formula.
<div style="background-color: lightblue; width: 100px; height: 15px;"></div>	Blue shaded cells - indicate base year data.
<div style="background-color: lightgrey; width: 100px; height: 15px;"></div>	Light grey shaded cells - indicate preceding years.
<div style="background-color: darkgrey; width: 100px; height: 15px;"></div>	Dark grey cells - indicate that no data entry is required.

Worksheet

- WRZ summary**
- 1. BL Licences**
- 2. BL Supply**
- 3. BL Demand**
- 4. BL SDB**
- 5. Feasible options**
- 6. Preferred options**
- 7. FP Supply**
- 8. FP Demand**
- 9. FP SDB**
- 10. Drought plan links**

Content

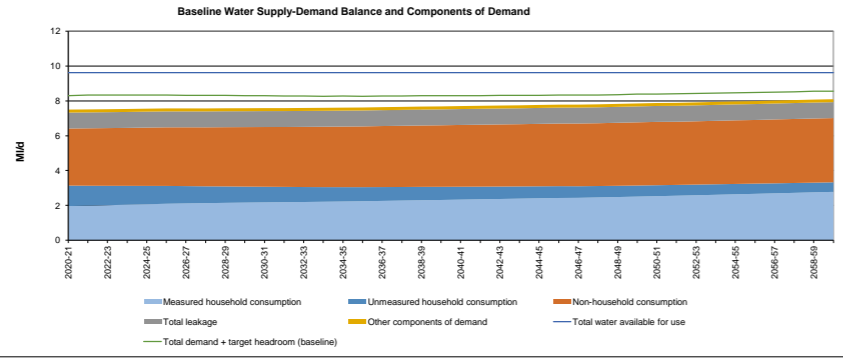
- Supply-Demand Balance and components
- Baseline water resources
- Baseline water supplies
- Baseline demand
- Baseline supply demand balance
- Fixed and Variable costs, Net Present Value, AIC and AISC of all feasible options (confidential)
- High level costs of preferred options (Dry Year) - publicly available
- Final Planning water supplies (impact of Scenario options)
- Final Planning demand (impact of Scenario options)
- Final Planning supply demand balance
- Drought plan links

Summary graphs of water resources planning tables data
Essex & Suffolk Water
Hartismere

DERIVATION	DESCRIPTION	UNITS	For info 2017-18	For info 2018-19	For info 2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	
SUPPLY																																														
13BL	Total water available for use	M/d	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	
13FP	Total water available for use	M/d	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63
DEMAND																																														
26BL	Unmeasured household consumption	M/d	1.32	1.29	1.25	1.22	1.18	1.15	1.11	1.08	1.05	1.03	1.00	0.97	0.94	0.92	0.90	0.88	0.86	0.84	0.83	0.81	0.80	0.78	0.77	0.76	0.74	0.73	0.72	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.61	0.60	0.59	0.58	0.57	0.56	0.55
26FP	Unmeasured household consumption	M/d	1.32	1.29	1.25	1.22	1.17	1.13	1.09	1.06	1.02	0.99	0.95	0.92	0.90	0.87	0.85	0.82	0.80	0.78	0.76	0.74	0.73	0.71	0.70	0.69	0.67	0.66	0.65	0.64	0.62	0.61	0.60	0.59	0.58	0.57	0.56	0.55	0.54	0.53	0.52	0.51	0.50	0.49	0.48	0.47
25BL	Measured household consumption	M/d	1.79	1.82	1.87	1.91	1.96	1.98	2.01	2.04	2.07	2.09	2.11	2.13	2.15	2.16	2.17	2.18	2.20	2.21	2.22	2.24	2.26	2.28	2.30	2.31	2.33	2.35	2.37	2.39	2.41	2.43	2.43	2.46	2.48	2.50	2.53	2.56	2.58	2.61	2.64	2.66	2.69	2.72	2.75	2.78
25FP	Measured household consumption	M/d	1.79	1.82	1.87	1.91	1.95	1.97	2.00	2.02	2.04	2.06	2.07	2.08	2.09	2.09	2.10	2.10	2.11	2.12	2.12	2.13	2.14	2.16	2.17	2.19	2.21	2.23	2.25	2.27	2.29	2.29	2.32	2.34	2.36	2.39	2.41	2.44	2.47	2.49	2.52	2.55	2.58	2.60	2.63	
23BL+24BL	Non-household consumption	M/d	3.28	3.25	3.24	3.26	3.28	3.30	3.31	3.33	3.35	3.37	3.38	3.39	3.40	3.42	3.43	3.44	3.46	3.47	3.48	3.49	3.50	3.52	3.53	3.53	3.55	3.56	3.57	3.57	3.59	3.60	3.60	3.61	3.62	3.63	3.64	3.63	3.64	3.65	3.66	3.67	3.68	3.69	3.69	
23FP+24FP	Non-household consumption	M/d	3.28	3.25	3.24	3.26	3.28	3.30	3.31	3.33	3.35	3.37	3.38	3.39	3.40	3.42	3.43	3.44	3.46	3.47	3.48	3.49	3.50	3.52	3.53	3.53	3.55	3.56	3.57	3.57	3.59	3.60	3.60	3.61	3.62	3.63	3.64	3.63	3.64	3.65	3.66	3.67	3.68	3.69	3.69	
40BL	Total leakage	M/d	1.13	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
40FP	Total leakage	M/d	1.13	0.91	0.91	0.91	0.88	0.85	0.82	0.79	0.75	0.74	0.72	0.71	0.69	0.68	0.67	0.65	0.64	0.62	0.61	0.60	0.59	0.57	0.56	0.55	0.54	0.53	0.52	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
BL+23BL+26BL+40	Other components of demand	M/d	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
FP+23FP+26FP+40	Other components of demand	M/d	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
17BL	Total demand + target headroom (baseline)	M/d	7.68	7.44	8.25	8.28	8.30	8.33	8.35	8.34	8.35	8.34	8.32	8.32	8.33	8.31	8.30	8.28	8.28	8.28	8.28	8.29	8.29	8.29	8.30	8.31	8.32	8.32	8.33	8.34	8.34	8.36	8.39	8.40	8.41	8.42	8.45	8.47	8.48	8.51	8.52	8.56	8.56	8.56		
17FP	Total demand + target headroom (final plan)	M/d	7.68	7.44	8.25	8.28	8.24	8.21	8.16	8.12	8.09	8.05	8.02	8.00	7.96	7.92	7.87	7.85	7.82	7.81	7.76	7.75	7.74	7.73	7.72	7.71	7.71	7.71	7.71	7.70	7.71	7.71	7.72	7.74	7.76	7.79	7.80	7.83	7.85	7.86	7.89	7.90	7.94	7.94		
SUPPLY-DEMAND BALANCE																																														
18BL	Target headroom	M/d	0.00	0.00	0.80	0.81	0.79	0.82	0.82	0.80	0.79	0.77	0.75	0.75	0.75	0.73	0.71	0.69	0.68	0.66	0.67	0.64	0.63	0.63	0.62	0.61	0.59	0.58	0.58	0.57	0.56	0.55	0.55	0.54	0.53	0.53	0.52	0.52	0.51	0.51	0.50	0.49	0.48	0.48	0.46	
16FP	Target headroom	M/d	0.00	0.00	0.80	0.81	0.79	0.82	0.82	0.80	0.79	0.77	0.75	0.75	0.75	0.73	0.71	0.69	0.68	0.66	0.67	0.64	0.63	0.63	0.62	0.61	0.59	0.58	0.58	0.57	0.56	0.55	0.55	0.54	0.53	0.53	0.52	0.52	0.51	0.51	0.50	0.49	0.48	0.48	0.46	
17BL	Available headroom	M/d	1.96	2.19	2.18	2.16	2.18	2.21	2.24	2.27	2.30	2.31	2.34	2.36	2.38	2.40	2.42	2.45	2.46	2.48	2.49	2.51	2.52	2.52	2.52	2.52	2.51	2.50	2.50	2.50	2.49	2.47	2.47	2.45	2.42	2.40	2.37	2.37	2.34	2.31	2.28	2.26	2.23	2.20	2.18	2.15

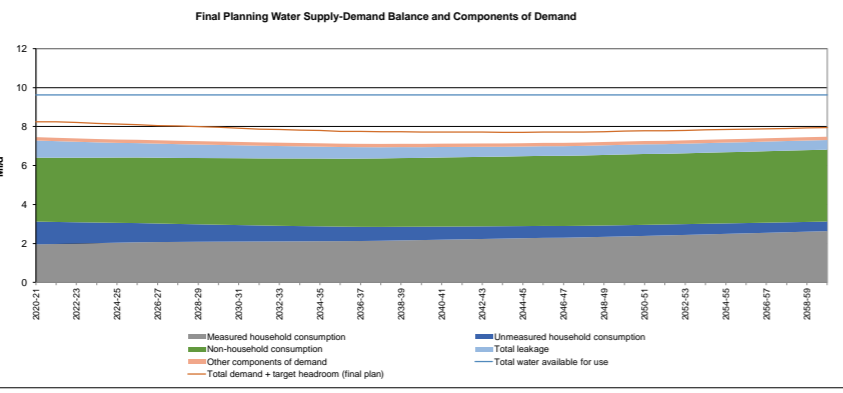
Baseline Supply-Demand Balance:

SDB (M/d)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	
SDB (M/d)	1.33	1.30	1.29	1.29	1.29	1.29	1.31	1.31	1.30	1.32	1.34	1.36	1.36	1.36	1.35	1.37	1.36	1.35	1.35	1.34	1.34	1.34	1.33	1.32	1.31	1.30	1.29	1.29	1.29	1.27	1.25	1.23	1.22	1.21	1.18	1.16	1.15	1.12	1.11	1.07	1.07



Final Planning Supply-Demand Balance:

SDB (M/d)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	
SDB (M/d)	1.38	1.39	1.42	1.47	1.51	1.54	1.59	1.61	1.63	1.67	1.71	1.76	1.78	1.81	1.83	1.87	1.89	1.89	1.90	1.91	1.92	1.92	1.92	1.92	1.93	1.92	1.92	1.91	1.89	1.87	1.85	1.85	1.83	1.80	1.79	1.77	1.74	1.73	1.69	1.66	1.64



Company:	Essex & Suffolk Water
Resource Zone Name:	Hartismere
Resource Zone Number:	4
Planning Scenario Name:	Dry Year Annual Average
Chosen Level of Service:	Planned

Table 1: Baseline licences

Row ref	Derivation	Licence number	Source name	Source type	Deployable output (MI/d)	Annual licensed quantity (MI/d)	Constraints on deployable output	Additional notes (if desired)
All individual licences:								
0.1BL	Sum (0.1BL+...)	-	-	-	1.79	654.60	-	
-	Input	6/33/42/*G/0069	Hartismere Borehole 6	GW	1.245479452	454.6	Annual average daily licence	
-	Input	AN/034/0017/001	Hartismere Borehole 1	GW	0.547945205	200	Annual average daily licence	
Grouped licences								
0.2BL	Sum (0.2BL+...)	-	Total	-	6.85	-	-	
-	-	Group #:	[Enter name of group]	-	6.85	-	-	
-	Input	7/34/16/*G/0048	Hartismere Borehole 2,3,4,5 & 7	GW	6.85	2500.00		
-	Input							
-	Input							
-	Input							
-	Input							
Unused licences:								
0.3BL	Sum (0.3BL+...)	-	-	-	0.00	0.00	-	
-	Input							
-	Input							
New licences (within current AMP):								
0.4BL	Sum (0.4BL+...)	-	-	-	0.00	0.00	-	
-	Input							
-	Input							

Company:	Essex & Suffolk Water
Resource Zone Name:	Hartismere
Resource Zone Number:	4
Planning Scenario Name:	Dry Year Annual Average
Chosen Level of Service:	Planned

README

Table 2: Baseline supply

Row ref	Component	Derivation	Unit	decimal place	2016/17	For info 2017-18	For info 2018-19	For info 2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60
15L	Raw water abstracted	input	Mgd	2	5.98	5.75	5.71	5.71	5.81	5.82	5.84	5.85	5.87	5.89	5.89	5.90	5.91	5.91	5.92	5.93	5.94	5.94	5.97	5.98	6.00	6.01	6.03	6.06	6.07	6.10	6.11	6.12	6.13	6.16	6.19	6.21	6.22	6.25	6.28	6.30	6.33	6.36	6.38	6.41	6.44			
25L	Total raw water imported	sum(2.15L+2.25L+2.35L+...) input	Mgd	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
3.15L+	Raw water imported from None	input	Mgd	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
3.15L+	Total potable water imported	sum(3.15L+3.25L+3.35L+...) input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3.15L+	Total raw water imported from None	input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5.1L	Total raw water exported (raw water)	sum(5.15L+5.25L+...) input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5.15L+	Non-potable water supplied to None	input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5.25L+	Raw water export to None	input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6.1L	Total potable water exported	sum(6.15L+6.25L+6.35L+...) input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6.15L+	Potable water export to None	input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7.1L	Deployable Output (baseline production)	sum(7.15L+7.25L+7.35L+7.45L) input	Mgd	2	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65
8.1L	Baseline forecast changes to Demand	sum(8.15L+8.25L+8.35L) input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8.15L	Change in DO due to climate change	input (reductions must be reported as -ve)	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.25L	Reductions to restore sustainable	sum(8.25L sub components) input	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8.215L+	Total for the zone	input (zero or negative number)	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8.35L	Total other changes to DO production	input (reductions must be reported as -ve)	Mgd	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9.1L	Raw water losses, treatment and	input	Mgd	2	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30		
10.1L	Outage allowance	input	Mgd	2	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	

Company: Essex & Suffolk Water
 Resource Zone Name: Hartness
 Resource Zone Number: 4
 Planning Scenario Name: City Year Annual Average
 Chosen Level of Service: Planned

Table 3: Baseline Demand

Row ID	Component	Derivation	Units	Decimal Places	2017	For info 2018-18	For info 2019-19	For info 2020-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	
198L	Water delivered measured non-household	Input	Mm3	2	3.28	3.28	3.28	3.28	3.29	3.31	3.33	3.35	3.38	3.39	3.39	3.40	3.41	3.43	3.44	3.45	3.47	3.48	3.49	3.50	3.51	3.52	3.53	3.55	3.56	3.57	3.57	3.59	3.59	3.60	3.61	3.62	3.63	3.64	3.65	3.65	3.67	3.68	3.69	3.69	3.69	3.69			
199L	Water delivered unmeasured non-household	Input	Mm3	2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
219L	Water delivered measured household	Input	Mm3	2	1.91	1.88	1.82	1.87	2.02	2.05	2.07	2.10	2.13	2.16	2.18	2.20	2.21	2.23	2.24	2.25	2.26	2.28	2.29	2.31	2.33	2.36	2.37	2.38	2.40	2.42	2.44	2.46	2.48	2.50	2.51	2.53	2.56	2.58	2.61	2.63	2.66	2.68	2.71	2.74	2.77	2.80	2.83	2.86	
229L	Water delivered unmeasured household	Input	Mm3	2	1.43	1.39	1.30	1.35	1.22	1.19	1.16	1.13	1.10	1.07	1.04	1.01	0.99	0.96	0.94	0.92	0.90	0.88	0.87	0.85	0.84	0.82	0.81	0.80	0.79	0.77	0.76	0.74	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.60	0.59	0.58	
239L	Measured Non-Household - Consumption	198L-199L	Mm3	2	3.27	3.27	3.27	3.27	3.27	3.31	3.32	3.34	3.36	3.37	3.38	3.40	3.41	3.42	3.43	3.45	3.46	3.47	3.48	3.49	3.50	3.51	3.52	3.52	3.54	3.55	3.56	3.56	3.58	3.58	3.59	3.60	3.61	3.62	3.63	3.64	3.64	3.66	3.67	3.68	3.67	3.68	3.68	3.68	
249L	Unmeasured Non-Household - Consumption	208L-199L	Mm3	2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01				
259L	Measured Household - Consumption	219L-208L	Mm3	2	1.79	1.82	1.87	1.91	1.96	1.98	2.01	2.04	2.07	2.09	2.11	2.13	2.15	2.16	2.17	2.18	2.20	2.21	2.22	2.24	2.26	2.28	2.30	2.31	2.33	2.35	2.37	2.39	2.41	2.43	2.45	2.46	2.48	2.50	2.53	2.56	2.58	2.61	2.64	2.66	2.69	2.72	2.75	2.78	
269L	Unmeasured Household - Consumption	229L-208L	Mm3	2	1.32	1.29	1.25	1.32	1.18	1.15	1.11	1.08	1.05	1.03	1.00	0.97	0.94	0.92	0.90	0.88	0.86	0.84	0.83	0.81	0.80	0.78	0.77	0.76	0.74	0.73	0.72	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.61	0.60	0.59	0.58	0.57	0.56	0.55	
27	Percentage of consumption driven by climate change	Input	%	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
28	Volume of consumption driven by climate change	Input	Mm3	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
298L	Measured Household - PCC	(208L*1,000,000)/(408L*1,000)	Mm3	1	134.7	133.8	132.8	131.1	131.4	130.1	129.2	128.3	127.5	126.8	126.9	126.1	125.5	125.8	125.2	124.5	123.8	123.2	122.6	121.9	121.4	121.0	120.6	120.5	120.3	120.2	119.9	119.8	119.7	119.5	119.4	119.3	119.2	118.4	118.4	118.4	118.4	118.3	118.3	118.3	118.3	118.3	118.3	118.3	118.3
2919L	Measured toilet flushing	Input	Mm3	1	32.5	32.4	32.1	32.1	32.2	32.0	31.9	31.8	31.7	31.6	31.5	31.4	31.3	31.2	31.1	31.0	31.0	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7			
2929L	Measured personal washing	Input	Mm3	1	84.5	84.5	84.1	84.0	83.8	83.5	83.3	83.1	82.8	82.6	82.4	82.2	82.1	81.9	81.7	81.5	81.4	81.2	81.1	81.0	80.9	80.8	80.7	80.5	80.4	80.4	80.3	80.2	80.2	80.1	80.1	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0		
2939L	Measured clothes washing	Input	Mm3	1	11.4	11.2	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.8	9.6	9.5	9.4	9.3	9.2	9.1	9.0	8.9	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.7	8.7	8.7	8.6	8.6	8.6	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5			
2949L	Measured dish washing	Input	Mm3	1	7.7	7.5	7.2	7.1	7.0	6.8	6.6	6.5	6.4	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
2959L	Measured miscellaneous internal use	Input	Mm3	1	10.2	10.0	9.9	9.8	9.8	9.6	9.5	9.4	9.3	9.2	9.1	9.0	8.9	8.8	8.8	8.8	8.8	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7			
2969L	Measured external use	Input	Mm3	1	8.4	8.2	8.0	8.0	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.9	6.7	6.6	6.5	6.4	6.3	6.1	6.1	6.0	6.0	5.9	5.9	5.8	5.7	5.7	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5			
298L	Measured Household - PCC	(208L*1,000,000)/(408L*1,000)	Mm3	1	105.0	103.3	101.6	100.9	101.3	100.8	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	
2919L	Measured toilet flushing	Input	Mm3	1	37.5	37.5	37.1	37.1	37.2	37.2	37.1	37.1	37.1	37.0	37.0	36.9	36.9	36.8	36.8	36.8	36.7	36.7	36.7	36.7	36.6	36.6	36.6	36.6	36.6	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7			
2929L	Measured personal washing	Input	Mm3	1	71.5	71.4	71.1	70.9	70.8	70.7	70.6	70.4	70.3	70.2	70.1	70.0	69.9	69.8	69.7	69.6	69.5	69.4	69.3	69.2	69.1	69.0	68.9	68.8	68.7	68.6	68.5	68.4	68.3	68.2	68.1	68.0	67.9	67.8	67.8	67.7	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	
2939L	Measured clothes washing	Input	Mm3	1	10.8	10.6	10.3	10.1	9.9	9.7	9.5	9.3	9.2	9.0	8.8	8.6	8.4	8.3	8.1	8.1	7.8	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5			
2949L	Measured dish washing	Input	Mm3	1	10.0	9.9	9.9	9.9	9.9	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8					
2959L	Measured miscellaneous internal use	Input	Mm3	1	11.7	11.5	11.4	11.4	11.6	11.5	11.5	11.4	11.4	11.3	11.3	11.3	11.2	11.2	11.1	11.1	11.0	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9				
2969L	Measured external use	Input	Mm3	1	8.4	8.2	8.0	8.0	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3				
298L	Measured Household - PCC	(208L*1,000,000)/(408L*1,000)	Mm3	1	140.8	139.7	138.6	137.5	138.9	138.8	138.8	138.9	139.0	139.1	139.2	139.3	139.4	139.5	139.7	139.8	139.9	140.0	140.1	140.2	140.3	140.4	140.5	140.6	140.7	140.8	140.9	141.0	141.1	141.2	141.3	141.4	141.5	141.6											

Table 4: Baseline supply demand balance

Item ref	Component	Derivation	Unit	Decimal places	2016/17	Est 2017-18	Est 2018-19	Est 2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60
11B	Distribution input	10B+20B+41B+52B+103B+108B+109B	M3	2	7.25	7.25	7.25	7.25	7.50	7.51	7.53	7.54	7.56	7.57	7.57	7.57	7.58	7.58	7.59	7.59	7.60	7.60	7.61	7.62	7.64	7.66	7.68	7.69	7.71	7.72	7.74	7.75	7.77	7.79	7.79	7.80	7.83	7.85	7.86	7.87	7.89	8.02	8.05	8.08	8.10			
12B	Water Available For Use (own sources)	7B+48B+108B+109B	M3	2	7.63	7.63	7.63	7.63	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83		
13B	Water Demand (excluding For Use)	12B+103B+108B+109B+48B	M3	2	8.65	8.65	8.65	8.65	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.83		
14B	Target headroom (climate change component)	Input	M3	2	0.50	0.50	0.50	0.50	-0.02	0.01	0.02	0.03	-0.02	0.00	0.00	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.03	0.03	0.01	0.01	0.02	0.04	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
15B	Target headroom (all other components)	Input	M3	2	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
16B	Target headroom	14B+15B	M3	2	0.50	0.50	0.50	0.50	0.79	0.82	0.82	0.80	0.79	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76		
17B	Available Headroom	11B+16B	M3	2	1.96	1.93	1.93	1.93	2.13	2.12	2.11	2.09	2.08	2.08	2.08	2.08	2.05	2.05	2.04	2.04	2.04	2.03	2.03	2.01	1.99	1.97	1.96	1.95	1.93	1.91	1.90	1.88	1.86	1.85	1.84	1.83	1.82	1.79	1.74	1.72	1.69	1.64	1.61	1.58	1.56	1.53		
18B	Supply Demand Balance	17B+108B	M3	2	1.46	1.43	1.43	1.43	1.33	1.30	1.29	1.29	1.29	1.29	1.29	1.31	1.31	1.30	1.32	1.34	1.36	1.36	1.36	1.37	1.36	1.35	1.34	1.34	1.34	1.33	1.32	1.31	1.30	1.29	1.29	1.27	1.25	1.23	1.22	1.21	1.19	1.16	1.15	1.12	1.11	1.07		

Company: Essex & Suffolk Water
 Resource Zone Name: Hartsburn
 Resource Zone Number: 4
 Planning Scenario Name: Dry Year Annual Average
 Chosen Level of Service: Planned

README

Table 3. Financial performance indicators		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		
Indicator	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Revenue	€ million	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300		
Operating Profit	€ million	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104
Net Profit	€ million	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
Operating Profit Margin	%	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
Net Profit Margin	%	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
Operating Profit per Share	€	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00		
Net Profit per Share	€	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	
Operating Profit per Share	€	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00		
Net Profit per Share	€	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	

Indicator	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenue	€ million	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
Operating Profit	€ million	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
Net Profit	€ million	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Operating Profit Margin	%	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Net Profit Margin	%	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Operating Profit per Share	€	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.60
Net Profit per Share	€	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35

Table 9: Final planning water supply

Row Ref	Component	Derivation	Unit	Decimal places	2016/17	For info 2017	For info 2018	For info 2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	
11FP	Distribution Input	18FP+22FP+24FP+25FP+26FP+28FP+33FP	Mls	2	7.65	7.65	7.65	7.65	7.46	7.42	7.39	7.36	7.33	7.32	7.30	7.27	7.25	7.23	7.21	7.19	7.17	7.16	7.14	7.12	7.11	7.11	7.12	7.11	7.12	7.13	7.13	7.13	7.14	7.16	7.16	7.18	7.21	7.23	7.26	7.27	7.29	7.32	7.35	7.37	7.40	7.43	7.45	7.48	
12FP	Water Available For Use (see above)	18FP+22FP+24FP+25FP+26FP+28FP+33FP	Mls	2	7.65	7.65	7.65	7.65	7.46	7.42	7.39	7.36	7.33	7.32	7.30	7.27	7.25	7.23	7.21	7.19	7.17	7.16	7.14	7.12	7.11	7.11	7.12	7.11	7.12	7.13	7.13	7.13	7.14	7.16	7.16	7.18	7.21	7.23	7.26	7.27	7.29	7.32	7.35	7.37	7.40	7.43	7.45	7.48	
13FP	Total Water Available For Use	12FP+14FP+15FP+16FP+17FP	Mls	2	8.83	8.83	8.83	8.83	8.63	8.59	8.56	8.53	8.50	8.48	8.45	8.42	8.40	8.38	8.36	8.34	8.32	8.31	8.30	8.29	8.28	8.27	8.27	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26
14FP	Target headroom (scheme change components)	Input	Mls	2	0.00	0.00	0.00	0.00	-0.02	-0.01	-0.02	-0.03	-0.02	-0.03	-0.03	-0.01	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02	-0.02	-0.03	-0.03	-0.01	-0.01	-0.02	-0.04	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.04	-0.05	-0.04	-0.04	-0.04	-0.05	-0.04	-0.04			
15FP	Target headroom (all other components)	Input	Mls	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
16FP	Target headroom	14FP+15FP	Mls	2	0.00	0.00	0.00	0.00	-0.02	-0.01	-0.02	-0.03	-0.02	-0.03	-0.03	-0.01	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02	-0.02	-0.03	-0.03	-0.01	-0.01	-0.02	-0.04	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.04	-0.05	-0.04	-0.04	-0.04	-0.05	-0.04	-0.04			
17FP	Available headroom	13FP-16FP	Mls	2	1.86	1.86	1.86	1.86	1.88	1.91	1.94	1.97	1.99	2.01	2.01	2.04	2.06	2.08	2.09	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10		
18FP	English Channel Balance	17FP-18FP	Mls	2	1.96	1.96	1.96	1.96	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99			

Component: Essex & Suffolk Water
 Resource Zone Name: Harborne
 Resource Zone Number: 4
 Planning Scenario Name: Dry Year Annual Average
 Classes Level of Service: Planned

Table 10: Drought plan links and Deployable Output Overview

10.1 Planning scenarios				10.2 Water resources management plan								10.3 Drought plan						10.4 Demand		
Drought Scenarios	Drought Description	Drought Severity	Plan in which scenario is used (highlights overlaps)		WRMP DO of Sources (not including drought measures)	WRMP Additional Yield from Drought Supply Measures (eg drought permits or orders)			WRMP Impact on DO of drought plan Demand Restrictions (eg TUBs)			WRMP DO Levels of Service	Drought Plan Additional Yield from Further Supply Measures (eg drought permits or orders)			Drought Plan Impact on DO of Further Demand Restrictions (eg TUBs)			Unrestricted Demand	Restricted Demand
			WRMP	Drought Plan		Description	Marginal Benefit (MI/d)	DO (MI/d)	Description	Marginal Benefit (MI/d)	DO (MI/d)		Description	Marginal Benefit (MI/d)	DO (MI/d)	Description	Marginal Benefit (MI/d)	DO (MI/d)		
Historic Droughts	1997	0.5% chance in any given year	Y	Y	8.7	None	N/A	8.7	Level 1 and 2 Demand Restrictions	Not known	8.7	8.7	Drought Plan Drought Actions	1.54	8.7	Level 1 and 2 Demand Restrictions	Not known	8.7	7.68	6.76
Additional Drought Scenarios	200	Severe Drought	Y	Y	8.7	None	N/A	8.7	Level 1 and 2 Demand Restrictions	Not known	8.7	8.7	Drought Plan Drought Actions	1.54	8.7	Level 1 and 2 Demand Restrictions	Not known	8.7	7.68	6.76

Reported DO for WRMP tables highlighted in yellow

10.5 Summary report

WRMP DO Overview	Drought Plan Overview
<p>DO Approach - The Hartismere WRZ only contains groundwater sources. The standard UKWIR methodology (1995) entitled "A Methodology for the Determination of Outputs for Groundwater Sources" was used to determine the DO of the groundwater sources. The regional groundwater model was used to determine the DO at groundwater sources during a 1 in 200-year drought scenario. This is outlined in sections 3.6 and 3.7 of the WRMP.</p> <p>LoS - the planned levels of service for our customers are 1 in 20 years for temporary use bans, 1 in 50 years for drought order bans, and 1 in 250 years for pressure reduction.</p> <p>Constraint on DO - our deployable output is licence-constrained.</p> <p>Critical Year - our worst historical drought year in Suffolk is 1997.</p> <p>Data length & quality - The data length and quality varies between sources.</p> <p>Approach to drought severity - estimation of drought severity was carried out using analysis of rainfall data and Tabony tables, outlined in section 2.9.1 of the WRMP.</p>	<p>The supply and demand side measures included within our Drought Plan are listed below, alongside their associated daily benefit (as a reduction in demand or increase in yield).</p>
Additional Drought Scenarios	Drought Supply Measures and Demand Restrictions Further Details
<p>Drought scenarios chosen and justification - A severe (1 in 200 year) drought scenario was analysed for our groundwater sources using the regional groundwater model. This is outlined in section 3.7 of our WRMP.</p>	<p>Demand – Appeals for restraint – 7% demand reduction Demand – Temporary use ban – further 5% demand reduction Demand – Drought order ban – further 2% demand reduction Supply – Increase restricting annual quantity on Hartismere Borehole 1 licence – 0.14MI/d benefit Supply – Increase restricting annual quantity on Hartismere Borehole 4 Group licence – 1.37MI/d benefit Supply – Merge Hartismere Borehole 1 and 4 Group Licences - greater operational flexibility & avoiding any significant adverse environmental effect Supply – Reduce compensation flows from Hartismere Borehole 5 borehole – preserving groundwater resources for later abstraction Supply – Tankering</p>
Impact on Supply Demand	
<p>We have not included any supply side drought measures in WRMP deployable output assessments, but demand side restrictions are taken into account. Only Level 1 and 2 demand restrictions were enforced our worst historic drought.</p>	
Demands	
<p>We have used the Dry Year Distribution Input figures for base year 2016/17 as the Unrestricted Demand. Restricted Demand is the Unrestricted Demand minus the 12% demand reduction from Level 1 and 2 restrictions.</p>	

2.3 Making changes to the WRP tables

Please see below slight changes to the WRP tables

Structure: no changes

Content: see below

Table	Row ref	Component	Derivaion	Unit	DP	What has been amended	Reasoning
2	7BL	Deployable Output (baseline profile with	sum(0.1BI+0.2BL+0.3BL+0.4BL)	MI/d	2	Formula has been removed, this row is Input from Supply data	DO is calculated for consistency on Supply calculations, DO is not sum of licences
9	11FP	Distribution Input	19FP+20FP+21FP+22FP+32FP+33FP+39FP	MI/d	2	Void SPL removed row 38 from calculation, NWL/ESW following UKWIR/NRA WR1 demand forecasting methodology, void usage which includes SPL is included in Water unbilled. So to	Consistency between WRP and water balance assumptions/calculations Following UKWIR/NRA WR1 demand forecasting methodology. Reflects WRMP report Void SPL ranges from 0.01% to 0.3% of DI
4	11BL	Distribution input	19BL+20BL+21BL+22BL+32BL+33BL+3	MI/d	2	As above	As above
8	30FP	Unmeasured Household - PCC	(26FP*1,000,000)/(52FP*1,000)	l/h/d	1	Formula amended to 1 decimal place rather than 0 as per table requirement New =ROUND((H10*1000000)/(H55*1000),1)	For consistency between BL/FB as well as complying with table requirements
8	29FP	Measured Household - PCC	(25FP*1,000,000)/(51FP*1,000)	l/h/d	1	As above	For consistency between BL/FB as well as complying with table requirements
2	8.21BL+	Total for the zone	Input (zero or negative number)	MI/d	2	Row reference	The row reference is a duplicate of 8.2 ie there are two 8.2's so one has been amended to 8.21 to enable an accurate data load of the tables.
7	1FP	Raw Water Abstracted	1BL	MI/d	2	FP should be different than = BP Input from Final Supply demand (DI for BL and FP are different) which means BL and FP raw water abstracted will be different figures	Final plan DI + raw water imports - raw water exports + process losses should = Final Plan Raw water abstracted
6	61.4	Change volume delivered to unmeasured households (input reductions as -ve)	-	MI/d	2	The volume associated in the row if consumption rather than the previous water delivered, changes made due to the version 15 including SPL to the water delivered figure	
6	61.3	Change volume delivered to measured households (input reductions as -ve)	-	MI/d	2	The volume associated in the row if consumption rather than the previous water delivered, changes made due to the version 15 including SPL to the water delivered figure	

amended final v

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