Tunbridge Wells Borough Council

Tunbridge Wells Borough Local Plan

Water Efficiency Background Paper

December 2017

Contents

1 Introduction

1.1 Water Efficiency and Conservation Background

1.1.1 As climate change continues to influence our water supplies (summer droughts and increased winter rainfall[1]), and in the face of a large housing growth agenda, it is critical that local authorities implement water conservation activities through their Local Plans.

1.1.2 Water efficiency and conservation of existing supplies is essential for:

- sustainable management of fresh water,
- protection of the water environment; and,
- meeting the current and future human demand.

1.1.3 Population, household size, and growth and affluence all affect how much water is used, and these are all factors that a Local Authority's Local Plan can have a strong influence upon.

1.1.4 On a global scale, agricultural irrigation accounts for about 70% of the total freshwater used directly by humans. The remainder is used for industrial and domestic purposes. However, these proportions vary widely due to local climatic and economic conditions. Within this century, one-third of countries situated in areas of water scarcity across the world may encounter severe water shortages. By 2025, two thirds of the world's population is likely to live in areas of moderate or severe water shortage. The need for more effective conservation of the limited supplies of water that are available for use by people and required by natural ecosystems will intensify as water stress grows[2].

1.1.5 South East of England is an area of serious water stress[3]. As such South East Water has carried out a compulsory metering programme for all household customers (non-household already metered) which is due to reach 90% metered by 2020[4]. Tunbridge Wells has already been through this programme and all new build properties will have water meters fitted.

1.1.6 The uncertainties caused by weather, climate change and changing population mean that society will need to adapt to ensure that demands for water can be met. Water conservation

[1] Jenkins, G.J., Perry, M.C., and Prior, M.J. (2009) The Climate of the UK and recent trends. Met Office Hadley Centre, Exeter, UK. http://www.ukcip.org.uk/wp-content/PDFs/UKCP09_Trends.pdf. Please also refer to http://ukclimateprojections.metoffice.gov.uk/24123 for a more recent update.
[2] http://www.un.org/waterforlifedecade/scarcity.shtml
[3] South East Water, Water Resources Management Plan 2014, available from: https://corporate.southeastwater.co.uk/about-us/our-plans/water-resources-management-plan-2014
[4] Ibid

is an essential part of this adaptation.

1.2 Purpose of this Report

1.2.1 This report investigates the feasibility of introducing a development management policy that would facilitate a reduction in water consumption in new development.

2 National and Regional Legislation, Policy and Guidance

2.1 Water Framework Directive (2000/60/EC)

2.1.1 The Water Framework Directive (WFD from hereon) entered into force in December 2000 and was transposed into English law in December 2003 in the form of the Water Environment (WFD) (England and Wales) Regulations 2003. The reforms of the planning systems in England and Wales took place over a similar period, culminating in the Planning and Compulsory Purchase Act 2004. The concept of sustainable development is at the heart of both sets of legislation and both the WFD and the new planning system must aim to meet the three pillars of sustainable development – social, economic and environmental progress. This context is reinforced by the requirement for Sustainability Appraisal of development plans, incorporating Strategic Environment Assessment (SEA), and the application of the SEA Directive to the WFD.

2.1.2 The introduction of the WFD brought new challenges for planners as the deterioration of the water environment from the provision of adequate water resources and wastewater treatment was no longer permitted. The challenge for planners therefore is now greatest when development is proposed where the water environment is already fragile.

2.1.3 One of the key goals of The WFD (2000) is to promote sustainable water management and use, and to provide a water planning framework for the next 27 years.

2.1.4 Failure to comply with WFD requirements may lead to the European Commission bringing legal proceedings against the UK. Local Authorities have a general responsibility not to compromise the achievement of UK compliance with EC Directives[5].

[5] In 2016, the UK voted to leave the European Union. At the time of writing, it was expected that all legislation relating to EC Directives would be transposed directly and kept within national law via the Great Repeal Bill.

2.2 The NPPF

2.2.1 The National Planning Policy Framework sets out the government's planning policies for England and how these are expected to be applied. Relevant paragraphs are listed below:

Paragraph 94:

"Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change[6], taking full account of flood risk, coastal change and water supply, and demand considerations."

Paragraph 99:

"Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure."

The NPPG includes specific guidance on planning for water efficiency.

Paragraph 014:

Reference ID: 56-014-20150327 advises that local planning authorities can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day provided there is appropriate evidence to support the need for a tighter water efficiency target which would not prejudice the viability of new development in areas. This would be in areas identified by the Environment Agency as having serious water stress.

Paragraph 001

Ref ID: 34-001-2014030-6 states that the authority must have regard to River Basin Management Plans (RBMPs) prepared by the Environment Agency; the RBMPs implement the EU Water Framework Directive to prevent deterioration of aquatic ecosystems and protect, enhance and restore water bodies to good status. In addition a local planning authority has to take account of evidence in water resource management plans published by water companies and local sources of evidence.

[6] In line with the objectives and provisions of the Climate Change Act 2008.

2.3 Kent Environment Strategy (2016)

2.3.1 The Kent Environment Strategy (KES from hereon) was adopted by Tunbridge Wells Borough Council in 2016. It aims to support economic growth whilst protecting and enhancing our natural and historic environment, and creating and sustainable communities that are vibrant, healthy and resilient.

2.3.2 Page 7 of the KES describes the current state of affairs as follows:

"Kent is one of the driest regions in England and Wales and our water resources are under continued pressure requiring careful management and planning. In Kent, 73% of our public water supply is taken from groundwater with the remainder from rivers or storage reservoirs. In Kent we are already using most of the capacity in the county and in some places already exceeding it. This water stress will be exacerbated by a growing population and climate change. In addition, the quality of our water affects our health, our economy and our natural environment but is under increasing pressure from pollution, reduced river flows and physical modifications to water bodies. Despite these pressures, Kent's household water use is above the national average (154 litres per person per day compared with 141 litres nationally)."

2.3.3 Page 22 then goes on to add:
"*The quality and quantity of those water resources influence the way they are used for recreational purposes and commercial activities such as fishing, irrigation of crops and supply of drinking water as well as the health of the wide variety of habitats that they support. Compared to the rest of England and Wales, there are already significant stresses on our water resources from land use practices and population. As evidenced in the Kent Spatial Risk Assessment for Water, without considerable improvements in water use efficiency, water storage and wastewater treatment, climate change is likely to add to these stresses, ultimately impacting on the availability and cost of water to residents and businesses and the quality of our water environment and resources. The study highlighted that some of the key concerns for the county relate to availability of non-mains water during summer, impacts on agricultural and industrial users, and costs of mains water."*

2.3.4 Page 25 of the KES lists improving water resource efficiency as a key priority.

2.3.5 The Kent State of the Environment Report[7], which forms the evidence base for the Kent Environment Strategy, explains:

"In Kent there are many catchments where there is little or no water available for abstraction during dry periods. Pressures are particularly notable in Kent as it is one of the driest parts of England and Wales, coupled with high population density and household

[7] http://www.kent.gov.uk/__data/assets/pdf_file/0020/63812/Kent-State-of-the-Environment-Report-Evidence-base-supporting-the-strategy.pdf

water use."

"73% of public water supply in Kent is taken from groundwater, most notably from chalk aquifers. The remainder of water company supply is either pumped directly to customers from rivers or into storage reservoirs. These supplies are finite resources and in Kent we are currently using most of that capacity and in places exceeding it."

2.4 Optional Technical Standard

2.4.1 In March 2015, the government announced a new approach to the setting of technical housing standards in England, which rationalised the many differing existing standards into a simpler, streamlined system. A new optional water efficiency standard was introduced as part of this reform.

2.4.2 The standard allows Local Planning Authorities to enforce upon residential developers a more ambitious water conservation target of 110 litres per person per day instead of the current Part G Building Regulations mandatory target of 125 litres per person per day. To implement this more ambitious target, Local Authorities have to demonstrate a clear local need.

Other Drivers of Water Efficiency

Other reasons why water efficiency is important for LAs to consider are set out below:

- Action on water efficiency is an important part of delivering LAs' own environmental policies.
- It can cut water and energy bills, helping LAs to make financial savings.
- The production of mains water requires significant energy and chemical inputs and hence reducing demand for water can contribute significantly to reducing an organisation's carbon footprint, especially where those savings are of hot water.
- And actions to improve water use efficiency can also help to manage reputational risk that could arise, for example, from adverse publicity resulting from incidents such as accidental water wastage during a drought.

3 Statutory Body Guidance

3.1.1 The Environment Agency is England and Wale's main statutory body for protection and improvement of the water environment. The Agency is responsible for managing the use of water resources and supporting sustainable growth.

3.1.2 In June 2012, the Agency published several reports on the state of water across the country including one for Kent, entitled the Kent Water Summit[8]. The report explained that water supplies in Kent (which are mostly sourced from ground) are under increasing pressure with less water available as populations increase, summers become hotter and drier. The report concludes that a diverse range of bold solutions is needed to meet these future challenges.

3.1.3 It is pertinent to note that the Kent average water consumption is 154 litres per person per day compared with 141 litres nationally.[9]

3.1.4 In 2013, the Environment Agency went on to produce a water stress classification method for areas of England and Wales[10]. In Table 1 of this report, the supply for much of Kent and all of Tunbridge Wells Borough was classified as being under "Serious Water Stress". Areas of serious water stress are identified where both the current and future household demand for water is a high proportion of the effective rainfall available to meet that demand.

3.1.5 In 2015, in collaboration with the Environment Agency, the Government published the South East River Basin Management Plan[11] which describes the issues of pollution, invasive species and water level changes as being the biggest challenges affecting water bodies in the region.

[8] https://shareweb.kent.gov.uk/Documents/environment-and-planning/environment-and-climate-change/water%20summit/state-of-water.pdf
[9] Kent Environment Strategy , A strategy for Environment, Health and Economy, July 2015
[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244333/water-stressed-classification-2013.pdf
[11] https://www.gov.uk/government/publications/south-east-river-basin-district-river-basin-management-plan

4 Utility Company Guidance

4.1.1 South East Water (eastern) supplies all of Tunbridge Wells Borough's water needs. This is broken down as follows:

Water Resource Zone 1 -
This WRZ covers parts of Tunbridge Wells, Tonbridge and Malling, and Sevenoaks districts. 100% of water sourced in this WRZ is supplied by seven groundwater sources. South East Water operates internal transfers of water supplies to this WRZ from WRZ 7, and also moves water from and to WRZ 2.

Water Resource Zone 7 -
This WRZ covers parts of Tunbridge Wells, Tonbridge and Malling, Maidstone and Ashford districts. 49% of water sourced in this zone is supplied by one surface water source shared with Southern Water and 51% of water is supplied by three groundwater sources. Inter-zonal imports and exports occur from and to South East Water's WRZ 8 and in addition, water is exported to South East Water's WRZ1 and imported from WRZ6.

4.1.2 In 2014, South East Water published its Water Resources Management Plan[12] which sets out how the water company will meet demand during the period of 2015 – 2040. The plan describes the higher than average demand for water and challenges that are faced from increasing populations and climate change. Pressures are so high that even following a wet winter the region is only ever 18months away from the start of a potential drought. It is also worth noting that, according to the Environment Agency, all water companies have drought plans to ensure supply for 2 years but 3 year drought plans remain untested.

4.1.3 One of South East Water's key solutions for meeting these pressures is to provide all customers with a water meter and ensure efficient use of water by its customers.

[12] http://www.southeastwater.co.uk/about-us/our-plans/water-resources-management-plan

5 Experiences from other Authorities

5.1.1 In 2017, Kent County Council (KCC) prepared the Kent Water for Sustainable Growth Study. Key messages in the document include:

- The average demand expected each year in the majority of the county, including all of Tunbridge Wells Borough in 2030/2031, will be between -25 and -5 (ML/d) where a negative figure indicates demand exceeding supply.

- The importance of planning policy in aiming for water "neutrality" i.e. where total demand for water remains unchanged after development takes place. Solutions to achieve this state range from a "Very High" scenario with strong local policy within the Local Plan on restriction of water use in new homes beyond Building Regulation requirements (including the need for all new development to include water recycling facilities to meet non-potable demand), to a "Low" scenario in which the building Regulations optional standard is adopted for all new homes.

5.1.2 In the neighbouring district of Rother, to the south of Tunbridge Wells Borough, a similar water background paper was produced in 2016. For reasons of water stress and future demand, this background paper proposed adopting a new policy to ensure all new dwellings consume no more than 110 litres per person per day.

5.1.3 The same approach is being taken at Swale District, Mid Sussex District and at the neighbouring authorities of Ashford and Tonbridge and Malling.

6 Tunbridge Wells Context

6.1.1 In the 2016 Sustainability Scoping Report[13], a review of water consumption within Tunbridge Wells Borough was carried out. This revealed that consumption rates within the borough are higher than both the national and regional averages, as shown in Table 6.1 below.

Table 6.1. Average water consumption rates.

	Average Water Consumption (litres / household / day)
Tunbridge Wells Borough	158
Kent	154
England & Wales	141
Target (Kent Environment Strategy)	140

2013/14 data. Source: http://www.kent.gov.uk/__data/assets/pdf_file/0020/63812/Kent-State-of-the-Environment-Report-Evidence-base-supporting-the-strategy.pdf

6.1.2 Tunbridge Wells Borough is underlain with either minor or non-aquifers. The majority of the borough is covered by the Medway Management Catchment, with the Teise, Hammer Stream, Bewl, and Eden tributaries draining the majority of the Borough to the north towards the River Medway. The south eastern section of the borough is drained by a number of tributaries to the River Rother.

6.1.3 Map 7 in the EA's State of Water Report for Kent reveals the borough to be in an area of the county with no water available for abstraction, thus the area is reliant on large scale water transfers both within the county and across country boundaries. This ensures supplies are more flexible, however the transfers do have a large carbon footprint.

6.1.4 Tunbridge Wells is supplied with drinking water by South East Water. The west of the borough, including Royal Tunbridge Wells and Southborough, is located within South East Water's WRZ 1, whilst the central and eastern sections of the borough are located in WRZ 7. Drinking water is therefore supplied by groundwater and imported water to the west, and a mixture of groundwater, surface water and imported water in the central and eastern sections.

6.1.5 Without intervention to manage demand and new resources, the borough will experience deficits of available supply in 2030/2031 of approximately -21Ml/day in WRZ1 and approximately -29Ml/d in WRZ7.

[13] http://www.tunbridgewells.gov.uk/__data/assets/pdf_file/0007/134485/2016_SA_Scoping_Report.pdf

7 Viability Assessment

7.1.1 The Government has provided Local Authorities the option to implement the Technical Standards on Water Efficiency within Building Regulation Part G[14]. According to Planning Policy Guidance published on 25th June 2015, a 'clear local need' needs to be demonstrated in order to adopt the standard. This need can be demonstrated with considerations of the impact on viability and housing supply.

7.1.2 In September 2014, shortly before the introduction of the Housing Standards Review, a paper was published by the Department for Communities and Local Government on the cost impacts of the review[15]. The purpose of the paper was to compare the cost of the number of proposed and current housing standards put forward by the Housing Optional Technical Standards Paper[16]. The costs in relation to water efficiency for a residential development of 50 dwellings are summarised below in Table. The paper concludes that the cost per dwelling to comply with tighter water efficiency standards is competitive and should not be an undue financial burden for developers.

Table 7.1. Costs associated with implementing the optional standard for water efficiency[15].

	Current Standard	**Proposed Optional Standard**
Cost per dwelling (£)	0 - 2,697	6 - 9‡
Process costs (£)*§	16 - 159	0.4 - 57
Total (£)§	**16 - 2856**	**0.4 - 66**

* For example, design time or commissioning of specialist reports.

§ Also includes the process costs for other optional technical standards (energy, security and access), thus likely to be an overestimate for water alone.

‡ Costs reflect the most common current practice which is to use flow restricting devices to reduce water consumption by taps and showers especially bathroom and kitchen taps. The range in costs reflects the various sizes of dwellings from apartments to detached houses.

7.1.3 In addition to this paper, the NHBC Foundation produced a report on the implementation of sustainable technologies in new builds by housing associations. The findings indicate that measures for water efficiency were installed very frequently and four times more often than for energy efficiency. Figure 7.1 illustrates this fact. It also highlights that the cost of the technology was the biggest influencing factor, indicating that water efficiency products were cost effective.

[14] https://www.gov.uk/guidance/housing-optional-technical-standards

[15] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/353387/021c_Cost_Report_11th_Sept_2014_FINAL.pdf

[16] https://www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

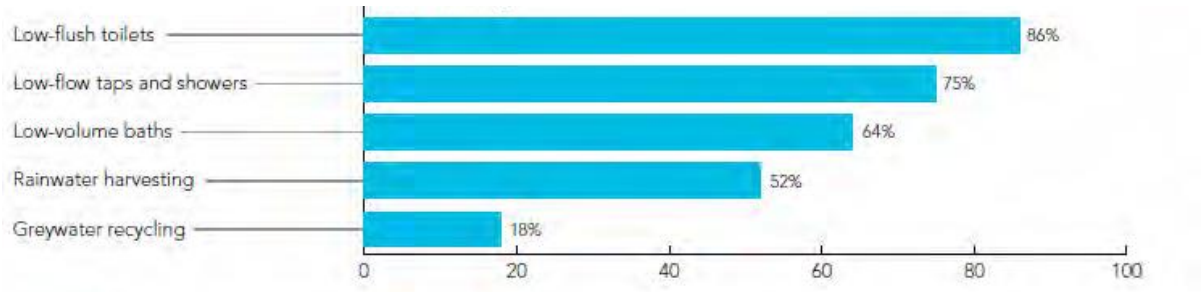

Figure 7.1. Percentage of housing associations installing technologies in new build homes.

7.1.4 Housing Associations also reported largely positive feedback for the implementation of various water saving devices as shown in Figure 7.2 below.

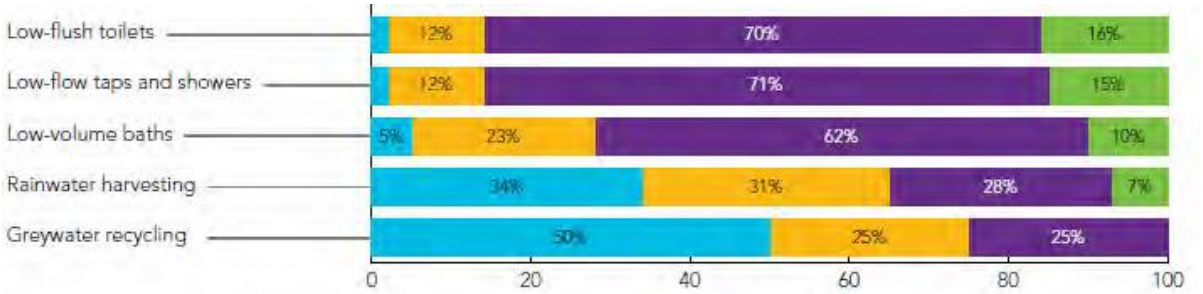

Figure 7.2. Percentage of survey respondents who report poor (blue), fair (orange), good (purple) or excellent (green) levels of satisfaction with various water saving technologies.

7.1.5 In addition to the above perspective from developers and housing associations, the installation of water meters in all homes in the borough by South East Water means that it is highly likely that residents would prefer new homes with water efficiency devices installed.

8 Conclusions and Recommendations

8.1 Summary and Conclusions

8.1.1 As established in the reports made by the Environment Agency and elsewhere, Tunbridge Wells Borough is identified as a water stressed area with a classification of 'serious'.

8.1.2 South East Water has indicated that they will invest in new supplies and large infrastructure projects to accommodate demands from future development; however it is acknowledged that there is an increased pressure to manage existing water resources more effectively. Indeed, one of the key business objectives of South East Water is to sustain the existing water reserves by implementing efficiency measures.

8.1.3 In all legislation relating to water, there is clear direction towards water efficiency. The local water suppliers have also been able to demonstrate that there is a changing attitude in the public regarding sustainable water usage and cost, as seen by the rise of water meters being installed across many areas of the south east. South East Water research has shown that customers have a strong preference to see water efficiency advice and activities to reduce demand[17].

8.2 Recommendations for Future Policy

8.2.1 In summary, the conclusion of this background paper is that the tighter optional standard of 110 litres per person per day is an achievable standard for house builders to implement. There is clear evidence that water efficiency measures are needed in this area, and water efficiency measures are within an acceptable range of costs to ensure development remains viable.

8.2.2 Table 8.1 below shows how this background paper has addressed each of the methods for establishing a 'clear local need' to justify use of the optional tighter water efficiency standard.

[17] https://corporate.southeastwater.co.uk/about-us/our-plans/water-resources-management-plan-2014

Table 8.1. Demonstration of how 'a clear local need' has been established in this report according to the Planning Policy Guidance Note.

PPG Considerations	**Location in this Background Report**
Existing sources of evidence: - Water Stressed Areas Classification (EA, 2013) - Water Resource Management Plan (SEW, 2015) - River Basin Management Plans - Local evidence	- Chapter 3 Statutory Body Guidance(pg 8) - Chapter 4 Utility Company Guidance (pg 9) - Chapter 3 Statutory Body Guidance(pg 8) - Chapter 5 Experiences from other Authorities (pg 10) and Chapter 6 Tunbridge Wells Context (pg 11)
Consultations with stakeholders	Appendix A
Impact on viability on housing supply	Chapter 7 Viability Assessment (page 12)

8.2.3 This topic paper supports the adoption of the Optional Standard in relation to improving water efficiency.

PROPOSED POLICY

New development should plan positively to minimise its impact on water resources. All new dwellings are required to be designed to achieve water consumption of no more than 110 litres per person per day as measured in accordance with an approved methodology.

PROPOSED CONDITION

No dwelling shall be occupied unless the notice for that dwelling of the potential consumption of wholesome water per person per day required by the Building Regulations 2010 (as amended) has been given to the Local Planning Authority.

Reason: In order to set a higher limit on the consumption of water by occupiers as allowed by regulation 36 of the Building Regulations 2010, and increase the sustainability of the development to minimise the use of natural resources pursuant to Core Strategy Policy 5 and guidance in the NPPF.

Appendix A

Advice sought in preparation of this Background Paper

Professional and expert advice has been sought in the preparation of this report from the following sources:

- South East Water
- Southern Water
- The Environment Agency
- KCC Sustainable Drainage Team
- KCC Technical Lead on Water Issues
- Water UK