



Kent Minerals and Waste Development Framework SA Scoping Report
Water Topic Paper



Revision Schedule

Scoping Report – Water Topic Paper March 2010

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1 Water

1.1 Introduction

1.1.1 This is Topic Paper 14 of 14 and is a component of the Scoping Report for the Sustainability Appraisal (SA) of the Kent Minerals and Waste Development Framework (MWDF). This document provides a background to the consideration of water; describes the 'sustainability context' within which the MWDF is being prepared; and describes the current and likely future situation for those elements of the 'sustainability baseline' in Kent that are of relevance. It then summarises the key sustainability issues as they relate to water and identifies how these issues should be taken account of in the SA of the Kent MWDF.

1.2 Background

1.2.1 Two related issues will be discussed in this topic paper, namely, water quality and water availability, although it is water quality issues that must be the focus of attention when considering the potential impacts of waste and minerals development. Poor water quality can directly impact human health as well as flora and fauna. Nationally, the primary cause of poor water quality is a combination of agricultural runoff, untreated drainage from built up areas and roads, and discharge from wastewater treatment works. In terms of water *availability*, pressures are becoming increasingly acute as a result of regional growth in housing, population and per capita usage of water. Climate change will only add to these pressures (see the Climate Change and Flood Risk Topic Paper or further discussion). Finally, this paper also includes a consideration of issues relating to coastal and estuarine waters.

1.3 What's the sustainability context?

1.3.1 Set out below is a summary of key implications from the Plans, Policies, Strategies and Initiatives (PPSIs) that set the context for considering water in this SA. This context review meets a requirement of the SEA Directive.¹

1.3.2 The Government's water strategy sets out a vision for the water sector in 2030.² The Strategy addresses a range of water-related issues including managing water demand through increased water efficiency and reduced water wastage; enhancing future water supply through new infrastructure; addressing water quality through tackling pollution; managing surface water runoff through sustainable drainage; and managing river and coastal flood risk.

1.3.3 The Environment Agency (EA) is responsible for making sure there is enough water available for everyone's needs, without damaging the environment. Their work is directed by the Water for people and the environment - Water resources strategy for England and Wales (2009).³ The EA's framework for the regulation and management of groundwater is addressed by Groundwater Protection, Policy and Practice (GP3)⁴ which sets out the EA's strategy for

¹ Annex I (a) of the SEA Directive requires that the responsible authority considers the relationship between their plan and other relevant plans and programmes

² DEFRA (2008). *Future Water: The Government's water strategy for England* [online] available at: <http://www.defra.gov.uk/environment/water/strategy/pdf/future-water.pdf> (accessed 02/09)

³ Environment Agency (2009) *Water for people and the environment Water Resources Strategy for England and Wales*.

⁴ Environment Agency (2008) *Underground, under threat – the State of Groundwater report* [online] available at: <http://www.environment-agency.gov.uk/research/library/publications/40741.aspx> (accessed 02/09)

groundwater management. The EA recognises the reasonable needs of abstractors and consumers as well as the need to adhere to the requirements of the Water Framework Directive.

- 1.3.4 A key driver, in terms of water quality, is the EU Water Framework Directive (WFD), which requires that all inland and coastal waters reach 'good ecological status' by 2015.⁵ The WFD expands the scope of water protection to all waters, surface waters and groundwater, and seeks to achieve 'good ecological status'. The main output from the WFD is a River Basin Management Plan for each of the 11 River Basin Districts for England and Wales. These plans will set out how we will achieve the environmental requirements of the WFD. Kent falls within the South East and Thames RBMPs.
- 1.3.5 Catchment Abstraction Management Strategies (CAMS) will also contribute to achievement of WFD objectives. The principal aim of CAMS is 'to provide a framework for resource availability assessment and produce a licensing strategy which aids the sustainable management of water resources on a catchment scale.' CAMS contributes to achieving a sustainable balance between the water needs of abstractors and of the environment. By providing an indication of the availability of water resources within river catchments, CAMS highlight any areas where future resource development may take place. They also identify any areas where current levels of licensed abstraction exceed the resources available.
- 1.3.6 A major objective of the Water Framework Directive (2000/60/EC) is the long-term progressive reduction of contaminant discharges to the aquatic environment in urban wastewater (UWW). Sewage sludge is also a product of wastewater treatment and the Urban Waste Water Treatment Directive (91/271/EEC) aims to encourage the use of sludge whenever appropriate. Potentially toxic elements and organic contaminants largely transfer to the sewage sludge during waste water treatment with potential implications for the use of sludge although some may be emitted with the effluent water.⁶ Waste water reuse is a topical issue in Kent, as the EA have recently commissioned some work to look at the Aylesford - Medway effluent recycling scheme which shows the scheme to have high potential.
- 1.3.7 Also of relevance is the Groundwater Directive (2006/118/EC), otherwise known as the Groundwater Daughter Directive, which prohibits the direct or indirect pollution of groundwater. In relation to groundwater, the Environment Agency state:⁷
- "It is necessary to prevent or limit the input of pollutants into groundwater and implement measures to reverse any significant trends in pollutants. The 'prevent or limit' objective is the first line of defence for groundwater, and will drive action on point source pollution as well as the widespread pollutants such as nitrate that are causing deteriorating trends."*
- 1.3.8 The Environment Agency has defined Source Protection Zones for 2000 groundwater sources such as wells, boreholes, and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The classifications work as follows: Zone 1 – Inner Zone protection: any pollution that can travel to the borehole within 50 days from any point within the zone is classified as being in zone 1; Zone 2 – Outer Protection Zone: the outer zone covers pollution that takes up to 400 days to travel to the borehole, or 25% of the total catchment area – whichever is the biggest; Zone 3 – Total Catchment: the total catchment is the total area needed to support removal of water from

⁵ European Union (2000). *EU Water Framework Directive* [online] available at: http://ec.europa.eu/environment/water/water-framework/index_en.html (accessed 02/09).

⁶ European Commission (2001) *Pollutants in urban Wastewater and Sewage Sludge* [online] available at: http://ec.europa.eu/environment/waste/sludge/sludge_pollutants.htm (accessed 05/09)

⁷ Environment Agency (2008). *Draft River Basin Management Plans* [online] available at: <http://www.euwfd.com/> (accessed 02/09)

the borehole, and to support any discharge from the borehole; Zone 4 – Zone of Special Interest: defined where local conditions mean that industrial sites and other polluters could affect the groundwater source even though they are outside the normal catchment area.⁸

- 1.3.9 Government guidance on planning and pollution control states that the planning system plays a key role in determining the location of development which may give rise to pollution, either directly or indirectly but that planning must also be sure to integrate closely with wider pollution control regimes.⁹ Government guidance on minerals planning identifies both impacts relating to ‘groundwater’ and ‘surface water’ as ‘principal environmental impacts’ of minerals working.¹⁰ The guidance promotes consideration of the potential for mineral developments, individually or cumulatively, to affect the flow, quality and quantity of surface and groundwater supplies and the water table. It promotes the use of best available options to prevent pollution from leachate.
- 1.3.10 The Regional Spatial Strategy (RSS)¹¹ identifies both maintaining an adequate water supply and encouraging water efficiency; and maintaining and improving water quality and meeting EU Habitats and Water Framework Directive standards as key environmental challenges facing the region. Policy NRM2 promotes the maintenance of water quality through the use of water cycle studies, groundwater vulnerability maps and groundwater source protection zone maps.

1.4 What’s the current and (likely) future sustainability baseline?

- 1.4.1 This section takes a snap-shot of the current sustainability 'baseline' as it relates to water in Kent, as well as considering how the baseline has evolved over time and how it might continue to evolve under a business as usual scenario. There is also an emphasis on comparing the situation in Kent to other geographical areas, as well as considering how the baseline varies at the sub-county scale, within three sub-regional areas defined in Kent by the RSS. This section meets a key requirement of the SEA Directive.¹²

Current baseline¹³

- 1.4.2 This section will focus first on issues relating to water resource availability and then consider the issue of water quality. In terms of water quality there is a clear need to examine the baseline closely due to the role of MWDF in directing sewage effluent discharges, as well as the possibility of other minerals and waste operations resulting in water pollution. Water resource availability is a key issue relating to some minerals and wastes operations, but not all. For example, it is known that licenses for minerals washing in the Upper Stour account for about half of all the non-PWS (public water supply) groundwater abstraction licenses. This baseline consideration will focus primarily on trends in public water supply, as this is the form of abstraction that has the greatest influence on water stress (which in turn may be worsened by

⁸ Information available on [<http://www.environment-agency.gov.uk/maps/info/groundwater/>]

⁹ ODPM (2004). *Planning Policy Guidance 23: Planning and Pollution Control* [online] available at: <http://www.communities.gov.uk/publications/planningandbuilding/planningpolicystatement23> (accessed 02/09)

¹⁰ CLG (2006). *Minerals Planning Statement 1: Planning and Minerals* [online] available at: <http://www.communities.gov.uk/publications/planningandbuilding/mineralspolicystatement5> (accessed 02/09)

¹¹ GOSE (2008). *The Secretary of State’s Proposed Changes to the South East Plan* [online] available at: <http://www.gose.gov.uk/gose/planning/regionalPlanning/> (accessed 02/09)

¹² An important element of the SEA Directive requirements is the provision of information on “the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme” and “the environmental characteristics of areas likely to be significantly affected”

¹³ Unless otherwise stated, information from: Environment Agency (2008). *Draft River Basin Management Plans* [online] available at: <http://www.euwfd.com/> (accessed 02/09)

minerals and waste facilities). Furthermore, public water supply is of relevance to waste planning because it will be correlated the volume of wastewater that requires treatment.

1.4.3 The first cycle of CAMS provided the first comprehensive baseline of water availability in England and Wales. CAMS classified water availability according ‘resource availability status’ at low flows, taking account of the relative balance between the environmental requirements for water and how much is licensed for abstraction already; whether water is available for further abstraction; areas where abstraction may need to be reduced. **Figures 1 and 2** show the resource availability status for the majority of CAMS in England. **Figure 1** illustrates the status for surface water and/ or where surface water interacts significantly with groundwater. **Figure 2** shows the status for groundwater, which does not feature in figure 2.

Figure 1: Resource availability status for units of surface water and/or surface water combined with groundwater in completed CAMS, March 2008¹⁴

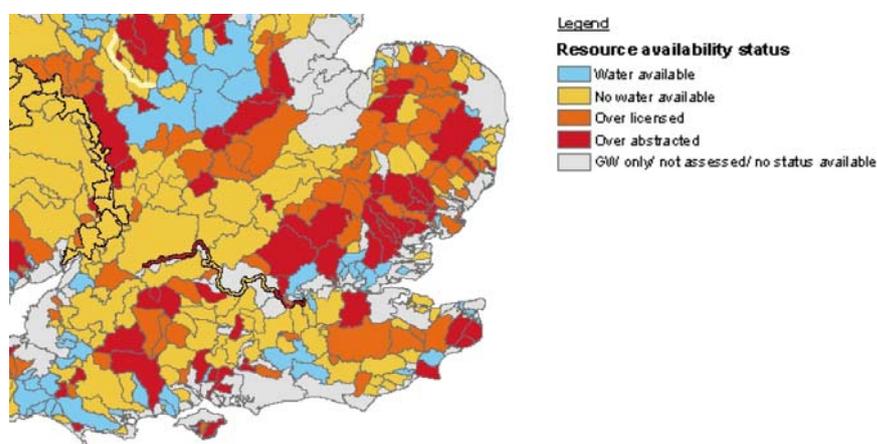
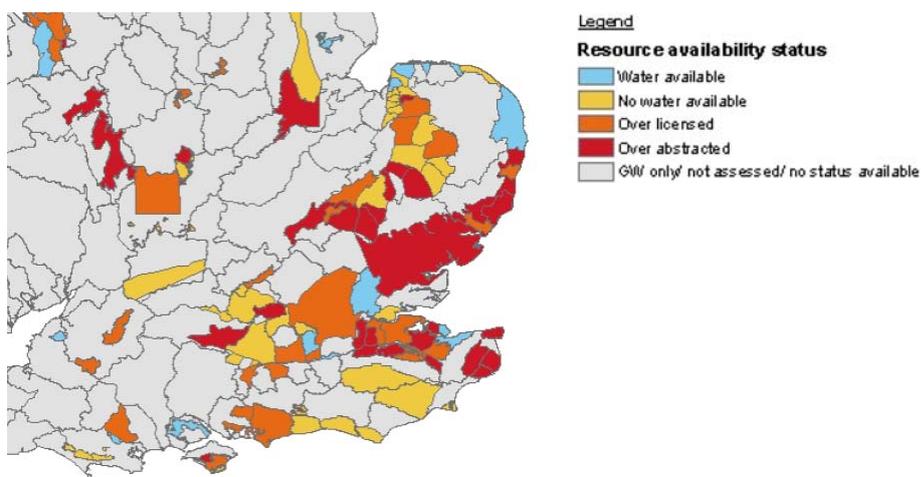


Figure 2: Resource availability status for units of groundwater only in completed CAMS, March 2008¹⁵



¹⁴ DEFRA (2008). *Future Water: the Government’s water strategy for England* [online] available at: <http://www.defra.gov.uk/environment/water/strategy/pdf/future-water.pdf> (accessed 05/09).

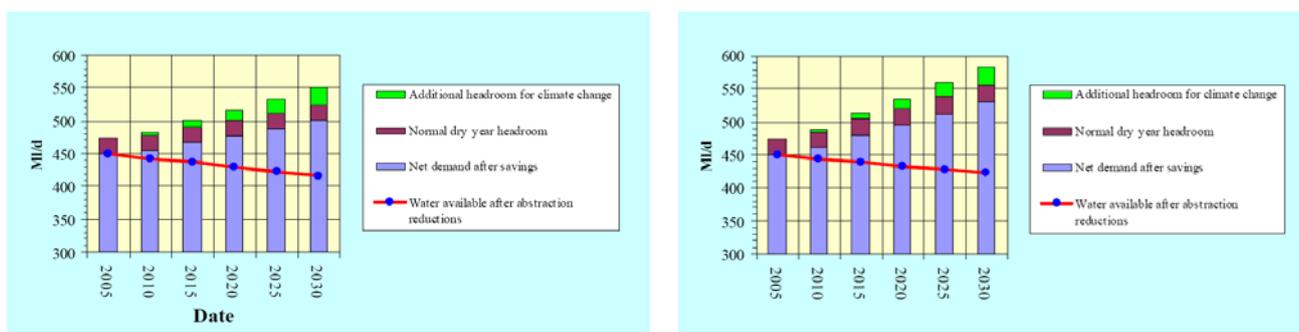
¹⁵ DEFRA (2008). *Future Water: the Government’s water strategy for England* [online] available at: <http://www.defra.gov.uk/environment/water/strategy/pdf/future-water.pdf> (accessed 05/09).

1.4.4 When considering future water / supply balance there is a need to take account of:

- the net demand for water abstraction taking account of population growth as well as increased efficiencies;
- the need to decrease abstractions to take account of the Water Framework Directive; and
- the need to allow for extra headroom to ensure adequate supplied in dry years, which are likely to become increasingly extreme in the future.

1.4.5 **Figures 3a and 3b** show two possible future supply demand balance scenarios for Kent. It can be seen that there is potential for supply and demand to become increasingly unbalanced over time, with the severity of the problem to a large degree dependent on levels of growth. These data do not account for the aspiration of the Environment Agency and government to keep total demand for water in the Thames Gateway the same between 2005 and 2016.¹⁶

Figure 3: Predicted water supply / demand balance in Kent¹⁷



3a – assuming population growth of 10.4% to 2030

3b – assuming population growth of 17% to 2030

1.4.6 Water supply constraints work described in the RSS has identified potential constraints in some districts, suggesting that, significant new development should be directed to areas where water supply can be guaranteed (or should be phased so that supporting infrastructure can be put in place before development commences). The districts currently identified are:

- Canterbury
- Maidstone

1.4.7 Kent's per capita domestic water consumption is estimated to be at 164 litres per day, which is about 10% above the national average (150 litres per day).¹⁸ Most water used by Kent consumers is supplied by the following companies: Southern Water; South East Water (now incorporating Mid Kent Water); Sutton & East Surrey Water; Thames Water; and Folkestone & Dover Water Services. These companies supply more than 450 million litres of water per day

¹⁶ Towards Water Neutrality in the Thames Gateway (2007) Environment Agency [online] available at <http://publications.environment-agency.gov.uk/pdf/SCHO1107BNMC-e-e.pdf?lang=e> (accessed 02/10)

¹⁷ Consumer Council for Water (2006) *Kent's Water Supply Water, Water Every Where, Nor Any Drop To Drink* [online] available at: Chairman Consumer Council for Water (Southern Region) [online] available at http://www.ccwater.org.uk/upload/pdf/Long_Article_on_Kents_Water_Supply_Email_version.pdf (accessed 05/09)

¹⁸ Consumer Council for Water (2006) *Kent's Water Supply Water, Water Every Where, Nor Any Drop To Drink* [online] available at: Chairman Consumer Council for Water (Southern Region) [online] available at http://www.ccwater.org.uk/upload/pdf/Long_Article_on_Kents_Water_Supply_Email_version.pdf (accessed 05/09)

to Kent's households, businesses and the public bodies (although only 373 million litres reaches the consumer because of leakages).¹⁹

- 1.4.8 Biological and chemical **water quality** has been improving fairly consistently in recent years in the South East of England. In 1990 67% of rivers were classified as being in 'good' biological quality and 40% classified as being in good chemical quality. These figures had risen to 77% and 65% respectively by 2006, although there has been some fluctuation, and, in the case of biological river quality, the greatest gains were made in the 1990's, with little further improvement evident in recent years.²⁰
- 1.4.9 Water resources are increasingly planned for within river basin districts (RBDs). Kent spans two of these areas – the South East RBD and the Thames RBD. In the South East RBD 11% of the surface water bodies (rivers, lakes, estuaries and coast) assessed, and 33% of groundwater bodies, are currently at good status or potential. In the Thames RBD 13% of surface water bodies and 37% of groundwater bodies are achieving good status. Nationally, 17% of river length is at good status or potential now; 49% of coastal waters, 14% of estuaries, 30% of lakes and 42% of groundwaters. These values are based on the Water Framework Directive classifications.
- 1.4.10 In the Thames RBD the major river catchments are the Medway, Darent & Cray and North Kent; whilst in the South East RBD the major river catchments are the Stour and the Rother.

The Rother Catchment

- 1.4.11 Currently 10% of river length assessed is achieving good status or potential. By 2015, compliance will double. 12 km of river is not yet assessed – some 3% of total river length.
- 1.4.12 In general, water resources are fully committed, and there is reliance on water transferred from the Medway via reservoirs. Current use of the groundwater within the Denge Gravels is thought to be unsustainable due to potentially conflicting water level requirements of the Dungeness Special Area of Conservation, together with sea level rise.
- 1.4.13 Groundwater bodies under this catchment also suffer from high nitrate concentrations caused by urban and agricultural activities as well as some industrial oil and chemical contamination. The aquifer in the Romney Marsh area is suffering from the effects of sewage effluent discharges, and is at risk from nitrates, pesticides and saline intrusion.

The Stour Catchment

- 1.4.14 Three per cent of river water bodies are achieving good status or potential now. There will be action to prevent deterioration in status, but improvement in status by 2015 cannot currently be predicted. 54 km of river is not yet assessed – representing some 25% of the total.
- 1.4.15 There is an extensive range of international nature conservation designations in the area. Many of the surface waters in this catchment are candidate artificial or heavily modified water bodies, reflecting the importance of flood risk management, the presence of high value agricultural land and the number of urban areas. Action will be taken to mitigate the impacts of these activities, but it is currently difficult to predict how the biology and water quality will respond.

¹⁹ *Ibid.*

²⁰ Sustainable Development Unit (no date). *River Quality East of England* [online] available at: <http://www.defra.gov.uk/sustainable/government/progress/regional/excel/natural-resources.xls#River%20quality!A1> (accessed February 2009).

- 1.4.16 Several water bodies including the stretch between Ashford and Canterbury have high phosphate concentrations and have been designated sensitive areas under the Urban Waste Water Treatment Directive. Although their chemical status is currently good, considerable work will be needed to drive improvements to ecology.
- 1.4.17 There are two principal chalk aquifers – Thanet and East Kent. In addition to levels of nitrates and pesticides, the Thanet Chalk is also impacted by solvent contamination. The impacts of the former coal mine discharges on the chalk groundwater are still evident and the potential future impact on the wetlands and surface water needs to be investigated.

The Medway Catchment

- 1.4.18 Currently 16 km of river length (4% of waterbodies) in this catchment are achieving good ecological status/potential. The EA suggest that by 2015 this will improve to 28 km, but with additional local input this could increase.
- 1.4.19 There has been considerable urban development in the last thirty years, mainly on former agricultural land around the commuter centres of Edenbridge, Tonbridge and Royal Tunbridge Wells. Northern parts of this area, particularly around the upper Estuary, bear the legacy of an extensive history of heavy manufacturing industry. Even today, the area north of Maidstone is still characterised by industry with chemical, pharmaceutical and major cement works and paper mills.
- 1.4.20 There are a number of Sites of Special Scientific Interest (SSSIs) within the catchment. These include the River Beult, a riverine SSSI near Ashford and Bourne Alder Carr, near Sevenoaks, which has one of the best examples of an alderwood characteristic of the Wealden valley. These sites are all sensitive to changes in water flows and levels as stated on the SSSI list of Potentially Damaging Operations.
- 1.4.21 In the Medway catchment area there is a programme of phosphate stripping at key sewage treatment works to address high nutrient levels. Diffuse pollution from agriculture is also an issue. Partnerships with local authorities and private industry will be pursued in order to improve contamination due to specific harmful substances, particularly around urban areas.

The North Kent catchment

- 1.4.22 The North Kent catchment area extends along the North Kent coast between Gillingham in the west and Herne Bay in the east. Currently none of the river length in this catchment is achieving good ecological status/potential. The EA are not expecting an improvement by 2015.
- 1.4.23 The area is made up of the Chalk North Downs and due to the permeable nature of the geology, surface watercourses do not cover a large proportion of the landscape. The existing water features have experienced many pressures. The springs which feature on the north side flow into the Thames Estuary along very modified channels. Urbanisation has resulted in channel modification notably around Sittingbourne, Faversham, Whitstable and Herne Bay and associated sewage treatment works have all limited the ecology of the Chalk springs.
- 1.4.24 The principal water dependent habitats in this area are grazing marshes and intertidal mud flats. During the 1960s major drainage works were undertaken within the enclosed marshes and this led to the creation of large arable fields and a loss of grazing marshes. However, extensive areas remain and have been designated as being of European importance for biodiversity. The habitat value of the grazing marsh depends largely on careful surface water management.

- 1.4.25 Water quality has been recognised as a problem and much of the action in this area will be to improve the groundwater quality through addressing diffuse and point source pollution. Improvements in the surface waterbodies will also be targeted at reducing physical pressures such as culverts, sluices and concrete.

The Medway Estuary

- 1.4.26 The Medway and Swale Estuaries are characterised by urban development, including the towns of Rochester and Gillingham and are home to industry and ports. Whitstable is located at the mouth of the Swale, a typical Kent seaside town with an active fishing port and designated bathing waters. Murston Lakes connected to the upper Swale, were initially constructed for brickworks, later used for oyster rearing and are now part of Little Murston Nature Reserve. All Hallows Marshes, connecting to the outer Thames Estuary, lie within the North Kent Marshes. These areas provide a valuable habitat for many bird species and as such the majority is designated as a Special Protection Area (SPA).
- 1.4.27 Diffuse pollution from agricultural land resulting in high nutrient concentrations within the ground and surface waters is a key concern. Diffuse pollution from urban areas also leads to the release of specific harmful substances. A major issue for these waterbodies is physical modification to allow many uses including navigation, agriculture and flood defence. As a consequence, waterbodies have been designated as candidate Heavily Modified Water Bodies (HMWB) due flood defence and ports / navigation, with the exception of Murston Lakes which are designated candidate Artificial Water Body (AWB). The status of HMWB / AWB dictates that the objective for this waterbody will be to achieve Good Ecological Potential (GEP). The increased need for capital dredging work represents an additional pressure for the Medway. The coastal waters around the Medway are failing to achieve good chemical status.
- 1.4.28 Continued development has been identified as a need within this catchment, particularly associated with the key Government growth areas. Future development represents a further pressure on the water environment, but also offers opportunities to improve the physical environment via sustainable methods of planning and development.

South East RBD coastal waters

- 1.4.29 There are 17 coastal and 20 estuarine (also called 'transitional') water bodies in the river basin district. The majority of coastal waters and all of the estuarine waters are not currently achieving good or 'good potential' status. The coastal waters around the North Kent Coast are in good chemical status, although the coastal waters of the South Kent Coast are failing to achieve good status, as are the waters of the Stour Estuary.
- 1.4.30 Also, improvements to sewage discharges and urban diffuse pollution will address eight bathing waters that are at risk of failing new Bathing Water Directive standards. There is also major investment planned to treat discharges that might otherwise affect the importance of the 25 Shellfish Waters.

South East Groundwater

- 1.4.31 Groundwater provides 72% of drinking water and supports many rivers and wetland habitats. Currently, ten of 30 groundwater bodies in the RBD are at good status overall, and have an objective of good status for 2015. The Thanet Chalk groundwater body is subject to considerable pressures from both urban and rural pollution. Nitrates, pesticides, solvents and hydrocarbons are the principal contaminants and come from a range of sources, including industry, agriculture, amenity, transport, horticulture, drainage and residential land use. The

Lord of the Manor borehole is the lead water source for this groundwater. It has been so badly impacted by pollution that the supply was temporarily switched off. Now reconnected, treatment has been necessary to remove pesticides from the water before it is supplied. Other boreholes nearby have also been impacted by pollution. Current actions underway to address the situation include Nitrate Vulnerable Zones and Pollution Prevention Campaigns built around the Source Protection Zones. Catchment Sensitive Farming is being extended to cover the Thanet area. However, although these are likely to have some effect, there is concern that alone they may not be adequate to achieve good status. For this reason, Lord of the Manor will be considered as a candidate Water Protection Zone. Also, Romney Marsh is at poor status because of saline intrusion.

- 1.4.32 The majority of Kent falls within the South East RBD, and is failing to achieve good chemical status. However, the aquifer which underlies the River Stour is achieving good chemical status.

Thames Groundwater

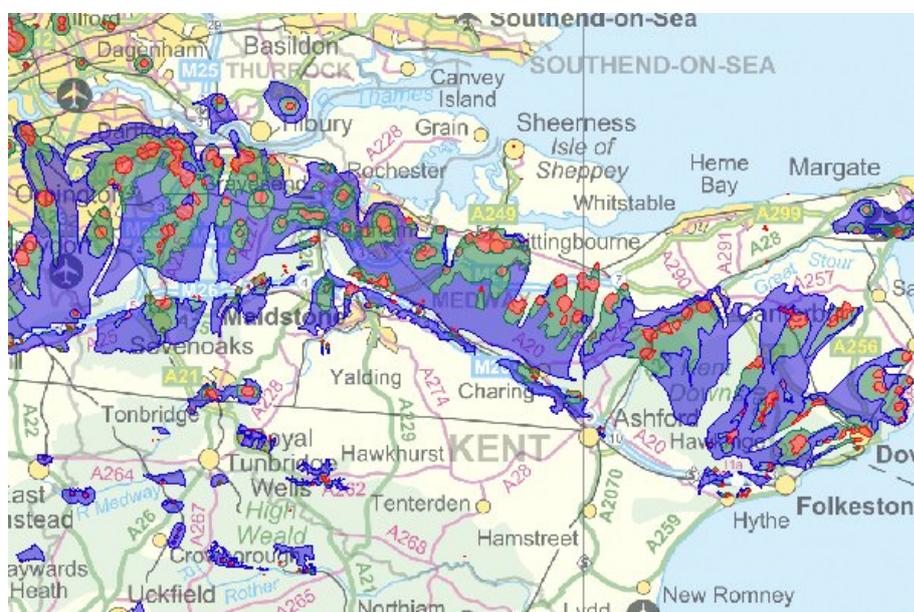
- 1.4.33 Currently 37% of groundwater water bodies in the Thames RBD are achieving good quantitative status. This is not expected to change by 2015. A small improvement in chemical quality from 20% to 21% is proposed. It is not clear what the 'overall status' is.

- 1.4.34 A number of groundwater bodies currently fail to achieve good status due to elevated levels of nitrate, pesticides, solvents and other contaminants. Groundwater monitoring has highlighted widespread increasing trends in nitrate concentration, but pesticide concentrations show an overall decline. In many cases it is not known what activity or activities are causing failure, nor how long measures that are put in place will take to attain good status. The groundwater associated with the Kent Thames Gateway is achieving good chemical status.

Source Protection Zones (SPZ)

- 1.4.35 **Figure 4** below shows the location of the SPZs in Kent. It can be seen that the SPZs are primarily associated with the chalk geology of the North Downs, but that there are also some smaller SPZs in the vicinity of Tonbridge and Tunbridge Wells.

Figure 4: Source Protection Zones



Future baseline

1.4.36 The above discussion of the baseline has included the consideration of existing and predicted trends. It is clear that trends in terms of water resources will be influenced by growth and development, climate change and efforts to ensure 'good quality' status in-line with the Water Framework Directive. The management of coastal erosion and the management of catchments in order to achieve reduced flood risk is also highlighted by the Environment Agency as having the potential to influence water resources in the future.²¹

Current and future situation in sub-county areas

1.4.37 The RSS defines sub-regions, three of which fall wholly within Kent: East Kent and Ashford; Kent Thames Gateway; and 'the Rest of Kent'. These areas were identified primarily on economic grounds, but provide a useful spatial framework to consider other elements of the sustainability baseline. **Table 1** considers current and possible future baseline conditions in each of these sub-areas.

²¹ Environment Agency (2008). *Draft River Basin Management Plans* [online] available at: <http://www.euwfd.com/> (accessed 02/09)

Table 1: The sub-county baseline

East Kent and Ashford
<p>The RSS identifies that the water companies and the EA accept that, in addition to the new strategic main from Bewl Water to Ashford, a further (preferably local) source of supply should be provided to meet long term needs. The EA believe that by supplementing this new supply source with rigorous water efficiency measures, there will be enough water resource available to meet the proposed level of growth at Ashford. Investment in new water supply in the rest of the sub-area must also be increased and the potential for a new reservoir at Broad Oak near Canterbury should be investigated.</p> <p>Work has taken place for the Urban Waste Water Treatment Directive in proposing the River Stour between Canterbury and Plucks Gutter, the Little Stour and Wingham River as 'Sensitive Areas (eutrophic)'. These proposals will result in phosphate stripping within seven years of the designation at Canterbury, Herne Bay (May Street) and Dambridge Waste Water Treatment Works.</p>
Kent Thames Gateway ²²
<p>The RSS identifies that issues of particular significance in this area include water resources, waste water treatment and water quality, together with measures to improve water efficiency are essential to the delivery of growth. The current necessity to transfer water across Kent and from neighbouring areas means that new water supplies will be needed. It is likely that water supply and treatment can respond to increased growth but there will be a need for accelerated and increased investment</p>
Rest of Kent ²³
<p>This area spans the South East and Thames 'RBD'. In terms of groundwater, part of the area is not underlain by a major aquifer, but those groundwater aquifers that are highlighted by the EA tend to be failing to meet chemical quality objectives, but are fairing better in terms of meeting water quantity objectives.</p>

1.5 What are the key sustainability issues?

1.5.1 **Table 2** illustrates the key sustainability issues that have arisen from the scoping analysis.

Table 2: Key sustainability issues

Key Issue	Discussion
Water scarcity	Supply and demand may just about be in balance across Kent currently, but there are some areas where this is not the case and there are problems relating to over-abstraction. Water scarcity is set to become a greater problem in coming as a result of population growth, climate change and the need to comply with the requirements of the Water Framework Directive.
Pollution of groundwater	Groundwater pollution from a range of sources is evident across much of Kent.

²² This area comprises the major urban areas of Dartford, Gravesham, Medway and Swale north of A2/M2.

²³ The RSS also defines a sub-regional area known as 'the London Fringe', which encompasses a small part of North West Kent, including the town of Sevenoaks. For the purposes of this baseline review, the Kent part of the London Fringe has been considered as part of the 'Rest of Kent' sub-area.

Pollution of surface waters (including coastal and estuarine)	There is clear potential for the MWDF to impact upon water quality as a result of decisions made regarding the location of wastewater treatment works. Other minerals and waste operations will have varying potential to lead to significant water pollution. The Environment Agency is putting in place many measures to improve the quality of surface waters, and it will be important to take local objectives into account.
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1.6 What decision-making criteria should make up the SA framework?

1.6.1 The South East Regional Sustainability Framework includes the objective:

“To maintain and improve the water quality of the region’s rivers, ground waters and coasts, and to achieve sustainable water resources management”

1.6.2 It is thought that this regional objective is also appropriate for use as part of the SA of the Kent MWDF. In particular, it should help to ensure that the appraisal is focused on identifying effects in terms of the issues identifies in Table 3 and elsewhere in this topic paper. It is thought that the following sub-objectives should further help to focus the appraisal:

- Ensure that minerals and waste development seeks to promote the conservation of water resources wherever possible
- Avoid pollution of ground or surface waters, particularly in areas identified as being at risk or sensitive

1.7 What further data is required?

1.7.1 Data collection and the establishment of the evidence base is an important component of the SA. However, there are cases where the evidence / data may not exist or is not ‘fit-for-purpose’. In these cases it is important that these gaps are highlighted early in the evidence gathering stage so that there is an opportunity to recruit data through consultation. The following have been identified as data gaps / issues:

- Context and baseline of relevance to sewage sludge disposal
- A dissemination of messages from water cycle studies, and possibly more strategic scale studies.