Thanet District Council

Water Cycle Topic Paper

May 2013

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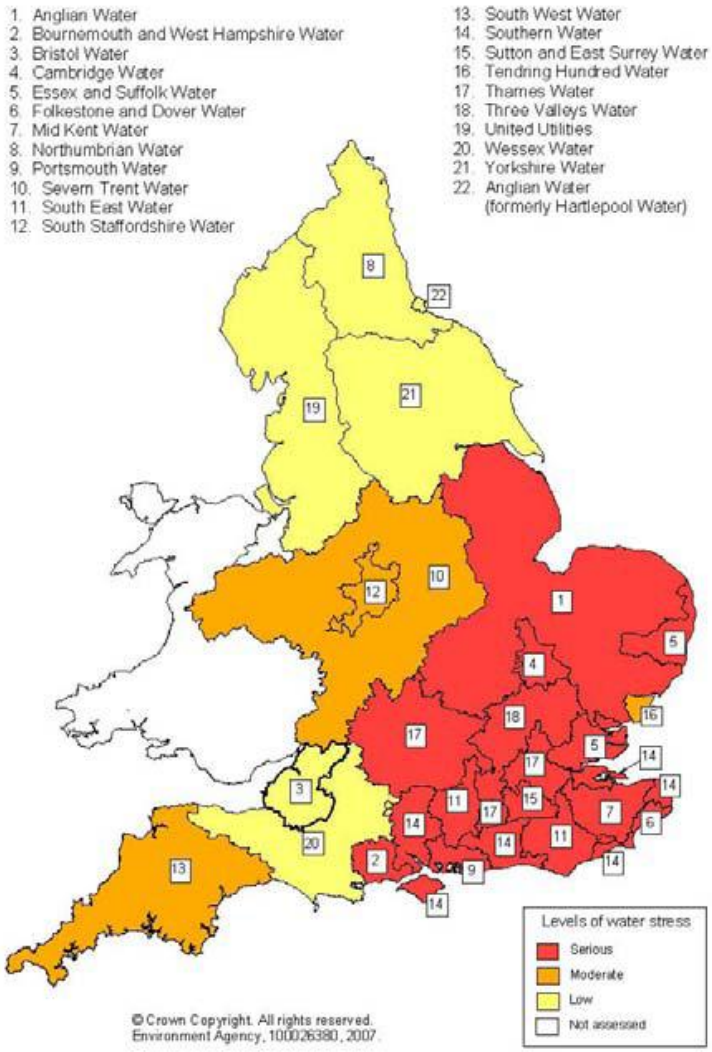
Introduction

The availability of clean, fresh drinking water and the safe removal of wastewater may be something we normally take for granted, but these are important considerations that we need to consider when developing a Local Plan. We need to understand the following:

- **The required water quality to protect wildlife environments**
  Thanet is a coastal district and, as a former island, is almost surrounded by sea. There is considerable development along the coast and a variety of uses of the coast. The coastline has important nature conservation designations which are nationally and internationally significant, as well as bathing waters and shellfish waters. It is important therefore that the impacts of development do not have a detrimental impact on the environment and water quality. It is also important that development does not cause pollution of the chalk aquifers, and that development does not cause flooding.

- **The ability of the water supply system to supply water to homes and business**
  Thanet's water is supplied by Southern Water. The water supply comes from Thanet's chalk aquifers, rivers and is also piped from Medway. It is essential that water is managed efficiently to meet the needs of a growing population, particularly in the South East where water is scarce. (Figure 1)

Figure 1 – Water Stress in England



- **The ability of the wastewater system to collect, transport and treat wastewater from homes and businesses**
  Southern Water provide Thanet's Wastewater services

- **The amount of water that can be abstracted before there are harmful environmental impacts**

Figure 2 below shows the Water Cycle and human uses, including storage facilities, irrigation, domestic and industrial use, treatment and return to waterways.

Figure 2 – Water Cycle

Source http://www.pacificwater.org/pages.cfm/water-services/water-demand-management/water-distribution/the-water-cycle.html

The purpose of this paper:

- To understand the Council's role in protecting and enhancing the water environment
- To provide an evidence base on which the council can make policy decisions and decide upon appropriate actions
- To investigate water supply and water treatment in relation to future levels of development and population growth, new planning policy and identify any immediate funding requirements and longer term maintenance costs

Policy Background

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of water pollution. Government policy also states that planning policies and decisions should ensure that adequate site investigation information, prepared by a competent person, is presented. There should be environmental criteria against which planning applications will be assessed to ensure that permitted development does not have an unacceptable adverse impact on the flow and quantity of surface and groundwater.

It identifies a need for the council to '*work with other authorities and providers to assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment…..flood risk and coastal change management*…' and states that we should '*adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations*' and '*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*'.

Previous Local Plan policies relating to water include Policy EP13 - Groundwater Protection Zones. The Plan originally contained policies relating to The Wantsum Channel Flood Risk Area, the Margate Flood Risk Area and Surface Water Run Off, however these policies were not saved as they were considered to be covered by National Planning Policy. Other relevant policies include EP1 – Potentially Polluting Development, EP2 – Landfill Sites, EP4 – Derelict and Contaminated Land.

The Water Framework Directive

The Water Framework Directive (WFD) is an EU Directive which aims to achieve 'good qualitative status' and 'good chemical status' (i.e. unpolluted) for groundwater; and 'good status' for all ground and surface waters (rivers, lakes, coastal waters).

The South East River Basin Management Plan (December 2009) has been produced to identify measures that will achieve WFD requirements for all water bodies.

It identifies the pressures facing the water environment which prevent a 'good' status being achieved. These issues include:

- Point source pollution from sewage treatment works
- The physical modification of water bodies
- Diffuse pollution from agricultural activities
- Diffuse pollution from urban sources
- Water abstraction
- Flood protection/coastal erosion
- Physical modification – urbanisation
- Physical modification – wider environment
- Physical modification – land drainage

The Water Framework Directive requires special protection for areas identified under other EU Directives and waters used for the abstraction of drinking water. The River Basin Management Plan describes the objectives for each protected area and assesses compliance with them. It also describes the actions needed to achieve and maintain compliance. Thanet has a number of protected areas as listed in Table 1 below:

Table 1 – Thanet's Protected Water Areas

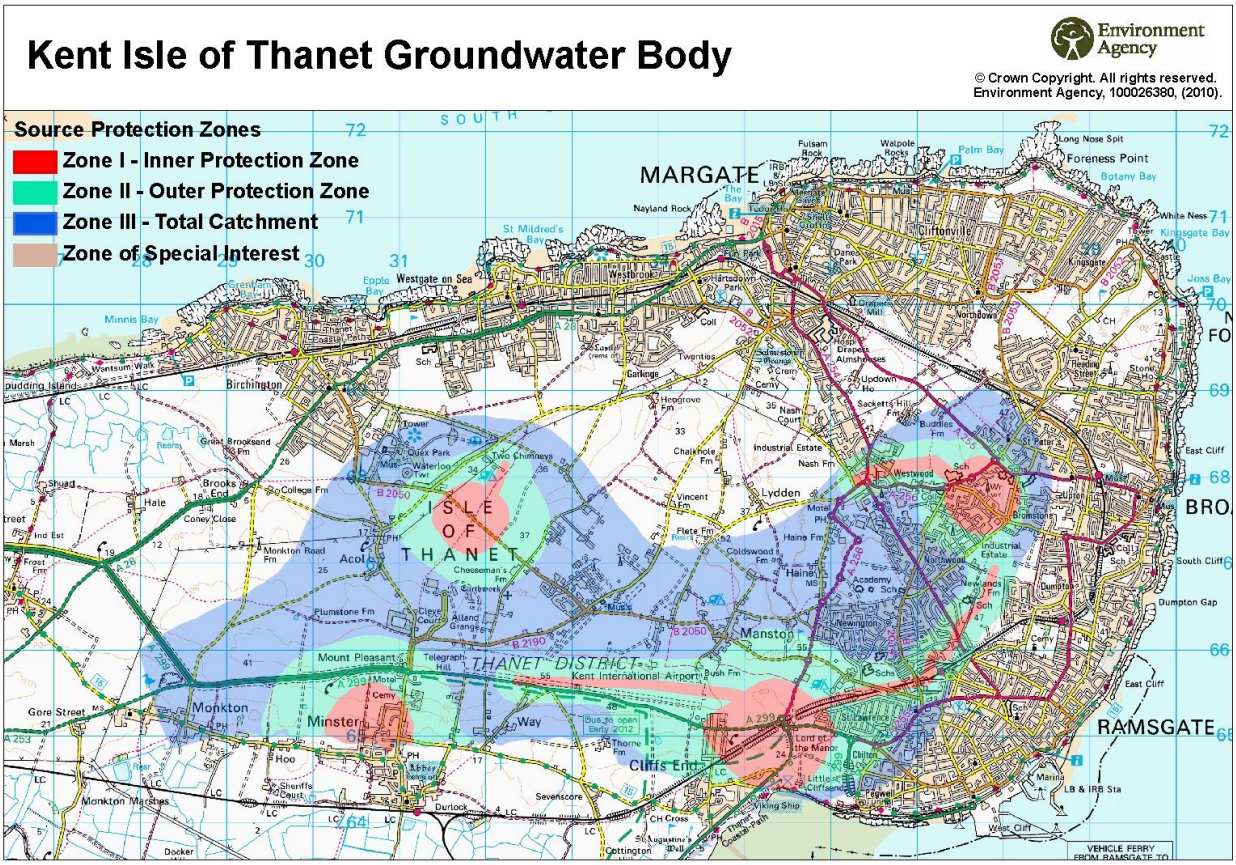
Category	Relevant Legislation	Location
Drinking Water Protected Area	Water Framework Directive	Thanet Chalk
Economically Significant Species	Shellfish Waters Directive	Margate Pegwell Bay
Protection of Habitats or Species	Conservation of Wild Birds Directive	Thanet Coast Sandwich Bay
Protection of Habitats or Species	Habitats Directive	Thanet Coast Sandwich Bay
Recreational Waters	Bathing Water Directive	Botany Bay Broadstairs Joss Bay Margate Fulsam Rock Margate The Bay Minnis Bay Ramsgate Ramsgate Main Sands St Mildreds Bay Stone Bay Walpole Bay Westbrook Bay Westgate Bay
Nutrient Sensitive Area	Nitrates Directive – Groundwater Nitrate Vulnerable Zone	Thanet District
Nutrient Sensitive Area	Nitrates Directive – Surface Water Nitrate Vulnerable Zone	Part of District (Wantsum Channel area)

Appendix 1 includes a table showing the pressures that apply to the water environments, actions that can work towards achieving the objectives of the Water Framework Directive, and to what extent these can be achieved through the local plan.

Groundwater

Groundwater from the chalk rock beneath in Thanet is used to supply water for drinking water, agriculture, horticulture and industry. It also feeds the springs that emerge along the coast and near the marshes. Thanet's groundwater zones are shown on the map in Figure 3 below.

Figure 3 – Thanet's Groundwater Zones (Source Protection Zones)



Thanet's groundwater is extremely vulnerable to contamination as substances (natural substances and man-made chemicals) are able to pass rapidly through the thin soils and the natural fissures (cracks) in the chalk rock to the groundwater below the ground surface.

Once the chalk and groundwater is contaminated at a site by a substance it can take decades to clean-up. The Council and the Environment Agency have worked hard to prevent contamination by consistently applying groundwater protection policies to any proposed land-use changes in Thanet to reduce potential future impact.

Under the Water Framework Directive (WFD), the 'Kent Isle of Thanet Groundwater Body' has been classified as poor status for the groundwater quality and quantity. The groundwater is impacted by nitrates, pesticides, solvents and hydrocarbons at levels that are of concern.

The poor groundwater quality cannot be attributed to just one source. In Thanet there are considerable risks to the groundwater from both urban and rural activities. These risks are intensified by the compact nature of the District.

Hazards to Thanet's groundwater include petrol stations, gas works, drainage from roads, drainage from the airport, leakage from sewers, pesticide storage, septic tanks, sheep dips, and farm buildings.

Uses that can cause pollution to the groundwater include dry cleaners, mechanics, scrap metal, photo processing, and some sustainable drainage systems.

There is a variety of methods of Sustainable Drainage Systems (SUDS – discussed in more detail in the Climate Change Topic Paper) which can reduce the risk of surface water flooding. SUDS are surface water drainage methods which recognise that surface water runoff is increased by impermeable surfaces (such as large areas of concrete or non-porous tarmac), mostly in urban areas. The idea behind SuDS is to manage surface water runoff flow rates, slowing them down so that they do not cause flooding. SuDS also provide other benefits. They protect and improve water quality, provide a habitat for wildlife in urban watercourses and encourage groundwater recharge.

However, some of these methods include infiltration, where trenches are created underground so that water filtrates into the surrounding soil and is then transferred to a disposal unit. However infiltration methods would not be appropriate in many parts of Thanet due to its thin soils and vulnerability of the groundwater.

Thanet's groundwater is currently a candidate Water Protection Zone (WPZ). These zones are used in areas identified as being at high risk as a 'last resort' when other mechanisms have failed or are unlikely to prevent failure of WFD objectives. WPZs are a new regulatory tool to address diffuse water pollution. They are designed to help enforce measures to prevent pollution and improve water quality where standards set out in the Water Framework Directive (WFD) are not being met.

The Kent Rural Board (Kent County Council) has established a Water Task Group to investigate water and its relationship with agriculture and horticulture. The aim of the task group is to achieve '*sustainable water use in the Kent agricultural and horticultural sector'* and deliver '*Optimised output per unit of water, secure and resilient water supplies and an enhanced local aquatic environment*'.

Kent County Council has also contracted a Water Spatial Risk Assessment for Kent to assess the impacts on water systems in Kent resulting from changes in climate, population and land use. The study will assess the consequences that these impacts will have on businesses, communities, agriculture and the natural environment. The results of the study are expected in July 2013.

It is hoped that sufficient measures can be taken, by various organisations and individuals, that will help remediate the problems with Thanet's groundwater and avoid a WPZ designation.

Surface Water

Management of surface water is important in terms of reducing the risk of pollutants draining into the groundwater and bathing waters, and reducing the risk of surface water flooding.

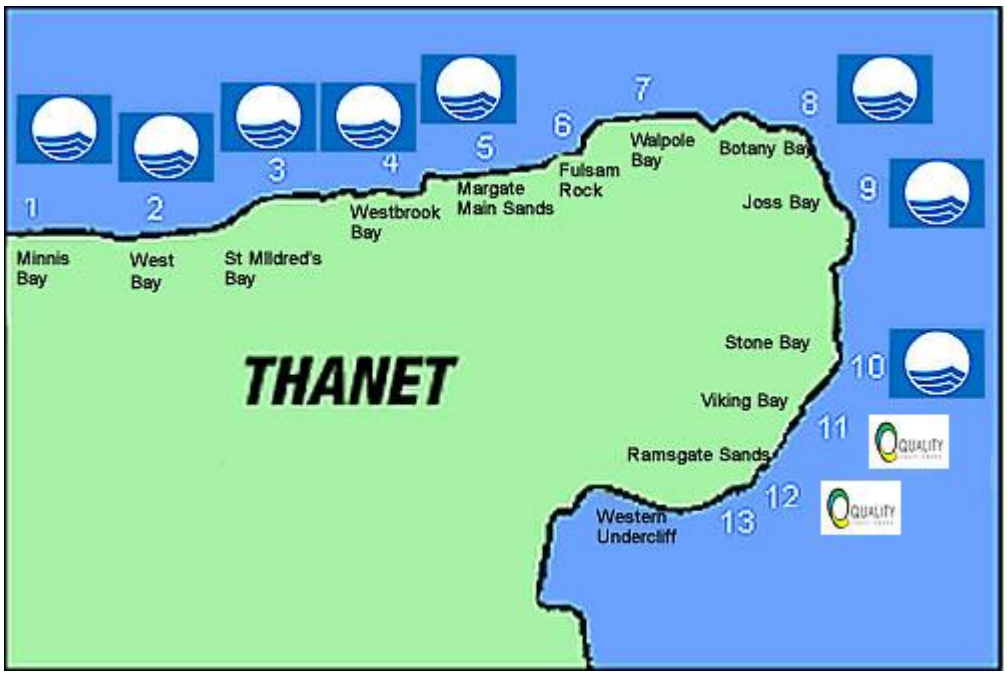
Bathing Waters

Thanet has 13 beaches which have been designated as 'Bathing Waters' under the Bathing Water Directive which aims to protect public health and the environment from pollution. (Figure 4). Thanet has received eight blue flag awards for its beaches in 2013 for reaching the 'Excellent' standard required under the new EU Bathing Water Directive. In addition to this Thanet has been

awarded two Seaside Awards for Ramsgate Main Sands and Viking Bay, Broadstairs, which recognises and rewards beaches in England that achieve the highest standards of beach management and, in the case of bathing beaches, meet guideline water quality.

Each designated bathing water has a bathing water profile. These describe the beach and surrounding area, rivers and streams feeding into the site the potential causes of pollution and what is being done to address them. (Table 2)

Figure 4 – Thanet's Bathing Waters



- Blue Flag Award

Seaside Award 2013 - Quality Coast Award

Table 2 – Thanet's Bathing Water Profiles

Beach	Pollution Risks	Other issues unlikely to cause pollution
Minnis Bay, Birchington	Heavy rain falling on pavements and roads	Low lying marshes protected by sea wall, three outfalls that drain small streams into sea controlled by sluice gates. Unlikely to affect bathing water quality
West Bay, Westgate	Surface water outfall 500m east of bathing water – could reduce water quality after heavy rain Heavy rain falling on pavements and roads	Storm overflows more than 1km away to the east – designed to ensure bathing water is protected Seaweed and algae recorded to reach nuisance levels
St Mildreds Bay, Westgate	Surface water outfall-could reduce water quality after heavy rain	Treated sewage treatment works discharge 7km from the shore, & storm overflow that discharges alongside slipway, both designed to protect water quality Seaweed recorded to reach nuisance levels
Westbrook	Storm overflow	Treated sewage treatment works discharge

Beach	Pollution Risks	Other issues unlikely to cause pollution
Bay, Margate	Underground culverted stream 1km east of bathing water – stream drains surface water from the surrounding urban area which can lead to reduced water quality after rainfall in adjacent bathing water	5.5km from the shore which is designed to protect bathing water quality. Seaweed and algae recorded to reach nuisance levels
Margate, The Bay	Heavy rain falling on pavement and roads Underground stream that drains most of the local urban area-enters the sea through an outlet at the east of the beach below high water mark – can lead to reduced water quality after rainfall	Seaweed and algae recorded to reach nuisance levels
Margate, Fulsam Rock	Heavy rain falling on pavements and roads Underground culverted stream which enters the sea nearly 1km west of the bathing water. Stream drains surface water from surrounding urban area which can reduce water quality.	Treated sewage treatment works discharge 4km from the shore which is designed to protect bathing water quality.
Walpole Bay, Margate	Decaying seaweed Heavy rain falling on pavements and roads	Treated sewage treatment works discharge 3km from the shore which is designed to protect bathing water quality. Storm overflows over 1.5km to the west which is designed to protect bathing water quality. Seaweed and algae recorded to reach nuisance levels
Botany Bay, Broadstairs	Heavy rain falling on pavements and roads	Treated sewage treatment works discharge 2km from the shore which is designed to protect bathing water quality Margate and North Foreland Storm Overflows - designed to protect bathing water quality
Joss Bay, Broadstairs	Heavy rain falling on pavements and roads	Treated sewage treatment works discharge 2km from the shore which is designed to protect bathing water quality Margate and North Foreland Storm Overflows - designed to protect bathing water quality
Stone Bay, Broadstairs	Surface water overflow just north of harbour entrance	Treated sewage treatment works discharge 5km from the shore which is designed to protect bathing water quality
Viking Bay, Broadstairs	Surface water drainage from a short outfall north of Harbour Discharges from storm overflows that can happen when heavy rainfall overwhelms the sewerage system Heavy rain falling on pavements and roads	Storm overflows 3km south and 5km north east designed to protect bathing water quality

Beach	Pollution Risks	Other issues unlikely to cause pollution
Ramsgate Sands	Winterstoke storm overflow and Westcliff Pumping station storm overflow when heavy rainfall overwhelms the sewerage system Water from Stour estuary circulates in Pegwell Bay and could reach the beach – heavy rainfall runoff from agricultural land could affect its water quality	Storm overflows designed to protect bathing water quality
Ramsgate Western Undercliffe	Water from Stour estuary circulates in Pegwell Bay and could reach the beach – heavy rainfall runoff from agricultural land could affect its water quality Discharges fromWestcliffe pumpong station and storm overflows at Pegell Bay and River Stour estuary could affect water quality when heavy rainfall overwhelms sewerage system	

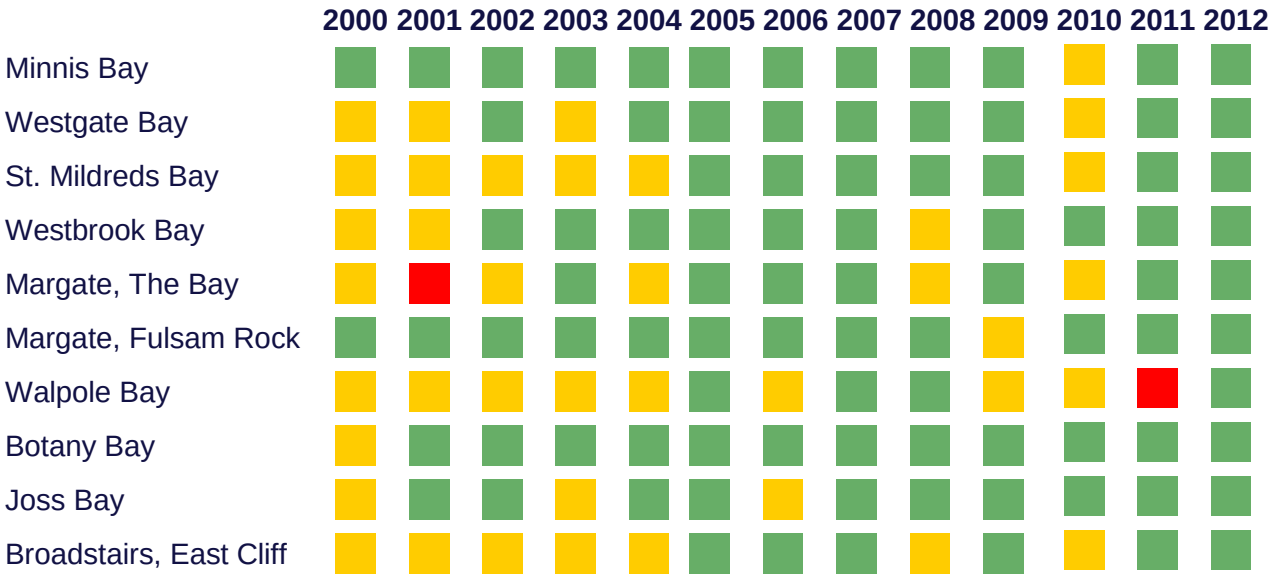
Thanet's bathing waters are independently tested weekly from May to September by the Environment Agency. Sea Waters are tested for bacteria, and beaches are assessed for cleanliness, dog control, wheel chair access, provision of facilities and provision of life saving equipment to meet EC bathing water standards. A Blue Flag award is given to areas that meet those standards.

The chart in Figure 5 below shows Thanet's water quality from 2000-2012.

Key to chart:

- E - Excellent water quality (passes EU guideline standards)
- S - Satisfactory water quality (passes EU minimum standards)
- P - Poor water quality (fails to meet EU standards)
- Blank - Information not available.

Figure 5 – Water Quality of Thanet's Bathing Waters



The revised Bathing Water Directive

The Bathing Water Directive is being revised, and the new Directive comes into effect in 2015. It sets higher water quality standards, puts a stronger emphasis on the management of bathing waters and better provision of public information.

This means that the council will be legally required to provide information on their designated bathing waters which will enable the public to make informed decisions about when and where to bathe. The Council will be responsible for signage at the beach and for general beach management as well as being the main contact for health enquiries. Bathing waters can be nominated for designation or delisting from the designations list in the annual Defra review.

Walpole Bay has previously failed to meet current EC mandatory bathing water standards and is therefore considered to be at significant risk of not meeting the revised Bathing Water Regulations.

Factors which contribute to poor bathing water quality

- **Pollution from sewerage** – bacteria from sewage can enter our waters as a result of system failures or overflows or directly from sewage works.
- **Water draining from farms and farmland** – manure from livestock or poorly stored slurry can wash into rivers and streams resulting in faecal material entering the sea.
- **Animals and birds on or near beaches** - dog, bird and other animal faeces can affect bathing water as they often contain high levels of bacteria (much higher than treated human waste).
- **Water draining from populated areas** - water draining from urban areas following heavy rain can contain pollution from a variety of sources, including animal and bird faeces.
- **Domestic sewage** – misconnected drains and poorly located and maintained septic tanks can pollute surface water systems.

As well as pollution by the water industry from sewer system overflows or failures, the quality of bathing water quality can be affected by pollution that arises from a very varied number of sources. Diffuse pollution, from agricultural or other sources, can run off land or percolate through it in to rivers which drain into the sea. The amount of pollution from individual sources may be small but the combined effect can be significant. Water draining from farms and farmland into rivers can contain faecal material coming directly from livestock or indirectly from either the poor storage of manure or poor practices in the application of manure on to land. Non-agricultural diffuse pollution arises from a variety of sources including: wrong connections of waste water from houses and businesses into surface water drainage; road runoff containing animal faeces reaching water courses and septic tanks polluting rivers.

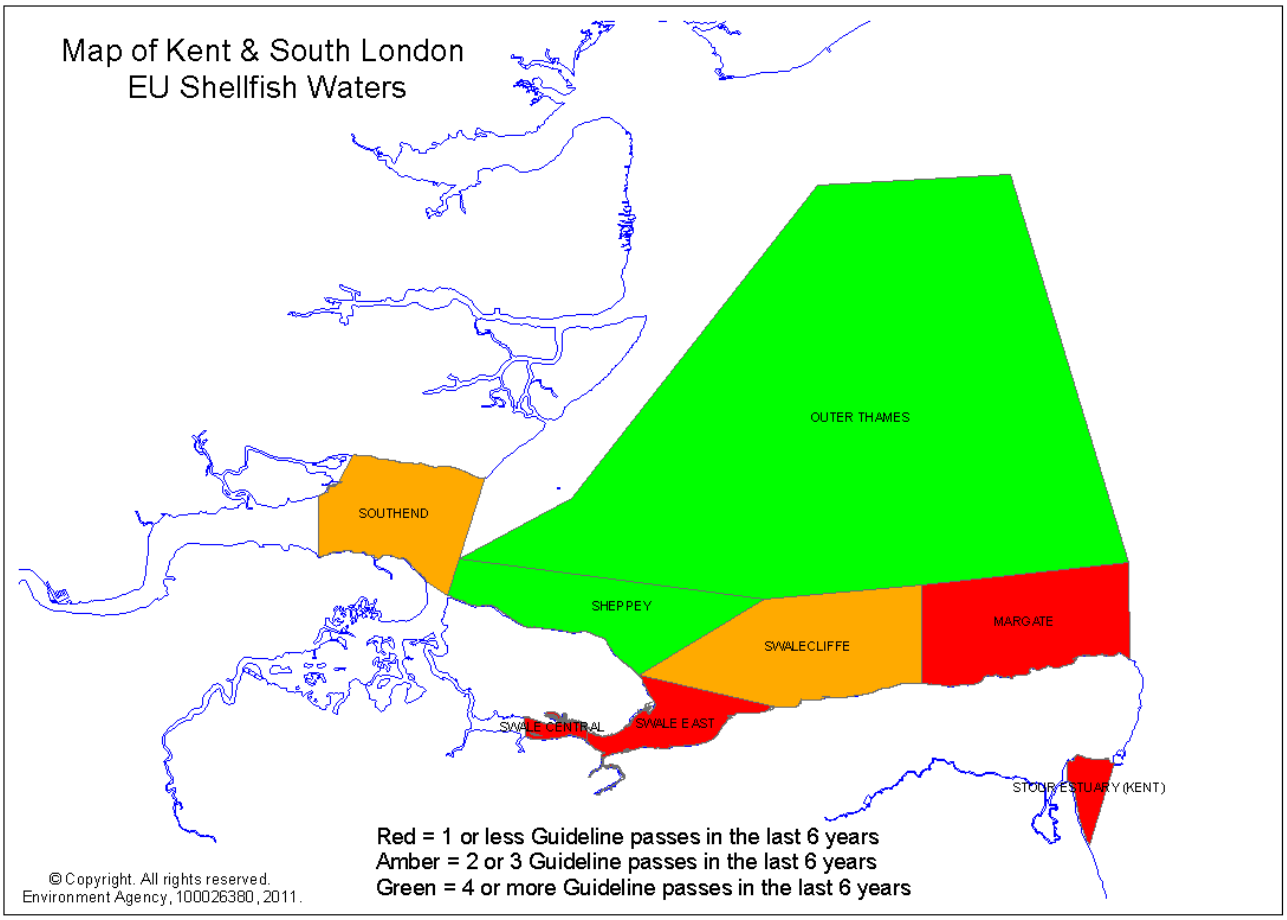
Ways to improve bathing water

- Ensure homes or business property is connected to the right drainage system. Wrongly connected plumbing could mean that dirty water from toilets, dishwashers and showers could be going directly into local rivers or the sea.
- Ensure dog exclusion zones on beaches are adhered to and that there are sufficient numbers of dog bins.
- Ensure septic tanks are working correctly and are well maintained.
- Carry out beach cleans - many local and national organisations carry out regular beach cleans.

Shellfish Waters

Thanet currently has 2 shellfish waters designated under the EU Shellfish Waters Directive (Margate & Stour Estuary) although this is likely to change when the Shellfish Directive will be repealed later this year and incorporated within the Water Framework Directive as shellfish protected areas.

Figure 6 – Thanet's Shellfish Waters



The Directive sets environmental standards for the quality of the waters where shellfish live in order to promote healthy shellfish growth. Both of these designated waters in Thanet are failing to meet current shellfish flesh guideline faecal coliform standards. As with bathing water quality, the causes of these failures are likely to be a mixture of sewer/ storm overflows and inland diffuse pollution from agricultural and non-agricultural sources (e.g. urban runoff, boat discharges, dog/ wildlife fouling)

Thanet is likely to have some commercially harvested shellfish areas designated soon.These must comply with the EU Food Hygiene Regulations 2006 which set microbiological standards for the flesh quality of shellfish from designated production areas. The Food Standard Agency is responsible for the Hygiene Regulations and monitoring would be carried out by the Kent & Essex Inshore Fisheries and Conservation Authority.

Bathing/ Shellfish water quality & the future

The outputs of the UK Climate Impacts Programme indicate that in future, in the UK we will experience higher temperatures, rising sea levels and changing rainfall patterns - wetter winters and drier summers, and more frequent intense storm events. Increases in intense storm events

could adversely impact bathing (and shellfish) water quality as they result in increased operation of combined sewage overflows, and more runoff from agricultural land and urban surfaces, carrying more pollution to the sea. However, drier summers may be beneficial for bathing waters. Dry weather interspersed with heavy short downpours will however have a different impact to prolonged and consistent rainfall. Prolonged periods of dry weather may cause increased siltation in sewers, increasing the risk of blockage and premature operation of overflows when rainfall occurs. Surface water management is therefore very important. Bigger sewers aren't necessarily the answer and sustainable drainage systems (SuDS) that reduce rainfall runoff and minimise the frequency of overflows can be more cost-effective.

The loss of blue flags or the failure of any of Thanet's beaches to meet the requirements of the revised Bathing Water regulations or for Shellfish water failure could have knock-on implications on perception of water quality at neighbouring beaches as well as the local economy and tourist/ fishing industry. To ensure development does not negatively impact bathing/ shellfish water quality it is important to ensure drainage infrastructure is adequate i.e. sewer capacity is available (or financially viable to increase) and surface water drainage is managed.

Surface Water Flooding

The Thanet Surface Water Management Plan 2013 identifies historic flooding incidents, and identifies the causes of this as surface water, sewer, tidal or blocked drains or gullys. An Action Plan is included which highlights areas where action is needed, and the type of action that is considered necessary.

The following actions are identified for Thanet District Council and which could be achieved through the planning process:

- Ensure all new developments, where possible, consider the use of SUDS
- Ensure new developments do not increase the risk of surcharge of sewer network within their catchment
- Promote benefits of rainwater reuse and recycling
- Support KCC in the use of SUDS in identified areas

Drinking Water and Wastewater

Strategic Planning for new infrastructure for water supply and wastewater treatment is the statutory responsibility of water companies. Southern Water supplies water and wastewater services to Thanet.

Nearly 70% of our water is taken from underground aquifers, 23% from rivers and 7% from storage reservoirs. We need to know if there is enough water to sustain our expected levels of growth, and whether our growth levels will impact on the quality of the groundwater.

When planning for new development and growth it is important to consider both local and strategic wastewater infrastructure. Local infrastructure generally comprises local sewers which are funded by the development whereas strategic infrastructure encompasses trunk sewers, pumping stations and wastewater treatment works and is normally funded by the water company. Capacity in the sewerage system is finite and the spare capacity available (headroom) varies from location to location.

Southern Water are currently preparing a 25 year Water Resource Management Plan to set out how they will balance supply and demand for water.

The draft plan states that drinking water quality is currently very high, with 99.88% of around 400,000 samples meeting Drinking Water Inspectorate Standards.

The plan acknowledges that changing rainfall patterns and population growth will affect the availability of water and intense periods of heavy rainfall may increase the risk of flooding at

treatment works. Ground movement caused by more droughts may cause damage to water mains.

As new drinking water standards are introduced, Southern Water will need to take action to meet them and to continue to ensure supply as the population grows.

The plan considers population growth, climate change projections, and managing water including reducing leakage, reusing water and buying more water from other companies or farmers who have their own water sources.

Extreme rainfall is likely to increase the risk of flooding from sewers, while extreme cold or drought can also affect underground pipework. More housing and roads will mean more paved surfaces which can also increase the risk of flooding. An increase in flooding could result in an increased risk of pollution to rivers, streams and beaches. These are issues that Southern Water is looking to respond to in their Management Plan.

The plan identifies a need to invest significantly in sewage treatment works in the next 15 years to meet the higher standards of the Water Framework Directive. It also identifies a desire to work more closely with individuals and organisations that have an impact on river catchments to reduce the need for expensive investments, e.g. by changing the way in which land is used.

The Water Resource Management Plan is expected to be submitted to Ofwat early 2014 for approval.

The Council will continue to liaise with Southern Water with regards to future development and population growth and will consider the infrastructure and environmental implications of any additional service needs identified.

Stour Catchment Abstraction Management Strategy (CAMS) (May 2003)

The Catchment Abstraction Management Strategy assesses the water availability for each river stretch and groundwater aquifer. Thanet's main water resource is abstraction from the chalk aquifer.

The Stour CAMS identifies Thanet's water availability status as over-abstracted. However, the update of October 2006 states that the current abstractions should not have a detrimental impact on the nearby European Marine Sites.

The CAMS states the following about Thanet's growth proposals (in relation to the proposals in the 2006 Thanet Local Plan):

> '*The Thanet Local Plan identifies two major developments: the Central Island Initiative which is London Manston airport and the adjacent business parks and the development of Westwood. The water demand for Thanet will increase in the future; for instance, the proposal at Westwood includes 1000 new houses and a large retail complex. This strategy shows that Thanet is over abstracted, although this could be an over estimation. It is likely that there will be sufficient water to meet development needs here. As in addition to Southern Water's boreholes on Thanet, they also have a water transfer system from North Kent (via the Fleet Main) to cater for Thanet and have the facility to abstract directly from the River Stour at Plucks Gutter*'.

Water supply and measures to reduce water consumption are discussed in more detail in the Climate Change Topic Paper.

The Water Environment

Thanet has few areas of low lying land that are at risk of flooding from the sea. The two primary sources of flooding in the district are fluvial and tidal; fluvial flooding from the Wantsum Channel, and tidal flooding from extreme tide levels.

The densely populated Old Town area of Margate falls within an area of low lying land. The financial cost of damage to property in the old town area resulting from a major flooding event could be as much as £70m. Such a flooding event could also put the safety of residents and the public at risk.

There are a number of other discreet areas of flood risk around the coastline; however, the majority of coastline is at risk of erosion and not flooding. Coastal defences have an approximate lifeline of 50 years. If there appears to be an economic justification for maintaining them then they will be; however, feasibility work does not always indicate that the project will be successful in achieving funding, and in such cases defences may cease to be maintained.

Existing evidence regarding the water environment includes:

Strategic Flood Risk Assessment (SFRA) 2009

The SFRA identifies areas at risk of flooding and makes recommendations following the flood risk management hierarchy summarised in the PPS25 Good Practice Guide (2008) of Assess-Avoid-Substitute-Control-Mitigate. It provides details of flood risks, the delineation of the PPS25 flood risk zones and how they interact with potential development sites.

The main points from the SFRA are summarised below:

- The main risk to Thanet is from Tidal flooding.
- The tidal extent of the River Stour, within the Stour valley, provides a greater risk than a fluvial flood event – the combined fluvial and tidal flood zone should be used to determine greatest level of risk.
- Wantsum Channel is at risk from fluvial and tidal flooding.
- Areas of residual flood risk have been identified as Margate Old Town, Dreamland, Birchington (Minnis Bay).
- Groundwater flood risk is not a significant problem – although the district predominately overlies a chalk aquifer, ground elevations are generally high so water table is at significant depths from the surface.
- Surface water flooding is localised and site specific so not assessed at a strategic level (but will be in the Surface Water Management Plan)

The SFRA makes the following recommendations:

- Aim to manage flood risk through avoidance whereby sites are allocated in lower flood risk zones in preference to higher flood risk zones, unless regeneration aspirations are met and exceptions demonstrated. The Sequential Test provides a framework for undertaking the screening process to inform site allocations.
- Development in higher flood risk zones must pass the Exception test.
- Use 2115 predicted climate change extents for Flood Zone 2 and 3 when determining requirement and scope for Flood Risk Assessments (FRA), to take a more suitable and precautionary approach.
- Suggests requiring all new developments of all sizes to, where possible, sustainably manage surface water on site to reduce the potential for off site increases in flood risk.
- Adopt resilient or resistant design practices for all development that must be placed in zones of flood risk.

- Specific FRAs in tidal flood zone 3 should incorporate an assessment of potential impacts of wind and wave action for developments lying within the risk zone & agree with the Environment Agency mitigation measures to facilitate 'safe' development.

Since the publication of the SFRA, work has been completed on flood defences along Margate seafront which will increase the standard of flood protection from approximately 1 in 20 to 1 in 200 for the Old Town Flood Compartment. However this will not change the flood risk zones provided by the Environment Agency as these are based on a hypothetical situation where no flood defences exist. Although the new flood defences have increased the standard of flood protection, it would still be necessary for a flood risk assessment to be provided for proposals within the flood risk area as there would still be a risk of residual flooding resulting from a breach of the flood defences. An addendum will be included in the SFRA to reflect the changes from the new defences.

Shoreline Management Plan – Isle of Grain to South Foreland (2008)

The Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. The objectives of the SMP are to:

- define, in general terms, the flooding and erosion risks to people and the developed, historic and natural environment within the SMP area over the next century;
- identify the preferred policies for managing those risks;
- identify the consequences of implementing the preferred policies;
- set out procedures for monitoring the effectiveness of the SMP policies;
- inform planners, developers and others of the risks identified within the SMP and preferred SMP policies when considering future development of the shoreline and land use changes;
- comply with international and national nature conservation legislation and biodiversity obligations; and
- to highlight areas where knowledge gaps exist.

The SMP also includes an action plan to facilitate implementation of the SMP policies and monitor progress.

The shoreline management policies have been identified by the Ministry of Agriculture Fisheries and Food and are generic coastal defence options used in all SMPs. The policies are:

- **Hold the Line** By maintaining or changing the standard of protection;
- **Advance the Line** By building new defences on the seaward side of the original defences;
- **Managed Realignment** By allowing the shoreline to move backwards and forwards with management to control or limit movement; and,
- **No Active Intervention** Where there is no investment in coastal defences or operations.

The SMP policies for the Thanet District are set out in Table 3.

Table 3 – Shoreline Management Policies for Thanet

Frontage	Preferred Policies			Characterisation
	Short Term	Medium Term	Long Term	
Reculver Towers to Minnis Bay	Hold the Line	Managed Realignment and Hold the Line	Managed Realignment and Hold the Line	An internationally important site for heritage and the environment, along with important road and rail links and agricultural and amenity value. The frontage and hinterland are largely undeveloped and forms part of the relict Wantsum channel flood risk area.
Minnis Bay to Westgate-on-Sea	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs of high conservation and landscape importance characterise this section of the coast along with the towns of Birchington and Westgate, which are set back from the cliff top.
Margate	Hold the Line	Hold the Line	Hold the Line	A dense urban area which is developed to the water's edge and dominated by the harbour arm. The town is of amenity, tourism, heritage, landscape and environmental importance.
Cliftonville	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs which are of high conservation and landscape importance. The town of Cliftonville is set back from the cliff top and is of amenity, tourism, landscape and environmental importance.
White Ness to Ramsgate	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs which are of high conservation and landscape importance. The towns of Kingsgate and Broadstairs are set back from the cliff top and are of amenity, tourism, landscape and environmental importance.
Ramsgate Harbour	Hold the Line	Hold the Line	Hold the Line	A dense urban area which is developed to and beyond the water's edge and dominated by the harbour. The town is of amenity, tourism, heritage, landscape and environmental importance.
Ramsgate Harbour (west) to north of the River Stour	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A combined landscape of chalk cliffs, sandstone cliffs and low-lying land, which is of high landscape and environmental interest. The A299 road runs through the cliffs, whilst the villages of Cliffs End and Pegwell are set slightly back from the cliff top.

Conclusion

The quality of Thanet's groundwater impacts on the quality of sites designated under EU legislation, ie, bathing waters, shellfish waters and nature conservation sites. The majority of Thanet's drinking water is also supplied from the groundwater chalk aquifer. Effective management of surface water can help reduce the risk of pollution to groundwater and bathing waters. Bathing waters that fail to meet the required standards could have a knock-on effect on neighbouring beaches, and an overall detrimental effect on the number of visitors that come to Thanet, as its beaches are an important feature of Thanet's tourism.

The Council will continue to liaise with Southern Water to ensure any plans they identify to supply Thanet with enough water and to meet the demands of development and population growth can be accommodated. There is a policy option for measures to reduce water consumption which would help reduce demand for water.

The paper identifies a number of issues that Local Plan policies can help to address, in protecting Thanet's waters. Potential policies include:

- Groundwater protection
- Control of potentially polluting development
- Development of Brownfield land
- Remediation of contaminated land
- Methods to reduce water consumption
- Code for Sustainable Homes
- Green Infrastructure
- Sustainable Drainage Systems
- Development in flood risk areas

These are discussed in more detail the Climate Change, Natural Environment and Quality Environment sections of the Issue and Options Consultation Document, and relevant topic papers.

Annex 1 – Actions that can be implemented to manage pressures on the water environment and achieve the objectives of the River Basin Management Plan

Pressures	Action	Possible action through Local Plan policies
Ammonia; Faecal indicator organisms; Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances & Specific Pollutants	Local initiative to encourage Local Planning Authorities to use GP3 (Groundwater Protection: Policy and Practice) to promote best practice and PPS23 (Planning Policy Statement 23) to ensure remediation of brownfield land (SE0010)	Groundwater protection Pollution Control Encourage development on brownfield land ensuring site is remediated – this would reduce potentially polluting sites
Hazardous substances and non-hazardous pollutants; Priority Substances & Specific Pollutants	Development planning: land contamination - site specific advice and required action for remediation of contaminated land through planning liaison (SE0055)	Contaminated Land
Physical modification; Abstraction and other artificial flow pressures	Actions to reduce the physical impacts of urban development activities in artificial or heavily modified water bodies (as specified in annex B) (SE0147)	Methods to reduce water consumption Code for Sustainable Homes
Abstraction and other artificial flow pressures	Ensure that local spatial plans include policies to secure developer contributions for retrofitting water efficiency measures in existing housing stock, in water stressed areas. Outcome: From 2011 adopted local spatial plans, such as Area Action Plans and Supplementary Planning Documents, include policies to seek Section 106 monies (and Community Infrastructure Levy contributions where relevant) for the retrofitting of existing housing stock in water stressed areas. This will reduce the pressure of increased abstraction on the environment. (SE0220)	Methods to reduce water consumption Code for Sustainable Homes
Abstraction and other artificial flow pressures	Ensure that local spatial planning policies for new development set out strong requirements for water efficiency measures. Outcome: Adopted Development Plan Documents include policies on (i) water efficiency measures for new development that seek to achieve Code for Sustainable Homes Level 3 and 4 (105 litres a day per capita consumption) as a minimum, and (ii) water efficiency measures for business and commercial developments (such as rainwater harvesting and recycling). (SE0219)	Methods to reduce water consumption Code for Sustainable Homes
Abstraction and other artificial flow pressures	Reduction of demand through specification of water efficient fittings in	Methods to reduce water consumption

Pressures	Action	Possible action through Local Plan policies
	new and refurbished homes under Building Regulations. Outcome: Reduced water use so there is enough water for people, their businesses and the environment in the future. (SE0288)	Code for Sustainable Homes
Abstraction and other artificial flow pressures; Nutrients	Ensure the requirement for Water Cycle Studies are set out in spatial planning documents and policies where appropriate, particularly in growth and/or high risk areas. Recommendations from such studies should be included in spatial planning policies. Outcome: Requirements for Water Cycle Studies are set out in spatial planning documents and policies by 2010, and undertaken for all Growth Areas within this plan area by 2012. Recommendations are included within Local Development Documents by 2012. (SE0222)	
Abstraction and other artificial flow pressures; Nutrients	Ensure that Green Infrastructure Strategies maximise potential benefits for water resources, water quality, drainage and flood risk management. Outcome: From 2010 all adopted Local Development Documents include Green Infrastructure Strategies, including sustainable water management. (SE0217)	Green Infrastructure Sustainable Drainage Systems
Microbiology; Nutrients; Organicpollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant)	Implement surface water management plans, ensuring water quality is considered on a catchment basis. Outcome: Increase resilience to surface water flooding, with fewer homes and critical infrastructures flooded. Works also improve control of diffuse pollution, provide opportunities for better wildlife habitat, and contribute to no deterioration of the water environment. (SE0234)	Sustainable Drainage Systems Green Infrastructure
Nutrients; Microbiology; Organic pollutants; Sediments (as a direct pollutant); Priority Hazardous Substances, Priority Substances and Specific Pollutants	Influence Town and Country Planning Act authorisation process to help minimise risk of diffuse pollution from new developments (e.g. implement SUDs and use of Water Resource Act Planning Guidance). Outcome; Improved groundwater and surface water quality. (SE0239)	Potentially Polluting Development Landfill Sites Derelict and Contaminated Land Groundwater Protection Sustainable Drainage Systems
Nutrients; Organic pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Direct biological pressures;	Promote sustainable water management best practice through pre-application discussions with developers (as set out in the Environment Agency's publication 'A guide for developers') and establish good practice for site clearance prior to development.	Code for Sustainable Homes Methods to reduce water consumption Potentially Polluting Development Derelict and Contaminated

Pressures	Action	Possible action through Local Plan policies
Abstraction and other artificial flow pressures; Sediments (as a direct pollutant)	Outcome: Builders and developers design buildings that incorporate sustainable water management measures. (SE0272)	Land
Organic pollutants; Nutrients; Physical modification; Abstraction and other artificial flow pressures	Ensure that planning policies and spatial planning documents take into account the objectives of the South East River Basin Management Plan. Outcome: The proposed Single Regional Strategy (and any reviews of policies within the South East Plan) and emerging drafts fully integrate the requirements of this plan. From 2010 all adopted Local Development Documents include policies relating to sustainable water management. From 2010 all emerging Sustainable Community Strategies include reference to the achievement of sustainable water management within their strategic vision. (SE0221)	Groundwater Protection Code for Sustainable Homes Methods to reduce water consumption Sustainable Drainage Systems
Physical modification	Ensure that local spatial planning documents include policies to secure habitat creation in floodplains through developer contributions, taking into consideration the Biodiversity Opportunity Areas. Outcome: From 2011 Development Plan Documents include polices to seek Section 106 monies (and Community Infrastructure Levy contributions where relevant) for floodplain habitat creation. To help address diffuse pollution, and contribute to flood storage measures. (SE0218)	Green Infrastructure Sustainable Drainage Systems
Physical modification; Abstraction and other artificial flow pressures; Nutrients; Organic pollutants	Promote the use of sustainable drainage systems (SuDS). Include SuDS in new urban and rural developments where appropriate, and retrofit in priority areas where possible including highways. Outcome: Diffuse pollution reduced through the improved design and management of surface water drainage (SE0276)	Sustainable Drainage Systems
Physical modification	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 protected areas through Implementation of Appropriate Coastal Management (see Annex D) (SE0327)	Green Infrastructure

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