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Stour Abstraction licensing strategy

February 2013

A licensing strategy to manage water resources sustainably

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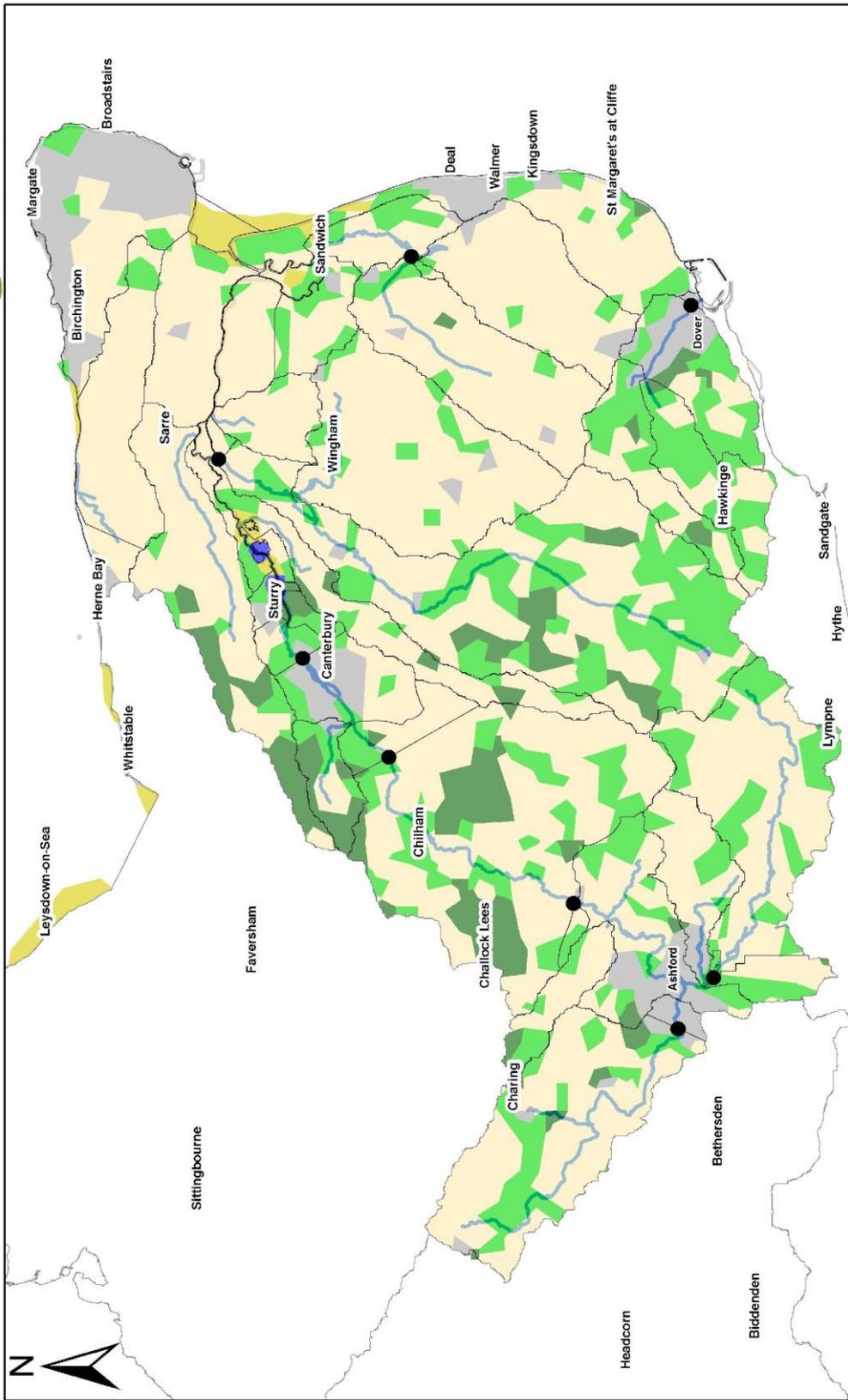
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**Map Stour CAMS
(Catchment Abstraction Management Strategy) area**



Stour CAMS area



Legend

- CAMS APs
- CAMS Rivers
- CAMS Water Bodies
- Arable
- Managed Grassland
- Forestry / Woodland
- Semi Natural Vegetation
- Urban
- Water

0 2.5 5 10 15 20
Kilometres

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Foreword

Kent and South London (KSL) is home to six million people and covers an area of 6,000km² with a diverse range of environments and related pressures. Proposed growth will continue to stretch the resources available to support this increasing population.

Water is our most essential natural resource, and it is our job to ensure that we manage and use it effectively and sustainably. KSL is one of the driest parts of England and Wales and there are many catchments where there is little or no water available for abstraction during dry periods. Demand from agriculture and industry, and above average household consumption all add to this pressure and affect both the water environment and fresh supplies.

The latest population growth and climate change predictions show that pressure on water resources will continue to increase in the future. We have to act now to make sure that we continue to maintain and improve sustainable abstraction and balance the needs of people and the environment.

This licensing strategy sets out how we will manage water resources in the catchment, existing abstraction licences and water availability for further abstraction.



Andrew Pearce

Kent & South London Area Manager

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Glossary of terms

List of abbreviations

1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the Stour area. It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be.

This strategy was produced in February 2013 and supersedes the Stour Catchment Abstraction Strategy issued in 2003.

How CAMS contributes to achieving environmental objectives under the (WFD) Water Framework Directive

The Water Framework Directive's main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

Catchment Abstraction Management Strategies (CAMS) set out how we will manage the water resources of a catchment and contribute to implementing the WFD.

CAMS contribute to the WFD by:

- providing a water resource assessment of rivers, lakes, reservoirs, estuaries and groundwater referred to as water bodies under the WFD;
- identifying water bodies that fail flow conditions expected to support good ecological status;
- preventing deterioration of water body status due to new abstractions;
- providing results which inform River Basin Management Plans ([RBMPs](#)).

When is an abstraction licence required?

You need a licence from us if you want to abstract more than 20m³/day (4 400 gallons) of water per day from a:

- river or stream
- reservoir, lake or pond
- canal
- spring or
- an underground source

Whether or not a licence is granted depends on the amount of water available after the needs of the environment and existing abstractors are met and whether the justification for the abstraction is reasonable.

If you want to apply for an abstraction licence or make changes to a licence that you already have then, please contact us:

- by telephone on 03708 506 506
- by email at enquiries@environment-agency.gov.uk
- or visit our website at www.environment-agency.gov.uk or our [Abstraction Licensing pages](#)

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Sustainable abstraction

This licensing strategy has been produced using evidence and information gathered during the Catchment Abstraction Management Strategy (CAMS) process. Through this process we consider the impact of abstraction at all flows. This helps to manage future abstraction more sustainably.

We now assess water resources at a sub-catchment level called water bodies. This means that we can provide more detailed information on the availability of water resources in the Stour CAMS area compared to the scale used in the previous strategy.

Within this strategy we also outline where we may need to reduce current rates of abstraction and our approach on time limiting licences.

The background, aims and principles of CAMS, the over arching principles we use when managing abstraction licences and links with other initiatives are detailed in our document: [Managing Water Abstraction](#). You should read [Managing Water Abstraction](#) when reading this catchment specific licensing strategy.

2. Stour CAMS area

The Stour CAMS area covers 1,081km² and in addition to the River Stour and its tributaries, this strategy area includes the River Dour and the Dover Chalk block, the Isle of Thanet, and the Lydden Valley which receives water from the catchment of North and South Streams. The principal urban centres in the catchment are Ashford, Canterbury, Dover, Deal, Ramsgate and Margate. Beyond these towns, agriculture forms the main land use with the highest quality agricultural land lying in the north of the catchment.

The River Stour has two main tributaries. The Upper Great Stour originates at Lenham near Maidstone and the East Stour begins at Postling, near Folkestone. After the confluence of these two watercourses at Ashford, the river flows north-eastwards in a steep sided valley through the North Downs Area of Outstanding Natural Beauty to Canterbury. The tidal limit is just downstream of Canterbury, determined by the lowest downstream weir sited at Fordwich. The channel extends for a further 33km beyond this point, passing through the lowland Stour Marshes before reaching the estuary at Pegwell Bay. The Stour acts as a source of water for the lowland marshes either side through the operation of a number of pumping stations and gravitational feeds, controlled by sluices. Water levels within the private ditches, Internal Drainage Board sewers and main river channels within the marshes are carefully managed for agricultural and environmental needs.

The Little Stour drains much of the Chalk block south of Canterbury and joins the tidal Great Stour at Plucks Gutter, 13km downstream of Fordwich. Subsidence in this area, caused by historic coal mining, has resulted in the need to pump the Little Stour into the Great Stour, via the Environment Agency's West Stourmouth Pumping Station. In the upper reaches of the Little Stour, the high permeability of the underlying Chalk means that surface flows are rare, occurring only in response to heavy rainfall. When conditions are wet and groundwater levels are high, the river can extend 37km beyond its perennial source at Well Chapel Springs, upstream of Littlebourne.

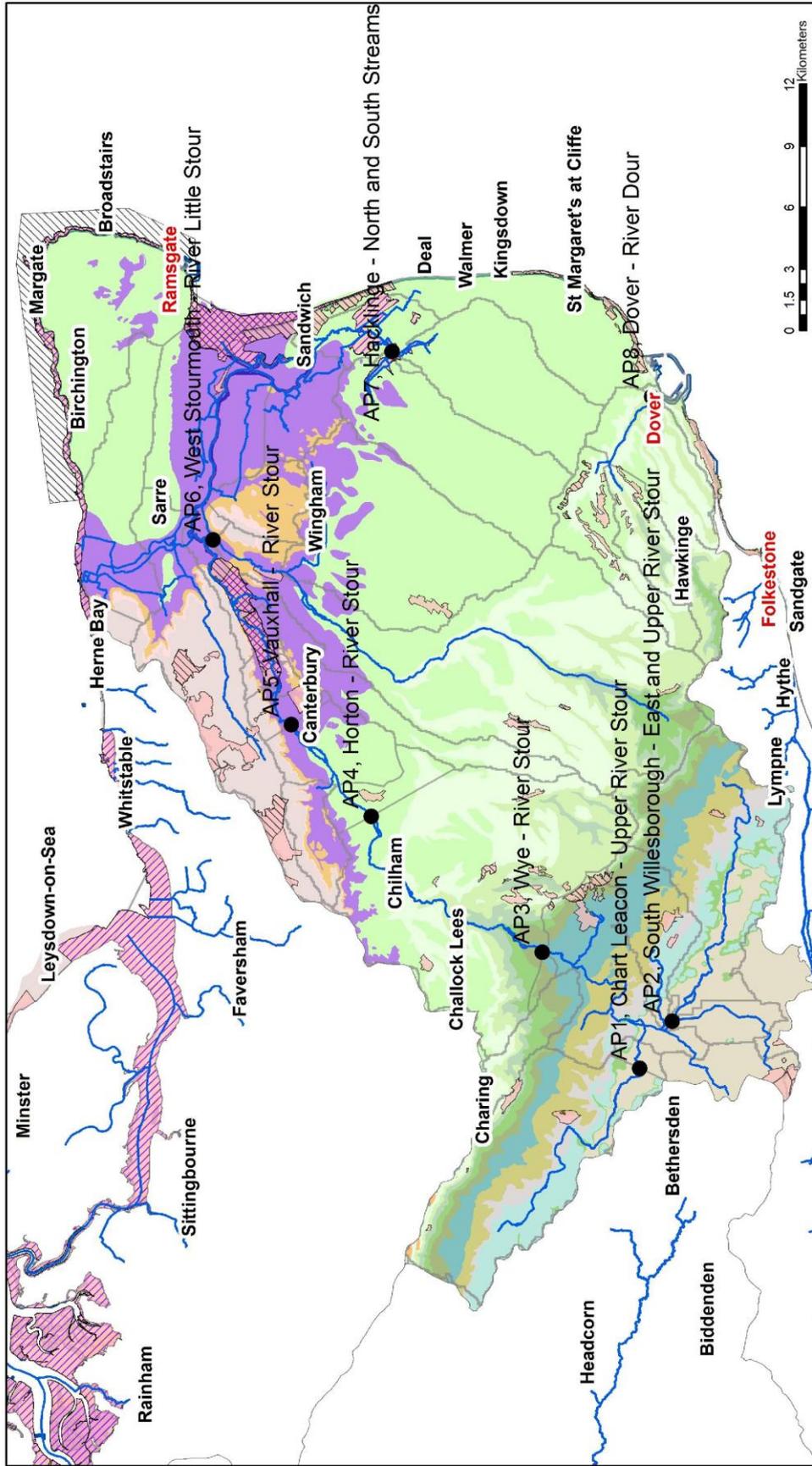
The River Dour is an important groundwater-fed chalk stream, although it has only a small catchment of around 80km². The Alkham and Watersend ephemeral reaches rise just 7km northwest of Dover, before merging at Kearsney Gardens before discharging into the English Channel via the outfall at Wellington Dock (Dover Harbour - Western Docks).

Chalk clearly dominates the geology of the catchment in terms of water bearing potential. However, the Lower Greensands in the Upper Great Stour and the East Kent Tertiaries in the Wingham catchment are also a significant source of baseflow to the rivers. The presence of the less permeable strata of the Gault and Weald Clays underlying the southern parts of the catchment limits the contribution of baseflow to those upper reaches of the Great Stour. The geology determines the river's flow regime, leading to low flows during summer and rapid runoff and flooding during the wetter months.

The majority, 65%, of water abstracted each year in the Stour catchment is drawn from groundwater sources. 51% of water abstracted from the environment is for public water supply. Agriculture is the second largest water using sector, representing 25% of all abstraction in the catchment, and placing the largest demand on surface water sources.

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Stour CAMS Area: Geology & Designated Sites



Legend

- Stour CAMS AP's
- Rivers
- ▨ RAMSAR
- ▨ SACs
- ▨ SSSIs
- ▨ Stour CAMS Water Bodies

Geology

- Gault Clay
- London Clay Formation
- Lambeth Group
- Folkstone Beds
- Hythe Beds
- Thanet Sands
- Upper Chalk
- Middle Chalk
- Lower Chalk
- Weald Clay

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Map 1 shows the geology and designated sites within the Stour catchment

3. Water resource availability of the Stour area

3.1 Resource assessment

Resource assessment is at the heart of abstraction management. To manage water effectively we need to understand how much is available and where it is available, after considering the needs of the environment. We have a monitoring network to measure river flows and groundwater levels. We use this data along with our knowledge of human influences and environmental needs to establish a baseline of water availability for each water body that builds into a picture for the catchment. The main components of this assessment that help us to understand the availability of water resources are:

- a resource allocation for the environment defined as a proportion of natural flow, known as the Environmental Flow Indicator (EFI);
- the Fully Licensed (FL) scenario - the situation if all abstraction licences were being used to full capacity;
- the Recent Actual (RA) scenario – the amount of water which has actually been abstracted on average over the previous six years.

River flows change naturally throughout the year, so we want to protect flow variability in our rivers from low to high flow conditions. We use flow statistics to help to do this. Flow statistics are expressed as the percentage of time that flow is exceeded. Resource availability is calculated at four different flows, Q95 (lowest), Q70, Q50 and Q30 (highest).

This information gives a realistic picture of what the current resource availability is within a given water body. Water bodies are sub-catchment surface water units or groundwater units on which we carry out assessments and map results.

3.2 Resource availability

3.2.1 Surface water

If you want to abstract water, you need to know what water resources are available within a catchment and where abstraction for [consumptive](#) purposes is allowed. To show this we have developed a classification system which indicates:

- the relative balance between the environmental requirements for water (defined by the EFI) and how much is licensed for abstraction;
- whether water is available for further abstraction;
- areas where abstraction may need to be reduced.

The availability of water for abstraction is determined by the relationship between the fully licensed and recent actual flows in relation to the EFI. The results mapped onto these water bodies are represented by different water resource availability colours showing the availability of water resource for further abstraction. The water resource availability colours are explained in Table 1. In addition to these water resource availability colours we've classified some surface water bodies as 'high hydrological status' which are coloured blue on the maps. In these water bodies very little actual abstraction occurs and they show virtually undisturbed, or close to natural, flow conditions.

Another category of water body are Heavily Modified Water Bodies (HMWB). These can be classified for many reasons but for water resources they are classified if they contain a lake and/or reservoir that influences the downstream flow regime of the river. The downstream 'flow modified' water bodies are also classified as heavily modified.

We'll add any conditions necessary to protect flows to a new licence during the licence determination procedure. We will base licence conditions on the water resource availability at

different flows (high to low). Table 1 lists the implications for licensing for each water resource availability colour.

In cases where there is a flow deficit (**RA** is below the EFI) or risk of a flow deficit (**FL** below the EFI), there may be water available for abstraction at higher flows. This means that water may be scarce at low flows, but may be available to abstract at medium or high flows. A licence may still be granted but with conditions which protect the low flows. This usually takes the form of a Hands off Flow (HOF) condition on a licence which requires abstraction to stop when the river flow falls below a certain amount. A river may also be heavily supported by flows from a reservoir and may have unnaturally high 'low' flows which means that the river environment is most vulnerable at medium flows.

Water resource availability colour	Implication for licensing
High hydrological regime	There is more water than required to meet the needs of the environment. However, due to the need to maintain the near pristine nature of the water body, further abstraction is severely restricted.
Water available for licensing	There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.
Restricted water available for licensing	Full Licensed flows fall below the EFIs. If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
Water not available for licensing	Recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status (as required by the Water Framework Directive Note: we are currently investigating water bodies that are not supporting GES / GEP). No further consumptive licences will be granted. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.
HMWBs (and /or discharge rich water bodies)	These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. These are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements. More detail if applicable can be found in section 4.2.1 Surface Water There may be water available for abstraction in discharge rich catchments, you need to contact the Environment Agency to find out more.

Table 1 Implications of water resource availability colours.

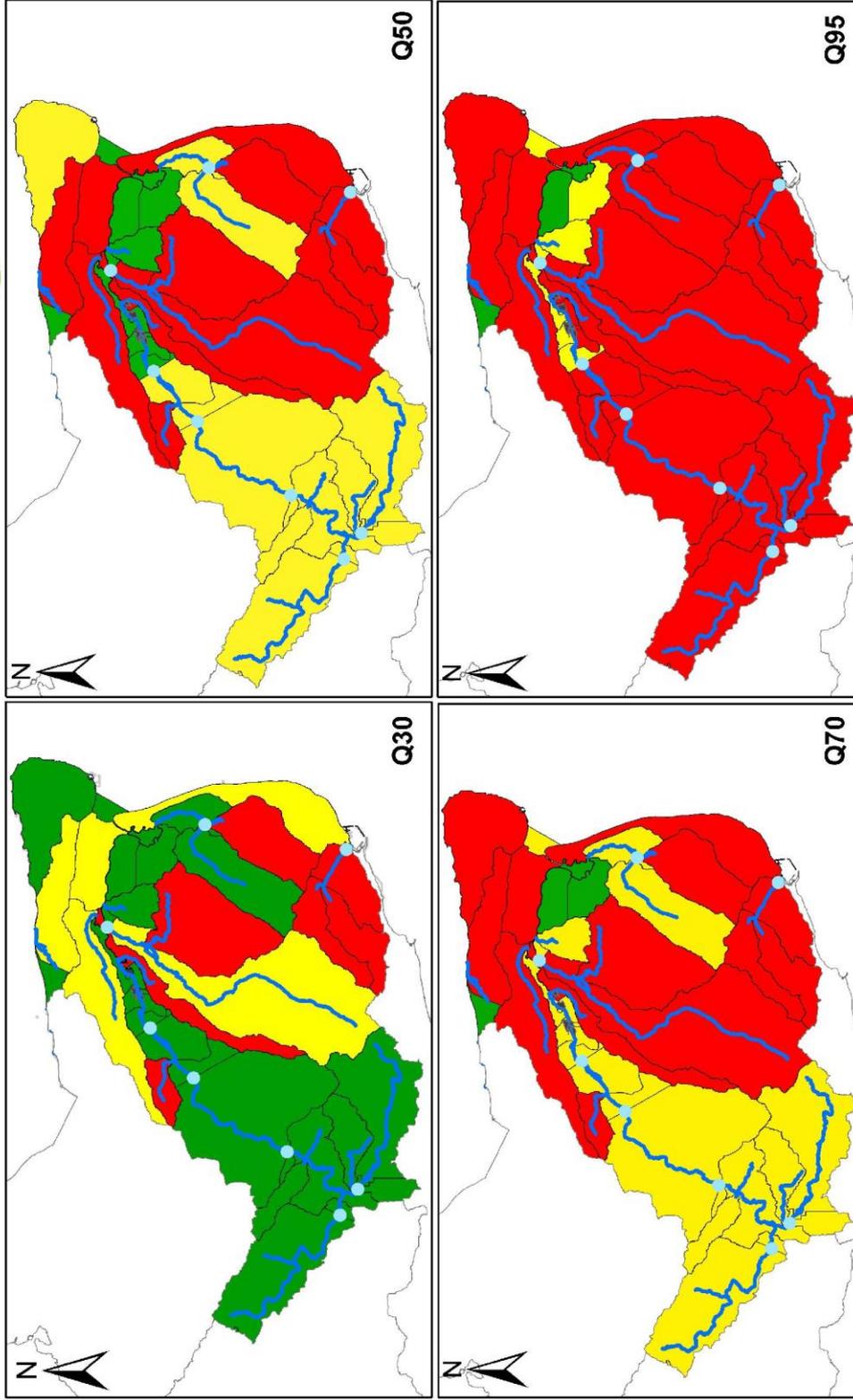
3.2.2 Groundwater

Groundwater availability is guided by the surface water resource availability colours unless we have better information on principal aquifers or are aware of local issues we need to protect.

Map 2 shows the water resource availability colours in the Stour area. The same availability is applied to groundwater and surface water.

GWMU resource availability colour	Implication for licensing
Water available for licensing	Groundwater unit balance shows groundwater available for licensing. New licences can be considered depending on impacts on other abstractors and on surface water.
Restricted water available for licensing	<p>Groundwater unit balance shows more water is licensed than the amount available, but that recent actual abstractions are lower than the amount available OR that there are known local impacts likely to occur on dependent wetlands, groundwater levels or cause intrusions but with management options in place.</p> <p>In restricted groundwater units no new consumptive licences will be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.</p> <p>In other units there may be restrictions in some areas e.g. in relation to saline intrusion</p>
Water not available for licensing	<p>Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available.</p> <p>No further consumptive licences will be granted.</p>

Stour CAMS
Downstream Resource Colours



Legend

- - Water available for licensing
- - Restricted water available for licensing
- - Water not available for licensing
- CAMS Water Bodies
- Heavily Modified and Artificial Lakes
- Heavily Modified and Artificial Rivers
- Main Rivers
- CAMS APs

Kilometres
0 2.5 5 10 15 20

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Map 2 Water resource availability colours for the Stour CAMS.

3.3 Resource reliability

If you want to apply for a licence, it is worth considering that in some areas a new, consumptive abstraction may not be 100% reliable. Reliability information is based on CAMS resource availability colours and is a way of presenting the reliability of new abstractions at all flows.

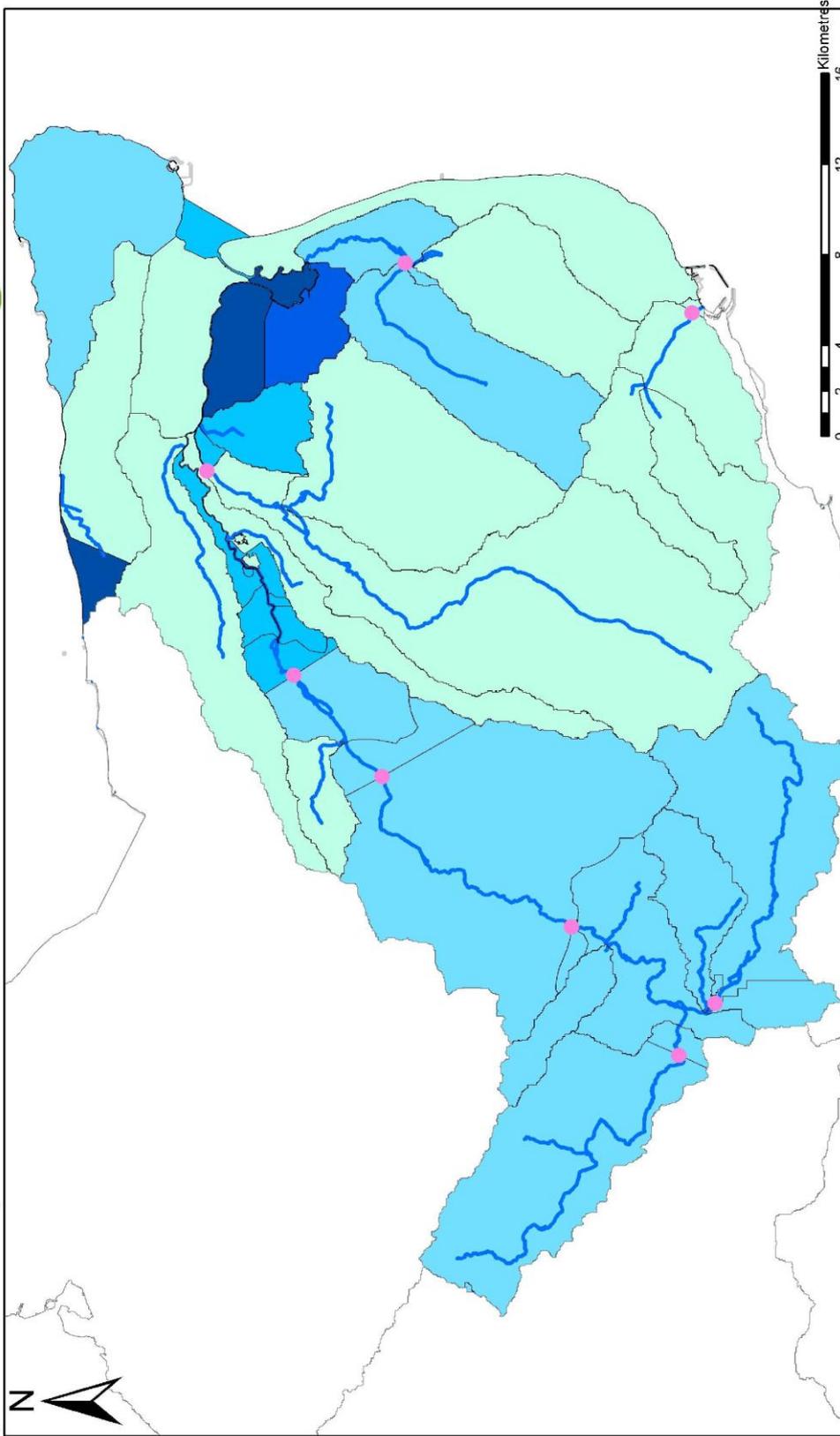
The availability of water for abstraction within a river varies greatly from high to low flows. By assessing the quantity of water available at different flows it is possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only; actual reliability of a licence will be discussed on application.

Table 2 shows the resource availability colour associated with the percentage reliability of consumptive abstraction. Map 3 gives an indication of the resource reliability in the Stour area expressed as percentage of time.

Resource	Percentage of the time additional consumptive resource may be available
	Consumptive abstraction available less than 30% of the time.
	Consumptive abstraction available at least 30% of the time.
	Consumptive abstraction available at least 50% of the time.
	Consumptive abstraction available at least 70% of the time.
	Consumptive abstraction available at least 95% of the time.
	Not assessed

Table 2 Percentage reliability of consumptive abstraction.

Stour CAMS Resource Reliability (% of the time)



Legend

- CAMS APs
- Heavily Modified and Artificial Rivers
- Heavily Modified and Artificial Lakes
- CAMS Rivers
- CAMS Water Bodies

- Water Resource available less than 30% of the time
- Water Resource available at least 30% of the time
- Water Resource available at least 50% of the time
- Water Resource available at least 70% of the time
- Water Resource available at least 95% of the time

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Map 3 Water resource reliability expressed as percentage of time available.

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4. How we manage abstractions in the Stour area

4.1 Principles

The document [Managing Water Abstraction](#) outlines the over-arching principles that we follow in managing our water resources. How we apply these principles in the Stour area is outlined in this section. If you want to abstract water it outlines where water is available for further abstraction and the principles we follow in assessing your application for a licence.

Abstraction licence application process

Anyone wanting to take more than 20m³/day (4,400 gallons) from a 'source of supply' (river, stream, lake, well, groundwater, etc) must have an abstraction licence. The application process for abstraction is similar to the planning process in that we may require the application to be advertised and may require supporting environmental information. When considering the application we check that the quantities applied for and the purpose of the abstraction are reasonable, that there is sufficient water available to support it and that the potential impacts on the environment and other water users are acceptable. Depending on the outcome of our investigations we will issue a licence either as applied for, or with conditions that restrict the abstraction to protect the environment or other users. In certain cases we may have to refuse the application. Any applicant who is not happy with our determination (decision) has the right to appeal against it.

Each application is determined on its own merits

Whilst this document may say that water is available for further abstraction, this does not guarantee that all applications will be successful. We'll determine each application upon its own merits and any local impacts.

A licence does not guarantee that water is available

It is important to understand that when we issue a licence we do not guarantee the supply of water. We have to protect the environment and rights of other abstractors. To do this we may add constraints to licences. Licence holders need to understand the implications of this as it affects the reliability of supply. For example, in drier years it's more likely that conditions will come into effect and abstraction is more likely to be stopped.

Abstractions are managed to protect the environment.

No ecological deterioration

We assess the impact of new applications for water to make sure that the resultant river flows:

- will maintain a good ecology or if the ecology is not good, will not deteriorate the ecology of our rivers further;
- will maintain the near pristine condition of high hydrological regime water bodies.

We will also take action if necessary to limit the increase in current abstraction, if we think this will lead to deterioration of the ecology or the near pristine condition of our high hydrological regime water bodies.

These principles apply to the water body in which the abstraction is located and also to all downstream water bodies that may be affected by any reduction in abstraction related flow. Doing this means that we will maintain the water body status as reported in the River Basin Management Plans (2009) and ensure compliance with the European Union Water Framework Directive.

Water efficiency and demand management

We need to make the best use of our existing water resources. Adopting water efficiency and demand management measures can help us achieve this goal. Water efficiency is one of the tests that will need to be satisfied before we grant a new licence or renew a time limited licence. We will promote the wise and efficient use of water and actions to limit demand (and reduce leakage) to curb the growth in abstraction and limit the impact on flows and any consequent impact on the ecology. For further details on our general approach to licensing please see the document [Managing Water Abstraction](#).

Building Design

The South East is densely populated, the demand pressures being compounded by household water use being the highest in the country at 164 litres per capita consumption (PCC), against a national average of 148 PCC. Throughout the area we are working closely with local authorities to ensure water conservation and efficient water use is embedded within their strategic spatial planning policies. One way this can be achieved is by designing all new homes and business units to achieve a minimum water efficiency level.

Water efficiency and the reduction in household water demand are crucial elements of good water resource management planning, especially as the South East is under increased pressure from climate change and population growth. Local Authorities in Kent are signing the Climate Local commitment to share knowledge and work towards agreed targets that will support the quality of life for those living and working in Kent. Climate Local Kent includes targets to reduce water consumption and support retrofitting schemes www.kent.gov.uk/climatelocalkent

Sustainable drainage systems (or SuDS) are a positive way of controlling surface water runoff as close to its origin as possible, before it is discharged to a watercourse or the ground. They involve moving away from traditional drainage systems to softer engineering solutions such as permeable paving. The benefits are reduced flood risk, improved water quality and increased groundwater recharge. This water can also be collected and reused for non-potable purposes.

Water audits

All businesses can use their water wisely. By investing a little time and money in implementing a simple water management plan, an organisation could reduce its water consumption by up to 80%, releasing money to be invested in other parts of the business and establishing 'green' credentials. Water audits allow the volume of water used during an average year to be calculated and suggest ways to reduce water use and therefore costs.

Environment Agency

The Environment Agency provides a range of free guidance on water efficiency, including best practice case studies for agriculture, business, industry, public sector and the domestic consumer. Consult www.environment-agency.gov.uk/savewater.

Water companies

For local water efficiency advice, contact your water company along side leakage rates and water metering targets.

Southern Water www.southernwater.co.uk

South East Water www.southeastwater.co.uk

Affinity Water www.affinitywater.co.uk

Water Regulations Advisor Service

WRAS provides advice on the Water Supply (Water Fittings) Regulations which prevents waste, misuse, undue consumption or contamination of wholesome water. Consult www.wras.co.uk or telephone 01495 248454.

Business/Commercial

Waterwise

Waterwise is a UK Non-governmental Organisation (NGO) focused on decreasing water consumption in the UK and building the evidence base for large scale water efficiency. www.waterwise.org.uk/pages/save-water.html

Public sector

Water Summit - Water Resilience Framework

Kent County Council and the Environment Agency are working in partnership to develop a Water Resilience Framework for Kent. In part this included a 'Water Summit' held in 2012 with water companies, public sector organisations, NGOs, businesses, community and local interest groups across Kent. The aim was to highlight local water resource pressures, drought issues and long-term local water risks, and establish a consensus on what needs to be done to develop a Water Resilience Framework for Kent which in turn would be of benefit to the local economy and jobs.

Water in the School benchmarks

Water in the School is a website supported by a number of water companies aimed at National Curriculum Key Stage 2 and 3 pupils and their teachers. It provides a wealth of information for pupils on how to make savings. Consult www.waterintheschool.co.uk

Hospitals

Water UK has collaborated with NHS Estates and Watermark to produce *Water Efficient Hospitals*, an information pack to help hospitals use water wisely and save money by cutting both water and energy bills. Consult www.water.org.uk/index.php?cat=3-4701

Agriculture & Horticulture

It is recognised there is a need to balance between people, business and the environment. We are working closely with Kent County Council and others on a programme to address the rapid growth of water demand within Kent's horticulture and agriculture sector which was an action from the Kent Environment Strategy.

UK Irrigation Association (UKIA)

The UKIA provides information on irrigation to its members and runs technical workshops. Consult www.ukia.org

DEFRA's Rural Development Service (RDS)

DEFRA's Rural Development Service provides grants for agricultural water resources management schemes under its Rural Enterprise Scheme. Consult www.defra.gov.uk/rural/rdpe/ or telephone 0845 9335577.

Linking Environment & Farming (LEAF)

LEAF promote and develop integrated farm management, this includes whole farm water savings. Consult www.leafuk.org or telephone the Kent LEAF office 01580 712488.

Impoundments

Applications for impoundment licenses will be dealt with on a case-by-case basis but the Environment Agency is generally opposed to in-stream impoundments as they can have significant impact on the flow regime and the natural ecology. An impoundment is a dam, weir or other construction in an inland waterway that obstructs or impedes flow and/or raises water levels.

Hydropower

Water abstraction for hydropower schemes is non-consumptive, with all water used returned to the watercourse. Hands off Flows and maximum abstraction volumes are determined in line with the Environment Agency's Hydropower Good Practice Guidelines and based on the assessment of environmental risk for each scheme. For further information please refer to our [website](#).

4.2 Abstraction restrictions

When issuing a licence we have to protect the environment and rights of other abstractors. To do this we may add conditions to licences.

Time limited licences

In recognition of changing pressures on water resources all new licences and variations (other than downward variations or minor variations having no environmental impact) will have a time limit imposed. This allows for the periodic review and changes to abstraction licences where circumstances have changed since the licence was granted.

All new licences within a CAMS area have a **common end date** (CED) so they can be reviewed at the same time. When an application is made within six years of the CED, we will generally apply the subsequent CED to any licence granted. This is to avoid issuing shorter and shorter duration licences as the CED approaches. This means that the initial CED on a licence may be between six and 18 years duration. On replacement the normal duration will then usually be 12 years.

However, where we are uncertain about the long term impacts of an abstraction we will grant a short term licence during which time potential impacts are monitored.

14% of the licences in the Stour CAMS are time-limited. CEDs occur every twelve years. The next CED for the Stour CAMS is 2022 and the subsequent one is 2028.

Additional information about the replacement of time limited licences is available in [Managing Water Abstraction](#).

We will seek to secure downward variations or apply groundwater level conditions to existing licenses by using the criteria for the renewal of time limited licenses.

Time-limited licences may be renewed with more restrictive terms and conditions to protect the environment, i.e.:

- Licensed quantity may be reduced to reflect actual abstraction rates;
- We will endeavour to provide licence holders notice of significant changes to their abstraction permission. These could include:
 - A Hands Off Flow (HOF) may be imposed
 - And/or, a hands-off groundwater level may be imposed.
 - Increased monitoring of abstraction volume, and/or monitoring of surface/ groundwater levels.

Hands off flow conditions

To protect the environment we may issue a licence with a condition referred to as a 'Hands-Off Flow' (HOF). This specifies that if the flow in the river drops below that which is required to protect the environment abstraction must stop, hence 'Hands-Off Flow'.

4.2.1 Surface water

We assess surface water flows at Assessment Points (APs) which are significant points on the river, often where two major rivers join or at a gauging station. Where flows fall below the Ecological Flow Indicator (EFI), new abstractions may be subject to HOFs.

Table 3 gives an indication of how much water is available for further abstraction and the associated restrictions that we may apply to new and varied abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities.

Each HOF is linked to an AP and is dependent on the resource availability at that AP. In some cases additional restrictions may apply to licences where there is a more critical resource availability downstream to protect the ecological requirements of the river.

All abstraction licence applications are subject to an assessment to take account of any local and downstream issues and may be subject to further restrictions.

The surface watercourses within the freshwater marshes found in the lower Stour catchment cannot be assessed in the same way as the naturally flowing main rivers and tributaries. The amount of water within these ditches, drains and IDB watercourses is a balance between not only normal catchment processes like rainfall, spring flow and overland flows but also the operation of pumps, sluices and managed discharges to sea. Abstractions that use this water are often carefully controlled to manage very local impacts on the environment and other local water users.

Reading from top to bottom in Table 3 are the APs in the Stour CAMS area. Reading across the columns you can see the potential HOF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in MI/d that may be available. In cases where there is water available at all flows we may apply a Minimum Residual Flow (MRF) to protect very low flows. We will decide this on a case by case basis.

Stour CAMS area AP	Name	Water Resource Availability Colour	HOF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?
1	Chart Leacon Upper River Stour	Consumptive abstraction available at least 30% of the time.	28.8	182	4.8	Yes
2	South Willesborough East and Upper River Stour	Consumptive abstraction available at least 30% of the time.	31.7	182	22.8	No
3	Wye River Stour	Consumptive abstraction available at least 30% of the time.	123.3	182	75	Yes
4	Horton River Stour	Consumptive abstraction available at least 30% of the time.	165.2	182	32.5	Yes
5	Vauxhall River Stour	Consumptive abstraction available at least 30% of the time.	151.7	182	10.7	Yes
6	West Stourmouth River Little Stour	Consumptive abstraction available less than 30% of the time.	154.5	54	49.7	No
7	Hacklinge North and South Streams	Consumptive abstraction available at least 30% of the time.	6.9	365	1.3	No
8	Dover River Dour	Consumptive abstraction available less than 30% of the time.	89.8	29	11.5	Yes

Table 3 HOFs for the assessment points of the Stour CAMS.

Assessment Points at a glance

AP1, Chart Leacon – Upper River Stour

The Chart Leacon assessment point represents the Upper River Stour between Lenham and Chart Leacon as it gains spring flow from the Chalk and Lower Greensand aquifers and enters the clay valley nearer to Ashford. This area is assessed as “no water available for licensing”, which means that we need to protect low flows at this AP and those further downstream in order to protect the ecological status of the river. Existing licensed abstractions in this area are controlled by HOFs to protect downstream needs.

Base flow to the river supported by spring flow from the Lower Greensand and Chalk aquifers is under pressure from existing groundwater abstractions. Surface water flows are under pressure from licensed surface water abstraction attributed to agricultural activity. Any applications for ‘consumptive’ abstraction from this unit, either from ground or surface waters, are unlikely to be successful. However, all licence applications will be fully assessed and in some circumstances abstraction might be possible. It is highly likely that this will be constrained by conditions designed to restrict abstraction when there is insufficient flow to support existing abstraction and the needs of the river’s ecology.

AP2, South Willesborough – East and Upper River Stour

The East Stour receives some spring flow from the Chalk and Lower Greensands, but much of its course and the courses of the Ruckinge Dyke and Whitewater Dyke pass over the less permeable Weald Clay. This gives rise to a more flashy flow regime, responding quickly and suffering from low flows between periods of significant rainfall. This means that applications for consumptive abstraction are unlikely to be successful, and would at the least almost certainly be controlled using HOFs, perhaps using our flow gauging station at Wye as a reference.

In catchments such as this, in which regular flow cannot be relied upon at all times, the development of water storage facilities can allow a water user to secure supply and buffer periods of water stress.

AP3, Wye – River Stour

By Wye, downstream of Ashford, the flows of the Upper and East Stour Rivers have combined. However, despite this increase in total flow, existing abstraction licences and new applications for consumptive abstraction are carefully assessed and controlled in order to protect other water users and the ecological status of the downstream reaches of the Stour.

AP4, Horton & AP5, Vauxhall – River Stour

These assessment points take in the River Stour between Wye and Vauxhall Bridge in Canterbury. Downstream of Wye, Chalk becomes the dominant geology of the Stour. This strong influence of the Chalk is seen in the significant proportion of flow represented by base flows, and the reduced responsiveness of the river when compared to those APs further upstream.

Some licences have HOFs linked to our gauging station at Horton, but there is still some difficulty in quantifying the impacts that groundwater abstractions can have on the flows of the Stour in this section.

Each licence application is assessed on its own merits, but this area has been assessed as “no water available for licensing”. Unrestricted applications for consumptive abstractions that place additional pressure on groundwater resource and river flows are unlikely to be successful.

AP6, West Stourmouth – River Little Stour

This assessment point encompasses two reaches with very different characteristics; those being the Little Stour and the Wingham River. The Wingham River picks up baseflow from the Lower London Tertiaries, as well as a significant contribution to flows from a sewage treatment plant discharge. The Wingham River’s confluence with the Little Stour is downstream of Seaton.

The upper reach of the Little Stour, the Nailbourne, is an ephemeral bourne and is dependent on groundwater spring/ seepage (baseflow) originating from the Chalk aquifer. As a consequence flow

in the Nailbourne is correlated to groundwater levels in the underlying Chalk aquifer, with higher levels corresponding to higher flows. The permanent (perennial) source of the Little Stour is recognised as Well Chapel Springs, and from here the river flows through the villages of Littlebourne and Wickambreaux to Seaton. Most of this stretch of the river was realigned, having been altered in the 18th and 19th century with the introduction of mills as there was a need to increase the 'fall' of the river so as to increase the mills' operational capacity

As a consequence, the present course of the river is in part raised in elevation above the original channel and leakage through the bed now occurs as the river is no longer supported by groundwater. We see this manifest as a reduction in flow in the reach dominated by the mills, and in the most extreme scenarios the river has dried 5 times between 1989 and 1999. For this reason, the Little Stour is the subject of investigation under our Restoring Sustainable Abstraction programme to identify possible options so as to reduce the frequency, duration and intensity of future low flow events.

With this in mind, an application for further unrestricted consumptive groundwater or surface water abstraction in this area would be unlikely to be successful without proper environmental controls.

AP7, Hacklinge – North & South Streams

The paths of the North and South Streams have been significantly affected by human activity, with some reaches losing water to others. The upper reaches have been known to suffer from very low flows, but further downstream the surface watercourses receive more support from groundwater inflow. Downstream of Hacklinge, water is pumped via the Roaring Gutter Dyke into the slow moving network of drainage ditches and channels of the Lydden Valley.

The complexities of the channel network and the interaction between groundwater and surface waters mean that each new application must be individually assessed on its own merits.

AP8, Dover – River Dour

The River Dour drains a relatively small Chalk catchment in East Kent. The river has the characteristic traits of a small 'upland' Chalk river draining a downland catchment. The catchment is predominantly rural, although much of the watercourse is found within the urban area of Dover. The ecological value of the River Dour is underlined by the nationally important Brown Trout population that it supports, as well as the river being home for several rare invertebrate species.

The River Dour has been the subject of a programme seeking to reduce the frequency, duration and intensity of future low flow events. The objective was to lower abstraction at those groundwater sources that had the potential to reduce flow during periods in which the aquifer was stressed. Working closely with the water supplier, by shifting the pressure of groundwater abstraction in response to groundwater and flow trigger levels, we hope to lessen its impact and see an improvement in the ecology and amenity value of the river.

Catchment-wide strategy

Use of the "precautionary principle - Where there has been uncertainty over the impacts of a proposed abstraction, we have refused licences, or issued them with time limits, on the grounds of the "precautionary principle".

Encouraging Reservoir storage - Where possible, potential abstractors are encouraged to apply to take water during high flow periods, not necessarily restricted by season, to provide reservoir storage for subsequent re-use during drier months. This allows abstractors to use water for consumptive purposes during summer months when other surface water resources are unavailable.

Strategic Guidance for the Irrigation of Golf Courses - In assessing abstraction licences for golf courses, we generally allow only sufficient water for irrigating greens and tees. There is a "presumption against" the irrigation of fairways and approaches. As with licence applications this allocation of water will have to be backed by reasonable need.

4.2.2 Groundwater

Where groundwater (GW) abstractions directly impact on surface water flows, the impact is measured at the surface water AP. Restrictions may be applied to these licences.

Where groundwater abstractions are likely to impact surface water features, or reduce baseflow to a river, a Hands off Level (HoL) condition may be applied to the abstraction. This is a groundwater level below which an abstractor is required to reduce or stop abstraction.

Groundwater - Principal aquifer licensing strategy - There has been a “presumption against” further consumptive abstraction from the Chalk and Lower Greensand aquifers. The groundwater drought of the late 1980’s and early 1990’s highlighted the vulnerability of these very important water sources. In response a groundwater management policy was introduced by the Environment Agency’s predecessor organisation, the National Rivers Authority (NRA), in 1993. This embodied the general principle of prohibiting further unconstrained consumptive abstraction from the area’s principal aquifers

Licence Strategy for new and varied licenses:

Groundwater Abstraction:

Western and Eastern Chalk – There continues to be a “presumption against” the granting of licenses for abstraction from the Chalk for consumptive-use. We would also seek to secure downward variations of existing licenses, by using the criteria for the renewal of time limited licenses.

Western and Eastern Lower Greensand - There remains a “presumption against” further consumptive abstraction from the Lower Greensand aquifers. Any new or varied licence may have an ‘Antecedent Winter Rainfall Condition’. This states that the total volume of abstraction authorised for any water year (12 months from October 1st) will be dependent on antecedent (or previous) winter rainfall. For clarification, this can be exemplified as follows:

- If 100% of the long term average rainfall (1961–1990) is recorded (during the previous winter) then 100% of the annual quantity may be abstracted
- If 75% of the long term average rainfall is recorded then 75% of the annual quantity may be abstracted
- If 50% of the long term average rainfall is recorded then 50% of the annual quantity may be abstracted
- The maximum reduction will be 50% of the annual quantity

This condition allows the usage of any new or varied groundwater abstraction from this aquifer to be carefully managed in any one year. We will notify abstractors before 1 May of each year of the preceding total winter rainfall and the permitted abstraction volume.

These approaches to the consideration of new abstraction from groundwater resources within the Stour CAMS area reflect the importance of maintaining a sustainable groundwater abstraction regime. This is important not only for the groundwater as a source of water, but also for the important role baseflows have in surface watercourses and other water dependent ecosystems.

4.2.3 Level Dependent Environment

The Stour CAMS contains level dependent environments (map 4). We have divided the area into units, known as level dependent management units. We have completed an assessment on each of these units.

The surface watercourses within the freshwater marshes found in the lower Stour catchment cannot be assessed in the same way as the naturally flowing main rivers and tributaries. The amount of water within these ditches, drains and IDB watercourses is a balance between not only normal catchment processes like rainfall, spring flow and overland flows but also the operation of pumps, sluices and managed discharges to sea. Abstractions that use this water are often carefully controlled to manage very local impacts on the environment and other local water users.

The level dependent environments were assessed as 'water available for licensing'. However, the water within these units available to abstraction is supplemented through the Environment Agency's marsh feeding scheme. Under this scheme, we transfer water from the tidal reaches of the River Stour into the lower lying marshes. Our assessment therefore demonstrates that, if carefully managed through good working relationships with water users, the scheme is able to support existing water needs within the marshes.

It is important to realise therefore that this is a managed system, and our own operations as part of this management are controlled through abstraction licences, subject to environmentally protecting conditions in the same way as any other licence holder's activities. This means that we cannot guarantee a consistent supply of water during years in which the River Stour is under more stress.

The "Green-line Policy" came into force in 1992 because of the increasing pressure on resources within these level dependent environments during the irrigation season. The 'green-line' is drawn around the marshes of Chislet, Ash, Minster/Monkton and Goshall all of which receive water from the River Stour. The main points of this policy are that:

No further licences can be granted authorising increased abstraction on an annual or daily basis during the summer period from anywhere within the 'Green-line' (the limit of gravity feed from the river).

Any licences granted in the future for areas within the 'Green-line' must restrict abstraction to the winter period and, in almost all cases, this will require the applicant to provide sufficient storage to meet the full annual quantity together with any losses by evaporation or leakage.

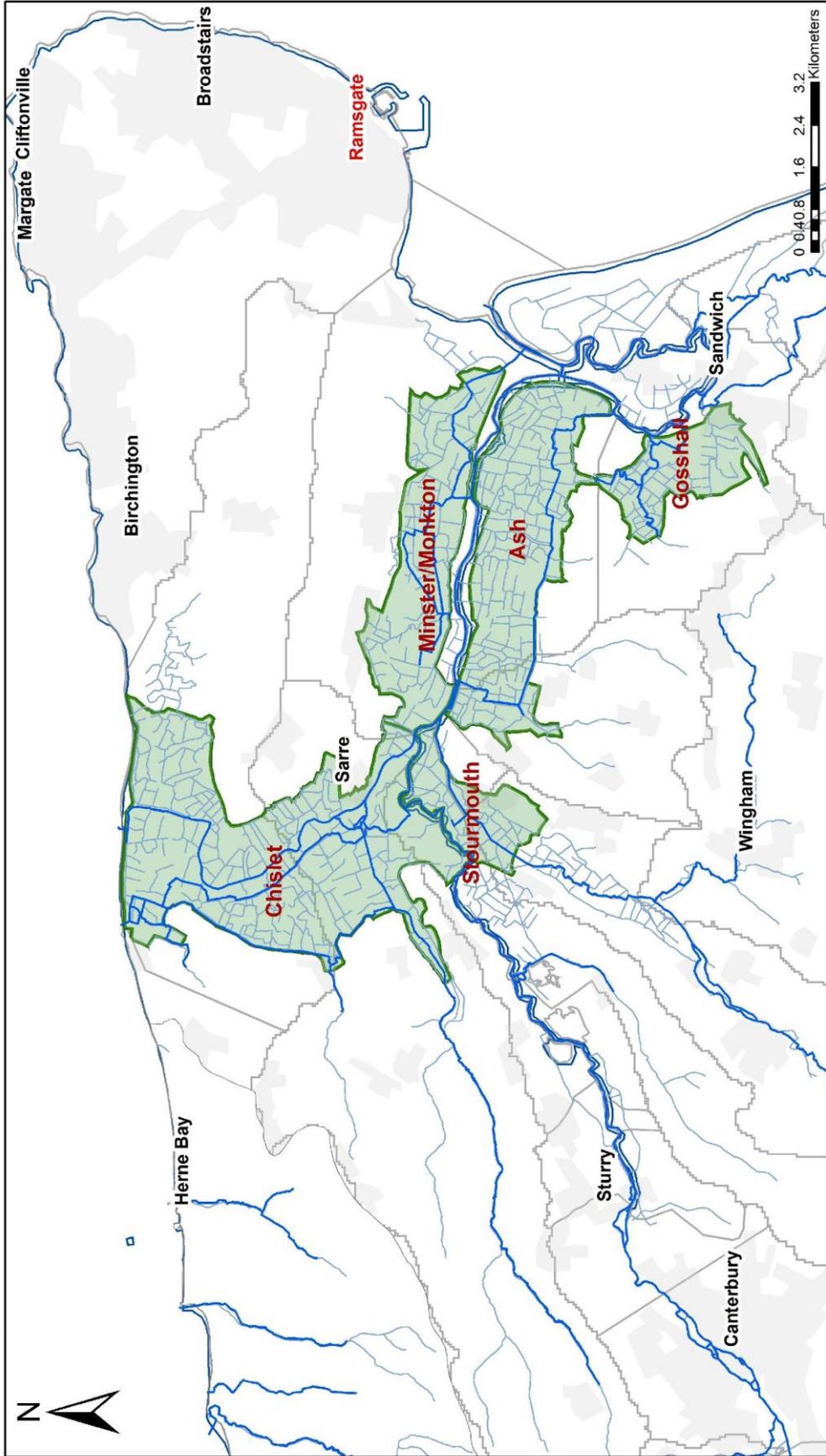
Any new abstraction from the river must be winter-only and subject to any local flow or level conditions.

4.2.4 Estuaries/coast

The River Stour flows into Pegwell Bay on the east coast. Despite having no formal assessment point, freshwater flows in the estuary provide a range of benefits, not least for migrating fish. For this reason, even within the tidal and estuarine reaches of the River Stour, an application for a new abstraction of water will always be fully assessed to ensure that wider water users and needs are taken into account and properly protected.

In addition, inland waters discharging to coastal waters also include the Chislet marsh level dependent management unit and the River Dour, which both discharge via tidal sluices. These freshwater flows, while controlled, also have a role to play in the status of the coastal waters into which they discharge and in the life cycles of migratory species just like the more clearly defined Stour estuary.

**Stour CAMS
Level Dependent Environments**



-  Rivers
-  Stour Marsh Units
-  Green Line Policy
-  Stour CAMS Water Bodies

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Map 4 Level dependant environments in the Stour CAMS

4.3 Opportunities for licence trading

We want to make it easier to trade water rights. A water rights trade is where a person sells all or part of their water right, as defined by their abstraction licence(s), to another person on a permanent or temporary basis. In the majority of cases a trade will involve a change in abstraction location and/or use which we will need to approve through the issue or variation of abstraction licences.

In licensing trades, as with new abstraction licences, we need to make sure that we do not cause any deterioration in WFD water body status both within the water body / bodies where the trade will take place or to downstream water bodies. The table below provides a guide to the potential for trading in water bodies of a particular CAMS water resource availability colour, as shown on map 2.

CAMS water resource availability colour	Our approach to trading
High hydrological regime	Opportunities for trading water rights will be limited
Water available for licensing	Allow trades of recent actual abstraction and licensed abstraction, but little demand for trading expected within water body as water available for new abstractions.
Restricted water available for licensing	There may be opportunities for licence holders to trade up to their full licensed quantities, but the quantities of water available to trade may be restricted once levels of actual abstraction reach sustainable limits
Water not available for licensing	We will only trade recent actual abstraction but no increase in recent actual abstraction is permitted in water body. Licensed abstraction will be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

To find out more about licence trading please go to our [website](#).

4.4 New Authorisations

The Water Act 2003 brought all significant water abstraction under licensing control. This will result in trickle irrigation, dewatering of mines, quarries, engineering works and construction sites, abstractions related to Internal Drainage Districts, navigation abstraction and abstraction for ports and harbour authorities and other local exemptions coming into the licensing regime.

As a result we will be able to manage water resources more effectively by ensuring that all significant activities influencing the availability of water and its impact on the environment are undertaken in a sustainable manner.

Government are still developing their policies as to how to resolve some of the issues raised during the consultation process. Government will publish their proposals before new regulations are implemented and expect to do this at least 3 months before commencement so that we can issue guidance to those affected by the changes.

Where we have details of these abstractions we have included them in our assessments to consider how they impact on the catchment.

There has been a progressive increase over recent years in 'trickle' irrigation, with trickle nearly matching spray irrigation volumes in the Kent and South London area, and there are concentrations of trickle irrigators within the Lower Stour catchment of significant size.

4.5 Restoring Sustainable Abstraction

Where water abstractions cause or potentially cause actual flows to fall short of the EFIs and result in environmental damage, we may need to change or even revoke existing abstractions in order to achieve a sustainable abstraction regime. Within the Stour CAMS there are 9 water bodies in which recent actual flows are not sufficient to support their ecology. The abstraction licences within these water bodies that cause these issues are being investigated. Investigations into the impact caused by these licences, individually or cumulatively, may result in options being developed with licence holders on how to improve sustainability. Information on how licences in the RSA programme are dealt with can be found in our [Step by Step guide](#) on our website.

Investigation of Water Framework Directive Water bodies.

In addition to the RSA programme, we are investigating whether reduced water flow may be causing problems under the Water Framework Directive (WFD). About four per cent of rivers are failing to support WFD good ecological status due to pressures from over-abstraction.

Habitats Directive

Under the Habitats Regulations we have assessed the effects of existing abstraction licences and will assess new applications to make sure they are not impacting on internationally important nature conservation sites. These sites are known as Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's). If your current licence has been reviewed under this legislation to assess its impact you will already know about the review. If we haven't contacted you yet then your licence is either not near a SAC/SPA or isn't having an impact on these sites. If our assessment shows that a new application could have an impact on a SAC/SPA we have to follow strict rules in setting a time limit for that licence. These are:

- we may be able to grant the licence but only with a short time limit. This allows us to monitor the impact of the abstraction on a SAC/SPA and change the licence if necessary;
- if we can't determine that your application will not affect the site we have to either put conditions on the licence so that it cannot affect the site or refuse the application. If we grant the licence we may ask you to monitor its impact;
- if our assessment shows that there isn't an impact on the site we will manage the application according to the principles in this document

Thank you for taking the time to read this Licensing Strategy. If you have any questions about it, or if you want to apply for an abstraction licence or make changes to a licence that you already have, then please contact us:

- by telephone on 03708 506 506
- by email at enquiries@environment-agency.gov.uk
- or visit our website at www.environment-agency.gov.uk or our [Abstraction Licensing](#) pages

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water.
Assessment Point Unit	Point at which the flow from upstream catchment is assessed.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by UKTAG.
Full licence	A licence to abstract water from a source of supply over a period of 28 days or more
Groundwater	Water that is contained in underground rocks.
Hands off flow	A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.
Hands off level	A river flow or borehole (groundwater) level below which an abstractor is required to reduce or stop abstraction.
Impoundment	An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.
Protected right	Means a right to abstract, which someone has by virtue of the small abstractions exemptions defined in the Water Act 2003 or by virtue of having an abstraction licence. The right protected is the quantity that can be abstracted up to that allowed by the exemption or the terms of the licence. The small abstraction exemptions defined by the Water Act 2003 are for domestic and agricultural purposes (excluding spray irrigation) not exceeding 20 m ³ /d.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Transfer licence	A licence to abstract water from one source of supply over a period of 28 days or more for the purpose of; <ol style="list-style-type: none"> 1. transferring water to another source of supply; or, 2. transferring water to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations (whether underground or on the surface); without intervening use.
Water body	Units of either surface water or groundwater at which assessments are completed for WFD.

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List of abbreviations

AMP	Asset Management Plans
AP	Assessment Point
ASB	Abstraction Sensitivity Bands
AWB	Artificial Water body
CAMS	Catchment Abstraction Management Strategies
CED	Common End Date
Defra	Department of Environment Fisheries and Rural Affairs
EA	Environment Agency
EFI	Ecological Flow Indicator
FL	Full Licensed (scenario)
GEP	Good Ecological Potential
GES	Good Ecological Status
GW	Groundwater
HES	High Ecological Status
HMWB	Heavily Modified Water Body
HoF	Hands off Flow
HoL	Hands off Level
LDE	Level Dependent Environment
MI/d	Megalitres per day
maOD	Metres above ordnance datum
Q95	The flow of a river which is exceeded on average for 95% of the time.
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
SW	Surface water
UKTAG	United Kingdom's Technical Advisory Group
WB	Water body
WFD	Water Framework Directive
WRGIS	Water Resources Geographical Information System

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