Upper Lee Abstraction Licensing Strategy

A strategy to manage water resources sustainably

February 2019

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Contents

1. About the licensing strategy

This strategy sets out our approach to managing new and existing abstraction and impoundment within the Upper Lee catchment in the Thames river basin district. The Upper Lee Abstraction Licensing Strategy (ALS) covers an area that drains into the River Lee from its source near Luton downstream to Fieldes Weir to north east of Hoddesdon, where the River Stort meets the Lee.

The Upper Lee catchment contains five main rivers and their tributaries: the Upper Lee, Mimram, Beane, Rib, Ash and Stort. The catchment lies predominantly on unconfined Chalk which provides much of the flow to support these watercourses. Flow rates can be influenced at different times by abstraction pressures along with seasonal and annual climatic variations.

In the eastern parts of the Upper Lee catchment the exposed chalk decreases and becomes overlain by a layer of clay, and the tributaries here (River Ash and Stort) are fed by a higher component of runoff and are therefore flashier in nature. Away from the local towns, this area supports a large number of agricultural businesses.

Our approach ensures that River Basin Management Plan objectives for water resources activities are met and we avoid deterioration within this catchment.

We apply this approach to the water body in which the abstraction is located. It also applies to all downstream surface water bodies that may be affected by any reduction in abstraction-related flow, or adjacent groundwater bodies affected by any reduction in groundwater level.

Please see Managing Water Abstraction for the technical explanation, legal and policy requirements behind the Abstraction Licensing Strategy (ALS).

Please see abstraction pages on gov.uk for advice on who needs an abstraction or impoundment licence, and how to apply.

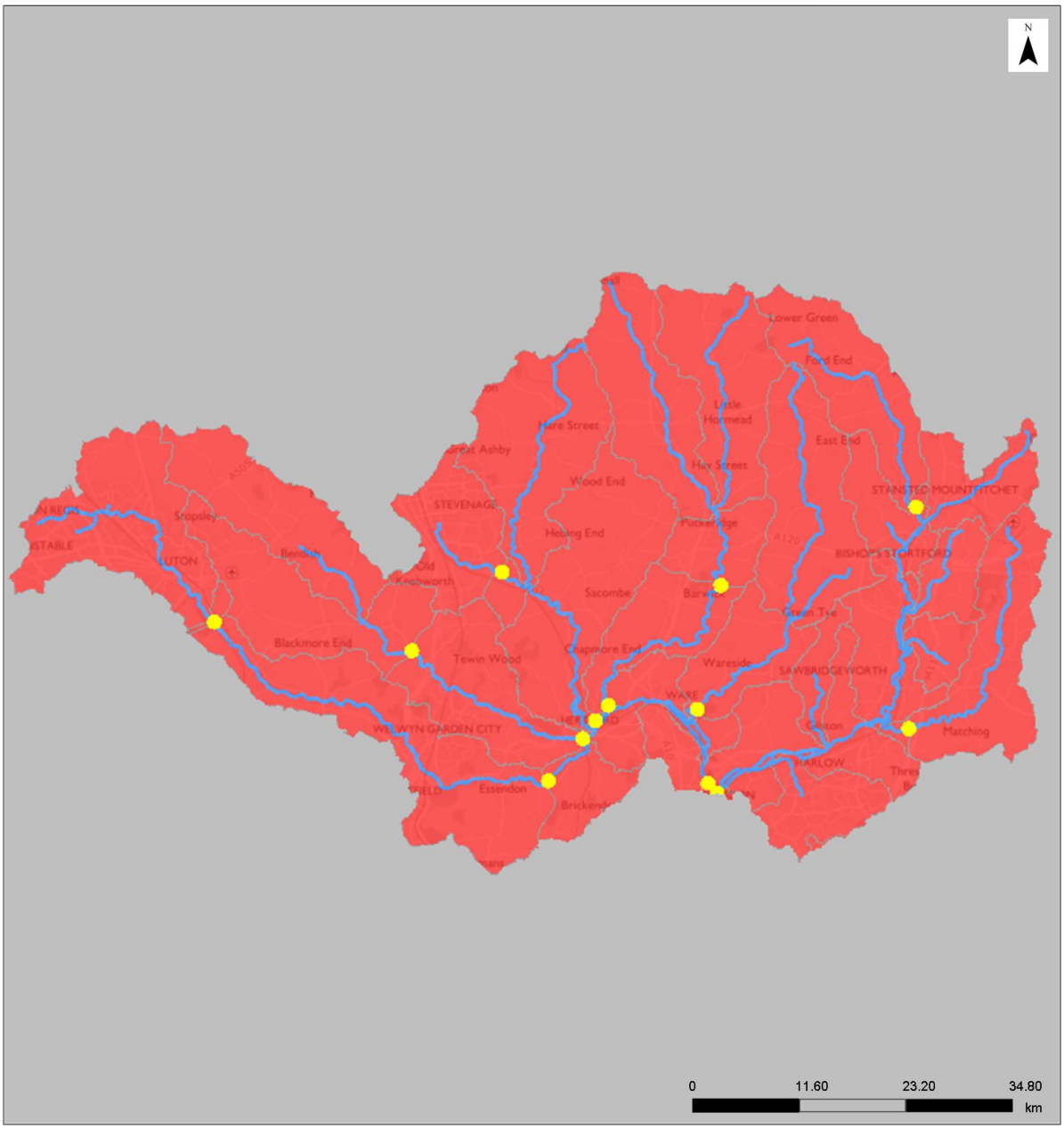
2. Water resource availability of the Upper Lee ALS

2.1. Surface Water Resource availability

River flows change naturally throughout the year, so we want to protect flow variability in our rivers from low to high conditions. We use flow statistics to help to do this. Flow statistics are expressed as the percentage of time that flow is exceeded. The water resource availability, calculated at four different flows, Q95 (lowest), Q70, Q50, and Q30 (highest). Where a Q95 is the flow of a river which is exceeded on average for 95% of the time. A Q95 is normally taken as a low flow, a Q70 is considered a summer flow, a Q30 is a winter flow, and Q50 is the mean flow. The water resource availabilities for this ALS are presented and explained in Maps 1 - 4 and section 2.1.1.

The catchment lies predominantly on unconfined Chalk, and as a result the River Lee and tributaries are mainly fed by the underlying groundwater aquifer. For this reason, in these areas water availability for groundwater is considered the same as for surface water in the Upper Lee ALS.

Map 1 Surface water resource availability colours at Q30 for Upper Lee ALS.



Legend:

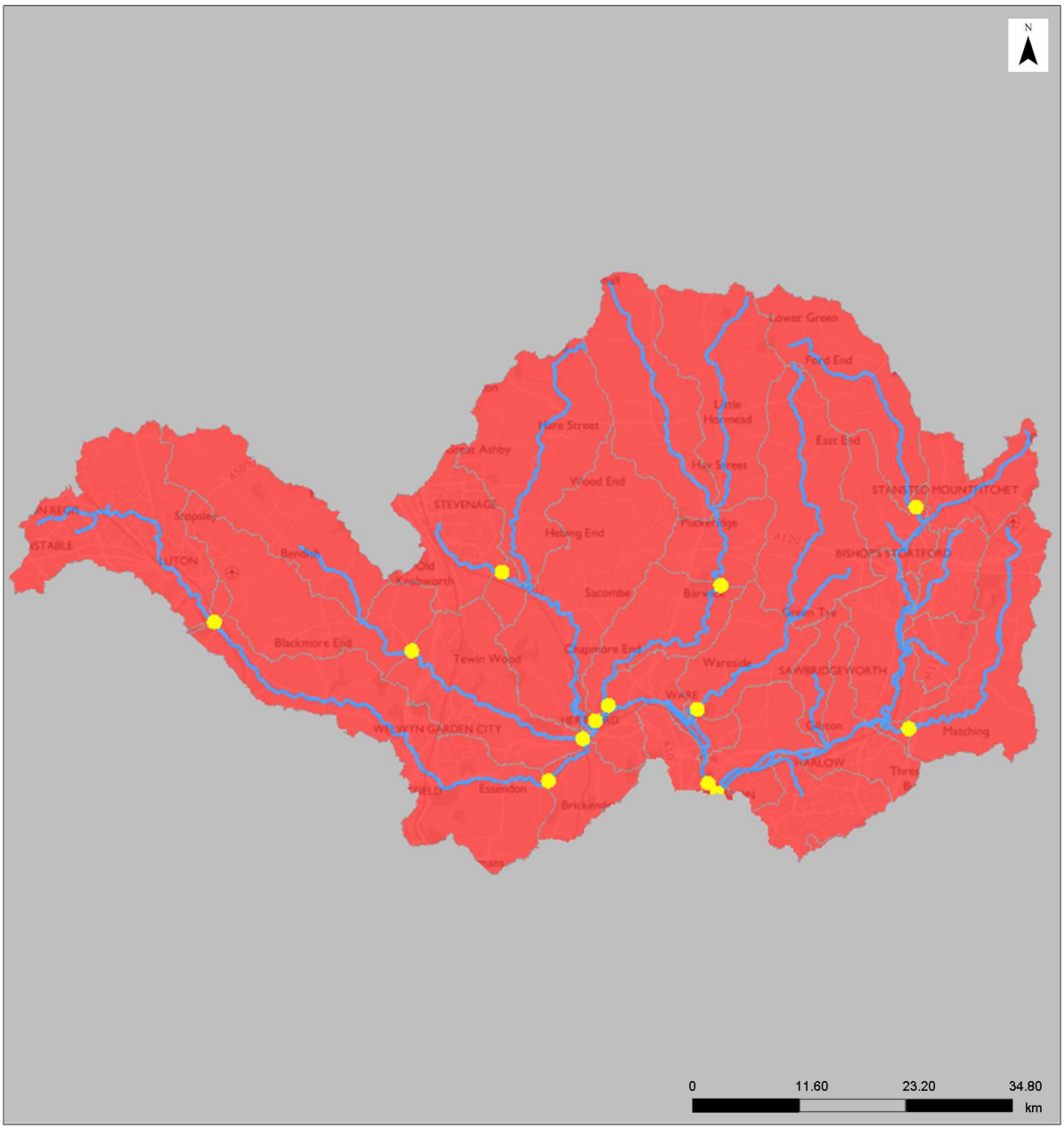
Assessment Points (names can be found in Table 1)

Rivers

Water Availability at Q30:

Water not available

Map 2 Surface water resource availability colours at Q50 for Upper Lee ALS.



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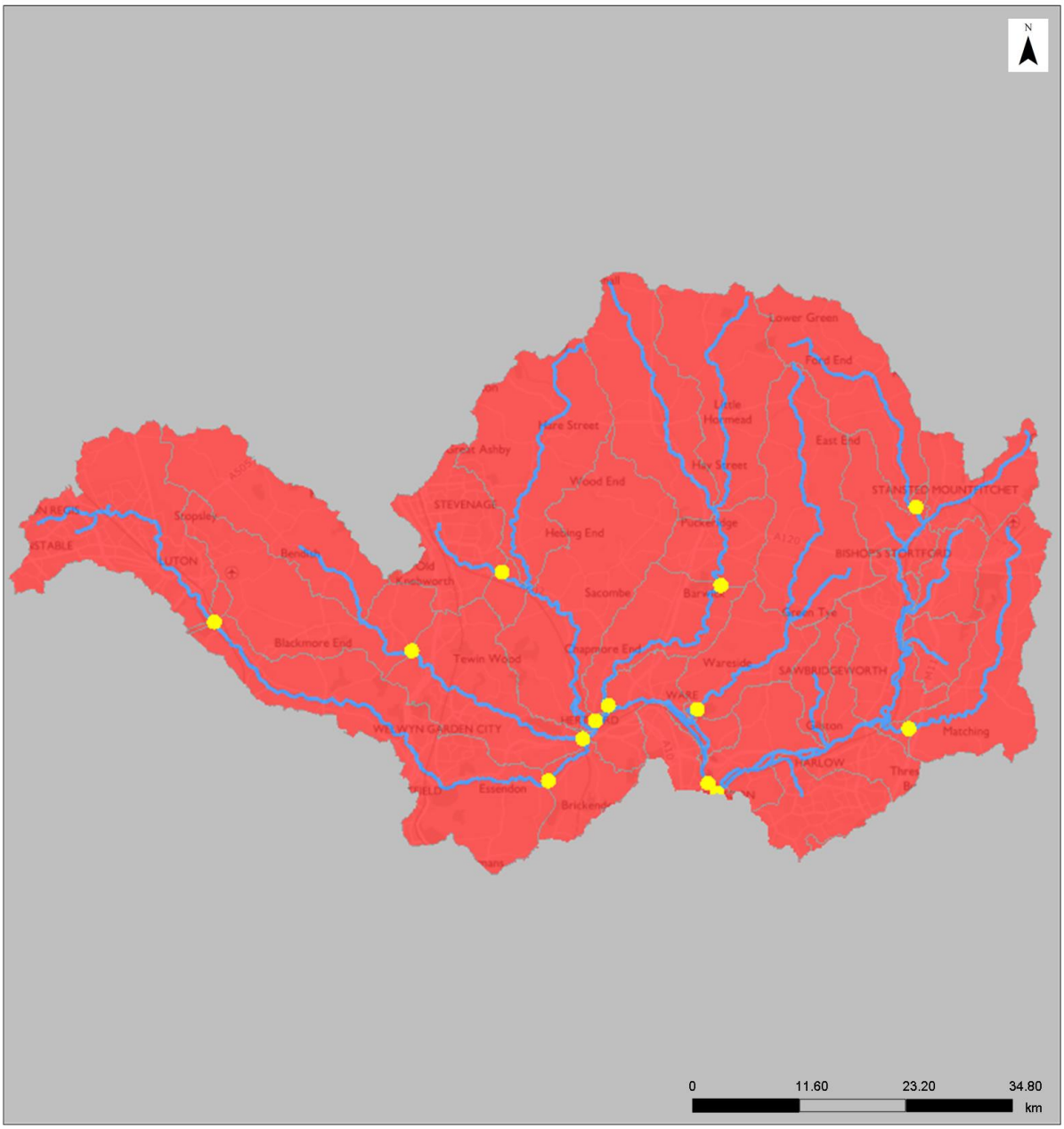
Assessment Points (names can be found in Table 1)

Rivers

Water Availability at Q50:

Water not available

Map 3 Surface water resource availability colours at Q70 for Upper Lee ALS.



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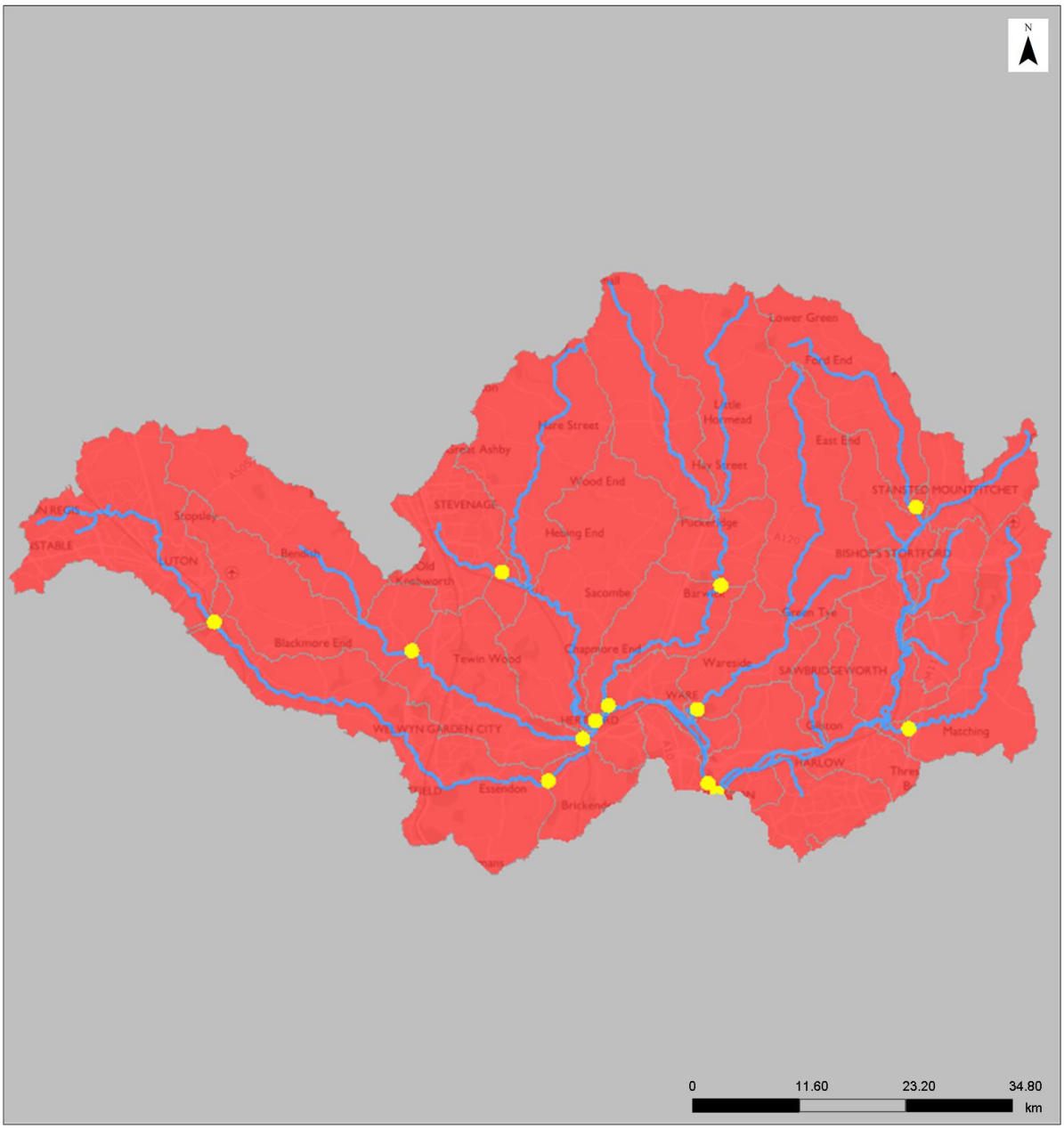
Assessment Points (names can be found in Table 1)

Rivers

Water Availability at Q70:

Water not available

Map 4 Surface water resource availability colours at Q95 for Upper Lee ALS



Legend:

Assessment Points (names can be found in Table 1)

Rivers

Water Availability at Q95:

Water not available

2.1.1. Water resource availability colours and implications for licensing

Water available for licensing

Green 

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

Yellow 

Full Licensed flows fall below the Environmental Flow Indicators 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 is likely we'll be taking action to reduce full 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

Red 

Recent actual flows are below the EFI.

This scenario highlights water bodies where flows are below the indicative flow requirement to help support a healthy ecology in our rivers. We call this 'Good Ecological Status' (GES) or 'Good Ecological Potential' (GEP) where a water body is heavily modified for reasons other than water resources.

Note: we are currently taking action in water bodies that are not supporting GES or GEP. We will not grant further licences. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.

There may be water available for abstraction in discharge rich catchments, you need to contact the Environment Agency to find out more.

2.2. Groundwater resource availability

The catchment lies predominantly on unconfined Chalk, and as a result the River Lee and tributaries are mainly fed by the underlying groundwater aquifer. For this reason, in these areas the water availability for groundwater is considered the same as for surface water in the Upper Lee ALS.

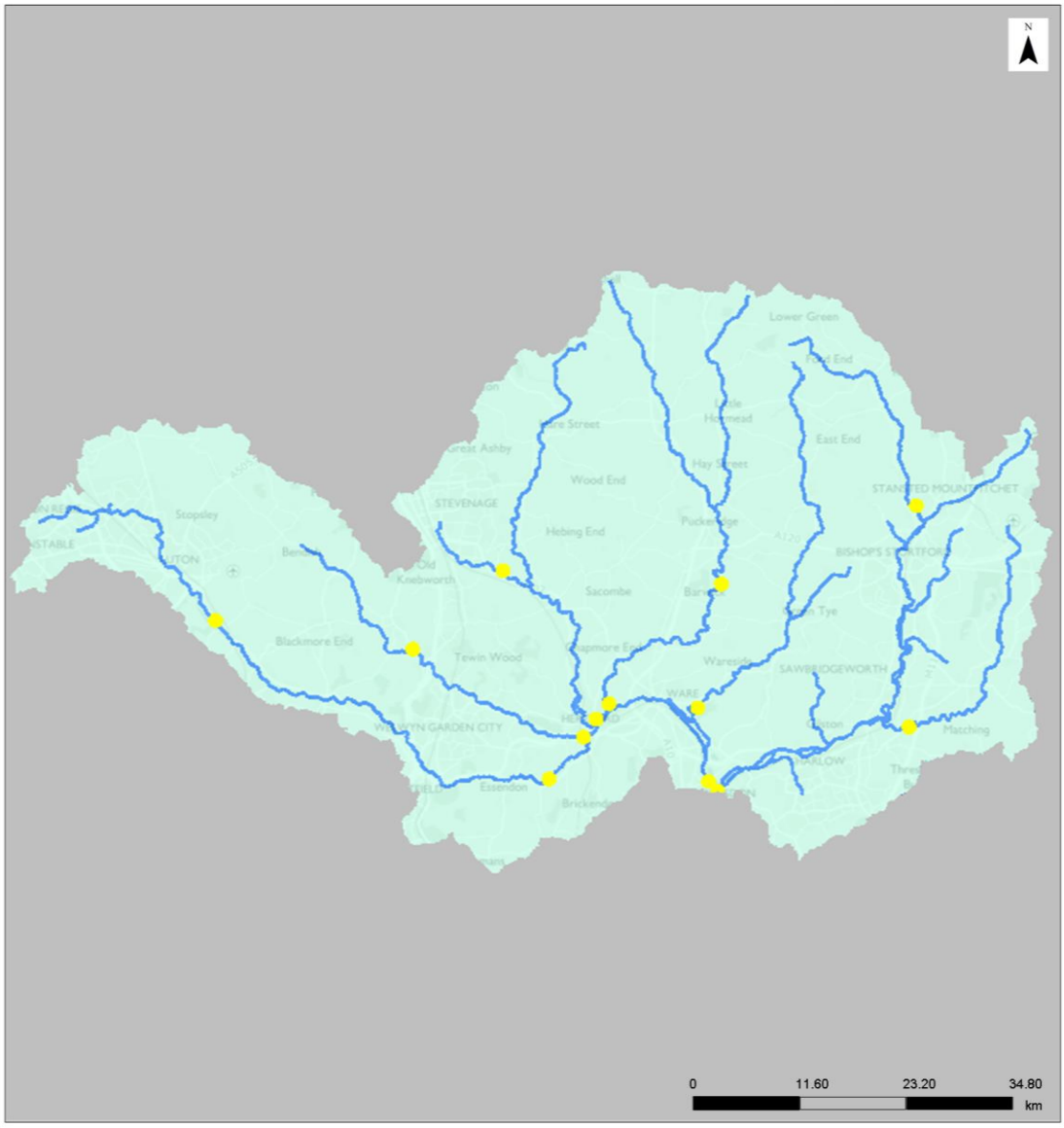
2.3. Resource reliability

If you want to apply for a licence, it's worth considering the reliability of your abstraction.

By assessing the quantity of water available at different flows it's 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 when you apply.

Map 5 gives an indication of the resource availability for consumptive abstraction in Upper Lee area expressed as a percentage of time.

Map 5 Water resource reliability of the Upper Lee ALS expressed as percentage of time available



Legend:

Assessment Points

Rivers

Percentage of the time additional consumptive resource may be available:

Consumptive abstraction available less than 30% of the time

2.4. Other considerations for availability and reliability

We may have to add constraints to licences such as 'hands off flow' (HoF) conditions to protect the environment and the rights of other abstractors. As a result, when we grant a licence, it doesn't mean that we guarantee a supply of water. These conditions specify that if the flow in the river drops below what's needed to protect the environment, abstraction must reduce or stop. So, in dry years, restrictions are likely to apply more often, which will affect the reliability of supply.

Whilst this document may say that water is available for abstraction, this doesn't guarantee that all applications will be successful. This is because we have to determine each application on its own merits, and local factors may mean we're either unable to grant a licence as applied for, or even at all. The River Lee is split at Fieldes Weir with the upstream section known as the Upper Lee and below the weir known as the Lower Lee. Flows in the Upper Lee are critical to maintaining the flows in the Lower Lee. Abstraction proposals in the Upper Lee will be assessed for any implications for the flows in the Lower Lee. This will need to be reflected in the HoF which may be assigned to any relevant abstraction proposal in the Upper Lee.

New licences within an ALS are usually given a Common End Date (CED), which allows them to be reviewed at the same time. The next CED for this ALS is 2030 and the subsequent one is 2042. As these licences will have a licencing period of over 12 years, they will require a Minimum Value Condition (MVC), to be applied to the licence as per the legislation. A Minimum Value Condition will state a value to which abstraction may be reduced when we notify a licence holder. We will not be liable to pay compensation to the licence holder for implementing the reduction. 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 and reviewed.

2.5. Impoundments

Applications for impoundments will be dealt with on a case by case basis. More information may be found on our water management web pages on gov.uk.

3. How we manage abstraction in the Upper Lee ALS

3.1. Assessment points

We assess surface water flows at Assessment points (APs), which are significant points on a river, often where two major rivers join or at a gauging station. APs cover multiple surface water bodies.

Where groundwater abstractions directly impact on surface water flows, the impact is measured at the surface water AP.

Licence variations that could result in an increase in actual abstraction, but remain within existing licensed volumes will be considered in line with our stated licensing strategy for surface or groundwater abstractions, and subject to a local impact assessment.

Table 1 gives an indication of how much water is available for further abstraction and the associated restrictions we may have to apply to new and varied abstraction licences from the main river. These figures are indicative and could be subject to further refinement when assessing a licence proposal. Tributaries to the main river may be subject to different restrictions and quantities and will be assessed locally on a case by case basis.

Each HoF is linked to an AP and is dependent on the resource availability at that AP and any potential downstream flow requirements.

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. This could be to protect a more critical AP downstream due to existing abstraction rights and/or ecological requirements of the river.

Reading from top to bottom in Table 1 are the APs in the Upper Lee ALS 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 Ml/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'll decide this on a case by case basis.

Abstractions that are considered to be non-consumptive or small scale consumptive licences that result in an overall net benefit to the water environment may be considered, subject to local impact assessment.

The availability of water is heavily restricted due to the requirement to safeguard flows for the Lower Lee which contains a sizeable surface water public water supply abstraction. Those flows which may be available are restricted to periods of very high flows. These flows may not provide a reliable source of water as they may not occur every year. An applicant will need to understand these limitations before pursuing a consumptive based abstraction proposal. The use of a water storage reservoir to store water when it's available is very likely to be required.

AP	Name	Water Resource Availability	HOF Restriction (Ml/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (Ml/d)	Is there a gauging station at this AP?
1	Rye Bridge	No Water Available for Licensing	600.6	36	117.6	Yes
2	Lower Stort	No Water Available for Licensing	225.1	44	206.9	Yes
3	Pincey Brook	No Water Available for Licensing	51.6	44	57	Yes
4	Upper Stort	No Water Available for Licensing	7.4	44	2.7	Yes
5	Ash	No Water Available for Licensing	74.8	36	52.8	Yes
6	Lower Rib	No Water Available for Licensing	118.8	36	48.6	No
7	Upper Rib	No Water Available for Licensing	106.5	36	94	No
8	Beane	No Water Available for Licensing	114.6	36	46.4	Yes
9	Stevenage Brook	No Water Available for Licensing	28	36	25.5	Yes
10	Lower Mimram	No Water Available for Licensing	89.6	36	5	No
11	Upper Mimram	No Water Available for Licensing	53.2	36	23.6	Yes

AP	Name	Water Resource Availability	HOF Restriction (Ml/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (Ml/d)	Is there a gauging station at this AP?
12	Lee to Howe Green	No Water Available for Licensing	197.5	36	103.2	Yes
13	Lee to Luton Hoo	No Water Available for Licensing	98.4	5	5.2	Yes

Table 1 Summary of licensing approach for the assessment points of Upper Lee ALS.

3.2. Groundwater

No new consumptive abstractions from the groundwater aquifer will be granted. An exemption may apply to small scale consumptive licences that result in an overall net benefit to the water environment. These proposals may be considered, subject to a local impact assessment.

3.3. Protected areas

UK law provides a very high level of protection to two types of designated sites due to their special environment. These are:

• Special Areas of Conservation (SAC), which contribute to biodiversity by maintaining and restoring habitats and species;

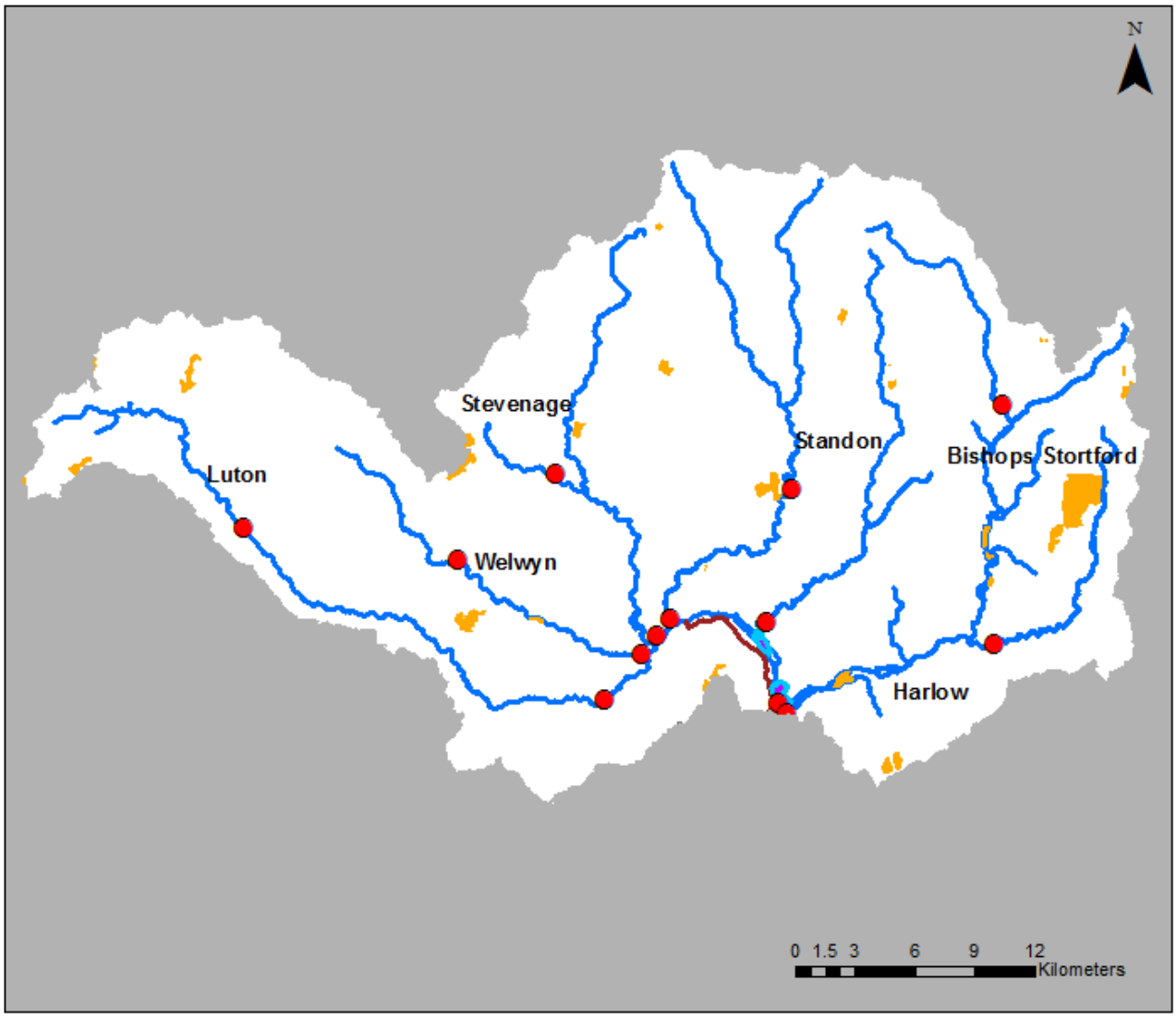
• Special Protection Area (SPA), which provides protection to birds and their nests, eggs and habitats

Ramsar sites and Sites of Special Scientific Interest (SSSI) also carry a high level of environmental importance.

The Upper Lee ALS area contains a diverse range of habitats and species including wildlife and landscape features that are dependent on water. It is rich in sites designated for their nature conservation interest, ranging from sites of local interest to those that contain species and habitats of national and international importance. The Lee Valley SPA falls partly within the Upper Lee ALS area, and is designated for its ability to support important wintering populations of gadwell, shoveler and bittern.

There are 14 water-dependent SSSIs in the Upper Lee ALS area, including rivers, wet woodlands, ponds, wet grasslands and marsh. Map 6 shows the location of these sites.

Map 6 Designated Sites in the Upper Lee catchment.



Legend:

- Assessment Points
- Rivers
- SSSI sites
- SPA sites
- Ramsar sites

4. Managing existing licences

4.1. Water rights 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 don't cause any deterioration in water body status both within the water body / bodies where the trade will take place and to downstream water bodies. The section below provides a guide to the potential for trading in water bodies of a particular ALS water resource availability colour, as shown on maps 1 - 4.

To find out more about licence trading please go to our water management web pages on gov.uk

Guide to the potential trading in water bodies of a particular ALS water resource availability colour

High hydrological regime

Blue 

Opportunities for trading water rights will be limited

Water available for licensing

Green 

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

Yellow 

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. We will not permit licence trades in water bodies where we are taking action to prevent deterioration unless the trade is consistent with achieving water body objectives.

Water not available for licensing

Red 

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.

4.2. Taking action to improve flows in rivers

4.2.1. Action being taken to improve flows in rivers in the Upper Lee ALS

Actions are necessary to improve rivers where flows are not sufficient enough to support a healthy ecology. Under the Water Framework Directive (WFD), the aim is to ensure rivers achieve 'good ecological status or potential' and that there is no deterioration from the current status. We have sought to reduce or cease certain groundwater abstractions demonstrated to impact the environment. This is aimed to improve groundwater aquifers and the surface waterbodies which are fed by these aquifers.

We're taking the following action on improving flows in the rivers in the Upper Lee ALS.

Name of River Catchment: Beane

The water body WFD classification: Poor

Abstraction near Watton-at-Stone was reduced by Affinity Water, by 16.6 Ml/d.

Name of River Catchment: Mimram

The water body WFD classification: Moderate

Abstraction near Welwyn has been reduced by Affinity Water, by up to 9.09 Ml/d.

Name of River Catchment: Lea to Luton Hoo

The water body WFD classification: Bad

Manor Park Road - geomorphological works to naturalise the River Lea in Luton, improve biodiversity, and build resilience to low flows. Affinity Water funded project, in partnership with the Environment Agency, and Luton Borough Council.

Name of River Catchment: Beane

The water body WFD classification: Poor

The Broadwater and River Beane Restoration Project - to re-establish 1.4km of chalk stream through Woodhall Park. Affinity Water funded, in partnership with Woodhall Estate, and Environment Agency.

For more information on projects in the Upper Lee catchment please visit the catchment partnership website.

4.3. Regulating currently exempt abstraction

As the abstraction licensing system in England and Wales developed over the past 50 years, certain abstractions have remained lawfully exempt from licensing control. This meant that unlimited supplies of water could be abstracted, even in areas that are water stressed.

This means that those exempt abstractions could potentially take unlimited amounts of water, irrespective of availability and without regard to impacts on the environment or other abstractors.

Following two public consultations Government have introduced new Regulations to take effect from 1st January 2018. The Water Resources (Transitional Provisions) Regulations 2017 have removed the majority of previous exemptions from licensing control, and current exempt abstractors will now require a licence to lawfully abstract water.

The main activities affected are:

- transferring water from one inland water system to another in the course of, or as the result of, operations carried out by a navigation, harbour or conservancy authority;
- abstracting water into internal drainage districts;
- dewatering mines, quarries and engineering works, except in an emergency;
- warping (abstraction of water containing silt for deposit onto agricultural land so that the silt acts as a fertiliser);
- all forms of irrigation (other than spray irrigation, which is already licensable), and the use of land drainage systems in reverse (including transfers into managed wetland systems) to maintain field water levels;
- abstracting within currently geographically exempt areas, including some rivers close to the borders of Scotland; and
- abstractions covered by Crown and visiting forces (other than Her Majesty the Queen and the Duchies of Cornwall and Lancaster in their private capacity).

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

5. List of abbreviations

ALS
Abstraction Licensing Strategy.

AP
Assessment Point.

CED
Common End Date.

Defra
Department of Environment Fisheries and Rural Affairs.

EFI
Ecological Flow Indicator.

GEP
Good Ecological Potential.

GES
Good Ecological Status.

GW
Groundwater.

HMWB
Heavily Modified Water Body.

HoF
Hands off Flow.

HoL
Hands off Level.

Ml/d
Megalitres per day.

SAC
Special Areas of Conservation.

SPA
Special Protection Areas.

SSSI
Sites of Special Scientific Interest.

UKTAG

United Kingdom's Technical Advisory Group.

WB

Water body.

WFD

Water Framework Directive.

6. Glossary

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

A significant point on a river, often where two major rivers join or at a gauging station.

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 (for example, water, treated sewage effluent) into surface waters.

Environmental flow indicator

Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by UKTAG.

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.

Impoundment

A structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.

Non-consumptive abstraction

Abstraction where all the water is returned to the same source of supply after use. There can only be a relatively short environmentally acceptable distance between the abstraction and discharge points.

Surface water

This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.

Water body

Units of either surface water or groundwater which we use to assess water availability.

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