

# **AFW Targeted Controls, Markets and Innovation**

## Appendices

March 2019





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## Appendix CMI.A1.1

### Action ref AFW.CMI.A1

#### Alignment between our rdWRMP19 and our Revised Plan: Assessment of Supply Side and Demand Side Options and collaboration on options

##### Our Regional Strategic Supply Side Option Alignment

Table A1.1 shows the regional strategic schemes that we have included within our rdWRMP19 and how they align with the schemes that the Ofwat IAP outlined as potential regional strategic options which we are including within our Revised Plan (at Gate 0).

Table A1.1 Alignment between our rdWRMP19 and our Revised Plan for our regional strategic options

Scheme Name (rdWRMP19)	Scheme Name (IAP)	(IAP) Development partners	Included in our rdWRMP strategic assessment	Selected in our rdWRMP19 'Best Value Plan'	Taken forward for Gate 0 (April 2019)
South East Strategic Reservoir and associated transfers	Abingdon Reservoir  Regional Transfer from Thames to Affinity	Thames and Southern Water	Y	Y	Y
Severn-Thames Transfer	Severn Thames Transfer	Thames, Severn Trent and UU	Y	N	Y
South Lincolnshire Reservoir and transfer	Eastern Regional Transfers	Anglian Water	Y	N	Y (Transfer only)
Grand Union Canal Transfer		Canal & River Trust, Anglian and Severn Trent Water	Y	Y	Y

Please note that the South Lincolnshire Reservoir supported element of the Eastern Regional Transfer scheme to Affinity Water from Anglian Water is subject to a review by Anglian Water in conjunction with ourselves. Currently we understand that the transfer element has been included and we are working with Anglian Water to understand if the South Lincolnshire Reservoir will be added to the scheme going forward.

Our evidence to support alignment between the rdWRMP19 and the Revised Plan is as follows:

- Table A1.1 above which sets out the alignment between the two plans with regard to the inclusion of the regional strategic options in our rdWRMP19 and within our Revised Plan tables (WS2); and

- Our rdWRMP19 references our work on the above schemes since our dWRMP19 submission. It is also aligned with the IAP on regional strategic options

The evidence from our rdWRMP can be found via key references to our rdWRMP, where the regional strategic schemes are included as follows:

- Section 4.5 Strategic supply options including table 16: Summary of potential strategic schemes for the Central region and Figure 23: Summary of our Strategic supply side options
- Section 6.4 Our adaptive strategy for the Central region including Table 22: Summary of our AMP7 enabling actions 2020 – 2023 and Table 23: Our proposed AMP7 monitoring framework

### **Our Supply Side Option Alignment**

Our rdWRMP19 includes the following AMP7 supply side schemes (which are included within our BP Tables)

- Central region: Increasing Grafham bulk supply, Lower Greensand boreholes, Brent Reservoir

### **Our Demand Side Option Alignment**

Our rdWRMP19 includes the following AMP7 demand side schemes (which are included within our BP Tables)

- Fast logging (WSP meters), concerted action on water efficiency, non-household water retailers, leakage reduction

Our rdWRMP19 sets out our demand management strategy in Section 6.2 which includes Table 20: Our most significant demand management options.

### **Selected references provided from our rdWRMP:**

See rdWRMP Section 4.0 our Appraisal of future options (pages 57 onwards)

Below is Section 4.5 Strategic supply options and rdWRMP Figure 23 (pages 63-65)

### **4.5 Strategic supply options**

Our list of feasible supply options includes six “strategic supply options”, capable of providing significant additional water resource in the mid-term. These strategic supply options require significant investment, take time to develop and need us to work collaboratively with other water companies and third parties.

Our strategic supply options are illustrated in Figure and are summarised in Table 1.

**Table 1: Summary of potential strategic schemes for the Central region**

Scheme	Development partner	Description and Options Developed
South East Strategic Reservoir	Thames Water	<p>This scheme is a relatively simple winter storage and release, where we would reserve the volume required to provide our required yield. We developed costs and updated metrics for three options which are:</p> <ul style="list-style-type: none"> <li>a. Treating 50MI/d of water at Iver</li> <li>b. Treating 50MI/d of water at Harefield</li> <li>c. Treating 100MI/d at Iver</li> </ul>
Severn-Thames Transfer	Thames Water	<p>We worked with Thames Water on the feasibility of the option to transfer water from the River Severn to the River Thames. As a result, we developed the following three possible options:</p> <ul style="list-style-type: none"> <li>a. Treating 50MI/d of water at Iver</li> <li>b. Treating 50MI/d of water at Harefield</li> <li>c. Treating 100MI/d at Iver</li> </ul>
South Lincolnshire Reservoir	Anglian Water	<p>We have discussed a number of strategic options with Anglian Water. The feasible option is for Anglian Water to build a new reservoir in South Lincolnshire, which would allow us to increase our take from Grafham. Anglian Water would then provide us with a bulk supply. We have considered two schemes (both of these represent a share of the water that might be made available):</p> <ul style="list-style-type: none"> <li>a. A 100MI/d scheme (share of a 150MI/d total yield). Under this option Anglian Water would transfer water from the River Trent to the River Witham to augment yield.</li> <li>b. A 50 MI/d scheme (share of a 75MI/ total yield). Under this option there would be no transfer from the River Trent.</li> </ul>
Minworth Effluent Transfer	Severn Trent Water	<p>This feasible option is to take treated waste water from Minworth WWTW, which is operated by Severn Trent Water, and transfer it via pipeline to our supply area and then treat it close to our existing Sundon Treatment Works. We have considered two options.</p> <ul style="list-style-type: none"> <li>a. A 100MI/d scheme</li> <li>b. A 50 MI/d scheme</li> </ul>
Grand Union Canal Transfer	Canal & River Trust	<p>We have worked with the CRT to update the costs at different levels of yield for a scheme to transfer water from Minworth WWTW and use the canal system to convey the water.</p> <p>The Canal &amp; River Trust have provided updated information for two options.</p> <ul style="list-style-type: none"> <li>a. A 100MI/d scheme</li> <li>b. A 50 MI/d scheme (this option requires significantly less engineering of the canal system itself to allow the transfer of water).</li> </ul>



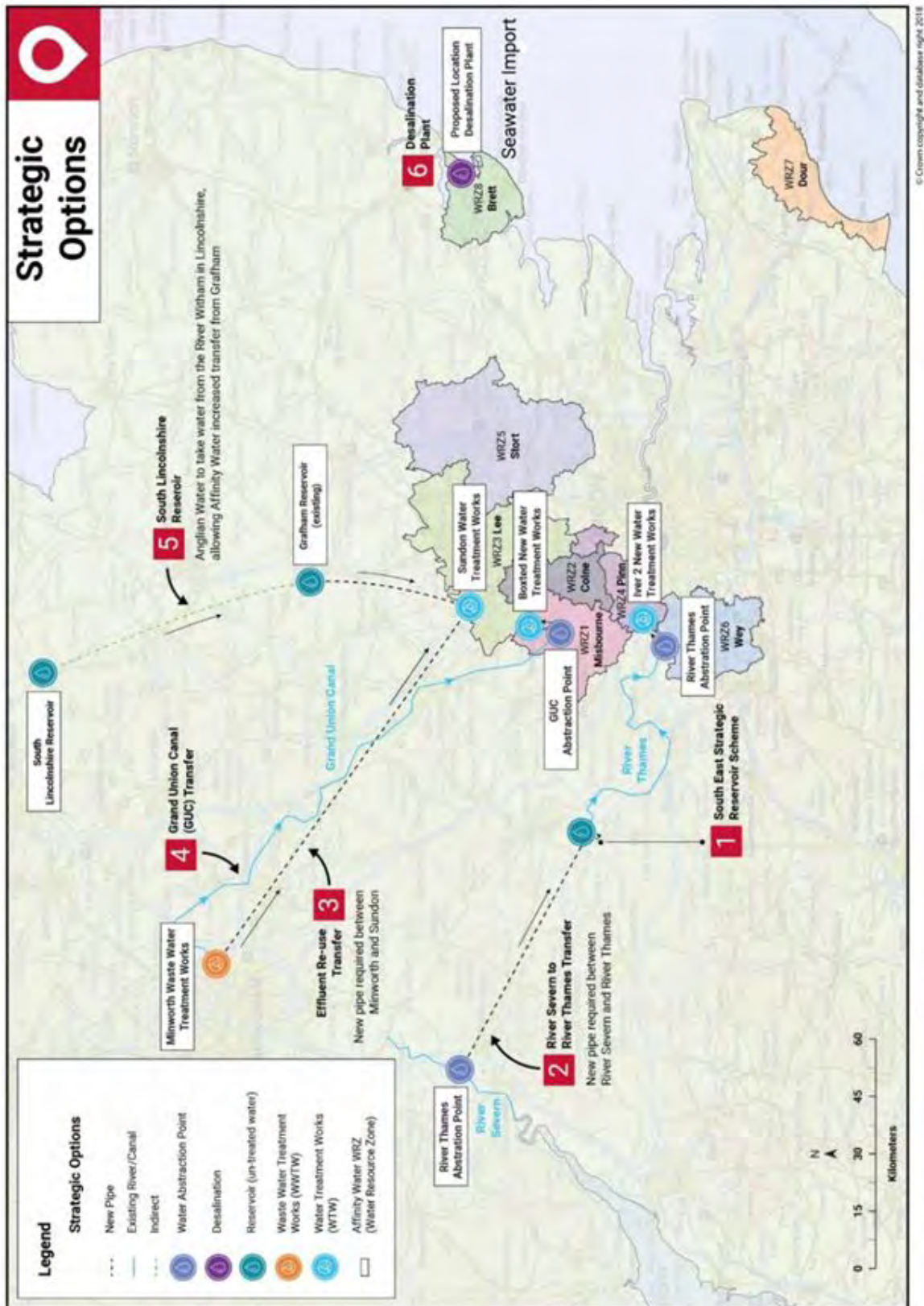


Figure 23: Summary of our Strategic Supply Side Options



## Regional neighbouring water company and third-party engagement

We have worked extensively with neighbouring water companies and third parties during the development of our rdWRMP and through our participation in both Water Resources South East and Water Resources East (regional groups).

This work has included significant coordination between ourselves and other water companies on aligning our respective rdWRMP's.

The evidence of this aspect of our option work can be found in the following places:

- Section 6.11 of our rdWRMP19 Alignment of our September Plan with other companies WRMPs. This section explains recent work to closely align our September Plan with the Thames Water and Anglian Water rdWRMPs which includes alignment on a decision gateway in 2022/23 using adaptive planning
- Technical Report 5.2 Third Party Bulk Transfers. This report provides a detailed record of our work with all of our neighbouring companies and third parties

Since the draft WRMP submission, we have met with a number of neighbouring companies and third parties to further develop our shared schemes. The table below provides a summary of the key changes between our draft and revised draft WRMP for intercompany options.

**Table A1.2 Key changes to transfer options between our dWRMP and the rdWRMP through continued work of inter-company options**

Company	Asset/Scheme	Key Change for rdWRMP
Anglian Water	Ardleigh	Confirmation of revert to 50:50 by 2024/25 for the agreement. Anglian Water to align from 2025/26 in the fWRMP.
	Grafham	Agreement on the DO profile for the rdWRMP. Used in both company rdWRMP's for full alignment inclusive of climate change.
	Sundon	The potential scheme to share existing resources from Grafham has been removed from both rdWRMP's.
South East Water	Barham Import	The option to increase the existing Barham scheme has been included in our rdWRMP19 and will be aligned in the South East Water fWRMP.
	Egham Export	Both companies are presenting the option to reduce the existing export to South East Water by 10MI/d between 2020 and 2030 in the WRP tables.
Thames Water	South East Strategic Reservoir (SESR)	The costs and development period of the SESR (shared 1/3 Affinity Water and 2/3 Thames Water, with the same 15 year development programme). Adaptive planning decision point has been agreed for 2022/23.
	Ladymead Import	The option to increase Ladymead has been removed from both WRMP's.
	Fortis Green Import	Alignment on 12 MI/d DYAA and DYCP with the additional 15 MI/d (27MI/d licence) represented as an option in our rdWRMP.

We are continuing to work closely with the Canal River Trust (CRT) and RWE Didcot on the following third party and water trading options:

- Brent Reservoir – Brent Reservoir and Slough Lower Greensand borehole, both are owned by the CRT
- RWE Didcot Water Trading option – a cross sector water trading option with the energy sector





## Appendix CMI.A1.2

### Action ref AFW.CMI.A1

#### rdWRMP19 Consultation and Engagement Plan

Stakeholder engagement is an on-going process throughout the development of the WRMP19. For the rdWRMP, there are two distinct consultation phases:

##### 1. Pre-consultation phase (1 November 2018 - 20 February 2019)

Following the publication of our dWRMP Statement of Response on 31 October 2018, the rdWRMP pre-consultation focuses on gathering information from third parties to build better understanding of options; gain support, views and early feedback on approach to inform the rdWRMP19 and ensure alignment with neighbouring companies' respective plans.

##### 2. Further consultation phase (1 March 2019 – 26 April 2019)

This phase of engagement builds from previous engagement by consulting on the published revised draft Water Resources Management Plan (rdWRMP19) and focuses on presenting aspects of the plan which have changed since draft WRMP19. We will, however, also consider any comments made about any aspects of the rdWRMP19. The objective of this phase is to demonstrate we've listened, seek an endorsement of the rdWRMP19 and where possible develop partnerships going forward.

*The key rdWRMP19 engagement activities/meetings/events planned are summarised below:*

<b>Pre-consultation phase (1 November 2018 - 11 Feb 2019)</b>				
<b>Date</b>	<b>Engagement with Stakeholder</b>	<b>Engagement Objectives</b>	<b>AWL Lead</b>	<b>Attendees (See key at bottom of table)</b>
<b>November 2018</b>				
9 <sup>th</sup>	Meeting with EA	Technical meetings to discuss rdWRMP approach, strategic options and EBSD Decision making process	MI	AWL: MI, DH, NH, AF, RC, IK EA: Tom Nichols, Rudi Liu
20 <sup>th</sup>	Meeting with CCG Sub-group	Establish terms of reference of group. Discuss approach to pre and further consultation and customer engagement.	MI	AWL: MI, EM, RH, AW CCG: Karen Gibbs, Jon Sellars, David Cheek
22 <sup>nd</sup>	Phase 1 Customer focus groups 2 x Central Region, Watford (22 <sup>nd</sup> ) 1 x East, Clacton (27 <sup>th</sup> ) 1 x Southeast, Folkestone (28 <sup>th</sup> )	Understand customer perception and views in three key areas not fully engaged on at dWRMP stage. This includes PCC, drought resilience and strategic supply options.	EM	Independently led/chaired by Ipsos Mori, No AWL attendees.
27 <sup>th</sup>				
28 <sup>th</sup>				

various	Meeting/Calls with Thames Water	For alignment and information gathering/sharing Consultation engagement update/learning	MI/ NH	various
various	Meeting/Calls with Anglian Water	For alignment and information gathering.	MI/ NH	various
<b>December 2018</b>				
6 <sup>th</sup>	Meeting with CCG Sub-group	Discuss approach to pre and further consultation and customer engagement and awareness campaign and programme timeline.	MI	AWL: MI, EM, RH CCG: Teresa Perchard, Karen Gibbs, Jon Sellars, David Cheek
7 <sup>th</sup>	Meeting with Canal and River Trust (CRT)	Gather further information on potential CRT options and gain feedback on our proposed decision-making process and phase 2 customer engagement work.	NH	AWL: NH, RC, JS, DH CRT: Kane Horton. ?
13 <sup>th</sup>	Meeting with Anglian Water	Gathering further information to support rdWRMP	NH	NH, DH
various	Meetings/Calls with WRSE	Input to regional modelling work and seek alignment with revised draft plan when phase 5 results released in Jan	NH	NH, RC
various	Meeting/Calls with Thames Water	For alignment and information gathering/sharing Consultation engagement update/learning	MI/ NH	various
18 <sup>th</sup>	Meeting with EA	Technical meetings to discuss rdWRMP EBSD/Decision making process. Align EA understanding /expectations	MI	AWL: MI, DH, NH, AF, RC, IK, EP EA: Tom Nichols, Rudi Liu
19 <sup>th</sup>	Meeting with CCG	To discuss customer and stakeholder inputs to the rdWRMP Decision-making process.	DH	AWL: MW, DH, MI, EM CCG: Teresa Perchard, John Sellars
20 <sup>th</sup> -27 <sup>th</sup>	Set up/email invites to stakeholders for meetings in Jan 2019	Meetings set up to share approach/direction of travel with key stakeholders for early feedback or meeting requested	MI	Email (various)
<b>January 2019</b>				
various	Meetings/Calls with WRSE	Phase 5 outputs compare/align with revised draft plan	NH	NH, RC
9 <sup>th</sup>	Call with Ofwat	Call requested to brief Ofwat early of key changes in rdWRMP and alignment with Business Plan.	LS	LS, CO, DH, MI, JS
10 <sup>th</sup>	Phase 2 Customer focus groups 2 x Central Region (10 <sup>th</sup> ) 1 x East (14 <sup>th</sup> ) 1 x Southeast (15 <sup>th</sup> )	Deeper dive into strategic options to understand customer preferences and views around strategic supply options and demand option areas not fully engaged on at dWRMP.	EM	Independently led/chaired by Ipsos Mori, No AWL attendees.
14 <sup>th</sup>				
15 <sup>th</sup>				
various	Emails/Calls with Thames Water	For alignment and information gathering/sharing Consultation engagement update/learning	MI/ NH	various
15 <sup>th</sup>	Meeting with Thames Water	Technical teams – Discuss Tables alignment and approach	NH	NH, RC
21 <sup>st</sup>	Meeting with EA	Share draft rdWRMP– a key meeting to gain early feedback prior to further consultation	MI	AWL: MI, DH, NH, AF, RC, IK, EP EA: Tom Nichols, Rudi Liu

23 <sup>rd</sup>	Meeting with Hertfordshire County Council	Share key changes and gain feedback how we are assessing the need for different strategic options.	MI	AWL: MI, DH, EM Herts: John Rumble, Jon Tiley
23 <sup>rd</sup>	Webinar with Water Retailers	Opportunity to Improve dialogue and engagement with retailers on the rdWRMP and aspects which impact non-households for early feedback	MI	AWL: EM, AF, BB Water retailers TBC
Various	Meeting with Anglian Water	ANG/AWL meeting align WRMP positions	MI	AWL: DH, NH ANG: Hannah Jones, Geoff Darch
25 <sup>th</sup>	Meeting with Thames Water (CEO)	TW/AWL CEOs meeting align WRMP positions	MI	AWL: PW, MW, DH, MI, NH TW: Steve Robertson (CEO), Sarah Mcmath, Antony Owen
29 <sup>th</sup>	Meeting with Group Against Reservoir Development (GARD)	Meeting requested. Meeting to focus on stakeholder concerns and views prior to publishing rdWRMP	MI	AWL: MI, AP, NH, JS GARD: Derek Stort, John Broadbent, Helen Marshall (CPRE) TBC
30 <sup>th</sup>	River Group Forum	Following on from statement of response, Inform groups of process, potential changes and rdWRMP direction of travel. Also provide an opportunity for a tour of Clay lane works.	LN	AWL: LN, EP, EM, GC River Groups Various
<b>February 2019</b>				
5 <sup>th</sup>	Update for Consumer Council for Water	WRMP update to CC Water and early feedback/support on direction of revised draft plan.	MI	AWL: MI, CCW members incl. Sir Tony Redmond
5 <sup>th</sup>	Joint regulator/stakeholder meeting	A meeting with Defra, Ofwat, EA, DWI, Thames and Anglian for an opportunity to demonstrate the positive work undertaken post draft plans and alignment of rdWRMPs.	Defra /EA	AWL: DH, NH, MW, CO TW: Sarah McMath, Steve Spencer, Chris ANG: Hannah Jones, Geoff Darch EA: Paul Hickey, Tom Nichols, Polly Chancellor, David Howarth Defra: Margaret Read, Adrian Brookes Ofwat: Colin Green, Simon Harrow DWI: Milo Purcell
7 <sup>th</sup>	AWL meet Paul Jennings on site	Meeting requested. Meeting to focus on stakeholder concerns and views prior to publishing rdWRMP, visiting local rivers (Chess, Ver Beane Lea)	LN	AWL: CO, LN, Jake Rigg (Stonehaven) Paul Jennings, Chairman River Chess Allen Beechey, Chiltern Chalk Stream Feargal Sharkey Amwell Magna Fishery John Pritchard Ver Valley Society
8 <sup>th</sup>	Meeting with GLA	Share key changes and gain feedback/support how we are assessing the need for strategic options that will potentially impact London.	MI	AWL: MI, DH, Jake Rigg (Stonehaven) GLA: Daniel Bicknell, Abby Crisostomo,

15 <sup>th</sup>	Briefing note to Local Authorities	Following on from statement of response and LA representations to draft plan, the purpose is to Inform them of process, potential changes and rdWRMP direction of travel	MI	Email to relevant LAs
Postponed to March	Meeting with Buckinghamshire County Council	Share key changes and gain feedback how we are assessing the need for different strategic options.	MI	AWL: MI, DH, EM Bucks: TBC
11 <sup>th</sup>	CCG sub group meeting	Share customer engagement findings that informed rdWRMP19 and discuss further consultation approach and materials including the non-technical summary document.	MI	AWL: MI, EM, RH, DH/LS/MW CCG: Teresa Perchard, Karen Gibbs, Jon Sellars, David Cheek
20 <sup>th</sup>	Meeting with Natural England	Share draft rdWRMP and SEA/HRA– a key meeting to gain early sight of rdWRMP and ensure early feedback is received during the further consultation in March 2019	RC	AWL: MI, RC, AECOM NE: Sophie Temple
26 <sup>th</sup>	Submit rdWRMP to Defra	Security clearance approval before publishing on 1 <sup>st</sup> March 2019	MI	Send to Defra
1 <sup>st</sup>	Publish Plan and Launch rdWRMP awareness campaign	Seeking greater response than dWRMP and support for rdWRMP. Includes paid advertising on Facebook, link to video (rdWRMP19 overview) and using existing channels to seek views on rdWRMP.	NB/ EM/ LN	Various (Email/Web/social media)

**AWL Names:** MI (Mumin Islam), DH (Doug Hunt), NH (Nick Honeyball), AF (Andrea Farcomeni), RC (Ritchie Carruthers), IK (Ilias Karapanos), EP (Ellie Powers), AP (Affie Panayiotou), EM (Ed Mallam), RH (Rob Hutchison), NB (Nigel Beaven), LS (Lauren Schogger), AW (Ann Scutt-Webber), LN (Lina Nieto Pacheco), BB (Bernard Bradshaw), GC (Greg Cameron), Marie Whaley (MW), Chris Offer (CO), Julie Smith (JS), PW (Pauline Walsh)





### **rdWRMP19 Further Consultation and Engagement Timeline Summary**

*This phase of engagement builds from previous engagement by consulting on the published revised draft Water Resources Management Plan (rdWRMP19) and focuses on presenting aspects of the plan which have changed since draft WRMP19. We will, however, also consider any comments made about any aspects of the rdWRMP19. The objective of this phase is to demonstrate we've listened, seek an endorsement of the rdWRMP19 and where possible develop partnerships going forward.*

<b>Further consultation on rdWRMP19 (1 March 2019 – 26 April 2019)</b>		
<b>Stakeholder Group</b>	<b>Date</b>	<b>Engagement Objectives</b>
Deputy Leader and Cabinet Member for Environment for Essex County Council	04/03/19	Meeting requested to understand updates since dWRMP19 and how local issues and uncertainties have been considered such as population and housing growth and what investment is in place to improve resilience to drought.
Hertfordshire Planning Group	07/03/19	Following on from pre-consultation meeting, opportunity to present an overview of the rdWRMP and develop support on potential areas we can work together such as water efficiency and increasing awareness of support available for customers.
Online Customer Survey	11/03/19 to 20/03/19	Led by Ipsos Mori, the survey would involve sourcing 1,000 Affinity Water customers across the Affinity Water supply area to gain further insight into customer views and support of our rdWRMP19.
Thames Water - Water Resources Forum	14/03/19	To update wider stakeholder on our rdWRMP19 and further consultation and demonstrate alignment with Thames Water's WRMP where appropriate and necessary.
Hertfordshire County Council Infrastructure & Planning Partnership (HIPP)	21/03/19	Following on from pre-consultation meeting, request to present to an overview of the rdWRMP to key members to seek views and gain support of rdWRMP19 approach.
Greater London Authority (GLA) Water Advisory Group	27/03/19	To develop support and partnership on key demand management initiatives included within our rdWRMP19, this follows on from the pre-consultation meeting with GLA.
Little Kingshill Village Society	27/03/19	Requested an update on our rdWRMP19 and update on ongoing/future work on the River Misbourne.

Buckinghamshire County Council and Local District Councils (tbc)	03/04/19	Deferred pre-consultation meeting to brief wider members and relevant senior officers on updates to the rdWRMP19. Will seek views and support of rdWRMP19 approach and opportunities to work together going forward.
Water Retailers Webinar	02/04/19	Follows on from our pre-consultation event, providing more information about demand management schemes and retailer incentives.
Affinity Water Stakeholder Forum*	11/04/19	*Our main event, we are seeking to hold a wide multi-stakeholder forum which will also include breakout sessions to discuss and focus on key areas and topics of interest to stakeholders.
Existing meetings events/forums	Various	Include attending existing meeting/forums events to share an update of the rdWRMP and further consultation to seek views and support of approach.
Thames Water / Anglian Water	Various	Meetings/correspondence if required, confirm final positions for alignment purposes
Meeting with CCG Sub-group	May 2019	Discuss further consultation and engagement results and final triangulation

### **rdWRMP19 Further Consultation - Engagement materials/channels**

Method	Status	Purpose
Non-technical summary	COMPLETE	Summary of the main plan (rdWRMP), provided more information about the plan and provides opportunity to comment and give views
Leaflet	COMPLETE	Distributed 14,000 leaflets to key offices/field staff across three regions to promote/ increase awareness of further consultation
Web pages and homepage banner	COMPLETE	Webpages / Homepage banner complete to help promote/increase awareness of further consultation
Ipsos Mori Customer survey	COMPLETE	To be launched between 11 - 20 March 2019 and first report of findings due 1 April 2019.
Further consultation questions/online response form	COMPLETE	Online webform, made simpler and easier for customer/stakeholder to respond online compared to dWRMP.
Video	COMPLETE	Brief overview of rdWRMP under 2mins and call to respond to consultation
Internal comms	COMPLETE	Key messaging added from NT summary Company announcement and link to video via email, latest news item on home page of Wave, Blog, latest news updates on Yammer and weekly Round Up email, internal posters around sites and internal TV screens, Team Leader Briefing Pack for March & April.
Social media content	COMPLETE	Post on social media channels (including paid advertising) to promote/ increase awareness of further consultation
News release	Drafted	On hold to monitor campaign progress and may release late March 2019
Emails to customers	Drafted	Need to confirm with customer relations
Emails to stakeholders	COMPLETE	Sent to over 2,000 stakeholders on 1 March 2019
Monthly stakeholders email updates	Drafted	To be sent mid-March as part of BAU communication will include rdWRMP consultation reminder.
Stakeholder events and meetings	Ongoing	Drafted, meetings/event/stakeholder forum being developed/finalised.





## Appendix CMI.B1.1

### Action ref AFW.CMI.B1

#### Leakage - fast logging and commercial night use

One of the outcomes of the UKWIR zero leakage by 2050 programme of research is to: confidently quantify leakage and demonstrate when it is zero. To this end Affinity Water has been instrumental in the implementation of the fast logging approach to measuring household night use in our network. We recognised the potential of the system six years ago and have invested in the development of fast logging and encouraged the consultant Artesia to continually innovate and improve the system. The fast logging method has now been developed to a point where it can be applied to DMAs and smaller areas to assess the changes in night use on a weekly basis throughout the year. We have encouraged the publishing of any results and the methods for fast logging for use by other companies and provided data to an UKWIR project which published the best practice for fast logging to the industry.

We have also promoted innovation in assessing commercial night use in collaboration with Severn Trent Water by commissioning Artesia to improve on the 20-year old best practice methodology. The result being a new methodology for assessing and modelling commercial night use which is being published.

#### Leakage – Taskforce visits and best practice

To help identify best practice from across the industry knowledge sharing sessions were held with the following Companies:

- Anglian Water
- Essex and Suffolk Water
- Welsh Water
- Water Research Council (work at Welsh Water, Thames Water and others)
- PN Daly (work at many water companies including UU, Severn Trent)
- Arcadis (work at many water companies)
- Noise Logging SME (work at Southern Water)

The recurring themes were that success had been driven by:

- Effective use of technology, particularly improvements to noise logging techniques
- The strength of analytics to make data led decisions
- Insourcing of Technicians
- Focus on quality and not speed of repair or jobs per day
- Separate detection and strategy roles but under one common leakage owner
- CSL policies varied, no common free repair view and all had an enforceable waste notice process

All companies reinforced the message that there were no silver bullets or quick wins to be had. Improvements had been made over several years and been underpinned by tight management, control and governance







## Appendix CMI.B1.2

### Action ref AFW.CMI.B1

#### Catchment Management Activities

Affinity Water abstract water from the River Thames alongside Thames Water and South East Water. Each water company experiences similar water quality challenges from the ~11,000km<sup>2</sup> upstream River Thames catchment. In September 2010, we established the Thames Catchment Management Steering Group (TCMSG), to work collaboratively to investigate and identify interventions to reduce the impact of diffuse metaldehyde pollution. In AMP6 the remit has been extended to also include other pesticides and water quality issues as part of the Water Industry National Environment Programme. The purpose of the partnership is to share data, evidence and information, coordinate work, avoid duplication, standardise target setting, share experiences and knowledge from engagement with farmers and agronomists, and support the Environment Agency (EA) with Water Framework Directive (WFD) delivery.

The steering group meets bi-monthly to discuss progress with projects and how we can work efficiently, avoiding duplication. The group has worked to ensure that each company can lead on delivering catchment management in different areas of the Thames River Basin District (RBD). This ensures that overlap is minimised and company resources can be effectively deployed.

Through the TCMSG, each company has agreed to take the lead in different sub-catchments of the Thames to ensure the greatest coverage of catchment measures in identified high risk areas. Affinity Water has responsibility for the Colne (Hertfordshire) and Lower Wey sub-catchments within our supply area. Due to the disproportionate area of the Thames RBD within the Thames Water supply area, we also agreed to lead in the Loddon catchment which is outside of our supply area. This enables Thames Water to target resources and measures in the Upper Thames. Where overlap occurs the companies work closely to share data and information on useful farmer contacts to ensure that water company/farmer liaison is managed as appropriately as possible.

Alongside allocating responsibility for catchment management in different areas, we have developed a coordinated river sampling strategy across the Thames RBD and are sharing the data. This arrangement minimises the travelling undertaken by personnel from both companies involved (i.e. Thames Water and Affinity Water). In addition, the three companies are working collaboratively on various projects; examples include:

- Thames Water and Affinity Water sharing the costs and results of a remote sensing exercise in the Wey catchment;
- Affinity Water and South East Water, along with Natural England, jointly funding an advisor from the Hampshire and Isle of Wight Wildlife Trust to support projects in the Loddon catchment
- All three companies sharing the cost of a satellite imagery for land use risk covering the lower Thames



The TCMSG holds annual stakeholder events. Attendees over the years have included the Drinking Water Inspectorate (DWI), EA, Catchment Sensitive Farming (CSF), National Farmers Union (NFU), Chemical Regulations Division (CRD), wildlife trusts, farm advice groups, pesticide manufacturers and agronomists.

The primary aim of our project work to date has been to trial a number of different mitigation methods for metaldehyde, establish the efficacy of each approach and provide farmers and other catchment stakeholders with a variety of catchment management tools. Projects have investigated the impact on water quality of low dose metaldehyde slug pellets; product substitution (ferric phosphate pellets) across entire catchments; product substitution on high-risk fields only; biofilters and swales. We have also developed relationships with a wide range of catchment stakeholders and carried out a number of awareness raising activities.

Since the TCMSG started implementing catchment schemes in 2012, the coverage of our combined schemes has extended from 170km<sup>2</sup> to 3,494km<sup>2</sup>. This significant upscaling of measures has resulted in no exceedances of metaldehyde at Affinity Water’s River Thames abstractions in both 2017 and 2018 (see graphic below).

### Effective partnership working in action

% of samples > 0.1µg/l	2012	2013	2014	2015	2016	2017
1 Thames at Ashton Keynes	25	6	3	1	13	0
2 Thames at Hannington	21	6	9	6	13	0
3 Thames at Farmoor	40	3	7	9	10	0
4 Cherwell at Enslow	40	26	25	9	10	10
5 Thames at Dorchester	41	14	19	1	13	0
6 Thames at Reading	45	13	21	8	20	11
7 Thames at Hurley	38	9	20	4	13	0
8 Thames at Datchet	44	41	0	4	7	0
9 Wey at Shalford	26	0	12	6	0	0
10 Wey at Weybridge	22	1	6	6	0	0
11 Thames at Walton	40	9	22	7	13	0
12 Lee at Hertford	23	24	14	13	6	0
13 Lee at Chingford	30	47	41	26	13	12

Area in project (km <sup>2</sup> )	2012	2013	2014	2015	2016	2017	2018
	170	170	558	1,200	2,178	3,068	3,494



Percentage of samples greater than the drinking water standard in raw water



This is an innovative water company partnership unique in the UK. Over the course of the past nine years we have collectively gained substantial experience and understanding from working collaboratively on these projects. This partnership will continue into AMP7 with the three companies producing aligned plans for catchment management activities in the River Thames to ensure effective coverage for future schemes.



In addition, Affinity Water has a number of groundwater catchments designated as Safeguard Zones with rising nitrate trends, which pose a risk to water quality. Agriculture is a dominant source of nitrogen in many of these catchments and cost-effective catchment management programmes are required to engage farming communities and incentivise practices that minimise nitrogen loss. Affinity Water is working with farmers to encourage cover cropping in north Hertfordshire. This is an area where cover crops will benefit our water sources by capturing excess nitrate and sediment runoff. Cover crops can also benefit your farming system by improving soil health and will also benefit the wider environment. To achieve this we are working with EnTrade (Wessex Water) to pilot a reverse auction using the EnTrade catchment-trading platform to encourage a greater uptake of cover crops with the objective of reducing nitrate leaching to groundwater in our affected groundwater catchments in Hertfordshire. We also identified a neighbouring water company that has nitrate affected groundwater catchments adjacent to our supply area and are working collaboratively to extend our pilot area to incorporate their nitrate affected catchments. The first auction will take place in May 2019 with cover crops being drilled in the Autumn/Winter 2019. The outcome of this pilot will support both Affinity Water's and the other water company's WINEP schemes for nitrate. We will also seek to engage with other water companies in the South East to expand this scheme to a regional-scale as part of our AMP7 scheme if successful.





## Appendix CMI.B1.3

### Action ref AFW.CMI.B1

#### Summary table of research, innovation and collaboration activities on Water Quality

Area	Activity	Evidence
Research	<p>DWI requests to provide samples / data for DWI partner lead research</p> <p>UKWIR – various projects where we are on the project steering group</p> <p>Laboratory – provision of cryptosporidium slides for the national reference laboratory research, development of novel testing with partners.</p>	<p>Requests from DWI on a day to day basis for contacts to ask for support; Jan 19 agreed to support project Viruses in Groundwater by provision of access to data, sites and sampling.</p> <p>UKWIR -WRc led Disinfection Toolbox, Protecting WQ in the Home</p> <p>Development of PCR techniques for cryptosporidium oocysts requires lots of slides. Out lab is signed up to provide as required.</p> <p>Work with IDEXX and Endotox to conduct trials for repeatability and precision</p>
Innovation	<p>Participation in WUK task &amp; finish groups</p> <p>Leading and participation in WRAS task &amp; finish groups</p> <p>TAG – Cranfield based research group</p> <p>Potable Water Network Group – Cranfield based research group</p> <p>Trial of new monitors to aid development eg Bacmon</p> <p>Installation of new processes to assess feasibility</p> <p>Expert support for BSi standards</p>	<p>Slow Sand filter and disinfection / turbidity T&amp;F groups/ metaldehyde T&amp;F / DWTS T&amp;F</p> <p>Attendees / chair of Harbours T&amp;F group, Performance T&amp;F, Compliance Review Group, WC T&amp;F group,</p> <p>Attendance and participation at TAG &amp; PWNG meetings with support for trials and data provided.</p> <p>Installation of BacMon, SpeedyBreedy and other on-line rapid detection / novel identification monitors – predominantly on surface works.</p> <p>New volute installation at Royden to reduce tinkering of waste</p> <p>Participation on standards groups for fire sprinkler systems, microbiological and chemical testing for BSI and BRE.</p>
Collaboration	<p>Participation in WUK networks eg Drinking water quality network, Public Health Network, Strategic WQ Network,</p>	<p>Attendance at meetings by WQ SLT</p>



	<p>Drinking Water PAG, DWSP</p> <p>Attendance on WRAS groups</p> <p>Annual meetings with Anglian, Thames, Cambridge, Southern, South East, Essex &amp; Suffolk, IWNL to discuss WQ and share data / information</p> <p>EA groundwater monitoring programme</p> <p>Scientific services based industry groups</p> <p>Public Health England &amp; Food &amp; Water Groups</p>	<p>Chair of WRAS Technical Committee and non-exec director.</p> <p>Annual meeting to share DWSP data and data on cross boundary supplies. Opportunity to share information regarding R&amp;D, innovation and industry changes in WQ.</p> <p>Quarterly visits with EA to our groundwater sites to allow sampling to inform their groundwater monitoring programme.</p> <p>Attendance at national water industry laboratories groups with DWI, UKAS and commercial labs. Participation in the sampling and industry reservoir groups.</p> <p>Attendance at Health and Local Authority lead meetings and reciprocal attendance at water company health liaison meetings (TWUL &amp; ANG).</p>
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